SIEMENS

Service Manual

HiPath 3000
Version 1.2-3.0

April 2002

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Warning

Hackers who unlawfully gain access to customer telecommunications systems are criminals. Currently, we do not know of any telecommunications system that is immune to this type of criminal activity. Siemens Information and Communication Networks, Inc. will not accept liability for any damages, including long distance charges, which result from unauthorized use. Although Siemens has designed security features into its products, it is your sole responsibility to use the security features and to establish security practices within your company, including training, security awareness, and call auditing.

Siemens sales and service personnel, as well as Siemens business partners, are available to work with you to help you guard against this unauthorized use of your telecommunications system.

April 2002

Job No. 5196

Request Siemens publications from your Siemens representative or the Siemens branch serving you. Publications are not stocked at the address below.

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Major New Features in Version 3.0 of HiPath 3000

Unless otherwise indicated, the new features listed below are available in Version 3.0.

- HiPath 3000 V3.0 is the IP convergence platform for small and medium-sized business. The new version optimizes the use in IP environments and its expansion capabilities increase the range of possible uses.
  Starting with Version 3.0, all models in the HiPath 3000 system family (not HiPath 3250 and HiPath 3150) can be operated either as conventional telecommunications systems (TC systems) or as IP systems only. In this case, the IP station connects directly to the HiPath HG 1500 boards. Table 2-6 on page 2-21 lists the resulting capacity limits.
- New boards

HiPath 3750	HiPath 3700	HiPath 3550	HiPath 3350	HiPath 3500	HiPath 3300	HiPath 3250	HiPath 3150
				ANI4R*			
HXGM2		HXGS2		HXGSR2			
			IVMP8		IVMP8R		
				TMGL4R[1]			
				TST1[1]			

* for U.S. only

- Call Management: The number of possible call destination lists has been increased (Section 7.3.4 on Page 7-65):
  - From 70 to 376 for HiPath 3550 and HiPath 3500.
  - From 70 to 500 for HiPath 3750 and HiPath 3700.
- The maximum number of Team/Top configurations for HiPath 3750 and HiPath 3700 has been increased from 150 to 500 (see Section 7.12.14 on Page 7-393).
- SMR-3 and later: New telephone family optiPoint 500 with new adapters and add-on devices (see Section 9.2 on Page 9-3).
- Information on configuring IP Workpoint clients with HiPath 3000 Manager E (Section 9.5.4 on Page 9-37).
- IP payload switching optimizes communication between LAN-based IP Workpoint Clients (Section 9.5.5 on Page 9-38).

- Information about the calculation of the required HiPath HG 1500 boards (B-channels) based on the available IP workpoint clients (Section 9.5.6 on Page 9-39).
- Information on configuring the plus product DoorCom® Analog (not for U.S.) (Section 10.4.5.1 on Page 10-22).
- New features:
  - Customer-specific display (Section 7.12.16 on Page 7-426)
  - Collect call barring for ISDN trunks (Section 7.15.24 on Page 7-541)
  - SMR-3 and later: B channel allocation (Section 7.4.6 on Page 7-164)
  - SMR-3 and later: Message waiting indication (MWI) at the trunk interface (Section 7.5.8 on Page 7-186)
  - SMR-3 and later: Automatic call completion on no reply (CCNR) on the trunk interface (Section 7.7.20 on Page 7-279)
  - SMR-3 and later: CLIP no screening (Section 7.7.21 on Page 7-280)
  - SMR-3 and later: QSig networking (not for U.S.):
    System telephone lock-reset code (Section 7.13.19.9 on Page 7-463)
    COS changeover (Section 7.13.19.10 on Page 7-464)

New Features for U.S. Only (Already Introduced in Other Countries with Version 1.2)

- To allow more application capabilities, additional housing designs were developed that are optimized for installation in 19” cabinets:
  - HiPath 3700 information
    – on setup, on dimensions and similar information (Section 2.3.5 on page 2-10)
    – on installation (Section 4.1.4 on page 4-46)
  - HiPath 3500 information
    – on setup, on dimensions and similar information (Section 2.3.6 on page 2-11)
    – on installation (Section 4.2.4 on page 4-102)
  - HiPath 3300 information
    – on setup, on dimensions and similar information (Section 2.3.7 on page 2-12)
    – on installation (Section 4.2.4 on page 4-102)
- New 19” expansion cabinet rack ECR (not for U.S. and Canada) (Section 6.4 on page 6-11), which can be equipped with
  - a battery pack (HiPath 3700, HiPath 3500, and HiPath 3300) and / or
  - an external power supply unit (EPSU2-R) for HiPath 3500 and HiPath 3300.
- New housing design for HiPath 3250 and HiPath 3150
  - Information on design and dimensions (Section 2.3.4 on page 2-9)
  - Installation procedure and connection diagram (Section 4.3 on page 4-113)

- New boards

HiPath 3750	HiPath 3700	HiPath 3550	HiPath 3350	HiPath 3500	HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
CBCPR		CBCC		CBRC		SBSCO	SBSCS
		CMA					
CMS							
				CUCR	CUPR		
IMODC							
LIM							
MMC							
		UPSC-D		UPSC-DR			
		IVMS8		HXGSR			
IVML8		TMAMF		IVMS8R			
IVML24				SLU8R			
TMCAS				STLS4R			
				TLA4R			
				TS2R			
				8SLAR			
				EXMR			
				OPALR			
				STRBR			
				UAMR			

- Implementation of Voice Mail Xpressions Compact using the boards
  - IVML8 and IVML24 for HiPath 3750 and HiPath 3700 (Section 3.3.3 on page 3-92)
  - IVMS8 for HiPath 3550, HiPath 3350 and IVMS8R for HiPath 3500, HiPath 3300 (Section 3.3.5 on page 3-100).
- HiPath cordless can be used for all systems in the product line (Chapter 11):
  - Direct connection to the $U_{P0/E}$ interfaces in the central control boards for HiPath 3550, HiPath 3350, HiPath 3250, HiPath 3150, HiPath 3500 and HiPath 3300.
  - Connection to the $U_{P0/E}$ interfaces in the SLC16 boards for HiPath 3750, HiPath 3550 and HiPath 3700. In HiPath 3750 and HiPath 3700, up to four SLC16 boards can be used.

- New features
  - Immediate call waiting if line is busy (Section 7.3.3 on page 7-62)
  - Silent Monitoring: It is possible for all stations in the system to use Silent Monitoring, not only for one (Section 7.3.14 on page 7-123).
  - Rejecting calls (Section 7.3.24 on page 7-149)
  - Storing account codes ACCT in the redial memory (Section 7.7.1 on page 7-228)
  - Keypad dialling (Section 7.7.18 on page 7-273)
  - E911 Emergency Call Service for the USA (Section 7.7.19 on page 7-276)
  - Editing the telephone number (Section 7.10.13 on page 7-348)
  - Relocate: It is possible to change the assignment between the physical telephone port and the logical station data (user profile) (Section 7.12.11 on page 7-384).
  - Storing procedures on procedure keys (Section 7.12.15 on page 7-421)
  - Call detail recording central CDRC: Call data records from external calls that were not completed can be recorded (Section 7.14.8 on page 7-488).
- Configuring BRI Trunks: CACH values will be automatically retrieved from the central office if the newly defined system wide flag *Automatic BRI Configuration* is set (page 8-31).
- optiPoint IPadapter (Section 9.5.3 on page 9-35)
  Uses a LAN (Ethernet, 10BaseT) to facilitate voice communication between an optiset E telephone and the HiPath 3000. It supports all optiset E telephone models.
- optiLog 4me (Section 9.3 on page 9-29)
  Digital, single-channel speech recording device in the optiset E design.
- optiClient Attendant - new features (Section 9.6.2 on page 9-41)
- View status of peripheral boards (page 12-14)
  HiPath 3000 Manager E or Assistant T can be used to view the statuses of all peripheral boards. There are no longer status LEDs on the central boards for HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300.
- Controlled release of remote connections (using an analog or digital modem) between HiPath 3000 and HiPath 3000 Manager E (Section 12.8.4 on page 12-35).

- New security concept (Section 12.9.1 on page 12-37)
  After initially starting up the system and during country initialization, the user can select between
  - the variable type password (default) or
  - the fixed type password.
- Extension of the ISDN Message Decoders (Section 12.5.5 on page 12-19)
  Layer 3 ISDN messages and information elements can be converted into a readable format.
- Remote administration of the HiPath 3000 using PPP (Section 13.9 on page 13-13)
  Using PPP (Point to Point Protocol), HiPath 3000 systems can be centrally administered from a service center.
- Remote administration of Plus products using PPP (Section 13.10 on page 13-15)
  Plus products can be centrally administered from a service center via HiPath 3000.

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1 Important Notices (for U.S. and Canada Only)

1.1 Safety

The following information is included in this publication for the use and safety of installation and maintenance personnel.

1.1.1 General Safety

- Do not attempt to lift objects that you think are too heavy for you; use a hand truck or get help.
- Do not wear loose clothing; tie back your hair while working on machines.
- Wear eye protection when you are working in any conditions that might be hazardous to your eyes.
- After maintenance, reinstall all safety devices such as shields, guards, labels, and ground wires. Replace worn safety devices.
- If you feel any action is unsafe, notify your manager before proceeding.
- Do not use a telephone to report a gas leak while in the vicinity of the leak.
- Ensure you are familiar with the site safety procedures of the location where you are performing installation or maintenance.

1.1.2 Safety With Electricity

DANGER
Do not take chances with your life. Follow these safety guidelines carefully.

1.1.2.1 High Voltages

- Observe all safety regulations and read the warnings, cautions, and notes posted on the equipment.
- Follow lockout/tagout (LOTO) procedures.
- Find the switch to power off the cabinet. Read the posted instructions.
- Ensure that a machine cannot be powered on from another source or controlled from a different circuit breaker or disconnecting switch.
- When a procedure requires that you power off the system:
  - Lockout the wall box-switch in the off position.

  - Attach a DO NOT OPERATE tag to the wall box-switch.

- ***Never assume*** that the power is turned off. Always test to ensure that a circuit does not have power.
- Do not work alone. Work with another person who knows the locations of the power-off switches.
- Isolate or insulate yourself from exposed circuits.
- Follow the instructions in the manual carefully, especially when working with circuits that are powered. Disconnect power when instructed to do so in the procedures.
- Disconnect all power before working near power supplies unless otherwise instructed by a maintenance procedure.
- Disconnect all power before installing changes in machine circuits unless otherwise instructed by a maintenance procedure.
- High voltages capable of causing shock are used in this equipment. Be extremely careful when measuring high voltages and when servicing cards, panels, and boards while the system is powered on.
- Be sure to remove rings, watches, and other jewelry when working with electrical circuits and components.
- Use caution when installing or modifying telephone lines. Never install telephone wiring during an electrical storm.
- Never install a telephone jack where it can get wet unless the jack is specifically designed for wet conditions.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Avoid using a telephone (other than the cordless type) during an electrical storm due to the remote risk of shock from lightning.

1.1.2.2 Equipment Room

- Look for hazards in your area and eliminate them. Examples are moist floors, ungrounded power extension cables, power surges, and missing safety grounds.
- Rubber electrostatic mats will not protect you from electrical shock. Do not use them for this purpose. Stand on suitable rubber mats to insulate you from grounds such as metal floor strips and machine frames.
- Use only tools and testers suitable for the job, approved by Siemens® Communications. Do not use worn or broken tools or testers; inspect them regularly.
- Set controls on testers correctly and use approved probe leads and accessories intended for that tester.

- The surface of a mirror is conductive. Do not touch powered circuits with a mirror. To do so can cause personal injury and machine damage.
- Do not store combustible gases or flammable materials in cabinets near the site.

1.1.2.3 Emergencies

- Ensure you are familiar with the site emergency procedures of the location where you are performing installation or maintenance.
- Be familiar with first aid for electrical shock. This includes resuscitation methods, heartbeat restoration, and burn treatment.
- Use caution if an accident occurs. Disconnect the power before touching the victim.
- If you do not know how to disconnect the power, use a nonconductive object, such as a wooden rod, to push or pull the victim away from electrical contact.
- Administer resuscitation if the person is not breathing.
- If you are trained and certified, administer cardiac compression if the heart is not beating.
- Call a rescue group, an ambulance, or a hospital immediately.

1.1.2.4 Protecting Electrostatically Sensitive Devices (ESD)

To protect electrostatically sensitive devices (ESD):

- Wear a wristband before carrying out any work on PC boards and modules. Connect the alligator clip at the end of the electrostatic wristband wire to a grounded object.
- Transport PC boards only in electrostatic packaging.
- Always place PC boards on a grounded surface before working on them.
- Only use grounded soldering irons.

1.1.3 Reporting Accidents

- Report to your manager all accidents, near accidents, and possible hazards to ensure their causes are resolved as soon as possible.
- Report any electric shock, no matter how small.

1.2 About This Book

This manual provides overview information and instructions for installing, testing, and servicing the HiPath 3000™ communications server (CS) Version 3.0, models HiPath 3750™, HiPath 3550™, HiPath 3350™, HiPath 3700™, HiPath 3500™, HiPath 3300™.

Note: Except as indicated, the abbreviation “U.S.” also refers to Canada in indications on product availability and procedures in this book (such as “for U.S. only”); the term “Listed” indicates “Certified” in Canada.

The overview information includes a general description of each model, functional and physical descriptions of system hardware, and a summary of system software.

The service information includes information for maintaining the HiPath 3000 CS, including removing, replacing, verifying, and troubleshooting system hardware components and peripheral equipment. System database recovery and manual trunk testing information are also included. The service information is written for Siemens-trained personnel who service and maintain the HiPath 3000 systems.

1.2.1 Prerequisite Knowledge

Persons installing or servicing an HiPath 3000 communications server system must have basic telephony and trunking knowledge and experience.

Safety Symbols

This manual uses the following symbols to indicate potential hazards:

Danger
This symbol warns that a situation may cause death or serious injury.

Warning
This symbol indicates hazard which may lead to serious injury.

Caution
This symbol indicates a risk of damage to hardware or software.

This symbol identifies useful information.

Additional Symbols Identifying Sources of Potential Hazard

These symbols are not generally used in this manual, but may appear on the equipment.


Electricity


Weight


Heat


Fire


Chemicals


ESD*


Laser

* electrostatically sensitive devices

1.2.2 How to Use This Book

This manual is organized as follows:

Chapter 1, Important Notices (for U.S. and Canada Only) provides safety information, general information about this book and HiPath 3000, and FCC and Industry Canada statements.

Chapter 2, System Data contains information about design and system data for each of the HiPath 3000 system models.

Chapter 3, Boards provides an overview of all boards and components used in the systems, then presents drawings and details of the boards.

Chapter 4, Installation provides the procedures for unpacking and installing the HiPath 3000 systems.

Chapter 5, Startup contains information on how to start up the HiPath 3000 systems, including supplying power, entering data, configuring the trunks, doing system programming, and performing a quick check of the system.

Chapter 6, Expanding and Upgrading the System contains information on expanding and upgrading the HiPath 3000 systems.

Chapter 7, Implementing Features provides information on features for all traffic types. For each feature, there is a definition of the feature, any model-specific data, requirements and conditions for the feature, configuration options, and procedures for programming the feature.

Chapter 8, Configuration Guidelines provides details for configuring the features.

Chapter 9, Workpoint Clients contains features and key assignments of the optiPoint 500 telephones, and descriptions of optiPoint 500 adapters.

Chapter 10, Special Equipment provides information for connecting special equipment, such as answering machines, voice mail, and entrance telephones.

Chapter 11, HiPath cordless provides system-specific cordless telephone information for the HiPath 3000 systems.

Chapter 12, Service provides information for troubleshooting and clearing faults, and for performing service and maintenance.

Chapter A, System Programming Codes, lists codes for activating and deactivating features and programming the system.

1.2.3 Related Information

Related publications include the following manuals and guides:

- HiPath 3000 System Description, G281-0670-01
- HiPath 3000 Installation Guide HiPath 3550/HiPath 3350, G281-0663-01
- Basic Documentation CD, G281-0658-01
- HiPath 3000 Assistant TC System Administration and User Manual, G281-0659-01
- HiPath 3000 optiClient Attendant Installation and User Manual, G281-0661-01
- HiPath 3000 optiset E optiPoint Attendant User Manual, G281-0660-01
- HiPath 3000 optiset E Telephones—User Manual, G281-0668-01
- HiPath 3000 optiset E Telephones—basic, G281-0662-01
- HiPath 3000 optiset E Telephones—entry, G281-0665-01
- HiPath 3000 optiset E Telephones—standard, advance plus/comfort, advance conference/conference, G281-0669-01
- HiPath 3000 optiset E memory Operating Instructions, G281-0667-01
- HiPath 3000 Analog Telephone Operating Instructions, G281-0664-01

1.3 FCC and Industry Canada Compliance

This section describes the requirements for compliance with Federal Communications Commission (FCC) Rules and Industry Canada Standard for the following Siemens system(s):

- HiPath 3000 communications server (CS), HiPath 3750
- HiPath 3000 CS, HiPath 3550
- HiPath 3000 CS, HiPath 3350
- HiPath 3000 CS, HiPath 3700
- HiPath 3000 CS, HiPath 3500
- HiPath 3000 CS, HiPath 3300

1.3.1 FCC Compliance

Service and Repairs

If you experience problems with the HiPath 3000 CS, call Siemens at 1-800-406-7656 for service and repairs.

If you experience problems with any Siemens system discussed in this section, call Siemens at 1-800-835-7656 for service and repairs.

The telephone company can ask you to disconnect the equipment from the network until the problem is corrected or until you are sure that the equipment is not malfunctioning.

1.3.1.1 FCC Rules, Part 15

Each Siemens system discussed in this section, *except the HiPath 3350,* has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

The HiPath 3350 has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

1.3.1.2 FCC Rules, Part 68

Each Siemens system discussed in this section complies with FCC Rules, Part 68. A label on the outside back of the cabinet identifies the FCC registration number, the ringer equivalence number (REN), and other information. If requested, this information must be given to the telephone company.

Disruption of the Network and T1

For networked systems using 1.544 Megabits per second (Mbps) T1 service, notify the telephone company when the equipment is disconnected from the network. If any Siemens system discussed in this section disrupts the telephone network, the telephone company can discontinue your service temporarily. If possible, the telephone company will notify you in advance. If advance notice is not practical, they will notify you as soon as possible. You will also be informed of your right to file a complaint with the FCC.

Telephone Company Facility Changes

The telephone company can make changes in its facilities, equipment, operations, or procedures that can affect the operation of your equipment. If they do, you should be notified in advance so you can maintain uninterrupted telephone service.

Nonlive Voice Equipment

Nonlive voice equipment such as music-on-hold devices and recorded announcements for systems must be approved by Siemens and registered in accordance with the rules and regulations of Subpart C of the FCC Rules, Part 68; or it must be connected through protective circuitry that is approved by Siemens and registered in accordance with the rules and regulations in Subpart C of the FCC Rules, Part 68.

REN

The REN is used to determine the number of devices that can be connected to a telephone line so that all the devices ring when that telephone number is called. In most areas, but not all, the sum of the RENs of all devices connected to a line should not exceed five. Contact the local telephone company to determine the maximum REN for your calling area.

Newly Established Network Area and Exchange Codes

The off-net routing feature, also known as the least-cost routing (LCR) software feature, which allows user access to the public switched network, must be reconfigured to recognize newly established network area codes and exchange codes as they are placed in service.

Failure to reconfigure the customer premises equipment to recognize the new codes as they are established restricts the customer and the customer's employees from gaining access to the network and to these codes.

Hearing Aid Compatibility

Telephones for emergency use and telephones installed in common areas such as lobbies, hospital rooms, elevators, and hotel rooms must have handsets that are compatible with magnetically coupled hearing aids. Persons who are not in common areas also must be provided with hearing-aid compatible handsets, if needed.

For the hearing impaired, all Siemens digital telephones manufactured after August 16, 1989, are hearing aid compatible and comply with FCC Rules, Part 68, Section 68.316.

Preprogrammed Dialer Features

When you program emergency numbers or make test calls to emergency numbers using Siemens products with preprogrammed dialer features, stay on the line and briefly explain to the dispatcher the reason for the call before hanging up. Perform these activities in off-peak hours, such as early morning or late evening.

Connecting Off-Premises Station Facilities

Customers who intend to connect off-premises station (OPS) facilities must inform the telephone company of the OPS class for which the equipment is registered and the connection desired.

Direct Inward Dialing Answer Supervision

Customers operating any Siemens system discussed in this section without providing proper answer supervision are in violation of Part 68 of the FCC rules.

- Each Siemens system discussed in this section returns proper answer supervision to the public switched telephone network (PSTN) when DID calls are:
  - Answered by the called station
  - Answered by the attendant
  - Routed to a recorded announcement that can be administered by the customer

- Each Siemens system discussed in this section returns proper answer supervision on all DID calls forwarded to the PSTN. Permissible exceptions are when:
  - A call is unanswered
  - A busy tone is received
  - A reorder tone is received

Equal Access Requirements

Call aggregators such as hotels, hospitals, airports, colleges and universities, and so on must provide the end user equal access to the carriers of the user's choice. The current equal access codes (also known as carrier access codes [CACs]) are 10xxx and 101xxxx, and 800/888 and 950, where xxx or xxxx represents the carrier identification code.

To select the carrier of choice for a call, the user dials the equal access code before dialing the called party number. Equal access is also obtained by dialing the 800/888 or 950 number of the carrier of choice.

Each Siemens system discussed in this section is capable of providing user access to interstate providers of operator services through the use of equal access codes. Modifications by aggregators to alter these capabilities are a violation of the Telephone Operator Consumer Services Improvement Act of 1990 and Part 68 of the FCC Rules.

Electrical Safety Advisory

While each Siemens system discussed in this section is fully compliant with FCC Rules and Regulations, it is recommended that an alternating current (ac) surge arrestor of the form and capability suitable for the model of the system purchased be installed in the ac outlet to which the system is connected. Consult with your Siemens representative or distributor to determine the surge protector requirements for your system.

Facility Interface Information for the HiPath 3750

The following tables list facility interfaces, manufacturer's network interface port designations, RENs or service codes, and network jacks.

- This table lists the network trunk interfaces for loop-start and ground-start services.

Facility Interface	Manufacturer's Network Interface Port Designation	REN	Network Jacks
02LS2	TMGL8	1.2B	RJ21X
02GS2	TMGL8	1.2B	RJ21X
02RV2-T	TMDID8	0.0	RJ21X

- This table lists the station interfaces for analog private line (PL) services.

Analog PL Facility Interface	Manufacturer's Network Interface Port Designation	Service Code	Network Jacks
OL13B	SLA16 (OPS)	9.0F	RJ21X
OL13B	SLA24N (OPS)	9.0F	RJ21X
TL11M	TIEL4	9.0F	RJ2EX
TL11E	TIEL4	9.0F	RJ2FX
TL12M	TIEL4	9.0F	RJ2GX
TL12E	TIEL4	9.0F	RJ2HX
TL31M	TIEL4	9.0F	RJ2EX
TL31E	TIEL4	9.0F	RJ2FX
TL31M	TIEL4	9.0F	RJ2GX
TL31E	TIEL4	9.0F	RJ2HX

- This table lists the network digital trunk interfaces for digital services.

Digital Facility Interface	Manufacturer's Network Interface Port Designation	Service Code	Network Jacks
04DU9-BN	TMST1	6.0P	Refer to note
04DU9-DN	TMST1	6.0P	Refer to note
04DU9-1KN	TMST1	6.0P	Refer to note
04DU9-1SN	TMST1	6.0P	Refer to note
Note: Always use this product with network channel terminating equipment that specifies the jack to use.			

- This table lists the answer supervision codes for network DID interfaces.

Digital Facility Interface	Manufacturer's Network Interface Port Designation	Service Code	Network Jacks
02RV-T	TMDID	AS.2	RJ21X
04DU9-BN	TMST1	AS.2	Refer to note
04DU9-DN	TMST1	AS.2	Refer to note
04DU9-1KN	TMST1	AS.2	Refer to note
04DU9-1SN	TMST1	AS.2	Refer to note
Note: Always use this product with network channel terminating equipment that specifies the jack to use.			

Facility Interface Information for the HiPath 3550

The following tables list facility interfaces, manufacturer's network interface port designations, RENs or service codes, and network jacks.

- This table lists the network trunk interfaces for loop-start and ground-start services.

Facility Interface	Manufacturer's Network Interface Port Designation	REN	Network Jacks
02LS2	TMGL4	0.4B	RJ21X
02GS2	TMGL4	0.4B	RJ21X

- This table lists the station interfaces for analog private line (PL) services.

Analog PL Facility Interface	Manufacturer's Network Interface Port Designation	Service Code	Network Jacks
OL13B	8SLA (OPS)	9.0 F	RJ21X
OL13B	4SLA (OPS)	9.0 F	RJ2GX
OL13B	SLA24N (OPS)	9.0 F	RJ21X

- This table lists the network digital trunk interfaces for digital services.

Digital Facility Interface	Manufacturer's Network Interface Port Designation	Service Code	Network Jacks
02IS5	TMQ4 board	6.0 Y	RJ49
04DU9-BN	TST1	6.0 P	Refer to note
04DU9-DN	TST1	6.0 P	Refer to note
04DU9-1KN	TST1	6.0 P	Refer to note
04DU9-1SN	TST1	6.0 P	Refer to note
Note: Always use this product with network channel terminating equipment that specifies the jack to use.			

Facility Interface Information for the HiPath 3350

The following tables list facility interfaces, manufacturer's network interface port designations, RENs or service codes, and network jacks.

- This table lists the network trunk interfaces for loop-start and ground-start services.

Facility Interface	Manufacturer's Network Interface Port Designation	REN	Network Jacks
02LS2	TMGL4	0.4B	RJ21X
02GS2	TMGL4	0.4B	RJ21X

- This table lists the station interfaces for analog private line (PL) services.

Analog PL Facility Interface	Manufacturer's Network Interface Port Designation	Service Code	Network Jacks
OL13B	8SLA (OPS)	9.0 F	RJ21X
OL13B	4SLA (OPS)	9.0 F	RJ2GX

- This table lists the network digital trunk interfaces for digital services.

Digital Facility Interface	Manufacturer's Network Interface Port Designation	Service Code	Network Jacks
02IS5	TMQ4 board	6.0 Y	RJ49

1.3.2 Industry Canada Compliance

The following are notices required by Industry Canada Terminal Attachment Program Procedure DC-01(E), Procedure for Declaration of Conformity and Registration of Terminal Equipment, Section 6.4.

1.3.2.1 Ringer Equivalence Number (REN)

NOTICE: The Ringer Equivalence Number (REN) for this terminal equipment is 0.4. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five.

1.3.2.2 Equipment Attachment Limitations

NOTICE: This equipment meets the applicable Industry Canada Terminal Equipment Technical Specification. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

DANGER
Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate

2 System Data

2.1 Overview

Chapter Contents

This chapter discusses the following topics:

2.2 Introduction

Elctrical environment

HiPath 3000 is intended for use in dwellings, businesses, and industry. When the system is operated in an industrial environment, additional measures may be necessary for ensuring immunity from electromagnetic radiation (refer to Section 2.9.4, Environmental Conditions, on page 2-28).

Models in the HiPath 3000 System Family

With their individual housing constructions and variable connection options, the following systems cover a broad customer spectrum.

This Service manual contains information on all systems. Information on marketing individual models in different countries can be obtained at the responsible locations.

HiPath 3000 V3.0 is the IP convergence platform for small and medium-sized business. The new version optimizes the use in IP environments and its expansion capabilities increase the range of possible uses.
Starting with Version 3.0, all models in the HiPath 3000 system family (not HiPath 3250 and HiPath 3150) can be operated either as conventional telecommunications systems (TC systems) or as IP systems only. In this case, the IP station connects directly to the HiPath HG 1500 boards. Table 2-6 on page 2-21 lists the resulting capacity limits.

- **Systems for free-standing installation (HiPath 3750 only) and wall mounting**
  - **HiPath 3750**, which consists of one basic cabinet and up to two expansion cabinets, is the most powerful and comprehensive system in this family. Up to 384 subscriber lines are possible when it is used as a TC system. Up to 500 IP subscribers can be connected when it is used as a pure IP system.
  - **HiPath 3550** is a communication system for medium capacity demands of up to 72 digital or 108 analog subscriber lines when used as a TC system or a maximum of 188 IP subscribers when used as an IP system.
  - **HiPath 3350,** which has a maximum of 24 digital or 36 analog subscriber lines, is the scaled-down version of the HiPath 3550. It is capable of operating up to 16 mobile stations. As a pure IP system, up to 62 IP subscribers can be connected.
  - **HiPath 3250** offers a capacity of 16 subscriber lines (including 8 mobile stations) in a single-board solution. An external power supply unit provides the power.

– **HiPath 3150** represents the smallest system in the family. This system offers a capacity of 14 subscriber lines (including 8 mobile stations) in a single-board solution (an HiPath 3250 board with less equipment). An external power supply unit provides the power.

- **Systems for installation in 19” cabinets**
  - **HiPath 3700**, which consists of one basic cabinet and up to 2 expansion cabinets, is the most power system in this family. Both housing cabinets are identical to those of the HiPath 3750. Up to 384 subscriber lines are possible when used as a TC system. When used as a pure IP system, up to 500 IP subscribers can be connected.
  - **HiPath 3500**, when used as a TC system, meets medium capacity demands with up to 48 digital or 44 analog subscriber lines and 32 mobile stations. When used as an IP system, it can support up to 188 IP subscribers.
  - **HiPath 3300**, with a maximum of 24 digital or 20 analog subscriber lines, is the scaled-down version of the HiPath 3500. In addition, it can operate up to 16 mobile stations. As a pure IP system, up to 62 IP subscribers can be connected.

2.3 Design and Dimensions

2.3.1 Design and Dimensions of the HiPath 3750

Three Configurations

Depending on the requirements, HiPath 3750 can be used as:

- A one-cabinet system (basic cabinet: BC)
- A two-cabinet system (basic cabinet plus one expansion cabinet: BC + EC1)
- A three-cabinet system (basic cabinet plus two expansion cabinets: BC + EC1 + EC2)

Design

The HiPath 3750 uses “8-slot” cabinets, where expansion cabinet 1 (EC1) and expansion cabinet 2 (EC2) are identical in design.

The BC has seven slots available for peripheral boards and each expansion cabinet has 8 slots. The UPSM power supply (in all cabinets) and the CPCPR central board (only in the BC) have fixed positions.

Up to two cabinets can be stacked.

A main distribution frame unit (MDFU/MDFU-E) is needed to complete the communication system.

Dimensions

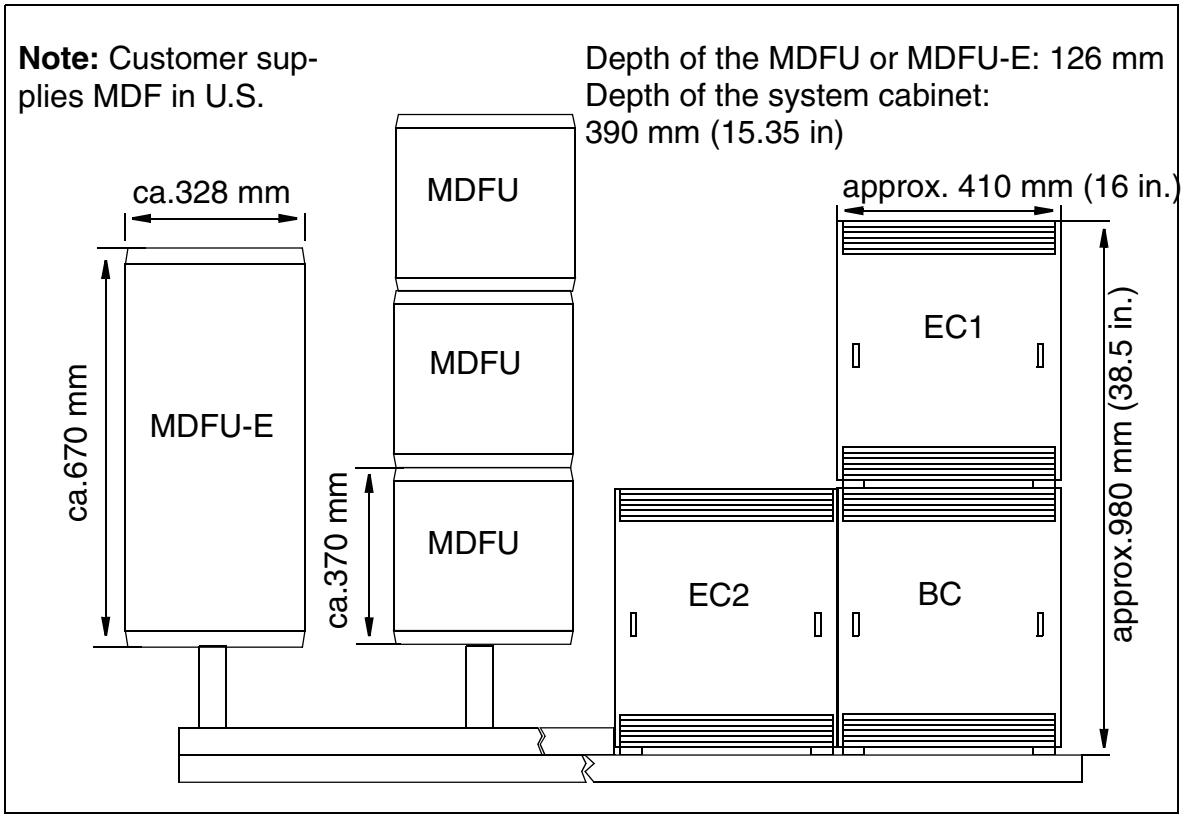


Figure 2-1 HiPath 3750 Dimensions

2.3.2 Design and Dimensions of the HiPath 3550

Design

The HiPath 3550 housing intended for wall mounting (Figure 2-2) contains one shelf with six slot levels. The slot levels (shown in Figure 4-56), numbered in ascending order from the attachment side, have the following assignments:

- Slot levels 1 to 3: peripheral boards (two slots per level).
- Slot level 4: CBCC control board only.
- Slot level 5: SIPAC slot (for HiPath 3750 boards).
- Slot level 6: optional boards (up to 5 boards).

The power supply unit is located on the back of the subrack.

The connecting cables to the peripherals (telephones, trunk connections) can be connected directly. Use an external MDFU in certain situations (CMI).

Dimensions

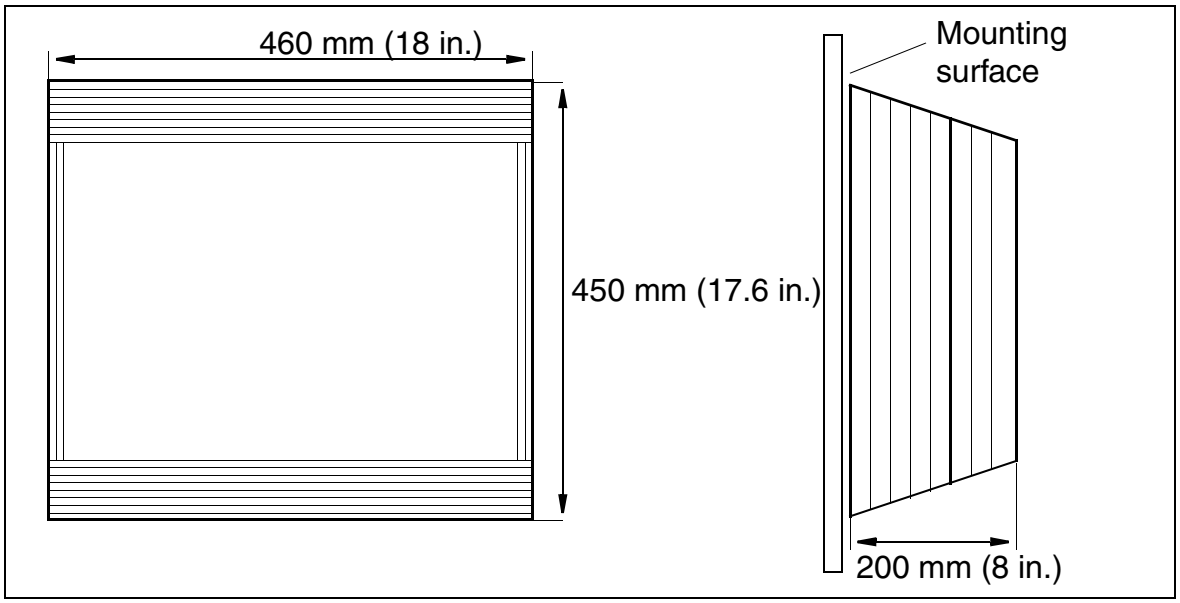


Figure 2-2 HiPath 3550 Dimensions

2.3.3 Design and Dimensions of the HiPath 3350

Design

The HiPath 3350 housing intended for wall mounting (Figure 2-3) contains one shelf with three slot levels. The slot levels (shown in Figure 4-59), numbered in ascending order from the attachment side, have the following assignments:

- Slot level 1: peripheral boards (two slots)
- Slot level 2: CBCC central board only
- Slot level 3: optional boards (up to 5 boards)

The power supply unit is located on the back of the subrack.

Outside the U.S., the HiPath 3350 does not need an external main distribution frame; the connecting to the peripherals (such as telephones or trunks) connect directly to the boards.

In the U.S.: A main distribution frame (MDF) must be added to complete the communication system.

Dimensions

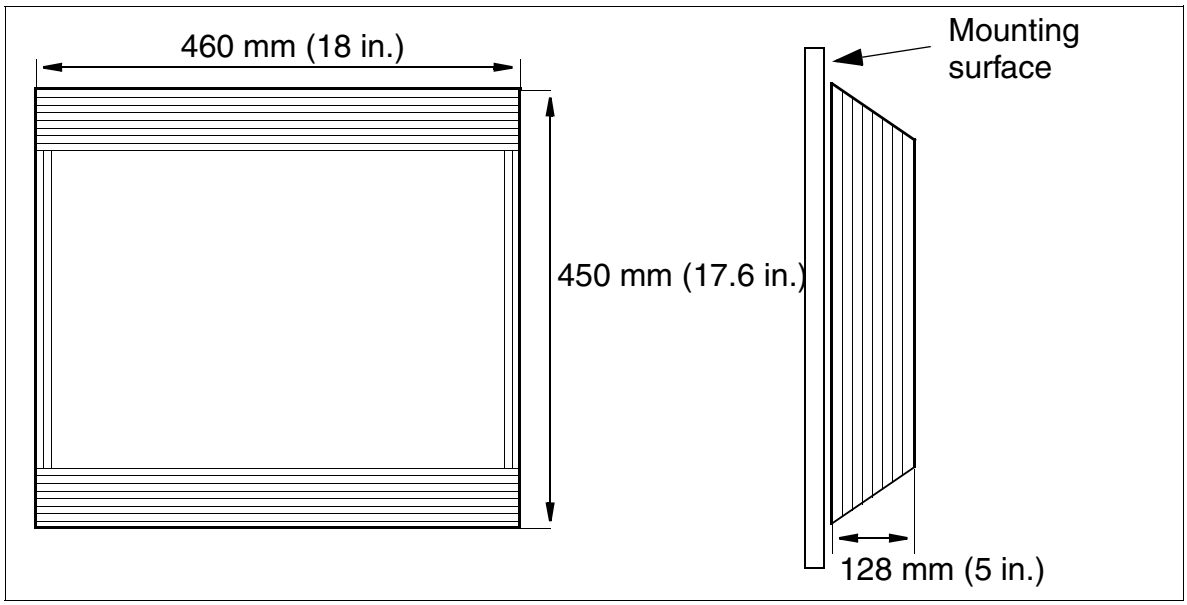


Figure 2-3 HiPath 3350 Dimensions

2.3.4 Design and Dimensions of the HiPath 3250 and the HiPath 3150 (not for U.S.)

Design

HiPath 3250 and HiPath 3150 are one-cabinet systems for wall mounting. The housing contains a single-board system and connections for the trunks and stations.

The cables to the peripherals (such as telephones and trunks) connect directly to the board.

Dimensions

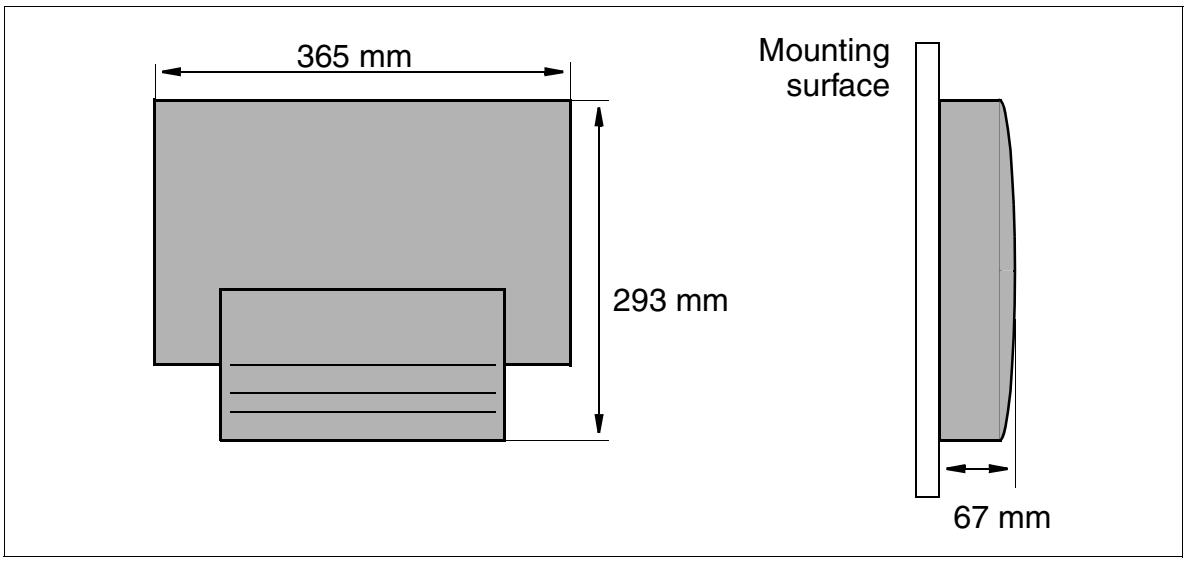


Figure 2-4 HiPath 3250 and HiPath 3150 Dimensions

2.3.5 Design and Dimensions of the HiPath 3700

Three Configurations

Depending on the requirements, HiPath 3700 can be used as:

- a one-cabinet system (BC)
- a two-cabinet system (BC + EC1)
- a three-cabinet system (BC + EC1 + EC2), only when the 19” cabinets are next to one another and are accessible from the back.

A special mounting set enables installation in 19” cabinets.

Design

The HiPath 3700 uses “8-slot” cabinets. The BC has seven slots and the expansion cabinet has eight slots available for peripheral boards. The UPSM power supply (in all cabinets) and the CPCPR central board (only in the BC) have fixed positions.

Dimensions

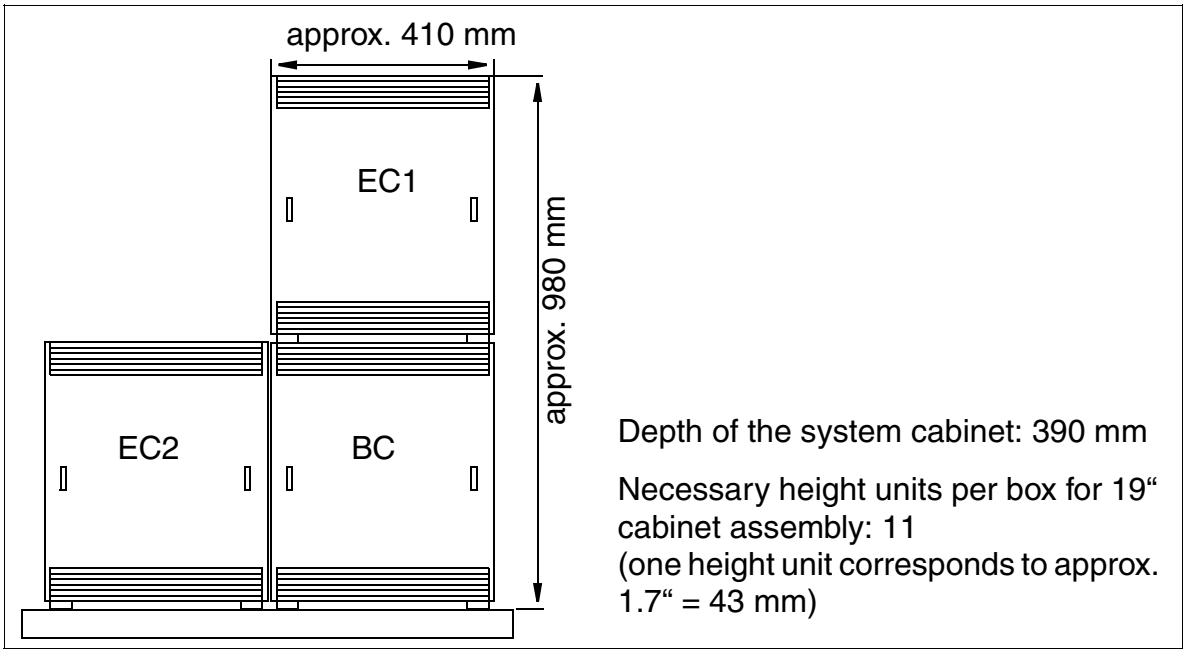


Figure 2-5 HiPath 3700 Dimensions

2.3.6 Design and Dimensions of the HiPath 3500

Design

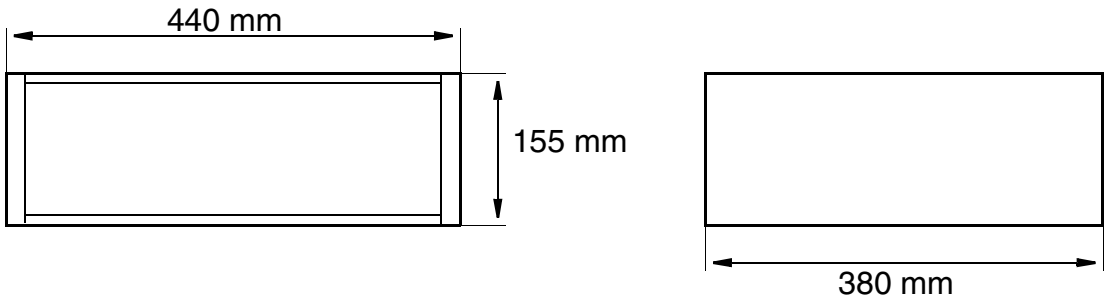
The HiPath 3500 housing intended for use with 19’ cabinets (Figure 2-6) contains four slot levels with the following assignments (represented in Figure 4-64):

- Slot levels 1-3: slide-in shelves for peripheral boards (2 boards can be plugged in on each level)
- Slot level 4: slide-in shelf for CBRC control board
- Slot level 5: optional boards (up to 3 modules)

The power supply is on the rear panel of the subrack.

The connection to peripherals (telephones, trunks, and others) is done using MW8 sockets in the front panels of the boards.

Dimensions



Necessary height units for 19“ cabinet assembly: 4
(one height unit corresponds to approx. 1.7“ = 43 mm)

Figure 2-6 HiPath 3500 Dimensions

2.3.7 Design and Dimensions of the HiPath 3300

Design

The HiPath 3300 housing intended for use with 19’ cabinets (Figure 2-7) contains three slot levels with the following assignments (represented in Figure 4-65):

- Slot level 1: slide-in shelves for two peripheral boards
- Slot level 2: slide-in shelf for CBRC control board
- Slot level 3: optional boards (up to 3 modules)

The power supply is on the rear panel of the subrack.

The connection to peripherals (telephones, trunks, and others) is done using MW8 sockets in the front panels of the boards.

Dimensions

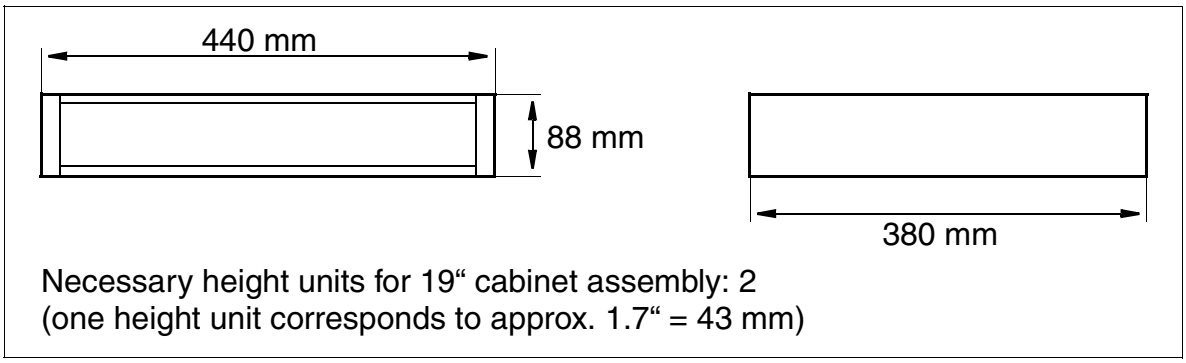


Figure 2-7 HiPath 3300 Dimensions

2.4 System Environment

2.4.1 HiPath 3750 and HiPath 3700 System Environment

Table 2-1 Boards for HiPath 3750 and HiPath 3700

HiPath 3750 and HiPath 3700					
Subscriber Line Modules		**Central Boards and Options**		**Trunk Boards**	
ROW*	**U.S.**	**ROW**	**U.S.**	**ROW**	**U.S.**
IVML8		CBCPR		HXGM	
IVML24		CMS		HXGM2	
SLA8N		CR8N		STMD8	TMGL8
SLA16N		IMODC		TIEL	
SLA24N		LIM		TML8W	TMDID
SLC16		MMC		TMOM	TMST1
SLMO8		UPSM		TMS2	
SLMO24				TMAMF**	
STMD8		GEE8		TMCAS***	
		MPPI			
		PFT1/PFT4			
		REAL			

* ROW = rest of world
** For Brazil, India, Malaysia, Singapore and ATEA countries only
***for selected countries only

2.4.2 HiPath 3550 System Environment

Table 2-2 Boards for HiPath 3550

HiPath 3550					
Subscriber Line Modules		**Central Boards and Options**		**Trunk Boards**	
ROW*	**U.S.**	**ROW**	**U.S.**	**ROW**	**U.S.**
IVMS8		CBCC		HXGS	
LAN Bridge		CMA		HXGS2	
SLA8N		CMS		STLS2	
SLA16N		CUC		STLS4	
SLA24N		IMODC		TLA2	TMGL4
SLAS16**		LIM		TLA4	TMQ4
SLC16		MMC		TLA8	TST1
SLMO24		PSUC		TMAMF***	
SLU8		UPSC-D		TMCAS****	
STLS2				TS2	
STLS4		ALUM4			
4SLA			ANI4		
8SLA		EXM			
16SLA		GEE12			
		GEE16			
		GEE50			
		UAM			
		MPPI			
		OPAL			
		STBG4*****			
		STRB			
		V24/1			

* ROW = rest of world
** for Brazil only
*** For Brazil, India, Malaysia, Singapore and ATEA countries only
****for selected countries only
*****for France only

2.4.3 HiPath 3350 System Environment

Table 2-3 Boards for HiPath 3350

HiPath 3350					
Subscriber Line Modules		**Central Boards and Options**		**Trunk Boards**	
ROW*	**U.S.**	**ROW**	**U.S.**	**ROW**	**U.S.**
IVMP8		CBCC		HXGS	
IVMS8		CMA		HXGS2	
LAN Bridge		CMS		STLS2	
SLU8		CUP		STLS4	
STLS2		IMODC		TLA2	TMGL4
STLS4		LIM		TLA4	TMQ4
4SLA		MMC		TLA8	
8SLA		PSUP			
16SLA		UPSC-D			
		ALUM4			
			ANI4		
		EXM			
		GEE12			
		GEE16			
		GEE50			
		UAM			
		MPPI			
		OPAL			
		STBG4**			
		STRB			
		V24/1			

* ROW = rest of world

** for France only

2.4.4 HiPath 3250 System Environment (Not for U.S.)

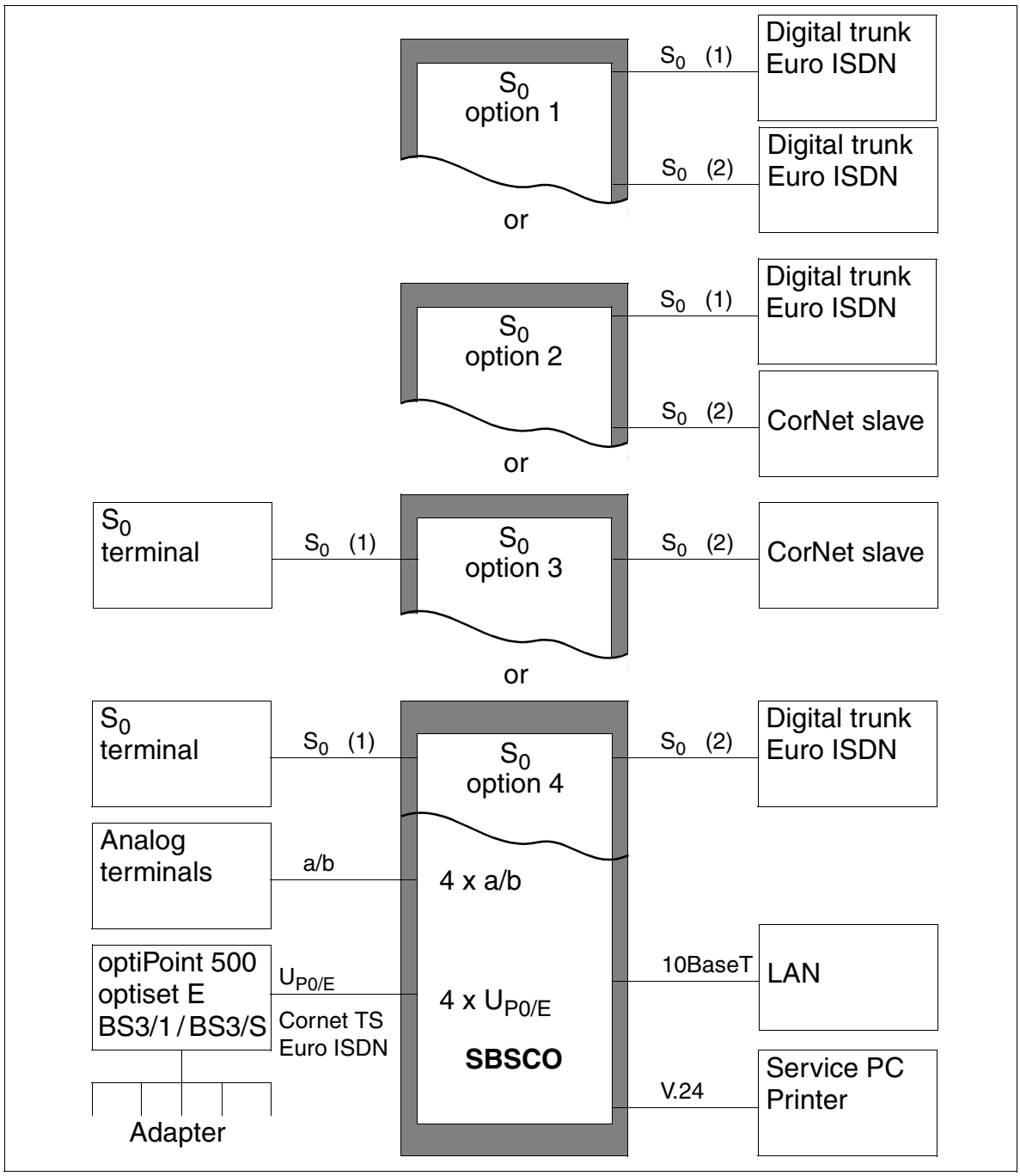


Figure 2-8 HiPath 3250 System Environment

The existing S_0 interfaces can be used as follows:

Option 1:

- S_0 (1) for use as a digital trunk circuit
- S_0 (2) for use as a digital trunk circuit

Option 2:

- S_0 (1) for use as a digital trunk circuit
- S_0 (2) for use as a CorNet slave

Option 3:

- S_0 (1) for connecting an S_0 terminal (not fed from the system)
- S_0 (2) for use as a CorNet slave

Option 4:

- S_0 (1) for connecting an S_0 terminal (not fed from the system)
- S_0 (2) for use as a digital trunk circuit

2.4.5 HiPath 3150 System Environment (not for U.S.)

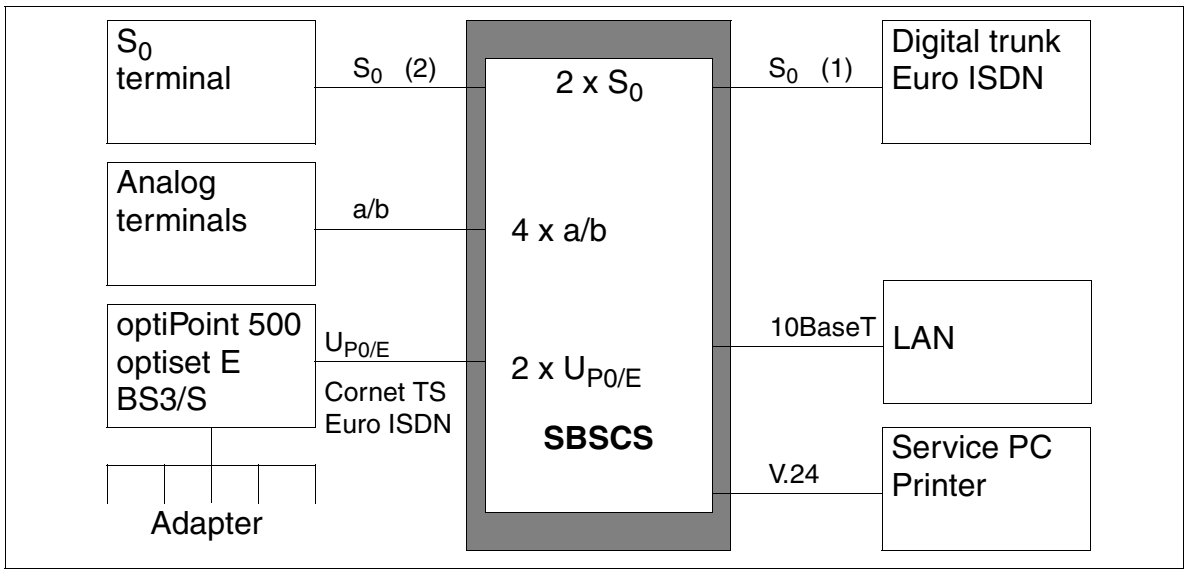


Figure 2-9 HiPath 3150 System Environment

The existing S_0 interfaces are used as follows:

- S_0 (1) for use as a digital trunk circuit
- S_0 (2) for connecting an S_0 terminal (not fed from the system)

2.4.6 HiPath 3500 System Environment

Table 2-4 Boards for HiPath 3500

HiPath 3500					
Subscriber Line Modules		**Central Boards and Options**		**Trunk Boards**	
ROW*	**U.S.**	**ROW**	**U.S.**	**ROW**	**U.S.**
IVMS8R		CBRC		HXGSR	
SLU8R		CMA		HXGSR2	
STLS4R		CMS		STLS4R	
8SLAR		CUCR		TS2R	TMGL4R
		IMODC		TLA4R	TST1
		LIM			
		MMC			
		UPSC-DR			
			ANI4R		
		EXMR			
		MPPI			
		OPALR			
		STRBR			
		UAMR			

* ROW = rest of world

2.4.7 HiPath 3300 System Environment

Table 2-5 Boards for HiPath 3300

HiPath 3300					
Subscriber Line Modules		**Central Boards and Options**		**Trunk Boards**	
ROW*	**U.S.**	**ROW**	**U.S.**	**ROW**	**U.S.**
IVMP8R		CBRC		HXGSR	
IVMS8R		CMA		HXGSR2	
SLU8R		CMS		STLS4R	
STLS4R		CUPR		TLA4R	TMGL4R
8SLAR		IMODC			
		LIM			
		MMC			
		UPSC-DR			
			ANI4R		
		EXMR			
		MPPI			
		OPALR			
		STRBR			
		UAMR			

* ROW = rest of world

2.5 System-Related Capacity Limits

2.5.1 Capacity Limits

The information in the following two tables applies for fully-equipped systems, where HiPath 3750 and HiPath 3700 are laid out as three-cabinet systems.

Deviating capacity limits can be determined for sales purposes.

Table 2-6 HiPath 3000 - System-Related Capacity Limits (Maximum Numbers)

System		HiPath 3750	HiPath 3550	HiPath 3350	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Stations/ Workpoint Clients (Any combinations up to the maximum number are possible.)	Analog	384	44 (108*)	12 (36[1])	4	4
	Digital	384	48 (72[1])	16 (24[1])	4	2
	Additional stations over phone adapter	116	48 (72[1])	16 (24[1])	4	–
	IP	500	192	96	–	–
	Cordless	250	64 (BS on SLC16) / 32 (BS on CBCC)	16	8	8
	Total stations TDM (Hosts (master) incl. cordless)	384	84 (156[1])	44 (60[1])	16	14
Base stations		64 on max. 4 SLC16	16 on SLC16 **or** 7 on CBCC	3	3	1
Trunks		120 digital (B channels) **or** 120 analog	60 digital (B channels) **or** 60 analog	16 digital (B channels) **or** 16 analog	4 digital (B channels)	2 digital (B channels)
HiPath HG 1500 boards		8	4	2	–	–
IP network nodes/station numbers in the LAN		max. 16 / 1000	max. 16 / 1000	max. 16 / 1000	–	–
V.24 interfaces		2 (1 x 9-pin, 1 x 25-pin)	2 (1 x 9-pin, 1 x 25-pin)	2 (1 x 9-pin, 1 x 25-pin)	1 (9-pin)	1 (9-v)

* only for specific countries or sales channels

System		HiPath 3700	HiPath 3500	HiPath 3300
Stations/Workpoint Clients (Any combinations up to the maximum number are possible.)	Analog	384	44	12 (20*)
	Digital	384	48	16 (24[1])
	Additional stations over phone adapter	116	48	16 (24[1])
	IP	500	192	96
	Cordless	250	32	16
	Total stations TDM (Hosts (Master) incl. cordless)	384	84	44
Base stations		64 on max. 4 SLC16	7	3
Trunks		120 digital (B channels) **or** 120 analog	60 digital (B channels) **or** 60 analog	16 digital (B channels) **or** 16 analog
HiPath HG 1500 boards		8	4	2
IP network nodes/station numbers in the LAN		max. 16 / 1000	max. 16 / 1000	max. 16 / 1000
V.24 interfaces		2 (1 x 9-pin, 1 x 25-pin)	1 (9-pin)	1 (9-pin)

* only for specific countries or sales channels

2.6 Technical Specifications

The power consumption values for PSU and UPS apply at full load.

The UPS power consumption values include simultaneous battery charging. UPS power consumption drops to PSU levels during maintenance charging.

Higher power consumption levels can be achieved by installing a UPSC-D in the HiPath 3350 (PSU power consumption = 100 W and UPS power consumption = 130 W).

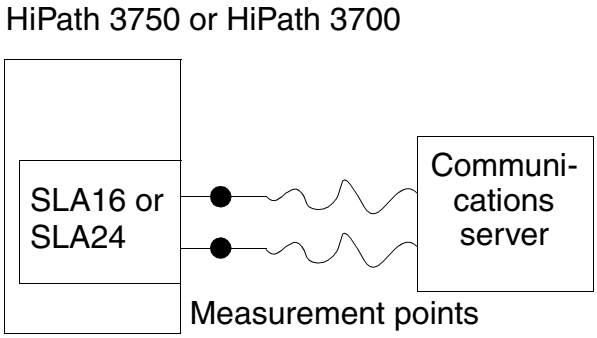
Table 2-7 Technical Specifications

Maximum system values	**HiPath 3750**	**HiPath 3550**	**HiPath 3350**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)	**HiPath 3700**	**HiPath 3500**	**HiPath 3300**
Power consumption of PSU	–	–	60 W	25 W	25 W	–	–	–
Power consumption of UPS*	430 W	180 W	90 W	–	–	430 W	180 W	90 W
Line voltage	100 – 240 VAC (not for U.S); 120 VAC (for U.S. only)							
AC line frequency	50 – 60 Hz (not for U.S); 60 Hz (for U.S. only)							
Weight	22 kg (48.46 lb.) (per fully equipped cabinet)	8 kg (17.62 lb.)	6 kg (13.22 lb.)	0,7 kg (1.54 lb.)	0,7 kg (1.54 lb.)	22 kg (48.46 lb.) (per fully equipped cabinet)	8 kg (17.62 lb.)	6 kg (13.22 lb.)
						Expansion cabinet ECR (not for U.S. and Canada): ● 6.5 kg (14.32 lb.) without battery pack ● 17.5 kg (38,54 lb.) with battery pack		

* UPS not for U.S.

2.6.1 Transmission Data for HiPath 3750 and HiPath 3700

The transmission settings can be configured country-specifically by entering the country code. The following are the default values (at 220 ohms + 820 ohms II 115 nF) for HiPath 3000 (system-specific):



Germany: Default tone (level measured at T/R wires of SLA board)	
Internal dial tone	- 10 dBm
External dial tone	- 10 dBm
DISA dial tone	- 10 dBm
Ring tone	- 10 dBm
Busy tone	- 10 dBm
Override tone from AC	- 10 dBm
Tone during call override/ intrusion	- 18 dBm
Conference tone	- 18 dBm
Hold tone	- 18 dBm

Activation Threshold DTMF level > - 34 dBm (system-specific)

All values are approximate and should be viewed as such under operating conditions. Always allow a tolerance range with technical equipment.

2.7 Interface-to-Interface Ranges

Telephone Interface-to-Interface Ranges

Table 2-8 Telephone Interface-to-Interface Ranges (with J-Y (ST) 2x2x0,6, 0.6 mm diameter)

Telephone Interfaces	Range in m	Loop Resistance in Ohms
ISDN-S_0 point-to-point	< 600	156
ISDN-S_0 point-to-multipoint	< 150	39
ISDN-S_0 wall outlet to terminal	< 10	–
Analog users	< 2000	520
$U_{P0/E}$ exchange to host (primary telephone)	< 1000	230
$U_{P0/E}$ host to client (primary telephone to secondary telephone)	< 100	23

Trunk and CorNet-N Ranges

The table below provides the maximum cable lengths for direct trunk and CorNet-N wiring. The values apply to ideal conditions, which means that there can be no joints. The real conditions must be measured on-site.

Table 2-9 Cable Lengths for Direct Trunk and CorNet-N Wiring

Inter-face	Cable	Diameter	Attenuation per km	Max. Cable Length
S_0	ICCS cable J-2Y(ST)Y4x2x0,51 LG ICCS Data5	0.51 mm	7.5 dB at 96 kHz	800 m
	Installation cable J-2Y(ST)Y ≥ 10x2x0,6 ST III BD	0.6 mm	6.0 dB at 96 kHz	1000 m
S_{2M}	A-2Y0F(L)2Y ≥ 10x2x0,6 (full PE insulation, filled)	0.6 mm	17 dB at 1 MHz	350 m

2.8 Numbering Plan

HiPath 3000 provides one default numbering plan for users.

Table 2-10 Numbering Plan for HiPath 3000 V1.2

Station Numbers	HiPath 3750	HiPath 3550	HiPath 3350	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)	HiPath 3700	HiPath 3500	HiPath 3300
Station numbers for users ($U_{P0/E}$ host (primary), analog, S_0, CMI)	384*	188	20/188	20		384[1]	188	20/188
Station numbers for adapters or data terminals ($U_{P0/E}$ client (secondary), TA analog, TA S_0, TA RS232, S_0)	116	188	20/188	20	0	116	188	20/188
Station numbers for groups or hunt groups	300**	150	20	8		300[2]	150	20
Station numbers for users	3 digits		2/3 digits			3 digits		2/3 digits
Maximum length of station numbers	6 digits							
Maximum length of numbers for direct inward dialing (DID)	11 digits							

* For V3.0 and later, a maximum of 500 station number are possible for IP stations in HiPath 3750 and HiPath 3700.

** For V3.0 and later, a maximum of 800 station numbers are possible for hunt groups.

Table 2-11 HiPath 3750 and HiPath 3700 - Distribution of Station Numbers

Port Type	Station Number
Host ports (primary ports)	100 - 349
Host ports (primary ports)	500 - 633
Client ports (secondary ports)	634 - 749
Groups	350 - 499
Groups	8600 - 8749

2.9 Compliance

2.9.1 CE Compliance (Not for U.S.)

The systems conform to the following guidelines:

Guideline	Standard
R&TTE-Direktive 1999/5/EC	• EN 60950 + A1 + A2 + A3 + A4 (Safety) • EN 50082-1 (EMC Immunity Industrial) • ETS 300 329 (DECT Air Interface) • TBR 06 (DECT Air Interface)

2.9.2 U.S. and Canadian Regulatory Compliance

Table 2-12 U.S. and Canadian Regulatory Compliance

Category	HiPath 3750	HiPath 3550	HiPath 3350
Electrical compliance	UL 1459 CSA C22.2 No. 225-M90	UL 1950 CSA C22.2 No. 950	
FCC Part 68 registration	AY3USA-33046-MF-E AY3USA-33047-KF-E	AY3USA–25214–MF–E AY3USA–25215–KF–E	
Industry Canada CS–03 certification	267 9147A	267 8782A	
Ringer equivalency number (REN)	1.2	0.4	

2.9.3 SAFETY International

IEC 60950 + A1 + A2 + A3 + A4

2.9.4 Environmental Conditions

Operating Conditions (Electrical)

- Operating limits
  Room temperature: + 5 to + 40 °C (+ 41 to + 104° F)
  Absolute humidity: 2 to 25 g H_2O/m^3
  Relative humidity: 5 to 80%
- System ventilation is by convection only. Forced-air ventilation is not required.

Caution
Avoid exposing the system to direct sunlight and heaters (excessive heat may damage the system).
If condensation has formed on a system, do not start up the system until the it has thoroughly dried.

Operating Conditions (Mechanical)

The systems are intended for stationary use.

3 Boards

WARNING
The system must be powered down and de-energized before removing or inserting **all boards** in the HiPath 3550, HiPath 3350, HiPath 3500, HiPath 3300 and before removing or inserting the **central boards** of the HiPath 3750, HiPath 3700.

3.1 Overview

Functional Overview of all Boards and Components Used

Table 3-1 HiPath 3000 – Functional Overview of All Boards and Components Used (Sheet 1 of 8)

Board or Component	Part Number	Model
Central Boards		
CBCC	S30810-Q2935-A201	HiPath 3550/HiPath 3350
CBCP	S30810-Q2935-B201	HiPath 3350
CBRC	S30810-K2935-Z	HiPath 3500/HiPath 3300
CBRP	S30810-K2935-Z100	HiPath 3300
CBCPR	S30810-Q2936-X	HiPath 3750/HiPath 3700
CMA	S30807-Q6931-X	HiPath 3550/HiPath 3350/HiPath 3500/HiPath 3300
CMS	S30807-Q6928-X	HiPath 3000
CR8N	S30810-Q2513-X100	HiPath 3750/HiPath 3700
CUC	S30777-Q750-X	HiPath 3550
CUCR	S30777-Q750-Z	HiPath 3500
CUP	S30777-Q751-X	HiPath 3350
CUPR	S30777-Q751-Z	HiPath 3300
IMODC	S30807-Q6932-X	HiPath 3750/HiPath 3550/HiPath 3350/HiPath 3700/HiPath 3500/HiPath 3300
LIM	S30807-Q6930-X	HiPath 3000
MMC16	S30122-X7424-X	HiPath 3000
PSUC	S30122-K5661-X S30122-K5661-M	HiPath 3550 (not for U.S.)

Table 3-1 HiPath 3000 – Functional Overview of All Boards and Components Used (Sheet 2 of 8)

Board or Component	Part Number	Model
PSUCR	S30122-K7371-M900	HiPath 3500 (not for U.S.)
PSU One	S30122-K5837-M S30122-K5837-S	HiPath 3250/HiPath 3150 (not for U.S.)
PSUP	S30122-K5658-M	HiPath 3350
PSUPR	S30122-K7370-M900	HiPath 3300
SBSCO	S30810-Q2937-A201	HiPath 3250 (not for U.S.)
SBSCS	S30810-Q2937-B201	HiPath 3150 (not for U.S.)
UPSC-D	S30122-K5660-M300	HiPath 3550/HiPath 3350
UPSC-DR	S30122-K7373-M900	HiPath 3500/HiPath 3300
UPSM	S30122-K5950-A100 S30122-K5950-S100	HiPath 3750/HiPath 3700

Table 3-1 HiPath 3000 – Functional Overview of All Boards and Components Used (Sheet 3 of 8)

Board or Component	Part Number	Model
Peripheral Boards **Caution:** The HiPath 3550, HiPath 3350, HiPath 3500, and HiPath 3300 peripheral boards must be firmly inserted into their slots; otherwise contact problems can cause board failure.		
HXGM	S30810-Q2930-X S30810-Q2930-X100	HiPath 3750/HiPath 3700
HXGM2	S30810-Q2940-X S30810-Q2940-X100	HiPath 3750/HiPath 3700
HXGS	S30810-Q2931-X S30810-Q2931-X100	HiPath 3550/HiPath 3350
HXGS2	S30810-Q2939-X S30810-Q2939-X100	HiPath 3550/HiPath 3350
HXGSR	S30810-K2931-Z S30810-K2931-Z100	HiPath 3500/HiPath 3300 (not for U.S.)
HXGSR2	S30810-K2939-Z S30810-K2939-Z100	HiPath 3500/HiPath 3300
IVML8	S30122-X7380-X100	HiPath 3750/HiPath 3700
IVML24	S30122-X7380-X	HiPath 3750/HiPath 3700
IVMP8	S30122-Q7379-X100	HiPath 3350
IVMP8R	S30122-K7379-Z100	HiPath 3300
IVMS8	S30122-Q7379-X	HiPath 3550/HiPath 3350
IVMS8R	S30122-K7379-Z	HiPath 3500/HiPath 3300
LAN Bridge	S30817-Q955-Axxx	HiPath 3550/HiPath 3350
SLA8N	S30810-Q2929-X200	HiPath 3750/HiPath 3550/HiPath 3700 (not for U.S.)
SLA16N	S30810-Q2929-X100	HiPath 3750/HiPath 3550/HiPath 3700
SLA24N	S30810-Q2929-X	HiPath 3750/HiPath 3550/HiPath 3700
SLAS16	S30817-H820-A300	HiPath 3550
SLC16	S30810-Q2922-X	HiPath 3750/HiPath 3550/HiPath 3700 (not for U.S.)
SLMO8	S30810-Q2901-X100	HiPath 3750/HiPath 3700 (not for U.S.)
SLMO24	S30810-Q2901-X	HiPath 3750/HiPath 3550/HiPath 3700

Table 3-1 HiPath 3000 – Functional Overview of All Boards and Components Used (Sheet 4 of 8)

Board or Component	Part Number	Model
SLU8	S30817-Q922-A301	HiPath 3550/HiPath 3350
SLU8R	S30817-K922-Z301	HiPath 3500/HiPath 3300
STLS2	S30817-Q924-B313	HiPath 3550/HiPath 3350 (not for U.S.)
STLS4	S30817-Q924-A313	HiPath 3550/HiPath 3350
STLS4R	S30817-K924-Z313	HiPath 3500/HiPath 3300
STMD8	S30810-Q2558-X200	HiPath 3750/HiPath 3700
TIEL	S30810-Q2520-X	HiPath 3750/HiPath 3700
TLA2	S30817-Q923-B313	HiPath 3550/HiPath 3350 (not for U.S.)
TLA4	S30817-Q923-A313	HiPath 3550/HiPath 3350 (not for U.S.)
TLA8	S30817-Q926-A301	HiPath 3550/HiPath 3350 (not for U.S.)
TLA4R	S30817-Q923-Zxxx	HiPath 3500/HiPath 3300
TMAMF	S30810-Q2587-Axxx	HiPath 3750/HiPath 3550/HiPath 3700 (for selected countries only)
TMCAS	S30810-Q2938-X	HiPath 3750/HiPath 3550/HiPath 3700 (for selected countries only)
TMDID	S30810-Q2507-X	HiPath 3750/HiPath 3700 (for U.S. only)
TMGL4	S30810-Q2918-X	HiPath 3550/HiPath 3350 (for U.S. only)
TMGL4R	S30810-K2918-Z	HiPath 3500/HiPath 3300 (for U.S. only)
TMGL8	S30810-Q2703-X	HiPath 3750/HiPath 3700 (for U.S. only)
TML8W	S30817-Q626-Axxx/ Bxxx	HiPath 3750/HiPath 3700 (not for U.S.)
TMOM	S30810-Q2535-X	HiPath 3750/HiPath 3700 (not for U.S.)
TMQ4	S30810-Q2917-X	HiPath 3550/HiPath 3350 (for U.S. only)

Table 3-1 HiPath 3000 – Functional Overview of All Boards and Components Used (Sheet 5 of 8)

Board or Component	Part Number	Model
TMST1	S30810-Q2920-X	HiPath 3750/HiPath 3700 (for U.S. only)
TMS2	S30810-Q2915-X	HiPath 3750/HiPath 3700 (not for U.S.)
TST1	S30810-Q2919-X S30810-K2919-Z	HiPath 3550 (for U.S. only) HiPath 3500 (for U.S. only)
TS2	S30810-Q2913-X100	HiPath 3550 (not for U.S.)
TS2R	S30810-K2913-Z100	HiPath 3500 (not for U.S.)
4SLA	S30810-Q2923-X200	HiPath 3550/HiPath 3350 (not for U.S.)
8SLA	S30810-Q2923-X100	HiPath 3550/HiPath 3350
8SLAR	S30810-K2925-Z	HiPath 3500/HiPath 3300
16SLA	S30810-Q2923-X	HiPath 3550/HiPath 3350 (not for U.S.)

Table 3-1 HiPath 3000 – Functional Overview of All Boards and Components Used (Sheet 6 of 8)

Board or Component	Part Number	Model
⚠	**DANGER (for U.S. Only)** To protect against surge voltage caused by lightning, the following boards require secondary protection when their wiring leaves the building where the main distribution frame is housed: • SLA16 • SLA16N • SLA24N • TMDID8 • TMGL8 • TIEL4* • TMST1** • TST1** *If not connected to facility provider terminal equipment. **When this module is connected to the public network, secondary protection must be provided by the CSU.	
Options		
ALUM4	S30817-Q935-A	HiPath 3550/HiPath 3350
AM	S30122-X7217-X100	HiPath 3250/HiPath 3150
ANI4	S30807-Q6917-A103	HiPath 3550/HiPath 3350 (for U.S. only)
ANI4R	S30807-Q6917-Z103	HiPath 3500/HiPath 3300 (for U.S. only)
EXM	S30817-Q902-B401	HiPath 3550/HiPath 3350
EXMNA	S30817-Q6923-X	HiPath 3550/HiPath 3350 (for U.S. only)
EXMR	S30817-K7403-Z103	HiPath 3500/HiPath 3300
GEE8	S30817-Q664-xxxx	HiPath 3750/HiPath 3700 (not for U.S.)
GEE12	S30817-H951-Mxxx	HiPath 3550/HiPath 3350 (not for U.S.)
GEE16	S30817-H951-Mxxx	HiPath 3550/HiPath 3350 (not for U.S.)
GEE50	S30817-H951-Mxxx	HiPath 3550/HiPath 3350 (not for U.S.)
HOPE board	S30122-Q7078-X	HiPath 3550/HiPath 3350 (not for U.S.)

Table 3-1 HiPath 3000 – Functional Overview of All Boards and Components Used (Sheet 7 of 8)

Board or Component	Part Number	Model
HOPE board	S30122-Q7079-X	HiPath 3550/HiPath 3350 (for U.S. only)
MPPI	S30122-K5380-X200	HiPath 3550/HiPath 3350 (not for U.S.)
MPPI	S30122-X7275-X	HiPath 3000
OPAL	C39195-A7001-B130	HiPath 3550/HiPath 3350
OPALR	C39195-A7001-B142	HiPath 3500/HiPath 3300
PFT1/PFT4	S30777-Q539-X S30777-Q540-X	HiPath 3750 (not for U.S.)
REAL	S30807-Q5913-X	HiPath 3750/HiPath 3700
STBG4	S30817-Q934-A	HiPath 3550/HiPath 3350 (France only)
STRB	S30817-Q932-A	HiPath 3550/HiPath 3350
STRBR	S30817-Q932-Z	HiPath 3500/HiPath 3300
UAM	S30122-X7217-X	HiPath 3550/HiPath 3350
UAMR	S30122-X7402-Z	HiPath 3500/HiPath 3300
V24/1	S30807-Q6916-X100	HiPath 3550/HiPath 3350 (not for U.S.)
For U.S. Only: Other Field-Replaceable Units for All Models		
RS-232 cable	–	HiPath 3000
Basic cabinet	S30777-U757-X103	HiPath 3750/HiPath 3700
Expansion cabinet	S30777-U708-X103	HiPath 3750/HiPath 3700
Backplane basic cabinet	S30777-Q757-X	HiPath 3750/HiPath 3700
Backplane expansion cabinet	S30777-Q708-X100	HiPath 3750/HiPath 3700
Cabinet	S30777-U711-A103	HiPath 3550
Cabinet	S30777-U712-A103	HiPath 3350
Cabinet	S30777-U711-A903	HiPath 3500
Cabinet	S30777-U712-A903	HiPath 3300

Table 3-1 HiPath 3000 – Functional Overview of All Boards and Components Used (Sheet 8 of 8)

Board or Component	Part Number	Model
MDF cables	S30267-Z320-A4	HiPath 3550/HiPath 3350/HiPath 3500/HiPath 3300
MDF cables	S30267-Z321-A4	HiPath 3550/HiPath 3350
Inter-cabinet cable	S30267-Z178-A13	HiPath 3750/HiPath 3700
Cable TST1 to CSU	S30269-27256-A	HiPath 3750
Seismic anchor kit	S30777-D41-X	HiPath 3750
Wall mount kit	S30777-D40-X	HiPath 3750
Power supply cord	C39195-Z7001-C19	HiPath 3550/HiPath 3350
ALUM4 adapter cable	C39195-A7001-B105	HiPath 3550/HiPath 3350
Ribbon cable ANI4 to TMGL4	C39195-A7001-B87-1	HiPath 3550/HiPath 3350
Cable ANI4R to TMGL4R	C39195-A7001-C69	HiPath 3500/HiPath 3300
Cable TST1 to CSU	S30122-K7031-X	HiPath 3550
RS-232 administration cable for LAN Bridge	S30122-X5468-X	HiPath 3550/HiPath 3350

Model Overview of all Boards and Components Used

Table 3-2 HiPath 3000 – Model Overview of all Boards and Components Used (Sheet 1 of 13)

Board or Component	Part Number	Function
HiPath 3750 / HiPath 3700		
CBCPR	S30810-Q2936-X	Central board
CMS	S30807-Q6928-X	Central board
CR8N	S30810-Q2513-X100	Central board
GEE8	S30817-Q664-xxxx	Option (not for U.S.)
HXGM	S30810-Q2930-X S30810-Q2930-X100	Peripheral board Peripheral board
HXGM2	S30810-Q2940-X S30810-Q2940-X100	Peripheral board Peripheral board
IMODC	S30807-Q6932-X	Central board
IVML8	S30122-X7380-X100	Peripheral board
IVML24	S30122-X7380-X	Peripheral board
LIM	S30807-Q6930-X	Central board
MMC16	S30122-X7424-X	Central board
MPPI	S30122-X7275-X	Option
PFT1/PFT4	S30777-Q539-X S30777-Q540-X	Option (not for U.S.)
REAL	S30807-Q5913-X	Option
SLA8N	S30810-Q2929-X200	Peripheral board (not for U.S.)
SLA16N	S30810-Q2929-X100	Peripheral board
SLA24N	S30810-Q2929-X	Peripheral board
SLC16	S30810-Q2922-X	Peripheral board (not for U.S.)
SLMO8	S30810-Q2901-X100	Peripheral board (not for U.S.)
SLMO24	S30810-Q2901-X	Peripheral board
STMD8	S30810-Q2558-X200	Peripheral board
TIEL	S30810-Q2520-X	Peripheral board
TMAMF	S30810-Q2587-Axxx	Peripheral board (for selected countries only)

Table 3-2 HiPath 3000 – Model Overview of all Boards and Components Used (Sheet 2 of 13)

Board or Component	Part Number	Function
TMCAS	S30810-Q2938-X	Peripheral board (for selected countries only)
TMDID	S30810-Q2507-X	Peripheral board (for U.S. only)
TMGL8	S30810-Q2703-X	Peripheral board (for U.S. only)
TML8W	S30817-Q626-Axxx/ Bxxx	Peripheral board
TMOM	S30810-Q2535-X	Peripheral board (not for U.S.)
TMST1	S30810-Q2920-X	Peripheral board (for U.S. only)
TMS2	S30810-Q2915-X	Peripheral board (not for U.S.)
UPSM	S30122-K5950-A100 S30122-K5950-S100	Power supply
For U.S. Only: Other Field-Replaceable Units for HiPath 3750 and HiPath 3700		
RS-232 cable	–	Cable
Basic cabinet	S30777-U757-X103	Cabinet
Expansion cabinet	S30777-U708-X103	Cabinet
Backplane basic cabinet	S30777-Q757-X	Backplane
Backplane expansion cabinet	S30777-Q708-X100	Backplane
Inter-cabinet cable	S30267-Z178-A13	Cable
Cable TST1 to CSU	S30269-27256-A	Cable
Seismic anchor kit	S30777-D41-X	Anchors
Wall mount kit	S30777-D40-X	Bracket

Table 3-2 HiPath 3000 – Model Overview of all Boards and Components Used (Sheet 3 of 13)

Board or Component	Part Number	Function
⚠	**DANGER (for U.S. Only)** To protect against surge voltage caused by lightning, the following boards require secondary protection when their wiring leaves the building where the main distribution frame is housed: • SLA16 • SLA16N • SLA24N • TMDID8 • TMGL8 • TIEL4* • TMST1** *If not connected to facility provider terminal equipment. **When this module is connected to the public network, secondary protection must be provided by the CSU.	
HiPath 3550 **Caution:** The HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300 peripheral boards must be firmly inserted into their slots; otherwise contact problems can cause board failure.		
ALUM4	S30817-Q935-A	Option
ANI4	S30807-Q6917-A103	Option (for U.S. only)
CBCC	S30810-Q2935-A201	Central board
CMA	S30807-Q6931-X	Central board
CMS	S30807-Q6928-X	Central board
CUC	S30777-Q750-X	Central board
EXM	S30817-Q902-B401	Option (not for U.S.)
EXMNA	S30817-Q6923-X	Option (for U.S. Only)
GEE12	S30817-H951-Mxxx	Option (not for U.S.)
GEE16	S30817-H951-Mxxx	Option (not for U.S.)
GEE50	S30817-H951-Mxxx	Option (not for U.S.)
HOPE board	S30122-Q7078-X	Option (not for U.S.)
HOPE board	S30122-Q7079-X	Option (for U.S. only)
HXGS	S30810-Q2931-X S30810-Q2931-X100	Peripheral board Peripheral board
HXGS2	S30810-Q2939-X S30810-Q2939-X100	Peripheral board Peripheral board

Table 3-2 HiPath 3000 – Model Overview of all Boards and Components Used (Sheet 4 of 13)

Board or Component	Part Number	Function
IMODC	S30807-Q6932-X	Central board
IVMS8	S30122-Q7379-X	Peripheral board
LIM	S30807-Q6930-X	Central board
MMC16	S30122-X7424-X	Central board
LAN Bridge	S30817-Q955-Axxx	Peripheral board
MPPI	S30122-K5380-X200 S30122-X7275-X	Option
OPAL	C39195-A7001-B130	Cable
PSUC	S30122-K5661-X S30122-K5661-M	Central board (not for U.S.)
SLA8N	S30810-Q2929-X200	Peripheral board (not for U.S.)
SLA16N	S30810-Q2929-X100	Peripheral board
SLA24N	S30810-Q2929-X	Peripheral board
SLAS16	S30817-H820-A300	Peripheral board
SLC16	S30810-Q2922-X	Peripheral board (not for U.S.)
SLMO24	S30810-Q2901-X	Peripheral board
SLU8	S30817-Q922-A301	Peripheral board
STBG4	S30817-Q934-A	Option (France only)
STLS2	S30817-Q924-B313	Peripheral board (not for U.S.)
STLS4	S30817-Q924-A313	Peripheral board
STRB	S30817-Q932-A	Option
TLA2	S30817-Q923-B313	Peripheral board (not for U.S.)
TLA4	S30817-Q923-A313	Peripheral board (not for U.S.)
TLA8	S30817-Q926-A301	Peripheral board (not for U.S.)
TMAMF	S30810-Q2587-Axxx	Peripheral board (for selected countries only)
TMCAS	S30810-Q2938-X	Peripheral board (for selected countries only)
TMGL4	S30810-Q2918-X	Peripheral board (for U.S. only)
TMQ4	S30810-Q2917-X	Peripheral board (for U.S. only)

Table 3-2 HiPath 3000 – Model Overview of all Boards and Components Used (Sheet 5 of 13)

Board or Component	Part Number	Function
TST1	S30810-Q2919-X	Peripheral board (for U.S. only)
TS2	S30810-Q2913-X100	Peripheral board (not for U.S.)
UAM	S30122-X7217-X	Option
UPSC-D	S30122-K5660-M300	Central board
V24/1	S30807-Q6916-X100	Option (not for U.S.)
4SLA	S30810-Q2923-X200	Peripheral board (not for U.S.)
8SLA	S30810-Q2923-X100	Peripheral board
16SLA	S30810-Q2923-X	Peripheral board

Table 3-2 HiPath 3000 – Model Overview of all Boards and Components Used (Sheet 6 of 13)

Board or Component	Part Number	Function
For U.S. Only: Other Field-Replaceable Units for HiPath 3550		
RS-232 cable	–	Cable
Cabinet	S30777-U711-A103	Cabinet
MDF cables	S30267-Z320-A4	Cable
MDF cables	S30267-Z321-A4	Cable
Power supply cord	C39195-Z7001-C19	Cord
ALUM4 adapter cable	C39195-A7001-B105	Cable
Ribbon cable ANI4 to TMGL4	C39195-A7001-B87-1	Cable
Cable TST1 to CSU	S30122-K7031-X	Cable
RS-232 administration cable for LAN Bridge	S30122-X5468-X	Cable

Table 3-2 HiPath 3000 – Model Overview of all Boards and Components Used (Sheet 7 of 13)

Board or Component	Part Number	Function
⚠	**DANGER (for U.S. Only)** To protect against surge voltage caused by lightning, the following HiPath 3550 boards require secondary protection when their wiring leaves the building where the main distribution frame is housed: • CBCC • SLU8 • 8SLA • SLA16N • SLA24N • STLS4 • TST1* *When this module is connected to the public network, secondary protection must be provided by the CSU.	
HiPath 3350 **Caution:** The HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300 peripheral boards must be firmly inserted into their slots; otherwise contact problems can cause board failure.		
ALUM4	S30817-Q935-A	Option
ANI4	S30807-Q6917-A103	Option (for U.S. only)
CBCC	S30810-Q2935-A201	Central board
CBCP	S30810-Q2935-B201	Central board
CMA	S30807-Q6931-X	Central board
CMS	S30807-Q6928-X	Central board
CUP	S30777-Q751-X	Central board
EXM	S30817-Q902-B401	Option (not for U.S.)
EXMNA	S30817-Q6923-X	Option (for U.S. only)
GEE12	S30817-H951-Mxxx	Option (not for U.S.)
GEE16	S30817-H951-Mxxx	Option (not for U.S.)
GEE50	S30817-H951-Mxxx	Option (not for U.S.)
HOPE board	S30122-Q7078-X	Option (not for U.S.)
HOPE board	S30122-Q7079-X	Option (for U.S. only)
HXGS	S30810-Q2931-X S30810-Q2931-X100	Peripheral board Peripheral board

Table 3-2 HiPath 3000 – Model Overview of all Boards and Components Used (Sheet 8 of 13)

Board or Component	Part Number	Function
HXGS2	S30810-Q2939-X S30810-Q2939-X100	Peripheral board Peripheral board
IMODC	S30807-Q6932-X	Central board
IVMP8	S30122-Q7379-X100	Peripheral board
IVMS8	S30122-Q7379-X	Peripheral board
LIM	S30807-Q6930-X	Central board
MMC16	S30122-X7424-X	Central board
LAN Bridge	S30817-Q955-Axxx	Peripheral board
MPPI	S30122-K5380-X200 S30122-X7275-X	Option
OPAL	C39195-A7001-B130	Cable
PSUP	S30122-K5658-M	Central board
SLU8	S30817-Q922-A301	Peripheral board
STBG4	S30817-Q934-A	Option (France only)
STLS2	S30817-Q924-B313	Peripheral board (not for U.S.)
STLS4	S30817-Q924-A313	Peripheral board
STRB	S30817-Q932-A	Option
TLA2	S30817-Q923-B313	Peripheral board (not for U.S.)
TLA4	S30817-Q923-A313	Peripheral board (not for U.S.)
TLA8	S30817-Q926-A301	Peripheral board (not for U.S.)
TMGL4	S30810-Q2918-X	Peripheral board (for U.S. only)
TMQ4	S30810-Q2917-X	Peripheral board (for U.S. only)
UAM	S30122-X7217-X	Option
UPSC-D	S30122-K5660-M300	Central board
V24/1	S30807-Q6916-X100	Option (not for U.S.)
4SLA	S30810-Q2923-X200	Peripheral board (not for U.S.)
8SLA	S30810-Q2923-X100	Peripheral board
16SLA	S30810-Q2923-X	Peripheral board

Table 3-2 HiPath 3000 – Model Overview of all Boards and Components Used (Sheet 9 of 13)

Board or Component	Part Number	Function
For U.S. Only: Other Field-Replaceable Units for HiPath 3350		
RS-232 cable	–	Cable
Cabinet	S30777-U712-A103	Cabinet
MDF cables	S30267-Z320-A4	Cable
MDF cables	S30267-Z321-A4	Cable
Power supply cord	C39195-Z7001-C19	Cord
ALUM4 adapter cable	C39195-A7001-B105	Cable
Ribbon cable ANI4 to TMGL4	C39195-A7001-B87-1	Cable
Cable TST1 to CSU	S30122-K7031-X	Cable
RS-232 administration cable for LAN Bridge	S30122-X5468-X	Cable

⚠ **DANGER (for U.S. Only)**
To protect against surge voltage caused by lightning, the following HiPath 3350 boards require secondary protection when their wiring leaves the building where the main distribution frame is housed:

- CBCC
- SLU8
- 8SLA
- STLS4

HiPath 3250 (Not for U.S.)		
AM	S30122-X7217-X100	Option
CMS	S30807-Q6928-X	Central board
LIM	S30807-Q6930-X	Central board
MMC16	S30122-X7424-X	Central board
MPPI	S30122-X7275-X	Option
PSU One	S30122-K5837-M S30122-K5837-S	Central board

Table 3-2 HiPath 3000 – Model Overview of all Boards and Components Used (Sheet 10 of 13)

Board or Component	Part Number	Function
SBSCO	S30810-Q2937-A201	Central board
HiPath 3150 (Not for U.S.)		
AM	S30122-X7217-X100	Option
CMS	S30807-Q6928-X	Central board
LIM	S30807-Q6930-X	Central board
MMC16	S30122-X7424-X	Central board
MPPI	S30122-X7275-X	Option
PSU One	S30122-K5837-M S30122-K5837-S	Central board
SBSCS	S30810-Q2937-B201	Central board

Table 3-2 HiPath 3000 – Model Overview of all Boards and Components Used (Sheet 11 of 13)

Board or Component	Part Number	Function
HiPath 3500 **Caution:** The HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300 peripheral boards must be firmly inserted into their slots; otherwise contact problems can cause board failure.		
ANI4R	S30807-Q6917-Z103	Option (for U.S. only)
CBRC	S30810-K2935-Z	Central board
CMA	S30807-Q6931-X	Central board
CMS	S30807-Q6928-X	Central board
CUCR	S30777-Q750-Z	Central board
EXMR	S30817-K7403-Z103	Option
HXGSR	S30810-K2931-Z S30810-K2931-Z100	Peripheral board (not for U.S.)
HXGSR2	S30810-K2939-Z S30810-K2939-Z100	Peripheral board Peripheral board
IMODC	S30807-Q6932-X	Central board
IVMS8R	S30122-K7379-Z	Peripheral board
LIM	S30807-Q6930-X	Central board
MMC16	S30122-X7424-X	Central board
MPPI	S30122-X7275-X	Option
OPALR	C39195-A7001-B142	Option
PSUCR	S30122-K7371-M900	Central board (not for U.S.)
SLU8R	S30817-K922-Z301	Peripheral board
STLS4R	S30817-K924-Z313	Peripheral board
STRBR	S30817-Q932-Z	Option
TLA4R	S30817-Q923-Zxxx	Peripheral board
TMGL4R	S30810-K2918-Z	Peripheral board (for U.S. only)
TST1	S30810-K2919-Z	Peripheral board (for U.S. only)
TS2R	S30810-K2913-Z100	Peripheral board
UAMR	S30122-X7402-Z	Option
UPSC-DR	S30122-K7373-M900	Central board

Table 3-2 HiPath 3000 – Model Overview of all Boards and Components Used (Sheet 12 of 13)

Board or Component	Part Number	Function
8SLAR	S30810-K2925-Z	Peripheral board
For U.S. Only: Other Field-Replaceable Units for HiPath 3500		
RS-232 cable	–	Cable
Cabinet	S30777-U711-A903	Cabinet
MDF cables	S30267-Z320-A4	Cable
Cable ANI4R to TMGL4R	C39195-A7001-C69	Cable
HiPath 3300 **Caution:** The HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300 peripheral boards must be firmly inserted into their slots; otherwise contact problems can cause board failure.		
ANI4R	S30807-Q6917-Z103	Option (for U.S. only)
CBRC	S30810-K2935-Z	Central board
CBRP	S30810-K2935-Z100	Central board
CMA	S30807-Q6931-X	Central board
CMS	S30807-Q6928-X	Central board
CUPR	S30777-Q751-Z	Central board
EXMR	S30817-K7403-Z103	Option
HXGSR	S30810-K2931-Z S30810-K2931-Z100	Peripheral board (not for U.S.)
HXGSR2	S30810-K2939-Z S30810-K2939-Z100	Peripheral board Peripheral board
IMODC	S30807-Q6932-X	Central board
IVMP8R	S30122-K7379-Z100	Peripheral board
IVMS8R	S30122-K7379-Z	Peripheral board
LIM	S30807-Q6930-X	Central board
MMC16	S30122-X7424-X	Central board
MPPI	S30122-X7275-X	Option
OPALR	C39195-A7001-B142	Option
PSUPR	S30122-K7370-M900	Central board
SLU8R	S30817-K922-Z301	Peripheral board

Table 3-2 HiPath 3000 – Model Overview of all Boards and Components Used (Sheet 13 of 13)

Board or Component	Part Number	Function
STLS4R	S30817-K924-Z313	Peripheral board
STRBR	S30817-Q932-Z	Option
TLA4R	S30817-Q923-Zxxx	Peripheral board
TMGL4R	S30810-K2918-Z	Peripheral board (for U.S. only)
UAMR	S30122-X7402-Z	Option
UPSC-DR	S30122-K7373-M900	Central board
8SLAR	S30810-K2925-Z	Peripheral board
For U.S. Only: Other Field-Replaceable Units for HiPath 3300		
RS-232 cable	–	Cable
Cabinet	S30777-U712-A903	Cabinet
MDF cables	S30267-Z320-A4	Cable
Cable ANI4R to TMGL4R	C39195-A7001-C69	Cable

3.2 Central Boards

3.2.1 CBCC and CBRC

Introduction

The central board comes in two versions:

- CBCC (**C**entral **B**oard with **C**oldfire **C**om) S30810-Q2935-A201 (Figure 3-1) - for use in HiPath 3550 and HiPath 3350 (wall housing)
- CBRC (**C**entral **B**oard **R**ack **C**om) S30810-K2935-Z (Figure 3-2) - for use in HiPath 3500 and HiPath 3300 (19-inch housing)

Functions

- Signaling unit (SIU)
- PCM highway switching and conference circuit
- Battery-buffered real-time clock (approx. 100 hours backup time)

Disconnecting the battery buffer by unplugging the X27 jumper is necessary only for testing (module test at the factory). Disconnection does not necessarily delete the customer database (CDB). To delete the CDB, use the reset switch.

Interfaces

- Eight digital $U_{P0/E}$ subscriber lines
  For HiPath 3000, V1.2 and later, BS3/1 base stations can be directly connected for HiPath cordless. Chapter 11 contains information on this topic.
- Four analog a/b (T/R) subscriber lines
- Two digital S_0 interfaces (CO (default) or station)
- Backplane connection (CUC and CUCR) via slots 1 (X11), 2 (X5) and 3 (X6)
- Clock generator: CMA and CMS
- Music on hold: MPPI and EXM

CBCC: please note that you may only connect one MPPI module. In other words, you can connect either MPPI S30122-K5380-X200 via X4 or MPPI S30122-X7275-X via X19/X20.

- Options bus (O-bus)

- V.24 interfaces:
  - CBCC: two V.24 interfaces. The second interface is implemented with the V24/1 option.
  - CBRC: one V.24 interface
- MMC multimedia card (APS and Boot)
- IMODC integrated modem card
- LIM LAN interface module

Switches and Indicators

- Reset/reload switch
  - Switch pressed < 5 s = Reset activated
  - Switch pressed > 5 s = Reload activated (RUN LED out indicates that a reload is in progress)
- RUN LED
  LED status meaning is explained in Table 12-2.

Diagram of CBCC Board (S30810-Q2935-A201)

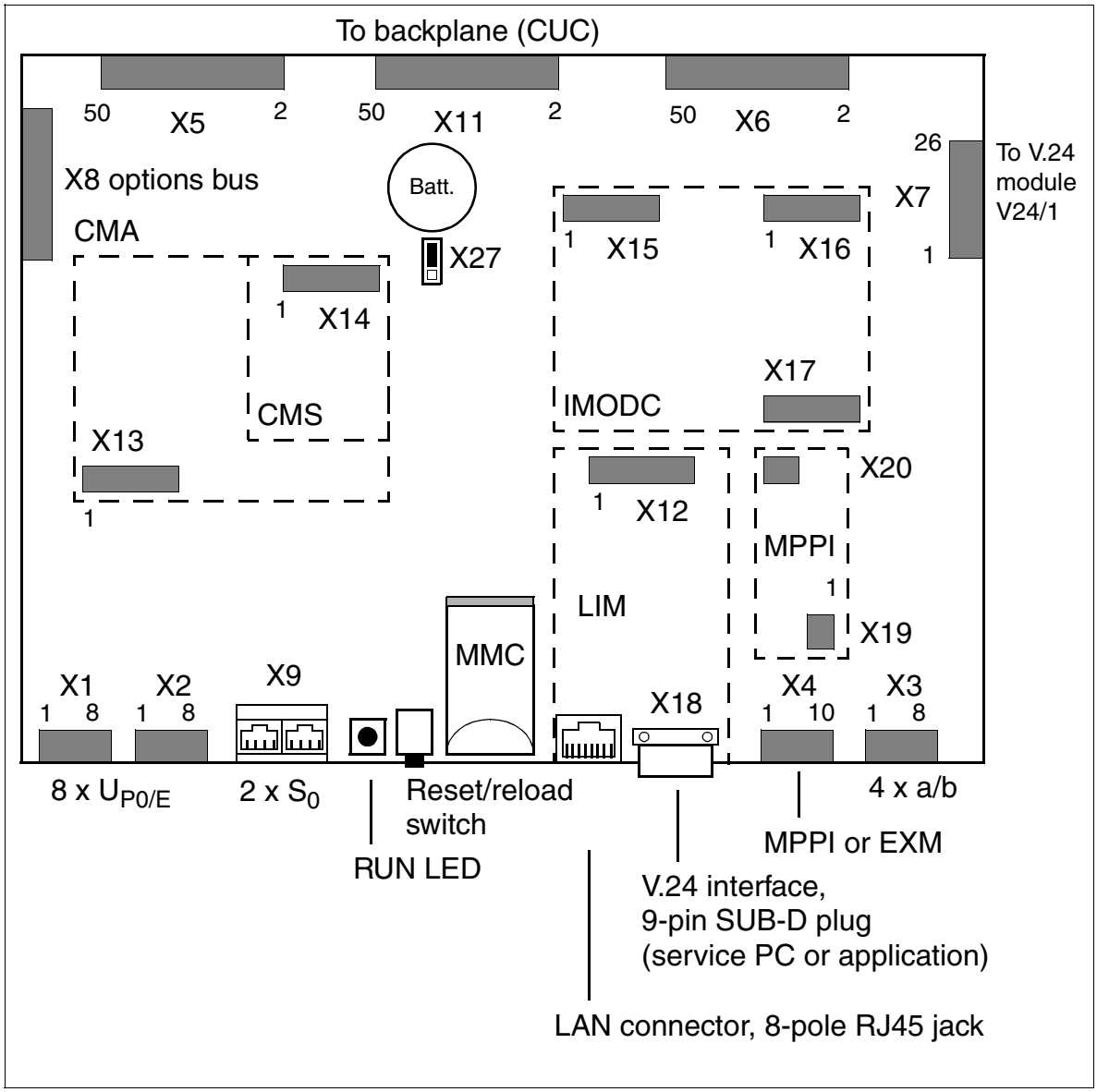


Figure 3-1 CBCC Interface (S30810-Q2935-A201)

Diagram of CBRC Board (S30810-K2935-Z)

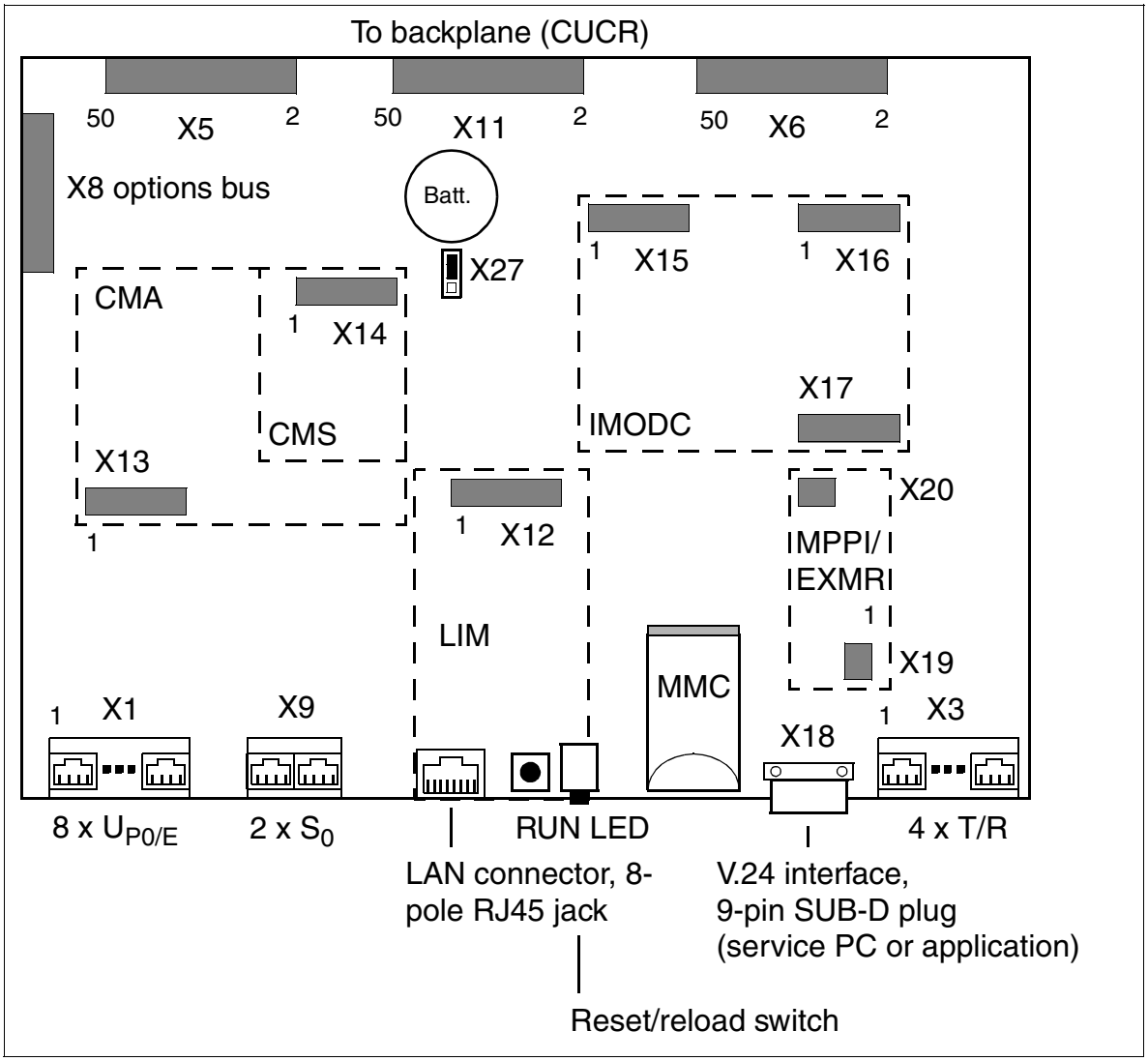


Figure 3-2 CBRC Interface (S30810-K2935-Z)

CBCC and CBRC Contact Assignments

Table 3-3 CBCC - X1 to X4 Contact Assignments

Pin	Connector X1	Connector X2	Connector X3	Connector X4
	$U_{P0/E}$		a/b	MPPI or EXM
1	$U_{P0/E}$ port 1b	$U_{P0/E}$ port 5b	a/b port 1a	GND
2	$U_{P0/E}$ port 1a	$U_{P0/E}$ port 5a	a/b port 1b	Not assigned
3	$U_{P0/E}$ port 2b	$U_{P0/E}$ port 6b	a/b port 2a	Not assigned
4	$U_{P0/E}$ port 2a	$U_{P0/E}$ port 6a	a/b port 2b	EXMCLK (512 kHz data cycle)
5	$U_{P0/E}$ port 3b	$U_{P0/E}$ port 7b	a/b port 3a	EXMDIR (8 kHz frame cycle)
6	$U_{P0/E}$ port 3a	$U_{P0/E}$ port 7a	a/b port 3b	EXMRES (high-active reset)
7	$U_{P0/E}$ port 4b	$U_{P0/E}$ port 8b	a/b port 4a	EXMD (data line)
8	$U_{P0/E}$ port 4a	$U_{P0/E}$ port 8a	a/b port 4b	EXMDET (detect signal)
9	–	–	–	+5 V
10	–	–	–	Not assigned

Table 3-4 CBRC - X1 and X3 Contact Assignments

Pin	Connector X1	Connector X3
	$U_{P0/E}$	a/b
14	$U_{P0/E}$ port 1a	a/b port 1a
15	$U_{P0/E}$ port 1b	a/b port 1b
24	$U_{P0/E}$ port 2a	a/b port 2a
25	$U_{P0/E}$ port 2b	a/b port 2b
34	$U_{P0/E}$ port 3a	a/b port 3a
35	$U_{P0/E}$ port 3b	a/b port 3b
44	$U_{P0/E}$ port 4a	a/b port 4a
45	$U_{P0/E}$ port 4b	a/b port 4b
54	$U_{P0/E}$ port 5a	–
55	$U_{P0/E}$ port 5b	–

Table 3-4 CBRC - X1 and X3 Contact Assignments

Pin	Connector X1	Connector X3
	$U_{P0/E}$	a/b
64	$U_{P0/E}$ port 6a	–
65	$U_{P0/E}$ port 6b	–
74	$U_{P0/E}$ port 7a	–
75	$U_{P0/E}$ port 7b	–
84	$U_{P0/E}$ port 8a	–
85	$U_{P0/E}$ port 8b	–

Table 3-5 CBCC and CBRC - X9 Contact Assignments

Pin	Connector X9
	S_0
11	S_0 port 1, transmit +
12	S_0 port 1, receive +
13	S_0 port 1, receive –
14	S_0 port 1, transmit –
21	S_0 port 2, transmit +
22	S_0 port 2, receive +
23	S_0 port 2, receive –
24	S_0 port 2, transmit –

V.24 Interface Assignment

Table 3-6 CBCC and CBRC - V.24 Interface Assignment (SUB-D Plug)

X18, Pin	Signal	Description
1	–	Not used
2	RxD A	Receive data, channel A
3	TxD A	Transmit data, channel A
4	–	Not used
5	0 V	Ground
6	–	Not used
7	RTS A	Request to send, channel A
8	CTS A	Clear to send, channel A
9	–	Not used

LAN Connector Assignment

Table 3-7 CBCC and CBRC - LAN Connector Assignment (RJ45 Jack)

Pin	Signal	Description
1	Tx +	Transmit +
2	Tx –	Transmit –
3	Rx +	Receive +
4	–	Not used
5	–	Not used
6	Rx –	Receive –
7	–	Not used
8	–	Not used

CBCC and CBRC Numbering Plan (HiPath 3550 and HiPath 3500)

Table 3-8 Numbering Plan for HiPath 3550 and HiPath 3500

Station	Int. stn. no.	DID no.	Port
$U_{P0/E}$ host (primary)	100	100	$U_{P0/E}$ 1
	101	101	$U_{P0/E}$ 2
	102	102	$U_{P0/E}$ 3
	103	103	$U_{P0/E}$ 4
	104	104	$U_{P0/E}$ 5
	105	105	$U_{P0/E}$ 6
	106	106	$U_{P0/E}$ 7
	107	107	$U_{P0/E}$ 8
$U_{P0/E}$ client (secondary)	500	500	$U_{P0/E}$ 1
	501	501	$U_{P0/E}$ 2
	502	502	$U_{P0/E}$ 3
	503	503	$U_{P0/E}$ 4
	504	504	$U_{P0/E}$ 5
	505	505	$U_{P0/E}$ 6
	506	506	$U_{P0/E}$ 7
	507	507	$U_{P0/E}$ 8
Analog a/b (T/R)	108	108	a/b 1
	109	109	a/b 2
	110	110	a/b 3
	111	111	a/b 3
Line	**Code**		**Port**
S_0 CO PP	7801		S_0 1-1
	7802		S_0 1-2
	7803		S_0 2-1
	7804		S_0 2-2

3.2.2 CBCP and CBRP

Note: The board described here is not currently used for HiPath 3000. HiPath 3350 is delivered world-wide with CBCC and HiPath 3300 with CBRC.

Introduction

The central board comes in two versions:

- CBCP (**C**entral **B**oard with **C**oldfire **P**oint) S30810-Q2935-B201 (Figure 3-3) - for use in HiPath 3350 (wall housing)
- CBRP (**C**entral **B**oard **R**ack **P**oint) S30810-K2935-Z100 (Figure 3-4) - for use in HiPath 3300 (19-inch housing)

Functions

- Signaling unit (SIU)
- PCM highway switching and conference circuit
- Battery-buffered real-time clock (approx. 100 hours backup time)

Disconnecting the battery buffer by unplugging the X27 jumper is necessary only for testing (module test at the factory). Disconnection does not necessarily delete the customer database (CDB). To delete the CDB, use the reset switch.

Interfaces

- Eight digital $U_{P0/E}$ subscriber lines
  For HiPath 3000, V1.2 and later, BS3/1 base stations can be directly connected for HiPath cordless. Chapter 11 contains information on this topic.
- Four analog a/b (T/R) subscriber lines
- Two digital S_0 interfaces (CO (default) or station)
- Backplane connection (CUP / CUPR) via slots 1 (X11), 2 (X5) and 3 (X6)
- Clock generator: CMS
- Music on hold: MPPI and EXM

CBCP: please note that only one MPPI module may be connected. In other words, you can connect either MPPI S30122-K5380-X200 via X4 or MPPI S30122-X7275-X via X19/X20.

- Options bus (O-bus)

- V.24 interfaces:
  - CBCP: two V.24 interfaces. The second interface is implemented via the V24/1 option.
  - CBRP: one V.24 interface
- MMC multimedia card (APS and boot)
- IMODC integrated modem card
- LIM LAN interface module

Switches and Indicators

- Reset/reload switch
  - Switch pressed < 5 s = Reset activated
  - Switch pressed > 5 s = Reload activated (RUN LED out indicates that a re-load is in progress)
- RUN LED
  LED status meaning is explained in Table 12-2.

Diagram of CBCP Board (S30810-Q2935-B201)

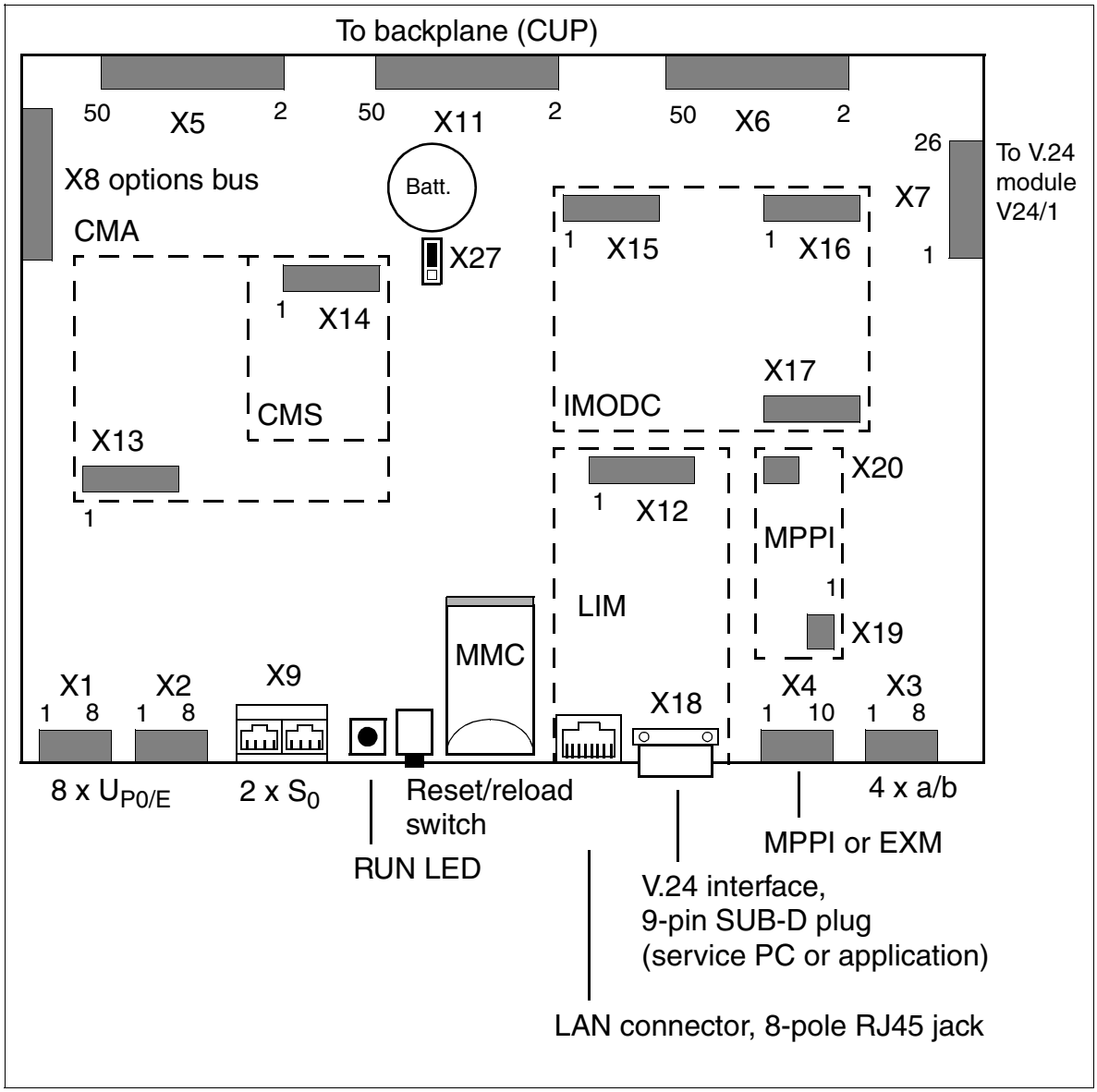


Figure 3-3 CBCP Board (S30810-Q2935-B201)

Diagram of CBRP Board (S30810-K2935-Z100)

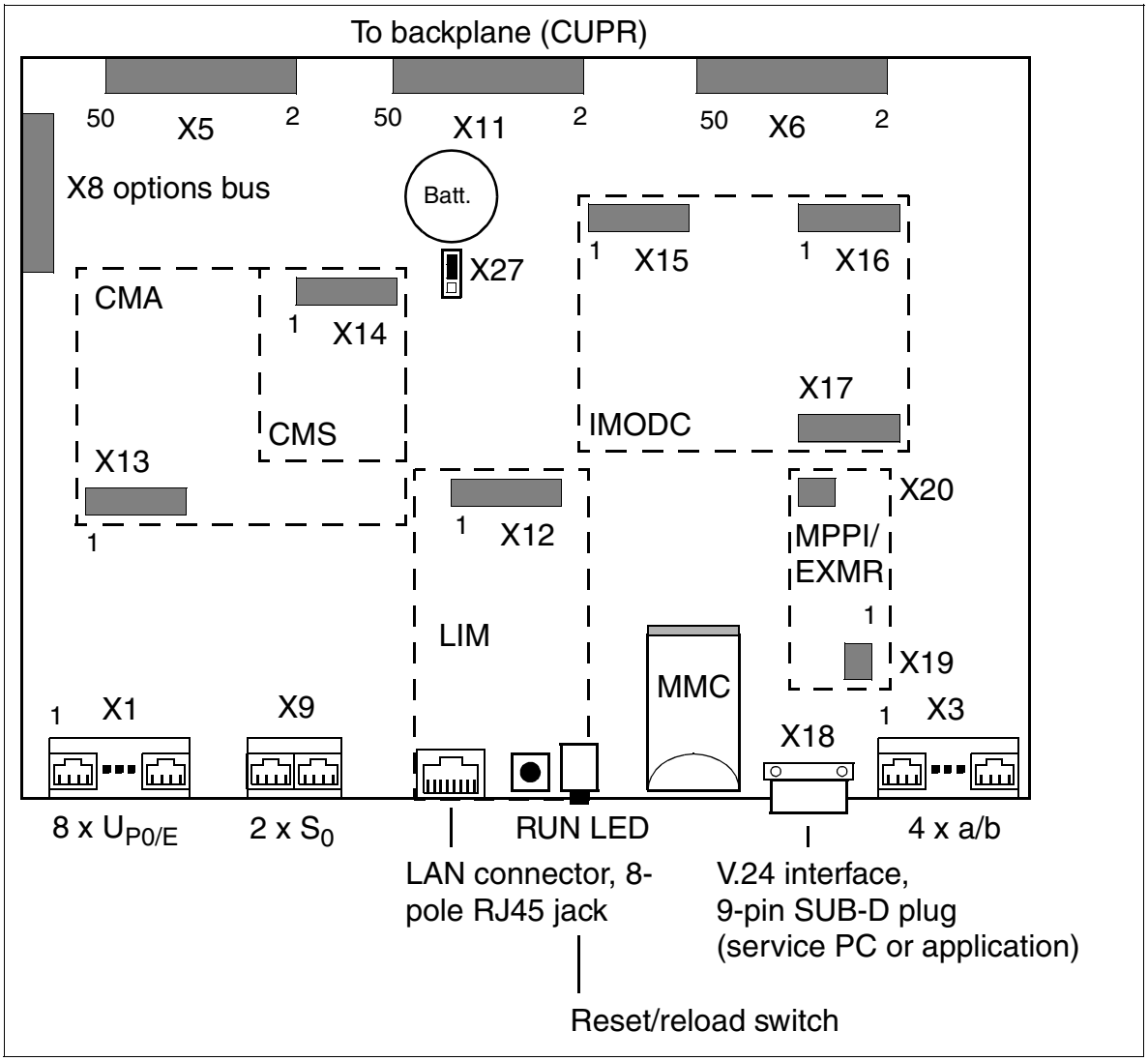


Figure 3-4 CBRP Board (S30810-K2935-Z100)

CBCP and CBRP Contact Assignments

Table 3-9 CBCP - X1 to X4 Contact Assignments

Pin	Connector X1	Connector X2	Connector X3	Connector X4
	$U_{P0/E}$		a/b	MPPI or EXM
1	$U_{P0/E}$ port 1b	$U_{P0/E}$ port 5b	a/b port 1a	GND
2	$U_{P0/E}$ port 1a	$U_{P0/E}$ port 5a	a/b port 1b	Not assigned
3	$U_{P0/E}$ port 2b	$U_{P0/E}$ port 6b	a/b port 2a	Not assigned
4	$U_{P0/E}$ port 2a	$U_{P0/E}$ port 6a	a/b port 2b	EXMCLK (512 kHz data cycle)
5	$U_{P0/E}$ port 3b	$U_{P0/E}$ port 7b	a/b port 3a	EXMDIR (8 kHz frame cycle)
6	$U_{P0/E}$ port 3a	$U_{P0/E}$ port 7a	a/b port 3b	EXMRES (High-active reset)
7	$U_{P0/E}$ port 4b	$U_{P0/E}$ port 8b	a/b port 4a	EXMD (data line)
8	$U_{P0/E}$ port 4a	$U_{P0/E}$ port 8a	a/b port 4b	EXMDET (detect signal)
9	–	–	–	+5 V
10	–	–	–	Not assigned

Table 3-10 CBRP - X1 and X3 Contact Assignments

Pin	Connector X1	Connector X3
	$U_{P0/E}$	a/b
14	$U_{P0/E}$ port 1a	a/b port 1a
15	$U_{P0/E}$ port 1b	a/b port 1b
24	$U_{P0/E}$ port 2a	a/b port 2a
25	$U_{P0/E}$ port 2b	a/b port 2b
34	$U_{P0/E}$ port 3a	a/b port 3a
35	$U_{P0/E}$ port 3b	a/b port 3b
44	$U_{P0/E}$ port 4a	a/b port 4a
45	$U_{P0/E}$ port 4b	a/b port 4b
54	$U_{P0/E}$ port 5a	–
55	$U_{P0/E}$ port 5b	–

Table 3-10 CBRP - X1 and X3 Contact Assignments

Pin	Connector X1	Connector X3
	$U_{P0/E}$	a/b
64	$U_{P0/E}$ port 6a	–
65	$U_{P0/E}$ port 6b	–
74	$U_{P0/E}$ port 7a	–
75	$U_{P0/E}$ port 7b	–
84	$U_{P0/E}$ port 8a	–
85	$U_{P0/E}$ port 8b	–

Table 3-11 CBCP and CBRP - X10 Contact Assignments

Pin	Connector X10
	S_0
11	S_0 port 1, transmit +
12	S_0 port 1, receive +
13	S_0 port 1, receive –
14	S_0 port 1, transmit –
21	S_0 port 2, transmit +
22	S_0 port 2, receive +
23	S_0 port 2, receive –
24	S_0 port 2, transmit –

V.24 Interface Assignment

Table 3-12 CBCP and CBRP - V.24 Connector Assignment (SUB-D Plug)

X18, Pin	Signal	Description
1	–	Not used
2	RxD A	Receive data, channel A
3	TxD A	Transmit data, channel A
4	–	Not used
5	0 V	Ground
6	–	Not used
7	RTS A	Request to send, channel A
8	CTS A	Clear to send, channel A
9	–	Not used

LAN Connector Assignment

Table 3-13 CBCP and CBRP - LAN Connector Assignment (RJ45 Jack)

Pin	Signal	Description
1	Tx +	Transmit +
2	Tx –	Transmit –
3	Rx +	Receive +
4	–	Not used
5	–	Not used
6	Rx –	Receive –
7	–	Not used
8	–	Not used

CBCP and CBRP Numbering Plan (HiPath 3350 and HiPath 3300)

Table 3-14 Numbering Plan for HiPath 3350 and HiPath 3300

Station	Int. stn. no.	DID no.	Port
$U_{P0/E}$ host (primary)	11	11	$U_{P0/E}$ 1
	12	12	$U_{P0/E}$ 2
	13	13	$U_{P0/E}$ 3
	14	14	$U_{P0/E}$ 4
	15	15	$U_{P0/E}$ 5
	16	16	$U_{P0/E}$ 6
	17	17	$U_{P0/E}$ 7
	18	18	$U_{P0/E}$ 8
$U_{P0/E}$ client (secondary)	51	51	$U_{P0/E}$ 1
	52	52	$U_{P0/E}$ 2
	53	53	$U_{P0/E}$ 3
	54	54	$U_{P0/E}$ 4
	55	55	$U_{P0/E}$ 5
	56	56	$U_{P0/E}$ 6
	57	57	$U_{P0/E}$ 7
	58	58	$U_{P0/E}$ 8
Analog a/b (T/R)	19	19	a/b 1
	20	20	a/b 2
	21	21	a/b 3
	22	22	a/b 3
Line	**Code**		**Port**
S_0 CO PP	801		S_0 1-1
	802		S_0 1-2
	803		S_0 2-1
	804		S_0 2-2

3.2.3 CBCPR

Introduction

The CBCPR board (shown in Figure 3-5) performs all central control and switching functions for HiPath 3750 and HiPath 3700.

Disconnecting the battery buffer by unplugging the X27 jumper is necessary only for testing (module test at the factory). Disconnection does not necessarily delete the customer database (CDB). To delete the CDB, use the reset switch.

Subboards

The following subboards can be used depending on the application:

- CMS clock module (optional)
- MMC multimedia card
- IMODC integrated modem card Columbus (optional)
- LIM LAN interface module (optional)
  Section 3.2.10 contains information on how to make the LAN connection.
- MPPI music on hold (optional)

V.24 Interfaces

- To connect a service PC, you can access the first V.24 interface (9-pin SUB-D plug) on the CBCPR from the front of the basic cabinet (after removing the cover). (See Figure 3-5).
- You can access the second V.24 interface (25-pin SUB-D plug) via the backplane of the basic cabinet (X7).

Switches and Indicators

- Reset/reload switch
  - Switch pressed < 5 s = Reset activated
  - Switch pressed > 5 s = Reload activated (RUN LED out indicates that a reload is in progress)
- RUN LED
  Signals the current status of the CBCPR board (see Table 12-2).

Diagram of the CBCPR Board

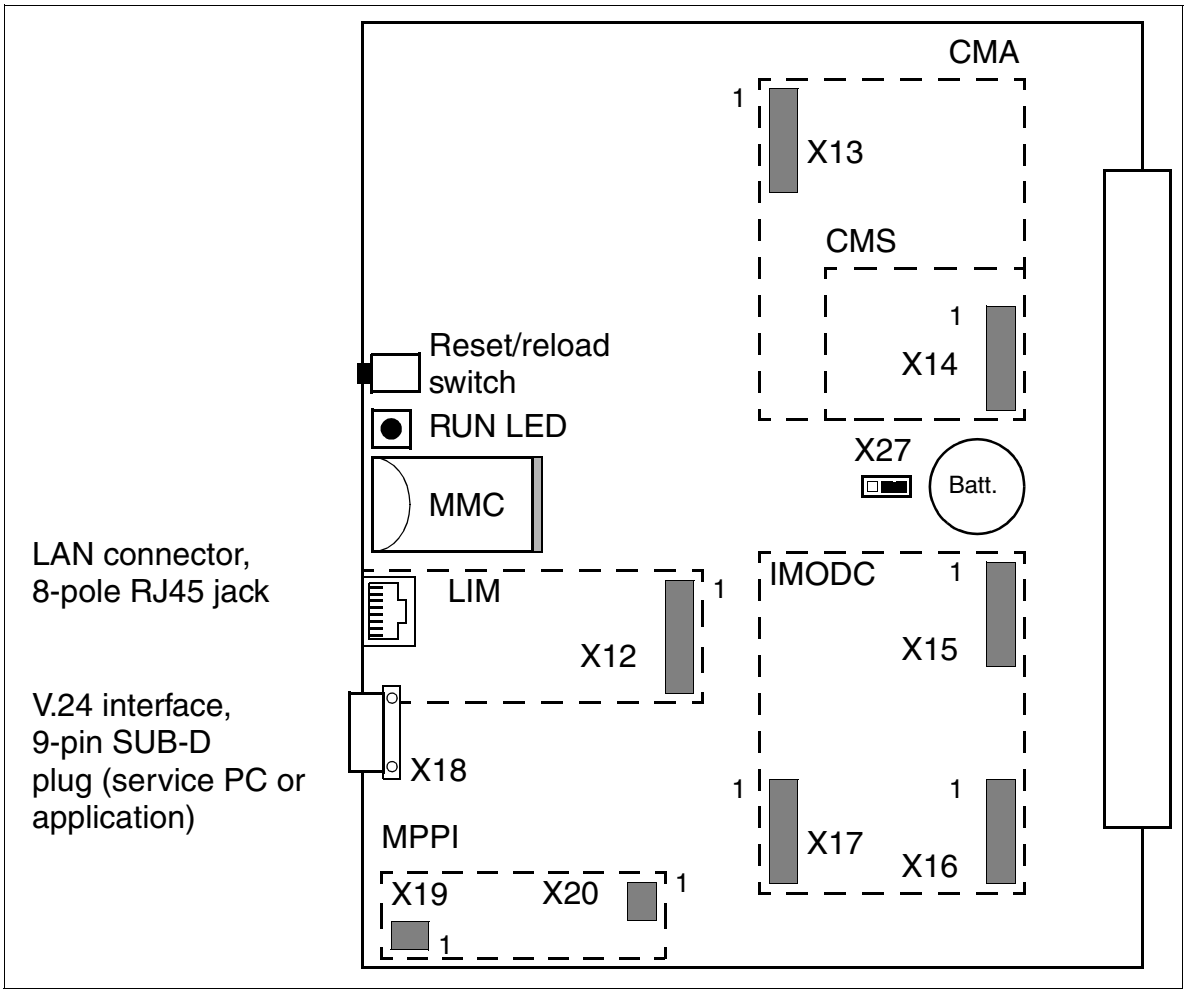


Figure 3-5 CBCPR Board (S30810-Q2936-X)

V.24 Interface Assignment

Table 3-15 CBCPR - V.24 Interface Assignment (SUB-D Plug)

X18, Pin	Signal	Description
1	–	Not used
2	RxD A	Receive data, channel A
3	TxD A	Transmit data, channel A
4	–	Not used
5	0 V	Ground
6	–	Not used
7	RTS A	Request to send, channel A
8	CTS A	Clear to send, channel A
9	–	Not used

LAN Connector Assignment

Table 3-16 CBCPR - LAN Connector Assignment (RJ45 Jack)

Pin	Signal	Description
1	Tx +	Transmit +
2	Tx –	Transmit –
3	Rx +	Receive +
4	–	Not used
5	–	Not used
6	Rx –	Receive –
7	–	Not used
8	–	Not used

3.2.4 CMA

Caution
Place the central control board on a flat surface before inserting the CMA subboard. The spacing bolts supplied guarantee the correct insertion of the subboard, so you should always mount them (see Figure 3-6).
Otherwise you may damage the board.

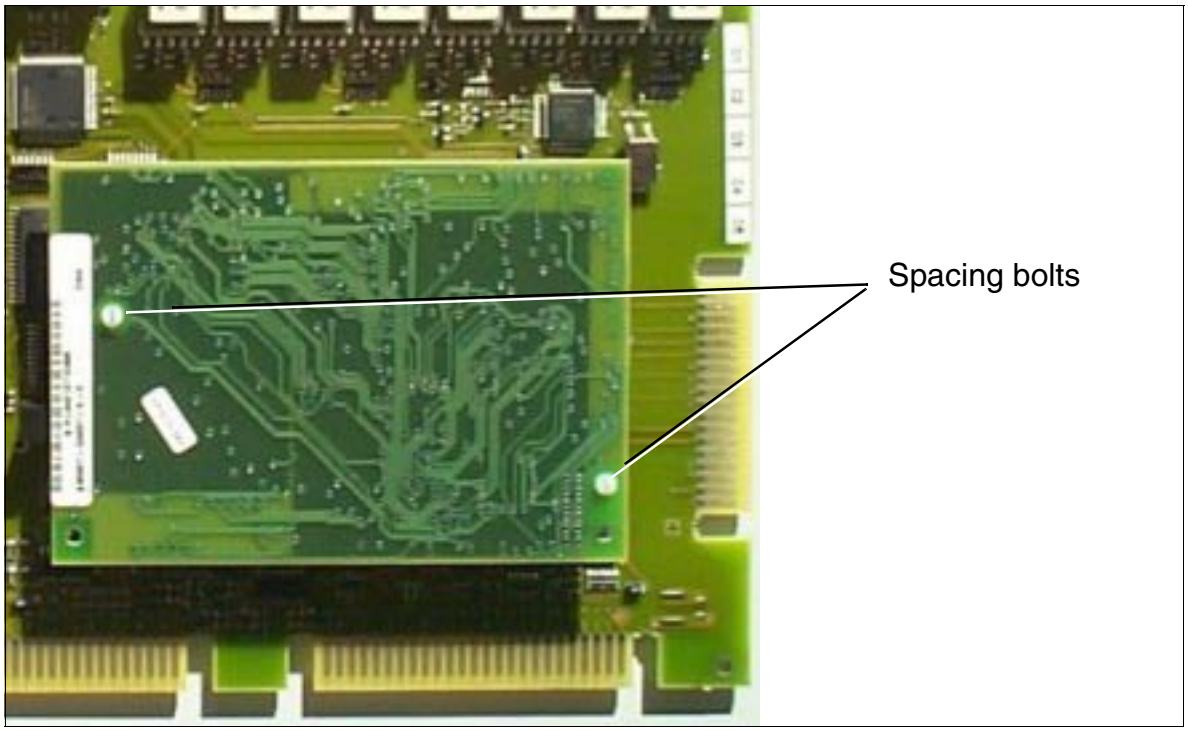


Figure 3-6 CMA with Spacing Bolts

Introduction

The **C**lock **M**odule **A**DPCM CMA (S30807-Q6931-X) is an optional subboard for the CBCC and CBRC central control boards.

The CMA module is needed for special HiPath cordless configurations (Table 11-1 indicates the cases when you must use CMA instead of CMS).

All clock module small (CMS) functions are available when you insert a CMA module.

3.2.5 CMS

> **Caution**
> Place the central control board on a flat surface before inserting the CMS subboard. The spacing bolts supplied guarantee the correct insertion of the subboard, so you should always mount them (see Figure 3-6).
> Otherwise you may damage the board.

Introduction

The **C**lock **M**odule **S**mall CMS (S30807-Q6928-X) is an optional subboard for the HiPath 3000 central control boards.

The CMS module must be inserted for

- HiPath cordless (Table 11-1 indicates when you must use CMS or CMA).
- Digital networking (CorNet-N, QSig, LAN).

Greater clock accuracy is required in these cases.

3.2.6 CR8N

Introduction

The CR8N (**C**ode **R**eceiver) board is an optional plug-in module and can be used in any slot in all HiPath 3750 and HiPath 3700 cabinets.

The CR8N board is required for:

- A high outgoing traffic load and a large number of analog subscribers exist.
- A Hicom Phonemail system with more than six ports and the automatic attendant function is connected.
- An external automatic attendant is being used as a virtual attendant and the system has a large number of analog trunks.

In these cases, the six code receivers (for tone dialing on analog telephones) that are already present in the system on the CBCPR are not sufficient. Adding a CR8N board provides another eight code receivers and eight code transmitters. Up to two CR8Ns can be installed in each system. A CR8N board and a CR8 board (S30810-Q2513-X) cannot be used in the same system simultaneously.

You can also install or remove a CR8N board during operation. If you remove it while the system is in the operating state, you risk interrupting DTMF signal processing. It is always recommended that you remove or install the board only while the system is switched off.

Note the following recommendations for using the CR8N board if a Hicom Phonemail system, voice mail system, or automatic attendant is connected:

- Up to 8 ports: No CR8N board required.
- 9 to 24 ports: One CR8N board required.
- Over 24 ports: Two CR8N boards required.

These are general recommendations only. In some cases, a CR8N board may already be required for six ports under extreme load conditions.

Switches and LEDs

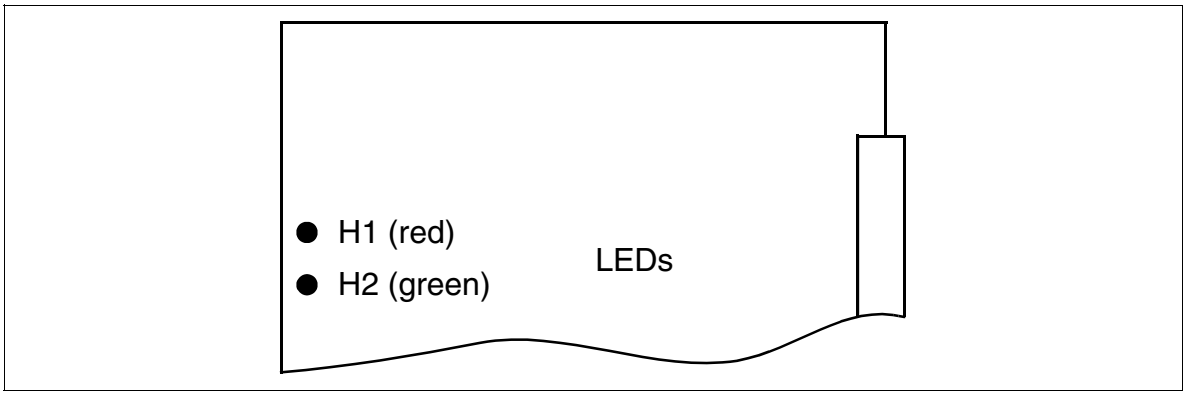


Figure 3-7 CR8N (S30810-Q2513-X100)

LED Statuses and Their Meanings

Table 3-17 CR8N - LED Statuses

Red LED	Green LED	Status	Action
Off	Off	Board is not connected to the power source or is not inserted correctly. Board is out of service.	Check board connector contact.
On	Off	Board is receiving power and board test is in progress.	Wait
		If the status does not change, the loadware did not load correctly. Board is defective.	Replace board
Flashing	Off	Loadware is loading.	
On	On	Board test failed. Board is defective.	Replace board
Off	On	Board test completed successfully and board is OK (temporary transition).	
Off	Flashing	Board ready.	

3.2.7 CUC and CUCR

The backplane comes in two versions:

- CUC (**C**onnection **U**nit **C**om) S30777-Q750-X (Figure 3-8) - for use in HiPath 3550 (wall housing)
- CUCR (**C**onnection **U**nit **C**om **R**ack) S30777-Q750-Z (Figure 3-9) - for use in HiPath 3500 (19-inch housing)

CUC Connector Designations and Slot Assignments (S30777-Q750-X)

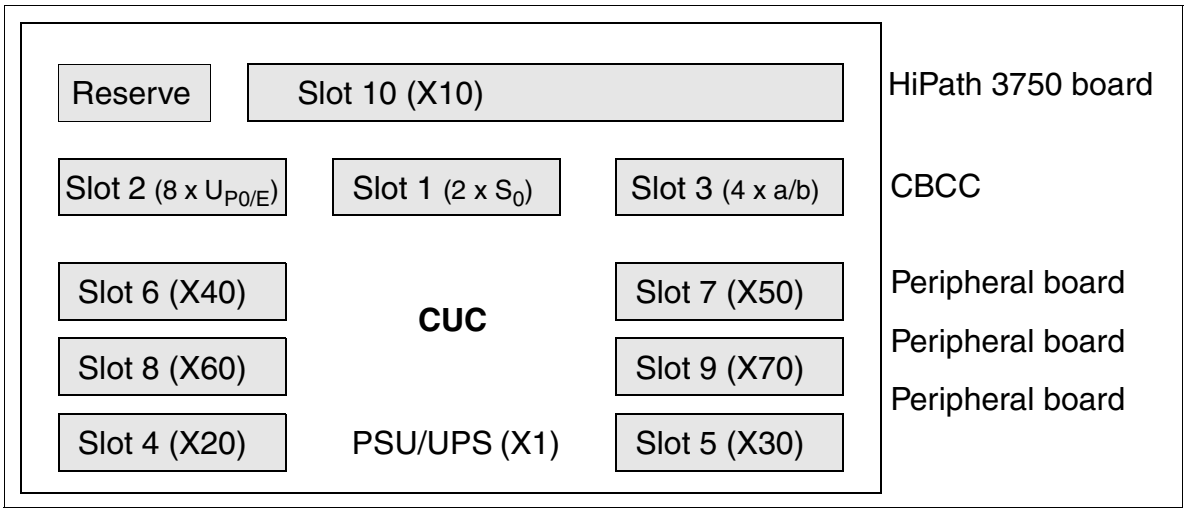


Figure 3-8 CUC Backplane (S30777-Q750-X)

CUCR Connector Designations and Slot Assignments (S30777-Q750-Z)

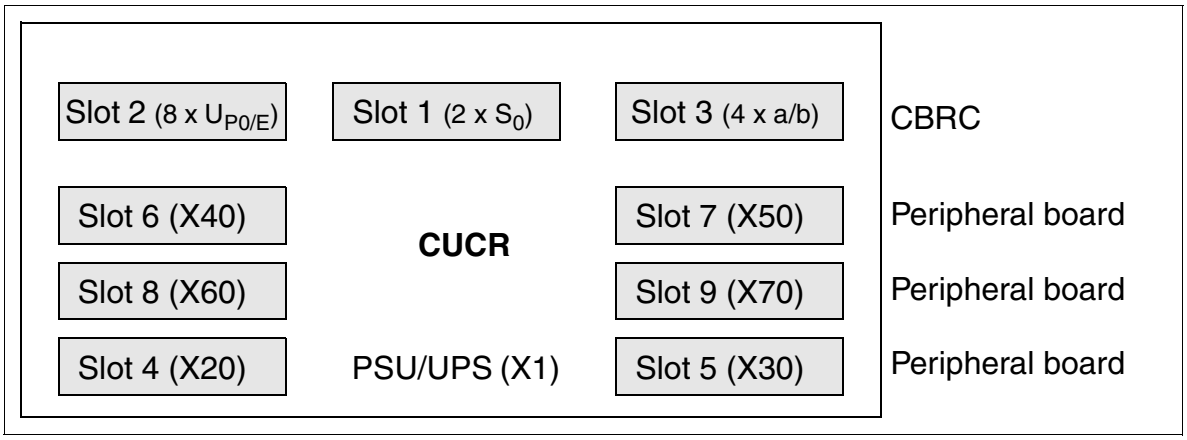


Figure 3-9 CUCR Backplane (S30777-Q750-Z)

3.2.8 CUP and CUPR

The backplane comes in two versions:

- CUP (**C**onnection **U**nit **P**oint) S30777-Q751-X (Figure 3-10) - for use in HiPath 3350 (wall housing)
- CUPR (**C**onnection **U**nit **P**oint **R**ack) S30777-Q751-Z (Figure 3-11) - for use in HiPath 3300 (19-inch housing)

CUP Connector Designations and Slot Assignments (S30777-Q751-X)

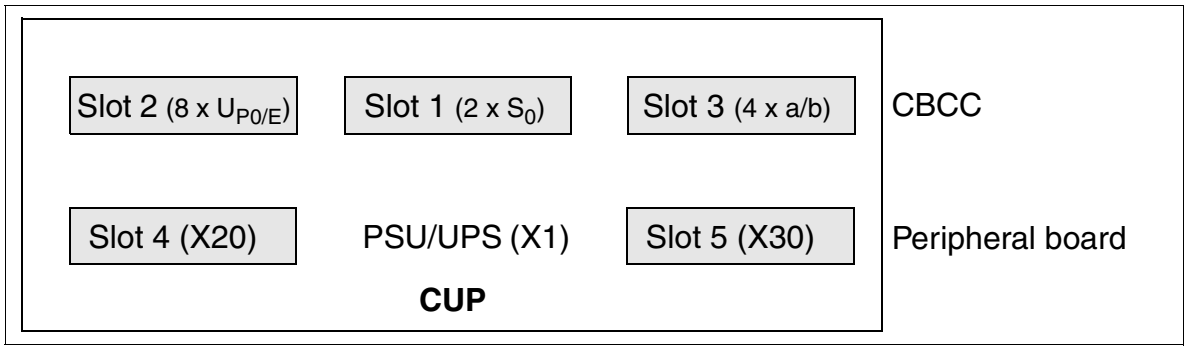


Figure 3-10 CUP Backplane (S30777-Q751-X)

CUPR Connector Designations and Slot Assignments (S30777-Q751-Z)

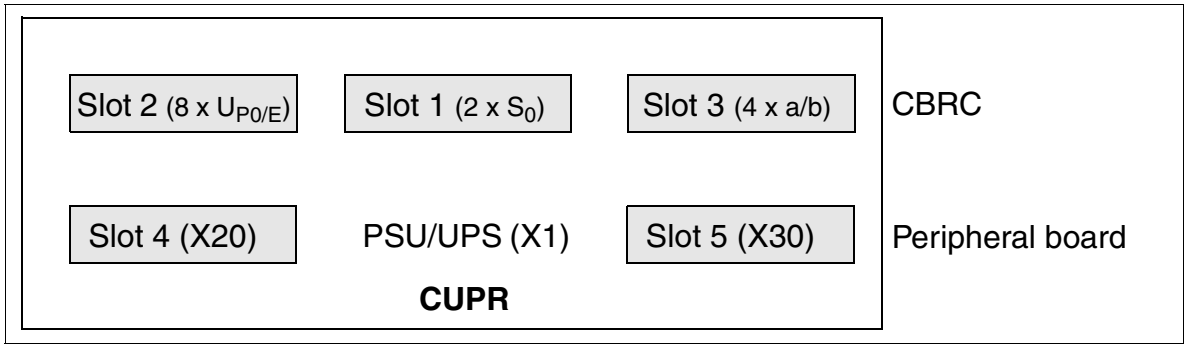


Figure 3-11 CUPR Backplane (S30777-Q751-Z)

3.2.9 IMODC

Caution
Place the central control board on a flat surface before inserting the IMODC subboard.
The spacing bolts supplied guarantee the correct insertion of the subboard, so you should always mount them (see Figure 3-6).
Otherwise you may damage the board.

Introduction

The **I**ntegrated **M**odem Card **C**olumbus IMODC (S30807-Q6932-X) is an optional subboard for the HiPath 3000 central control boards.
This board cannot be used with the HiPath 3250 and HiPath 3150 control boards.

It permits the use of remote service (analog mode up to 14.4 kbit/s) without an external modem.

3.2.10 LIM

Caution
The LAN interface module must not be plugged in or out when the system is energized.
Place the central control board on a flat surface before inserting the LIM subboard. The spacing bolts supplied guarantee the correct insertion of the subboard, so you should always mount them (see Figure 3-6).
Otherwise you may damage the board.

Interface

The **L**AN **i**nterface **m**odule (LIM - S30807-Q6930-X) is an optional plug-in card for all HiPath 3000 central control boards.

The board provides an Ethernet (10BaseT/10 Mb) LAN connection via an 8-pole RJ45 jack.

You cannot operate the LIM module and a HiPath HG1500 board simultaneously in a HiPath 3000.

RJ45 Jack Assignment

Table 3-18 LIM - RJ45 Jack Assignment

Pin	Signal	Description
1	Tx +	Transmit +
2	Tx –	Transmit –
3	Rx +	Receive +
4	–	Not used
5	–	Not used
6	Rx –	Receive –
7	–	Not used
8	–	Not used

LAN Connection for HiPath 3750 and HiPath 3700

Make the LAN connection using the adapter cable and a standard patch cable, which is to be stripped and fastened to the grill on the backplane as shown in Figure 3-12.

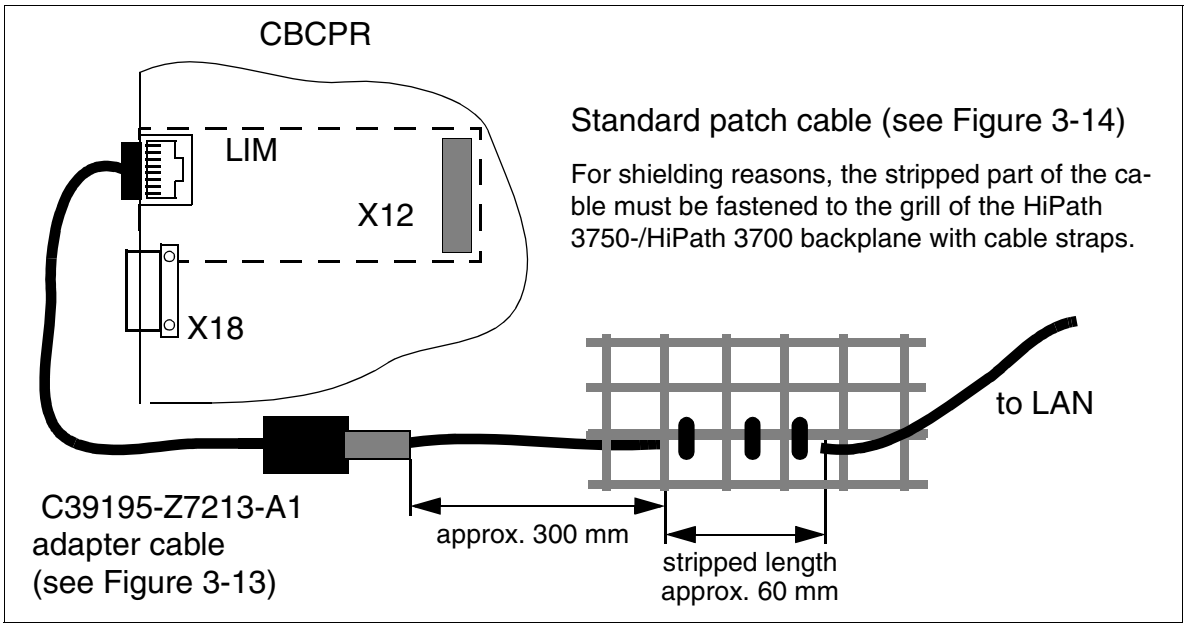


Figure 3-12 LIM in HiPath 3750 and HiPath 3700 - Procedure for LAN Connection

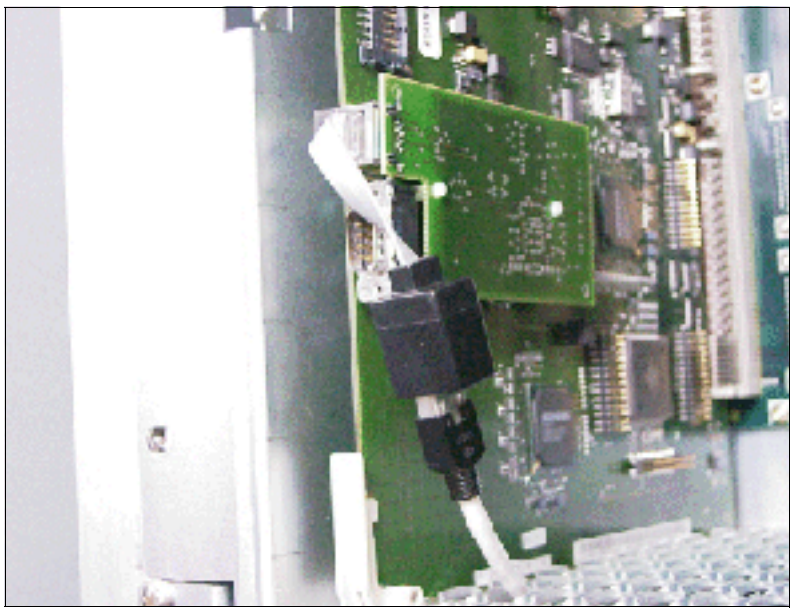


Figure 3-13 LIM in HiPath 3750 and HiPath 3700 - C39195-Z7213-A1 Adapter Cable

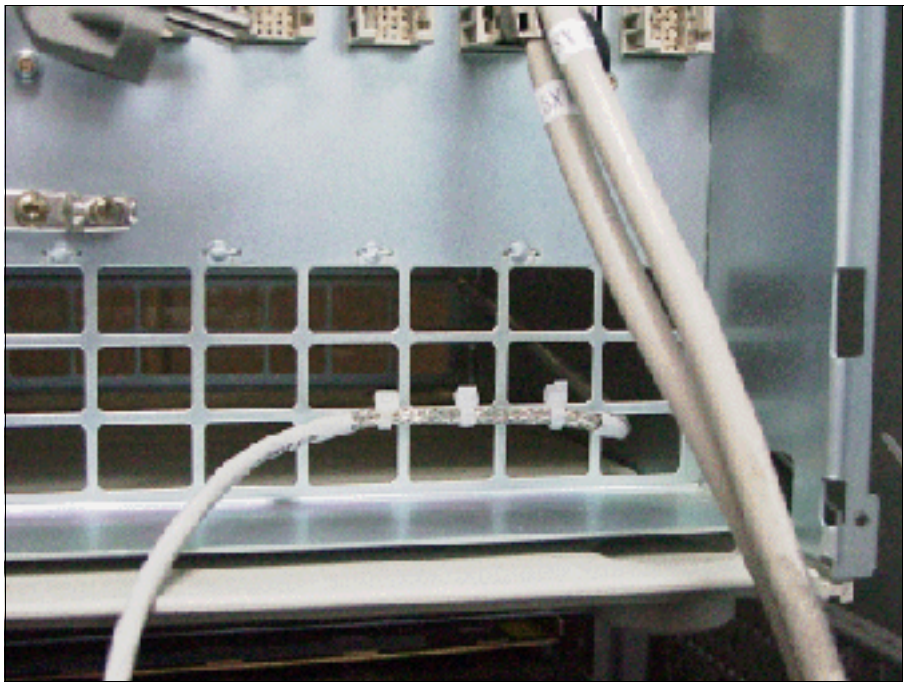


Figure 3-14 LIM in HiPath 3750 and HiPath 3700 - Attachment of the Patch Cable to the Backplane Grill

3.2.11 MMC16

Introduction

The **m**ulti**m**edia **c**ard (MMC) is a plug-in memory card for the central control boards and contains the CDB backup and the country-specific and release-specific application processor software (APS).

Please note that the MMC may only be replaced by a multimedia card released by Siemens AG. Cards that have not been released may have a different internal structure, which affects temporal access and some features (for example CDB backup and APS transfer).

Table 3-19 Multimedia Card Models and Applications

MMC	Part Number	Country	Application in HiPath 3000									
			HiPath 3750	HiPath 3550	HiPath 3350	HiPath 3350 with CBCC	HiPath 3250	HiPath 3150	HiPath 3700	HiPath 3500	HiPath 3300	HiPath 3300 with CBRC
HiPath 3000 Version 1.2												
MMC16 (16 MB)	S30122-X7424-X (= empty basic MMC)	World	X	X	X	X	X	X	X	X	X	X
	P30370-P855-A610		X						X			
	P30370-P856-A610			X		X				X		X
	P30370-P857-A610				X		X	X			X	
HiPath 3000 Version 3.0												
MMC16 (16 MB)	S30122-X7424-X (= empty basic MMC)	World	X	X	X	X	X	X	X	X	X	X
	P30370-P1031-A816		X						X			
	P30370-P1032-A816			X		X				X		X
	P30370-P1033-A816				X		X	X			X	

3.2.12 PSUC and PSUCR (not for U.S.)

Note: Siemens AG intends to replace the PSUC and PSUCR power supplies described here by the new UPSC-D and UPSC-DR power supplies.

Introduction

The power supply comes in two versions:

- PSUC S30122-K5661-X (Figure 3-15) and S30122-K5661-M (Figure 3-16) - for use in HiPath 3550 (wall housing)
  This device plugs into a special slot and is secured by screws. It connects to the power outlet using a modular power cord.
  For production reasons, two different PSUC units with the same function exist. Technically, the two power supplies are identical and interchangeable.
- PSUCR S30122-K7371-M900 (Figure 3-17) - for use in HiPath 3500 (19-inch housing)
  This device plugs into a special slot and is secured by screws. It connects to the power outlet using a modular power cord in the 19-inch housing.

DANGER
The **PSUCR** board **is not insulated**.
Consequently, a system using a PSUCR may only be operated with a closed housing. Before opening the housing, make sure that the system is de-energized by disconnecting the system power cord from the outlet.

A monitoring LED indicates the presence of the 5 V output voltage.

Technical Specifications

- Nominal voltage range: 100 Vac - 240 Vac
- Nominal frequency: 50 Hz - 60 Hz
- Ring generator: 75 Vac, 20/25/50 Hz
- Partial voltages: +5 Vdc, –48 V
- Power consumption: 145 W

Caution
System voltage can only be switched on or off by plugging in or out the power cord.

PSUC Interfaces (S30122-K5661-X)

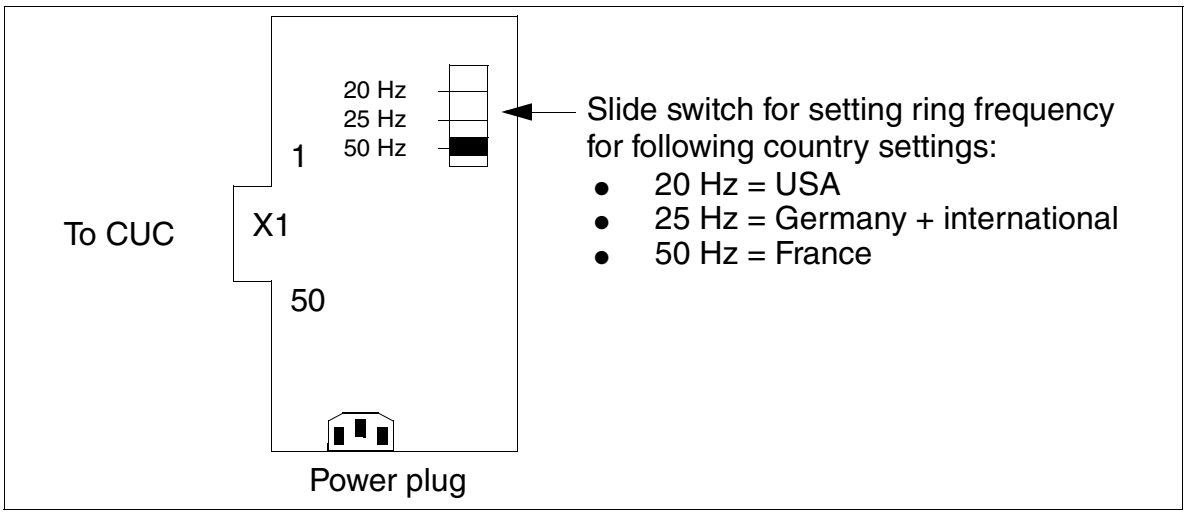


Figure 3-15 PSUC Interfaces (S30122-K5661-X)

PSUC Interfaces (S30122-K5661-M)

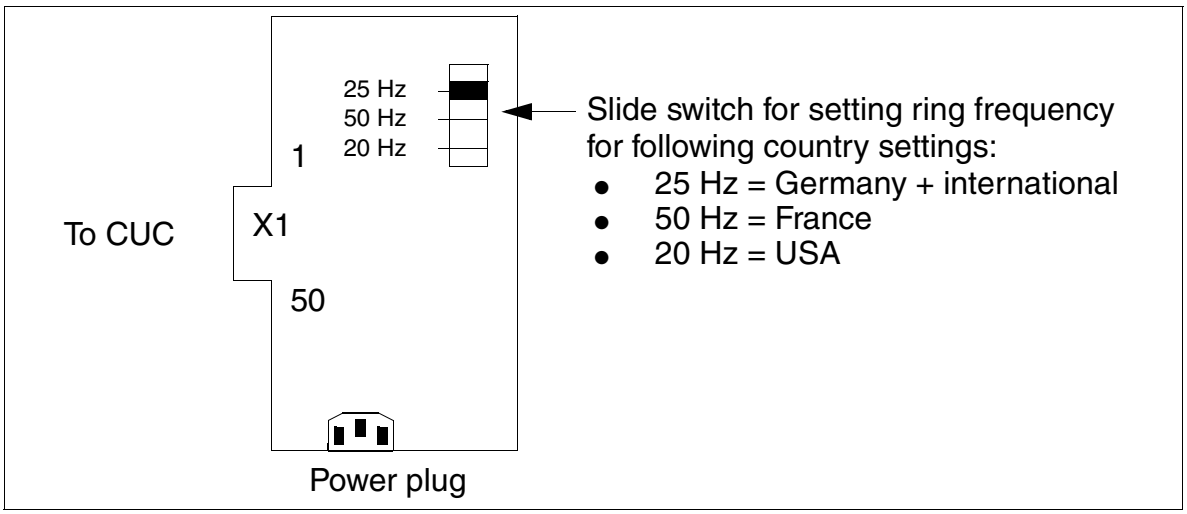


Figure 3-16 PSUC Interfaces (S30122-K5661-M)

PSUCR Interfaces (S30122-K7371-M900)

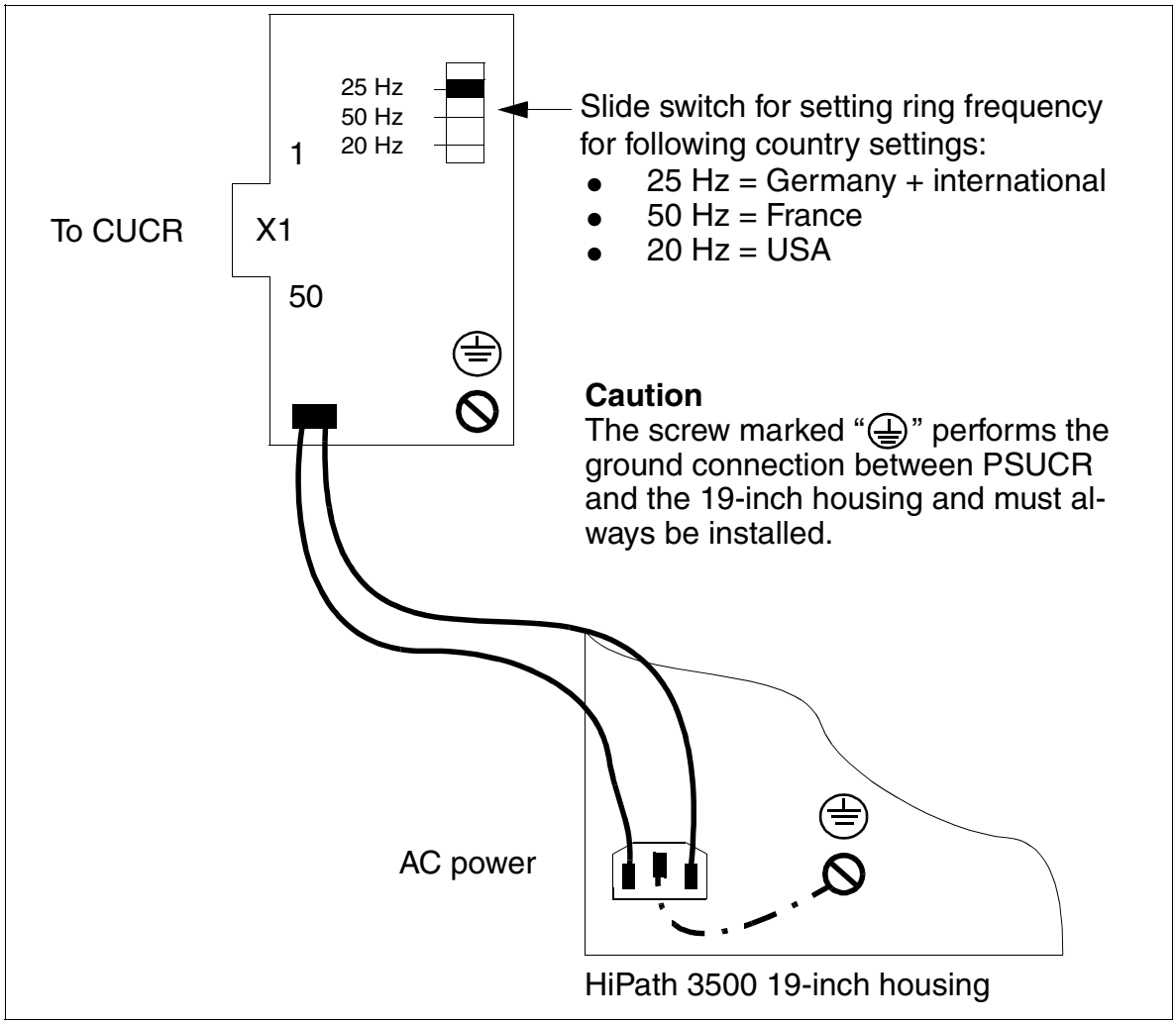


Figure 3-17 PSUCR Interfaces (S30122-K7371-M900)

3.2.13 PSU One

Warning
HiPath 3250 and HiPath 3150 can only be activated or deactivated by connecting or disconnecting the mains cable.
The SDRAM cannot be initialised correctly by clearing down and then setting up the connection between PSU One and the system if the affected power supply is in operation. Firmware and APS startup is also impossible in this case.

Introduction

The two following PSU types are used for HiPath 3250 and HiPath 3150:

- S30122-K5837-M
- S30122-K5837-S

Technically, the two power supplies are identical and interchangeable.

The device's operating state (on or off) is indicated by a LED.

Technical Specifications

- Nominal voltage range: 100 Vac - 240 Vac
- Nominal frequency: 50 Hz - 60 Hz
- Power consumption: 25 W

Diagram

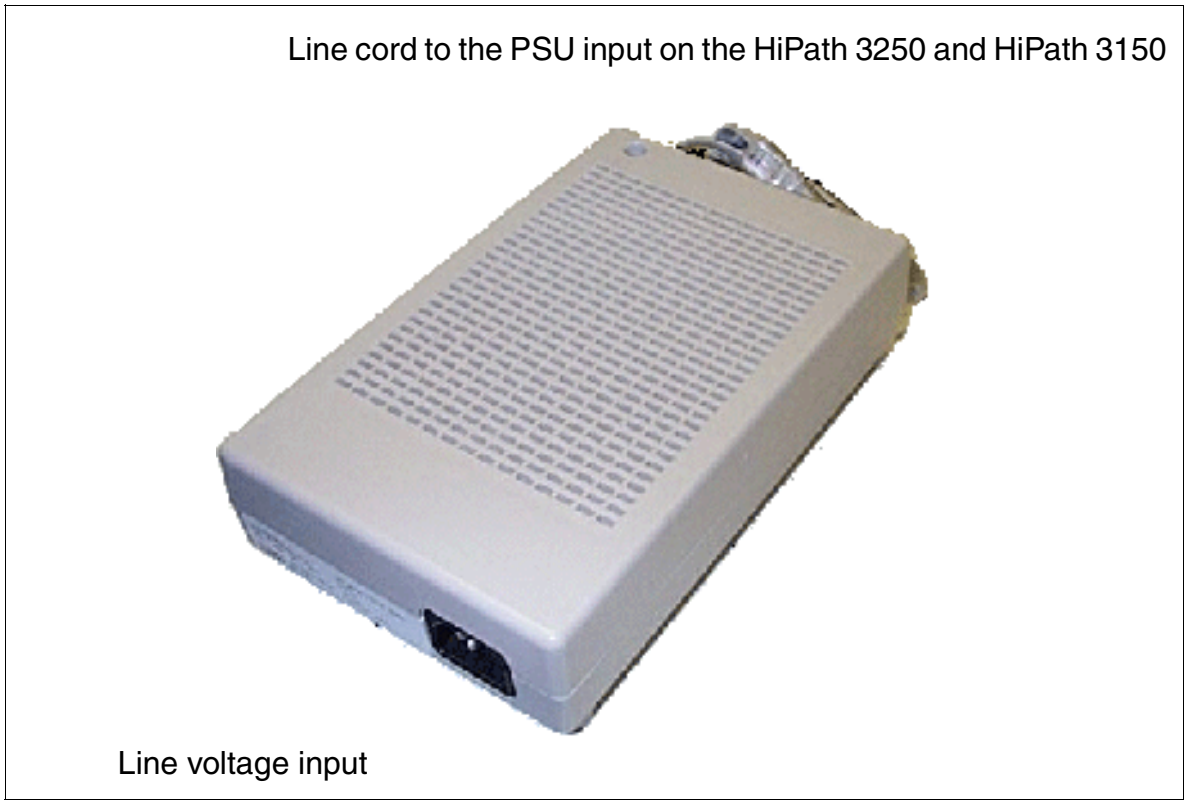


Figure 3-18 PSU One (S30122-K5837-M/S30122-K5837-S)

3.2.14 PSUP and PSUPR

Introduction

The power supply comes in two versions:

- PSUP S30122-K5658-M (Figure 3-19) - for use in HiPath 3350 (wall housing)
  The device plugs into a special slot and is secured by screws. It connects to the power outlet using a modular power cord.
- PSUPR S30122-K7370-M900 (Figure 3-20) - for use in HiPath 3300 (19-inch housing)
  The device plugs into a special slot and is secured by screws. It connects to the power outlet using a modular power cord in the 19-inch housing.

DANGER
The **PSUPR** board **is not insulated**.
Consequently, a system using a PSUPR may only be operated with a closed housing. Before opening the housing, make sure that the system is de-energized by disconnecting the system power cord from the outlet.

A monitoring LED indicates the presence of the 5 V output voltage.

Technical Specifications

- Nominal voltage range: 100 Vac - 240 Vac
- Nominal frequency: 50 Hz - 60 Hz
- Ring generator: 75 Vac, 20/25/50 Hz
- Partial voltages: +5 Vdc, –48 V
- Power consumption: 70 W

Caution
System voltage can only be switched on or off by plugging in or out the power cord.

PSUP Interfaces (S30122-K5658-M)

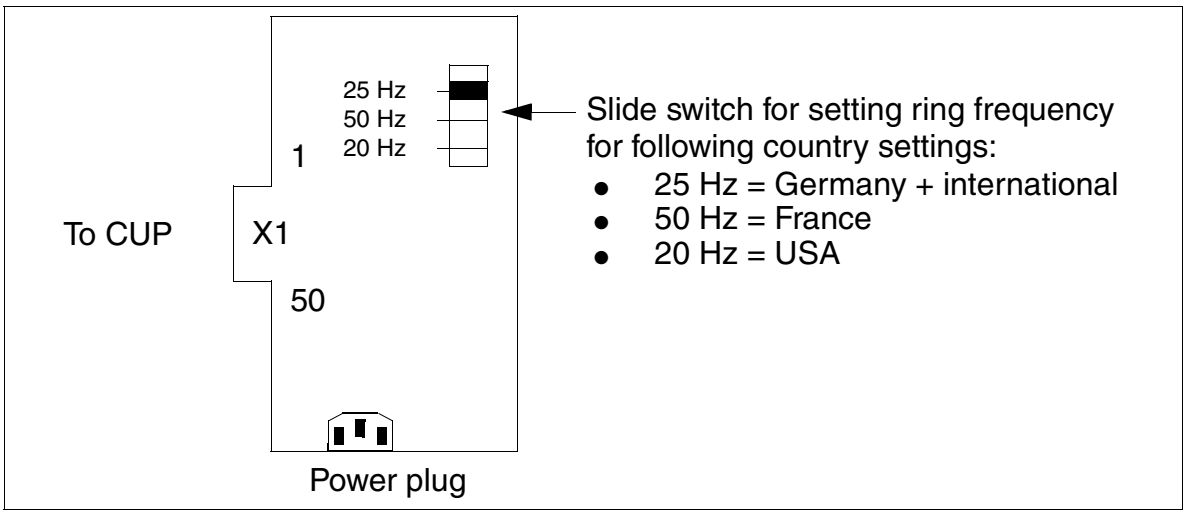


Figure 3-19 PSUP Interface (S30122-K5658-M)

PSUPR Interfaces S30122-K7370-M900

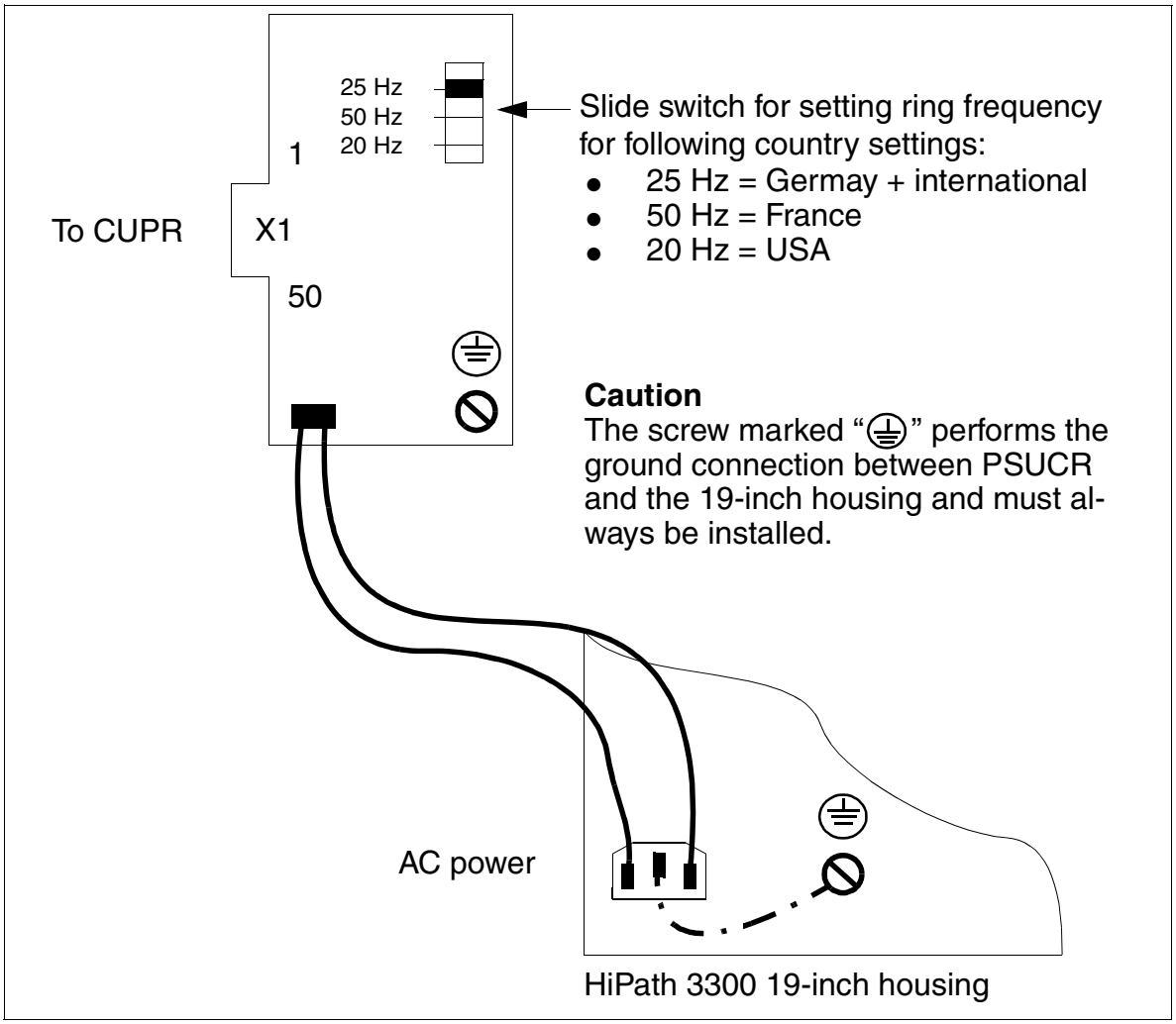


Figure 3-20 PSUPR Interfaces (S30122-K7370-M900)

3.2.15 SBSCO HiPath 3250 (not for U.S.)

Introduction

The SBSCO (**s**ingle **b**oard **s**ystem with **c**oldfire **o**ne) S30810-Q2937-A201 is the single-board module for HiPath 3250. The board provides the following features and outputs:

Functions

- Signaling unit (SIU)
- PCM highway switching and conference circuit
- Battery-buffered real-time clock (approx. 100 hours backup time)

Disconnecting the battery buffer by unplugging the X27 jumper is necessary only for testing (module test at the factory). Disconnection does not necessarily delete the customer database (CDB). To delete the CDB, use the reset switch.

Interfaces

- Four digital $U_{P0/E}$ subscriber lines
  In HiPath 3000 V1.2 or later, up to three BS3/1 base stations can be connected directly for HiPath cordless (see Chapter 11).
- Four analog a/b (T/R) subscriber lines
- Two digital S_0 interfaces (CO (default) or station)
- Clock generator: CMS
- Music on hold: MPPI
- Announcement before answering: AM
- V.24 interface
- MMC multimedia card (APS and boot)
- LIM LAN interface module

Switches and Indicators

- Reset/reload switch
  - Switch pressed < 5 s = Reset activated
  - Switch pressed > 5 s = Reload activated (RUN LED out indicates that a reload is in progress)
- RUN LED
  LED status meaning is explained in Table 12-2.

Diagram of SBSCO Board

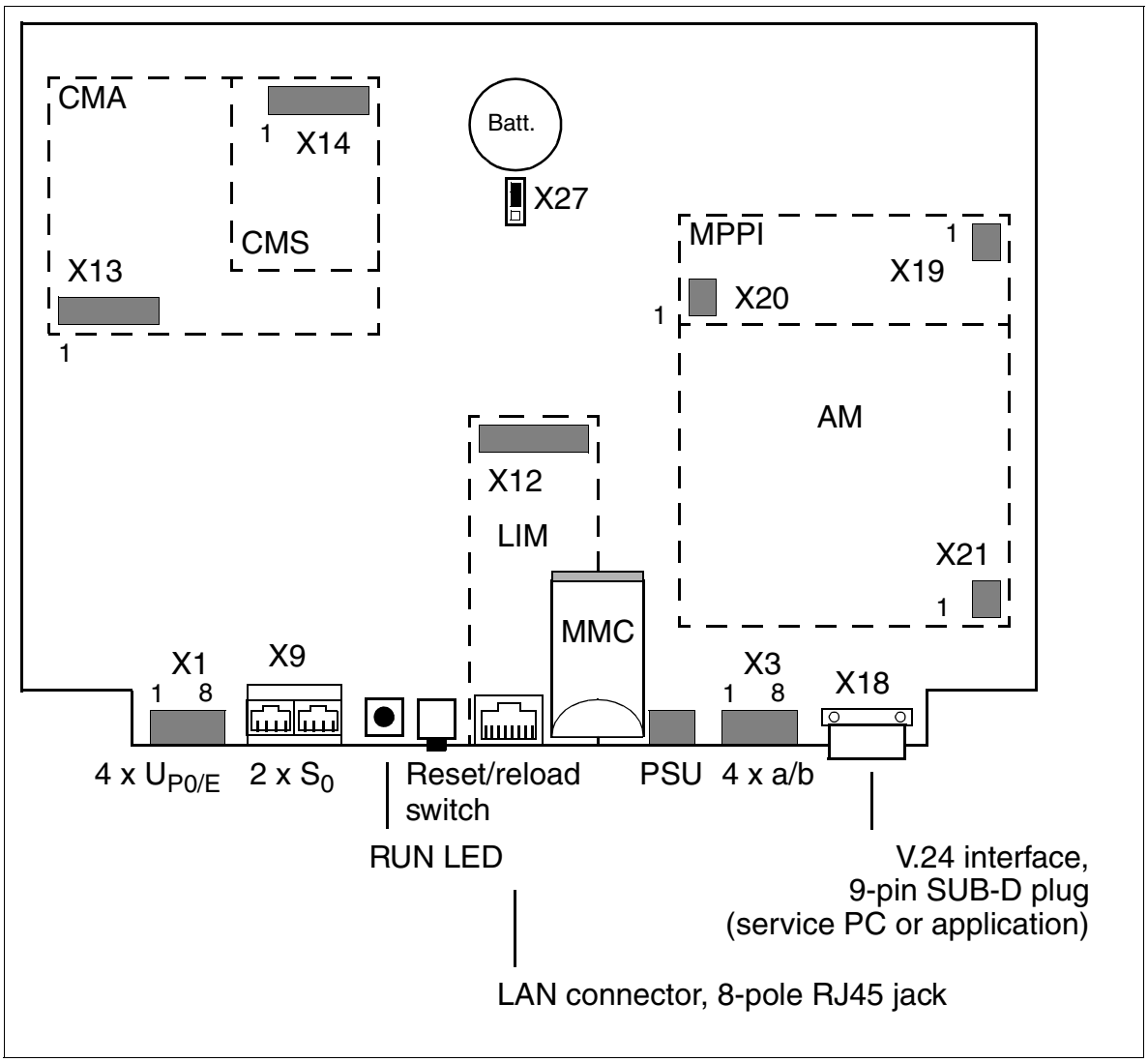


Figure 3-21 SBSCO Board - HiPath 3250 (S30810-Q2937-A201)

SBSCO - Contact Assignments

Table 3-20 SBSCO - X1 and X3 Contact Assignments

Pin	Connector X1 $U_{P0/E}$	Connector X3 ab
1	$U_{P0/E}$ port 1b	a1 port 1a
2	$U_{P0/E}$ port 1a	b1 port 1b
3	$U_{P0/E}$ port 2b	a2 port 2a
4	$U_{P0/E}$ port 2a	b2 port 2b
5	$U_{P0/E}$ port 3b	a3 port 3a
6	$U_{P0/E}$ port 3a	b3 port 3b
7	$U_{P0/E}$ port 4b	a4 port 4a
8	$U_{P0/E}$ port 4a	b4 port 4b

Table 3-21 SBSCO - X9 Contact Assignments

Pin	Connector X9
	S_0
11	S_0 port 1, transmit +
12	S_0 port 1, receive +
13	S_0 port 1, receive –
14	S_0 port 1, transmit –
21	S_0 port 2, transmit +
22	S_0 port 2, receive +
23	S_0 port 2, receive –
24	S_0 port 2, transmit –

Table 3-22 SBSCO - X19-X21 Contact Assignments

Pin	Connector X19	Connector X20	Connector X21
1	+5 V	0 V	RING4 (a/b port 4 b)
2	0 V	0 V	TIP4 (a/b port 4 a)
3	EXMD (data line)	0 V	–
4	EXMDIR (frame cycle, 8 kHz)	0 V	–
5	EXMCL (data cycle, 512 kHz)	+5 V	–
6	EXMDET (detect signal)	+5 V	–

V.24 Interface Assignment

Table 3-23 SBSCO - V.24 Interface Assignment (SUB-D Plug)

X18, Pin	Signal	Description
1	–	Not used
2	RxD A	Receive data, channel A
3	TxD A	Transmit data, channel A
4	–	Not used
5	0 V	Ground
6	–	Not used
7	RTS A	Request to send, channel A
8	CTS A	Clear to send, channel A
9	–	Not used

LAN Connector Assignment

Table 3-24 SBSCO - LAN Connector Assignment (RJ45 Jack)

Pin	Signal	Description
1	Tx +	Transmit +
2	Tx –	Transmit –
3	Rx +	Receive +
4	–	Not used
5	–	Not used
6	Rx –	Receive –
7	–	Not used
8	–	Not used

SBSCO HiPath 3250 - Numbering Plan

Table 3-25 Numbering Plan for HiPath 3250

Station	Int. stn. no.	DID no.	Port
$U_{P0/E}$ host (primary)	11	11	$U_{P0/E}$ 1
	12	12	$U_{P0/E}$ 2
	13	13	$U_{P0/E}$ 3
	14	14	$U_{P0/E}$ 4
$U_{P0/E}$ client (secondary)	51	51	$U_{P0/E}$ 1
	52	52	$U_{P0/E}$ 2
	53	53	$U_{P0/E}$ 3
	54	54	$U_{P0/E}$ 4
Analog a/b (T/R)	15	15	a/b 1
	16	16	a/b 2
	17	17	a/b 3
	18	18	a/b 4
Line	**Code**		**Port**
S_0 CO PP	801		S_0 1-1
	802		S_0 1-2
	803		S_0 2-1
	804		S_0 2-2

3.2.16 SBSCS HiPath 3150 (not for U.S.)

Introduction

The SBSCS (**s**ingle **b**oard **s**ystem with **c**oldfire **s**tart) S30810-Q2937-B201 is the single-board module for HiPath 3150. The board provides the following features and outputs:

Functions

- Signaling unit (SIU)
- PCM highway switching and conference circuit
- Battery-buffered real-time clock (approx. 100 hours backup time)

Disconnecting the battery buffer by unplugging the X27 jumper is necessary only for testing (module test at the factory). Disconnection does not necessarily delete the customer database (CDB). To delete the CDB, use the reset switch.

Interfaces

- Two digital $U_{P0/E}$ subscriber lines
  In HiPath 3000 V1.2 or later, one single cell solution with BS3/S can be connected directly for HiPath cordless (see Chapter 11).
- Four analog a/b subscriber lines
- One digital S_0 interface CO, one digital S_0 interface station
- Clock generator: CMS
- Music on hold: MPPI
- Announcement before answering: AM
- V.24 interface
- MMC multimedia card (APS and boot)
- LIM LAN interface module

Switches and Indicators

- Reset/reload switches
  - Switch pressed < 5 s = Reset activated
  - Switch pressed > 5 s = Reload activated (RUN LED out indicates that a reload is in progress)

- RUN LED
  LED status meaning is explained in Table 12-2.

Diagram of the SBSCS Board

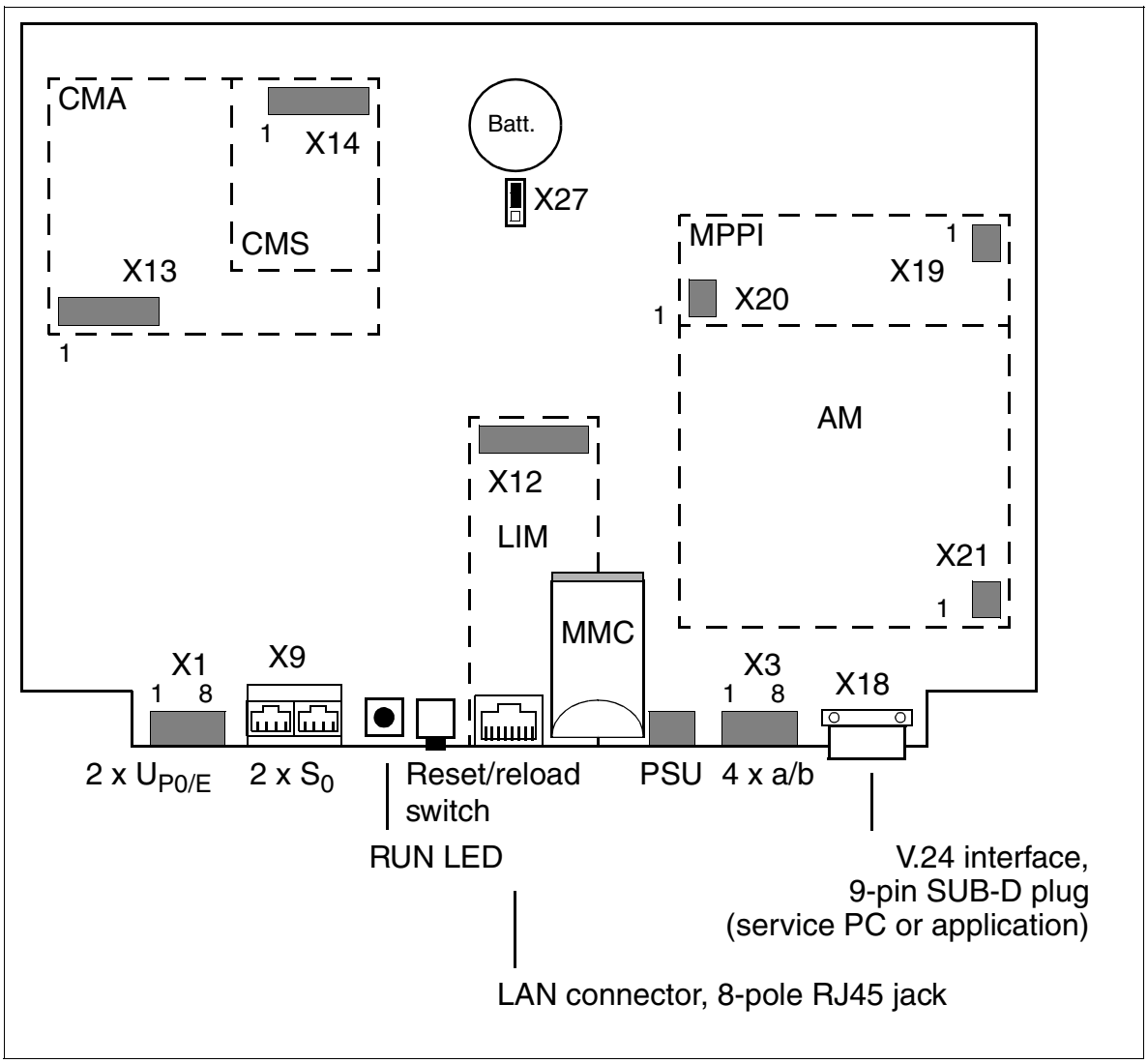


Figure 3-22 SBSCS Board - HiPath 3150 (S30810-Q2937-B201)

SBSCS - Contact Assignments

Table 3-26 SBSCS - X1 and X3 Contact Assignments

Pin	Connector X1 $U_{P0/E}$	Connector X3 ab
1	$U_{P0/E}$ port 1b	a1 port 1a
2	$U_{P0/E}$ port 1a	b1 port 1b
3	$U_{P0/E}$ port 2b	a2 port 2a
4	$U_{P0/E}$ port 2a	b2 port 2b
5	–	a3 port 3a
6	–	b3 port 3b
7	–	a4 port 4a
8	–	b4 port 4b

Table 3-27 SBSCS - Contact Assignments (X9)

Pin	Connector X9
	S_0
11	S_0 port 1, transmit +
12	S_0 port 1, receive +
13	S_0 port 1, receive –
14	S_0 port 1, transmit –
21	S_0 port 2, transmit +
22	S_0 port 2, receive +
23	S_0 port 2, receive –
24	S_0 port 2, transmit –

Table 3-28 SBSCS - Contact Assignments (X19-X21)

Pin	Connector X19	Connector X20	Connector X21
1	+5 V	0 V	RING4 (a/b port 4 b)
2	0 V	0 V	TIP4 (a/b port 4 a)
3	EXMD (data line)	0 V	–
4	EXMDIR (frame cycle, 8 kHz)	0 V	–
5	EXMCL (data cycle, 512 kHz)	+5 V	–
6	EXMDET (detect signal)	+5 V	–

V.24 Interface Assignment

Table 3-29 SBSCS - V.24 Interface Assignment (SUB-D Plug)

X18, Pin	Signal	Description
1	–	Not used
2	RxD A	Receive data, channel A
3	TxD A	Transmit data, channel A
4	–	Not used
5	0 V	Ground
6	–	Not used
7	RTS A	Request to send, channel A
8	CTS A	Clear to send, channel A
9	–	Not used

LAN Connector Assignment

Table 3-30 SBSCS - LAN Connector Assignment (RJ45 Jack)

Pin	Signal	Description
1	Tx +	Transmit +
2	Tx –	Transmit –
3	Rx +	Receive +
4	–	Not used
5	–	Not used
6	Rx –	Receive –
7	–	Not used
8	–	Not used

SBSCS HiPath 3150 - Numbering Plan

Table 3-31 Numbering Plan for HiPath 3150

Station	Int. stn. no.	DID no.	Port
$U_{P0/E}$ host (primary)	11	11	$U_{P0/E}$ 1
	12	12	$U_{P0/E}$ 2
Analog a/b (T/R)	13	13	a/b 1
	14	14	a/b 2
	15	15	a/b 3
	16	16	a/b 4
S_0 bus	17	17	S_0 2
Line	**Code**		**Port**
S_0 CO PP	801		S_0 1-1
	802		S_0 1-2

3.2.17 UPSC-D and UPSC-DR

Introduction

This board combines the power supply and battery management functions. No other components are required if operated as a power supply. To maintain short-term battery emergency operation after a power failure, that is, to use uninterruptible power supply functions, you must also connect a battery pack (see Section 6.4).

The board comes in two versions:

- UPSC-D S30122-K5660-M300 (Figure 3-23) - for use in HiPath 3550 and HiPath 3350 (wall housing).
- UPSC-DR S30122-K7373-M900 (Figure 3-25) - for use in HiPath 3500 and HiPath 3300 (19-inch housing).

DANGER
The **UPSC-DR** board **is not insulated**.
Consequently, a system using a UPSC-DR may only be operated with a closed housing.
Before opening the housing, make sure that the system is de-energized as follows:
- by disconnecting the line cord on the battery pack (if installed).
- by disconnecting the line cord on the EPSU2-R (if installed).
- by disconnecting the power plug.

If the power supplied by the UPSC-D/UPSC-DR is insufficient, an external EPSU2/EPSU2-R power supply can be installed to provide additional power. To do this, connect the DC port on the EPSU2/EPSU2-R to the special –48 Vdc input on the UPSC-D/UPSC-DR.
The UPSC-D/UPSC-DR's internal 48 V output is deactivated when the external power supply is connected.

Technical Specifications

- Nominal voltage range: 100 Vac - 240 Vac
- Nominal frequency: 50 Hz - 60 Hz
- Ring generator: 75 Vac, 20/25/50 Hz
- Partial voltages: +5 Vdc, –48 V
- Battery charger: 4 x 12 V (40.8 V-55.2 V)
- Power consumption: 180 W
- Bridging time: **not available**

Diagram of UPSC-D

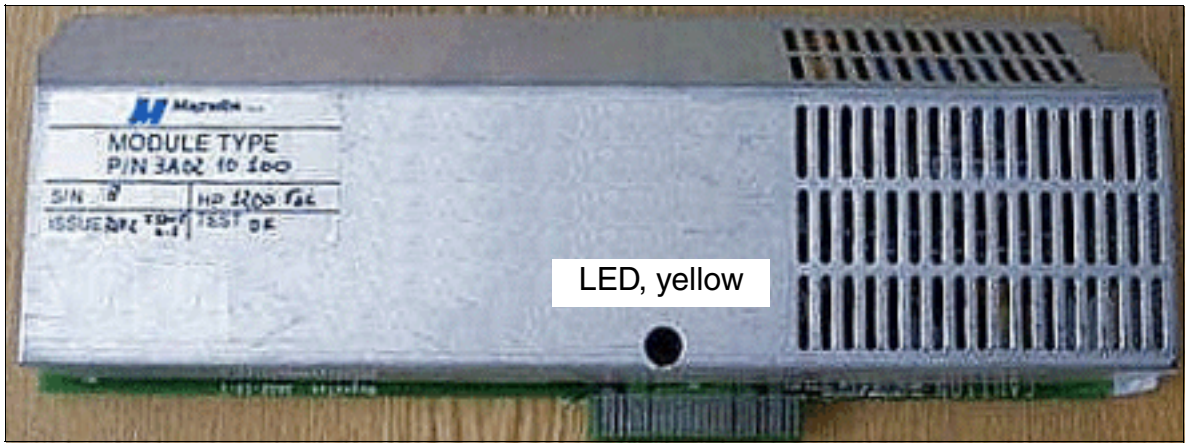


Figure 3-23 UPSC-D (S30122-K5660-M300)

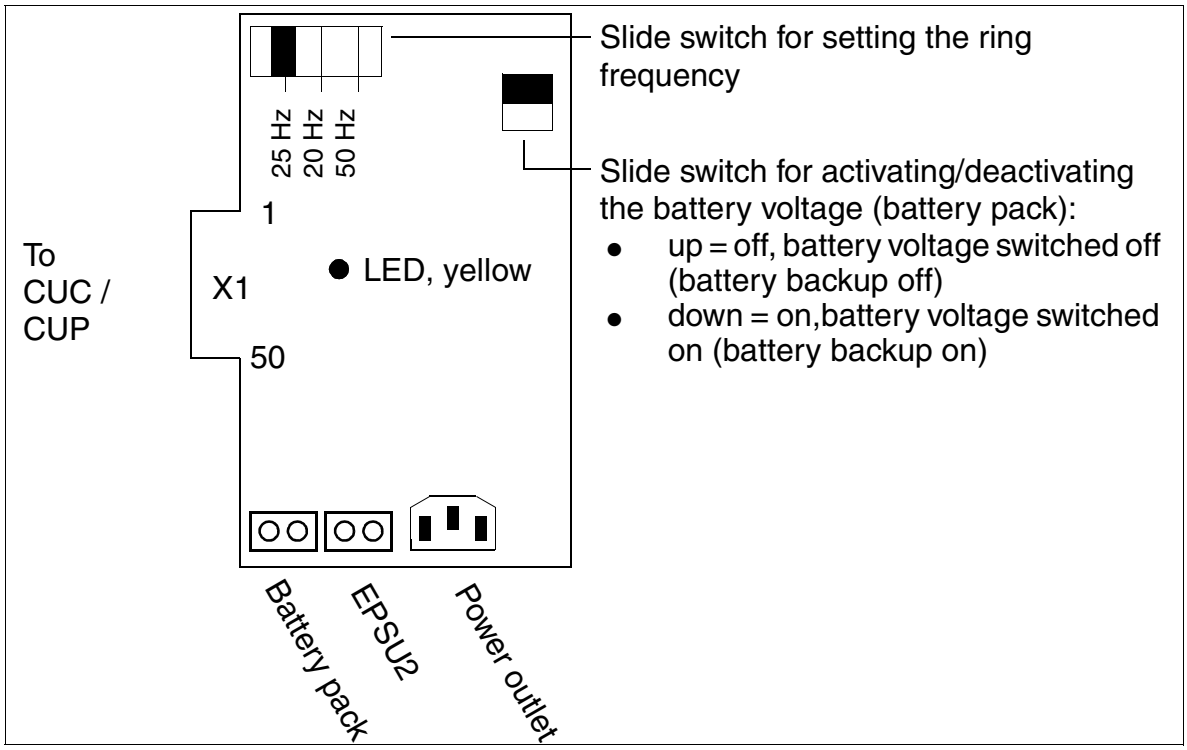


Figure 3-24 UPSC-D (S30122-K5660-M300)

Diagram of UPSC-DR

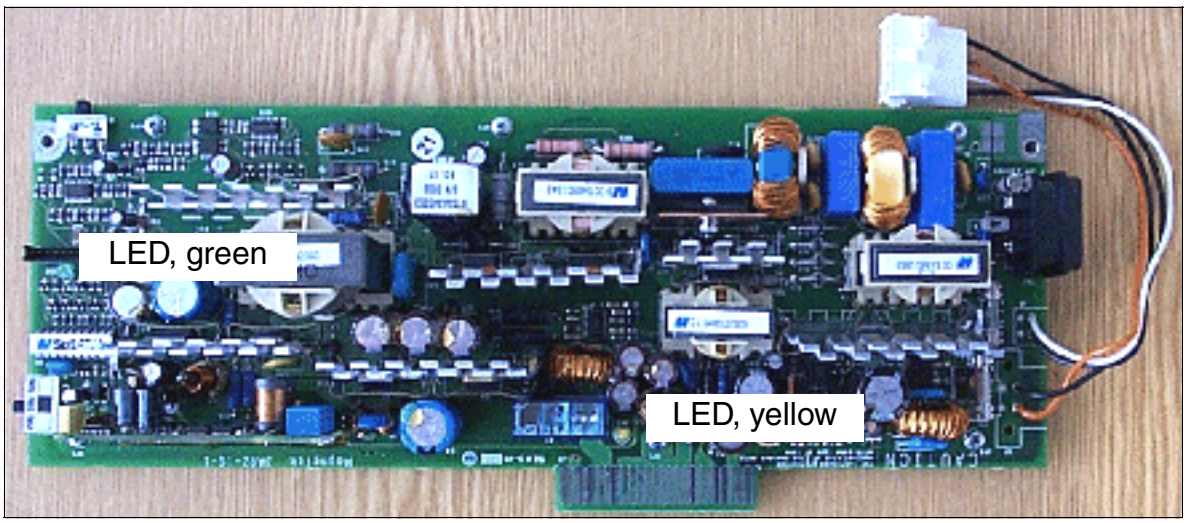


Figure 3-25 UPSC-DR (S30122-K7373-M900)

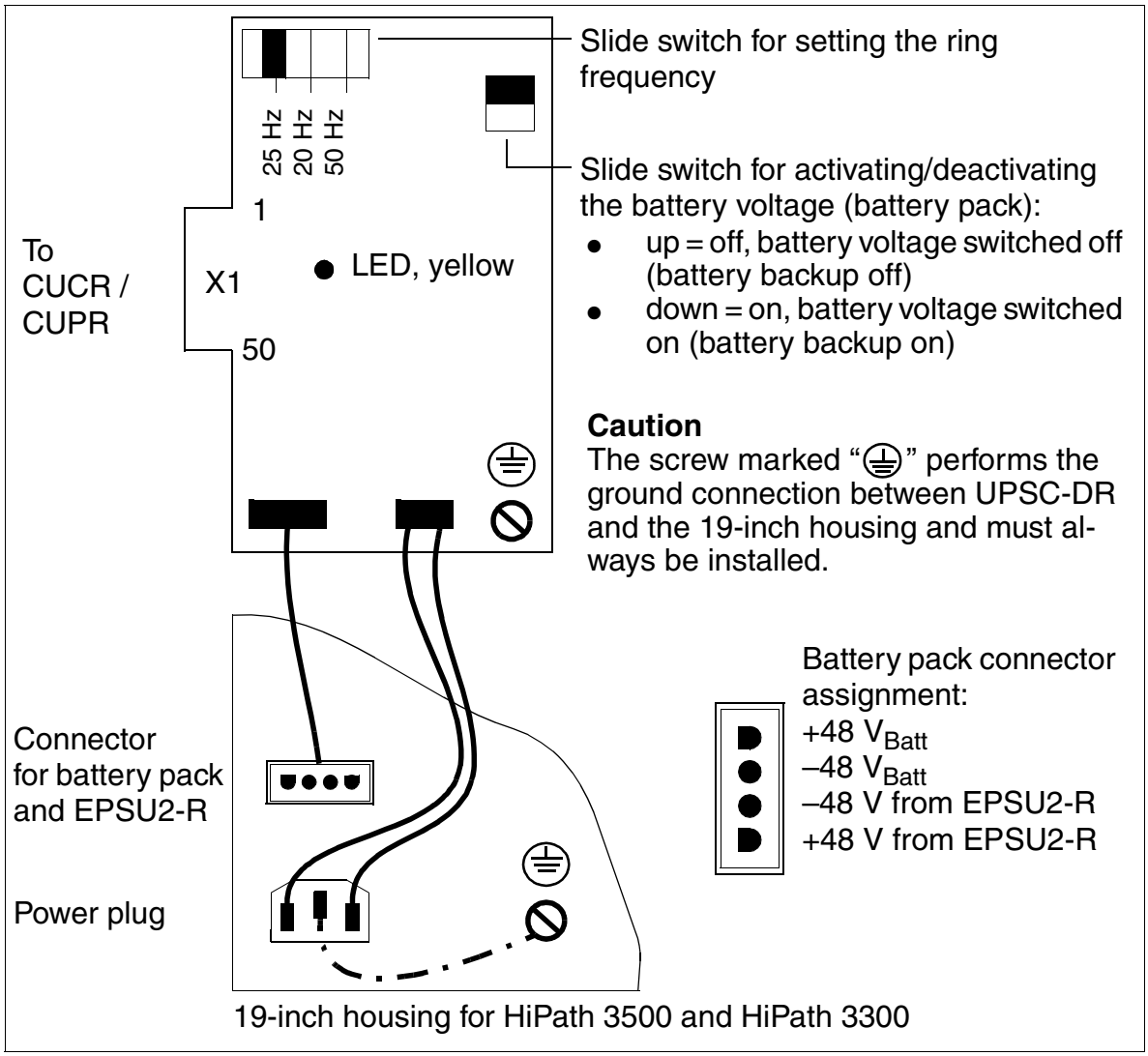


Figure 3-26 UPSC-DR (S30122-K7373-M900)

Switches and Indicators

Caution
System voltage can only be switched on or off by plugging in or out the power plug. If using an uninterruptible power supply, switch off the battery voltage first.

- LED, green: +5 V output voltage is available.
- LED, yellow: –48 V output voltage is supplied by the external EPSU2/EPSU2-R power supply.
- Slide switch for setting the ring frequency:
  – 25 Hz (Germany + international market)
  – 20 Hz (U.S.)
  – 50 Hz (France)
- Slide switch for activating and deactivating the battery voltage (battery pack):
  – up = off, battery voltage deactivated (battery backup off)
  – down = on, battery voltage activated (battery backup on)

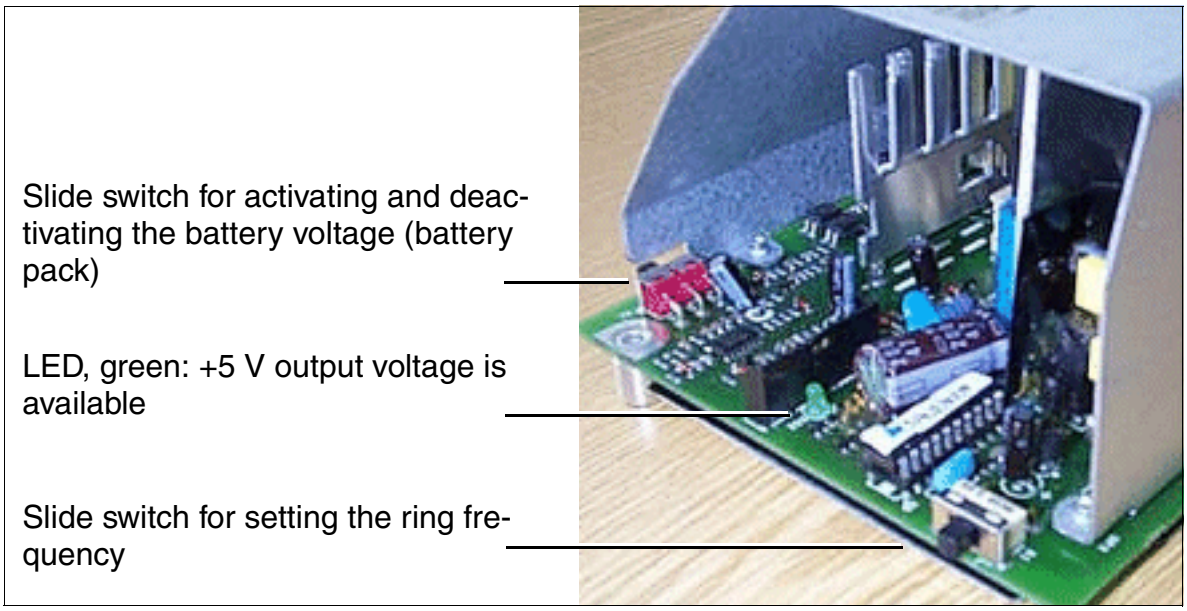


Figure 3-27 UPSC-D - Switches and LED

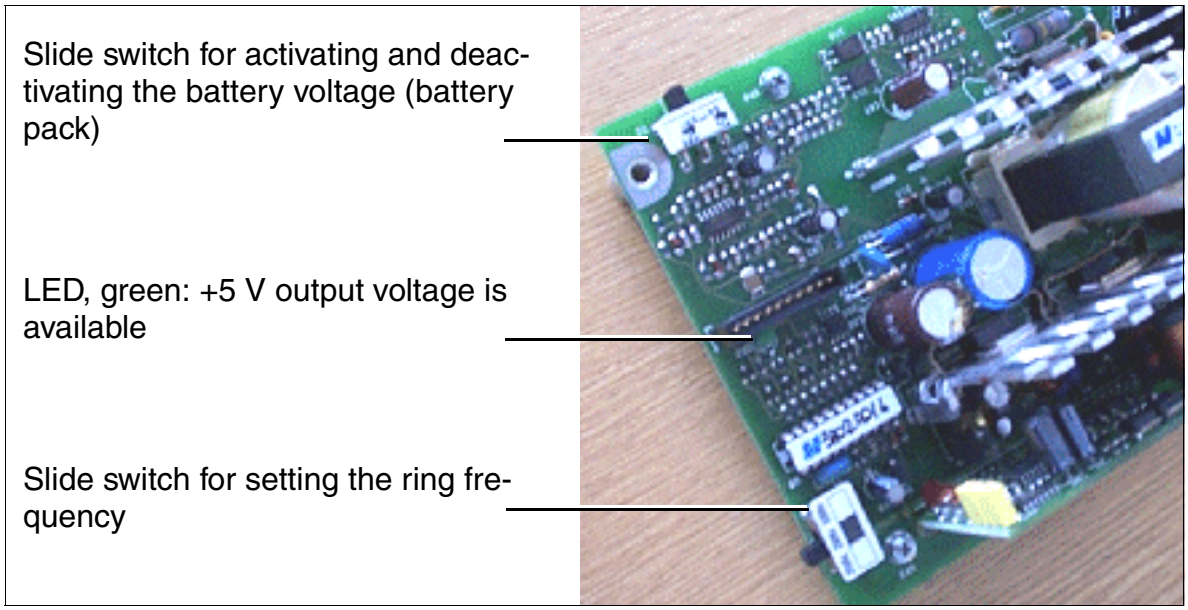


Figure 3-28 UPSC-DR - Switches and LED

Connectors

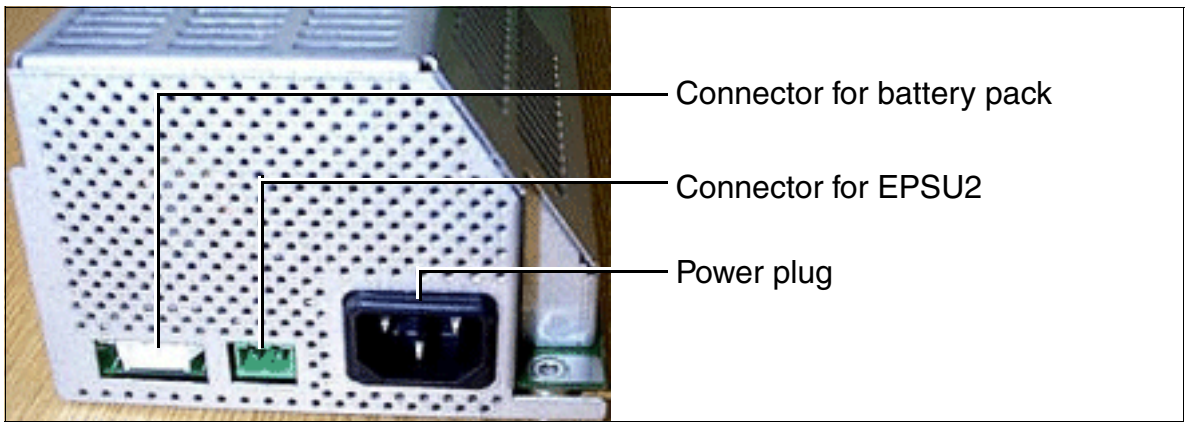


Figure 3-29 UPSC-D - Connectors

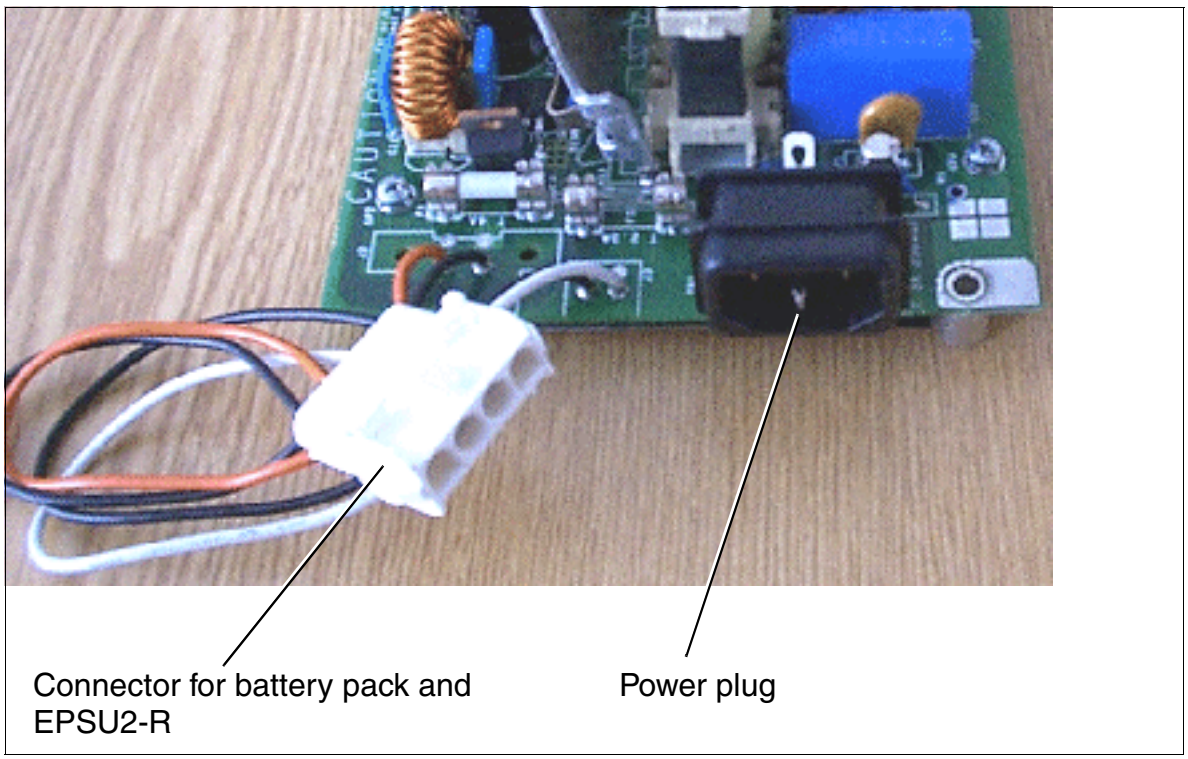


Figure 3-30 UPSC-DR - Connectors

3.2.18 UPSM

Introduction

Each cabinet in HiPath 3750 and HiPath 3700 requires one UPSM (**u**ninterruptible **p**ower **s**upply **m**odular). This board integrates the power supply and battery management functions. No other components are required if operated as a power supply.

To maintain short-term battery emergency operation after a power failure, that is, to use uninterruptible power supply functions, you must also connect one of the following to the UPSM:

- One battery pack per system cabinet
- One battery cabinet (BSG 48/38), including battery charger, or
- One 48 Vdc network

Each connection must have a ferrite bead provided between the UPSM and battery pack, battery cabinet or 48 V dc network. Insert the ferrite bead (Würth 742 7113 or C39022-Z7000-C7) with two windings into the connecting cable at the UPSM output.
You do not need a ferrite assembly when using the BSG 48/38 battery cabinet in version 2 or later as the ferrite beads were integrated in the battery cabinet.

UPSM and PSUI must not be used together in one and the same system.

For production-related reasons there are two different UPSM models. Technically identical, the two models have minor mechanical differences and are fully compatible with each other.

For U.S. only:
The UPSM can be installed in the following cabinets:
- Basic cabinet
- Expansion cabinet 1: S30777-U709-X
- Expansion cabinet 2: S30777-U709-X100

The UPSM can also be installed on new backplanes with re-oriented Champ connectors. The battery back-up function of the UPSM is not used in the U.S.

An LED lights up to indicate that the UPSM is in operation. The UPSM must be replaced when defective (LED does not light up).
The UPSM is used in models for all countries. The ring frequency of the modular ring generator can be parameterized to suit requirements.

Caution
When mounting the UPSM on the cabinet frame, be careful to prevent screws from falling into the power supply unit through the ring generator opening. If a screw falls inside the UPSM, remove the screw before starting up the unit.

Part Numbers

- UPSM: S30122-K5950-S100 (Figure 3-31), S30122-K5950-A100 (Figure 3-32)
- Akkupack 4 x 12 V / 7 Ah: S30122-K5950-Y200
  (The connecting cable for the UPSM is part of the battery pack.)

Specifications

- Nominal voltage range: 100 VAC - 240 VAC
- Nominal frequency: 50 Hz - 60 Hz
- Max. input current consumption: 5.4 A - 2.7 A
- Max. power consumption: around 430 W
- Output voltage (battery charging voltage): 42.5 - 55.2 VDC
- Output current (battery charge current): $\geq$ 0.8 A
  (sufficient for battery set rating) = 7 Ah)
- Bridging times for power supplied via the battery pack 4 x 12 V or 7 Ah:
  - At 100% nominal load: approx. 60 min. bridging time
  - At 60% nominal load: approx. 100 min. bridging time

  The battery recharging time is approx. 8.5 h.

  Boundary conditions for the specified bridging times:
  battery ambient temperature is approx. 22°C
  The cut-off voltage is 1.7 V per cell
  New batteries are fully charged.

Specifications of the Modular Ring Generator

- Rated output voltages: 60 / 75 V_{act}
- Output frequencies: 20 / 25 / 50 Hz
- Output power
  - continuous: 4.0 VA
  - peak: 8.0 VA (3 minutes load/ 15 minutes pause)

Front and Rear Views of the UPSM (S30122-K5950-S100)

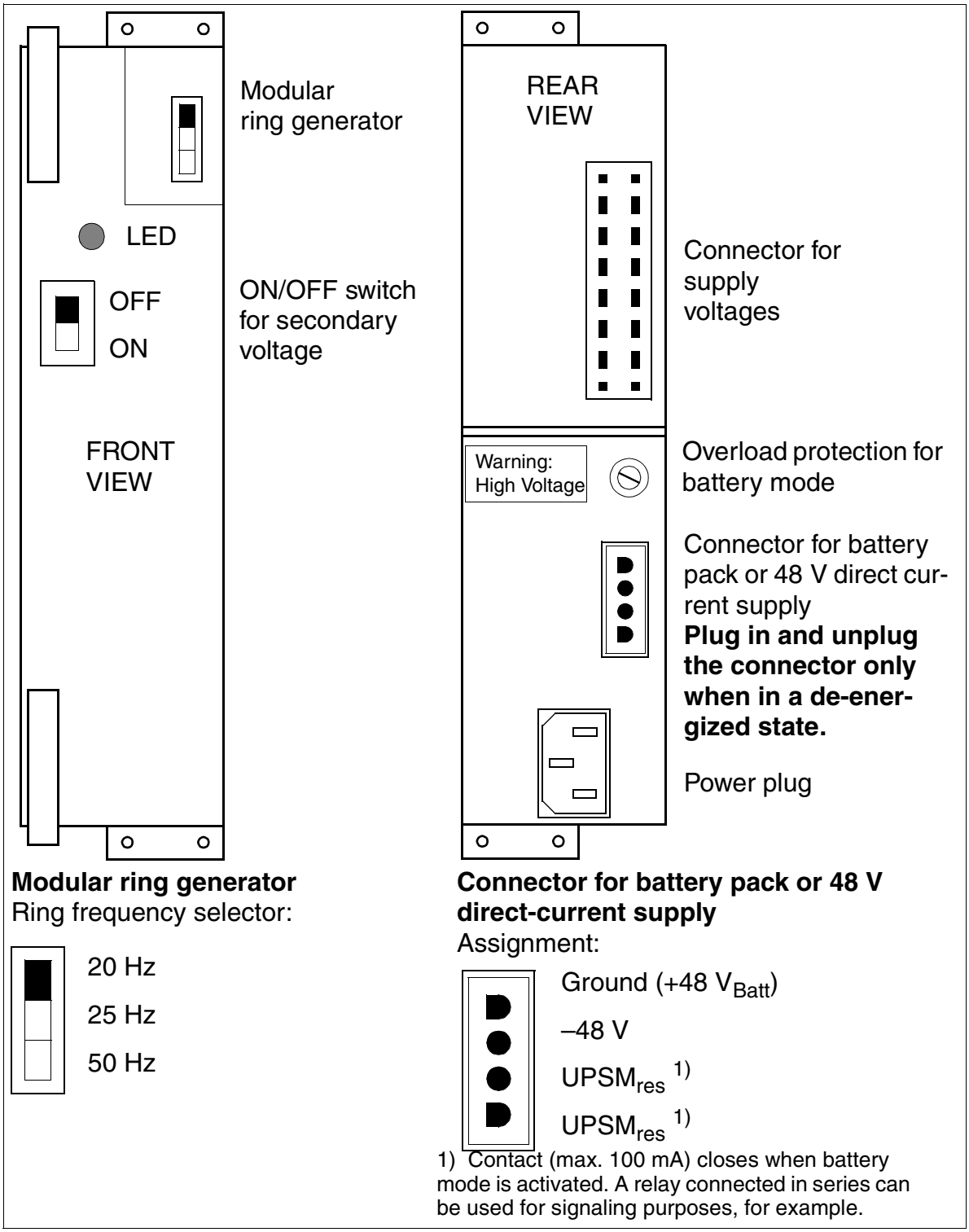
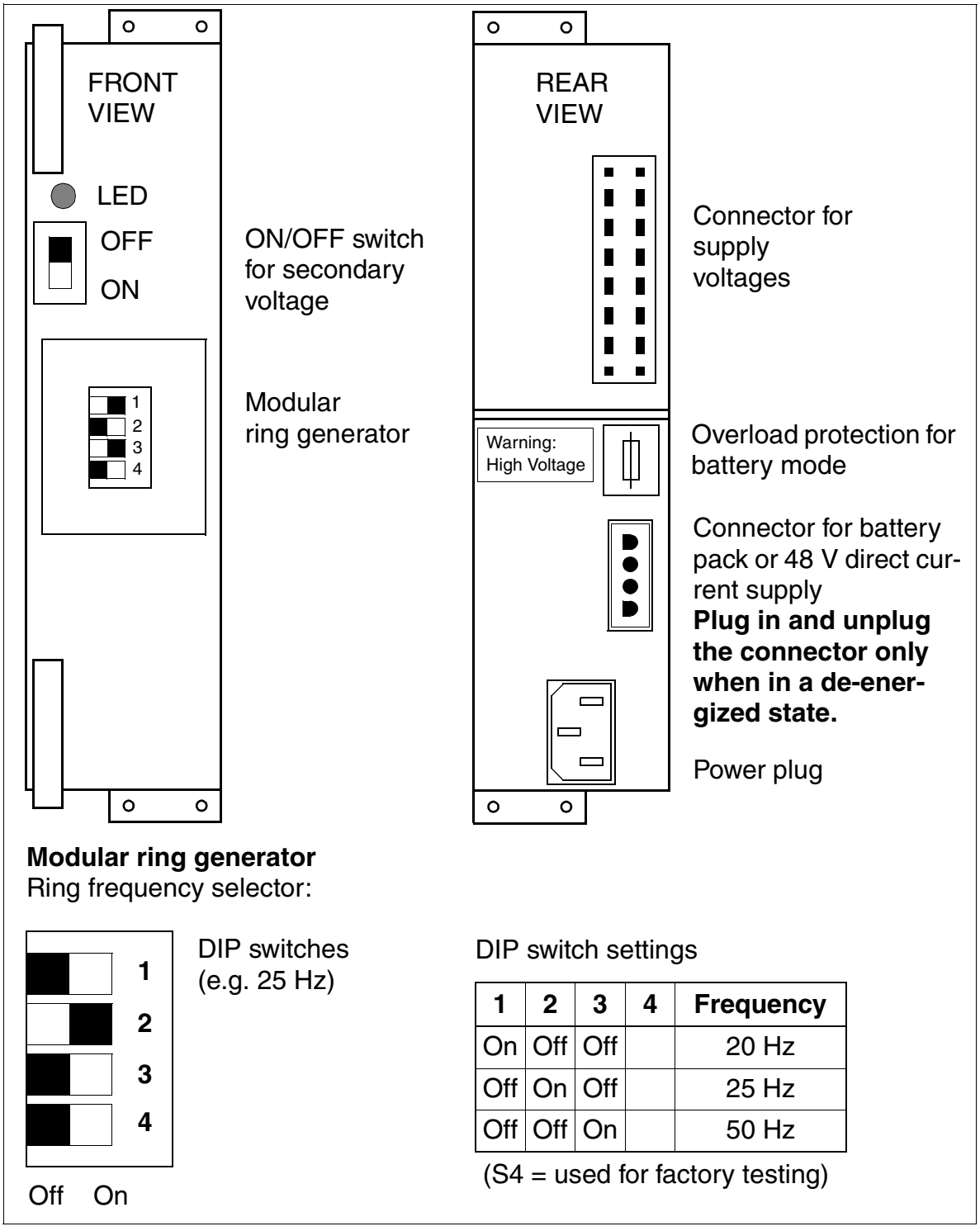


Figure 3-31 UPSM Front and Rear Views (S30122-K5950-S100) (Not for U.S.)

Front and Rear Views of the UPSM (S30122-K5950-A100)



1	2	3	4	Frequency
On	Off	Off		20 Hz
Off	On	Off		25 Hz
Off	Off	On		50 Hz

(S4 = used for factory testing)

Figure 3-32 Front and Rear Views of the UPSM (S30122-K5950-A100)

BSG 48/38

You can use a BSG 48/38 battery cabinet in an upright housing instead of the battery pack or a 48 V direct current supply to extend the bridging time in the event of a power failure. The BSG 48/38 battery cabinet (S30122-K5950-F300) consists of

- an upright housing
- a charging rectifier
- a 38 Ah/48 V battery set

The battery cabinet is designed for direct connection to the HiPath 3750 and HiPath 3700 communication system. The DC power cable (S30122-X5950-F310) provided lets you connect any UPSM to the battery cabinet (do not connect to extension cables).

For detailed information about safety precautions as well as using and connecting the battery cabinet, refer to the installation and startup instructions that came with the cabinet.

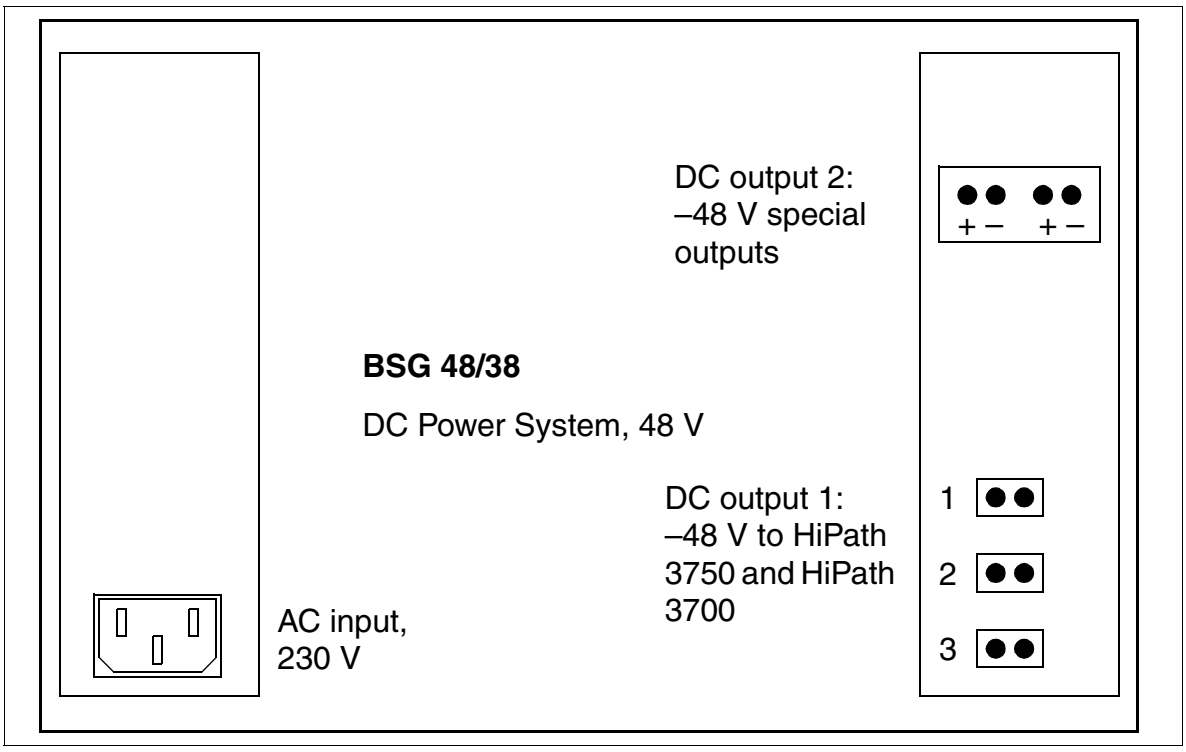


Figure 3-33 Rear View of the BSG 48/38 Battery Cabinet (S30122-K5950-F300)

3.3 Peripheral Boards

Caution
The peripheral boards must be firmly inserted in their slots; otherwise, contact problems can cause board failure.

3.3.1 HXGM and HXGM2

Introduction

The HiPath HG1500 HXGM and HXGM2 boards establish the connection between the HiPath 3750 or HiPath 3700 and a LAN environment. Each board can provide a maximum of 16 B channels.

A combination of up to eight HXGM and HXGM2 boards can be installed and multiple boards can be operated simultaneously.
Information about the calculation of the required HiPath HG 1500 boards can be found in Section 9.5.6 on Page 9-39.

Do not install an HXGM or HXGM2 in board slot 2 on the HiPath 3750 or HiPath 3700.
A maximum of six HXGM or HXGM2 boards may be inserted in a HiPath 3750 or HiPath 3700 cabinet.
It is not possible to operate an HXGM or HXGM2 and an LIM module simultaneously in a HiPath 3750 or HiPath 3700.

For information on startup and configuration, refer to the HiPath HG1500 service manual.

Board Versions

Table 3-32 HXGM and HXGM2 Board Versions

Board Version	Services	DSPs	Board Name
S30810-Q2930-X100	Data only	0	HXGM
S30810-Q2930-X	Voice and Data	8	HXGM
S30810-Q2940-X100	Data only (2nd LAN)	0	HXGM2
S30810-Q2940-X	Voice and Data (2nd LAN)	8	HXGM2

Two simultaneous Voice-over-LAN connections are possible per DSP (digital signal processor).

Interfaces and Connectors

- X2: 6-pin shielded MiniDin jack for V.24
- Backplane: The LAN adapter connector C39228-A7195-A10 (see Figure 3-34) is inserted directly on the backplane connector SU Xx8 or SU Xx9 for a LAN connection. The LAN cable is connected to the RJ45 socket of the adapter.

  For the U.S. only: The LAN connection is made using a special adapter cable (CHAMP after the RJ45).

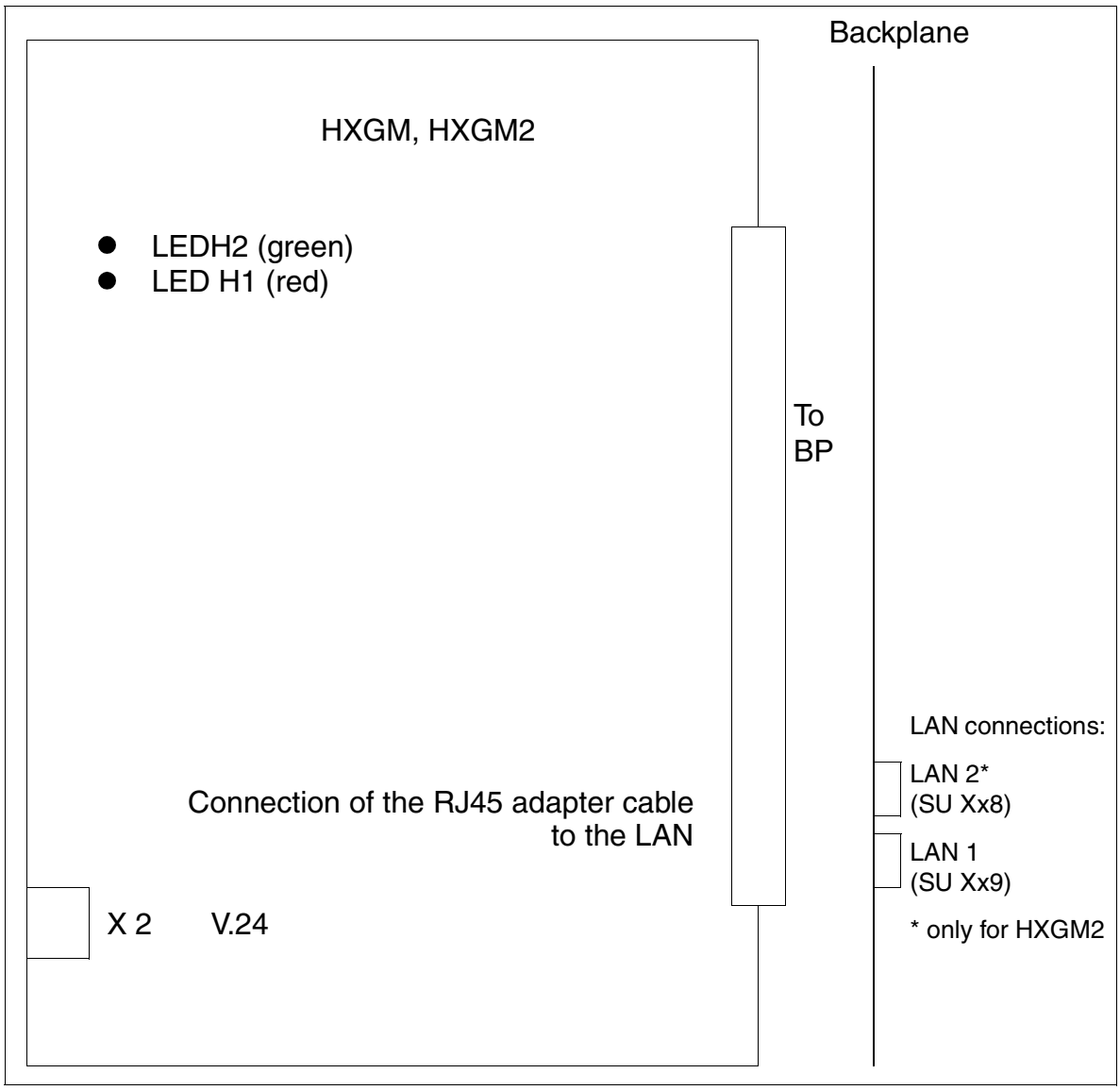


Figure 3-34 HXGM and HXGM2 Interfaces

LED Statuses and Their Meanings

Table 3-33 HXGM and HXGM2 LEDs

H1 (Red)	H2 (Green)	Meaning
Flashing	Off	Board running firmware, no valid software on board, thus V.24 charging mode
On	Off	BG running firmware after a reset or startup
On -> off	Off	Board has started software, starting up
Off	Off -> on	Board has reached idle state after startup (router number logon)
Off	On	At least one B channel is seized
On	On	For 20 seconds: board trying to trigger a reset after an APS transfer or a FATAL error and is waiting for reset from the system

V.24 Interface

You can update the software over the 6-pin MiniDin jack X2, which can also be used to configure the board and debug the software.

Make the connection using the serial interface cable SIC (S30122-K5468-X3). The SIC converts the level of the TTL signals (HXGM or HXGM2) to V.24 (9-pin Sub-D socket). Depending on the SIC, the maximum permissible transmission rate of the V.24 interface is 19.2 Kbps. The interface supports only asynchronous transmission.

Table 3-34 HXGM and HXGM2 - V24 Socket X2 Pin Assignments

Pin	Signal	I/O	Function
1	GND		
2	TXD	O	Transmit Data
3	CTS	I	Clear to Send
4	RXD	I	Receive Data
5	RTS	O	Request to Send
6	+5V		
(7)	GND		

LAN Interfaces

Table 3-35 HXGM and HXGM2 LAN Interface Assignments

LAN 1 (SU Xx9) 10/100 BaseT	LAN 2 (SU Xx8) 10 BaseT only for HXGM2	Function
1	1	Transmit: + wire
2	2	Transmit: – wire
3	3	Receive: + wire
6	6	Receive: – wirer
4+5+7+8	4+5+7+8	not used

Note

Direct connection of Ethernet twisted pair to the HiPath HG1500.

The RJ45 cable must be cross-connected as follows:

1 <> 3	2 <> 6	3 <> 1	6 <> 2

LAN Adapter Connector

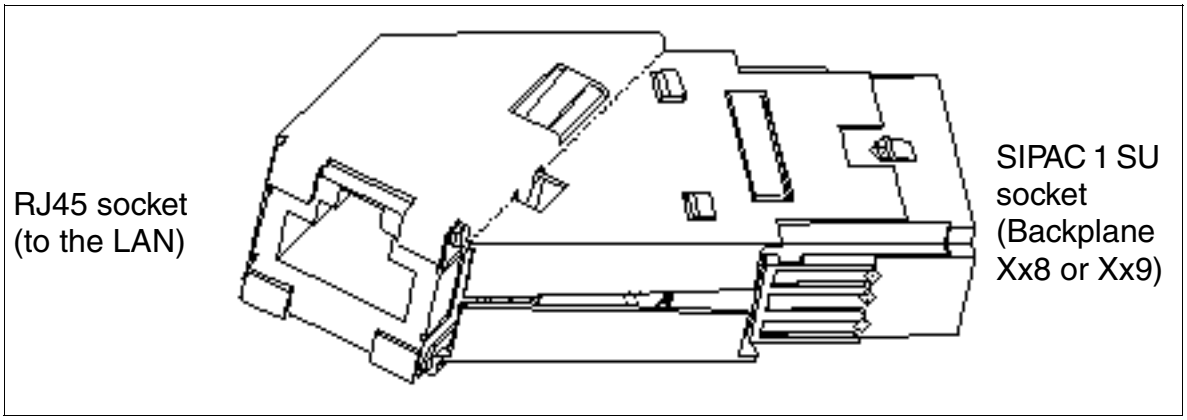


Figure 3-35 HXGM and HXGM2 LAN Adapter Connector for Backplane

Table 3-36 HXGM and HXGM2 LAN Adapter Connector Assignments

SIPAC 1 SU socket	RJ45 socket	Signal
B1	1	TDP (Transmit Data +)
C2	2	TDN (Transmit Data –)
B3	4	TT1 (Transmit Termination 1)
C4	5	TT2 (Transmit Termination 2)
B5	3	RDP (Receive Data +)
C6	6	RDN (Receive Data –)
B7	7	RT1 (Receive Termination 1)
C8	8	RT2 (Receive Termination 2)
Signals TT1/2 and RT1/2 are not needed for transmitting data. They represent a signal termination of 100 Ohm (so-called Bob Smith termination) for the two unused wire pairs of a 4-pair twisted pair cable.		

LAN Adapter Cable (for U.S. only)

The LAN connection is made with a special shielded adapter cable (CHAMP after the RJ45).

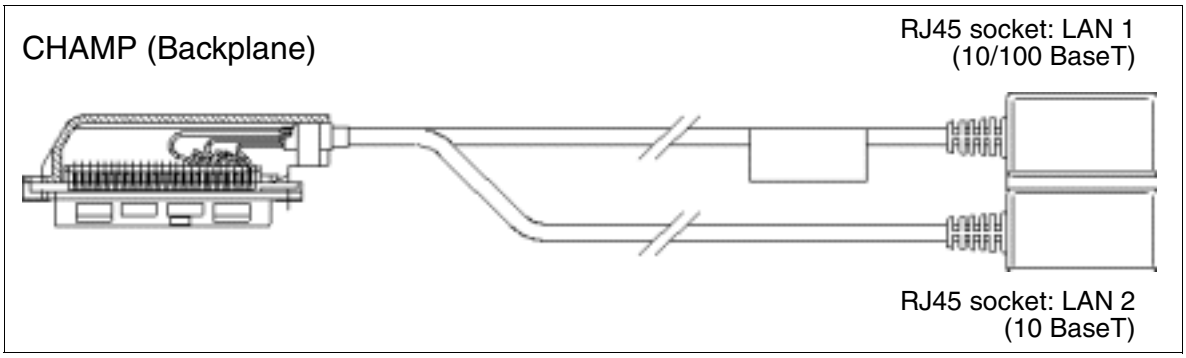


Figure 3-36 HXGM and HXGM2 LAN Adapter Cable for Backplane (for U.S. only)

Table 3-37 HXGM and HXGM2 LAN Adapter Cable Assignments (for U.S. only)

CHAMP connector	RJ45 socket	Signal	LAN connection
34	1	TDP (Transmit Data +)	LAN 2
35	2	TDN (Transmit Data –)	
36	4	TT1 (Transmit Termination 1)	
37	5	TT2 (Transmit Termination 2)	
38	3	RDP (Receive Data +)	
39	6	RDN (Receive Data –)	
40	7	RT1 (Receive Termination 1)	
41	8	RT2 (Receive Termination 2)	
42	1	TDP (Transmit Data +)	LAN 1
43	2	TDN (Transmit Data –)	
44	4	TT1 (Transmit Termination 1)	
45	5	TT2 (Transmit Termination 2)	
46	3	RDP (Receive Data +)	
47	6	RDN (Receive Data –)	
48	7	RT1 (Receive Termination 1)	
49	8	RT2 (Receive Termination 2)	
25, 50	Housing	Shield	

3.3.2 HXGS , HXGS2, HXGSR (not for U.S.), HXGSR2

Introduction

The HiPath HG1500 boards can connect HiPath 3000 (HiPath 3550, HiPath 3350, HiPath 3500, HiPath 3300) with a LAN environment. Each board provides a maximum of 8 B channels.

There are two versions of the boards:

- HXGS and HXGS2 - for use in HiPath 3550 and HiPath 3350 (wall housing)
- HXGSR and HXGSR2 - for use in HiPath 3500 and HiPath 3300 (19-inch housing)

You can use up to four boards in HiPath 3550 and HiPath 3500; these boards may be operated simultaneously. You may use a maximum of two boards in HiPath 3350 and HiPath 3300.
Information about the calculation of the required HiPath HG 1500 boards can be found in Section 9.5.6 on Page 9-39.

It is not possible to operate an HXGS, HXGS2, HXGSR, or HXGSR2 and an LIM module simultaneously in one system.

For information on startup and configuration, refer to the HiPath HG1500 service manual.

Board Versions

Table 3-38 HXGS/HXGS2/HXGSR/HXGSR2 Board Versions

Board version	Services	DSPs	Board name
S30810-Q2931-X100	Data only	0	HXGS
S30810-Q2931-X	Voice and Data	4	HXGS
S30810-Q2939-X100	Data only	0	HXGS2
S30810-Q2939-X	Voice and Data	4	HXGS2
S30810-K2931-Z100	Data only	0	HXGSR
S30810-K2931-Z	Voice and Data	4	HXGSR
S30810-K2939-Z100	Data only	0	HXGSR2
S30810-K2939-Z	Voice and Data	4	HXGSR2

Two simultaneous Voice-over-LAN connections are possible per DSP (digital signal processor).

Interfaces and Connectors

- X1: 50-pin connector (edge connector) to the system
- X2: 6-pin shielded MiniDin socket for V.24
- X3: 8-pin RJ45 socket for LAN 10/100 BaseT
- X4: 8-pin RJ45 socket for LAN 10 BaseT (only for HXGS2 and HXGSR2)

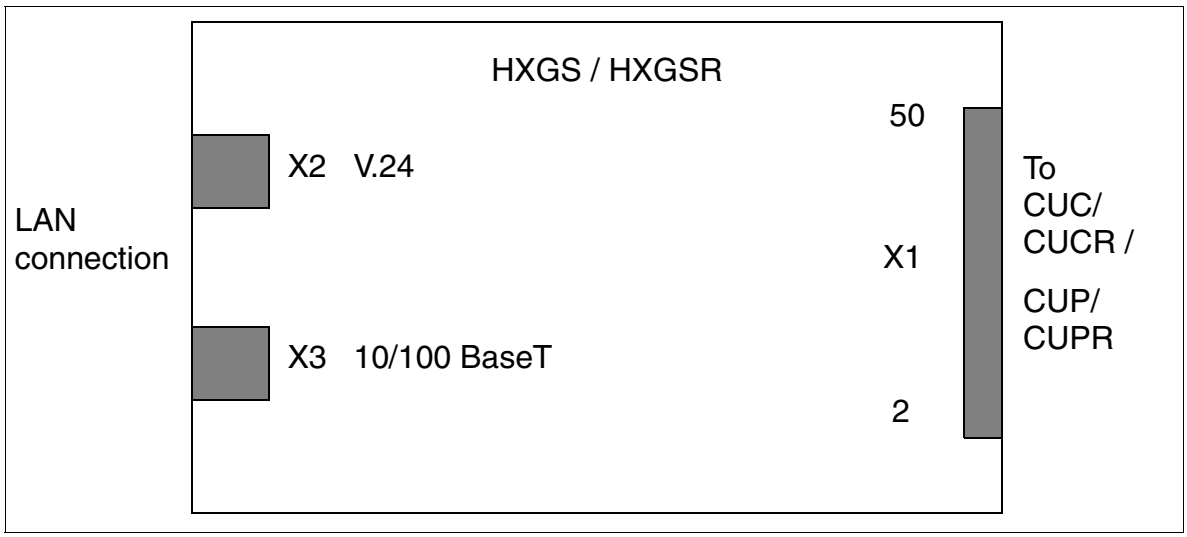


Figure 3-37 HXGS and HXGSR Interfaces

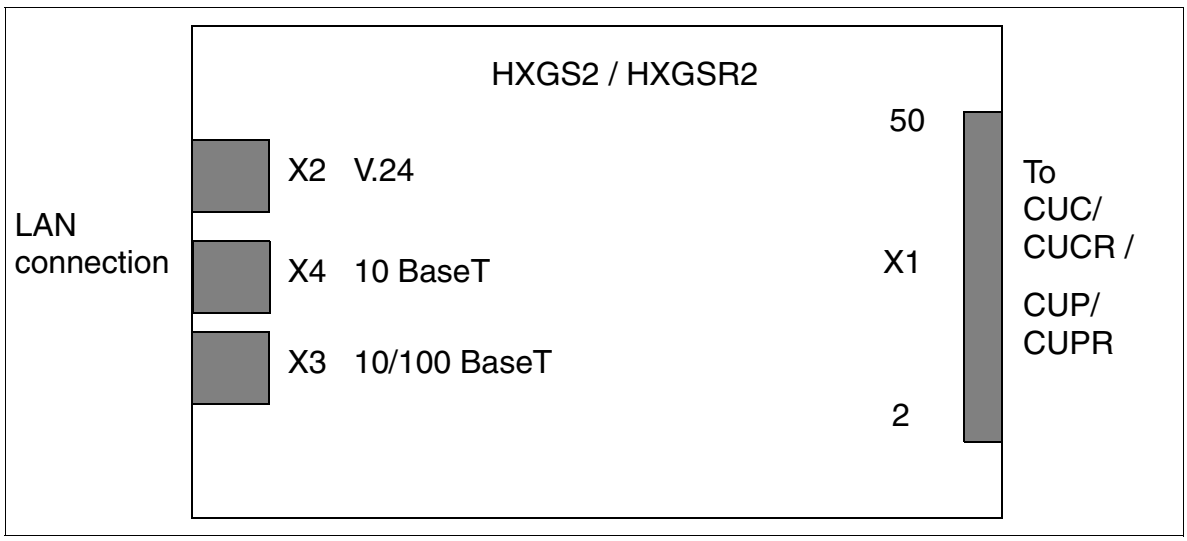


Figure 3-38 HXGS2 and HXGSR2 Interfaces

V.24 Interface

You can update software over the 6-pin MiniDin jack X2, which can also be used to configure the board and debug the software.

Make the connection using the serial interface cable SIC (S30122-K5468-X3). The SIC converts the level of the TTL signals (HXGM or HXGM2) to V.24 (9-pin Sub-D socket). Depending on the SIC, the maximum permissible transmission rate of the V.24 interface is 19.2 Kbps. Only asynchronous transmission is supported.

Table 3-39 HXGS, HXGS2, HXGSR, and HXGSR2 V.24 X2 Socket Assignments

Pin	Signal	I/O	Function
1	GND		
2	TXD	O	Transmit Data
3	CTS	I	Clear to Send
4	RXD	I	Receive Data
5	RTS	O	Request to Send
6	+5V		
(7)	GND		

LAN Interfaces

Table 3-40 HXGS, HXGS2, HXGSR, and HXGSR2 LAN Interface Assignments

X3 (10/100 BaseT)	X4 (10 BaseT) only for HXGS2 and HXGSR2	Function
1	1	Transmit: + wire
2	2	Transmit: – wire
3	3	Receive: + wire
6	6	Receive: – wire
4+5+7+8	4+5+7+8	not used

Note

Direct connection of Ethernet twisted pair to the HiPath HG1500.

The RJ45 cable must be cross-connected as follows:.

1 <> 3	2 <> 6	3 <> 1	6 <> 2

A ferrite bead must be attached to both the LAN 1 and LAN 2 lines on the RJ45 cable.

3.3.3 IVML8 and IVML24

Introduction

The IVML8 and IVML24 (**i**ntegrated **v**oice **m**ail **l**arge) boards allow you to use the HiPath Xpressions Compact integrated voice mail functionality in HiPath 3750 and HiPath 3700 V1.2 or later.

In addition, the boards have an Ethernet (10/100BaseT) interface which can be used for HiPath Xpressions Compact administration (fast APS transfer, backup and restore activities).

Each HiPath 3750 or HiPath 3700 may have a maximum of one IVML8 or IVML24. You may insert this board only in the slot next to the UPSM in the basic cabinet (slot 08). Furthermore, you must mount the ferrite bead (C39022-Z7000-C7) included with the board on the CABLU of the board that is inserted to the immediate left of the IVML8 or IVML24.
To guarantee that the system operates without blocking, do not insert the IVML24 together with a SLMO24 or SLC16 on a PCM segment (refer to “Distribution of the PCM Segments” on page 4-74 for more details).

For detailed information on HiPath Xpressions Compact, startup and administration, see the manual for the product (see list of documentation).

Packing Protection Covering

You must remove the red packing protection covering (cardboard block), shown in the following picture, before starting up the board.

If it is necessary to transport the board again at a later time, for example, for servicing, you must reattach the packing protection covering.

Figure 3-39 IVML8 and IVML24 - Packing Protection Covering

Switches and LEDs

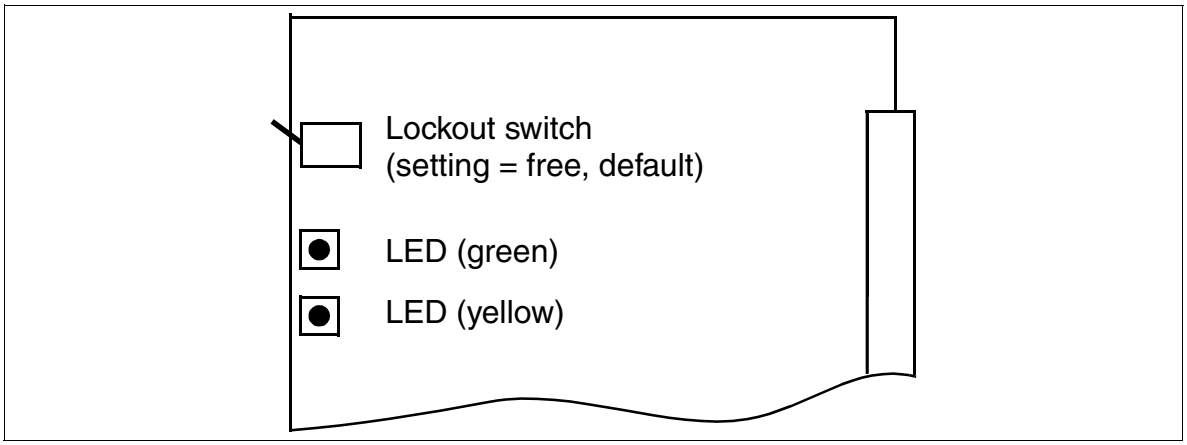


Figure 3-40 IVML8 and IVML24 (S30122-X7380-X100/-X)

Lockout Switch Settings

- Up = free (default)
- Down = locked: existing connections remain active, new connections are locked.
  - The yellow LED lights up when all connections are ended and the board is effectively locked.
  - The yellow LED flashes when a lockout request is entered (via lockout switch or software) but at least one call is still active.

To reset the board to the default state, activate the lockout switch twice within the first 10 s of board startup.

LED Statuses and Their Meanings

Table 3-41 IVML8 and IVML24 - LED Statuses

Yellow LED	Green LED		Meaning	Action
During Boot Phase and Initialization				
Off	Off	1	Boot procedure (lasts approx. 8 - 12 s)	
On	On	2	LED test (lasts approx. 10 s)	
On	Off	3	Lockout switch state signaling by yellow LED (lasts approx. 5 s): • blocked = On • free = Off	Possibly check if board was deactivated using HiPath 3000 Manager E or lockout switch.
Off				
Flashing (500/ 500 ms)	Off	4	Hard disk test, start of the application (depending on hard disk status, lasts approx. 3 - 8 minutes)	
Off	On	5a	Standby mode after successful boot	
On	Off	5b	Board is blocked or there is a board error	Check if board was deactivated using HiPath 3000 Manager E or lockout switch.
During Operation				
Off	On		Idle (no call)	
Off	Flashing (500/ 500 ms)		At least one active port (call)	
Flashing (500/ 500 ms)	Flashing (500/ 500 ms)		Lockout switch activated during a call	
On	Off		Board locked or board error occurred	Check whether the board was deactivated with HiPath 3000 Manager E or lockout switch.

LAN Adapter

The Ethernet LAN interface is accessed via the LAN adapter shown in Figure 3-41 (part no. C39228-A7195-A10), which is connected on the backplane's (Xx9) SIPAC 1 SU connector. Only shielded cables may be used for the LAN connector (RJ45 jack).

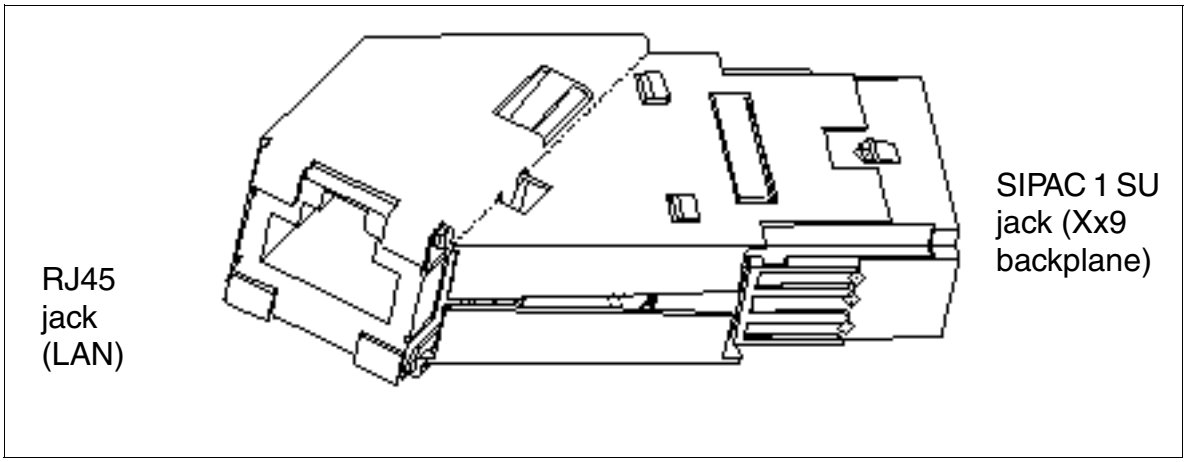


Figure 3-41 LAN Adapter (SIPAC 1 SU - RJ45)

Table 3-42 LAN Adapter Assignment (SIPAC 1 SU - RJ45)

SIPAC 1 SU Jack	RJ45 Jack	Signal
B1	1	TDP (Transmit Data +)
C2	2	TDN (Transmit Data –)
B3	4	TT1 (Transmit Termination 1)*
C4	5	TT2 (Transmit Termination 2)[1]
B5	3	RDP (Receive Data +)
C6	6	RDN (Receive Data –)
B7	7	RT1 (Receive Termination 1)[1]
C8	8	RT2 (Receive Termination 2)[1]

* not used in 4-wire cable

3.3.4 IVMP8 and IVMP8R

Introduction

The following boards are used for the integrated Voice Mail functionality of HiPath Xpressions Compact in V1.2 and later:

- IVMP8 (**I**ntegrated **V**oice **M**ail **P**oint) S30122-Q7379-X100 - for HiPath 3350 (wall housing)
- IVMP8R (**I**ntegrated **V**oice **M**ail **P**oint **R**ack) S30122-K7379-Z100 - for HiPath 3300 (19-inch housing)

In addition, the boards have an Ethernet (10/100BaseT) interface which can be used for HiPath Xpressions Compact administration (fast APS transfer, backup and restore activities).

Only one IVMP8 or IVMP8R may be installed per system.
Slot 5 can only be used for the IVMP8 board in the HiPath 3350 (wall housing).

For detailed information on HiPath Xpressions Compact, startup and administration, see the manual for the product (see list of documentation).

Packing Protection Covering

You must remove the red packing protection covering (cardboard block), shown in the following picture, before starting up the board.

If it is necessary to transport the board again at a later time, for example, for servicing, you must reattach the packing protection covering.

Figure 3-42 IVMP8 and IVMP8R - Packing Protection Covering

Switches and LEDs

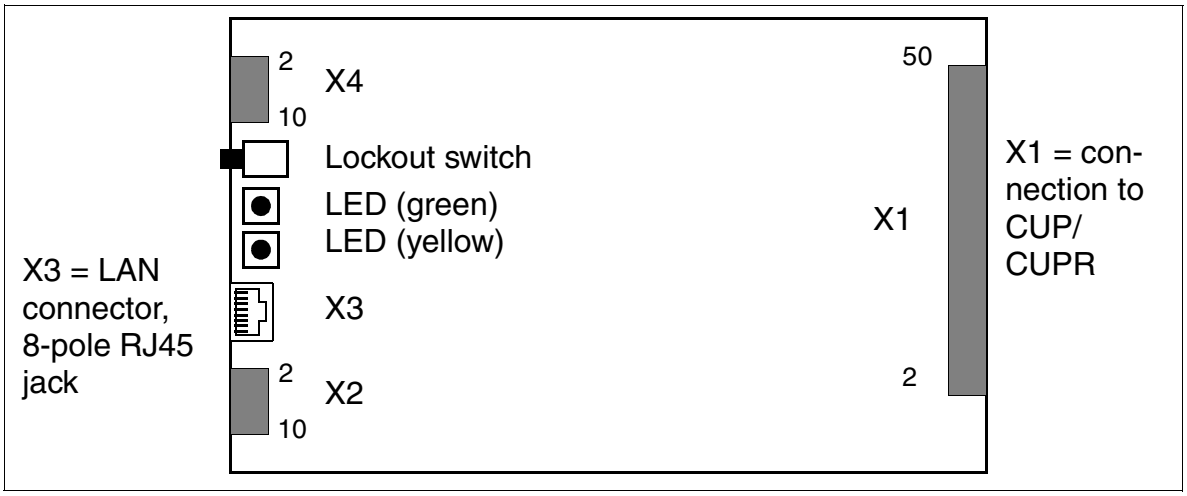


Figure 3-43 IVMP8 and IVMP8R (S30122-Q7379-X100/-K7379-Z100)

Lockout Switch Settings

- Pressed = free (default)
- Not pressed = locked: existing connections remain active, new connections are locked.
  - The yellow LED lights up when all connections are ended and the board is effectively locked.
  - The yellow LED flashes when a lockout request is entered (via lockout switch or software) but at least one call is still active.

To reset the board to the default state, activate the lockout switch twice within the first 10 s of board startup.

Assignment of the RJ45 Jack X3

The Ethernet (10/100BaseT) interface is accessed via the 8-pole RJ45 jack X3. The signals are output simultaneously at the printed circuit connector X2.

Table 3-43 IVMP8 and IVMP8R - Assignment of the RJ45 Jack X3 (LAN Connector)

RJ45 Jack X3 Pin	Signal	Description	Printed Circuit Connector X2 Pin
1	Tx +	Transmit +	1
2	Tx –	Transmit –	3
3	Rx +	Receive +	7
4	–	Not used	
5	–	Not used	
6	Rx –	Receive –	9
7	–	Not used	
8	–	Not used	

LED Statuses and Their Meanings

Table 3-44 IVMP8 and IVMP8R - LED Statuses

Yellow LED	Green LED	Meaning		Action
During Boot Phase and Initialization				
Off	Off	1	Boot procedure (lasts approx. 8 - 12 s)	
On	On	2	LED test (lasts approx. 10 s)	
On	Off	3	Lockout switch state signaling by yellow LED (lasts approx. 5 s): • blocked = On • free = Off	Possibly check if board was deactivated using HiPath 3000 Manager E or lockout switch.
Off				
Flashing (500/ 500 ms)	Off	4	Hard disk test, start of the application (depending on hard disk status, lasts approx. 3 - 8 minutes)	
Off	On	5a	Standby mode after successful boot	
On	Off	5b	Board is blocked or there is a board error	Check if board was deactivated using HiPath 3000 Manager E or lockout switch.
During Operation				
Off	On	Idle (no call)		
Off	Flashing (500/ 500 ms)	At least one active port (call)		
Flashing (500/ 500 ms)	Flashing (500/ 500 ms)	Lockout switch activated during a call		
On	Off	Board locked or board error occurred		Check whether the board was deactivated with HiPath 3000 Manager E or lockout switch.

3.3.5 IVMS8 and IVMS8R

Introduction

The following boards are used for the integrated Voice Mail functionality of HiPath Xpressions Compact in V1.2 and later:

- IVMS8 (**I**ntegrated **V**oice **M**ail **S**mall) S30122-Q7379-X - for HiPath 3550 and HiPath 3350 (wall housing)
- IVMS8R (**I**ntegrated **V**oice **M**ail **S**mall **R**ack) S30122-K7379-Z - for HiPath 3500 and HiPath 3300 (19-inch housing)

In addition, the boards have an Ethernet (10/100BaseT) interface which can be used for HiPath Xpressions Compact administration (fast APS transfer, backup and restore activities).

Only one IVMS8 or IVMS8R may be installed per system.
For thermal reasons, the IVMS8 board may only be used in slots 5, 7 and 9 (lower slots) in the HiPath 3550 (wall housing).
Slot 5 can only be used for the IVMS8 board in the HiPath 3350 (wall housing).

For detailed information on HiPath Xpressions Compact, startup and administration, see the manual for the product (see list of documentation).

Packing Protection Covering

You must remove the red packing protection covering (cardboard block), shown in the following picture, before starting up the board.

If it is necessary to transport the board again at a later time, for example, for servicing, you must reattach the packing protection covering.

Figure 3-44 IVMS8 and IVMS8R - Packing Protection Covering

Switches and LEDs

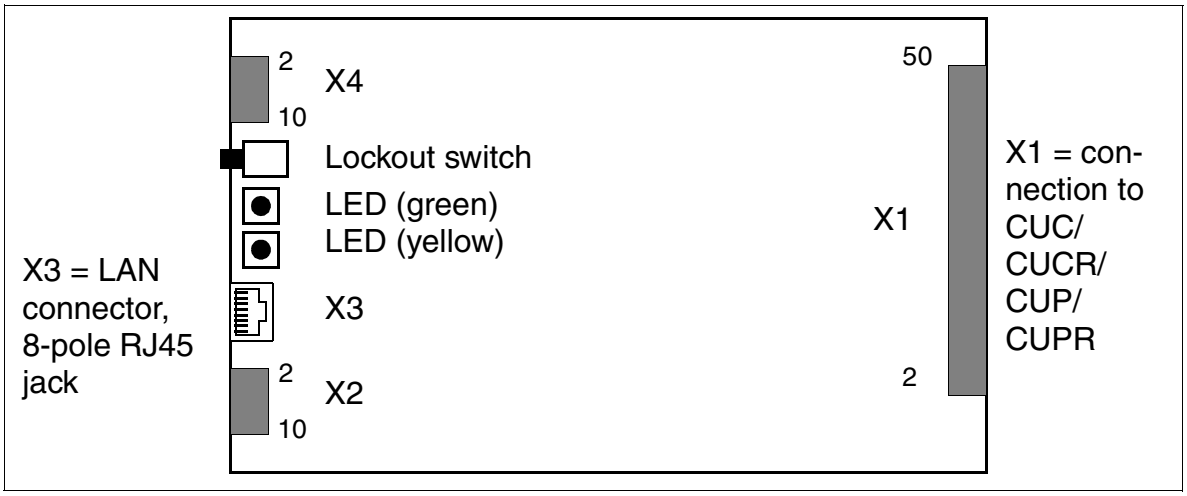


Figure 3-45 IVMS8 and IVMS8R (S30122-Q7379-X/-K7379-Z)

Lockout Switch Settings

- Pressed = free (default)
- Not pressed = locked: existing connections remain active, new connections are locked.
  - The yellow LED lights up when all connections are ended and the board is effectively locked.
  - The yellow LED flashes when a lockout request is entered (via lockout switch or software) but at least one call is still active.

To reset the board to the default state, activate the lockout switch twice within the first 10 s of board startup.

Front View of IVMS8R

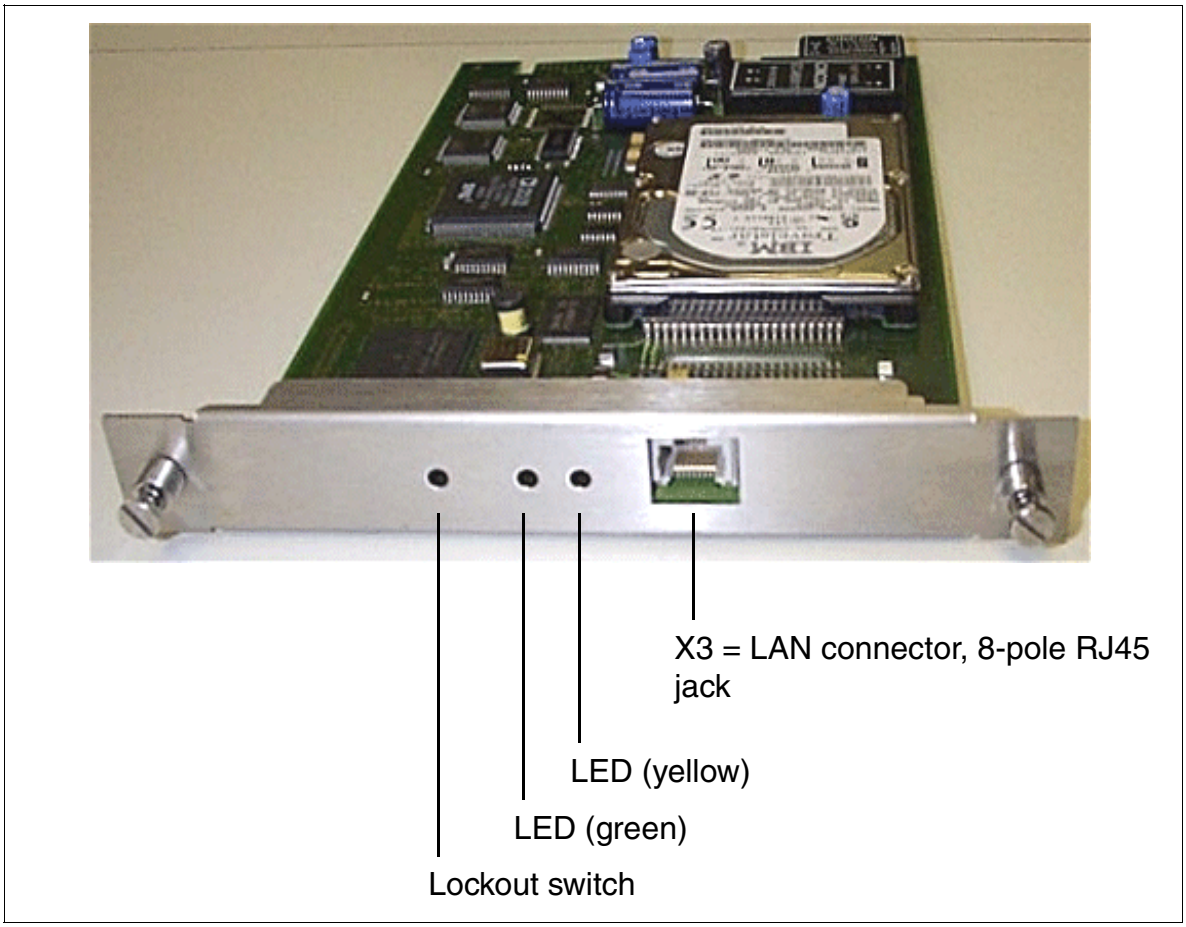


Figure 3-46 IVMS8R - Front View (S30122-K7379-Z)

Assignment of the RJ45 Jack X3

The Ethernet (10/100BaseT) interface is accessed via the 8-pole RJ45 jack X3. The signals are output simultaneously at the printed circuit connector X2.

Table 3-45 IVMS8 and IVMS8R - Assignment of the RJ45 Jack X3 (LAN Connector)

RJ45 Jack X3 Pin	Signal	Description	Printed Circuit Connector X2 Pin
1	Tx +	Transmit +	1
2	Tx –	Transmit –	3
3	Rx +	Receive +	7
4	–	Not used	
5	–	Not used	
6	Rx –	Receive –	9
7	–	Not used	
8	–	Not used	

LED Statuses and Their Meanings

Table 3-46 IVMS8 and IVMS8R - LED Statuses

Yellow LED	Green LED		Meaning	Action
During Boot Phase and Initialization				
Off	Off	1	Boot procedure (lasts approx. 8 - 12 s)	
On	On	2	LED test (lasts approx. 10 s)	
On	Off	3	Lockout switch state signaling by yellow LED (lasts approx. 5 s): • blocked = On • free = Off	Possibly check if board was deactivated using HiPath 3000 Manager E or lockout switch.
Off				
Flashing (500/ 500 ms)	Off	4	Hard disk test, start of the application (depending on hard disk status, lasts approx. 3 - 8 minutes)	
Off	On	5a	Standby mode after successful boot	
On	Off	5b	Board is blocked or there is a board error	Check if board was deactivated using HiPath 3000 Manager E or lockout switch.
During Operation				
Off	On		Idle (no call)	
Off	Flashing (500/ 500 ms)		At least one active port (call)	
Flashing (500/ 500 ms)	Flashing (500/ 500 ms)		Lockout switch activated during a call	
On	Off		Board locked or board error occurred	Check whether the board was deactivated with HiPath 3000 Manager E or lockout switch.

3.3.6 LAN Bridge

Introduction

With LAN Bridge, the internal LAN in HiPath 3550 or HiPath 3350 can be connected to an external LAN via the public ISDN network.

The board is installed the same as an S_0 board, connecting the system with the LAN environment.

Only one board can be installed in an HiPath 3550 or HiPath 3350 system.
Do not install the board in slot 5.

Board Slot

- HiPath 3550: slots 4, 6, 7, 8, 9
- HiPath 3350: slot 4

Interfaces

- X1: 50-pin connection to the system
- X2: 6-pin shielded Mini DIN jack for V.24 (RS-232)
- X3: LAN port, 10-pin shielded, coded RJ45 jack for LAN 10Base-5, Not for U.S.: AUI (15-pin Cannon connector via cable adapter)
- X4: LAN port, 8-pin RJ45 jack for LAN 10Base-T (twisted pair)

Installation, Servicing, and Connectivity

For information on installing, connecting, and servicing Hicom LAN Bridge, refer to the manual *Hicom 100 E, Hicom 150 E Office Hicom LAN Bridge Release 1.01*, part number A31001-K5010-S100-*-7620. This book is shipped with every LAN Bridge.

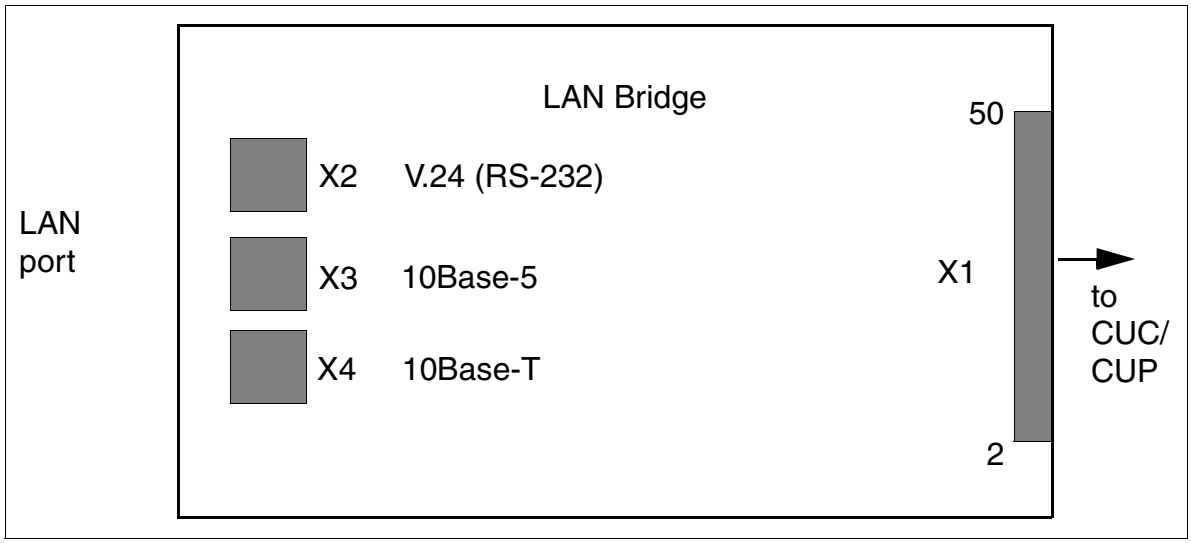


Figure 3-47 LAN Bridge Interfaces (S30817-Q955-Axxx)

Table 3-47 Pin Assignment of AUI (10Base-5) Interface (X3)

X3 10-Pin RJ45 Jack	15-Pin SUB-D Jack (not for U.S.)	Function
1	9	Collision detect: - wire
2	2	Collision detect: + wire
3	12	Receive: - wire
4	5	Receive: + wire
5+6	1+4+8+11+14	GND(AUI)
7	10	Transmit: - wire
8	3	Transmit: + wire
9	6	GND(AUI)
10	13	+12V AUI - power supply voltage
(11+12)	Shielding	GND(AUI)

Table 3-48 Contact Assignment of 10Base-T interface (X4)

X4: 8-Pin RJ45 Jack	Function
1	Transmit: + wire
2	Transmit: - wire
3	Receive: + wire
6	Receive: - wire
4+5+7+8	Not used

3.3.7 SLA8N (Not for U.S.), SLA16N, and SLA24N

Introduction

The following boards can be used in HiPath 3750, HiPath 3550 and HiPath 3700:

- SLA8N (subscriber line module analog with 8 analog interfaces; not for U.S.)
- SLA16N (16 analog interfaces)
- SLA24N (24 analog interfaces)

Switches and LEDs

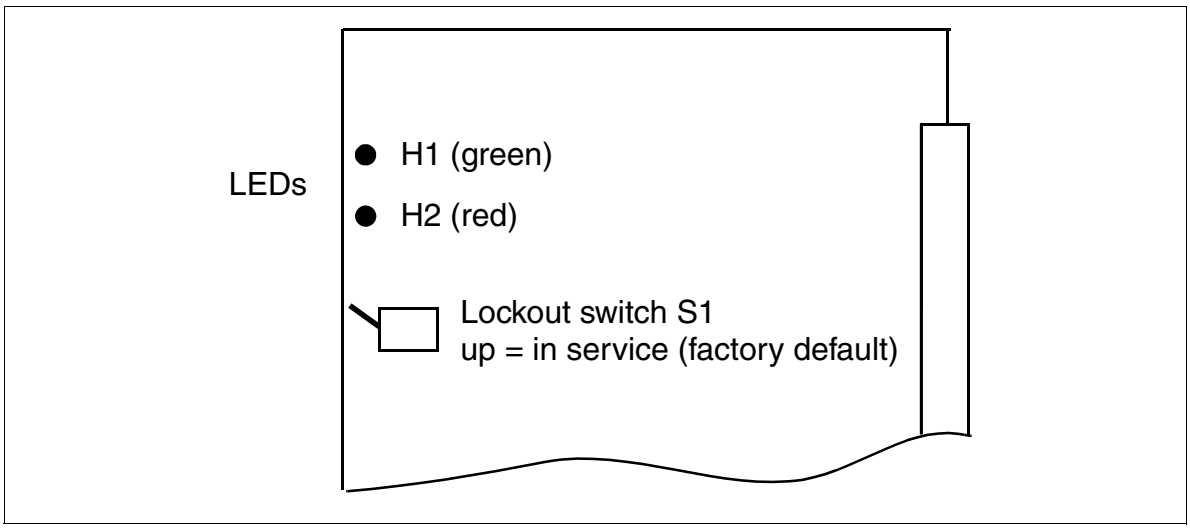


Figure 3-48 SLA8N (Not for U.S.), SLA16N, and SLA24N (S30810-Q2929-Xxxx/-Xxxx/-X)

The operating mode (short or long line with the appropriate flash times) can be set up for each subscriber line interface with HiPath 3000 Manager E (the menu Settings: Set up station –> Station –> Parameters –> Flags).

LED Statuses and Their Meanings

Table 3-49 SLA8N (Not for U.S.), SLA16N, and SLA24N—LED Statuses

Red LED	Green LED	Status	Action
Off	Off	Board not receiving power or not plugged in correctly. Board is deactivated.	Check plug contact on board.
On	Off	Board is receiving power and board test in progress. If status remains the same (board test unsuccessful), board is defective.	Replace board.
		Loadware loading was not successfully completed. Board is defective.	Replace board.
		Error was detected on board. Board is deactivated (not applicable to errors detected by test loops) or board was deactivated using HiPath 3000 Manager E.	Check whether board was deactivated by HiPath 3000 Manager E. If not, replace board.
Flashing	Off	Loadware is being loaded.	
Off	On	Loading was successfully completed and board is OK (idle state).	
Off	Flashing	At least one station is activated.	

Cable and Connector Assignment (Backplane, MDFU/MDFU-E, Patch Panel) (not for U.S.)

Table 3-50 SLA8N, SLA16N, and SLA24N - Cable 1 Assignment (SU Xx8) (not for U.S.)

Color Group	Pair	a-Wire	b-Wire	SU Conn. BP: Xx8	SLA8N, SLA16N, and SLA24N		MDFU/ MDFU-E	Patch Panel, MW8 Pin	Notes
1	1	wht/blu		19	1a	Port 1	1a	4	
			blu/wht	39	1b		1b	5	
	2	wht/ora		38	2a	Port 2	2a	4	
			ora/wht	48	2b		2b	5	
	3	wht/grn		27	3a	Port 3	3a	4	
			grn/wht	47	3b		3b	5	
	4	wht/brn		16	4a	Port 4	4a	4	
			brn/wht	46	4b		4b	5	
	5	wht/gry		05	5a	Port 5	5a	4	
			gry/wht	45	5b		5b	5	
2	6	red/blu		14	6a	Port 6	6a	4	
			blu/red	44	6b		6b	5	
	7	red/ora		23	7a	Port 7	7a	4	
			ora/red	43	7b		7b	5	
	8	red/grn		32	8a	Port 8	8a	4	
			grn/red	42	8b		8b	5	
	9	red/brn		11	9a	Port 9	9a	4	not used by SLA8N
			brn/red	31	9b		9b	5	
	10	red/gry		02	10a	Port 10	10a	4	
			gry/red	22	10b		10b	5	
3	11	blk/blu		13	11a	Port 11	11a	4	
			blu/blk	33	11b		11b	5	
	12	blk/ora		04	12a	Port 12	12a	4	
			ora/blk	24	12b		12b	5	
	13	blk/grn		15	13a	Port 13	13a	4	
			grn/blk	35	13b		13b	5	
	14	blk/brn		06	14a	Port 14	14a	4	
			brn/blk	26	14b		14b	5	
	15	blk/gry		17	15a	Port 15	15a	4	
			gry/blk	37	15b		15b	5	
4	16	yel/blu		08	16a	Port 16	16a	4	
			blu/yel	28	16b		16b	5	
Color Group	**Pair**	**a-Wire**	**b-Wire**	**SU Conn. BP: Xx8**	**SLA8N, SLA16N, and SLA24N**		**MDFU/ MDFU-E**	**Patch Panel, MW8 Pin**	**Notes**

Table 3-51 SLA8N, SLA16N, and SLA24N - Cable 2 Assignment (SU Xx9) (not for U.S.)

Color Group	Pair	a-Wire	b-Wire	SU Conn. BP: Xx9	SLA8N, SLA16N, and SLA24N		MDFU/ MDFU-E	Patch Panel, MW8 Pin	Notes
1	1	wht/blu				free			
			blu/wht						
	2	wht/ora				free			
			ora/wht						
	3	wht/grn				free			
			grn/wht						
	4	wht/brn				free			
			brn/wht						
	5	wht/gry				free			
			gry/wht						
2	6	red/blu				free			
			blu/red						
	7	red/ora				free			
			ora/red						
	8	red/grn				free			
			grn/red						
	9	red/brn		11	17a	Port 17	17a	4	not used by SLA8N, SLA16N
			brn/red	31	17b		17b	5	
	10	red/gry		02	18a	Port 18	18a	4	
			gry/red	22	18b		18b	5	
3	11	blk/blu		13	19a	Port 19	19a	4	
			blu/blk	33	19b		19b	5	
	12	blk/ora		04	20a	Port 20	20a	4	
			ora/blk	24	20b		20b	5	
	13	blk/grn		15	21a	Port 21	21a	4	
			grn/blk	35	21b		21b	5	
	14	blk/brn		06	22a	Port 22	22a	4	
			brn/blk	26	22b		22b	5	
	15	blk/gry		17	23a	Port 23	23a	4	
			gry/blk	37	23b		23b	5	
4	16	yel/blu		08	24a	Port 24	24a	4	
			blu/yel	28	24b		24b	5	
Color Group	**Pair**	**a-Wire**	**b-Wire**	**SU Conn. BP: Xx9**	**SLA8N, SLA16N, and SLA24N**		**MDFU/ MDFU-E**	**Patch Panel, MW8 Pin**	**Notes**

Cable and Connector Assignment (Backplane, MDF) (for U.S. only)

Table 3-52 SLA16N and SLA24N - Assignment (SU Xx8, Xx9) (for U.S. only)

#	a-Wire	b-Wire	SU Conn. Backplane		SLA16N and SLA24N		Champ jack, MDF		Notes
			Xx8	Xx9					
1	wht/blu		19		1a	Port 1	1	1 a/Ring	
		blu/wht	39		1b		26	1 b/Tip	
2	wht/ora		38		2a	Port 2	2	2 a/Ring	
		ora/wht	48		2b		27	2 b/Tip	
3	wht/grn		27		3a	Port 3	3	3 a/Ring	
		grn/wht	47		3b		28	3 b/Tip	
4	wht/brn		16		4a	Port 4	4	4 a/Ring	
		brn/wht	46		4b		29	4 b/Tip	
5	wht/gry		05		5a	Port 5	5	5 a/Ring	
		gry/wht	45		5b		30	5 b/Tip	
6	red/blu		14		6a	Port 6	6	6 a/Ring	
		blu/red	44		6b		31	6 b/Tip	
7	red/ora		23		7a	Port 7	7	7 a/Ring	
		ora/red	43		7b		32	7 b/Tip	
8	red/grn		32		8a	Port 8	8	8 a/Ring	
		grn/red	42		8b		33	8 b/Tip	
9	red/brn		11		9a	Port 9	9	9 a/Ring	
		brn/red	31		9b		34	9 b/Tip	
10	red/gry		02		10a	Port 10	10	10 a/Ring	
		gry/red	22		10b		35	10 b/Tip	
11	blk/blu		13		11a	Port 11	11	11 a/Ring	
		blu/blk	33		11b		36	11 b/Tip	
12	blk/ora		04		12a	Port 12	12	12 a/Ring	
		ora/blk	24		12b		37	12 b/Tip	
13	blk/grn		15		13a	Port 13	13	13 a/Ring	
		grn/blk	35		13b		38	13 b/Tip	
14	blk/brn		06		14a	Port 14	14	14 a/Ring	
		brn/blk	26		14b		39	14 b/Tip	
15	blk/gry		17		15a	Port 15	15	15 a/Ring	
		gry/blk	37		15b		40	15 b/Tip	
16	yel/blu		08		16a	Port 16	16	16 a/Ring	
		blu/yel	28		16b		41	16 b/Tip	

Table 3-52 SLA16N and SLA24N - Assignment (SU Xx8, Xx9) (for U.S. only)

#	a-Wire	b-Wire	SU Conn. Backplane		SLA16N and SLA24N		Champ jack, MDF		Notes
			Xx8	Xx9					
17	red/brn			11	17a	Port 17	9	9 a/Ring	not used by SLA16N
		brn/red		31	17b		34	9 b/Tip	
18	red/gry			02	18a	Port 18	10	10 a/Ring	
		gry/red		22	18b		35	10 b/Tip	
19	blk/blu			13	19a	Port 19	11	11 a/Ring	
		blu/blk		33	19b		36	11 b/Tip	
20	blk/ora			04	20a	Port 20	12	12 a/Ring	
		ora/blk		24	20b		37	12 b/Tip	
21	blk/grn			15	21a	Port 21	13	13 a/Ring	
		grn/blk		35	21b		38	13 b/Tip	
22	blk/brn			06	22a	Port 22	14	14 a/Ring	
		brn/blk		26	22b		39	14 b/Tip	
23	blk/gry			17	23a	Port 23	15	15 a/Ring	
		gry/blk		37	23b		40	15 b/Tip	
24	yel/blu			08	24a	Port 24	16	16 a/Ring	
		blu/yel		28	24b		41	16 b/Tip	

Technical Connection Conditions

- Maximum supply current: Approximately 34 mA;
  Supply voltage: Approximately 40 Vdc
- Ring voltage against negative supply voltage (a/b or tip/ring) for a maximum of two telephones
- Range: see Section 2.7 on page 2-25
- Loop current detection > 10 mA
- Ground button detection > 20 mA
- The transmission method can be selected country-specifically (see Section 2.6.1 on Page 2-24)

3.3.8 SLAS16 (for Brazil Only)

Introduction

HiPath 3550 supports the use of the SLAS16 (**S**ubscriber **L**ine Module **A**nalog **S**ingle Slic) peripheral board, which has 16 analog a/b (T/R) interfaces.

Interfaces

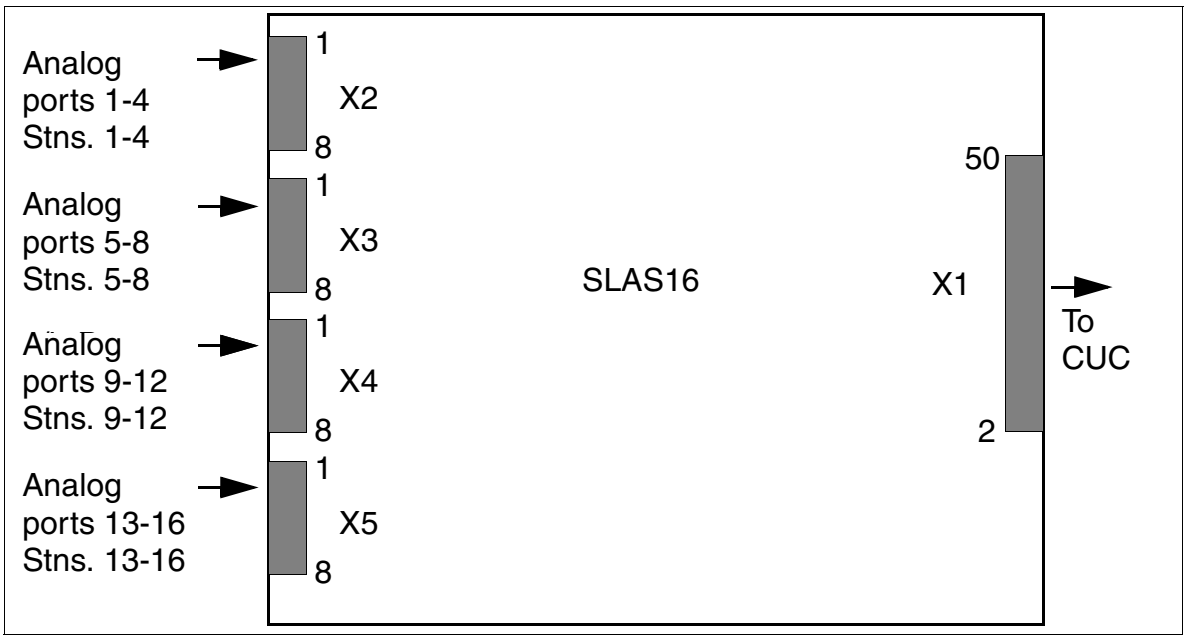


Figure 3-49 SLAS16 Interfaces (S30817-H820-A300)

Pin Assignments

Tabelle 3-53 SLAS16 Pin Assignments

Pin	X2 (Analog Ports 1-4)	X3 (Analog Ports 5-8)	X4 (Analog Ports 9-12)	X5 (Analog Ports 13-16)
1	a 1	a 5	a 9	a 13
2	b 1	b 5	b 9	b 13
3	a 2	a 6	a 1	a 14
4	b 2	b 6	b 10	b 14
5	a 3	a 7	a 11	a 15
6	b 3	b 7	b 11	b 15
7	a 4	a 8	a 12	a 16
8	b 4	b 8	b 12	b 16

The operating mode (short or long line with the appropriate flash times) can be set up for each subscriber line interface with HiPath 3000 Manager E (the menu Settings: Set up station –> Station –> Parameters –> Flags).

Technical Connection Conditions

- Maximum supply current: Approximately 34 mA;
  Supply voltage: Approximately 40 V DC
- Ring voltage against negative supply voltage (a/b or tip/ring) for a maximum of two telephones
- Range: See Section 2.7
- Loop current detection > 10 mA
- The transmission is selected country-specifically, based on the country code entered.

3.3.9 SLC16 (Not for U.S.)

Introduction

The SLC16 (**S**ubscriber **L**ine Module **C**ordless) board connects HiPath cordless base stations to

- HiPath 3750 and HiPath 3700 (max. four SLC16s per system).
- HiPath 3550 (max. one SLC16 per system).

Chapter 11 contains basic information on the new options available in HiPath 3000 Version 1.2 or later for the use of HiPath cordless.

For initial installation of the HiPath cordless, the HiPath cordless system number (DECT ID) must be ordered together with the SLC16 board. Replacement boards are always delivered without a HiPath cordless system number.
Installing the SLC16 and entering the HiPath cordless system number releases 16 mobile units for use (PIN numbers are assigned). These mobile units can then be logged on to the system. Any additional mobile units to be used must first be released (see Section 8.35).

Base stations must be clocked with a high degree of accuracy for HiPath cordless. Install the plug-in CMS module on the CBCPR board (HiPath 3750 and HiPath 3700) or the plug-in CMA or CMS module on the CBCC board (for HiPath 3550) to ensure clock accuracy (see Table 11-1).

Switches and LEDs

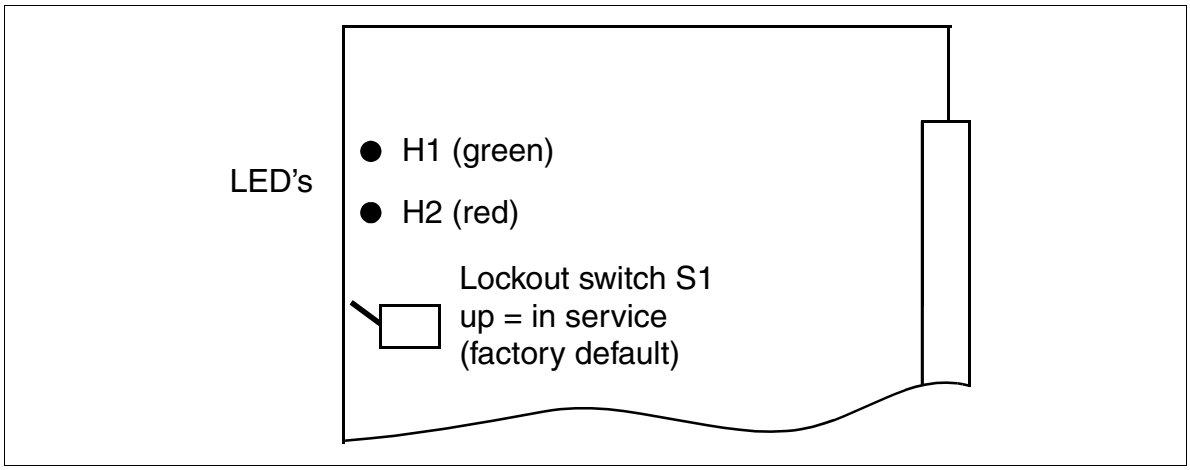


Figure 3-50 SLC16 (S30810-Q2922-X) (Not for U.S.)

When you activate the lockout switch (switch down), all idle mobile telephones are locked. Active mobile telephones are not locked until their release keys are pressed. Before unplugging the SLC16 board, always activate the lockout switch and wait until green LED H1 stops flashing. This precaution ensures that none of the mobile telephones are active.

LED Statuses and Their Meanings

Table 3-54 SLC16—LED Statuses (Not for U.S.)

Red LED	Green LED	Status	Action
Off	Off	Board not receiving power or not plugged in correctly. Board is deactivated.	Check plug contact on board.
On	Off	Board is receiving power and board test in progress. If status remains the same (board test unsuccessful), board is defective.	Replace board.
		Loadware loading was not successfully completed. Board is defective.	Replace board.
		Error was detected on board. Board is deactivated (not applicable to errors detected by test loops) or board was deactivated using HiPath 3000 Manager E.	Check whether board was deactivated by HiPath 3000 Manager E. If not, replace board.
Flashing	Off	Loadware is being loaded.	
Off	On	Loading was successfully completed and board is OK.	
Off	Flashing	At least one subscriber line is activated.	

Cable and Connector Assignment (Backplane, MDFU/MDFU-E, Patch Panel) (not for U.S.)

Table 3-55 SLC16 - Cable Assignment (not for U.S.)

Color Group	Pair	a-Wire	b-Wire	SU Conn. BP: Xx8	SLC16		MDFU/ MDFU-E	Patch Panel, MW8 Pin	Note
1	1	wht/blu		19	1a	Access 1	1a	4	BS 1: $U_{P0/E}$ port 1
			blu/wht	39	1b		1b	5	
	2	wht/ora		38	2a	Access 2	2a	4	BS x: $U_{P0/E}$ port x
			ora/wht	48	2b		2b	5	
	3	wht/grn		27	3a	Access 3	3a	4	BS x: $U_{P0/E}$ port x
			grn/wht	47	3b		3b	5	
	4	wht/brn		16	4a	Access 4	4a	4	BS x: $U_{P0/E}$ port x
			brn/wht	46	4b		4b	5	
	5	wht/gry		05	5a	Access 5	5a	4	BS x: $U_{P0/E}$ port x
			gry/wht	45	5b		5b	5	
2	6	red/blu		14	6a	Access 6	6a	4	BS x: $U_{P0/E}$ port x
			blu/red	44	6b		6b	5	
	7	red/ora		23	7a	Access 7	7a	4	BS x: $U_{P0/E}$ port x
			ora/red	43	7b		7b	5	
	8	red/grn		32	8a	Access 8	8a	4	BS x: $U_{P0/E}$ port x
			grn/red	42	8b		8b	5	
	9	red/brn		11	9a	Access 9	9a	4	BS x: $U_{P0/E}$ port x
			brn/red	31	9b		9b	5	
	10	red/gry		02	10a	Access 10	10a	4	BS x: $U_{P0/E}$ port x
			gry/red	22	10b		10b	5	
3	11	blk/blu		13	11a	Access 11	11a	4	BS x: $U_{P0/E}$ port x
			blu/blk	33	11b		11b	5	
	12	blk/ora		04	12a	Access 12	12a	4	BS x: $U_{P0/E}$ port x
			ora/blk	24	12b		12b	5	
	13	blk/grn		15	13a	Access 13	13a	4	BS x: $U_{P0/E}$ port x
			grn/blk	35	13b		13b	5	
	14	blk/brn		06	14a	Access 14	14a	4	BS x: $U_{P0/E}$ port x
			brn/blk	26	14b		14b	5	
	15	blk/gry		17	15a	Access 15	15a	4	BS x: $U_{P0/E}$ port x
			gry/blk	37	15b		15b	5	
4	16	yel/blu		08	16a	Access 16	16a	4	BS x: $U_{P0/E}$ port x
			blu/yel	28	16b		16b	5	
Color Group	**Pair**	**a-Wire**	**b-Wire**	**SU Conn. BP: Xx8**	**SLC16**		**MDFU/ MDFU-E**	**Patch Panel, MW8 Pin**	**Notes**

SLC16 System Configuration

The following table shows the maximum possible system configuration of HiPath cordless with the SLC16 board.

Table 3-56 HiPath cordless - System Configuration with SLC16 Board

System	SLC16	Base Stations per SLC16		Simultaneous Calls per BS			Maximum No. of MTs
		BS3/1	BS2/2 BS3/3	BS3/1	BS2/2	BS3/3	
HiPath 3550	max. 1	max. 16	max. 8	4	8	12	128
HiPath 3750 HiPath 3700	max. 4	max. 16	max. 8	4	8	12	250 (for 4 SLC16)

Explanations:

- BS3/1 (S30807-H5482-X): this is a new base station which supports up to four calls simultaneously.
  BS3/1 can also be operated directly at the $U_{P0/E}$ interfaces of the HiPath 3550, HiPath 3350, HiPath 3250, HiPath 3500 and HiPath 3300 central control boards. For more information, see Chapter 11.
  You cannot simultaneously connect BS3/1 base stations to the SLC16 and the CBCC in an HiPath 3550 system.
- BS2/2 (S30807-H5471-X200): base station, which allows up to eight simultaneous calls.
- BS3/3 (S30807-H5485-X): this is a new base station, which can only be operated at the SLC16. Connection via at least two $U_{P0/E}$ interfaces is essential. You can conduct up to twelve calls simultaneously if the base station is connected via three $U_{P0/E}$ interfaces.

SLC16 Board Distribution in HiPath 3750 and HiPath 3700 Cabinets

You can install up to four SLC16 boards in HiPath 3750 and HiPath 3700. Please note the following when distributing the boards in the individual cabinets:

- Basic cabinet (GB)
  Up to two SLC16s can be installed in the basic cabinet. Sixteen BS3/1s or eight 8 BS2/2s and BS3/3 can also be connected.
- Expansion cabinets EB1 and EB2
  The four SLC16s can be installed in a single expansion cabinet. And up to Sixteen BS3/1 or eight 8 BS2/2 and BS3/3 can be connected per SLC16.
  To avoid overloading the power supply when operating four SLC16s in a single expansion cabinet, you must not install any other peripheral boards in this cabinet.

To guarantee uninterrupted operation of HiPath 3750 and HiPath 3700, the SLC16 should not be installed with a second SLC16, an SLMO24 or a TS2 on a PCM segment. For information on PCM segment distribution, see page 4-74.

Supplying Power to Base Stations

Power is supplied to the base stations primarily via the internal PSU in the system in question.

- HiPath 3750 and HiPath 3700
  The system-internal PSU provides sufficient power for the connection of sixteen BS3/1s or eight BS2/2s and BS3/3s per SLC16.
  For distances of up to 1000 m (at 2x0.6 mm) between the SLC16 and base station, the BS2/2 and BS3/3 must each be connected via two $U_{P0/E}$ interfaces. Only one $U_{P0/E}$ interface is required for BS3/1 base stations.
- HiPath 3550
  Subject to certain prerequisites, the system-internal PSU UPSC-D provides sufficient power for the operation of sixteen BS3/1s (one $U_{P0/E}$ each) or eight BS2/2s and BS3/3s (two $U_{P0/E}$ each). These prerequisites depend on the
  - Line length and line type between SLC16 and base station.
    The following specifications are based on line lengths of up to 1000 m and a line type 2x0.6 mm per $U_{P0/E}$.
  - Number and type of corded telephones connected to the system.
    Table 3-57 through Table 3-59 show which telephone configurations work without addition power supply.

Table 3-57 HiPath 3550 - Maximum Number of Corded Telephones Depending on the Number of BS3/1s at SLC16

Number of BS3/1s at SLC16	**Maximum Number of Corded Telephones**					
	Analog Telephones					
	0	1-10	11-20	21-30	31-40	41-50
	optiset E and optiPoint 500 Telephones					
1	66	61	57	53	48	44
2	63	59	54	50	46	41
3	60	56	52	47	43	39
4	58	53	49	45	40	36
5	55	51	47	42	38	33
6	53	48	44	40	35	31
7	50	46	41	37	33	28
8	47	43	39	34	30	26
9	45	40	36	32	27	23
10	42	38	33	29	25	20
11	40	35	31	27	22	18
12	37	33	28	24	20	15
13	34	30	26	21	17	13
14	32	27	23	19	14	10

Table 3-57 HiPath 3550 - Maximum Number of Corded Telephones Depending on the Number of BS3/1s at SLC16

Number of BS3/1s at SLC16	Maximum Number of Corded Telephones					
	Analog Telephones					
	0	1-10	11-20	21-30	31-40	41-50
	optiset E and optiPoint 500 Telephones					
13	29	25	20	16	12	7
16	27	22	18	13	9	5

Table 3-58 HiPath 3550 - Maximum Number of Corded Telephones Depending on the Number of BS2/2s at SLC16

Number of BS2/2s at SLC16	Maximum Number of Corded Telephones					
	Analog Telephones					
	0	1-10	11-20	21-30	31-40	41-50
	optiset E and optiPoint 500 Telephones					
1	63	59	54	50	46	41
2	58	53	49	45	40	36
3	53	48	44	40	35	31
4	47	43	39	34	30	26
5	42	38	33	29	25	20
6	37	33	28	24	20	15
7	32	27	23	19	14	10
8	27	22	18	13	9	5

Table 3-59 HiPath 3550 - Maximum Number of Corded Telephones Depending on the Number of BS3/3s at SLC16

Number of BS3/3s at SLC16	Maximum Number of Corded Telephones					
	Analog Telephones					
	0	1-10	11-20	21-30	31-40	41-50
	optiset E and optiPoint 500 Telephones					
1	64	60	56	51	47	42
2	60	56	52	47	43	39
3	57	52	48	43	39	35
4	53	48	44	40	35	31
5	49	44	40	36	31	27
6	45	40	36	32	27	23
7	41	37	32	28	23	19
8	37	33	28	24	20	15

Options for Supplying Power to the Base Stations

For information on connecting the base stations, refer to the HiPath cordless service manual.

Each base station must be connected to the SLC16 via the main distribution frame (MDFU or MDFU-E).
Always route the $U_{P0/E}$ interfaces on the SLC16 via a splitting strip to ensure that surges due to lightning will be arrested. To do so, insert the polarized surge protectors (supplied) in the plugging locations on the splitting strip.

The following options are available for supplying power to the base stations:

- Power supply via one $U_{P0/E}$ interface (page 3-124)
- Power supply via two $U_{P0/E}$ interfaces (page 3-125)
- Power supply via three $U_{P0/E}$ interfaces (page 3-126), for BS3/3 only

If the power supplied by the UPSC-D (HiPath 3550) is insufficient, additional power can be supplied by installing the external power supply EPSU2 (page 3-126).

Signal propagation times differ due to the varying distances between the base stations, the system, and the connecting cables used (refer to the HiPath cordless service manual). The SLC16 automatically equalizes these propagation times.

Base Station Power Supply Via One $U_{P0/E}$ Interface

Connect the base station to a free interface on the SLC16 as shown in Figure 3-51. Be careful not to exceed the maximum connecting cable lengths (1000 m for 2x0.6 mm).

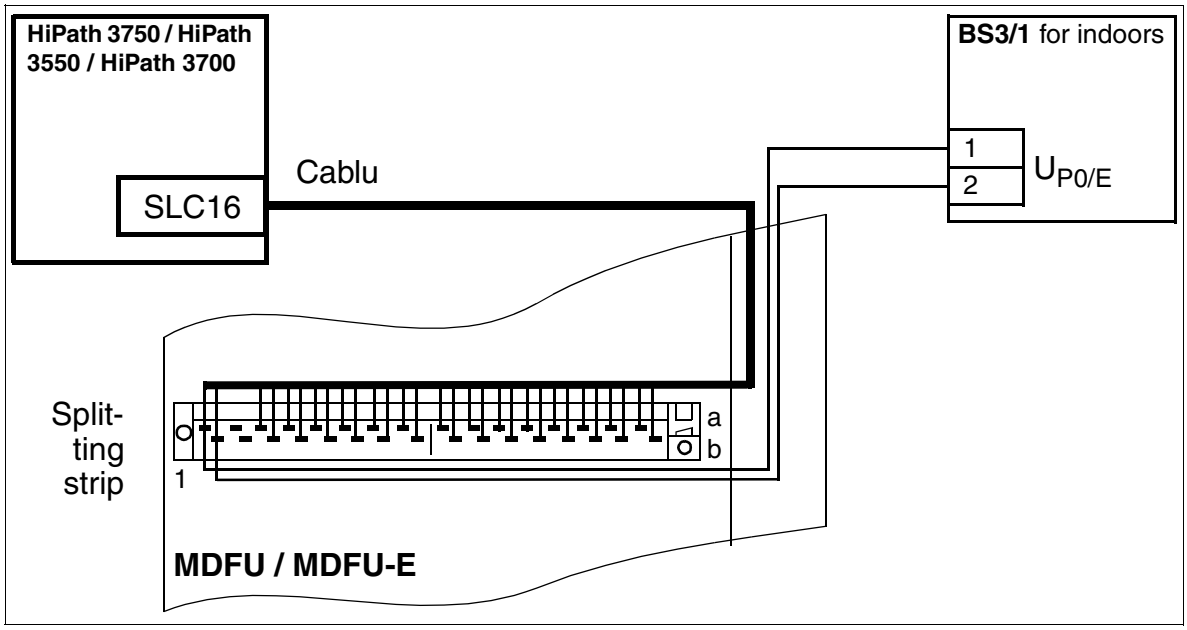


Figure 3-51 Base Station Power Supply Via One $U_{P0/E}$ Interface

Base Station Power Supply Via Two $U_{P0/E}$ Interfaces

Connect the base station to two free interfaces on the SLC16 as shown in Figure 3-52. Be careful not to exceed the maximum connecting cable lengths (1000 m for 2x0.6 mm).
Using two $U_{P0/E}$ interfaces increases the traffic capacity in BS2/2 and BS3/3 base stations.

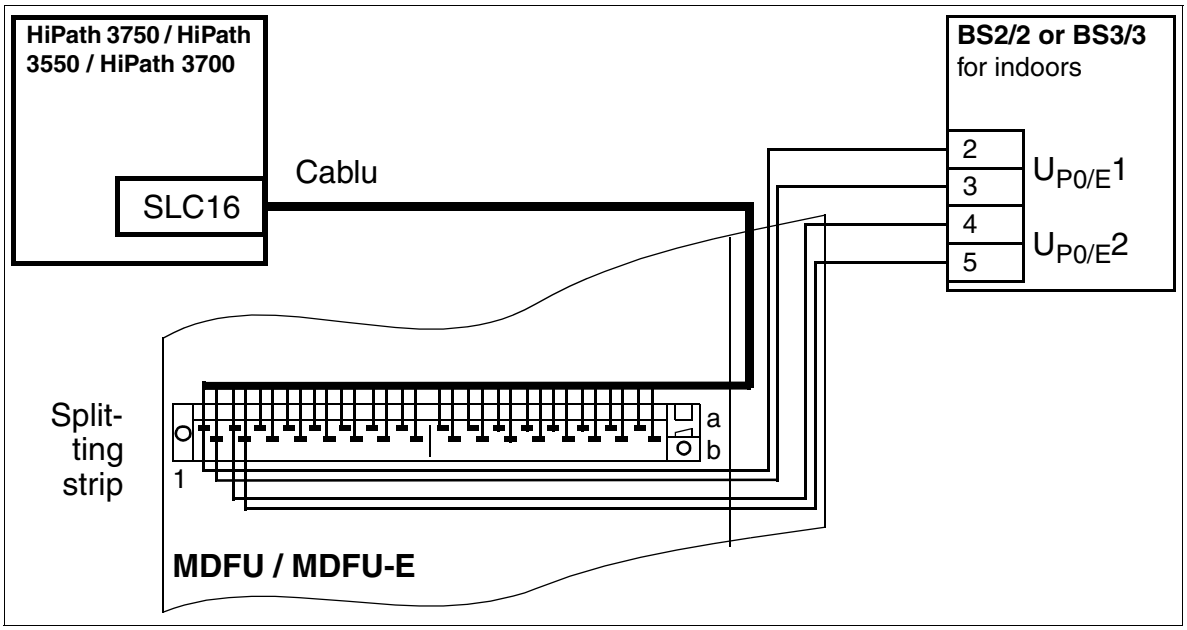


Figure 3-52 Base Station Power Supply Via Two $U_{P0/E}$ Interfaces

BS3/3 Power Supply via Three $U_{P0/E}$ Interfaces

Connect the BS3/3 base station to three free interfaces on the SLC16 as shown in Figure 3-53. Be careful not to exceed the maximum connecting cable lengths (1000 m for 2x0.6 mm).
Using three $U_{P0/E}$ interfaces increases the traffic capacity in the BS3/3 base station.

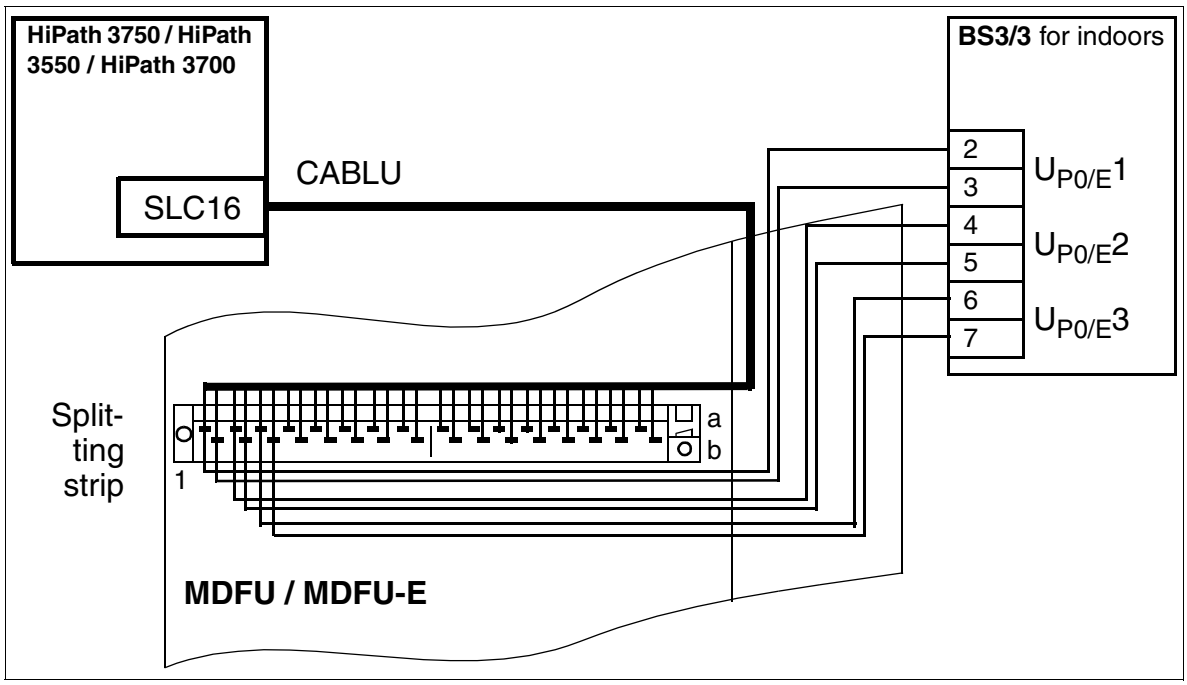


Figure 3-53 BS3/3 Power Supply Via Three $U_{P0/E}$ Interfaces

Additional UPSC-D Power Supply Via EPSU2

If the power supplied by UPSC-D (HiPath 3550) is insufficient, additional power can be supplied by the external power supply EPSU2. To do this, connect the DC port on the EPSU2 to the special DC input on the UPSC-D.

As described on the preceding pages, the base stations are to be connected to one (BS3/1) or two (BS2/2 and BS3/3) or three (BS3/3) free $U_{P0/E}$ interfaces on the SLC16.

If you need an additional external power supply for the 19-inch housing in HiPath 3550 or HiPath 3350, you should use the EPSU2-R power supply. This is installed in the ECR expansion cabinet rack (not for U.S. and Canada) (see Section 6.4).

Section 11.4, “Power-Related Capacity Limits” on page 11-5 shows which telephone configurations manage without an additional power supply and which configurations require an additional one.

EPSU2 External Power Supply

The EPSU2 AC/DC converter is an external power supply unit for use when the UPSC-D is unable to provide sufficient power for the base stations and telephones at the HiPath 3550.

The EPSU2 always comes with UPS batteries installed. In the event of a power outage, these batteries maintain power for a 30-minute bridging time.

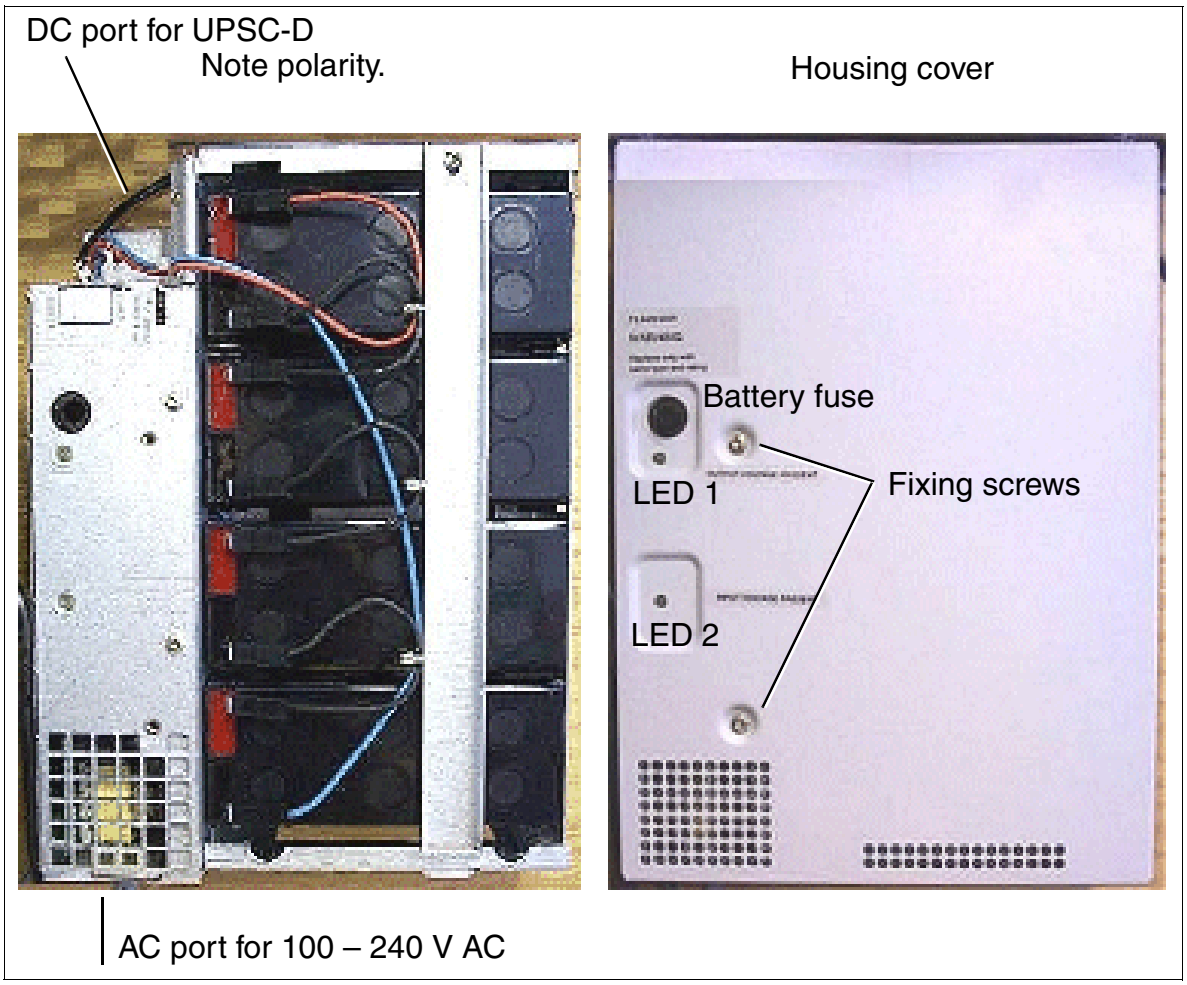


Figure 3-54 EPSU2 - Indicators and Ports

Table 3-60 EPSU2 - Explanation of Indicators and Ports

LED 1 (DC Port)	**LED 2 (AC Port)**	**Explanation**
On	On	DC output and AC input voltages are OK.
Off	On	No DC voltage at output (rectifier short-circuited).
On	Off	No AC voltage at input (power outage, circuit-breaker panel receiving battery power).
Off	Off	No AC input voltage (power outage) and batteries are empty, or the battery fuse is defective or was removed (by turning to the left).
Ports		**Explanation**
Battery fuse		Melting fuse 5 x 20 mm, 2.5 A/slow-blowing
AC port		IEC 320/16 (protective grounding power cable/IEC)
DC port		56 V / 140 W (2-wire connecting cable to UPSC-D set, tin-placed ends)

EPSU2 Technical Specifications

Table 3-61 EPSU2 - Technical Specifications

	EPSU2
Siemens part numbers	S30122-X7221-X1(with UPS/battery packs)
Siemens part numbers, power cable	• C39195-Z7001-C17 Euro angled • C39195-Z7001-C20 GBR angled
EPSU2 batteries	V39113-W5123-E891
Scope of delivery	• AC/DC converter (EPSU2 with UPS batteries loaded) • Operating instructions • AC connecting cable (protective grounding plug, IEC-320 socket) • DC cable to UPSC-D (1 m/0.75mm², flexible, tin-plated at both ends)
AC power	100 - 240 Vac
Frequency range	47 to 63 Hz
Connected output	200 W

Table 3-61 EPSU2 - Technical Specifications

	EPSU2
Output power consumption/ nominal output	140 W
Mains/nominal voltage	54,2 V
Battery operation: • Permitted batteries Manufacturer/type number • Number of batteries • Size (Ah) • Nominal voltage • Overload protection	 • CSB/EVX-1270, Hitachi/HP6.5-12, Yuasa/ NP6-12, Varta/Noack 43720303, Sonnenschein/0719143200 • 4 units, 12 V each • 1.25 Ah • 48 V (fully charged 54 V, discharge to 44 V) • Melting fuse 5 x 20 mm, 2.5 A/slow-blowing
Nominal current	2.5 A
Overload protection	Electronic current limiting circuit
Ambient temperature	In buildings, + 5 to +45 °C
Humidity	95%/non-condensing
Cooling	Natural convection
Protection	IP 21 (DIN 40050)
AC port (input)	IEC 320/16 (protective grounding power cable/IEC)
DC port (output)	Screw terminals for insulated lines: • Rigid = 0.5 – 2.5 mm^2 • Flexible = 0.5 – 2.5 mm^2
Housing dimensions (W x D x H in mm)	250 x 114 x 317
Weight	approx. 14.1 kg
Symbol	CE
Personal safety, insulation	EN60950 and IEC950
Grounding, shielding	Protection class 1, output is floating against ground.

Installation Notes

- The EPSU2 AC/DC converter is designed for installation indoors only.
- The unit is suitable only for mounting on the wall (vertically, with AC port on bottom).
- Always install the units in a dry, dust-free area where there is no danger of vibrations.
- Always make sure there is sufficient air circulation around the units. Do not block the ventilation holes.
- When selecting the location, keep in mind the necessary lengths of the following cables:
  – AC cable (protective grounding plug, IEC 320 socket)
  – DC cable to UPSC-D

Mounting the EPSU2 on the Wall

Step	Action
1.	Drill two holes for anchors (5 mm in diameter) in the wall, as shown in Figure 3-55. Depending on the wall materials, you may have to use a different kind of attachment, such as wooden screws for wooden walls.
2.	Insert the anchors and insert two screws (3.5 mm in diameter), leaving 5 mm projecting from the wall.
3.	Mount the EPSU2 onto the screws and tighten them all the way.

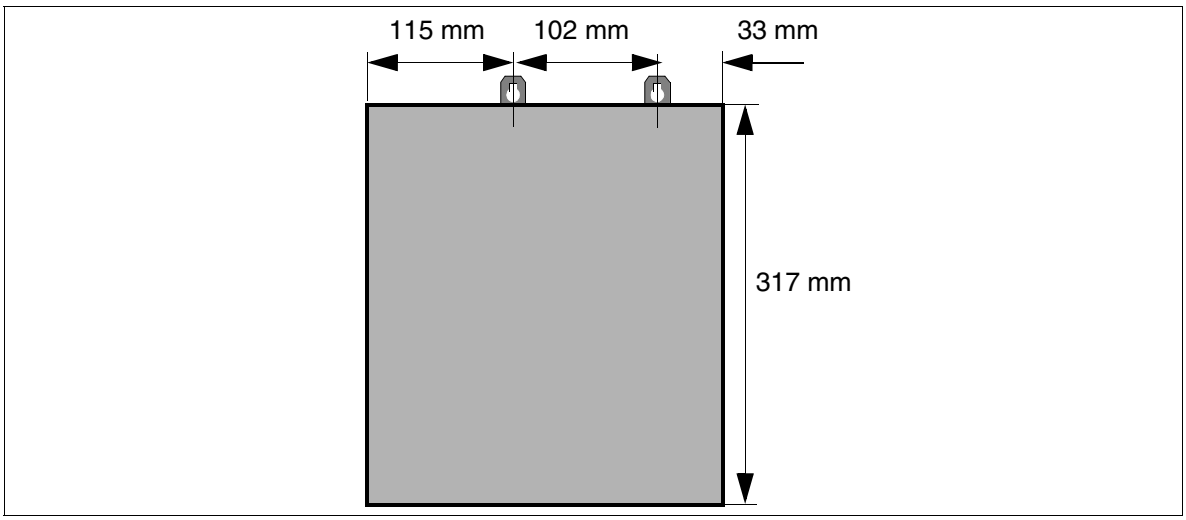


Figure 3-55 EPSU2 - Holes for Mounting on the Wall

3.3.10 SLMO8 (Not for U.S.) and SLMO24

Introduction

The SLMO8 and SLMO24 boards (subscriber line module cost optimized $U_{P0/E}$) provide either 8 or 24 ports for connecting optiset E and optiPoint 500 Telephones to HiPath 3750, HiPath 3550 and HiPath 3700.

SLMO8 is not currently supported in the U.S.

Switches and LEDs

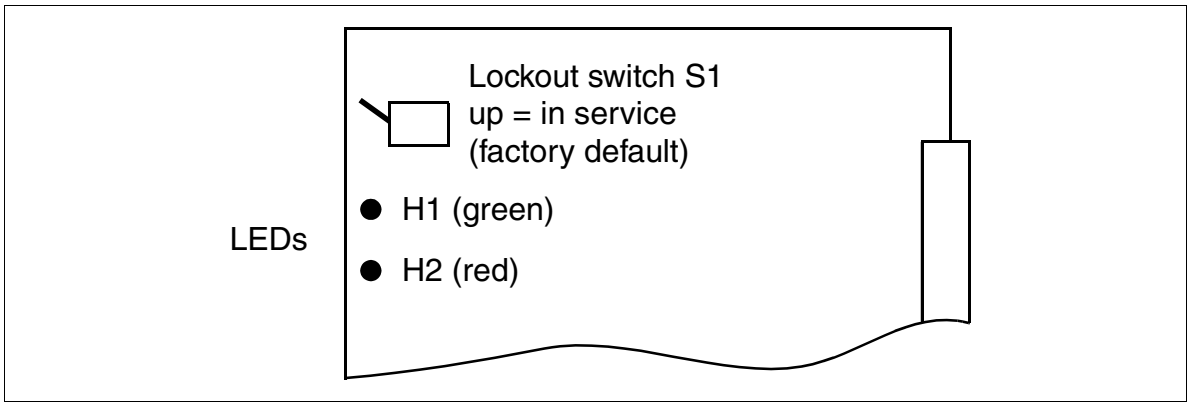


Figure 3-56 SLMO8 and SLMO24 (S30810-Q2901-X100 / S30810-Q2901-X)

LED Statuses and Their Meanings

Table 3-62 SLMO8 and SLMO24—LED Statuses

Red LED	Green LED	Status	Action
Off	Off	Board not receiving power or not properly seated. Board is deactivated.	Check plug contact on board.
On	Off	Board is receiving power or board test in progress. If status remains the same (board test unsuccessful), board is defective.	Replace board.
		Loadware loading not successfully completed. Board is defective.	Replace board.
		Error detected on board. Board is deactivated (not applicable to errors detected by test loops) or board was deactivated using HiPath 3000 Manager E.	Check whether board was deactivated using HiPath 3000 Manager E. If not, replace board.
Flashing	Off	Loadware being loaded.	
Off	On	Loading successfully completed and board is OK (idle).	
Off	Flashing	At least one subscriber line circuit is activated.	

Cable and Connector Assignment (Backplane, MDFU/MDFU-E, Patch Panel) (Not for U.S.)

Table 3-63 SLMO8 and SLMO24 - Cable 1 Assignment (SU Xx8) (Not for U.S.)

Color Group	Pair	a-Wire	b-Wire	SU Conn. BP: Xx8	SLMO8, SLMO24		MDFU/ MDFU-E	Patch Panel, MW8 Pin	Notes
1	1	wht/blu		19	1a	Access 1	1a	4	
			blu/wht	39	1b		1b	5	
	2	wht/ora		38	2a	Access 2	2a	4	
			ora/wht	48	2b		2b	5	
	3	wht/grn		27	3a	Access 3	3a	4	
			grn/wht	47	3b		3b	5	
	4	wht/brn		16	4a	Access 4	4a	4	
			brn/wht	46	4b		4b	5	
	5	wht/gry		05	5a	Access 5	5a	4	
			gry/wht	45	5b		5b	5	
2	6	red/blu		14	6a	Access 6	6a	4	
			blu/red	44	6b		6b	5	
	7	red/ora		23	7a	Access 7	7a	4	
			ora/red	43	7b		7b	5	
	8	red/grn		32	8a	Access 8	8a	4	
			grn/red	42	8b		8b	5	
	9	red/brn		11	9a	Access 9	9a	4	not used by SLMO8
			brn/red	31	9b		9b	5	
	10	red/gry		02	10a	Access 10	10a	4	
			gry/red	22	10b		10b	5	
3	11	blk/blu		13	11a	Access 11	11a	4	
			blu/blk	33	11b		11b	5	
	12	blk/ora		04	12a	Access 12	12a	4	
			ora/blk	24	12b		12b	5	
	13	blk/grn		15	13a	Access 13	13a	4	
			grn/blk	35	13b		13b	5	
	14	blk/brn		06	14a	Access 14	14a	4	
			brn/blk	26	14b		14b	5	
	15	blk/gry		17	15a	Access 15	15a	4	
			gry/blk	37	15b		15b	5	
4	16	yel/blu		08	16a	Access 16	16a	4	
			blu/yel	28	16b		16b	5	
Color Group	**Pair**	**a-Wire**	**b-Wire**	**SU Conn. BP: Xx8**	**SLMO8, SLMO24**		**MDFU/ MDFU-E**	**Patch Panel, MW8 Pin**	**Notes**

Table 3-64 SLMO8 and SLMO24 - Cable 2 Assignment (SU Xx9) (Not for U.S.)

Color Group	Pair	a-Wire	b-Wire	SU Conn. BP: Xx9	SLMO8, SLMO24		MDFU/ MDFU-E	Patch Panel, MW8 Pin	Notes
1	1	wht/blu				free			
			blu/wht						
	2	wht/ora				free			
			ora/wht						
	3	wht/grn				free			
			grn/wht						
	4	wht/brn				free			
			brn/wht						
	5	wht/gry				free			
			gry/wht						
2	6	red/blu				free			
			blu/red						
	7	red/ora				free			
			ora/red						
	8	red/grn				free			
			grn/red						
	9	red/brn		11	17a	Access 17	17a	4	not used by SLMO8
			brn/red	31	17b		17b	5	
	10	red/gry		02	18a	Access 18	18a	4	
			gry/red	22	18b		18b	5	
3	11	blk/blu		13	19a	Access 19	19a	4	
			blu/blk	33	19b		19b	5	
	12	blk/ora		04	20a	Access 20	20a	4	
			ora/blk	24	20b		20b	5	
	13	blk/grn		15	21a	Access 21	21a	4	
			grn/blk	35	21b		21b	5	
	14	blk/brn		06	22a	Access 22	22a	4	
			brn/blk	26	22b		22b	5	
	15	blk/gry		17	23a	Access 23	23a	4	
			gry/blk	37	23b		23b	5	
4	16	yel/blu		08	24a	Access 24	24a	4	
			blu/yel	28	24b		24b	5	
Color Group	**Pair**	**a-Wire**	**b-Wire**	**SU Conn. BP: Xx9**	**SLMO8, SLMO24**		**MDFU/ MDFU-E**	**Patch Panel, MW8 Pin**	**Notes**

Cable and Connector Assignment (Backplane, MDF) (for U.S. only)

Table 3-65 SLMO24 - Assignment (SU Xx8, Xx9) (for U.S. only)

#	a-Wire	b-Wire	SU Conn. Backplane		SLMO24		Champ jack, MDF		Notes
			Xx8	Xx9					
1	wht/blu		19		1a	Port 1	1	1 a/Ring	
		blu/wht	39		1b		26	1 b/Tip	
2	wht/ora		38		2a	Port 2	2	2 a/Ring	
		ora/wht	48		2b		27	2 b/Tip	
3	wht/grn		27		3a	Port 3	3	3 a/Ring	
		grn/wht	47		3b		28	3 b/Tip	
4	wht/brn		16		4a	Port 4	4	4 a/Ring	
		brn/wht	46		4b		29	4 b/Tip	
5	wht/gry		05		5a	Port 5	5	5 a/Ring	
		gry/wht	45		5b		30	5 b/Tip	
6	red/blu		14		6a	Port 6	6	6 a/Ring	
		blu/red	44		6b		31	6 b/Tip	
7	red/ora		23		7a	Port 7	7	7 a/Ring	
		ora/red	43		7b		32	7 b/Tip	
8	red/grn		32		8a	Port 8	8	8 a/Ring	
		grn/red	42		8b		33	8 b/Tip	
9	red/brn		11		9a	Port 9	9	9 a/Ring	
		brn/red	31		9b		34	9 b/Tip	
10	red/gry		02		10a	Port 10	10	10 a/Ring	
		gry/red	22		10b		35	10 b/Tip	
11	blk/blu		13		11a	Port 11	11	11 a/Ring	
		blu/blk	33		11b		36	11 b/Tip	
12	blk/ora		04		12a	Port 12	12	12 a/Ring	
		ora/blk	24		12b		37	12 b/Tip	
13	blk/grn		15		13a	Port 13	13	13 a/Ring	
		grn/blk	35		13b		38	13 b/Tip	
14	blk/brn		06		14a	Port 14	14	14 a/Ring	
		brn/blk	26		14b		39	14 b/Tip	
15	blk/gry		17		15a	Port 15	15	15 a/Ring	
		gry/blk	37		15b		40	15 b/Tip	
16	yel/blu		08		16a	Port 16	16	16 a/Ring	
		blu/yel	28		16b		41	16 b/Tip	

Table 3-65 SLMO24 - Assignment (SU Xx8, Xx9) (for U.S. only)

#	a-Wire	b-Wire	SU Conn. Backplane		SLMO24		Champ jack, MDF		Notes
			Xx8	Xx9					
17	red/brn			11	17a	Port 17	9	9 a/Ring	
		brn/red		31	17b		34	9 b/Tip	
18	red/gry			02	18a	Port 18	10	10 a/Ring	
		gry/red		22	18b		35	10 b/Tip	
19	blk/blu			13	19a	Port 19	11	11 a/Ring	
		blu/blk		33	19b		36	11 b/Tip	
20	blk/ora			04	20a	Port 20	12	12 a/Ring	
		ora/blk		24	20b		37	12 b/Tip	
21	blk/grn			15	21a	Port 21	13	13 a/Ring	
		grn/blk		35	21b		38	13 b/Tip	
22	blk/brn			06	22a	Port 22	14	14 a/Ring	
		brn/blk		26	22b		39	14 b/Tip	
23	blk/gry			17	23a	Port 23	15	15 a/Ring	
		gry/blk		37	23b		40	15 b/Tip	
24	yel/blu			08	24a	Port 24	16	16 a/Ring	
		blu/yel		28	24b		41	16 b/Tip	

3.3.11 SLU8

Introduction

The SLU8 board provides the HiPath 3550 and HiPath 3350 with 8 digital subscriber line interfaces, allowing up to 16 digital telephones in host-client operation (primary-secondary operation).

Interfaces

Figure 3-57 SLU8 Interfaces (S30817-Q922-A301)

Caution
After disconnecting the system electrical plug, you must wait a few minutes before you remove or insert the SLU8. Otherwise, you may damage the CBCC/CBCP.

Table 3-66 SLU8 Contact Assignments (Not for U.S.)

Pin	X2 ($U_{Po/E}$ Ports 1 to 4)	X3 ($U_{P0/E}$ Ports 5 to 8)
1	a1	a5
2	b1	b5
3	a2	a6
4	b2	b6
5	a3	a7
6	b3	b7
7	a4	a8
8	b4	b8

Table 3-67 SLU8 Interface Assignments (for U.S. Only)

Pin	X2 ($U_{Po/E}$ ports 1 to 4)	X3 ($U_{P0/E}$ ports 5 to 8)
1	R1	R5
2	T1	T5
3	R2	R6
4	T2	T6
5	R3	R7
6	T3	T7
7	R4	R8
8	T4	T8

Note: Pinouts shown are at the board itself. The supplied main distribution frame cable (MDF cable) reverses the signal order before the MDF.

3.3.12 SLU8R

Introduction

The SLU8R (**s**ubscriber **l**ine **U**$_{P0/E}$ **r**ack) board provides eight ports for the connection of optiset E and optiPoint 500 Telephones to HiPath 3500 and HiPath 3300 (19-inch housing).

Interfaces

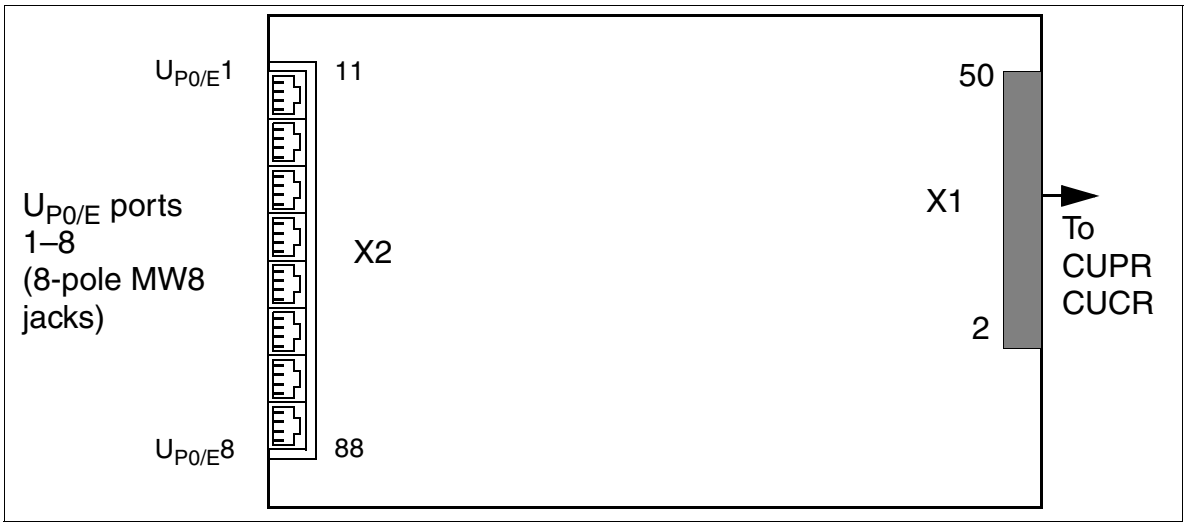


Figure 3-58 SLU8R Interfaces(S30817-K922-Z301)

Table 3-68 SLU8R Contact Assignment

MW8 Jack	X2, Pin	U$_{P0/E}$ Ports 1-4	MW8 Jack	X2, Pin	U$_{P0/E}$ Ports 5-8
1	14	Tip / a 1	5	54	Tip / a 5
	15	Ring / b 1		55	Ring / b 5
2	24	Tip / a 2	6	64	Tip / a 6
	25	Ring / b 2		65	Ring / b 6
3	34	Tip / a 3	7	74	Tip / a 7
	35	Ring / b 3		75	Ring / b 7
4	44	Tip / a 4	8	84	Tip / a 8
	45	Ring / b 4		85	Ring / b 8

3.3.13 STLS2 (Not for U.S.) and STLS4

Introduction

The STLS4 board for HiPath 3550 and HiPath 3350 has four S_0 ports that can be operated either as external trunk interfaces in TE (terminal equipment) mode or as interfaces to internal S_0 busses in NT (network terminator) mode (with cross-connected RX TX lines).

The STLS2 is an underequipped variant with two S_0 ports. It is not currently supported in the U.S.

Interfaces

The STLS2 or STLS4 does **not** supply terminals with power; power must be supplied locally using an optiset E local power supply or a bus power supply unit.

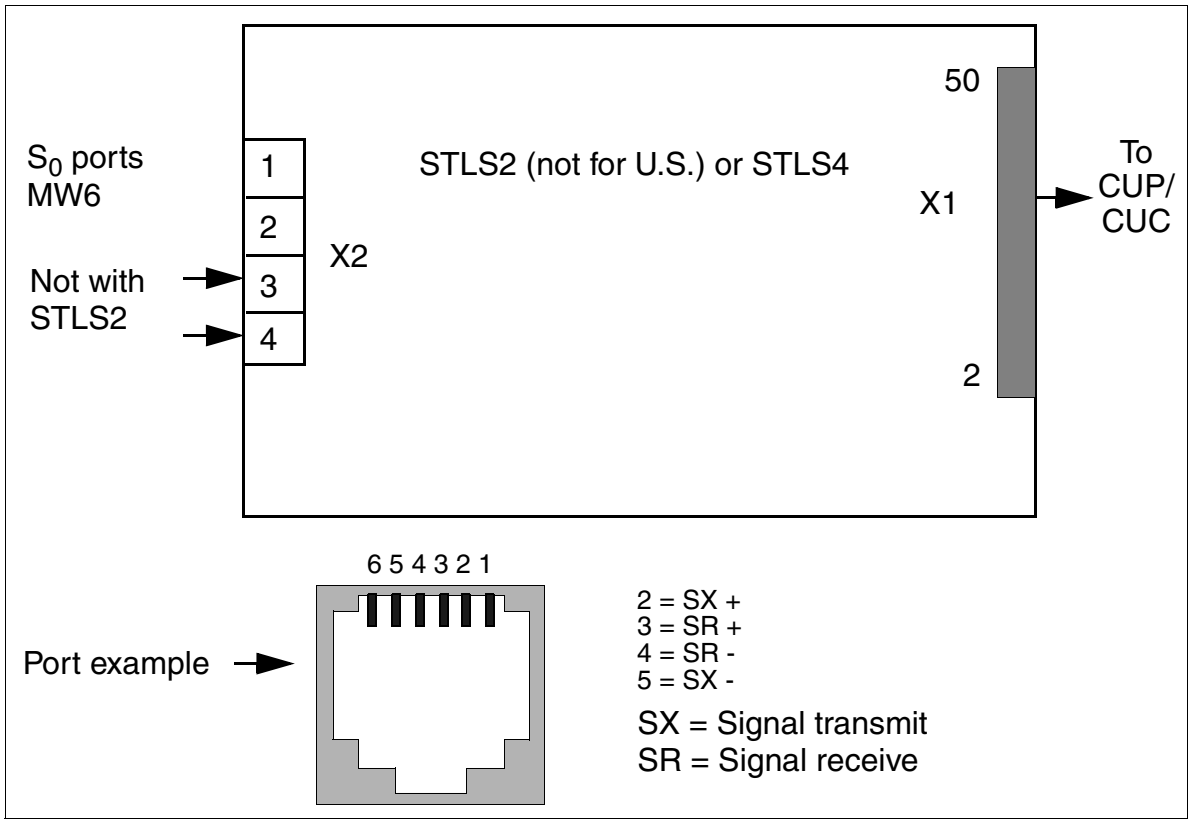


Figure 3-59 STLS2 (Not for U.S.) and STLS4 Interfaces (S30817-Q924-B313 / -A313)

Interface Assignments (for U.S. Only)

Table 3-69 STLS4 Module Interface Assignments (for U.S. Only)

Pin	Port	Assignment	Pin	Port	Assignment
2	1	Signal transmit	2	3	Signal transmit
3		Signal receive	3		Signal receive
4		Signal receive	4		Signal receive
5		Signal transmit	5		Signal transmit
2	2	Signal transmit	2	4	Signal transmit
3		Signal receive	3		Signal receive
4		Signal receive	4		Signal receive
5		Signal transmit	5		Signal transmit

Note: The STLS4 Module serves the trunk side in Europe, so the transmit and receive signals must be reversed before the first device on the S_0 bus. In contrast, the optiset E ISDN adapter uses a straight-through connection because it is always a station-only device. See Figure 3-61 on page 3-143 for details.

The ISDN terminals must have their own local power supply. Refer to Section 9.9.1 for information on setting up an S_0 bus.

The system assigns the MSN only after the S_0 port is configured on the Euro-bus (not for U.S.) and can be read out via the administration (Assistant T: code 20 4 3 S_0 bus MSN).

Connecting ISDN Terminals to HiPath 3550 and HiPath 3350

S_0 Bus With MW8 Jack

Connecting $S_0$1 to $S_0$4:

- Connect the provided, silver-satin connector cord to each port on the STLS4 Module. Connect the other end to a surface-mounted MW jack, reversing the transmit and receive wires as shown in Figure 3-61 on page 3-143.
- Contact is always established using the center pins of MW jacks. Figure 3-60 shows the pin assignments for jacks of different sizes.
- The ISDN terminals must have their own local power supply. Refer to Section 9.9.1 for information on setting up an S_0 bus.
- Plug the ISDN terminal (connecting cord) into the MW jack. Connecting an ISDN S_0 telephone requires a local power supply (e.g. manufactured by Sedlbauer); see Figure 9-15 on page 9-27.

Pin Assignment of MW Jacks

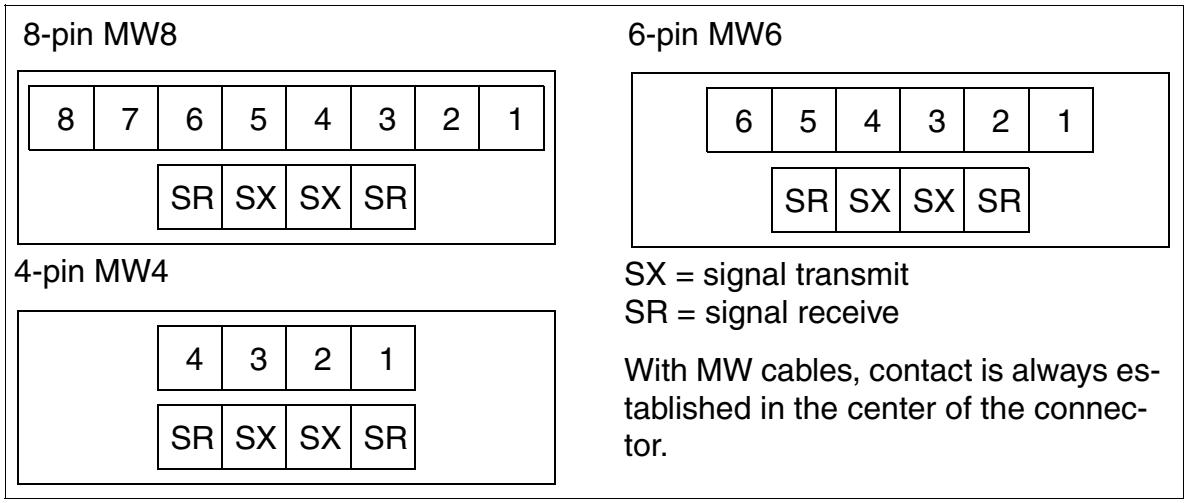


Figure 3-60 MWxx Jack Pin Assignment

S_0 Bus Wiring From STLS4 Port or optiset E ISDN adapter

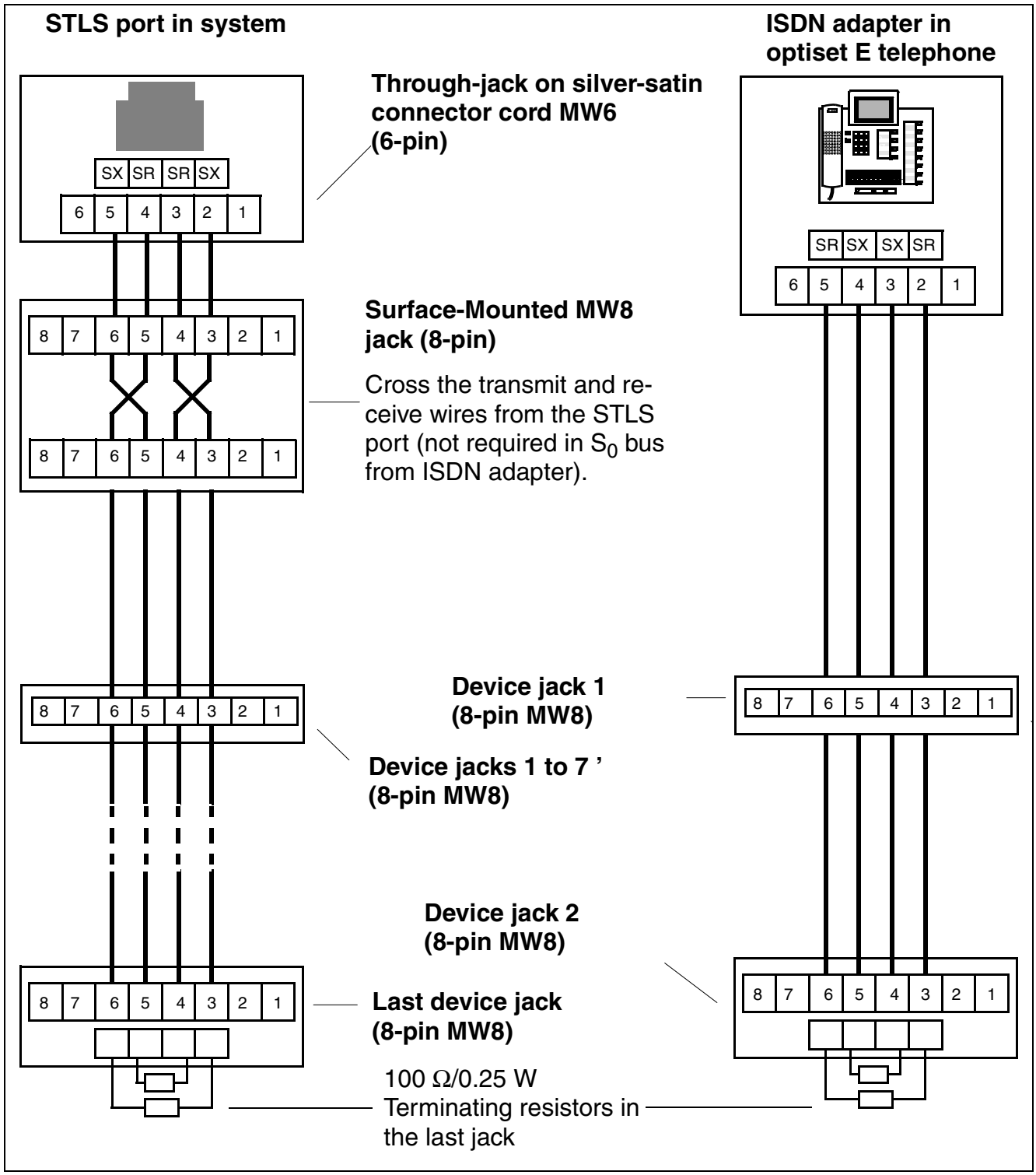


Figure 3-61 S_0 Bus Wiring From STLS4 Port or optiset E ISDN adapter

3.3.14 STLS4R

Introduction

The STLS4R (**s**ubscriber and **t**runk **l**ine **S_0** **r**ack) board provides four S_0 basic accesses for HiPath 3500 and HiPath 3300 (19-inch housing). These are operated either as external trunk interfaces in TE (terminal equipment) mode or as internal S_0 buses (bus PMP) in NT (network terminator) mode with cross-connected RX-TX lines.

The STLS4R does **not** supply terminals with power; power must be supplied locally using an optiset E local power supply or a bus power supply unit.

Interfaces

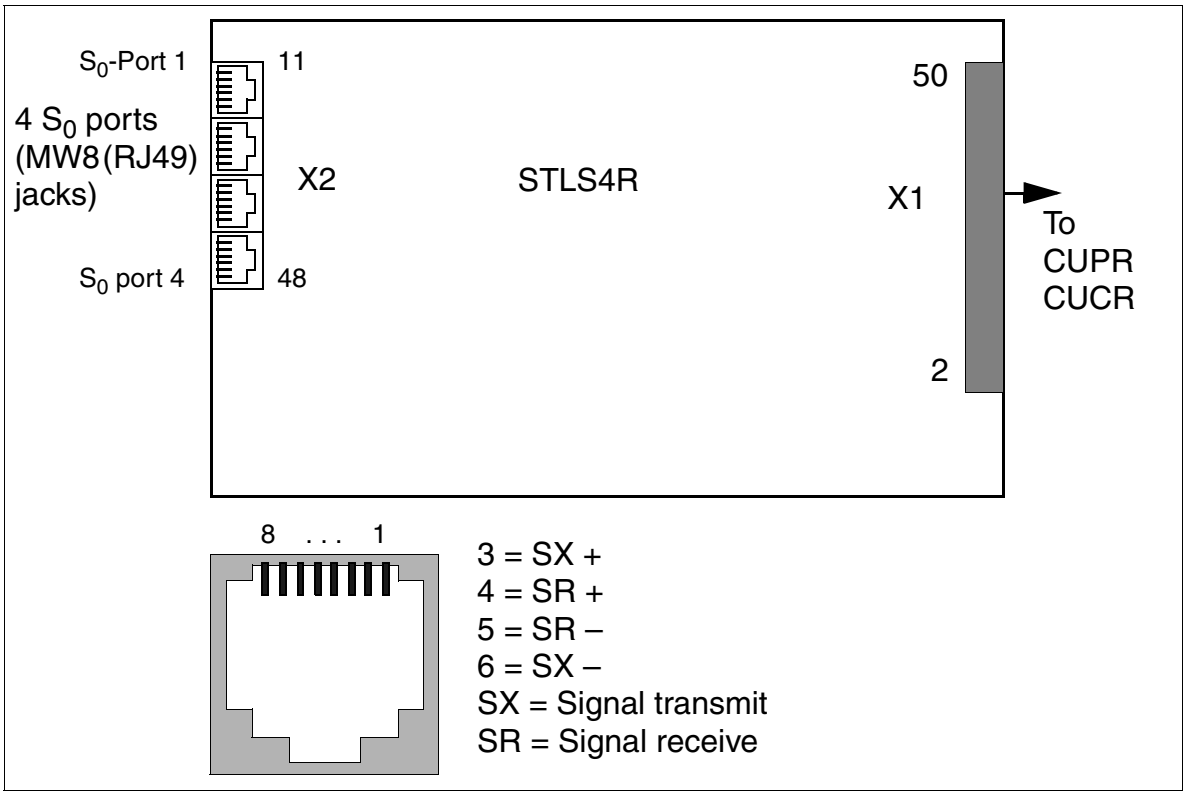


Figure 3-62 STLS4R Interfaces (S30817-K924-Z313)

Table 3-70 STLS4R Contact Assignments

MW8 (RJ49) Jack	X2, Pin	S_0 Ports 1-4
1	13	S_0 port 1 transmit+
	14	S_0 port 1 receive+
	15	S_0 port 1 receive–
	16	S_0 port 1 transmit–
2	23	S_0 port 2 transmit+
	24	S_0 port 2 receive+
	25	S_0 port 2 receive–
	26	S_0 port 2 transmit–
3	33	S_0 port 3 transmit+
	34	S_0 port 3 receive+
	35	S_0 port 3 receive–
	36	S_0 port 3 transmit–
4	43	S_0 port 4 transmit+
	44	S_0 port 4 receive+
	45	S_0 port 4 receive–
	46	S_0 port 4 transmit–

3.3.15 STMD8

Introduction

The STMD8 board (**s**ubscriber and **t**runk **m**odule **d**igital S_0) provides eight S_0 ports in HiPath 3750 and HiPath 3700, which can be used

- for the S_0 trunk Connection (Not for U.S.)
- for a Point-to-Point or Point-to-Multipoint Connection
- for S_0 Networking (Not for U.S.) (CorNet-N or QSig)
- for an S_0 Bus for Connecting ISDN Telephones (Not for U.S.) (separate power supply required)

Switches and LEDs

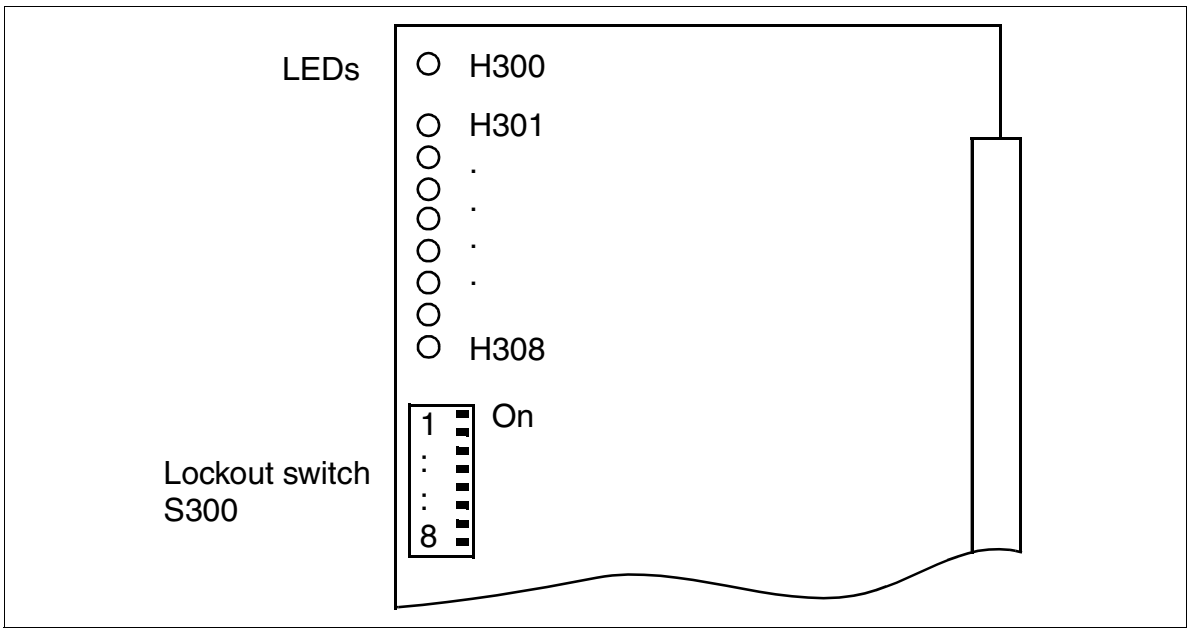


Figure 3-63 STMD8 (S30810-Q2558-X200)

LED Statuses and Their Meanings

- LED H300 (see Figure 3-63): Reference clock display (clock is generated if this feature has been configured using HiPath 3000 Manager E.)
  - On: Reference clock for clock generator is generated.
  - Off: No reference clock
- LEDs H301 to H308 (see Figure 3-63)

Table 3-71 STMD8— LED Statuses (H301 to H308)

LED Status (on/off)	Meaning	Action
During the Boot Phase and Initialization		
Flickering (50/50 ms)	Board test not successful	Replace board
Flashing (100/100 ms)	Board not configured	Inspect visually; remove and re-seat board if required. Replace board if flashing continues.
On	Loading in progress	
Flashing (100/100 ms)	Code could not be loaded	Replace board
Off	Board loaded	
Flashing (500/500 ms)	Board loaded, but not yet activated	
During Operation		
On	ISDN layer 2 activated	
Flickering (450/50 ms)	Dependability test (loopback test) in progress	
Flashing (500/500 ms)	Board is out of service (e.g. S300/x “closed”)	Check whether the board was deactivated using HiPath 3000 Manager E or lockout switch.
Off	ISDN layer 2 not activated	

S_0 trunk Connection (Not for U.S.)

Table 2-8 on page 2-25 lists examples of maximum line lengths for connecting trunks.

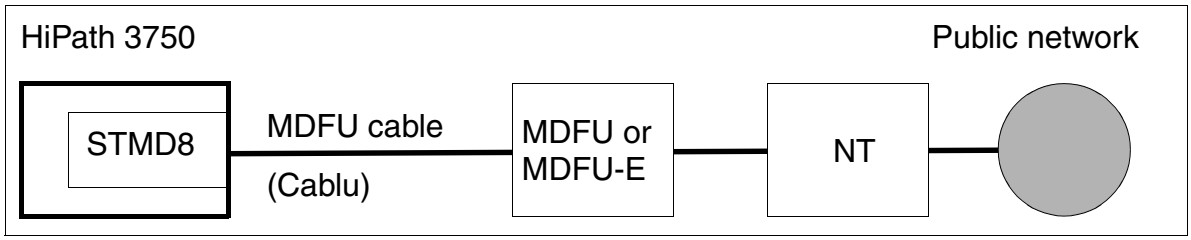


Figure 3-64 S_0 Trunk Connection (Not for U.S.) (Example for HiPath 3750)

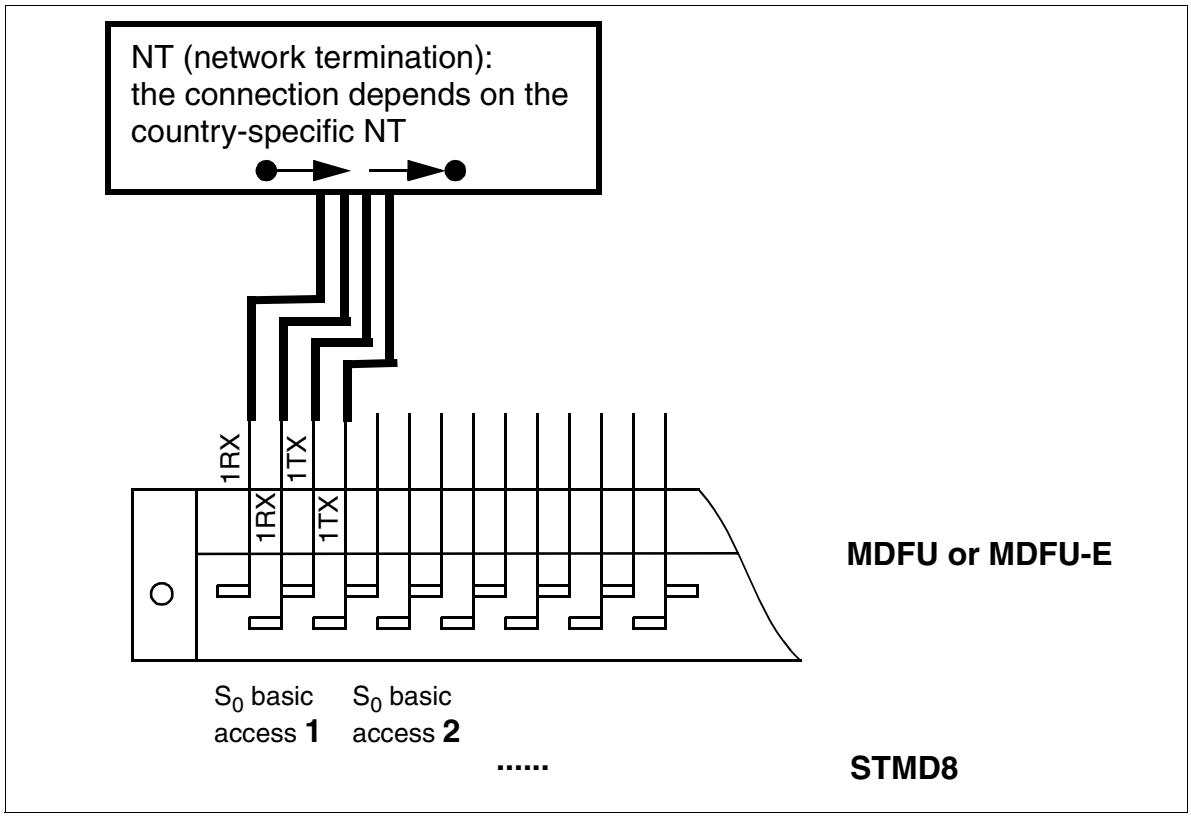


Figure 3-65 S_0 Connection to NT (Not for U.S.)

Not for U.S.: When starting up S_0 ports during operation with PABXs, it is important to ensure that the NT switch is in the POINT-TO-POINT position.

Point-to-Point or Point-to-Multipoint Connection

- Point-to-multipoint connection
  You can connect HiPath 3750 and HiPath 3700 on an ISDN multi-device connection (S_0 bus) to the central office, allowing you to use it simultaneously with other ISDN devices on the same connection.

  Note the following:

  – Maintain the correct polarity on the T/R wires.

  – The phone company assigns an 11-digit DID number (MSN or multiple subscriber number) for telephones to be connected to the S_0 bus. There are usually at least three MSNs per basic access.

  – When setting the system-wide ISDN parameters, select *DSS1 trunk PMP* under Port configuration (code 20 4 1) for the port you are using.

  – Enter the MSN in the table for DID numbers. For each MSN assigned, callers can directly dial a station, group, or hunt group in the HiPath 3750 and HiPath 3700 system.

  – Leave the System number parameter unchanged.

  – Always configure HiPath 3750 and HiPath 3700 as the last station on the S_0 bus because terminating resistors (2 x 100 Ω) are permanently installed in the trunk connection of the communications server. Remove any terminating resistors from the last socket.

- Point-to-point connection
  Use a point-to-point connection if you have a dedicated line (trunk/tie circuit) or to extend the range if only one telephone is connected to the S_0 bus.

S_0 Networking (Not for U.S.)

For examples of the maximum cable lengths for direct CorNet-N networking, refer to Table 2-8 on page 2-25.

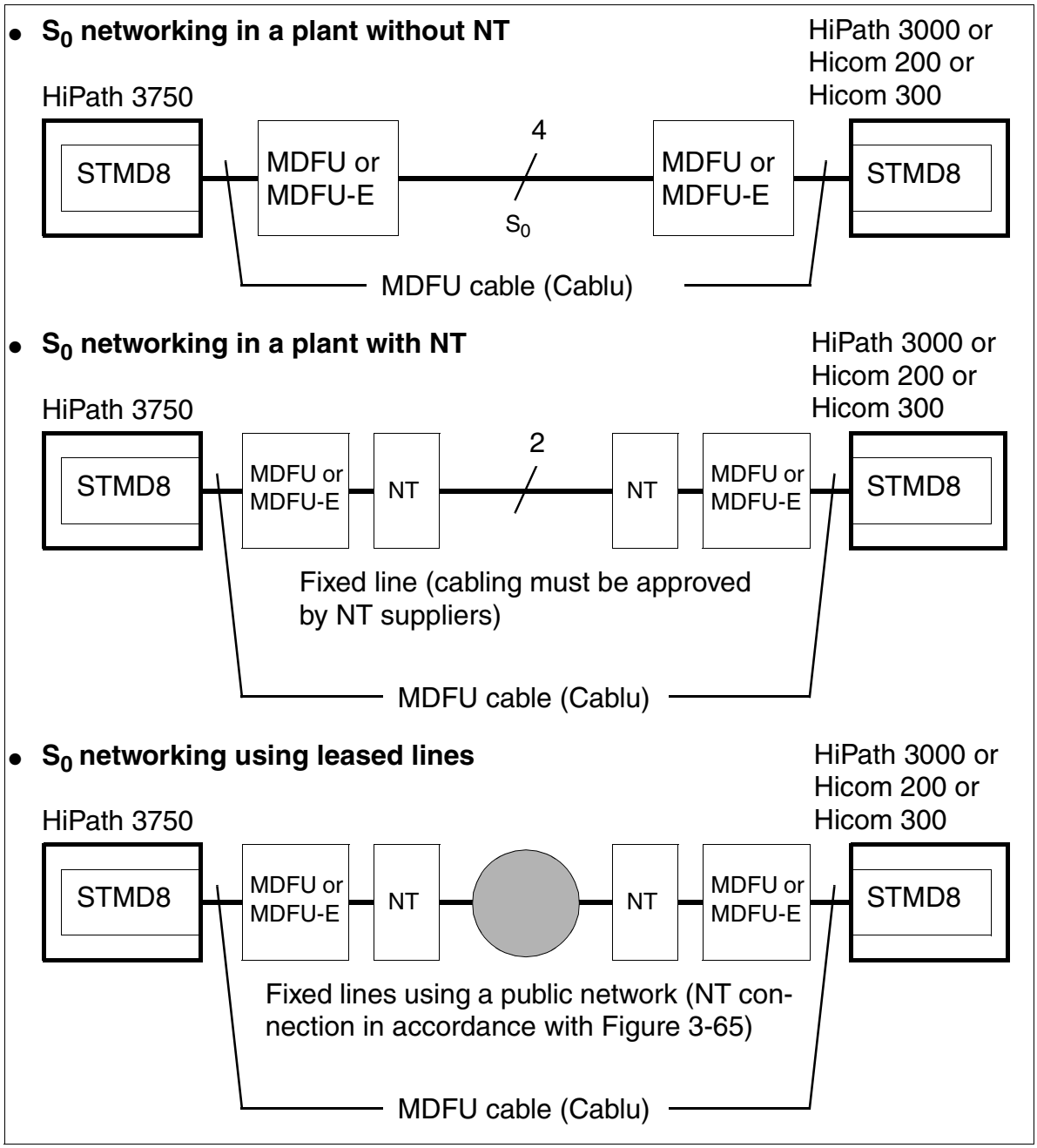


Figure 3-66 S_0 Networking Options (Not for U.S.) (Examples for HiPath 3750)

S_0 Bus for Connecting ISDN Telephones (Not for U.S.)

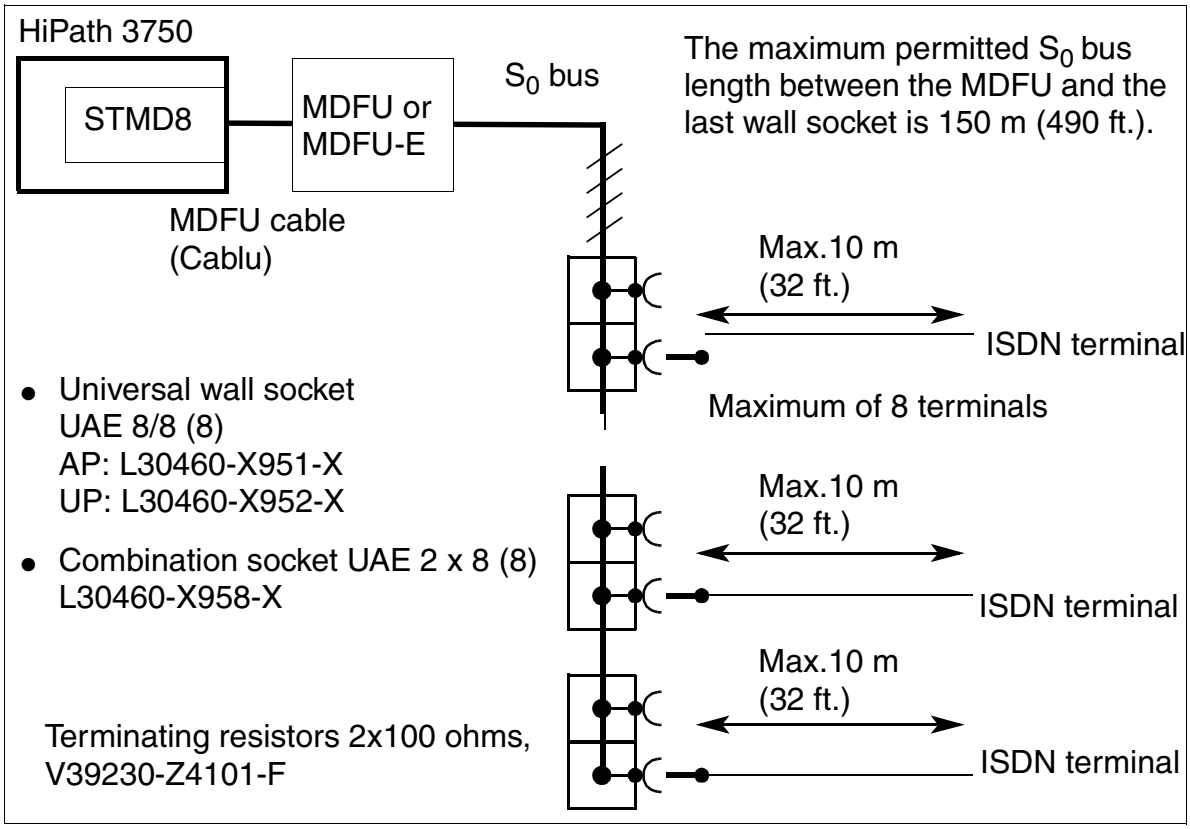


Figure 3-67 S_0 bus to the STMD8 via the MDFU or MDFU-E (Not for U.S.)

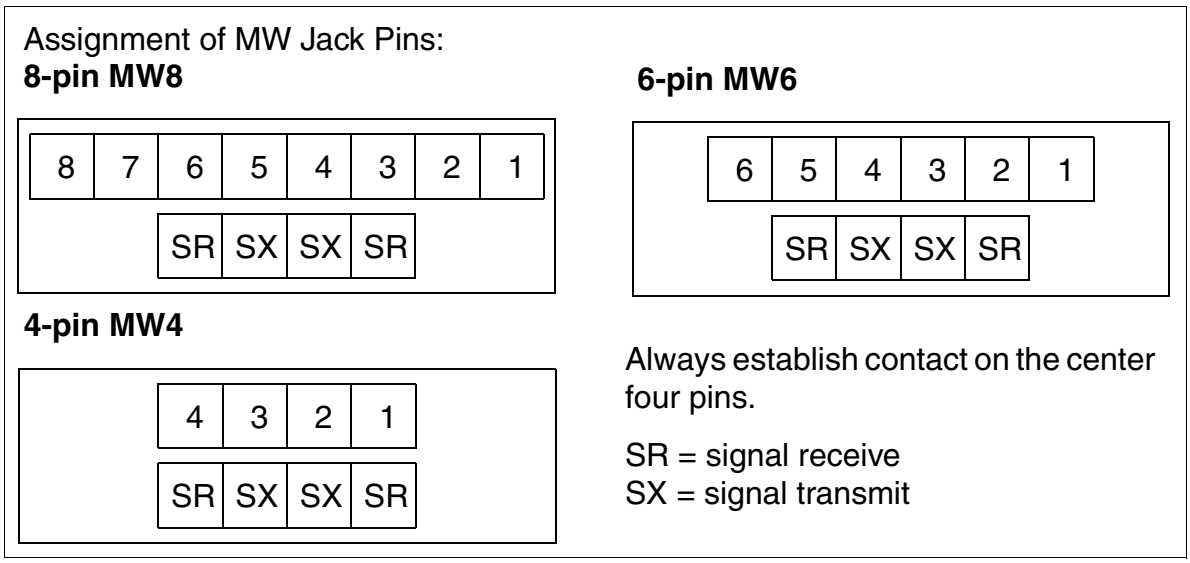


Figure 3-68 Jack Pin Assignments

S_0 Bus—Example of Wall Jack Assignment (Not for U.S.)

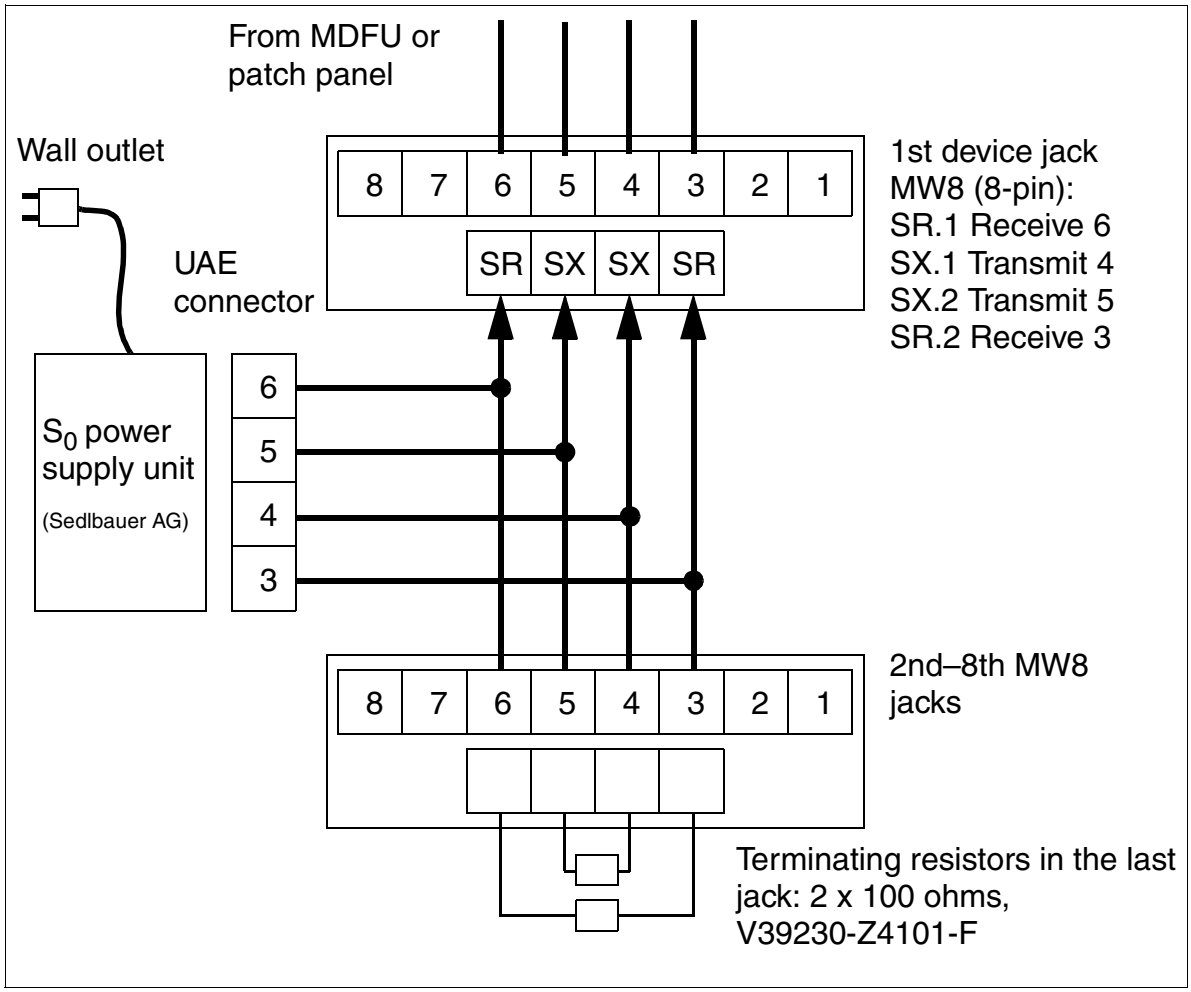


Figure 3-69 S_0 Bus—Example of Wall Jack Assignment (Not for U.S.)

ISDN boards can also be connected to available optiPoint 500 series telephones (except for optiPoint 500 entry and optiPoint 500 economy) using an optiPoint ISDN adapter.

Cable and Connector Assignment (Backplane, MDFU/MDFU-E, Patch Panel) (Not for U.S.)

Table 3-72 STMD8 - Cable and Connector Assignment (Not for U.S.)

Color Group	Pair	a-Wire	b-Wire	SU Conn. BP: Xx8	STMD8		MDFU/ MDFU-E	S_0 Patch Panel, MW8 Pin	
								Subscriber Line	Trunk Connection
1	1	wht/blu		19	1Ea	Basic access 1	1a	3	4
			blu/wht	39	1Eb		1b	6	5
	2	wht/ora		38	1Sa		2a	4	3
			ora/wht	48	1Sb		2b	5	6
	3	wht/grn		27	2Ea	Basic access 2	3a	3	4
			grn/wht	47	2Eb		3b	6	5
	4	wht/brn		16	2Sa		4a	4	3
			brn/wht	46	2Sb		4b	5	6
	5	wht/gry		05	3Ea	Basic access 3	5a	3	4
			gry/wht	45	3Eb		5b	6	5
2	6	red/blu		14	3Sa		6a	4	3
			blu/red	44	3Sb		6b	5	6
	7	red/ora		23	4Ea	Basic access 4	7a	3	4
			ora/red	43	4Eb		7b	6	5
	8	red/grn		32	4Sa		8a	4	3
			grn/red	42	4Sb		8b	5	6
	9	red/brn		11	5Ea	Basic access 5	9a	3	4
			brn/red	31	5Eb		9b	6	5
	10	red/gry		02	5Sa		10a	4	3
			gry/red	22	5Sb		10b	5	6
3	11	blk/blu		13	6Ea	Basic access 6	11a	3	4
			blu/blk	33	6Eb		11b	6	5
	12	blk/ora		04	6Sa		12a	4	3
			ora/blk	24	6Sb		12b	5	6
	13	blk/grn		15	7Ea	Basic access 7	13a	3	4
			grn/blk	35	7Eb		13b	6	5
	14	blk/brn		06	7Sa		14a	4	3
			brn/blk	26	7Sb		14b	5	6
	15	blk/gry		17	8Ea	Basic access 8	15a	3	4
			gry/blk	37	8Eb		15b	6	5
4	16	yel/blu		08	8Sa		16a	4	3
			blu/yel	28	8Sb		16b	5	6
Color Group	**Pair**	**a-Wire**	**b-Wire**	**SU Conn. BP: Xx8**	**STMD8**		**MDFU/ MDFU-E**	**S_0 Patch Panel, MW8 Pin**	
								Subscriber Line	**Trunk Connection**

Cable and Connector Assignment (Backplane, MDF) (for U.S. only)

Table 3-73 STMD8 - Assignment (SU Xx8) (for U.S. only)

#	a-Wire	b-Wire	SU Conn. Backplane	STMD8		Champ jack, MDF		Notes
			Xx8					
1	wht/blu		19	1Ra	Port 1	1	1 Receive –	
		blu/wht	39	1Rb		26	1 Receive +	
2	wht/ora		38	1Sa		2	1 Transmit –	
		ora/wht	48	1Sb		27	1 Transmit +	
3	wht/grn		27	2Ra	Port 2	3	2 Receive –	
		grn/wht	47	2Rb		28	2 Receive +	
4	wht/brn		16	2Sa		4	2 Transmit –	
		brn/wht	46	2Sb		29	2 Transmit +	
5	wht/gry		05	3Ra	Port 3	5	3 Receive –	
		gry/wht	45	3Rb		30	3 Receive +	
6	red/blu		14	3Sa		6	3 Transmit –	
		blu/red	44	3Sb		31	3 Transmit +	
7	red/ora		23	4Ra	Port 4	7	4 Receive –	
		ora/red	43	4Rb		32	4 Receive +	
8	red/grn		32	4Sa		8	4 Transmit –	
		grn/red	42	4Sb		33	4 Transmit +	
9	red/brn		11	5Ra	Port 5	9	5 Receive –	
		brn/red	31	5Rb		34	5 Receive +	
10	red/gry		02	5Sa		10	5 Transmit –	
		gry/red	22	5Sb		35	5 Transmit +	
11	blk/blu		13	6Ra	Port 6	11	6 Receive –	
		blu/blk	33	6Rb		36	6 Receive +	
12	blk/ora		04	6Sa		12	6 Transmit –	
		ora/blk	24	6Sb		37	6 Transmit +	
13	blk/grn		15	7Ra	Port 7	13	7 Receive –	
		grn/blk	35	7Rb		38	7 Receive +	
14	blk/brn		06	7Sa		14	7 Transmit –	
		brn/blk	26	7Sb		39	7 Transmit +	
15	blk/gry		17	8Ra	Port 8	15	8 Receive –	
		gry/blk	37	8Rb		40	8 Receive +	
16	yel/blu		08	8Sa		16	8 Transmit –	
		blu/yel	28	8Sb		41	8 Transmit +	
No other wires used.								

Connecting ISDN Terminals to HiPath 3750 (for U.S. Only)

S_0 Bus With MW Jack

To connect ISDN terminals, you must change the signal order so that the transmit wires are on the inside and the receive wires are on the outside, as shown in Figure 3-70 on page 3-155.

To do so, jumper the four wires on the provided line cord to the pins for the STMD8 ports on the main distribution frame (MDF).

The ISDN terminals must have their own local power supply. Refer to Section 9.9.1, General S0 Wiring (for U.S. Only) for information on setting up an S_0 bus.

S_0 Bus Wiring From STMD8 Port on MDF or From optiset E ISDN adapter (for U.S. Only)

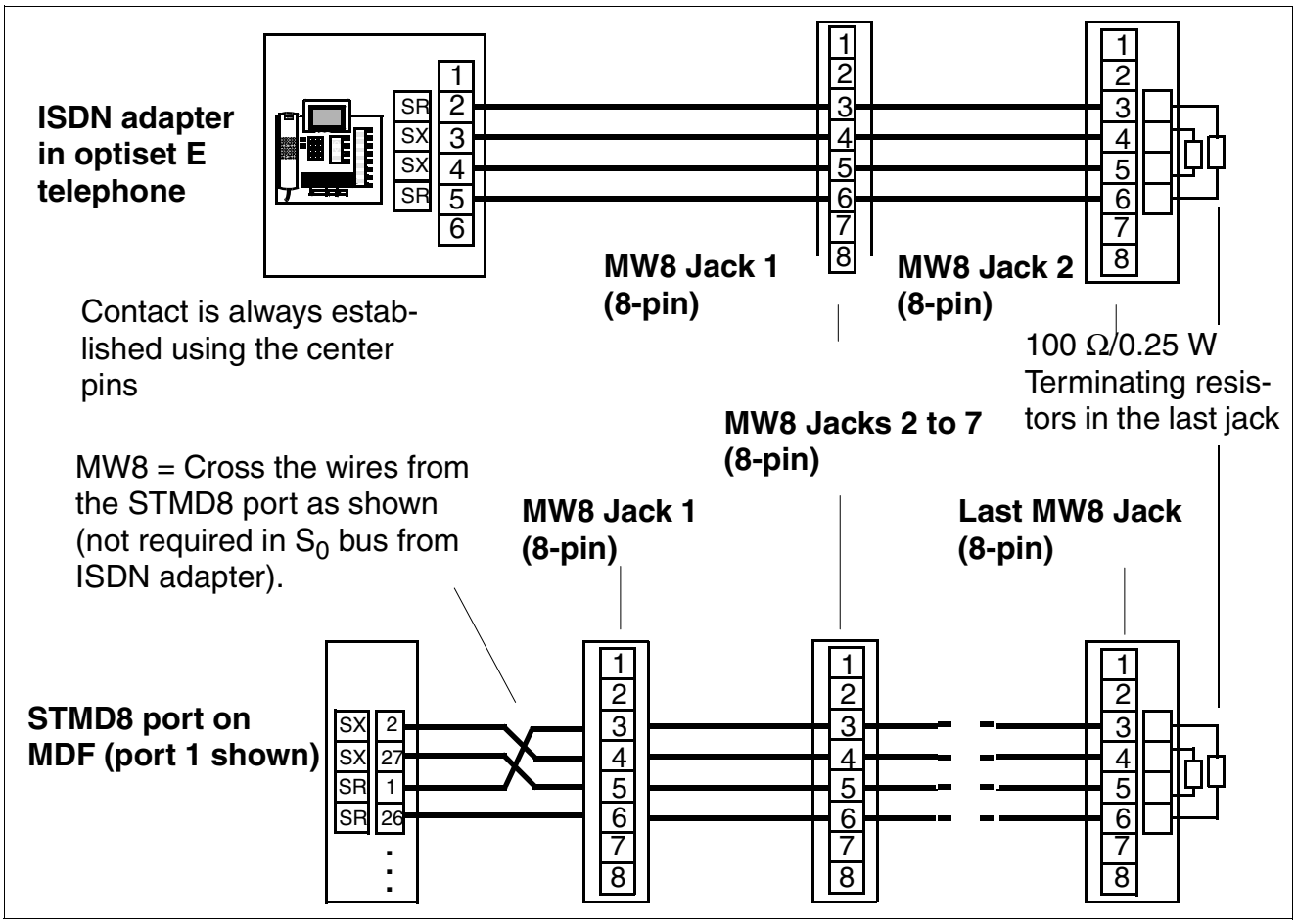


Figure 3-70 S_0 Bus Wiring From STMD8 Port or ISDN adapter (for U.S. Only)

3.3.16 TIEL

Introduction

The TIEL board (tie line E & M) provides four analog tie trunk circuits for E&M signaling for HiPath 3750 and HiPath 3700. The circuits can be configured for one- or two-way operation. They convert incoming analog signals into PCM (pulse-code modulation) signals and convert outgoing PCM signals into analog signals for tie-trunk traffic.

Speech Paths

The speech paths can be set to four-wire or two-wire mode. Four-wire connections should be used for high transmission quality on analog networks (this description deals only with four-wire mode).

The advantage of separate speech paths for the incoming and outgoing directions is that the stability (echo) of a connection is not adversely affected. In addition, repeaters in the transmission equipment compensate for attenuation loss on the line.

E&M Signaling Paths

The E&M signaling paths carry the signals that control connection setup and clear-down. Various interfaces can be selected, depending on the requirements of the remote system or transmission equipment. These interface types have different numbers of wires and different potentials.

Starting Up a Tie Trunk

Before you can start up a tie trunk, you must determine the type of interface supported by the two systems. Type 2 is preferable because it virtually excludes problems with longitudinal voltages.

Characteristics of the Interface Types

- **E&M interface type 1** (Figure 3-72)

  The interface in the transmission equipment does not require negative power feeding. This type uses only two signal wires; the communication system and transmission equipment are non-floating, so they are not protected from longitudinal voltage.

- **E&M interface type 1A** (Figure 3-73)

  Same as type 1, but without a 0 V rest potential on the M-wire.

- **E&M interface type 1B or 5** (Figure 3-74)

  The interfaces in both the transmission equipment and the communication system require negative power feeding. This type uses only two signal wires. The two M-wires are connected to 0 V potential only, meaning that no special measures are required to prevent short-circuit currents in the event of ground leakage. The communication system and transmission equipment are non-floating, so they are not protected from longitudinal voltage.

- **E&M interface type 2 (**Figure 3-75**)**

  The interfaces in both the transmission equipment and the communication system require negative power feeding. This type uses four signal wires. The M-contacts are floating, so there is no non-floating link between the communication system and transmission equipment.

Interface type 2 is recommended; it provides the best longitudinal voltage protection.

- **E&M interface type 3**

  This type uses four signal wires. The M-signal has GND or $V_{battery}$ (- 48 V) for direct TIEL-to-TIEL connection (without converter).

Interface Specifications

Transmit path	
Four-wire transmit level	-3.5 dBr
Four-wire receive level	-3.5 dBr
Characteristic impedance	600 ohms
Frequency range	0.3 to 3.4 kHz, +/- 1 dB
Dielectric strength of speech wires against ground	1 kV surge, 1.2/50 µs and 10/700 µs
Signaling	
Type of E&M interface (programmable)	1, 1A, 1B, 2, 3, 5
Protocols	
To ANSI/EIA/TIA-464-A, configurable	Immediate start Wink signal Delay signal
Signaling method	DP or DTMF

Characteristics of the Signaling Protocols

Connecting two switching units via a tie trunk requires a protocol supported by both systems. HiPath 3750 and HiPath 3700 supports:

- **Immediate start protocol**

  No seizure acknowledgment; with answer signal. This is the most widely used protocol internationally.

- **Wink signal protocol**

  Proceed-to-send signal by means of wink signal; with answer signal. This protocol is the same as immediate start with the addition of a proceed-to-send signal. It is most useful for connecting systems that are not immediately ready for digit input.

- **Delay signal protocol**

  Dialing delay time by means of delay signal; with answer signal. This protocol permits the transmission of dialing information to be delayed until the receiving exchange is ready. It differs from the wink signal protocol only in that the remote system returns a backward signal immediately after seizure even if it is not ready for digit input.

Switches and LEDs

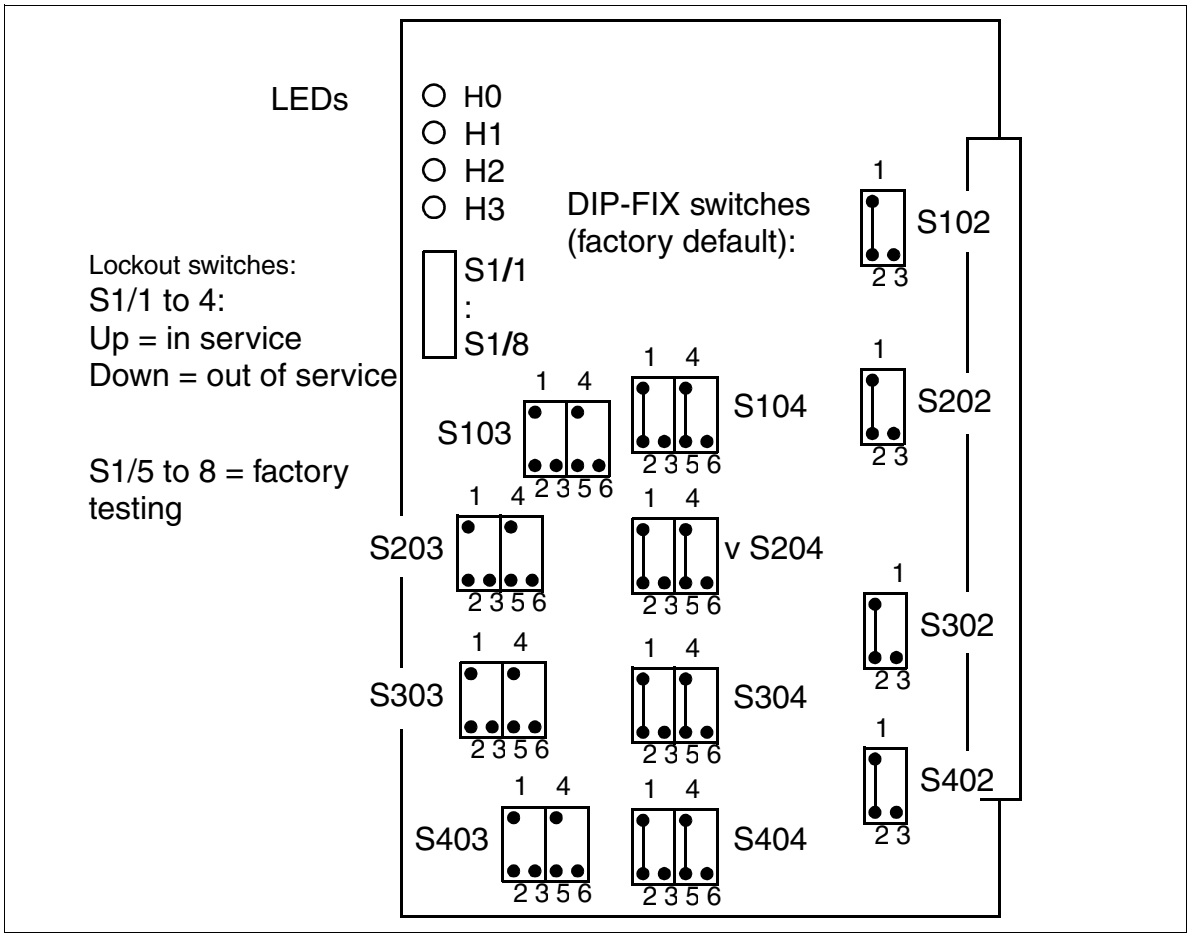


Figure 3-71 TIEL (S30810-Q2520-X)

DIP-FIX Switch Positions

Table 3-74 TIEL—Functions of the DIP-FIX Switches

Function	Circuit 1		Circuit 2		Circuit 3		Circuit 4	
	Switch	Position	Switch	Position	Switch	Position	Switch	Position
Type 1 (Figure 3-72)	S103 S102	1-2 4-6 1-2	S203 S202	1-2 4-6 1-2	S303 S302	1-2 4-6 1-2	S403 S402	1-2 4-6 1-2
Type 1A (Figure 3-73)	S103 S102	1-3 4-6 1-2	S203 S202	1-3 4-6 1-2	S303 S302	1-3 4-6 1-2	S403 S402	1-3 4-6 1-2
Type 1B or 5 (Figure 3-74)	S103 S102	1-3 4-5 1-2	S203 S202	1-3 4-5 1-2	S303 S302	1-3 4-5 1-2	S403 S402	1-3 4-5 1-2
Type 2 (Figure 3-75 and Figure 3-76) (factory default)	S103 S102	Open 1-2	S203 S202	Open 1-2	S303 S302	Open 1-2	S403 S402	Open 1-2
Type 3	S103 S102	1-2 4-6 1-3	S203 S202	1-2 4-6 1-3	S303 S302	1-2 4-6 1-3	S403 S402	1-2 4-6 1-3
2-wire speech lines	S104	1-3 4-6	S204	1-3 4-6	S304	1-3 4-6	S404	1-3 4-6
4-wire speech lines (factory default)	S104	1-2 4-5	S204	1-2 4-5	S304	1-2 4-5	S404	1-2 4-5

Signal Wire Connection

The following maximum ranges (without converter) must be taken into account:
- 4-wire speech: 8 km (5 miles) with 0.6 mm diameter (22 AWG) wire
- 2-wire speech: 6 km (3.75 miles) with 0.6 mm diameter (22 AWG) wire

E&M Interface Type 1 (Not for U.S.)

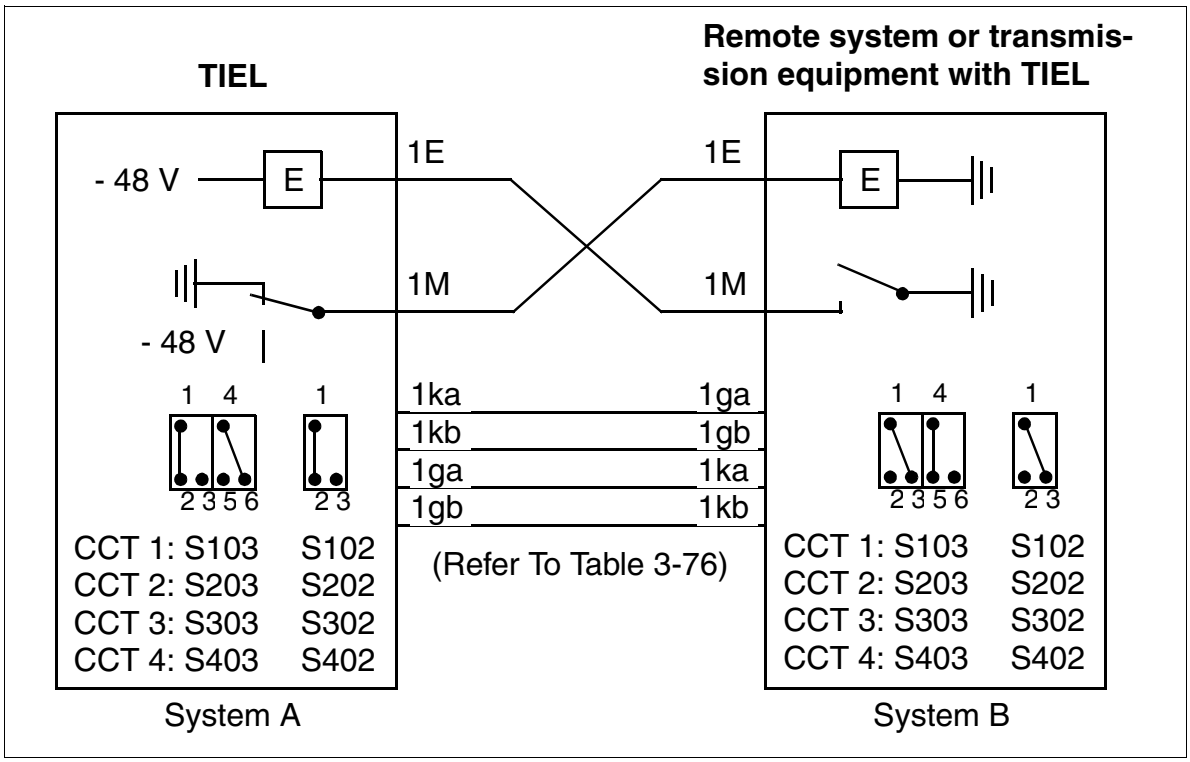


Figure 3-72 E&M Interface Type 1 (Not for U.S.)

E&M Interface Type 1A (Not for U.S.)

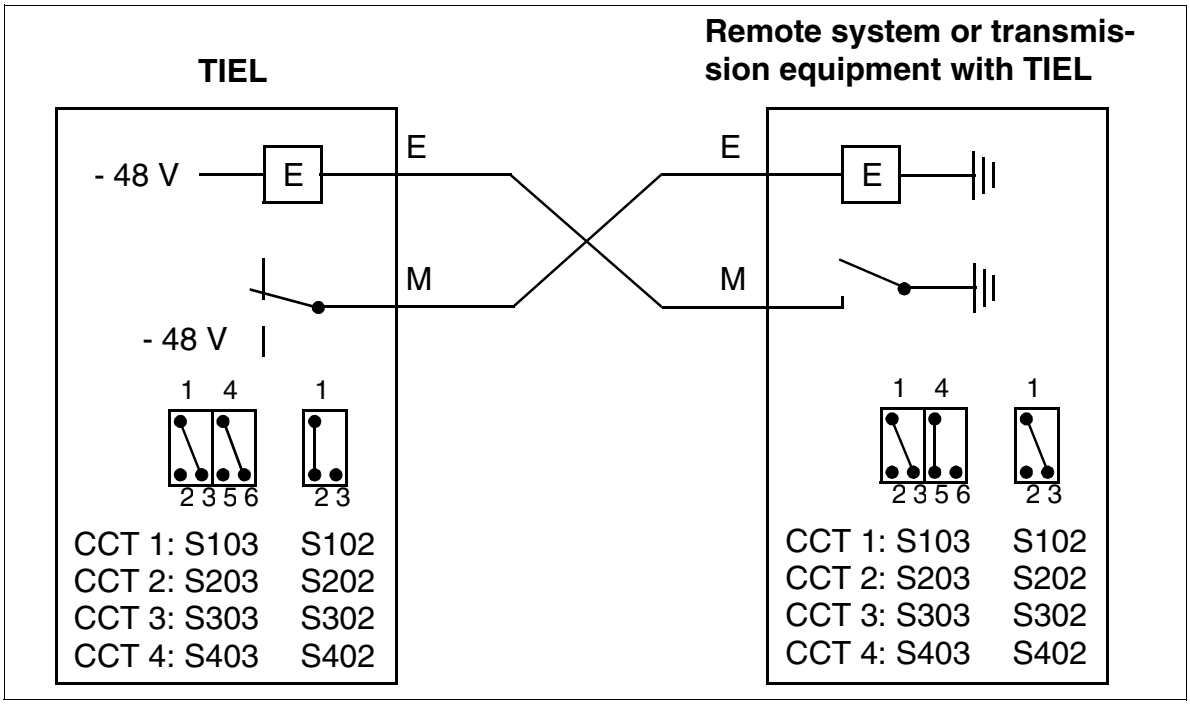


Figure 3-73 E&M Interface Type 1A (Not for U.S.)

E&M Interface Type 1B or 5 (Not for U.S.)

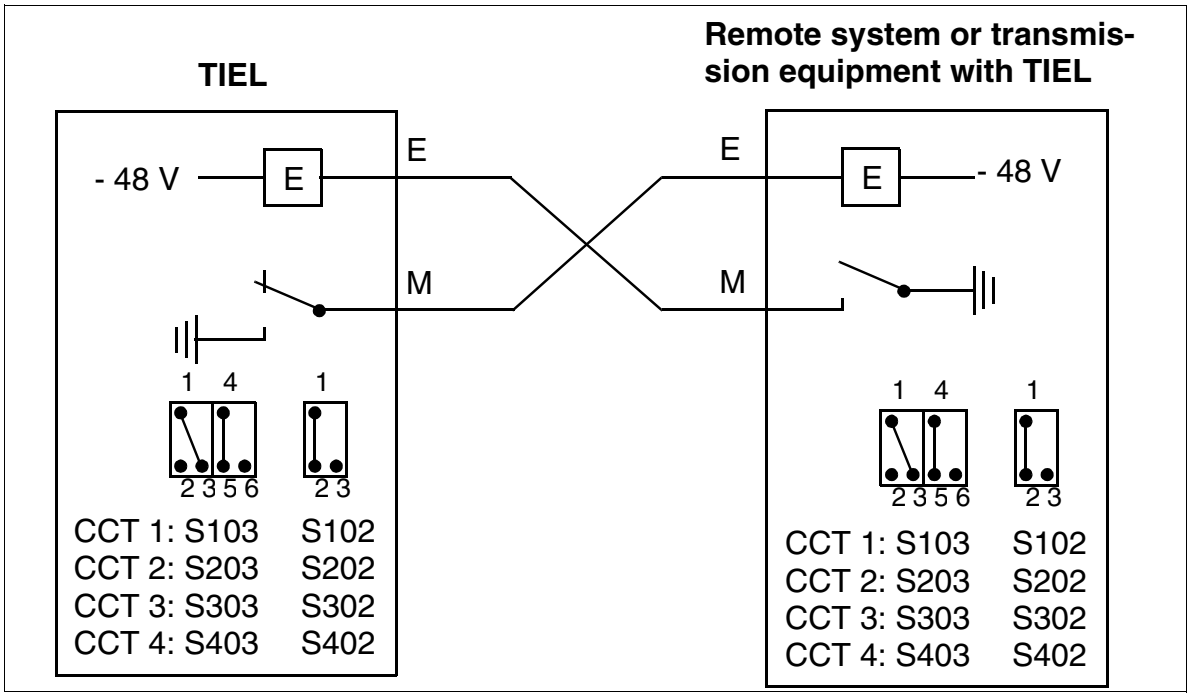


Figure 3-74 E&M Interface Type 1B or 5 (Not for U.S.)

E&M Interface Type 2 (Not for U.S.)

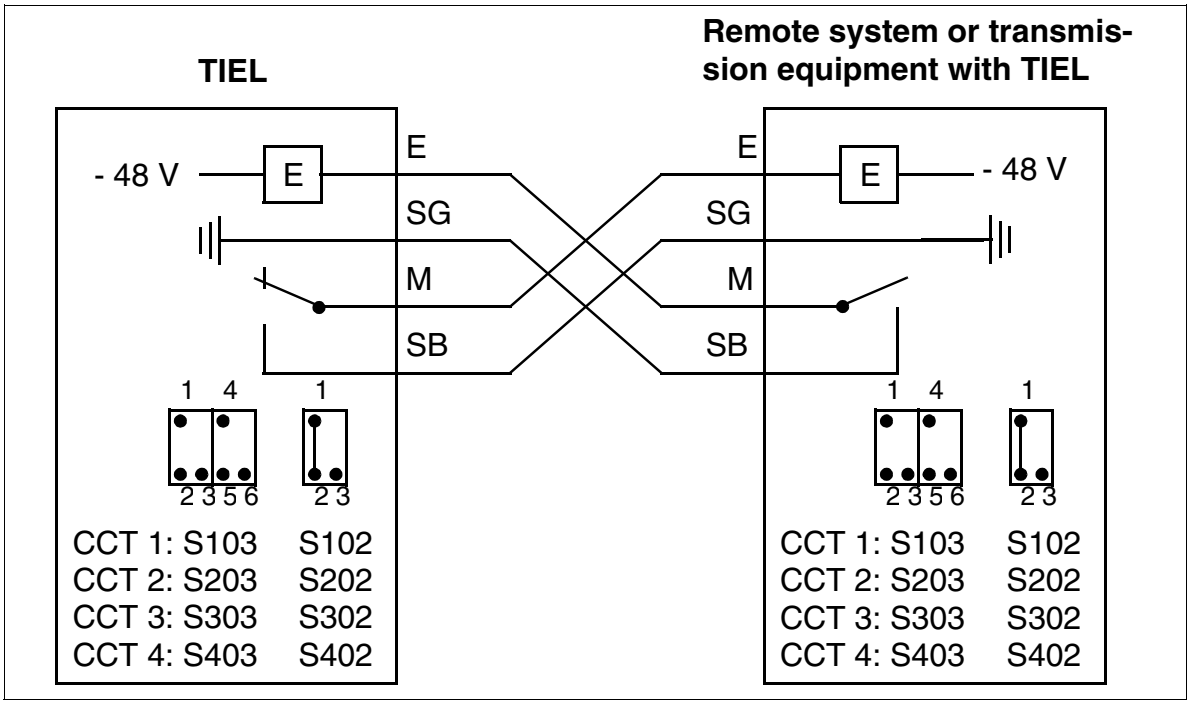


Figure 3-75 E&M Interface Type 2 (Not for U.S.)

E&M Interface Type 2 Circuit Diagram, MDFU or MDFU-E Numbering (Not for U.S.)

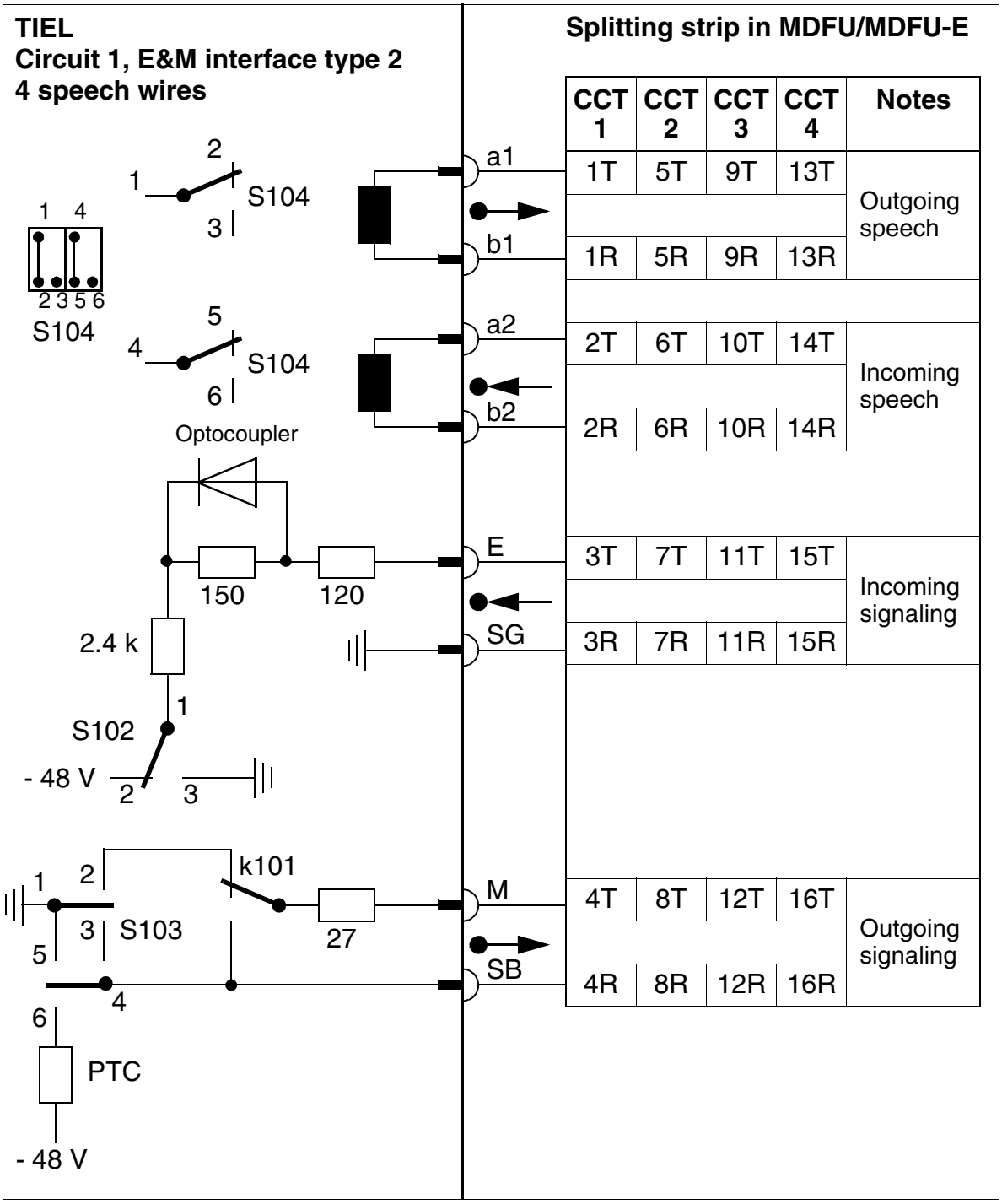


Figure 3-76 E&M Interface Type 2 Circuit Diagram, MDFU or MDFU-E Numbering (Not for U.S.)

LED Statuses and Their Meanings

Table 3-75 TIEL—LED Statuses

LED status (on/off)	Meaning	Action
During Boot Phase and Initialization		
Flickering (50/50 ms)	Board test not successful	Replace board.
Flashing (100/100 ms)	Board not configured	Inspect visually; if necessary, remove/insert board. If status continues, replace board.
On	Loading operation in progress	
Flashing (100/100 ms)	Code could not be loaded	Replace board.
Off	Board loaded	
Flashing (500/500 ms)	Board loaded but not yet activated	
During Operation		
On	Circuit seized	
Flashing in ring cadence	Circuit in ringing state	
Flickering (450/50 ms)	Dependability test (loopback test) in progress	
Flashing (500/500 ms)	Circuit out of service (e.g. S1/x in “on” position)	Check whether the circuit was deactivated with HiPath 3000 Manager E or lockout switch.
Off	Circuit is idle, no seizure	

Cable and Connector Assignment (Backplane, MDFU/MDFU-E, Patch Panel) (Not for U.S.)

Assignment must be coordinated with the remote system.

Table 3-76 TIEL - Cable Assignment (Not for U.S.)

Color Group	Pair	a-Wire	b-Wire	SU Connector BP: Xx8	TIEL		MDFU/ MDFU-E	Patch Panel, MW8 Pin	Notes	
1	1	wht/blu		19	1ka	Port 1	1a	5	Ring	• Transmit with 4-wire speech • Transmit + receive with 2-wire speech
			blu/wht	39	1kb		1b	4	Tip	
	2	wht/ora		38	1ga		2a	6	Ring	Receive with 4-wire speech
			ora/wht	48	1gb		2b	3	Tip	
	3	wht/grn		27	1E		3a	1	Ear	Signal wires
			grn/wht	47	1SG		3b	2	System ground	
	4	wht/brn		16	1M		4a	7	Mouth	
			brn/wht	46	1SB		4b	8	System battery	
	5	wht/gry		05	2ka	Port 2	5a	5	Ring	• Transmit with 4-wire speech • Transmit + receive with 2-wire speech
			gry/wht	45	2kb		5b	4	Tip	
2	6	red/blu		14	2ga		6a	6	Ring	Receive with 4-wire speech
			blu/red	44	2gb		6b	3	Tip	
	7	red/ora		23	2E		7a	1	Ear	Signal wires
			ora/red	43	2SG		7b	2	System ground	
	8	red/grn		32	2M		8a	7	Mouth	
			grn/red	42	2SB		8b	8	System battery	

Table 3-76 TIEL - Cable Assignment (Not for U.S.)

Color Group	Pair	a-Wire	b-Wire	SU Connector BP: Xx8	TIEL		MDFU/ MDFU-E	Patch Panel, MW8 Pin	Notes	
2	9	red/brn		11	3ka	Port 3	9a	5	Ring	• Transmit with 4-wire speech • Transmit + receive with 2-wire speech
			brn/red	31	3kb		9b	4	Tip	
	10	red/gry		02	3ga		10a	6	Ring	Receive with 4-wire speech
			gry/red	22	3gb		10b	3	Tip	
3	11	blk/blu		13	3E		11a	1	Ear	Signal wires
			blu/blk	33	3SG		11b	2	System ground	
	12	blk/ora		04	3M		12a	7	Mouth	
			ora/blk	24	3SB		12b	8	System battery	
	13	blk/grn		15	4ka	Port 4	13a	5	Ring	• Transmit with 4-wire speech • Transmit + receive with 2-wire speech
			grn/blk	35	4kb		13b	4	Tip	
	14	blk/brn		06	4ga		14a	6	Ring	Receive with 4-wire speech
			brn/blk	26	4gb		14b	3	Tip	
	15	blk/gry		17	4E		15a	1	Ear	Signal wires
			gry/blk	37	4SG		15b	2	System ground	
4	16	yel/blu		08	4M		16a	7	Mouth	
			blu/yel	28	4SB		16b	8	System battery	

Cable and Connector Assignment (Backplane, MDF) (for U.S. only)

Table 3-77 TIEL - Assignment (SU Xx8) (for U.S. only)

#	a-Wire	b-Wire	SU Conn. Backplane	TIEL		Champ jack, MDF		Notes
			Xx8					
1	wht/blu		19	1Ra	Port 1	1	Ring	• Transmit for 4-wire speech • Transmit + receive for 2-wire speech
		blu/wht	39	1Rb		26	Tip	
2	wht/ora		38	1Sa		2	Ring 1	Receive for 4-wire speech
		ora/wht	48	1Sb		27	Tip 1	
3	wht/grn		27	2Ra		3	E	Signal wires
		grn/wht	47	2Rb		28	System ground	
4	wht/brn		16	2Sa		4	M	
		brn/wht	46	2Sb		29	System battery	
5	wht/gry		05	3Ra	Port 2	5	Ring	• Transmit for 4-wire speech • Transmit + receive for 2-wire speech
		gry/wht	45	3Rb		30	Tip	
6	red/blu		14	3Sa		6	Ring 1	Receive for 4-wire speech
		blu/red	44	3Sb		31	Tip 1	
7	red/ora		23	4Ra		7	E	Signal wires
		ora/red	43	4Rb		32	System ground	
8	red/grn		32	4Sa		8	M	
		grn/red	42	4Sb		33	System battery	
9	red/brn		11	5Ra	Port 3	9	Ring	• Transmit for 4-wire speech • Transmit + receive for 2-wire speech
		brn/red	31	5Rb		34	Tip	
10	red/gry		02	5Sa		10	Ring 1	Receive for 4-wire speech
		gry/red	22	5Sb		35	Tip 1	
11	blk/blu		13	6Ra		11	E	Signal wires
		blu/blk	33	6Rb		36	System ground	
12	blk/ora		04	6Sa		12	M	
		ora/blk	24	6Sb		37	System battery	

Table 3-77 TIEL - Assignment (SU Xx8) (for U.S. only)

#	a-Wire	b-Wire	SU Conn. Backplane Xx8	TIEL		Champ jack, MDF		Notes
13	blk/grn		15	7Ra	Port 4	13	Ring	• Transmit for 4-wire speech • Transmit + receive for 2-wire speech
		grn/blk	35	7Rb		38	Tip	
14	blk/brn		06	7Sa		14	Ring 1	Receive for 4-wire speech
		brn/blk	26	7Sb		39	Tip 1	
15	blk/gry		17	8Ra		15	E	Signal wires
		gry/blk	37	8Rb		40	System ground	
16	yel/blu		08	8Sa		16	M	
		blu/yel	28	8Sb		41	System battery	
No other wires used.								

3.3.17 TLA2 and TLA4 and /TLA8 (Not for U.S.)

Introduction

The loop start boards TLA2, TLA4, and TLA8 connect 2, 4, or 8 analog trunks using DP and DTMF signalling in HiPath 3550 and HiPath 3350.

Interfaces

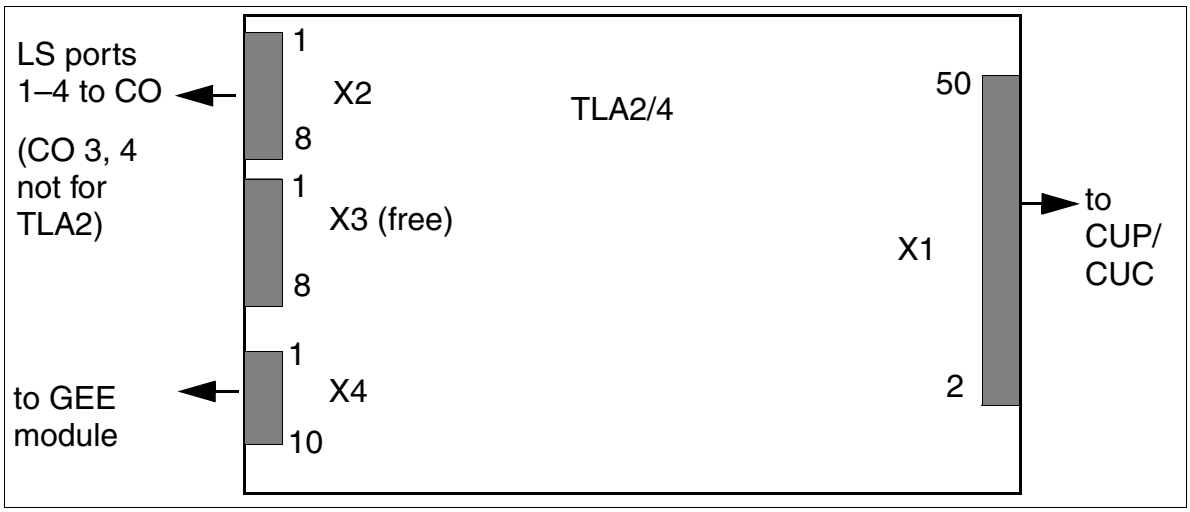


Figure 3-77 TLA2 and TLA4 Interfaces (S30817-Q923-B313/A313) (Not for U.S.)

Table 3-78 TLA2 and TLA4—Contact Assignments (Not for U.S.)

Contact	Connector X2	Connector X4
1	a trunk 1	GND for GEE50 FKR, otherwise free
2	b trunk 1	b trunk 1
3	a trunk 2	a trunk 1
4	b trunk 2	b trunk 2
5	a trunk 3	a trunk 2
6	b trunk 3	b trunk 3
7	a trunk 4	a trunk 3
8	b trunk 4	b trunk 4
9		a trunk 4
10		Call charging module assignment (GMZ)
	for TLA2 trunks 1 and 2 only	

The loop start board TLA8 connects 8 analog trunks using DP and DTMF signalling in HiPath 3550 and HiPath 3350.

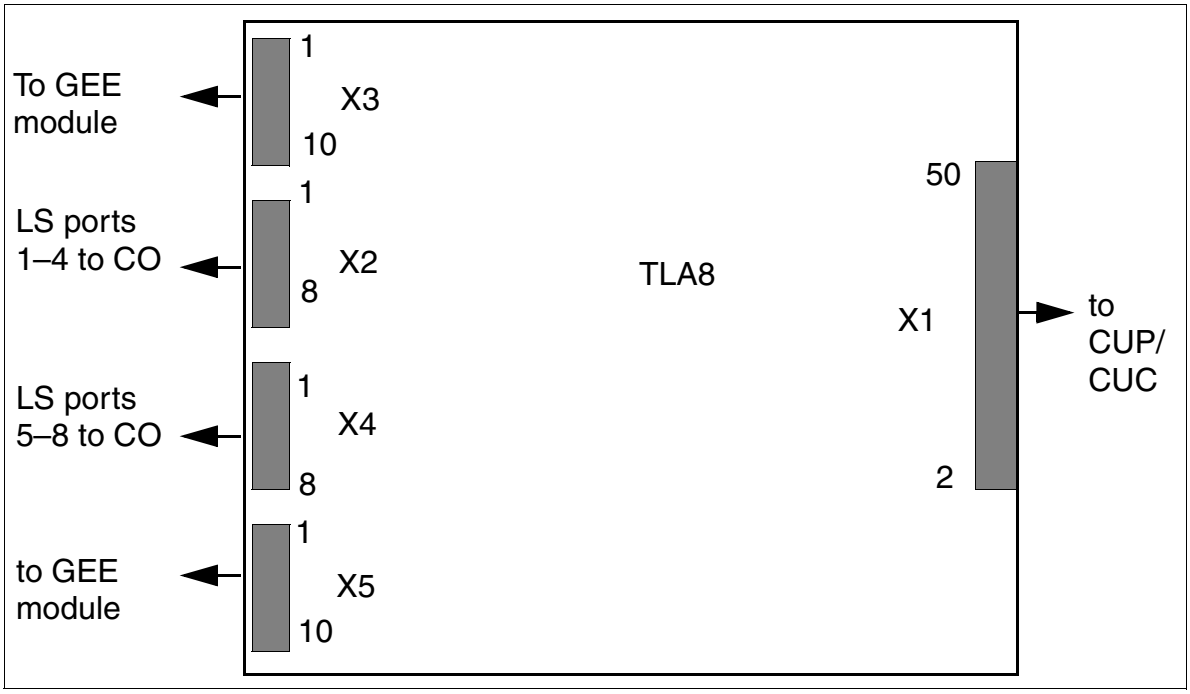


Figure 3-78 TLA8 Interfaces (S30817-Q926-A301) (Not for U.S.)

Table 3-79 TLA8—Contact Assignments (Not for U.S.)

Contact	Conn. X3	Conn. X2	Conn. X4	Conn. X5
1	GND	a trunk1	a trunk5	GND
2	b trunk 1	b trunk 1	b trunk 5	b trunk 5
3	a trunk 1	a trunk 2	a trunk 6	a trunk 5
4	b trunk 2	b trunk 2	b trunk 6	b trunk 6
5	a trunk 2	a trunk 3	a trunk 7	a trunk 6
6	b trunk 3	b trunk 3	b trunk 7	b trunk 7
7	a trunk 3	a trunk 4	a trunk 8	a trunk 7
8	b trunk 4	b trunk 4	b trunk 8	b trunk 8
9	a trunk 4	–	–	a trunk 8
10	GMZ 1	–	–	GMZ 2
GMZ= Call charging module assignment GND=GND for GEE50 FKR, otherwise free				

3.3.18 TLA4R

Introduction

The TLA4R (**T**runk **L**ine **A**nalog **R**ack) board provides four ports for the analog trunk connection (DP and DTMF signaling methods) on HiPath 3500 and HiPath 3300 (19" housing). There are also two ALUM power failure transfers.

The transmission and function-oriented characteristics of the TLA4R are completely identical to those of the TLA boards that are used in HiPath 3550 and HiPath 3350, except for

- the two ALUMs, which are only on the TLA4R.
- the call metering receiving equipment interface, which is only on the TLA boards.

Interfaces

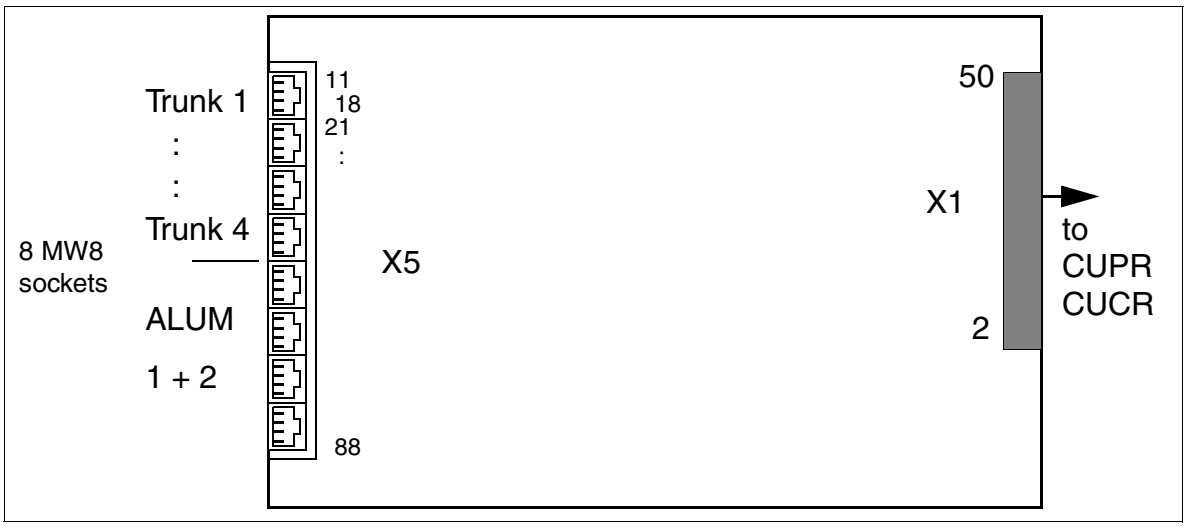


Figure 3-79 TLA4R Interfaces (S30817-Q923-Zxxx)

Table 3-80 TLA4R Contact Assignments

MW8 socket	X5, pin	Trunk connections 1-4
1	14	a trunk 1
	15	b trunk 1
2	24	a trunk 2
	25	b trunk 2

Table 3-80 TLA4R Contact Assignments

3	34	a trunk 3	
	35	b trunk 3	
4	44	a trunk 4	
	45	b trunk 4	
MW8 socket	**X5, pin**	**ALUM 1 + 2**	
5	54	TB1	ALUM1: Stn-card connection
	55	TA1	
6	64	TB2	ALUM2: Stn-card connection
	65	TA2	
7	74	BE1	ALUM1: Analog telephone connection
	75	AE1	
8	84	BE2	ALUM2: Analog telephone connection
	85	AE2	

3.3.19 TMAMF (for selected countries only)

Introduction

The TMAMF (Trunk Module Analog for Multifrequency Code Signaling) board contains eight trunks for analog direct inward dialing. The system supports MFC-R2 signaling (default setting), MFC-R2 with caller ID, tone dialing, and dial pulsing. It is not possible to use DTMF and MFC-R2 (with or without caller ID) simultaneously.

You can use this board in HiPath 3750, HiPath 3550 and HiPath 3700.

Switches and LEDs

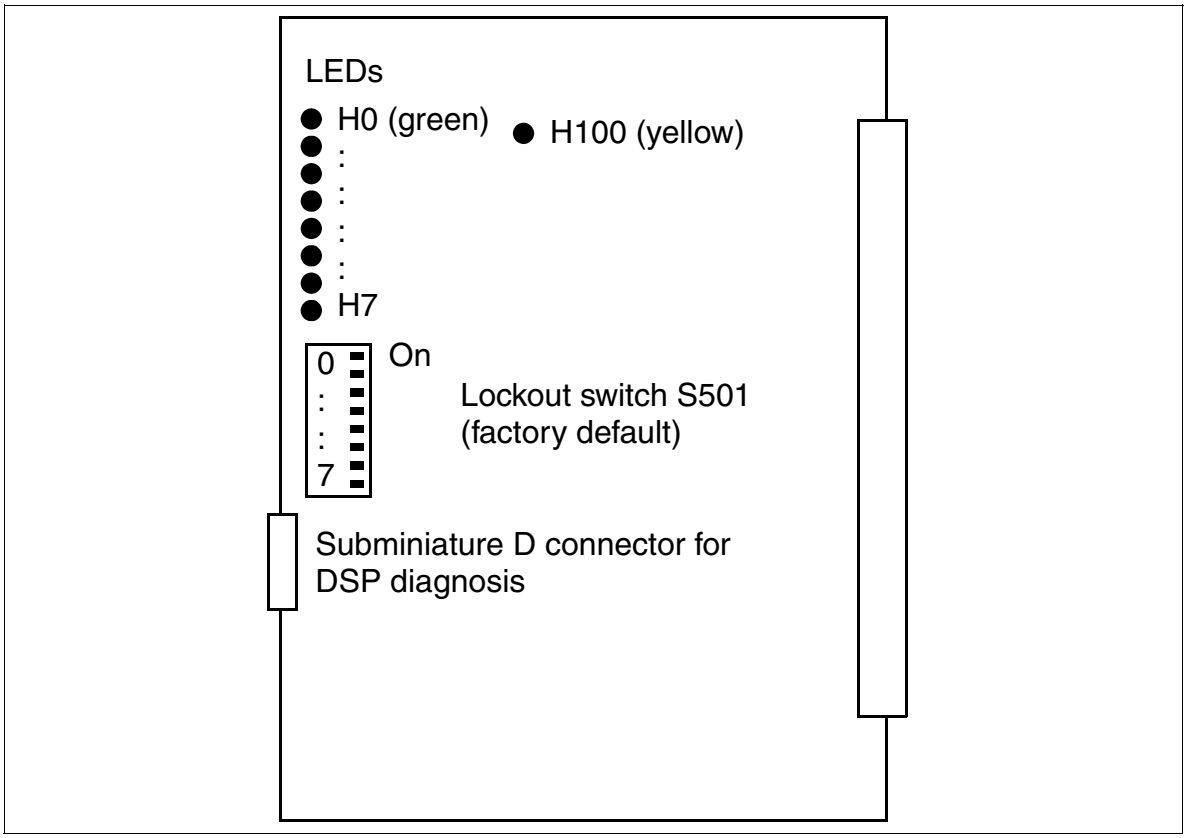


Figure 3-80 TMAMF (S30810-Q2587-Axxx)

Notes on DSP Diagnosis

You can use the trace function built into the TMAMF module to diagnose malfunctions or obtain more precise error analysis. After you run the trace, the subminiature D connector provides information about MFC-R2 signaling. To activate the trace function, you must connect a PC with a terminal emulation program (such as Microsoft HyperTerminal).

Terminal Configuration:

- Bits per second = 19,200
- Data bits = 8
- Stop bit = 1
- Parity = none
- Flow control = none

Pin Assignments of the Diagnostic Cable

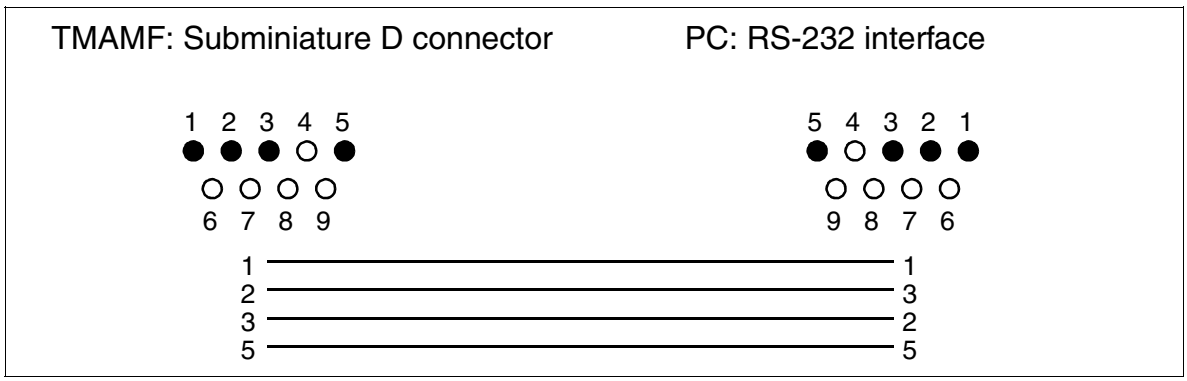


Figure 3-81 Pin Assignments of the TMAMF Diagnostic Cable

LED Statuses and Their Meanings

- LED H100 (see Figure 3-80): signal processor status

Table 3-81 TMAMF—LED Statuses (H100)

LED Status (On/Off)	Meaning	Action
During Startup and Initialization		
Off	–	
Flashing (250/250 ms)	The DSP (digital signal processor) is waiting for DID digits	
On	The DSP is being reset	
During Operation		
Off	The DSP is idle	
Flashing (250/250 ms)	Error: the DSP has not yet received the DID digits.	Replace board.
On	The MFC-R2 filter is on	

- LEDs H0 to H7 (see Figure 3-80): trunk status

Table 3-82 TMAMF—LED Statuses (H0 to H7)

LED Status (On/Off)	Meaning	Action
During Operation		
Off	The trunk is idle; no seizure	
On	The trunk was seized	
Flashing (500/500 ms)	Trunk out of service (e.g. S1/x “closed”)	Check whether the trunk was deactivated using HiPath 3000 Manager E or the lockout switch.

Cable and Connector Assignment (Backplane, MDFU/MDFU-E, Patch Panel)

Table 3-83 TMAMF - Cable Assignment

Color Group	Pair	a-Wire	b-Wire	SU Connector BP: Xx8	TMAMF		MDFU/ MDFU-E	Patch Panel, MW8 Pin	Notes
1	1	wht/blu		19	1a	Port 1	1a	4	
			blu/wht	39	1b		1b	5	
	2	wht/ora		38	2a	Port 2	2a	4	
			ora/wht	48	2b		2b	5	
	3	wht/grn		27	3a	Port 3	3a	4	
			grn/wht	47	3b		3b	5	
	4	wht/brn		16	4a	Port 4	4a	4	
			brn/wht	46	4b		4b	5	
	5	wht/gry		05	5a	Port 5	5a	4	
			gry/wht	45	5b		5b	5	
2	6	red/blu		14	6a	Port 6	6a	4	
			blu/red	44	6b		6b	5	
	7	red/ora		23	7a	Port 7	7a	4	
			ora/red	43	7b		7b	5	
	8	red/grn		32	8a	Port 8	8a	4	
			grn/red	42	8b		8b	5	
	9	red/brn		11		free			
			brn/red	31					
	10	red/gry		02		free			
			gry/red	22					
3	11	blk/blu		13		free			
			blu/blk	33					
	12	blk/ora		04		free			
			ora/blk	24					
	13	blk/grn		15		free			
			grn/blk	35					
	14	blk/brn		06		free			
			brn/blk	26					
	15	blk/gry		17		free			
			gry/blk	37					
4	16	yel/blu		08		free			
			blu/yel	28					
Color Group	**Pair**	**a-Wire**	**b-Wire**	**SU Connector BP: Xx8**	**TMAMF**		**MDFU/ MDFU-E**	**Patch Panel, MW8 Pin**	**Notes**

3.3.20 TMCAS (for selected countries only)

Introduction

For V1.0 and later, TMCAS (**T**runk **M**odule **C**hannel **A**ssociated **S**ignaling) boards can be used in HiPath 3750, HiPath 3700, and HiPath 3550 to support the country-specific CAS protocol.

The board converts Euro-ISDN protocol on an S_{2M} link into Channel Associated Signaling (CAS) protocol. The board functions only in connection with a TMS2 (HiPath 3750, HiPath 3700) or TS2 (HiPath 3550). There is no direct connection between the TMCAS board and the system's central control. The TMS2/TS2 handles all signaling and data traffic.

Switches and Display

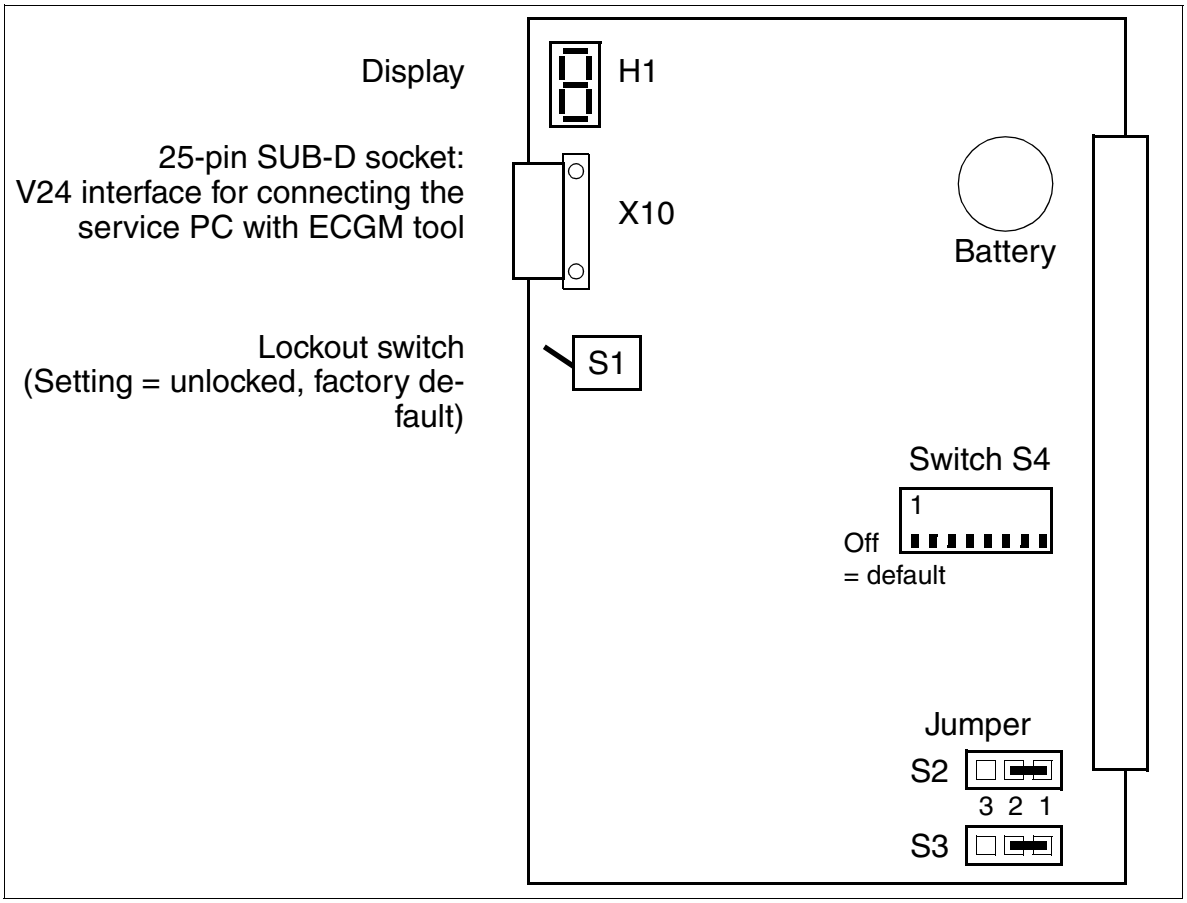


Figure 3-82 TMCAS (S30810-Q2938-X)

Administration of the CAS Protocol Converter

Use the ECGM tool to administer the CAS protocol converter. For information on installing the software on the service PC and on the required settings, see page 3-187.

You can use the C39195-Z7267-C13 cable for the connection between socket X10 and the service PC.

Switches S4-1 to S4-4 for Setting the Impedance

To guarantee proper functioning of the TMCAS, both the S_{2M} side of the TMCAS and the TMS2 (HiPath 3750, HiPath 3700) or TS2 (HiPath 3550) board must have the same impedance selected.

Impedance on the CAS Side	**Switch settings**	
	S4-1	**S4-2**
120 ohms (default)	Off	Off
100 ohms	On	Off
75 ohms	Off	On
No function	On	On
Impedance on the S_{2M} Side	**Switch**	
	S4-3	**S4-4**
120 ohms (default)	Off	Off
100 ohms	On	Off
75 ohms	Off	On
No function	On	On

Switches S4-5 to S4-8

Switch	**Function**
S4-5	Reserved
S4-6	Flash memory: only for laboratory purposes (the flash memory is erased when switch is “On”).
S4-7	Reserved
S4-8	Battery: Select the “On” switch position to make the connection to the processor’s real time clock only after the protocol converter has been configured.

Jumpers S2 and S3 for GND Connection

You can set the GND connection (signal ground) of the receiving (Rx) and transmitting (Tx) lines on the CAS side here.

GND connection	Jumper setting
no signal ground (default)	S2 = 1 - 2, S3 = 1 - 2
signal ground on receive lines (Rx) on the CAS side	S2 = 2 - 3
signal ground on the transmit lines (Tx) on the CAS side	S3 = 2 - 3

Recommendations for the GND connection:

- symmetric line (120 ohms)
  Ground the cable's shield on the side of the connected device (NT, MUX, modem).
- coaxial line (75 ohms)
  Do not ground the shield on both ends of the cable.
  - Tx: Ground the cable's shield on the TMCAS side.
  - Rx: Ground the cable's shield on the side of the connected device (NT, MUX, modem).

Seven-Segment Display H1

The board statuses listed in the following table are displayed on H1.

Table 3-84 TMCAS - Seven-Segment Display H1

Display	Meaning
	Waiting for the TMCAS software download
	TMCAS software download start
	TMCAS software download
	Writing the TMCAS software/extender software into the flash memory
	Loading the TMCAS software/extender software from the flash memory
	Waiting for ECGM command (10 s)
	Calculating the checksum
	No TMCAS software in the flash memory, waiting for reload
	Flash memory erased (changing display)
	TMCAS board active
	TMCAS board active, boot process completed

TMCAS in HiPath 3750 and HiPath 3700

A maximum of four TMCAS boards can be used in the HiPath 3750 and HiPath 3700. Because of the power supply, a maximum of two TMCAS are possible for one cabinet. Because the board does not need a PCM highway, there are no restrictions concerning the 64 time-division multiplex channels per PCM segment. However, you must always insert the TMCAS immediately to the left of the accompanying TMS2. Figure 3-83 presents an example of a TMCAS in the HiPath 3750 and HiPath 3700 cabinet.

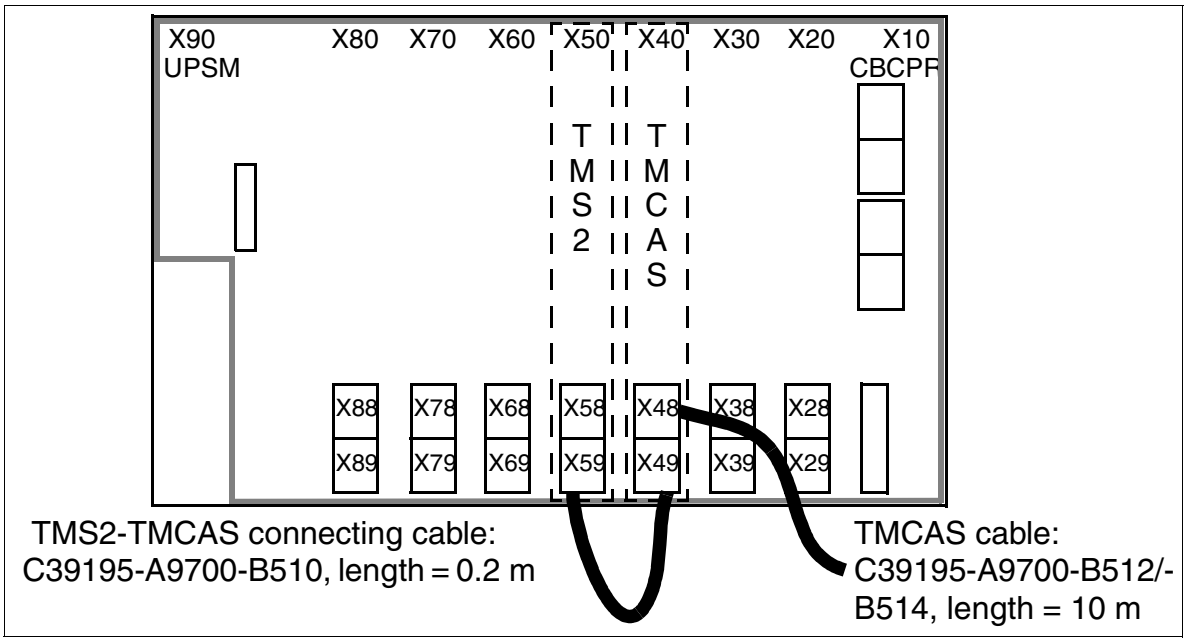


Figure 3-83 TMCAS in HiPath 3750 and HiPath 3700 - Backplane View of the “8-Slot” Basic Cabinet

Table 3-85 TMS2-TMCAS C39195-A9700-B510 Connecting Cable Assignment

SU Connector Xx9, pin	Function
6	Receive a-wire
26	Receive b-wire
2	Transmit a-wire
22	Transmit b-wire
33	+5 V for board detection
35	+5 V (reserved)
4	GND

page 3-185 has information on the assignments for the two C39195-A9700-B512 / -B514 TMCAS cables.

TMCAS in HiPath 3550

TMCAS can be used only in slot 10 of the wall housing.

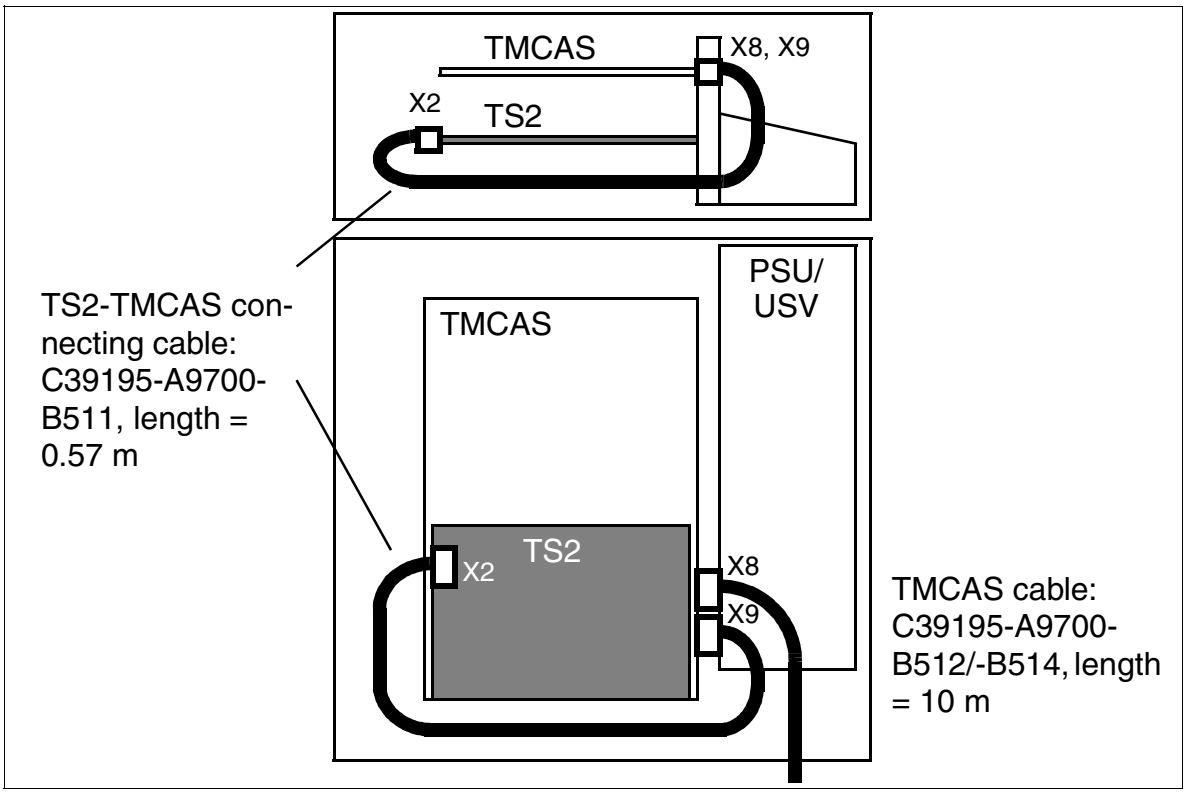


Figure 3-84 TMCAS in HiPath 3550

Table 3-86 TS2-TMCAS C39195-A9700-B511 Connecting Cable Assignment

TS2 Wieland terminal X2, pin	Function	TMCAS SU connector X9, pin
1, 2, 3	–	–
4	+5 V for board detection	33
5	Receive a-wire	6
6	Receive b-wire	26
7	Transmit a-wire	2
8	Transmit b-wire	22

page 3-185 has information on the assignments for the two C39195-A9700-B512 / -B514 TMCAS cables.

Assignments for the Two TMCAS Cables for HiPath 3750, HiPath 3700, and HiPath 3550

You can use one of the two following cables to connect Network Terminator NT, Multiplexer MUX, or modem to the TMCAS board:

- symmetric line (120 ohms)

Table 3-87 C39195-A9700-B512 TMCAS Cable Assignment

SU connector Xx8, pin	Function	Color code
2	Receive a-wire	grn
22	Receive b-wire	blk
6	Transmit a-wire	red
26	Transmit b-wire	blk

- coaxial line (75 ohms)

Table 3-88 C39195-A9700-B514 TMCAS Cable Assignment

SU connector Xx8, pin	Function	Wire
2	Receive a-wire	BNC shield, cable 1
22	Receive b-wire	BNC signal, cable 1
6	Transmit a-wire	BNC shield, cable 2
26	Transmit b-wire	BNC signal, cable 2

Procedure for Retrofitting a TMCAS Board

Step	Action
1.	Disconnect system from power supply and open system.
2.	Insert TMS2 (HiPath 3750 and HiPath 3700) or TS2 (HiPath 3550).
3.	• HiPath 3750 and HiPath 3700: Insert TMCAS next to the TMS2, on the left. • HiPath 3550 (wall housing): Insert TMCAS in slot 10.
4.	Plug in TMS2/TS2-TMCAS connecting cable.
5.	Connect the NT to the system using the TMCAS cable.
6.	Close the system and connect it to the power supply.
7.	After the system has booted, both boards are entered in the system's database (TMS2 or TS2 and TMCAS).
8.	If necessary, configure with HiPath 3000 Manager E.

Possible problems:

- TMCAS not entered in HiPath 3000 Manager E
  The TMCAS is displayed automatically after the generation/regeneration of the database in a system with a correctly inserted and connected TMCAS-TMS2 / TS2 combination.
- Missing electrical connection between TMS2/TS2 and TMCAS
  No TMCAS entry in the database. If a correctly configured database (with TMCAS inserted off-line) is then loaded into the system using generation/regeneration, the TMCAS configured in HiPath 3000 Manager E appears only in the SW configuration.
- Incompatible board configuration
  There is a correctly inserted TMCAS-TMS2/TS2 combination in the system. If there is a different board entered in HiPath 3000 Manager E immediately to the left of the TMS2 (HiPath 3750 and HiPath 3700) HiPath 3000 Manager E or in the HiPath 3550's large slot, the generation is rejected.

Install ECGM Tool and Configure CAS Protocol Converter

This section contains information on installing the ECGM tool on the service PC and for configuring the CAS protocol converter on the TMCAS board.

The ECGM tool supports the following actions:

- Extender, database and software download
- CAS protocol configuration
- Database programming
- Trace capability

Procedure

Step	Action
1.	Create directory `c:\ecginst` on the service PC.
2.	Set up the connection to the download server (the responsible ITSC can provide you with information) and copy the following files into the directory `c:\ecginst`: • `e1v0xx.exe` (for example, `e140ah.exe`) • `Ee1v0yy.exe` (for example, `Ee140am.exe`) • `Ecgm_vzz.exe` (for example, `Ecgm_4aa.exe`) Explanation of the variables: • `v =` software version • `xx =` country version of a file • `yy =` file version for channels • `zz =` file version for maintenance
3.	Execute .exe files. This will extract the following files, for example: • `Ecgm.cab` (WinZip file) • `Setup.lst` (LST file) • `Setup.exe` (EXE file) • `4brazil.iam` (IAM file) • `Ecg_edb4.ein` (EIN file) • `4brazil.eam` (EAM file) • `E140ah.sin` (SIN file) • `E140ah.pnm` (PNM file) • `X140pai.pnm` (PNM file) • `X130aq.pnm` (PNM file)
4.	Execute `Setup.exe` file. This will create the directory `ecgm` and extract various files.
5.	Copy `vbrazil.iyy` (for example, `4brazil.iam`) to the directory `ecgm`.
6.	Execute file `ecgm.exe`.

Step	Action
7.	Make the following settings in the ECGM tool: • `File/Options` menu: select the service PC's COM interface (for example, COM1) • `File/Install Software` menu: Select file `E1v0xx.pnm` (for example, `E140ah.pnm`) from the directory `ecginst`. • `File/Install Edb` menu: Select file `Ecg_edbv.ein` (for example, `Ecg_edb4.ein`) from the directory `ecginst`. • `File/Update Site` menu: – Under ECG SOFTWARE, select loadware file `E1v0xx.pnm`. – Under "ECG EDB", select file `vbrazil.iyy`. – Under "FILE NAME", select file extension `.db` for protocolling TMCAS events. – Enter the customer name under "ECG NAME".
8.	Close the ECGM tool and then restart (`ecgm.exe`).
9.	Enter the COM interface under "COMM" and the customer name in the `Settings/ECG Name` menu. All other windows are updated automatically.
10.	Channel configuration Define the channel parameters in the `View/Database` menu (reserve unused channels with "Out of Service"): • Protocol • Signaling method (incoming and outgoing) • Clock master (always central office) • Operator number (corresponds to the number of the attendant console of the HiPath 3000)
11.	Software download If the seven-segment display H1 on the TMCAS displays "H", it is necessary to download the extender software (`Download/Extender` menu). Otherwise, continue with the next step.
12.	Start the software/database download using the `Download/Software and Database` menu. This procedure takes approximately 8 minutes. The download is complete when the configured channels display the "Idle" status. The seven-segment display H1 on the TMCAS shows "A" (= active).

3.3.21 TMDID8 (for U.S. Only)

Introduction

The TMDID8 board (**t**runk **m**odule **d**irect **i**nward **d**ialing) provides direct inward dialing from the central office (CO) to the HiPath 3750 and HiPath 3700.

The TMDID8 Module has eight trunk circuits that connect to analog trunks. The circuits convert incoming analog signals into pulse-code modulation (PCM) for processing by the digital HiPath 3750 or HiPath 3700 system.

The circuits can be set up for immediate start or wink start.

Switches and LEDs

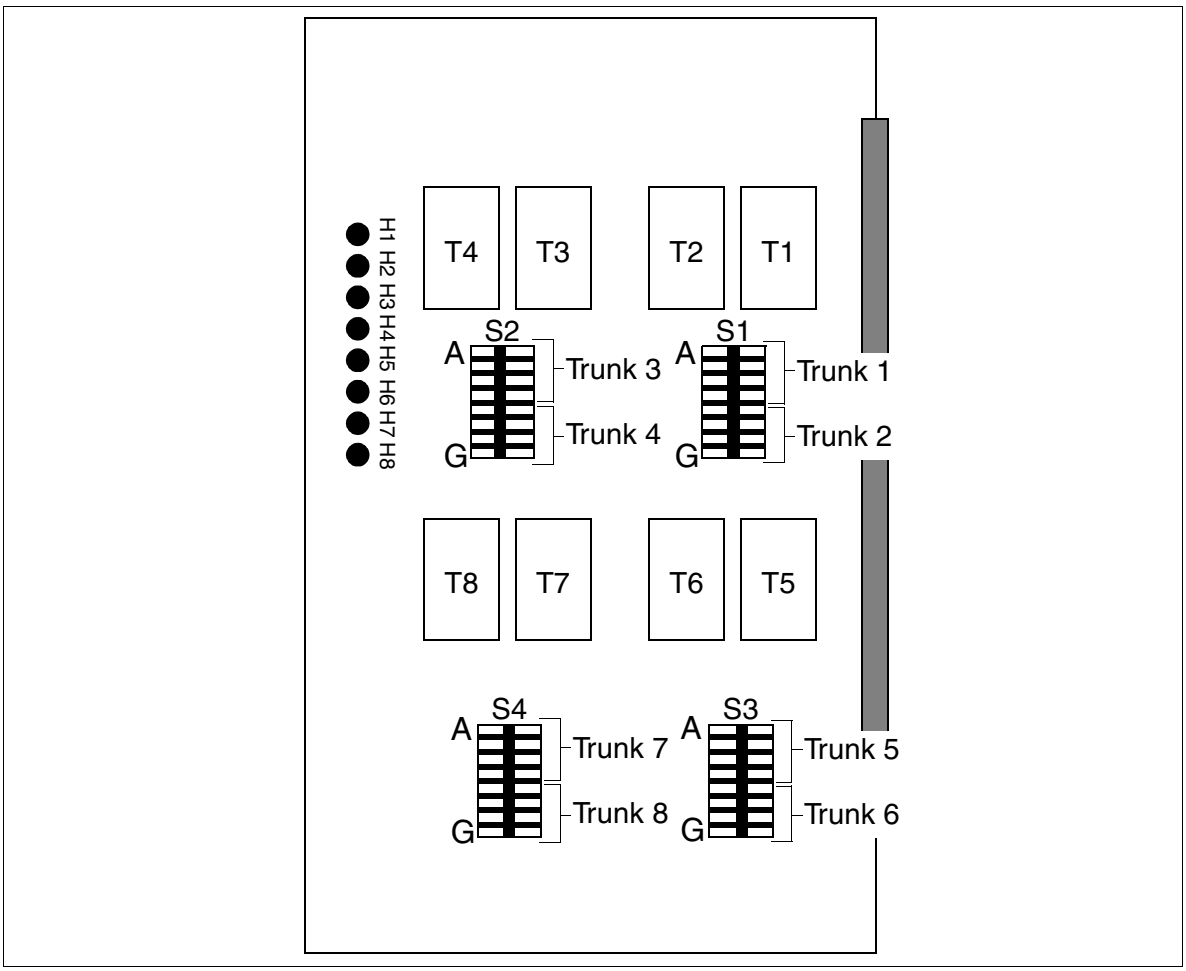


Figure 3-85 TMDID8 Switches and Indicators (for U.S. Only)

Switches

Adjust switches S1 to S4 to compensate for trunk loop resistance.

Table 3-89 Trunk Conditions for Setting TMDID8 Switches (for U.S. Only)

Trunk	Loop < 1800 Ohms: Open Switches	Loop > 1800 Ohms: Close Switches
1	S1A, S1B, S1C, S1D	S1A, S1B, S1C, S1D
2	S1E, S1F, S1G, S1H	S1E, S1F, S1G, S1H
3	S2A, S2B, S2C, S2D	S2A, S2B, S2C, S2D
4	S2E, S2F, S2G, S2H	S2E, S2F, S2G, S2H
5	S3A, S3B, S3C, S3D	S3A, S3B, S3C, S3D
6	S3E, S3F, S3G, S3H	S3E, S3F, S3G, S3H
7	S4A, S4B, S4C, S4D	S4A, S4B, S4C, S4D
8	S4E, S4F, S4G, S4H	S4E, S4F, S4G, S4H

LED Statuses and Their Meanings

Table 3-90 TMDID8—LED Statuses (for U.S. Only)

Status of LEDs 1–8	Meaning
Off	Channel is idle, ready to use
On	Channel is seized
Flashing	Channel is deactivated
Winking	System software test in progress

Cable and Connector Assignment (Backplane, MDF) (for U.S. only)

Table 3-91 TMDID8 - Assignment (SU Xx8) (for U.S. only)

#	a-Wire	b-Wire	SU Conn. Backplane Xx8	TMDID8		Champ jack, MDF		Notes
1	wht/blu		19	1a	Port 1	1	1 a/Ring	
		blu/wht	39	1b		26	1 b/Tip	
2	wht/ora		38	2a	Port 2	2	2 a/Ring	
		ora/wht	48	2b		27	2 b/Tip	
3	wht/grn		27	3a	Port 3	3	3 a/Ring	
		grn/wht	47	3b		28	3 b/Tip	
4	wht/brn		16	4a	Port 4	4	4 a/Ring	
		brn/wht	46	4b		29	4 b/Tip	
5	wht/gry		05	5a	Port 5	5	5 a/Ring	
		gry/wht	45	5b		30	5 b/Tip	
6	red/blu		14	6a	Port 6	6	6 a/Ring	
		blu/red	44	6b		31	6 b/Tip	
7	red/ora		23	7a	Port 7	7	7 a/Ring	
		ora/red	43	7b		32	7 b/Tip	
8	red/grn		32	8a	Port 8	8	8 a/Ring	
		grn/red	42	8b		33	8 b/Tip	
No other wires used.								

3.3.22 TMGL4 (for U.S. Only)

Introduction

A central office trunk module (TMGL4) connects up to four analog ground-start or loop-start trunks to the HiPath 3550 and HiPath 3350.

Use HiPath 3000 Manager E to select ground start or loop start. Ground start is the default.

Caution
You must disconnect the power and remove the slip-on connectors from the TMGL4 Module before removing it from the system.
Do not connect the slip-on connectors to the TMGL4 Module until the board is seated in its slot and the system power is on.
Failure to follow these instructions may severely damage the system.

Interfaces

Figure 3-86 TMGL4 Module Interfaces (for U.S. Only)

Interface Assignments

Table 3-92 TMGL4 Module Interface Assignments (for U.S. Only)

Pin	Connector X2	Port
1	R trunk 1	1
2	T trunk 1	
3	R trunk 2	2
4	T trunk 2	
5	R trunk 3	3
6	T trunk 3	
7	R trunk 4	4
8	T trunk 4	

Note: Pinouts shown are at the board itself. The supplied main distribution frame cable (MDF cable) reverses the signal order before the MDF.

3.3.23 TMGL4R (for U.S. only)

Introduction

A central office trunk module (TMGL4R) connects up to four analog ground-start or loop-start trunks to the HiPath 3500 and HiPath 3300.

Use HiPath 3000 Manager E to select ground start or loop start. Ground start is the default.

Interfaces

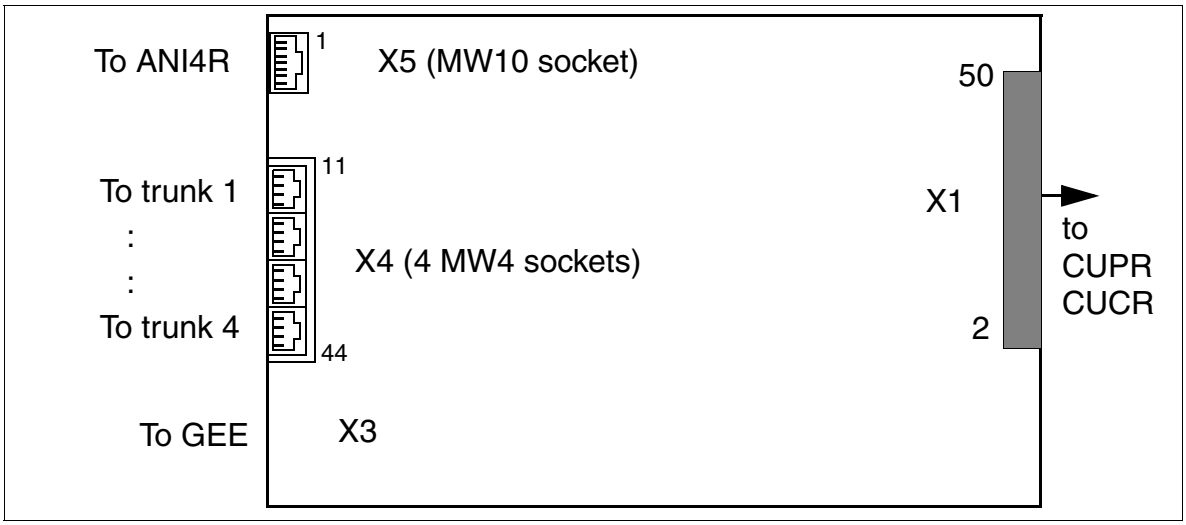


Figure 3-87 TMGL4R Interfaces (S30810-K2918-Z) (for U.S. Only)

If ANI4R is installed as option 1 or 2, TMGL4R board must be inserted in slot 4, 6 or 8 (Slots 6 and 8 not available with HiPath 3300).

Interface Assignments

Table 3-93 TMGL4R Module Interface Assignments (for U.S. Only)

Port	X3 Pin (To GEE)	X4 Pin (To trunks 1-4)	X5 Pin (To ANI4R)	Signal
1	3	12	3	Ring, trunk 1
	2	13	2	Tip, trunk 1
2	5	22	5	Ring, trunk 2
	4	23	4	Tip, trunk 2
3	7	32	7	Ring, trunk 3
	6	33	6	Tip, trunk 3
4	9	42	9	Ring, trunk 4
	8	43	8	Tip, trunk 4
–	10	–	10	Call charging module assignment (GMZ)

3.3.24 TMGL8 Module (for U.S. Only)

Introduction

A central office trunk module (TMGL8) connects up to eight analog ground-start or loop-start trunks to the HiPath 3750 and HiPath 3700.

Use HiPath 3000 Manager E to select ground start or loop start. Ground start is the default.

Switches and LEDs

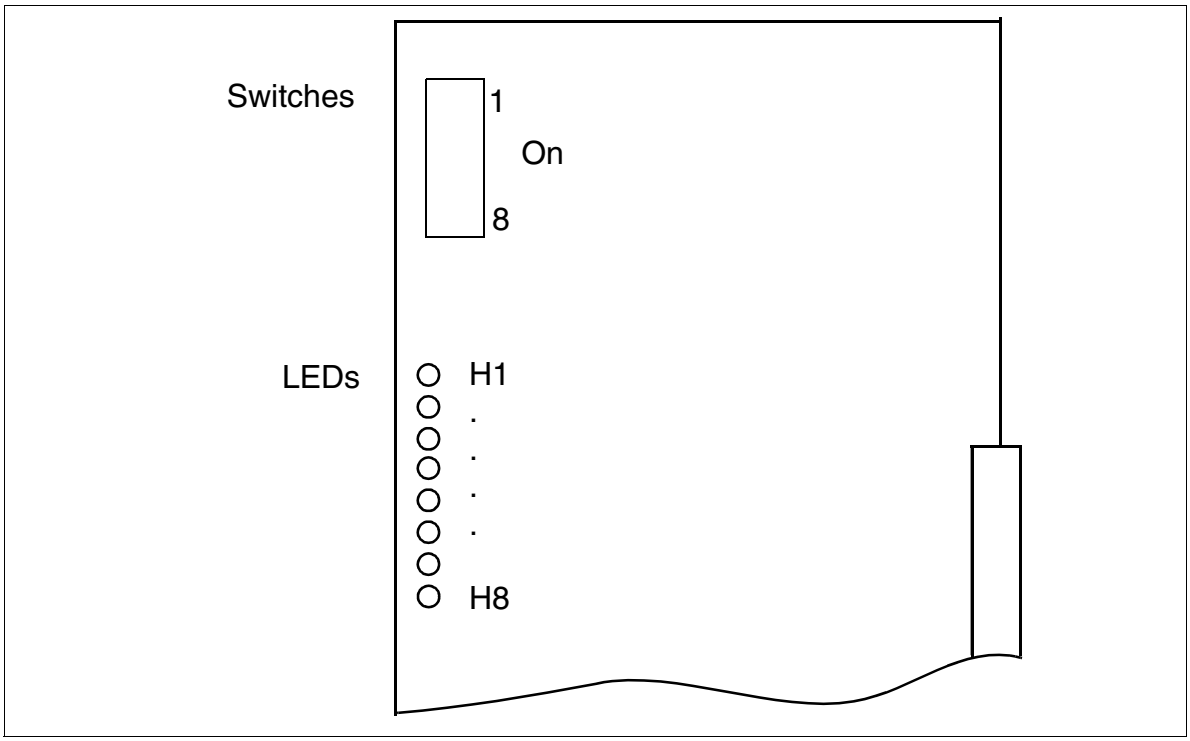


Figure 3-88 TMGL8 Module (S30810-Q2703-X) (for U.S. Only)

Switches

The TMGL8 Module has an eight-path microswitch under a flip-up cover. For each channel:

- ON (right): Channel is enabled.
- OFF (left): Channel is disabled; no new seizures are permitted.

LED Statuses and Their Meanings

Table 3-94 TMGL8—LED Statuses (for U.S. Only)

Status of LEDs 1–8	Meaning
Off	Channel is idle, ready to use
On	Channel is seized
Flashing	Channel is deactivated
Winking	System software test in progress

Cable and Connector Assignment (Backplane, MDF) (for U.S. only)

Table 3-95 TMGL8 - Assignment (SU Xx8) (for U.S. only)

#	a-Wire	b-Wire	SU Conn. Backplane Xx8	TMGL8		Champ jack, MDF		Notes
1	wht/blu		19	1a	Port 1	1	1 a/Ring	
		blu/wht	39	1b		26	1 b/Tip	
2	wht/ora		38	2a	Port 2	2	2 a/Ring	
		ora/wht	48	2b		27	2 b/Tip	
3	wht/grn		27	3a	Port 3	3	3 a/Ring	
		grn/wht	47	3b		28	3 b/Tip	
4	wht/brn		16	4a	Port 4	4	4 a/Ring	
		brn/wht	46	4b		29	4 b/Tip	
5	wht/gry		05	5a	Port 5	5	5 a/Ring	
		gry/wht	45	5b		30	5 b/Tip	
6	red/blu		14	6a	Port 6	6	6 a/Ring	
		blu/red	44	6b		31	6 b/Tip	
7	red/ora		23	7a	Port 7	7	7 a/Ring	
		ora/red	43	7b		32	7 b/Tip	
8	red/grn		32	8a	Port 8	8	8 a/Ring	
		grn/red	42	8b		33	8 b/Tip	
No other wires used.								

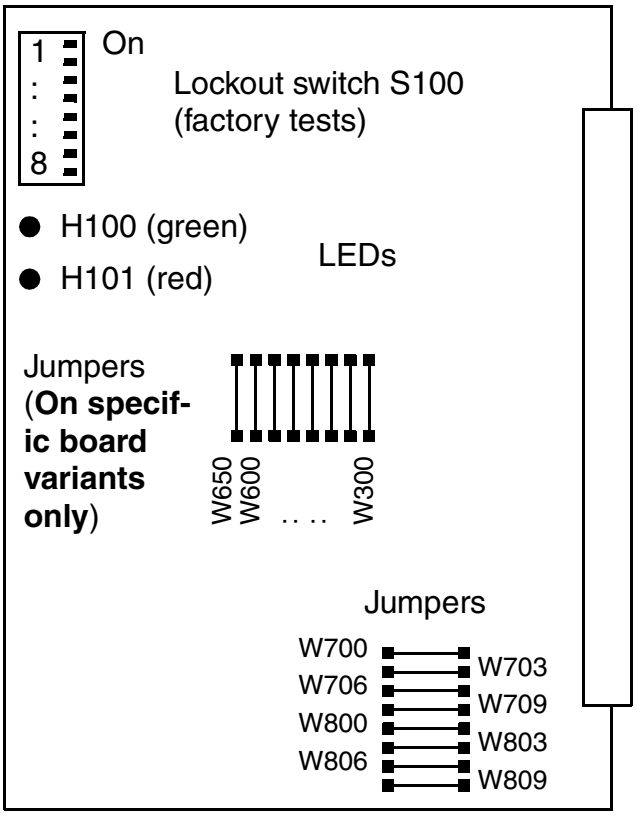
3.3.25 TML8W (Not for U.S.)

Introduction

A TML8W (trunk module loop start world) board connects up to eight analog trunks for HiPath 3750 and HiPath 3700 using the loop-start protocol.

The jumpers on the TML8W must be adjusted for call detail recording with a GEE8 subboard.

Jumpers on TML8W



Jumpers (Circuit)	Inserted	Call Detail Recording (GEE8)
W700 (1) W703 (2) W706 (3) W709 (4)	Yes	16 kHz/50 Hz
W800 (5) W803 (6) W806 (7) W809 (8)	No	12 kHz
W650 (8) W600 (7) W550 (6) W500 (5)	Yes	Without silent reversal
W450 (4) W400 (3) W350 (2) W300 (1)	No	With silent reversal

Factory default = All jumpers inserted

Figure 3-89 TML8W (S30817-Q626-Axxx/Bxxx) (Not for U.S.)

For Austria only: If a ÜFS trunk is connected to the TML8W, remove the jumpers (W300 to W650) to activate silent reversal.
If silent reversal is inactive, users in the HiPath 3750 and HiPath 3700 would hear a busy signal following backward release instead of being released.

LED Statuses and Their Meanings

Table 3-96 TML8W—LED Statuses (Not for U.S.)

Red LED	Green LED	Status	Action
Off	Off	Board not receiving power or not plugged in correctly. Board is deactivated.	Check plug contact on board.
On	Off	Board is receiving power and board test in progress. If status remains the same (board test unsuccessful), board is defective.	Replace board.
		Loadware loading was not successfully completed. Board is defective.	Replace board.
		Error was detected on board. Board is deactivated (not applicable to errors detected by test loops) or board was deactivated using HiPath 3000 Manager E.	Check whether board was deactivated using HiPath 3000 Manager E. If not, replace board.
Flashing	Off	Loadware is being loaded.	
Off	On	Loading was successfully completed and board is OK (idle state).	
Off	Flashing	At least one circuit is activated.	

Cable and Connector Assignment (Backplane, MDFU/MDFU-E, Patch Panel) (Not for U.S.)

Table 3-97 TML8W - Cable Assignment (Not for U.S.)

Color Group	Pair	a-Wire	b-Wire	SU Connector BP: Xx8	TML8W		MDFU/ MDFU-E	Patch Panel, MW8 Pin	Notes
1	1	wht/blu		19	1a	Port 1	1a	4	
			blu/wht	39	1b		1b	5	
	2	wht/ora		38	2a	Port 2	2a	4	
			ora/wht	48	2b		2b	5	
	3	wht/grn		27	3a	Port 3	3a	4	
			grn/wht	47	3b		3b	5	
	4	wht/brn		16	4a	Port 4	4a	4	
			brn/wht	46	4b		4b	5	
	5	wht/gry		05	5a	Port 5	5a	4	
			gry/wht	45	5b		5b	5	
2	6	red/blu		14	6a	Port 6	6a	4	
			blu/red	44	6b		6b	5	
	7	red/ora		23	7a	Port 7	7a	4	
			ora/red	43	7b		7b	5	
	8	red/grn		32	8a	Port 8	8a	4	
			grn/red	42	8b		8b	5	
	9	red/brn		11		free			
			brn/red	31					
	10	red/gry		02		free			
			gry/red	22					
3	11	blk/blu		13		free			
			blu/blk	33					
	12	blk/ora		04		free			
			ora/blk	24					
	13	blk/grn		15		free			
			grn/blk	35					
	14	blk/brn		06		free			
			brn/blk	26					
	15	blk/gry		17		free			
			gry/blk	37					
4	16	yel/blu		08		free			
			blu/yel	28					
Color Group	**Pair**	**a-Wire**	**b-Wire**	**SU Connector BP: Xx8**	**TML8W**		**MDFU/ MDFU-E**	**Patch Panel, MW8 Pin**	**Notes**

3.3.26 TMOM (Not for U.S.)

Introduction

The TMOM board (**t**runk **m**odule **o**utgoing **m**ultipurpose) provides interfaces for connecting radio paging equipment (PSE) to HiPath 3750 and HiPath 3700.

Application Information

- HiPath 3750 and HiPath 3700 may be equipped with a maximum of one TMOM.
- Enhanced radio paging equipment can also be connected.

Switch Functions (Figure 3-90)

- Lockout switch S1
  - On (down): Board locked
  - Off (up): Normal mode
- DIP-FIX switches S2, S3 for a/b port changeover for split, incoming, and outgoing traffic with an 8-wire connection in accordance with ESPA 4.4.3.
  - 2-wire (factory default): S2 in position 1-3, S3 in position 1-3
  - 4-wire: S2 in position 1-2, S3 in position 1-2
- DIP-FIX switch S4 for potential changeover for KX1 to KX16 relay contacts and indicators 1 to 4 (not supported).
  - Position 1-2: Internal earth terminator (0 V)
  - Position 1-3: External potential (from MDFU, factory default)
- DIP-FIX switches S5 to S8 for activating indicators 1-4 (not supported)
- DIP-FIX switches S9, S10 for potential connection for relay contacts KX1 to KX16 and indicators 1 to 4 (not supported)

Switches on TMOM

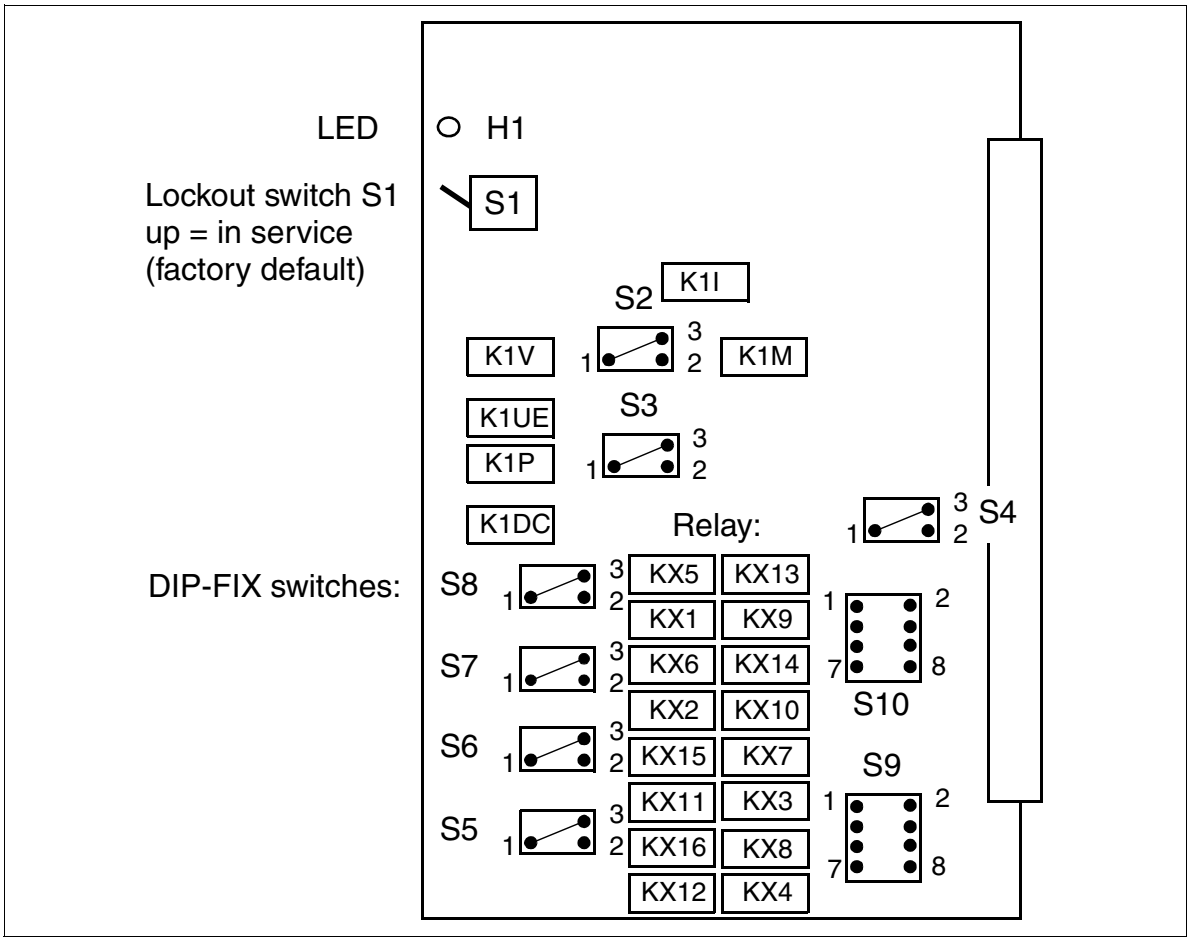


Figure 3-90 TMOM (S30810-Q2535-X) (Not for U.S.)

The relays shown in Figure 3-90 are not supported.

PSE Interface

The following standards have be implemented for single-call and enhanced radio paging equipment:

- ESPA 4.4.3
- ESPA 4.4.5 (6-wire)
- a, b, c, d interface

Figure 3-91 shows a simplified representation of the PSE interface with all signals. The type of signalling depends on the PSE type.

- A1/B1: Outgoing and bidirectional traffic, loop current = 14 to 60 mA
- A2/B2: Incoming traffic, loop current = 14 to 60 mA
- C1: Busy signal with a/b/c connection:
  Loop current with low impedance = 390 W, loop current = 14 to 60 mA
  Loop current with high impedance = Approx. 8.7 kW, loop current = 3 to 7 mA
- D1: Busy signal with a, b, or c connection. Potential = - 48 V.
  This can be used as a return line for the c-wire.
- E1H/E1L: Busy signal with ESPA connection.
- M1H/M1L: Busy signal with ESPA connection.

TMOM—PSE Interface

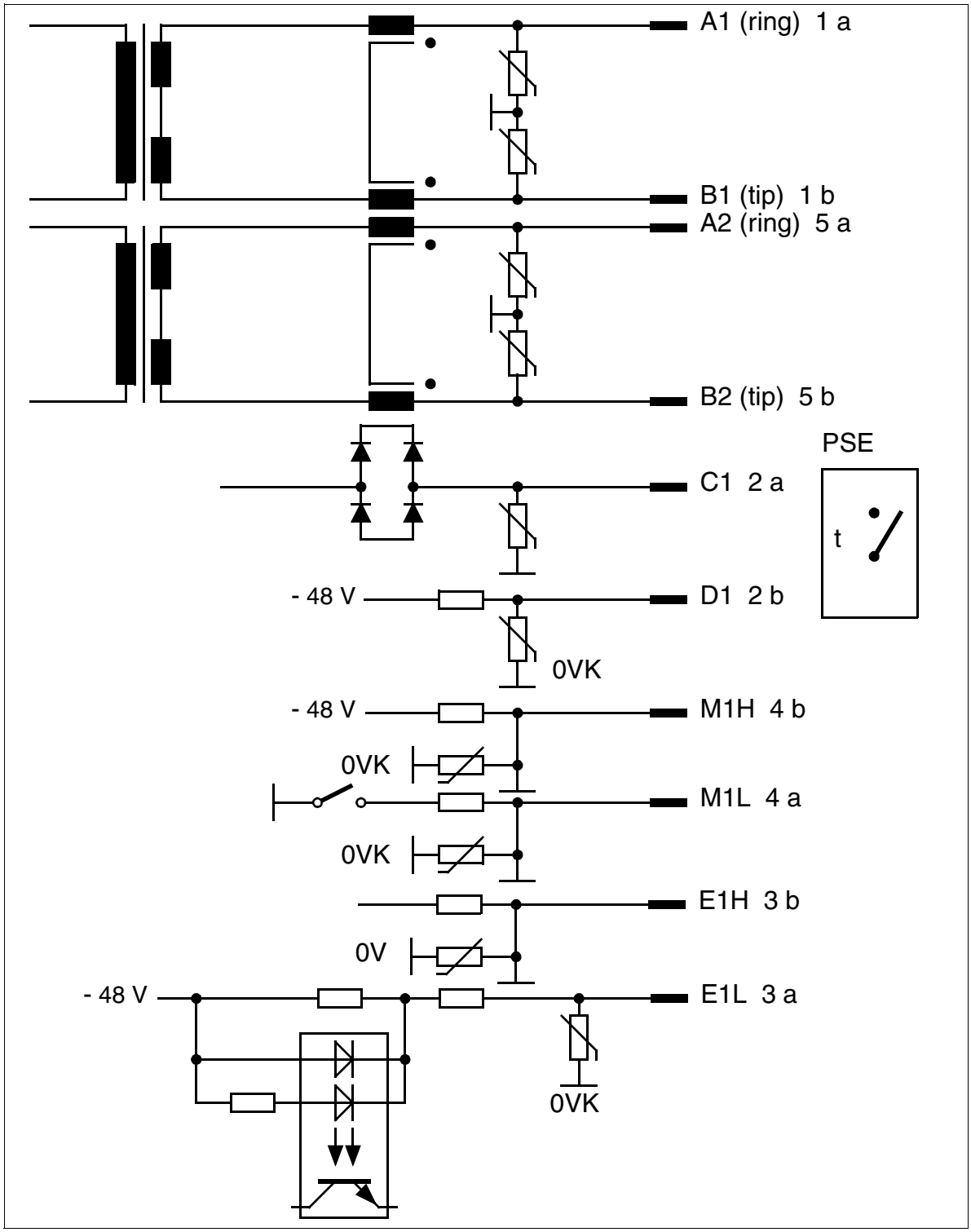


Figure 3-91 TMOM—PSE Interface (Not for U.S.)

LED Statuses and Their Meanings

Table 3-98 TMOM—LED Statuses (Not for U.S.)

LED State (On/Off)	Meaning	Action
During Boot Phase and Initialization		
Flickering (50/50 ms)	Board test unsuccessful	Replace board
Flashing (100/100 ms)	Board not configured	Visual inspection, plug board in or out if required. Replace board if flashing continues.
On	Loading operation in progress	
Flashing (100/100 ms)	Code could not be loaded	Replace board
Off	Board loaded	
Flashing (500/500 ms)	Board loaded but not yet activated	
During Operation		
On	Board seized	
Flashing in ring cadence	Board in ringing state	
Flickering (450/50 ms)	Dependability test (loopback test) in progress	
Flashing (500/500 ms)	Board out of service (e.g. S1 is in down position)	Check whether the board was deactivated using HiPath 3000 Manager E or lockout switch.
Off	Board in idle state, no seizure	

Cable and Connector Assignment (Backplane, MDFU/MDFU-E, Patch Panel) (Not for U.S.)

Table 3-99 TMOM - Cable Assignment (Not for U.S.)

Color Group	Pair	a-Wire	b-Wire	SU Connector BP: Xx8	TMOM		MDFU/ MDFU-E	Patch Panel, MW8 Pin	Notes
1	1	wht/blu		19	1a	A1	1a		TMOM to PSE interface (see Figure 3-91)
			blu/wht	39	1b	B1	1b		
	2	wht/ora		38	2a	C1	2a		
			ora/wht	48	2b	D1	2b		
	3	wht/grn		27	3a	E1L	3a		
			grn/wht	47	3b	E1H	3b		
	4	wht/brn		16	4a	M1L	4a		
			brn/wht	46	4b	M1H	4b		
	5	wht/gry		05	5a	A2	5a		
			gry/wht	45	5b	B2	5b		
2	6	red/blu		14	6a	–			Relay contacts (not supported)
			blu/red	44	6b				
	7	red/ora		23	7a	–			
			ora/red	43	7b				
	8	red/grn		32	8a	–			
			grn/red	42	8b				
	9	red/brn		11	9a	–			
			brn/red	31	9b				
	10	red/gry		02	10a	–			
			gry/red	22	10b				
3	11	blk/blu		13	11a	–			
			blu/blk	33	11b				
	12	blk/ora		04	12a	–			
			ora/blk	24	12b				
	13	blk/grn		15	13a	–			
			grn/blk	35	13b				
	14	blk/brn		06	14a	–			
			brn/blk	26	14b				
	15	blk/gry		17	15a	–			
			gry/blk	37	15b				
4	16	yel/blu		08	16a	–			
			blu/yel	28	16b				
Color Group	**Pair**	**a-Wire**	**b-Wire**	**SU Connector BP: Xx8**	**TMOM**		**MDFU/ MDFU-E**	**Patch Panel, MW8 Pin**	**Notes**

3.3.27 TMQ4 (for U.S. Only)

Introduction

An ISDN BRI trunk module (TMQ4) connects up to four digital trunks to the HiPath 3550 and HiPath 3350.

The TMQ4 Module provides basic rate interface (BRI) ISDN via a $U2B_1Q$ interface. The interface supports the following central office protocols:

- AT&T 5Ess NI-1
- AT&T 5ESS Custom
- Nortel DMS100 NI-1
- Siemens EWSD NI-1

Interfaces

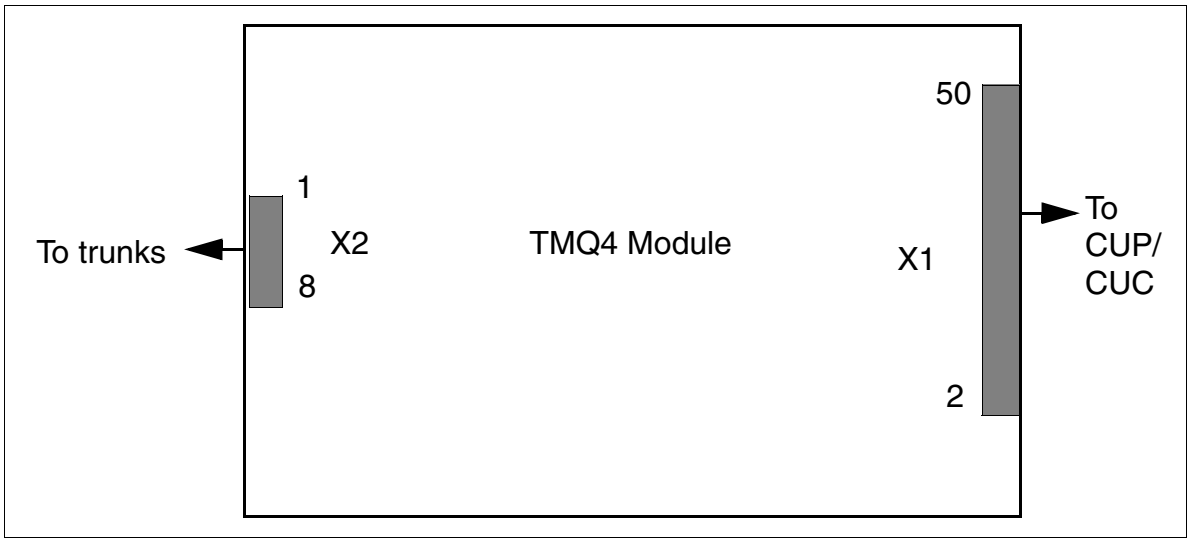


Figure 3-92 TMQ4 Module Interfaces (for U.S. Only)

Interface Assignments

Table 3-100 TMQ4 Module Interface Assignments (for U.S. Only)

Pin	Connector X2	Port		Pin	Connector X2	Port
1	R trunk 1	1		5	R trunk 3	3
2	T trunk 1			6	T trunk 3	
3	R trunk 2	2		7	R trunk 4	4
4	T trunk 2			8	T trunk 4	

Note: Pinouts shown are at the board itself. The supplied main distribution frame cable (MDF cable) reverses the signal order before the MDF.

3.3.28 TMST1 (for U.S. Only)

Introduction

A Digital T1 PRI trunk module (TMST1) connects a digital trunk to the HiPath 3750 and HiPath 3700 to provide primary-rate interface (PRI) ISDN via a T1 interface. It can also be used for the following:

- SF
- ESF

A maximum of five TMST1 Modules can be used in the HiPath 3750 system.

Rather than connecting to a main distribution frame (MDF), the TMST1 Module connects to a channel service unit (CSU). The CSU supplies the required secondary protection.

Switches and LEDs

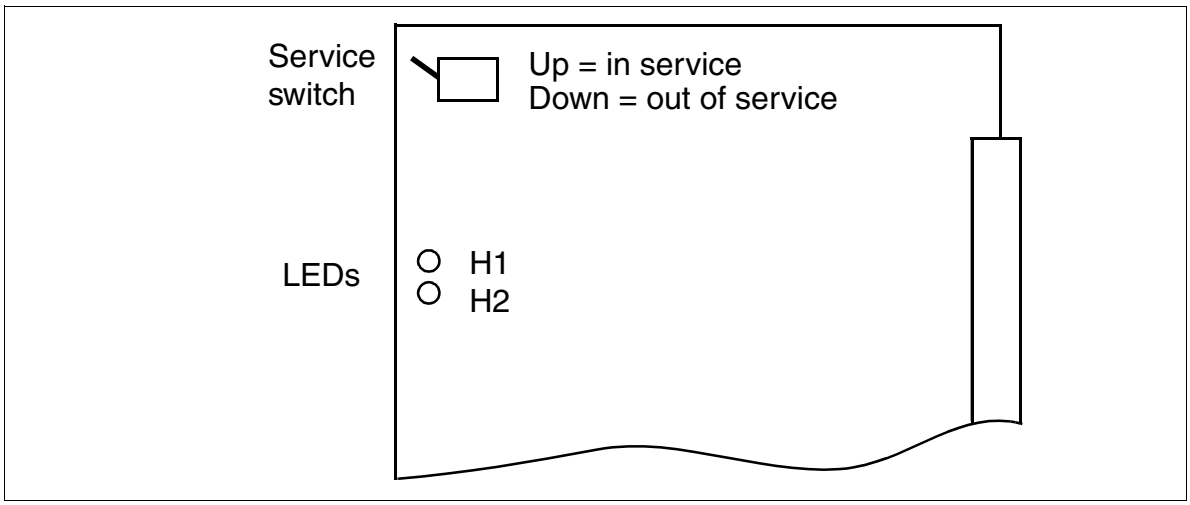


Figure 3-93 TMST1 (S30810-Q2920-X) (for U.S. Only)

The TMST1 includes a service switch. The switch alerts the system software that the Module will be removed so that no new calls are routed to the board.

LED Statuses and Their Meanings

Table 3-101 TMST1—LED Statuses (for U.S. Only)

Red LED	Green LED	State	Action
Off	Off	Board not receiving power or not plugged in correctly. Board is deactivated.	Check plug contact on board.
On	Off	Board is receiving power and board test in progress. Board is defective if status remains unchanged (board test unsuccessful).	Replace board.
		Loadware loading was not successfully completed. Board is defective.	Replace board.
		Error detected on board. Board is deactivated (does not apply to errors detected by test loops) / board was deactivated using HiPath 3000 Manager E.	Check whether board was deactivated using HiPath 3000 Manager E. If not, replace board.
Flashing	Off	Loadware being loaded.	
Off	On	Loading operation was successfully completed and board is functional (idle state).	
Off	Flashing	At least one subscriber line circuit is activated.	
On	On	Board error	Replace board.

TMST1 Adapter (SIPAC 1 SU - MW8 (RJ48C)) (for U.S. Only), Assignment

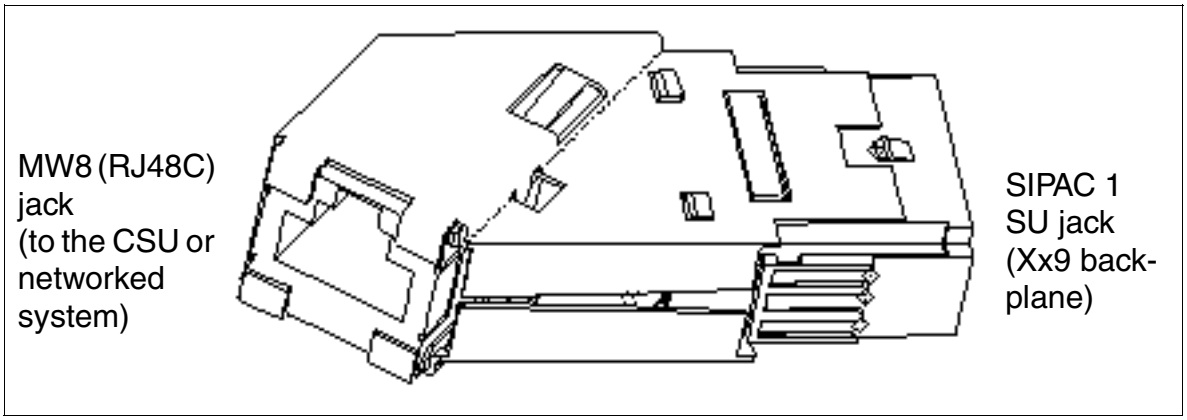


Figure 3-94 TMST1 Adapter (SIPAC 1 SU - MW8 (RJ48C)) C39228-A7195-A12 (for U.S. Only)

Table 3-102 TMST1 Adapter—Cable Assignment (for U.S. Only)

MW8 (RJ48C)	SIPAC 1 SU jack	SU Connector Backplane	TMST1
		Xx9	
1	C2	22	Receive ring
2	E2	2	Receive tip
3	–	–	–
4	C6	26	Transmit ring
5	E6	6	Transmit tip
6	–	–	–
7	–	–	–
8	–	–	–

3.3.29 TMS2 (Not for U.S.)

Introduction

The TMS2 board (**t**runk module **S_{2M}**) provides 30 B-channels (ISDN voice channels) for HiPath 3750 und HiPath 3700. These channels can be used fro the following:

- S_{2M} Trunk Connection
- S_{2M} Networking

To support country-specific CAS protocols, you can use the Euro-ISDN–CAS-Gateway ECG. The ECG cabinet is a protocol converter that converts the Euro-ISDN protocol into the Channel Associated Signaling CAS protocol. Refer to the installation instructions, which are provided with each ECG cabinet, for information on the connection and power supply.
For HiPath 3000 V1.0 and later, you can also use the new TMCAS board to support country-specific CAS protocols.

Switches and LEDs

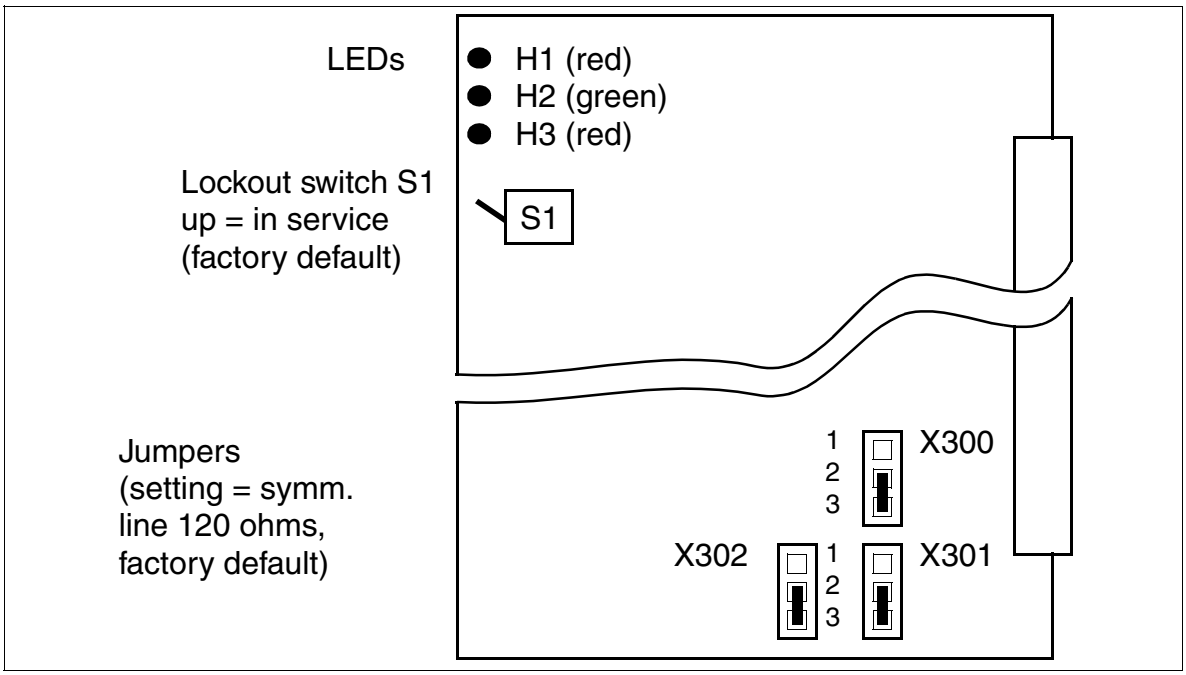


Figure 3-95 TMS2 (S30810-Q2915-X) (Not for U.S.)

Jumper Settings

The X300 or X302 jumpers are used to set the TMS2 interface for the connection of this interface to NT1. The following can be set:

- Symmetrical line (120 ohms)
  Use only pre-formed cables S30267-Z57-Axxx to guarantee problem-free operation (length = 6 m (not available in BRD), 10 m or 20 m).
- Coaxial line (75 ohms)

Table 3-103 TMS2—Jumper Settings (Not for U.S.)

TMS2 Interface	Jumper X300	Jumper X301	Jumper X302
120 ohms = factory default	2 - 3	2 - 3	2 - 3
75 ohms	1 - 2	1 - 2	1 - 2

SU Connector Assignments (Backplane) and Cable Color Codes

Table 3-104 TMS2—SU connector assignments and cable color codes

SU Connector Xx8/Xx9* Pin	Function	Cable S30267-Z57-Axxx Color Code	
		Up to and Including Status 6	Status 7 and Later
2	a (T) wire, receive	grn	wht/ora
22	b (R) wire, receive	blk	ora/wht
6	a (T) wire, transmit	red	wht/blu
26	b (R) wire, transmit	blk	blu/wht

* SU connector Xx9 with board status 5 or later

Note that the SU connector Xx9 was used in the old TMS2M board.

LED Statuses and their Meanings

- H1 (red) and H2 (green) LEDs

Table 3-105 TMS2—LED Statuses (Not for U.S.)

Red LED	Green LED	State	Action
Off	Off	Board not receiving power or not plugged in correctly. Board is deactivated.	Check plug contact on board.
On	Off	Board is receiving power and board test in progress. Board is defective if status remains unchanged (board test unsuccessful).	Replace board.
		Loadware loading was not successfully completed. Board is defective.	Replace board.
		Error detected on board. Board is deactivated (does not apply to errors detected by test loops). Board was deactivated using HiPath 3000 Manager E.	Check whether board was deactivated using HiPath 3000 Manager E. If not, replace board.
Flashing	Off	Loadware being loaded.	
Off	On	Loading operation was successfully completed and board is functional (idle state).	
Off	Flashing	At least one subscriber line circuit is activated.	

- H3 LED (see Figure 3-95): Reference clock display (clock is generated if this feature has been configured using HiPath 3000 Manager E.)
  - On: Reference clock for clock generator is generated.
  - Off: No reference clock

S_{2M} Trunk Connection

Table 2-8 on page 2-19 lists examles of the maximum cable lengths for connecting trunks.

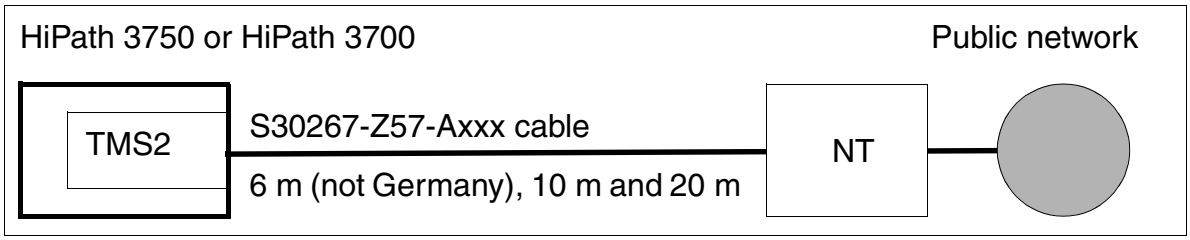


Figure 3-96 S_{2M} Trunk Connection (Not for U.S.)

Observe the following when connecting NTs using the S30267-Z57-Axxx cable:

- Keep the cable from the NT to HiPath 3750 or HiPath 3700 as short as possible to ensure proper operation.
- HiPath 3750 and HiPath 3700 must always be grounded (whether the line used by the network provider is copper or optical fiber). (See 1 TR 211 item 2.4, Protective Measures and Grounding.). The diameter of the earth conductor must be at least 2.5 mm^2. Grounding the system using sheath wires is not sufficient. For operating reasons, keep the ground connection from the NT to the system as short as possible.

Caution
In order to guarantee successful operation, you must ensure that the NT is grounded on the network provider side.

- Power feeding
  The NT must be fed over the –48 V (**max. 10 W**, observe the power requirements of the NTs) of the UPSM (see Figure 3-97).
  The voltage is fed out on backplane connector X06 (pins 17 + 37 = –48 V). Use the supplied Cablu to connect the system with the MDFU. This places the voltage on pair no. 15 (= –48 V) of the splitting strip.
  The delivery does not include a Cablu if the REAL board has been ordered or is already being used (the necessary Cablu is included in the delivery of the “ALUM using REAL” feature).

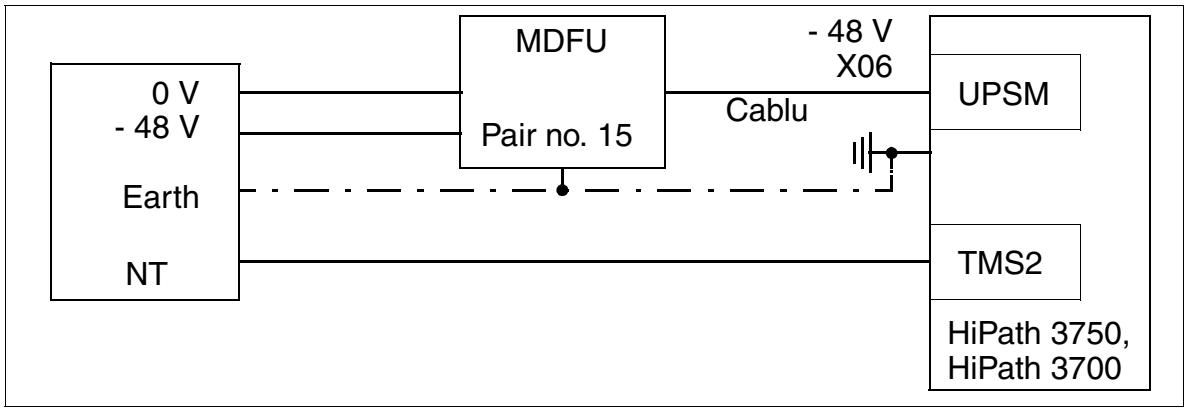
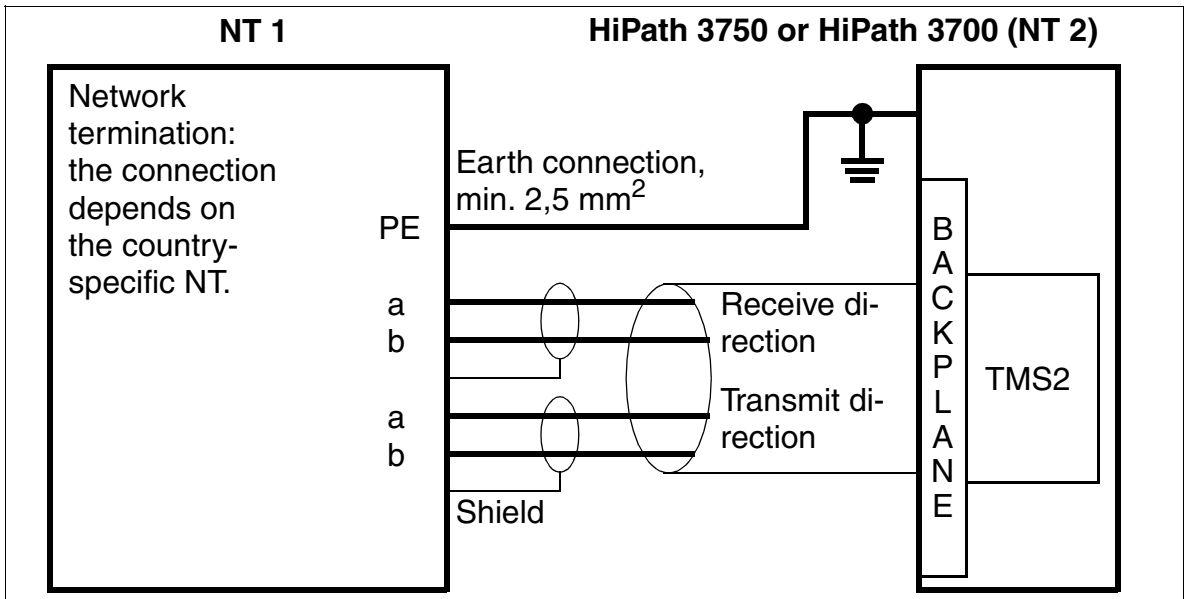


Figure 3-97 Supplying NTs Via S_{2M}

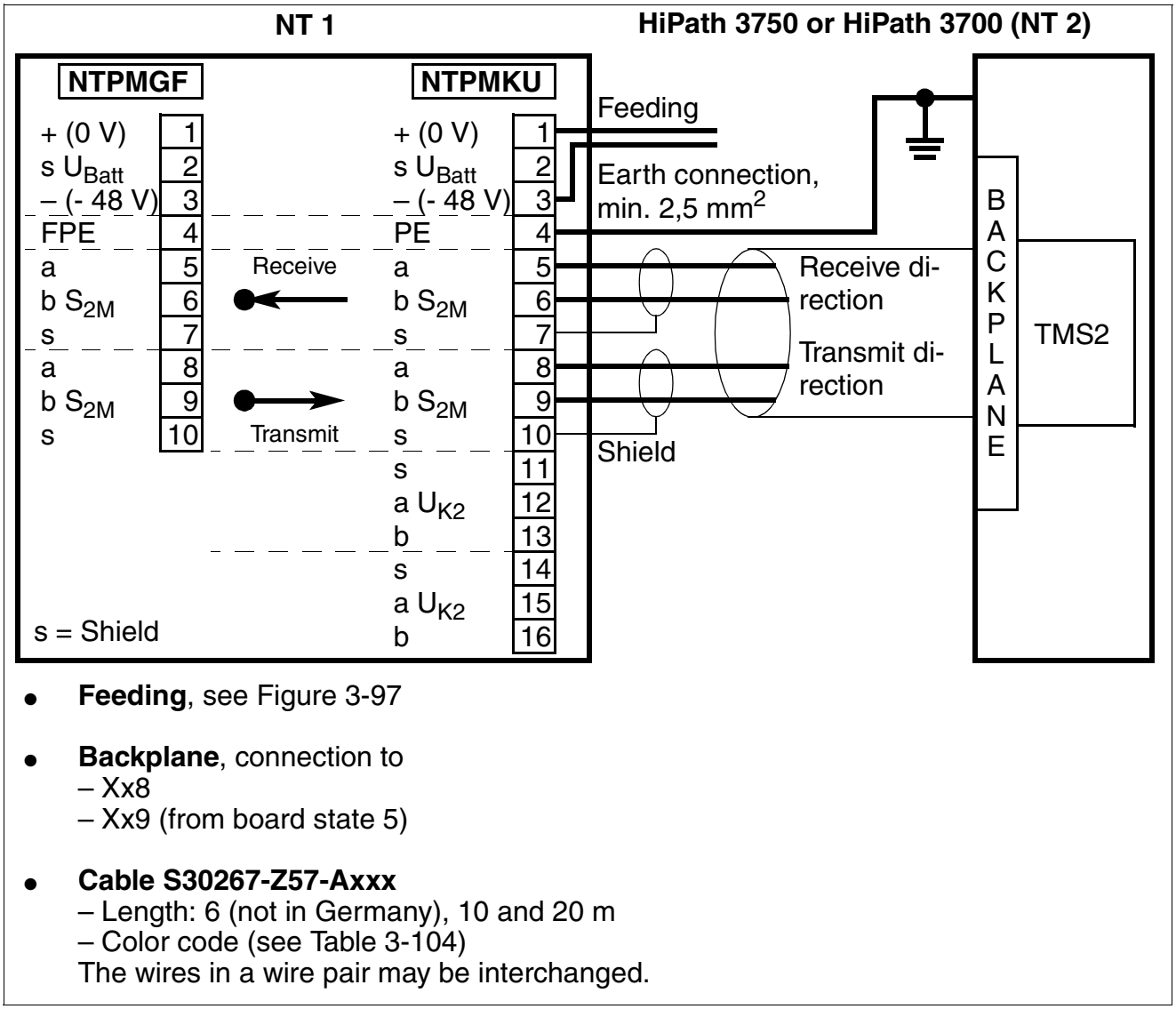
S_{2M}—NT Connection



- **Feeding**, see Figure 3-97
- **Backplane**, connection to
  – Xx8
  – Xx9 (from board state 5)
- **Cable S30267-Z57-Axxx**
  – Length: 6 (not in Germany), 10 and 20 m
  – Color code (see Table 3-104)
  The wires in a wire pair may be interchanged.

Figure 3-98 S_{2M}—NT Connection (Not for U.S.)

S_{2M} Connection to Deutsche Telekom NT (for Germany only)



- **Feeding**, see Figure 3-97
- **Backplane**, connection to
  – Xx8
  – Xx9 (from board state 5)
- **Cable S30267-Z57-Axxx**
  – Length: 6 (not in Germany), 10 and 20 m
  – Color code (see Table 3-104)
  The wires in a wire pair may be interchanged.

Figure 3-99 S_{2M} - NT Connection Deutsche Telekom (for Germany only)

S_{2M} Networking

For examples of the maximum cable lengths for direct CorNet-N networking, refer to Table 2-9 on page 2-25.

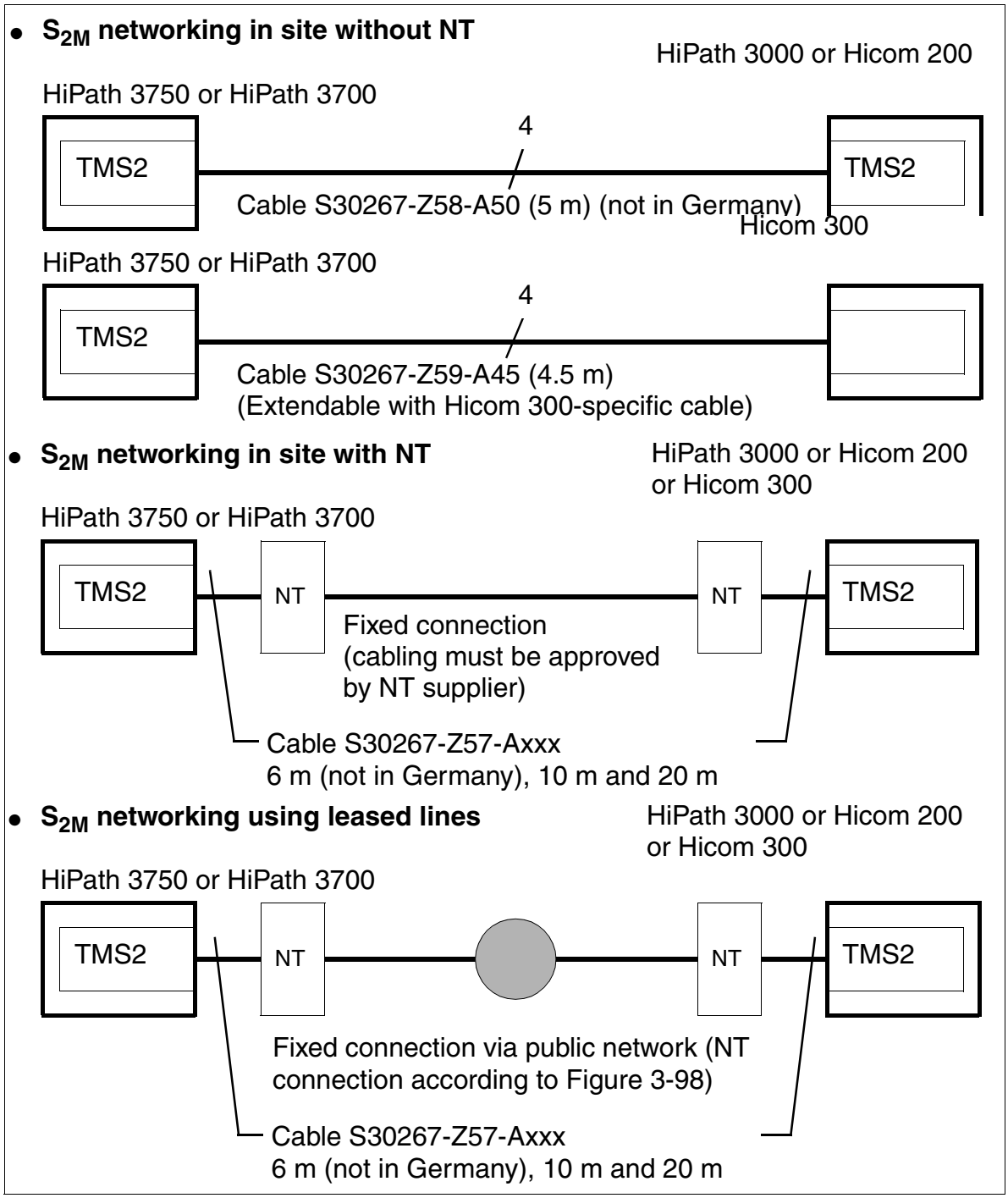


Figure 3-100 S_{2M} Networking Options (Not for U.S.)

3.3.30 TST1 (for U.S. Only)

Introduction

The Digital T1/PRI trunk module (TST1) connects the communications server to primary rate interface (PRI) ISDN via a T1 interface. There are two versions of this board:

- S30810-Q2919-X - for use in the HiPath 3550 (wall housing)
- S30810-K2919-Z - for use in the HiPath 3500 (19-inch housing)

The TST1 can also connect to the following:

- SF
- ESF

The TST1 can be installed in:

- Rel.2.2 hardware and Rel.2.2 software: Slot 7 or Slot 9.
- Rel.1.0 lardware and Rel.2.2 software: Slot 6 only.

Rather than connecting to a main distribution frame (MDF), the TST1 connects to a channel service unit (CSU). The CSU supplies the required secondary protection.

Interfaces

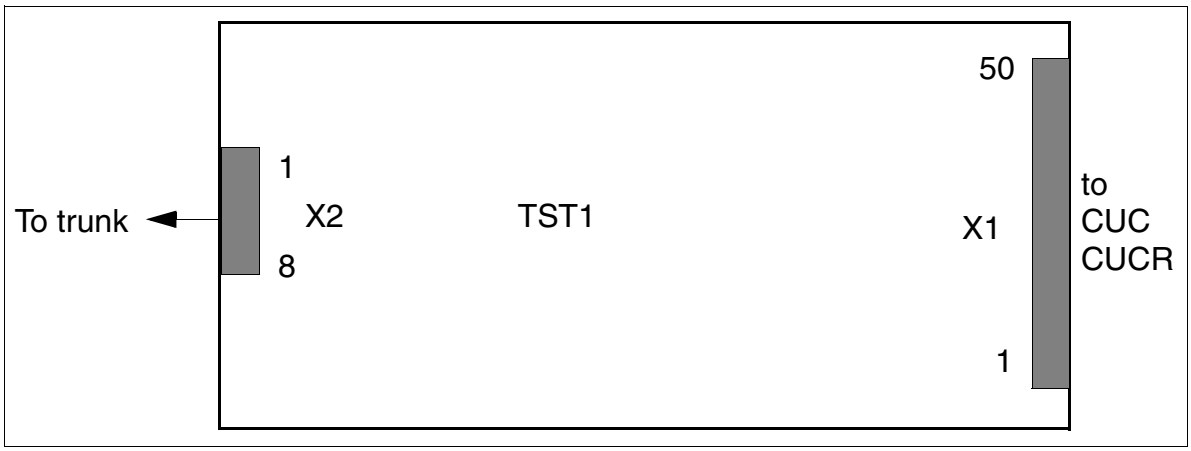


Figure 3-101 TST1 Interfaces (for U.S. Only)

Interface Assignments

Table 3-106 TST1 Interface Assignments (for U.S. Only)

Pin	X2		Pin	X2
1	receive ring		5	transmit tip
2	receive tip		6	not connected
3	not connected		7	not connected
4	transmit ring		8	not connected

3.3.31 TS2 and TS2R (Not for U.S.)

Introduction

The board contains a four-wire interface with S_{2M} code for connection to the public telecommunications network or private networks.

Up to thirty trunk calls can be conducted simultaneously via the S_{2M} interface. The total transmission speed including signaling and synchronization is 2048 Mbit/s.

There are two versions of this board:

- TS2 (**t**runk module **S2**M) S30810-Q2913-X100 (Figure 3-102) - for use in the HiPath 3550 (wall housing)
- TS2R (**t**runk module **S2**M **r**ack) S30810-K2913-Z100 (Figure 3-103) - for use in the HiPath 3500 (19-inch housing)

Board usage is subject to the following restrictions:

- Only one TS2/TS2R board allowed (primary multiplex access)
- For slot 7 or 9 only

To support country-specific CAS protocols, you can use the Euro-ISDN–CAS-Gateway ECG. The ECG cabinet is a protocol converter that converts the Euro-ISDN protocol into the Channel Associated Signaling CAS protocol. Refer to the installation instructions, which are provided with each ECG cabinet, for information on the connection and power supply.
For HiPath 3000 V1.0 and later, you can also use the new TMCAS board to support country-specific CAS protocols.

TS2 Interfaces

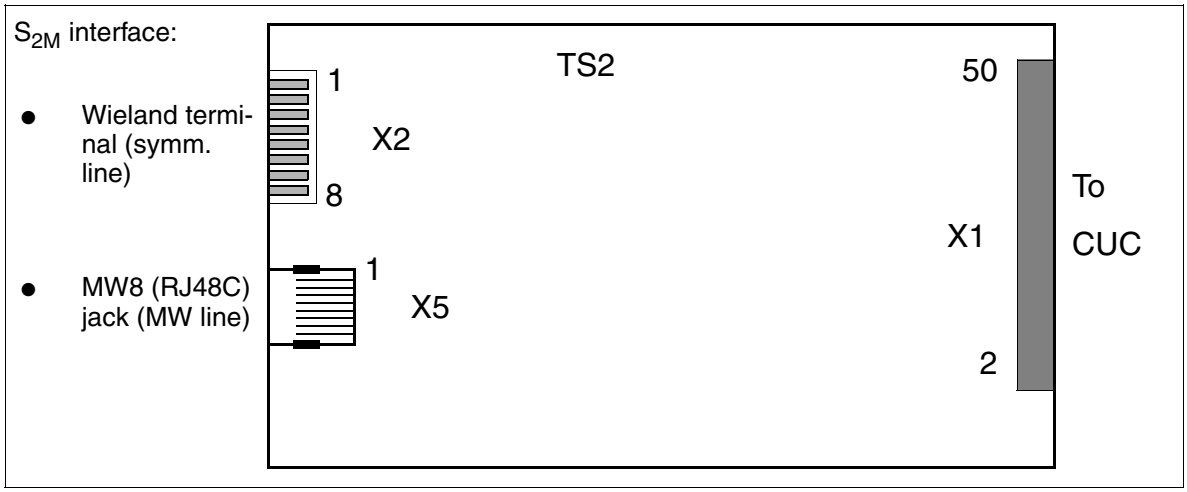


Figure 3-102 TS2 Interfaces (S30810-Q2913-X100)

TS2R Interfaces

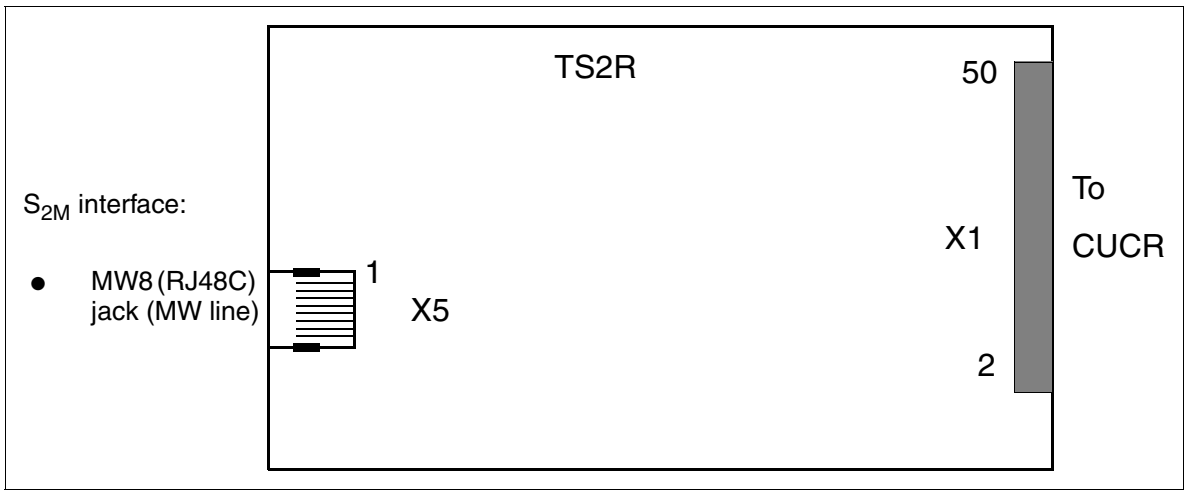


Figure 3-103 TS2R Interfaces (S30810-K2913-Z100)

Network Interfaces

The TS2 board is connected to the network transfer point (NT1) via the symmetrical line (120 ohms, four-wire twisted-pair cable) at X2 or via a MW line at X5.

Note: use the connection kits listed on page 3-225 for NT connections in Spain and Portugal.

Symmetrical Line (120 ohms)

The maximum cable length (approx. 130 m) depends on the quality of the cable used and its signal attenuation. Use shielded cables only to guarantee proper operation.

Connect the cable to the X2 using an 8-pin Wieland terminal (TS2 only).

Table 3-107 Contact Assignments for X2 Connector

Pin	X2 (TS2 only)
1	–48 V (NT1 feeding), max. 15 W
2	0 V (NT1 feeding)
3	GND
4	Board ID for TMCAS
5	Transmit a-wire
6	Transmit b-wire
7	Receive a-wire
8	Receive b-wire

MW Line (MW8 Jack (RJ48C))

The shielded 8-pole MW8 (RJ48C) jack X5 is provided for connecting MW lines. The maximum cable length (approx. 100 m) depends on the quality of the cable used and its signal attenuation.

Table 3-108 Contact Assignments for the MW8 (RJ48C) jack X5

Pin	X5	Pin	X5
1	Receive b-wire	6	free
2	Receive a-wire	7	free
3	free	8	free
4	Transmit b-wire	11	GND
5	Transmit a-wire	12	GND
An additional line must be provided from pins 1 and 2 on the X2 connector to NT1 for NT1 feeding.			

S_{2M} Trunk Connection

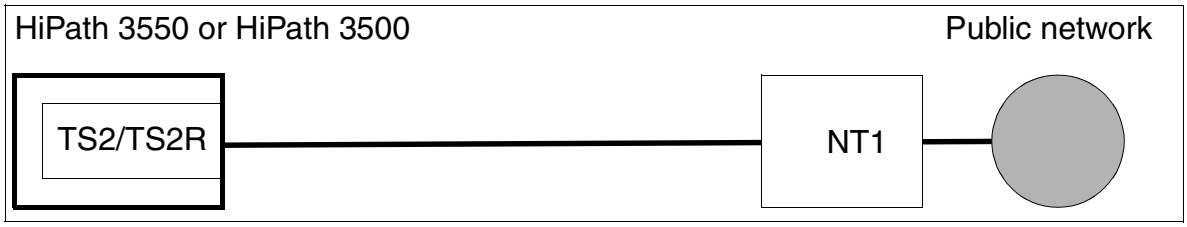


Figure 3-104 S_{2M} Trunk Connection

Keep the cable from the NT to HiPath 3550 or HiPath 3500 as short as possible to ensure proper operation.

Caution
There should be absolutely **no** ground connection between the HiPath 3550 wall housing and the NT. Do not connect the shield of the connecting cable you are using either on the HiPath 3550 side or on the NT side.
If the System HiPath 3550 is separately grounded (such as with the HiPath 3500 19" housing), you may make a connection between HiPath 3550 and NT.

NT1 Power Supply

- TS2 board
  The NT1 supply voltage of –48 V can be tapped from the X2 connector (see Table 3-107). There is a power limit of < 15 W for this voltage, which the system feeds over the CUC.
- TS2R board
  The NT1 power supply must come from an S30122-K7321-X (S30122-K7321-X100 with UPS operation) optiset E local power supply.

Cable Set for NT Connections (Spain and Portugal Only)

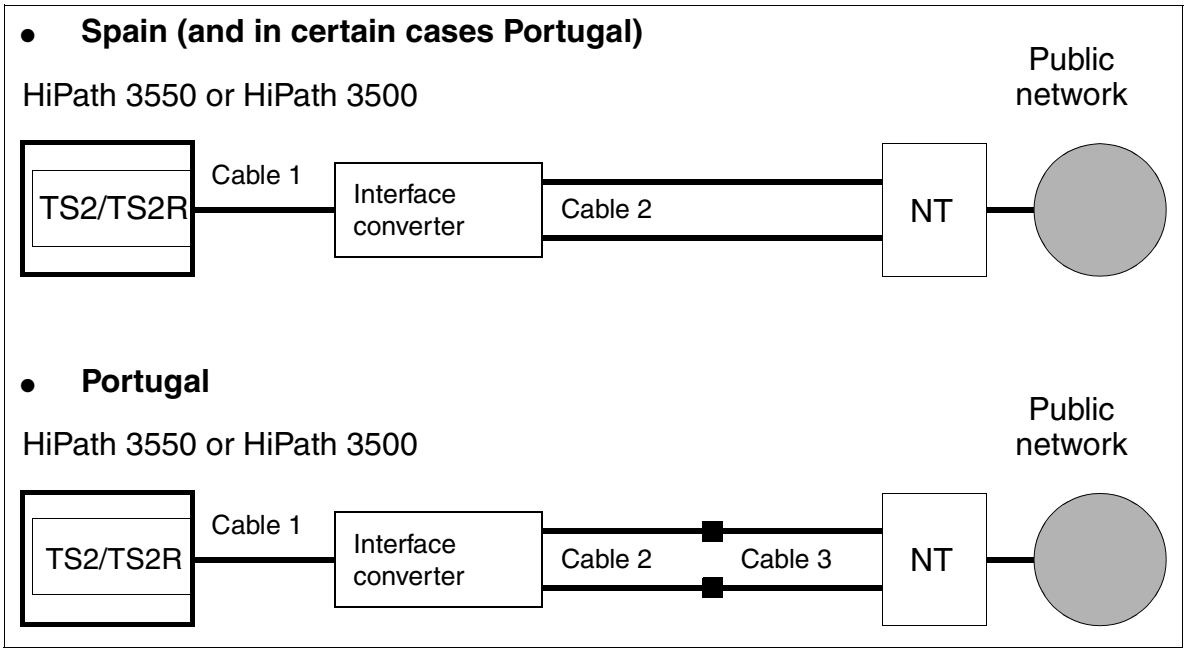


Figure 3-105 S_{2M} - NT Connections for Spain and Portugal

Connection kit contents and part numbers:

- TS2 connection kit for Spain and Portugal: F50035-E2-X63, containing the following:
  - Interface converter: S30122-X7357-X
  - Cable 1 = Patch cable MW8 (RJ48C), 10 m: C39195-Z7208-A100
  - Cable 2 (2 units) = coaxial adapter cable, 30 cm: S30267-Z354-A3
- TS2 upgrade kit for Portugal: L30252-U600-A190, containing the following:
  - Cable 3 (2 units) = Mini-coaxial cable, 10 cm: S30267-Z353-A1

3.3.32 4SLA (Not for U.S.), 8SLA, (for All Countries) and 16SLA (Not for U.S.)

Introduction

The 4SLA, 8SLA, and 16SLA (subscriber line analog) modules connect HiPath 3550 and HiPath 3350 to analog telephones and supplementary equipment (such as group 3 fax machines and entrance telephone adapters) via analog interfaces.

The 8SLA is supported in the U.S.; the 4SLA and 16SLA are not.

Interfaces

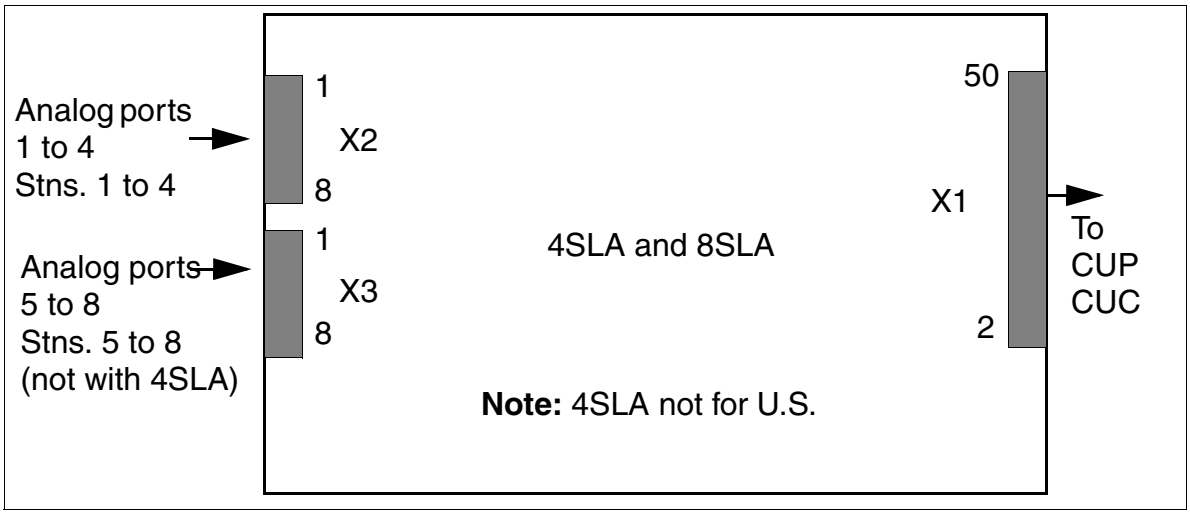


Figure 3-106 4SLA and 8SLA Interfaces (S30810-Q2923-X200 / -X100)

Interface Assignments

Table 3-109 4SLA and 8SLA Interface Assignments (Not for U.S.)

Pin	X2 (Analog Ports 1 to 4)	X3 (Analog Ports 5 to 8)
1	a 1	a 5
2	b 1	b 5
3	a 2	a 6
4	b 2	b 6
5	a 3	a 7
6	b 3	b 7
7	a 4	a 8
8	b 4	b 8

Table 3-110 4SLA/8SLA Contact Assignments, 8SLA Interface Assignments (for U.S. Only)

Pin	X2 (Ports 1-4)	X3 (Ports 5-8)
1	R1	R5
2	T1	T5
3	R2	R6
4	T2	T6
5	R3	R7
6	T3	T7
7	R4	R8
8	T4	T8

Note: Pinouts shown are at the board itself. The supplied main distribution frame cable (MDF cable) reverses the signal order before the MDF.

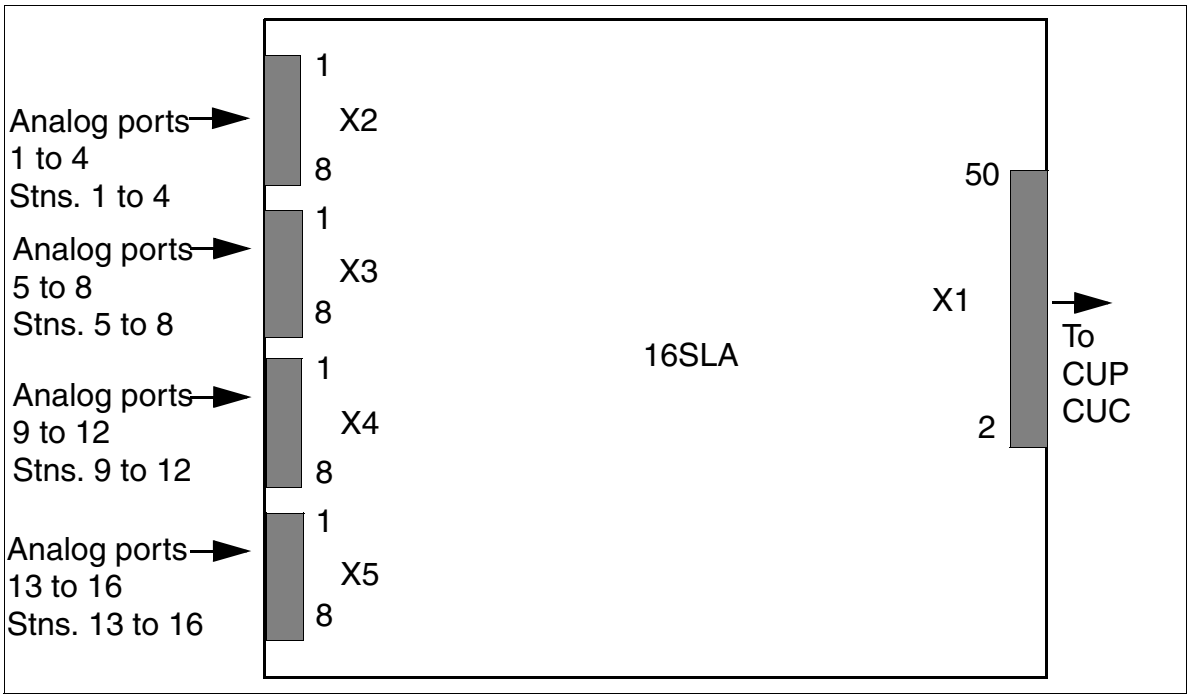


Figure 3-107 16SLA Interfaces (S30810-Q2923-X) (Not for U.S.)

Table 3-111 16SLA Interface Assignments (Not for U.S.)

Pin	X2 (Analog Ports 1 to 4)	X3 (Analog Ports 5 to 8)	X4 (Analog Ports 9 to 12)	X5 (Analog Ports 13 to 16)
1	a 1	a 5	a 9	a 13
2	b 1	b 5	b 9	b 13
3	a 2	a 6	a 1	a 14
4	b 2	b 6	b 10	b 14
5	a 3	a 7	a 11	a 15
6	b 3	b 7	b 11	b 15
7	a 4	a 8	a 12	a 16
8	b 4	b 8	b 12	b 16

The operating mode (short or long line with the appropriate flash times) can be set up for each subscriber line interface with HiPath 3000 Manager E (the menu Settings: Set up station –> Station –> Parameters –> Flags).

SLA Module Specifications

- Maximum supply current: Approximately 34 mA
- Maximum supply voltage: Approximately 40 Vdc
- Ring voltage against negative supply voltage (tip wire/RING):
  Two telephones maximum
- Range, see Section 2.7
- Loop current detection: > 10 mA
- Ground button detection: > 20 mA
- The transmission method can be configured country-specifically (by entering the country code).

3.3.33 8SLAR

Introduction

The 8SLAR (**s**ubscriber **l**ine **a**nalog **r**ack) module provides eight analog interfaces for connecting analog telephones and supplementary equipment (such as group 3 fax machines and entrance telephones) in HiPath 3500 and HiPath 3300 (19-inch housing).

Interfaces

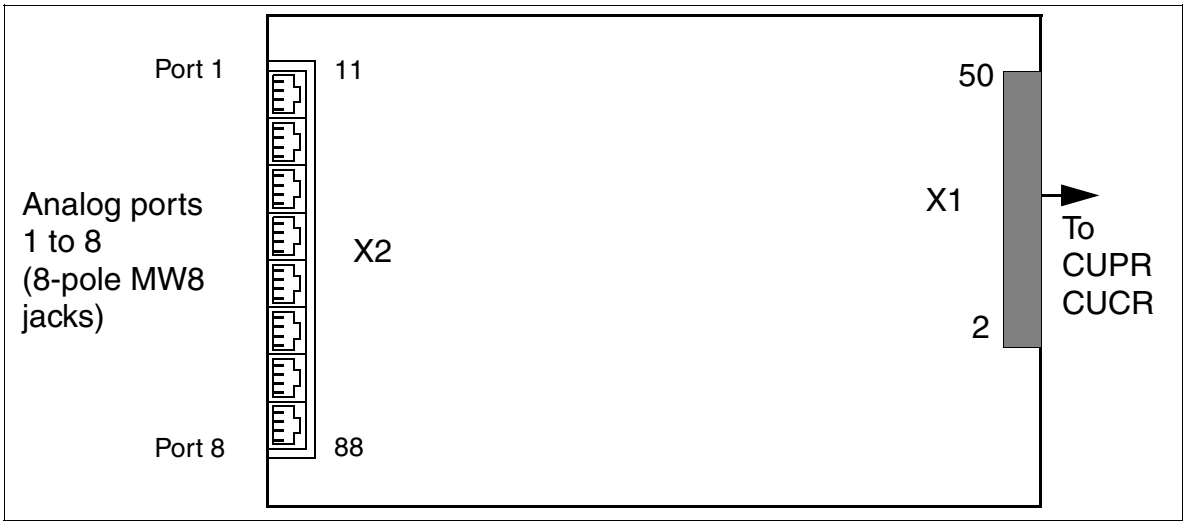


Figure 3-108 8SLAR Interfaces (S30810-K2925-Z)

Table 3-112 8SLAR Contact Assignments

MW8 Jack	X2, Pin	Analog Ports 1 to 4	MW8 Jack	X2, Pin	Analog Ports 5 to 8
1	14	Tip / a 1	5	54	Tip / a 5
	15	Ring / b 1		55	Ring / b 5
2	24	Tip / a 2	6	64	Tip / a 6
	25	Ring / b 2		65	Ring / b 6
3	34	Tip / a 3	7	74	Tip / a 7
	35	Ring / b 3		75	Ring / b 7
4	44	Tip / a 4	8	84	Tip / a 8
	45	Ring / b 4		85	Ring / b 8

SLA Module Specifications

- Maximum supply current: approximately 34 mA
- Maximum supply voltage: approximately 40 Vdc
- Ring voltage against negative supply voltage (tip wire/RING): two telephones maximum
- Range, see Section 2.7
- Loop current detection > 10 mA
- Ground button detection > 20 mA
- The transmission method can be configured country-specifically (by entering the country code).

3.4 Options

3.4.1 ALUM4

Introduction

In the event that HiPath 3550 or HiPath 3350 experiences a voltage drop, voltage dip or unrecoverable system errors, the ALUM module can transfer up to four analog trunks directly to four analog telephones, bypassing the system.

The ALUM4 Module provides power failure transfer for MSI ground-start or loop-start trunks, but ground-start trunks require a physical ground-actuator button.

When the system is deactivated or when an error occurs, the trunks are connected directly to the telephones. When normal operation resumes, the trunks are again routed through the system.

Only analog telephones can be used for the transfer, and they must use the same signaling method as the trunk; otherwise, dialing is not possible.

ALUM4 Module Function

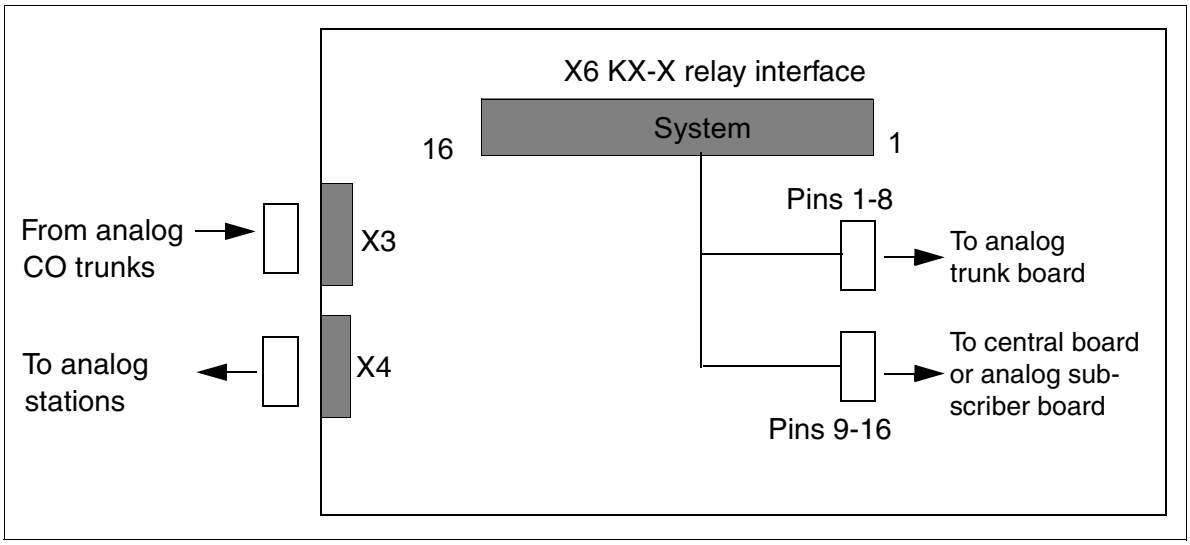


Figure 3-109 ALUM4 Function

Interfaces

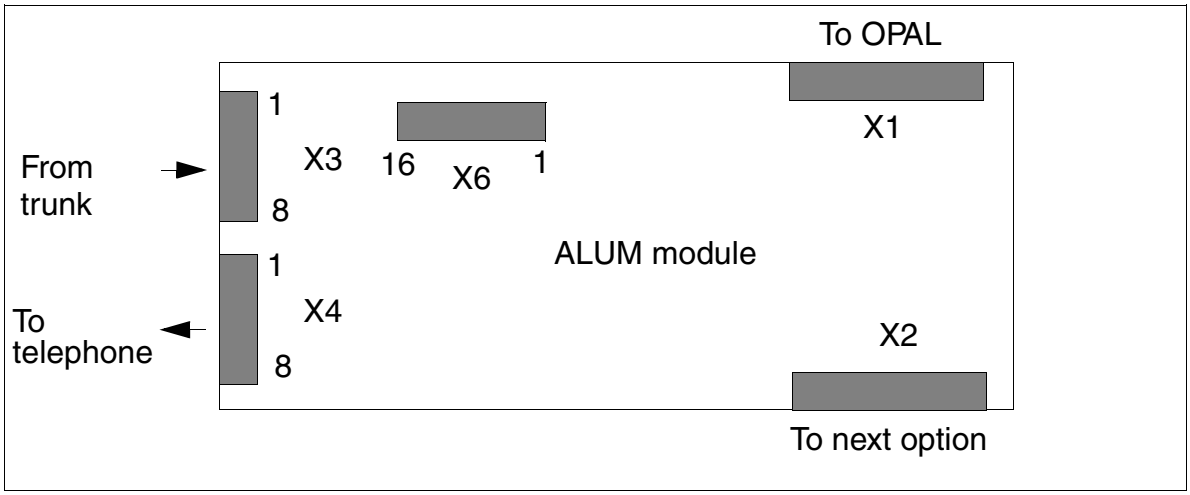


Figure 3-110 ALUM4 Interfaces (S30817-Q935-A)

Split the cable from X6 and connect half to the analog trunk board and half to the CB analog ports or analog subscriber boards.

ALUM Module Interface Assignments

Table 3-113 ALUM4 Interface Assignments (Not for U.S.)

Pin	Connector X3	Connector X4	Connector X6
1	R1 from trunk 1a	AE1 to Stn. 1a	AT1 to TLA a
2	T1 from trunk 1b	BE1 to Stn. 1b	BT1 to TLA b
3	R2 from trunk 2a	AE2 to Stn. 2a	AT2 to TLA a
4	T2 from trunk 2b	BE2 to Stn. 2b	BT2 to TLA b
5	R3 from trunk 3a	AE3 to Stn. 3a	AT3 to TLA a
6	T3 from trunk 3b	BE3 to Stn. 3b	BT3 to TLA b
7	R4 from trunk 4a	AE4 to Stn. 4a	AT4 to TLA a
8	T4 from trunk 4b	BE4 to Stn. 4b	BT4 to TLA b
9	–	–	TA1 to SLA* a
10	–	–	TB1 to SLA* b
11	–	–	TA2 to SLA* a

Table 3-113 ALUM4 Interface Assignments (Not for U.S.)

Pin	Connector X3	Connector X4	Connector X6
12	–	–	TB2 to SLA* b
13	–	–	TA3 to SLA* a
14	–	–	TB3 to SLA* b
15	–	–	TA4 to SLA* a
16	–	–	TB4 to SLA* b
* = or to free analog port			

Table 3-114 ALUM4 Interface Assignments (for U.S. Only)

Pin	X3 (to MDF)	X4 (to MDF)	Y-Cable from X6 to TMGL4		Y-Cable from X6 to Analog Ports*	
			Pin	Assignment	Pin	Assignment
1	R from trunk 1	R to station 1	1	T to TMGL4 port 1	9	T to analog port 1
2	T from trunk 1	T to station 1	2	R to TMGL4 port 1	10	R to analog port 1
3	R from trunk 2	R to station 2	3	T to TMGL4 port 2	11	T to analog port 2
4	T from trunk 2	T to station 2	4	R to TMGL4 port 2	12	R to analog port 2
5	R from trunk 3	R to station 3	5	T to TMGL4 port 3	13	T to analog port 3
6	T from trunk 3	T to station 3	6	R to TMGL4 port 3	14	R to analog port 3
7	R from trunk 4	R to station 4	7	T to TMGL4 port 4	15	T to analog port 4
8	T from trunk 4	T to station 4	8	R to TMGL4 port 4	16	R to analog port 4

* To the analog station ports on the CBPC (recommended) or to four consecutive ports on an 8SLA.

Note: Pinouts shown are at the board itself. The supplied main distribution frame cable (MDF cable) reverses the signal order for X3 and X4 before the MDF.

ALUM4 Module Block Diagram

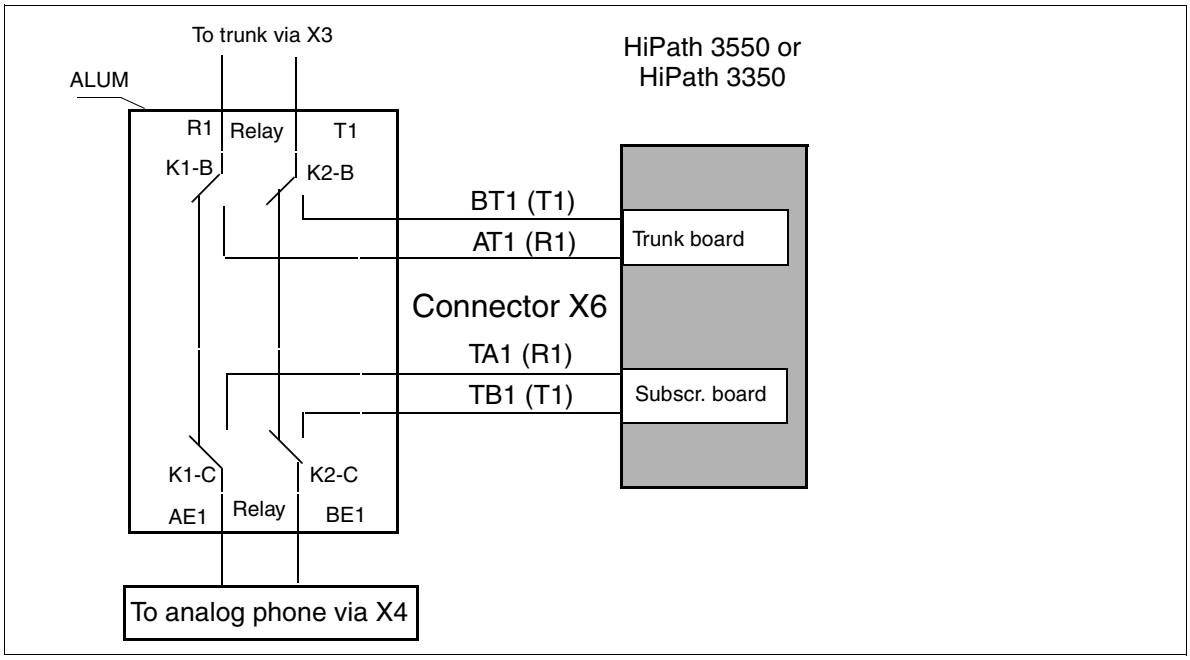


Figure 3-111 ALUM4 Circuit in Power Failure Mode

3.4.2 ANI4 (for U.S. Only)

Introduction

The ANI4 (automatic number identification) module is responsible for receiving station numbers using the CPFSK method, demodulating them, and forwarding them to the HiPath 3550 or HiPath 3350 base system.

Each ANI4 module can serve four trunks. It contains the external trunk board hardware interfaces (TMGL4) as well as a trunk and options bus interface. It connects to the trunk board (TMGL4), to the trunks, and to the options bus interface, providing the connection between the trunks and the trunk board by means of the system.

Interfaces on the ANI4 Module

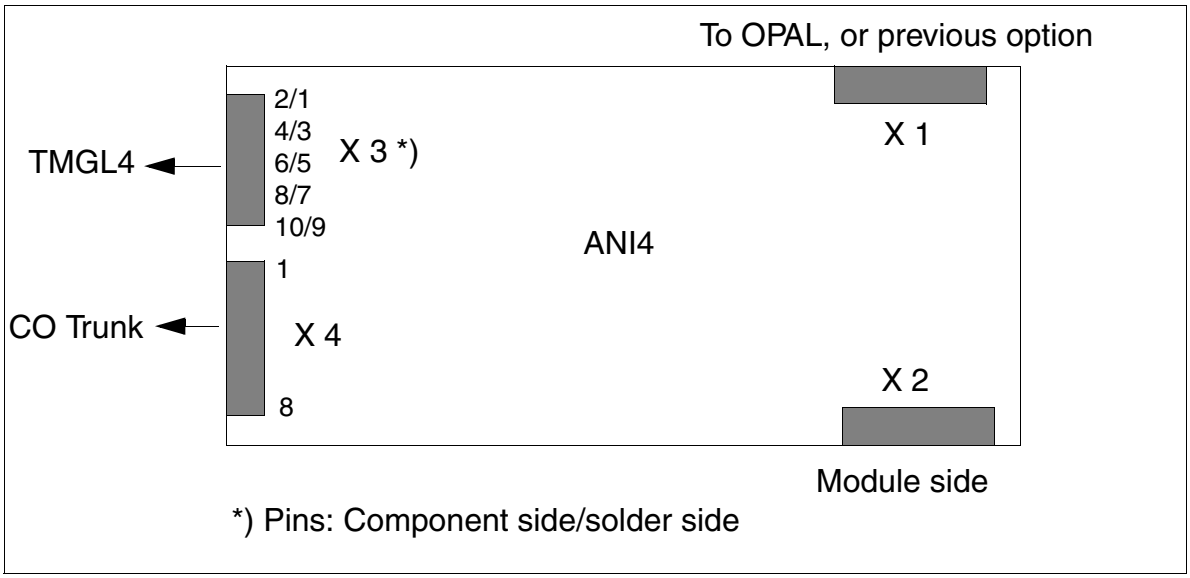


Figure 3-112 ANI4 Interface (S30807-Q6917-Axxx) (for U.S. Only)

ANI4 Module Contact Assignments

Table 3-115 ANI4 Pin Assignments (for U.S. Only)

Pin	Connector X3 Component Side	Connector X3 Solder Side	Connector X4
1	--	Not assigned	Tip, trunk 1
2	Ring, trunk 1	--	Ring, trunk 1
3	--	Tip, trunk 1	Tip, trunk 2
4	Ring, trunk 2	--	Ring, trunk 2
5	--	Tip, trunk 2	Tip, trunk 3
6	Ring, trunk 3	--	Ring, trunk 3
7	--	Tip, trunk 3	Tip, trunk 4
8	Ring, trunk 4	--	Ring, trunk 4
9	--	Tip, trunk 4	–
10	Not used	--	–

ANI4 Installation Instructions

Follow the steps below to install ANI4 in the HiPath 3550 or HiPath 3350 system.

> **Caution**
> Remove the trunk slip-on connectors from the TMGL4 board before starting to work on the system.
> Be sure to reinstall the ANI4 and TMGL4 boards in their slots before reconnecting the trunks.

1. Disconnect the trunks from the TMGL4 board (Figure 3-113, fig. 1).
2. Unplug the system from the power supply.
3. Install the ANI4 board in the system.
4. Connect the OPAL adapter cable to the ANI4 board.
5. Use the ribbon cable supplied with the board to connect the ANI4 to the TMGL4, making sure that the color markings (Pin 1) at both ends of the cable are facing up (Figure 3-113, fig. 2).
6. Connect the trunk slip-on connectors to the ANI4 board (Figure 3-113, fig. 3).
7. Restart the system by reconnecting the power plug.

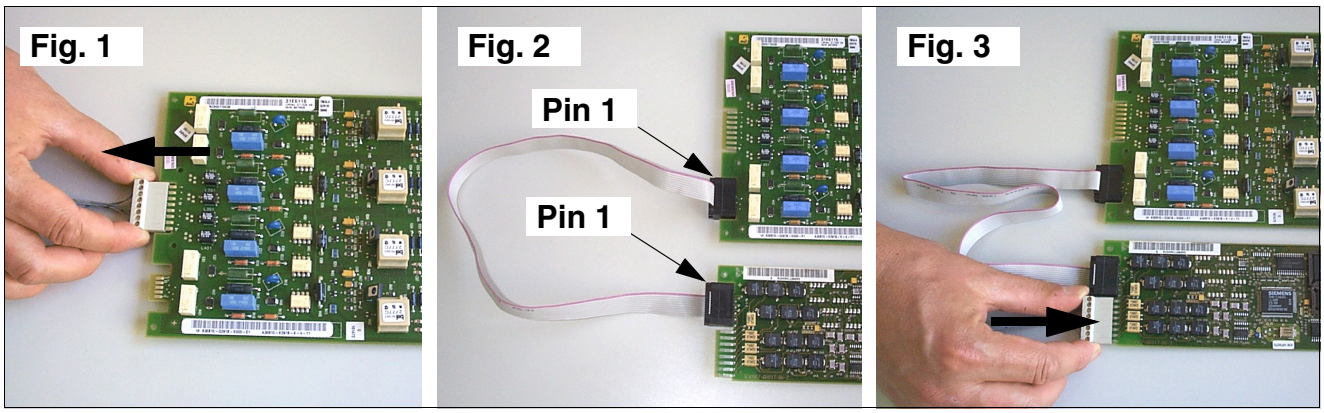


Figure 3-113 ANI4 - Installation Steps

3.4.3 ANI4R (for U.S. Only)

Introduction

The ANI4R (automatic number identification rack) module is responsible for receiving station numbers using the CPFSK method, demodulating them, and forwarding them to the HiPath 3500 or HiPath 3300 base system.

Each ANI4R module can serve four trunks. It contains the external trunk board hardware interfaces (TMGL4R) and the options bus interface.

If ANI4R is installed as option 1 or 2, TMGL4R board must be inserted in slot 4, 6 or 8 (Slots 6 and 8 not available with HiPath 3300).

Interfaces on the ANI4R Module

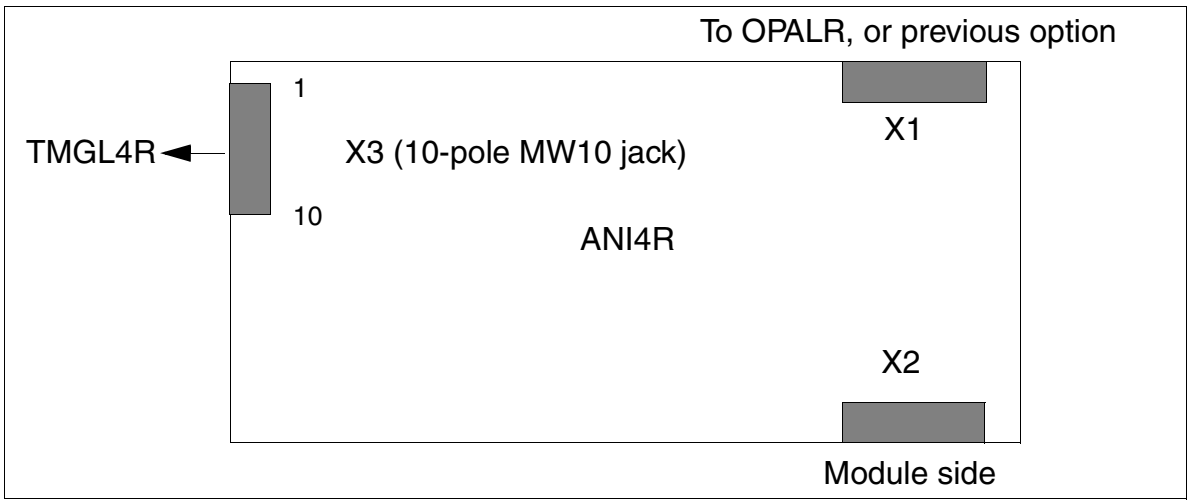


Figure 3-114 ANI4R Interface (S30807-Q6917-Z103) (for U.S. Only)

ANI4R Module Contact Assignments

Table 3-116 ANI4R Pin Assignments (for U.S. Only)

X3 Pin	Signal		X3 Pin	Signal
1	–		6	Tip, trunk 3
2	Tip, trunk 1		7	Ring, trunk 3
3	Ring, trunk 1		8	Tip, trunk 4
4	Tip, trunk 2		9	Ring, trunk 4
5	Ring, trunk 2		10	Call charging module assignment (GMZ)

3.4.4 Announcement and Music Modules

Introduction

Caution
Place the central control board on a flat surface before inserting a subboard. Otherwise you may damage the board.

The HiPath 3000 systems use different modules or boards for playing announcements and music on hold. For details on connecting these boards, refer to the manufacturer's installation instructions.

Overview

Table 3-117 Announcement and Music Modules

Board	Part Number	Notes
AM	S30122-X7217-X100	• Used in HiPath 3250, HiPath 3150. • Board installed directly on SBSCO/SBSCS (X21).
EXM	S30817-Q902-B401	• Used in HiPath 3550 and HiPath 3350 (wall housing), see Figure 3-115. • Connected via cable to X4 connector on CBCC and CBCP.
EXMR	S30817-K7403-Z103	• Used in HiPath 3500 and HiPath 3300 (19-inch housing). • Board installed directly on CBRC and CBRP (X19 and X20). • Connected via cable to Cinch jack on the front panel (see Figure 3-116).
MPPI	S30122-X7275-X	• Used in all HiPath 3000 systems • Board installed directly on the central control board (X19 and X20).
MPPI	S30122-K5380-X200	• Used in HiPath 3550 and HiPath 3350 (wall housing). • Connected via cable to X4 connector on CBCC/CBCP.
UAM	S30122-X7217-X	• Used in HiPath 3550 and HiPath 3350 (wall housing). • Connected to OPAL and analog interface (for the announcement function)

Table 3-117 Announcement and Music Modules

Board	Part Number	Notes
UAMR	S30122-X7402-Z	• Used in HiPath 3500 and HiPath 3300 (19-inch housing). • Connected to OPALR and analog interface (for the announcement function).

Notes on Querying Optional Boards

You can query HiPath 3000 Manager E on the presence of optional boards. The presence of MPPI, AM (HiPath 3250 and HiPath 3150 only) or UAM (HiPath 3550 and HiPath 3350 only) is displayed as “Option 5”. The ALUM4 module cannot be displayed.

Slot for EXM

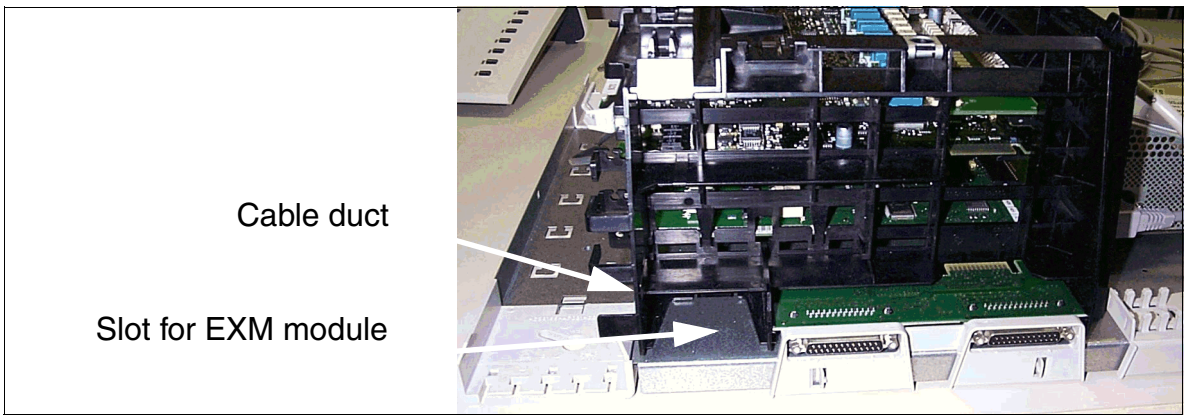


Figure 3-115 EXM Slot for HiPath 3550 and HiPath 3350 (Not for U.S.)

Connection of EXMR

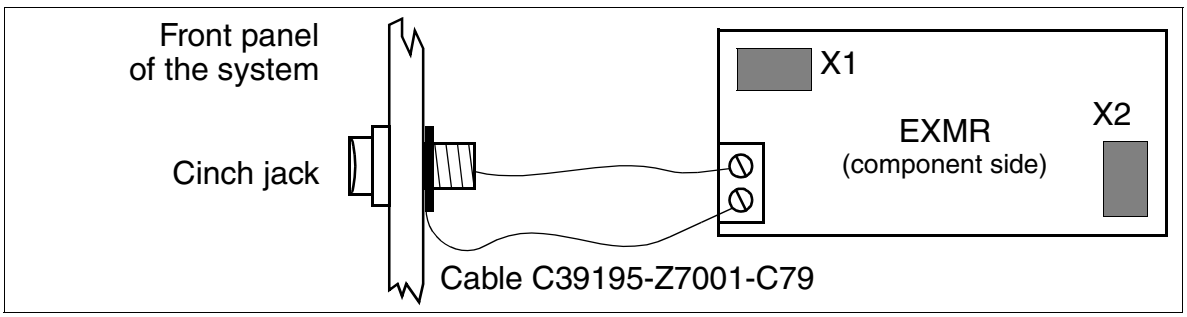


Figure 3-116 EXMR Connection to HiPath 3500 and HiPath 3300

3.4.5 EXMNA (for U.S. Only)

Introduction

The EXMNA (external music on hold) module provides a connection for external music on hold in HiPath 3550 and HiPath 3350.

The EXMNA connects to the CBCC and CBCP board (connector X4) by means of a ribbon cable.

- Ribbon cable connected = External music
- Ribbon cable not connected = Internal music

Expert mode code 22 11 allows you to choose between music on, music off, ring tone, or music on unscreened transfer. If the EXMNA module is connected, you must select Music on using Assistant T or HiPath 3000 Manager E. The module is operational as soon as it is plugged in.

Interfaces

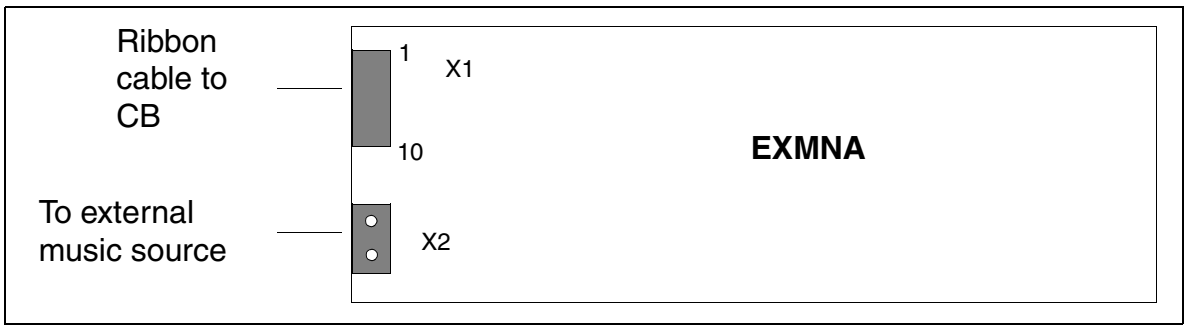


Figure 3-117 EXMNA Interfaces (S30807-Q6923-X) (for U.S. Only)

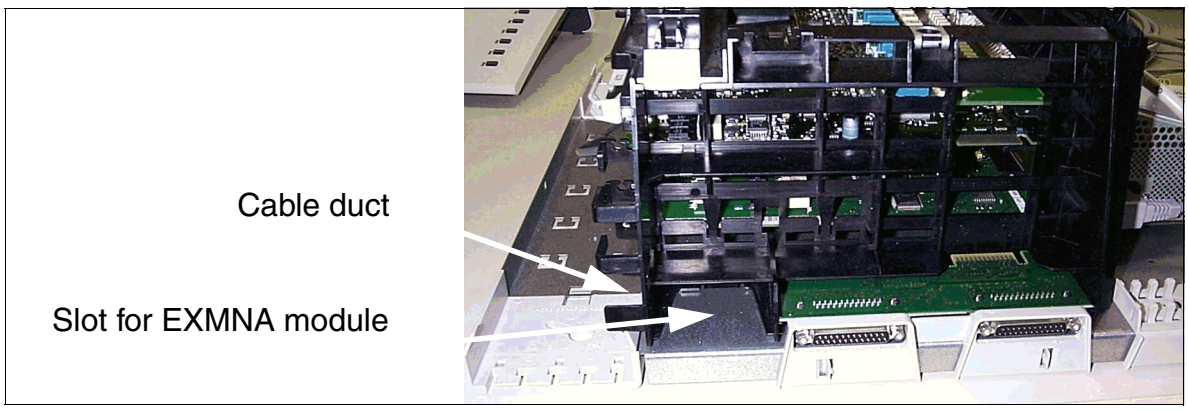


Figure 3-118 EXMNA Slot for HiPath 3550 and HiPath 3350 (for U.S. Only)

Table 3-118 EXMNA Interface Assignments (for U.S. Only)

Pin	Connector X1	Connector X2
1	GND	Input
2	Not assigned	Input
3	Not assigned	Not assigned
4	EXMCL	Not assigned
5	EXMDIR	
6	HRES	
7	EXMD	
8	EXMDET	
9	+5 V	
10	Not assigned	

3.4.6 GEE8 (Not for U.S.)

Introduction

In HiPath 3750 and HiPath 3700, the GEE8 module (12/16 kHz) can be plugged into the TML8W board to record call charge pulses. Interfaces X10 and X11 connect to the board.

Switch for Setting the Level per Circuit

- On = – 24 dBm
- Off = – 10 dBm

Switch on GEE8

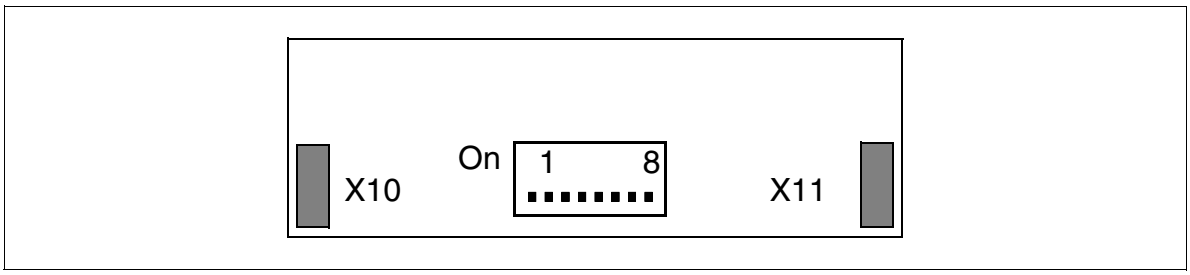


Figure 3-119 GEE8 (S30817-Q664-xxxx) (Not for U.S.)

3.4.7 GEE12, GEE16, and GEE50 (Not for U.S.)

Introduction

Each of the modules listed below supports four call-metering receiving units for recording and preprocessing call charge pulses in HiPath 3550 and HiPath 3350.

Table 3-119 GEE12, GEE16, and GEE50 Modules (Not for U.S.)

Module	Frequency	Remarks
GEE 12	12 kHz	also for Silent Reversal
GEE 16	16 kHz	
GEE 50	50 Hz	

The call charge detection channel is looped in the trunk and then routed to the TLA

Interfaces

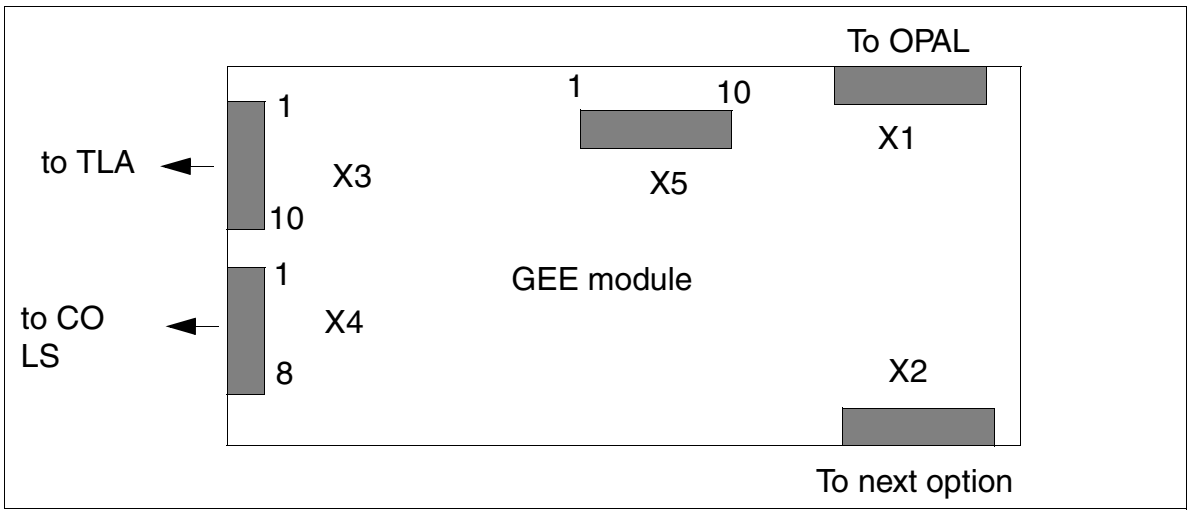


Figure 3-120 GEE12, GEE16, and GEE50 Interfaces (S30817-H951-Mxxx)

Contact Assignments

Table 3-120 GEE12, GEE16, and GEE50 Interface Assignments (Not for U.S.)

Pin		Connector X3	Conn. X4	Conn. X5
1	a	GND *	CO 1 (AL1)	0V
2	b	CO 1 (BN 1)	CO 1 (BL1)	0V
3	a	CO 1 (AN 1)	CO 2 (AL2)	RTS
4	b	CO 2 (BN 2)	CO 2 (BL2)	CTS
5	a	CO 2 (AN 2)	CO 3 (AL3)	RXD
6	b	CO 3 (BN 3)	CO 3 (BL3)	TXD
7	a	CO 3 (AN 3)	CO 4 (AL4)	0V
8	b	CO 4 (BN 4)	CO 4 (BL4)	+5V
9	a	CO 4 (AN 4)	–	0V
10		Call charging module assignment	–	+5V
* for GEE 50 in France; otherwise free				

3.4.8 HOPE Board

Introduction

The HOPE (Hicom Office PhoneMail Entry) board provides Hicom Office PhoneMail Entry voicemail system functions.

Caution: The HOPE board does not identify itself to the system and is therefore not visible in the HiPath 3000 Manager E card map. When expanding a system (such as HiPath 3350 and HiPath 3550), ensure that a free slot is indeed available.

Interfaces

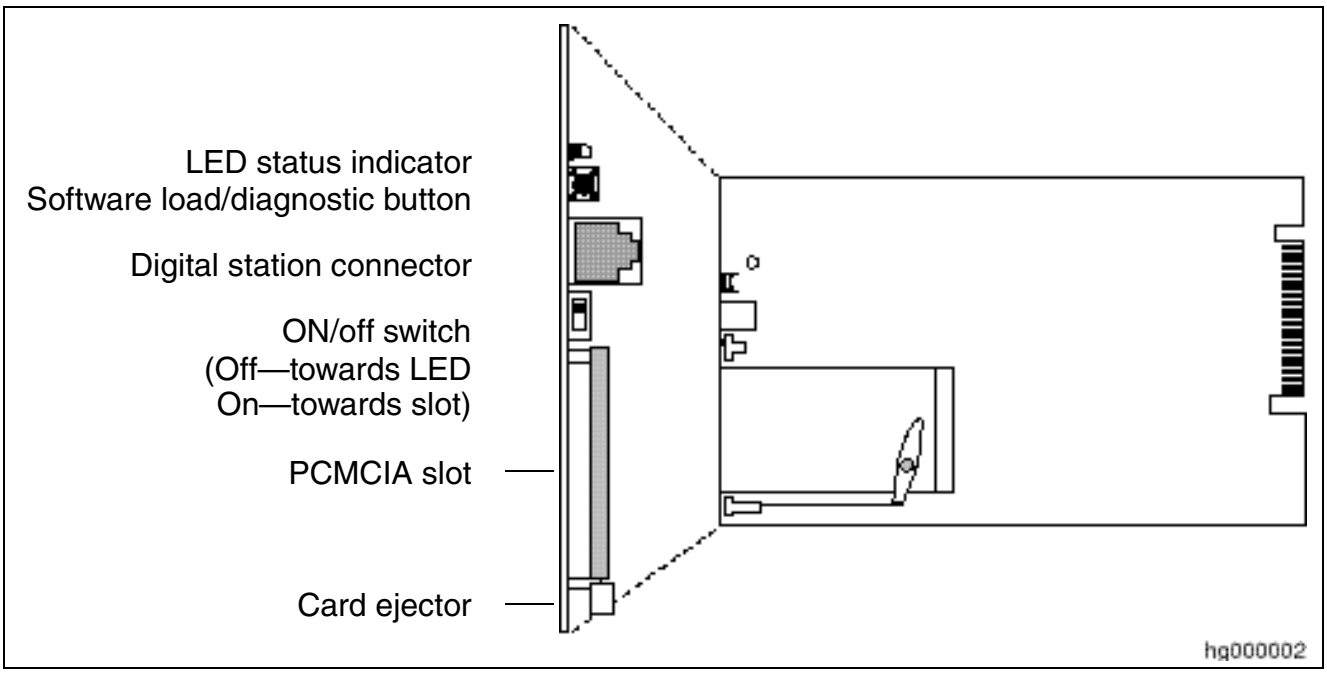


Figure 3-121 HOPE Board (S30122-Q7078-X; S30122-Q7079-X—in U.S.)

Board Components

The following list describes the purpose of the components on the HOPE board:

- The LED status indicator signals the state of the Hicom Office PhoneMail system
- The software load/diagnostic button is for software loads (for example, loading a language)
- The digital station connector connects the HOPE board to the corresponding digital ports, using a modular cable
- The on/off switch turns Office PhoneMail on and off

- The PCMCIA slot is for Office PhoneMail software cards (for example, language cards)
- The card ejector ejects the software cards from the PMCIA slot

Installation, Servicing, and Connectivity (for U.S. Only)

For information on installing, connecting, and servicing the HOPE board, refer to the manual Installation and System Administration Guide, Hicom Office PhoneMail Entry part number G281-0561-00. This book is shipped with every Hicom Office PhoneMail Entry unit.

3.4.9 OPAL and OPALR

Introduction

The adapter cable for connecting the central board to the first optional board comes in two versions:

- OPAL (**op**tion **a**dapter cable **l**ong) C39195-A7001-B130 (Figure 3-122) - for use in HiPath 3550 and HiPath 3350 (wall housing).
- OPALR (**op**tion **a**dapter cable **l**ong **r**ack) C39195-A7001-B142 (Figure 3-123) - for use in HiPath 3500 and HiPath 3300 (19-inch housing).

OPAL Interfaces

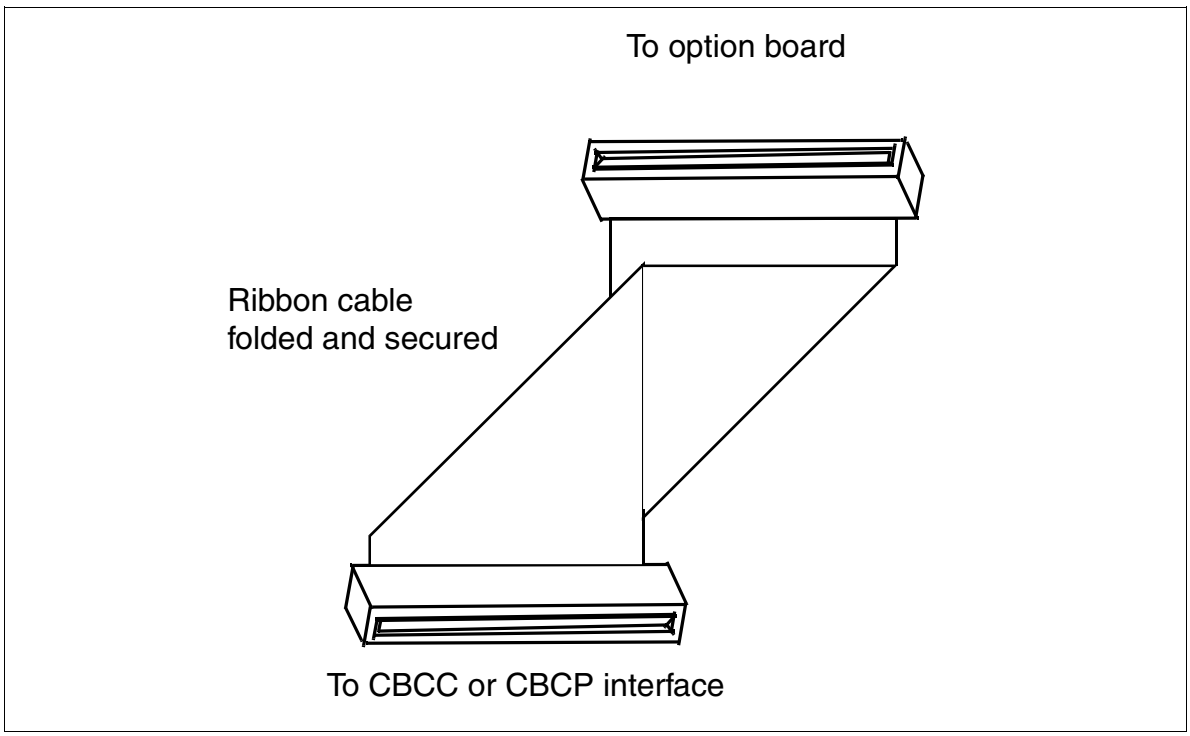


Figure 3-122 OPAL (C39195-A7001-B130)

OPALR Interface

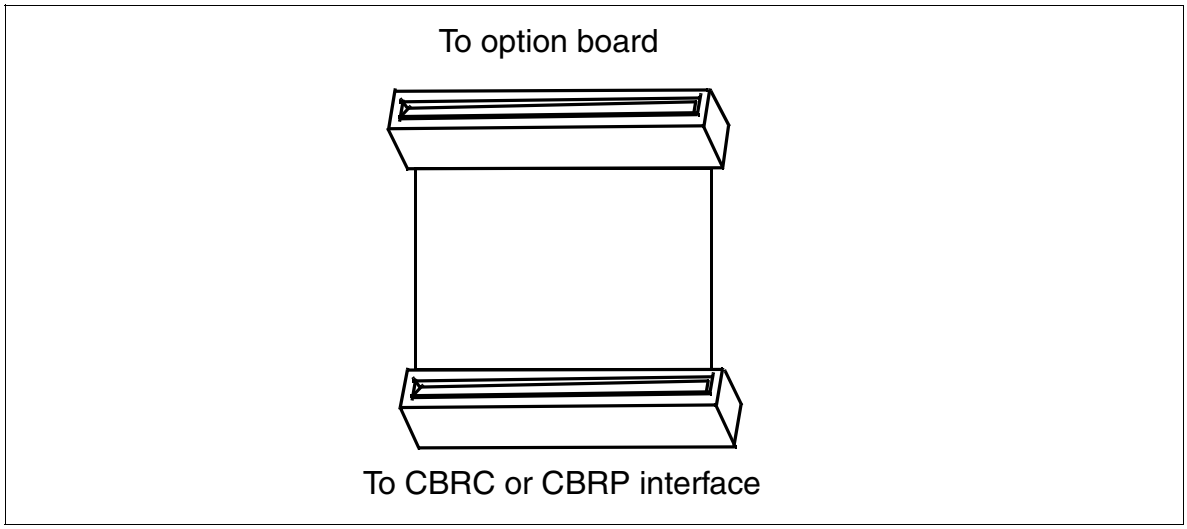


Figure 3-123 OPALR (C39195-A7001-B142)

3.4.10 PFT1 and PFT4 (Not for U.S.)

Introduction

In the event of a power failure or system error in HiPath 3750, up to

- 1 analog trunk with a PFT1 (trunk failure transfer) board
- 4 analog trunks with a PFT4 board

can be transferred (ALUM) to designated analog telephones (Figure 3-124). When using an analog telephone for outgoing calls, you may need to adapt its signaling method to match the signaling method of the connected trunk..

Trunk Failure Transfer Using PFT1 or PFT4

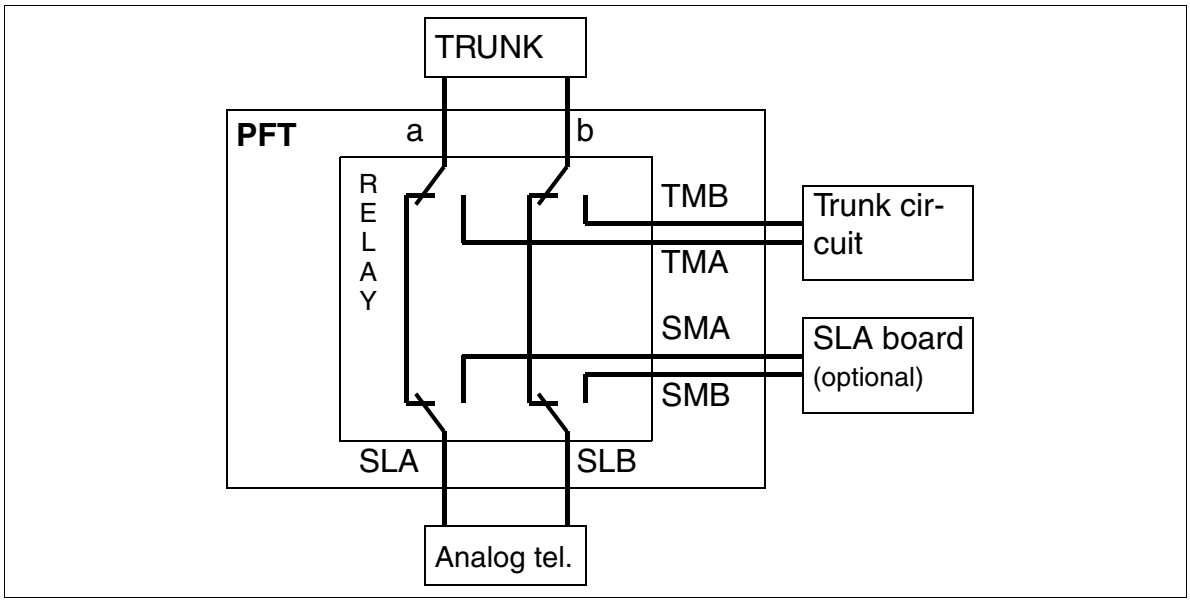


Figure 3-124 Trunk Failure Transfer Using PFT1/PFT4 (Not for U.S.)

Installation Location of the PFT1 or PFT4 Board (MDFU or MDFU-E)

Wire PFT1 or PFT4 into the MDFU or MDFU-E. The boards require -48 V. For the assignments of both boards, see Figure 3-126.

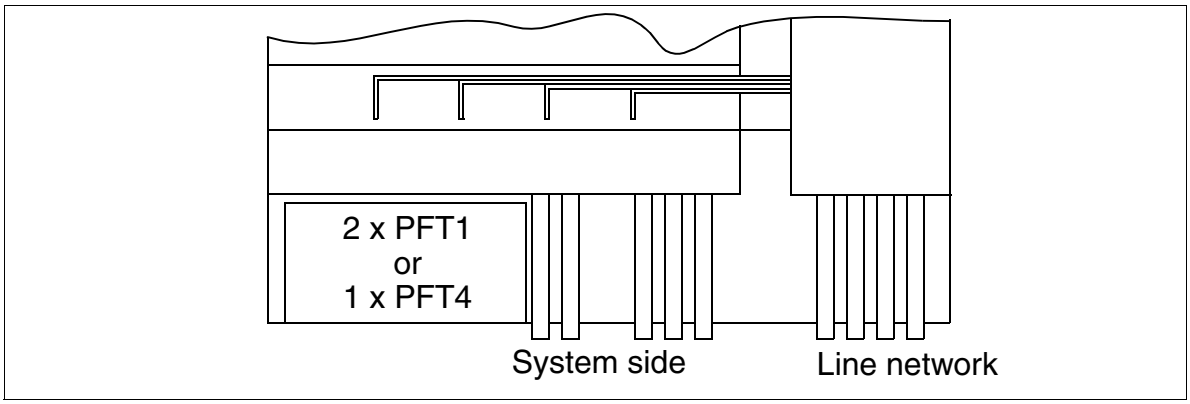


Figure 3-125 Installation Location of PFT1 and PFT4 (MDFU or MDFU-E) (Not for U.S.)

PFT1 and PFT4 Board Assignment

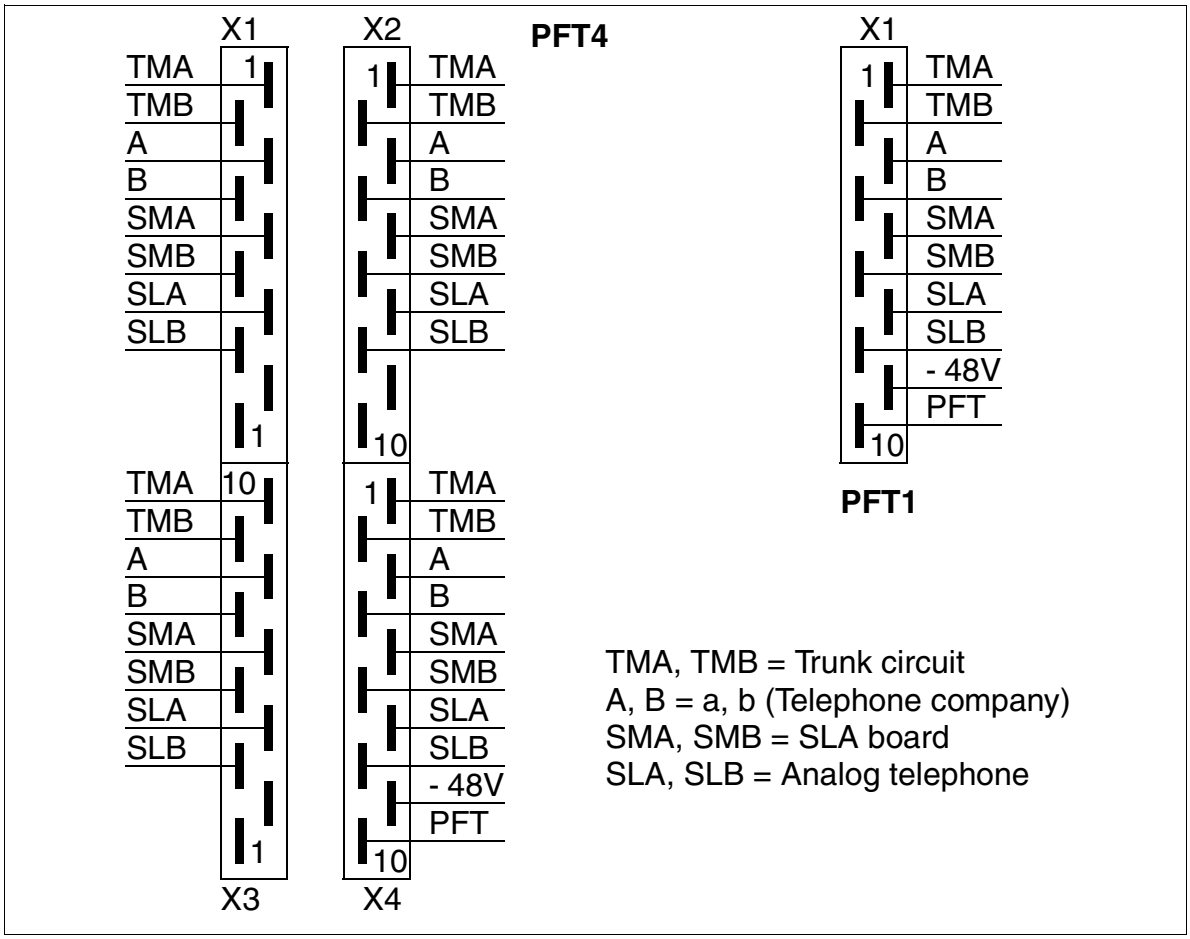


Figure 3-126 PFT1 (S30777-Q539-X) and PFT4 (S30777-Q540-X) Board Assignment (Not for U.S.)

3.4.11 REAL

Functions

The tasks of the REAL (S30807-Q5913-X) board in HiPath 3750 and HiPath 3700 are divided into two functional areas (see Figure 3-130):

- **Relay**

  Four individual, controllable relays (K1 to K4) are available for special connections. The relays are energized by the CBCPR board via the REAL socket X05 connecting cable. The switch contacts for all relays are floating and protected by surge protectors.

  In addition, a -48 V line protected by positive-temperature-coefficient resistors is routed to the main distribution frame and can be used there for external applications (80 mA maximum).

- **Trunk failure transfer**

  This function is provided by two relays (K5, K6) with two switch contacts each. In the event of a power failure or a system restart or reload, an analog trunk is transferred from the system to an analog telephone. The system monitors the line's loop current to avoid disconnecting any trunk calls in progress when the power is restored.

  In normal mode, the relays are activated:

  – The trunk is connected to the line trunk module.

  – The subscriber line is connected to the SLA16 subscriber line module.

  In the event of a power failure or during a restart or reload (low potential of trunk failure transfer signal from CBCPR), the relays are deactivated:

  – As a result, the signals to the line trunk module and subscriber line module are split and the trunk is connected directly to the subscriber line. (This is the way you must wire the connections as well).

  If the power supply voltage returns after an interruption and a trunk call is in progress, activation of the trunk failure transfer relay is prevented (by optocoupler).

Relay Specifications

The electrical characteristics of the relays are as follows:

- Operating voltage: 12 Vdc
- Trunk failure transfer power consumption: 40 mA at 12 V nominal voltage
- Power consumption per relay: 20 mA at 12 V nominal voltage
- Trunk failure transfer contact load: 60 mA at -60 V nominal voltage
- Maximum trunk failure transfer contact load with atmospheric influence: 8 A
- Contact load for relays K1 to K4: 1 A at 250 V AC
- Maximum current drain at -48 VF: 80 mA

Installation of the REAL Board (Backplane)

The REAL board is connected to the backplane (basic cabinet only) via a ribbon cable (X05) and to the main distribution frame or the patch panel.

Outside the U.S.: via an SU cable connector (X06, Figure 3-127).

In the U.S.: via a 25-pair cable connector (X8 REAL MDF, Figure 3-128)

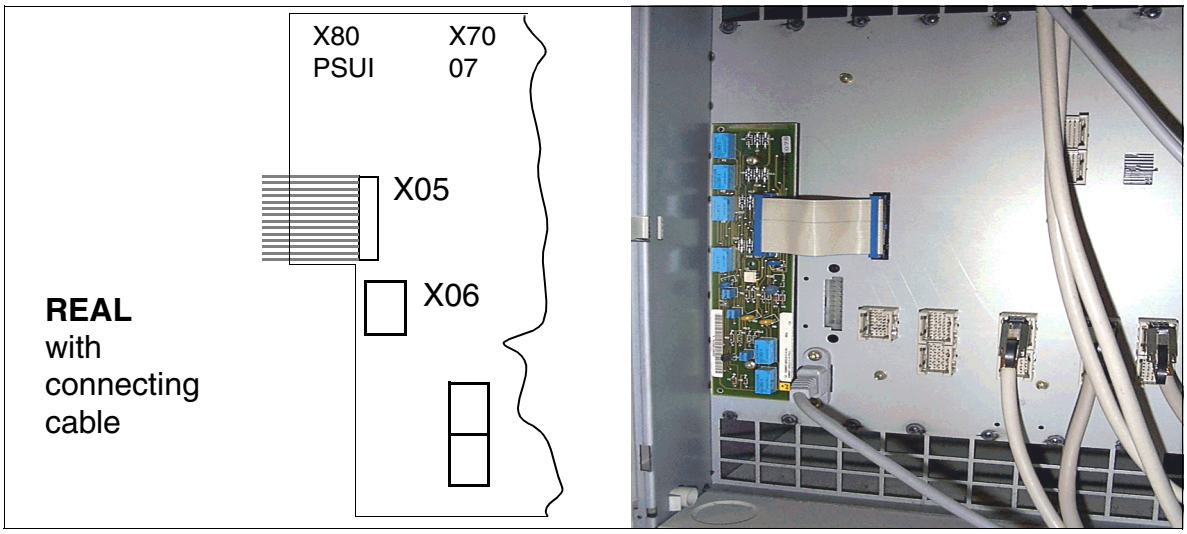


Figure 3-127 Installation Location of the REAL Board (Not for U.S.)

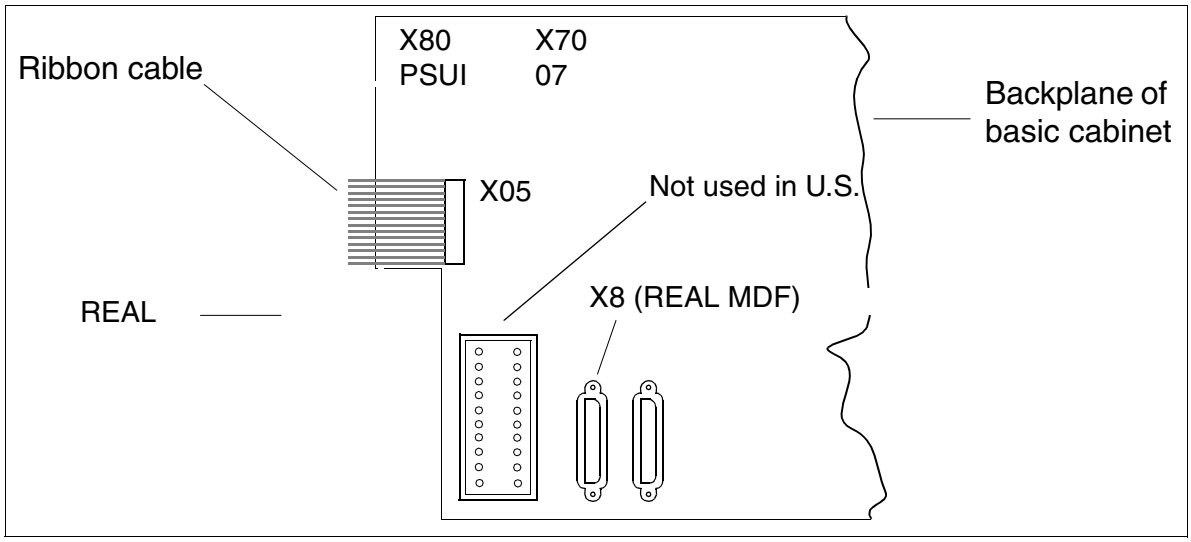


Figure 3-128 Installation Location of the REAL Board (for U.S. Only)

Relay Contacts of the REAL Board (Not for U.S.)

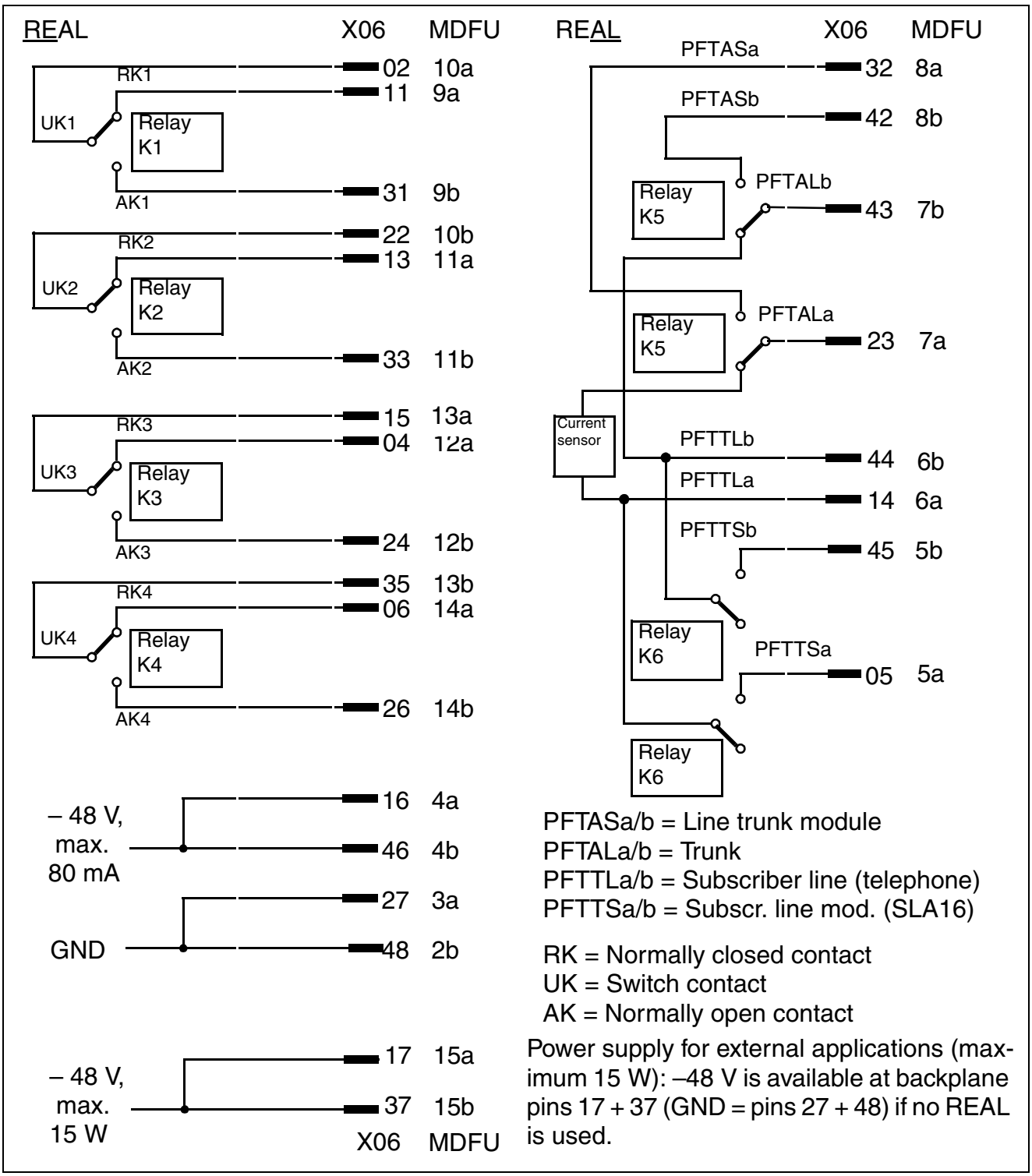


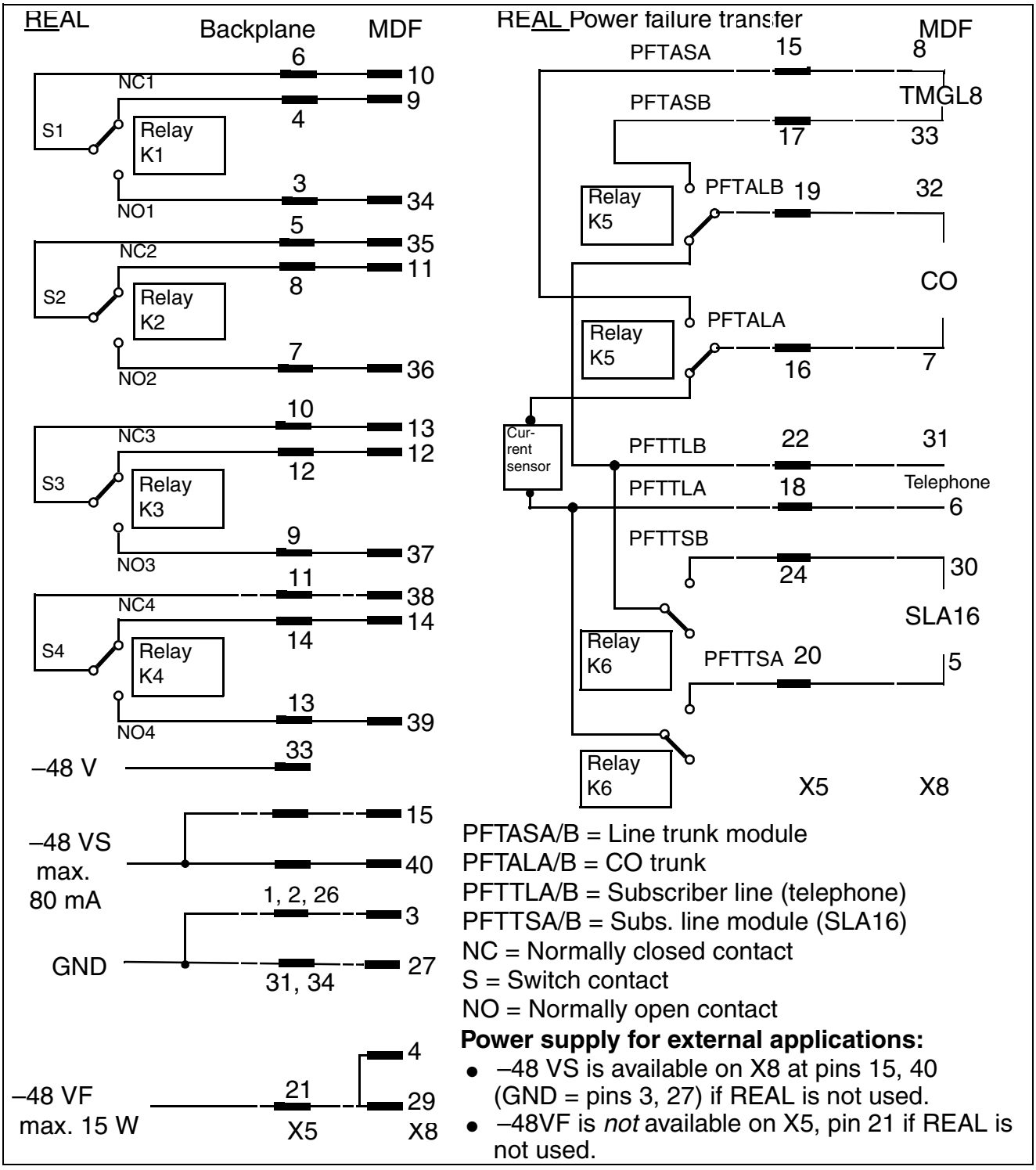
Figure 3-129 Relay Contacts (De-Energized) and MDFU Interfaces (Not for U.S.)

Cable and Connector Assignment (Backplane, MDFU/MDFU-E, Patch Panel) (Not for U.S.)

Table 3-121 REAL - Cable and Connector Assignment (Not for U.S.)

Color Group	Pair	a-Wire	b-Wire	SU Connector	REAL	MDFU/ MDFU-E	S_0 Patch Panel	
				BP: Xx8			MW8	
1	1	wht/blu		19		1a		
			blu/wht	39		1b		
	2	wht/ora		38		2a		
			ora/wht	48	GND	2b		
	3	wht/grn		27	GND	3a		
			grn/wht	47		3b		
	4	wht/brn		16	– 48 V	4a		
			brn/wht	46	– 48 V	4b		
	5	wht/gry		05	PFTTSa	5a	4	Subs. line module (SLA)
			gry/wht	45	PFTTSb	5b	5	
2	6	red/blu		14	PFTTLa	6a	4	Subsc. line (telephone)
			blu/red	44	PFTTLb	6b	5	
	7	red/ora		23	PFTALa	7a	4	Trunk
			ora/red	43	PFTALb	7b	5	
	8	red/grn		32	PFTASa	8a	4	Trunk module
			grn/red	42	PFTASb	8b	5	
	9	red/brn		11	NC1	9a	3	
			brn/red	31	NO1	9b	2	
	10	red/gry		02	S1	10a	1	
			gry/red	22	NC2	10b	3	
3	11	blk/blu		13	NO2	11a	2	
			blu/blk	33	S2	11b	1	
	12	blk/ora		04	NC3	12a	3	
			ora/blk	24	NO3	12b	2	
	13	blk/grn		15	S3	13a	1	
			grn/blk	35	NC4	13b	3	
	14	blk/brn		06	NO4	14a	2	
			brn/blk	26	S4	14b	1	
	15	blk/gry		17		15a		
			gry/blk	37		15b		
4	16	yel/blu		08		16a		
			blu/yel	28		16b		
Color Group	**Pair**	**a-Wire**	**b-Wire**	**SU Connector**	**REAL**	**MDFU/ MDFU-E**	**S_0 Patch Panel**	
				BP: Xx8			**MW8**	

REAL Module Relay Contacts (Backplane and MDF) (for U.S. Only)



PFTASA/B = Line trunk module
PFTALA/B = CO trunk
PFTTLA/B = Subscriber line (telephone)
PFTTSA/B = Subs. line module (SLA16)
NC = Normally closed contact
S = Switch contact
NO = Normally open contact

Power supply for external applications:

- –48 VS is available on X8 at pins 15, 40 (GND = pins 3, 27) if REAL is not used.
- –48VF is *not* available on X5, pin 21 if REAL is not used.

Figure 3-130 Relay Contacts (De-Energized: Power-Failure Mode) (for U.S. Only)

3.4.12 STBG4 (For France Only)

Introduction

This current limiting board is for connecting loop start trunks in France (HiPath 3550 and HiPath 3350). It includes the current limiting components and surge protection elements required by law.

No options bus lines are needed.

The slot X3 wiring is polarized.

The STBG4 channel is looped between TLA and the trunk.

Interfaces

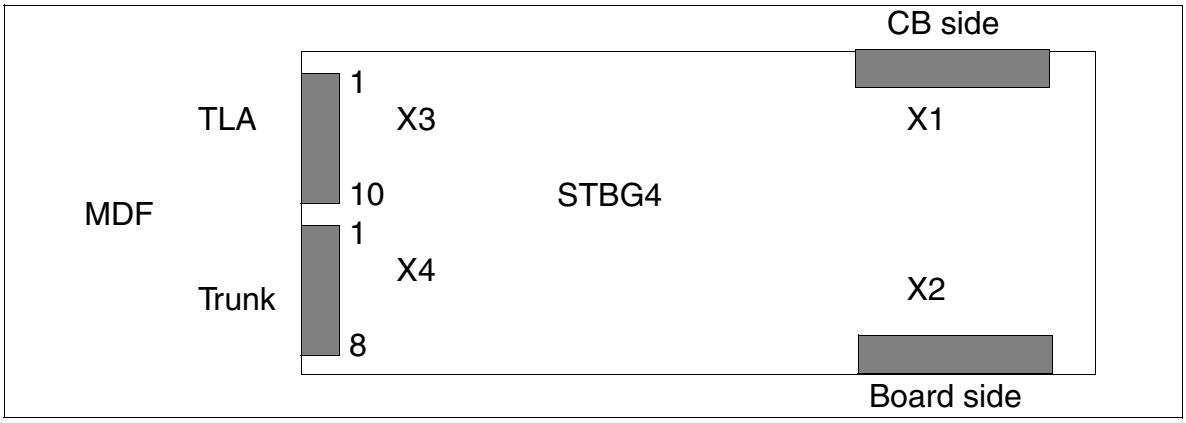


Figure 3-131 STBG4 interfaces (S30817-Q934-A)

Table 3-122 STBG4 Contact Assignments

Contact	Connector X3	Connector X4
1	Not assigned	AL 1
2	BL 1	BL 1
3	AN 1	AL 2
4	BL 2	BL 2
5	AN 2	AL 3
6	BL 3	BL 3
7	AN 3	AL 4
8	BL 4	BL 4
9	AN 4	–
10	Not assigned	–

3.4.13 STRB and STRBR

Introduction

This option comes in two versions:

- STRB (control relay board) S30817-Q932-A (Figure 3-132) - for the use in HiPath 3550 and HiPath 3350 (wall housing)
- STRBR (control relay board rack) S30817-Q932-Z (Figure 3-133) - for the use in HiPath 3500 and HiPath 3300 (19-inch housing)

Actuators are relays that can be energized from any station by means of a code (such as a door opener). Sensors (such as thermostats or motion detectors) can detect a change of status in the connected equipment and activate a feature or dial a station number stored in the system. The STRB or STRBR has four double-pole, double-throw relays as shown in Figure 3-134 on page 3-263.

The board has a total of 4 outputs (in the form of 2 floating switch contacts each) for externally activating an electrically isolated normally open (NO) contact. It also has 4 control inputs in the form of optocouplers. A diode is required to isolate the contact from the external power supply.

Caution
CDBase data is stored on the board. When replacing the board, be sure to store the CDBase data elsewhere. If a used board is used, old data may still be present on the board.
Only factory technicians should use the Reset options procedure (code 29-3-3 in expert mode). Using the procedure during operation returns all options to their factory defaults, and they must be reset before they can accept data again from the central board.

Application

You can route the +12 V signal for power failure alert to the control input of the optocoupler for connector X4 or X6. Route the signal through a normally open (NO) contact that is electrically isolated from the external device, then program the alert type.

For safety, the control voltage for the optocoupler is electrically isolated from the system's other partial voltages.

For the manual relay on/off function and door opener, you must enter the desired switching time (expert mode code 26 2).

STRB Interfaces

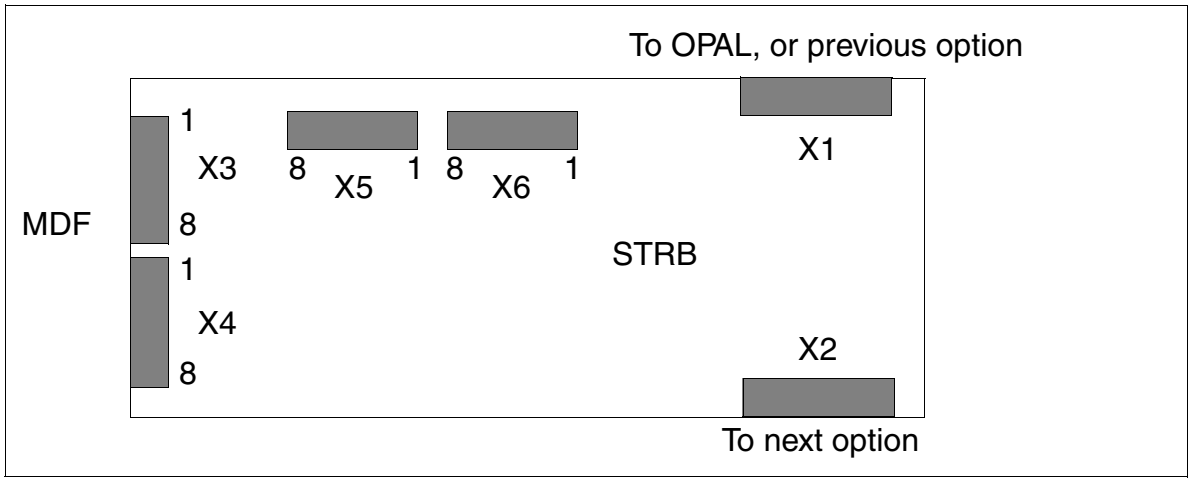


Figure 3-132 STRB Interfaces (S30817-Q932-M)

STRBR Interfaces

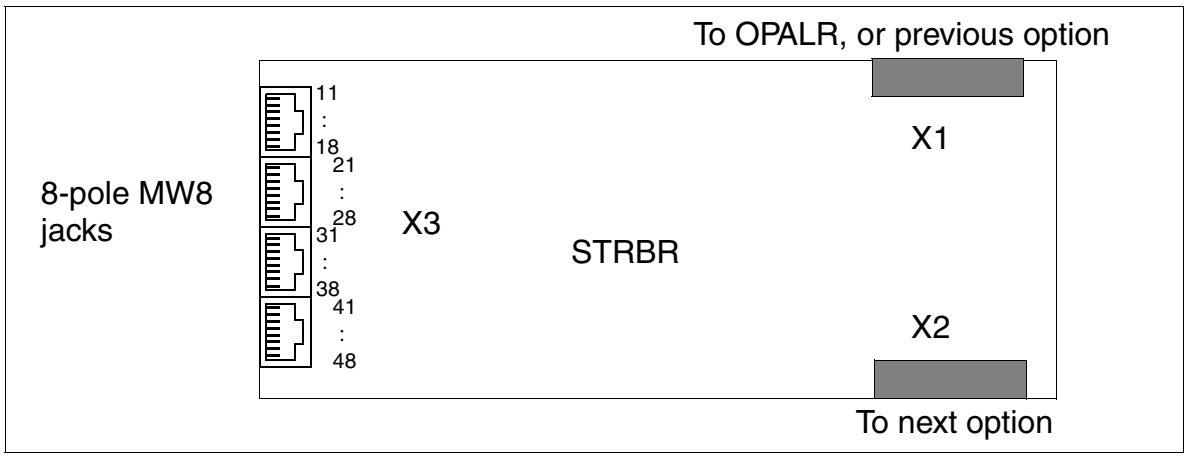


Figure 3-133 STRBR Interfaces (S30817-Q932-Z)

Control Relay Connection Values

Attention
The STRB or STRBR interface is a SELV (**S**afety **E**xtra-**L**ow **V**oltage Circuit) interface, as defined by IEC 60950.
Do not connect any circuits whose voltages exceed the following limit values:
Maximum of 30 VAC (42 V_{peak}) or 60 VDC.

STRB and STRBR Board Relay and Sensor Functions

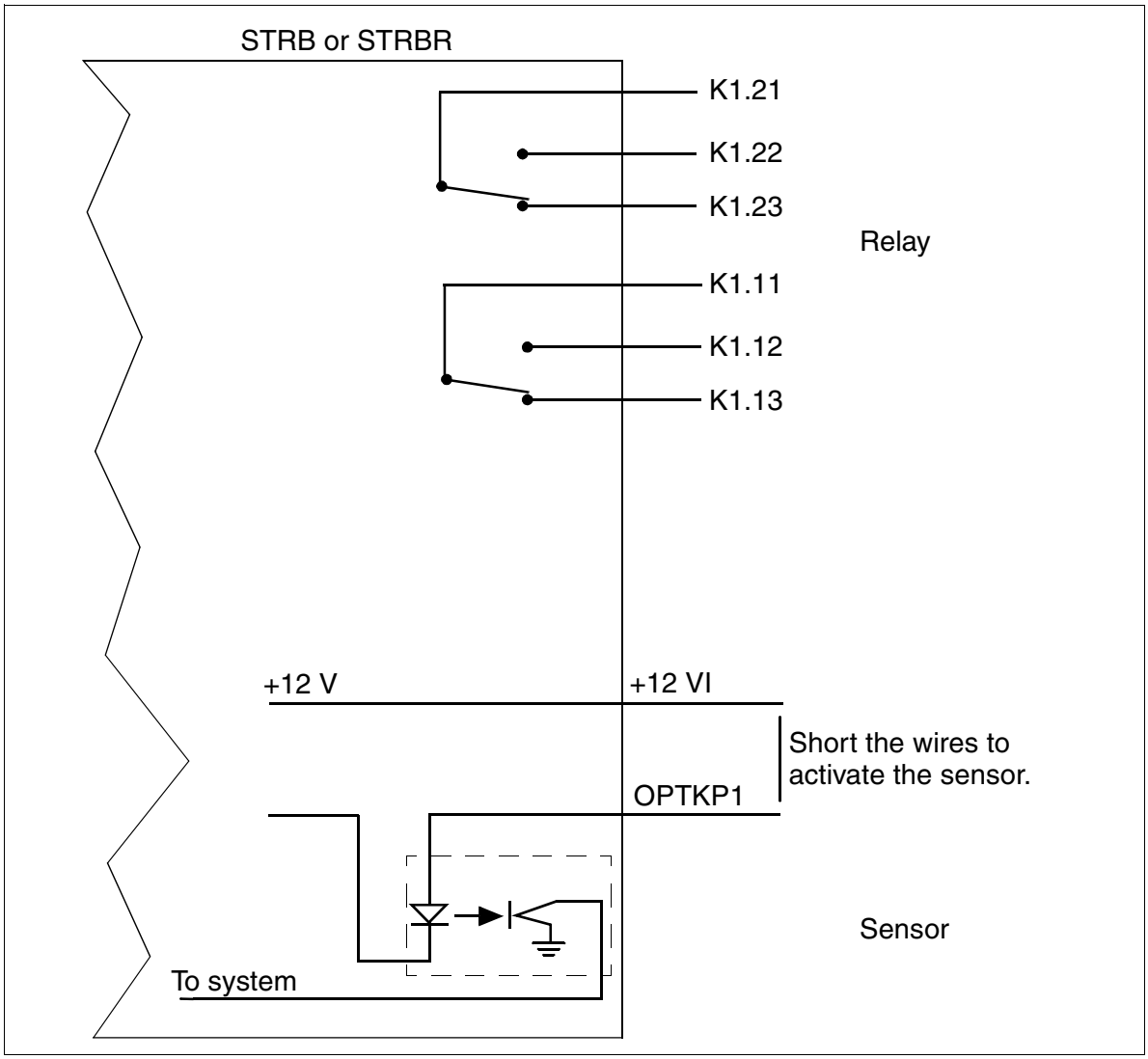


Figure 3-134 STRB and STRBR Board Relay and Sensor Functions

STRB Contact Assignment

Table 3-123 STRB Contact Assignment

Connector	Pin	Signal Name	Function
X3	1	K 4.21	Relay contact (common)
	2	K 4.22	Relay contact (NO)
	3	K 4.23	Relay contact (NC)
	4	K 3.21	Relay contact (common)
	5	K 3.22	Relay contact (NO)
	6	K 3.23	Relay contact (NC)
	7	K 2.21	Relay contact (common)
	8	K 2.22	Relay contact (NO)
X4	1	K 2.23	Relay contact (NC)
	2	K 1.21	Relay contact (common)
	3	K 1.22	Relay contact (NO)
	4	K 1.23	Relay contact (NC)
	5	+12VI	+12 V control voltage optocoupler
	6	OPTKP 2	Control input optocoupler 2
	7	+12VI	+12 V control voltage optocoupler
	8	OPTKP 1	Control input optocoupler 1
X5	1	K 3.12	Relay contact (NO)
	2	K 3.13	Relay contact (NC)
	3	K 2.11	Relay contact (common)
	4	K 2.12	Relay contact (NO)
	5	K 2.13	Relay contact (NC)
	6	K 1.11	Relay contact (common)
	7	K 1.12	Relay contact (NO)
	8	K 1.13	Relay contact (NC)
X6	1	OPTKP 3	Control input optocoupler 3
	2	+12VI	+12V control voltage optocoupler
	3	OPTKP 4	Control input optocoupler 4
	4	+12VI	+12V control voltage optocoupler
	5	K 4.11	Relay contact (common)
	6	K 4.12	Relay contact (NO)
	7	K 4.13	Relay contact (NC)
	8	K 3.11	Relay contact (common)
Note for U.S. only: Pinouts shown are at the board itself. The supplied main distribution frame cable (MDF cable) reverses the signals from pins: – 1 and 2 – 3 and 4 – 5 and 6 – 7 and 8			

STRBR Contact Assignment

Table 3-124 STRBR Contact Assignment

X3, Pin	Signal Name	Function
11	ACT4-2M	Relay contact K203 (common) 2
12	ACT4-2B	Relay contact K203 (NO) 2
13	ACT4-2A	Relay contact K203 (NC) 2
14	ACT4-1M	Relay contact K203 (common) 1
15	ACT4-1B	Relay contact K203 (NO) 1
16	ACT4-1A	Relay contact K203 (NC) 1
17	P12VI	+12 V optocoupler 4
18	SENSE4	Control input optocoupler 4
21	ACT3-2M	Relay contact K202 (common) 2
22	ACT3-2B	Relay contact K202 (NO) 2
23	ACT3-2A	Relay contact K202 (NC) 2
24	ACT3-1M	Relay contact K202 (common) 1
25	ACT3-1B	Relay contact K202 (NO) 1
26	ACT3-1A	Relay contact K202 (NC) 1
27	P12VI	+ 12 V optocoupler 3
28	SENSE3	Control input optocoupler 3
31	ACT2-2M	Relay contact K201 (common) 2
32	ACT2-2B	Relay contact K201 (NO) 2
33	ACT2-2A	Relay contact K201 (NC) 2
34	ACT2-1M	Relay contact K201 (common) 1
35	ACT2-1B	Relay contact K201 (NO) 1
36	ACT2-1A	Relay contact K201 (NC) 1
37	P12VI	+ 12 V optocoupler 2
38	SENSE2	Control input optocoupler 2
41	ACT1-2M	Relay contact K200 (common) 2
42	ACT1-2B	Relay contact K200 (NO) 2
43	ACT1-2A	Relay contact K200 (NC) 2
44	ACT1-1M	Relay contact K200 (common) 1
45	ACT1-1B	Relay contact K200 (NO) 1
46	ACT1-1A	Relay contact K200 (NC) 1
47	P12VI	+ 12 V optocoupler 1
48	SENSE1	Control input optocoupler 1

3.4.14 V24/1(Not for U.S.)

Introduction

The V24/1 module can be installed in HiPath 3550 and HiPath 3350 and provides a serial V.24 interface for connecting a PC, printer or Plus Products (such as Uniform Call Distribution).

Interfaces

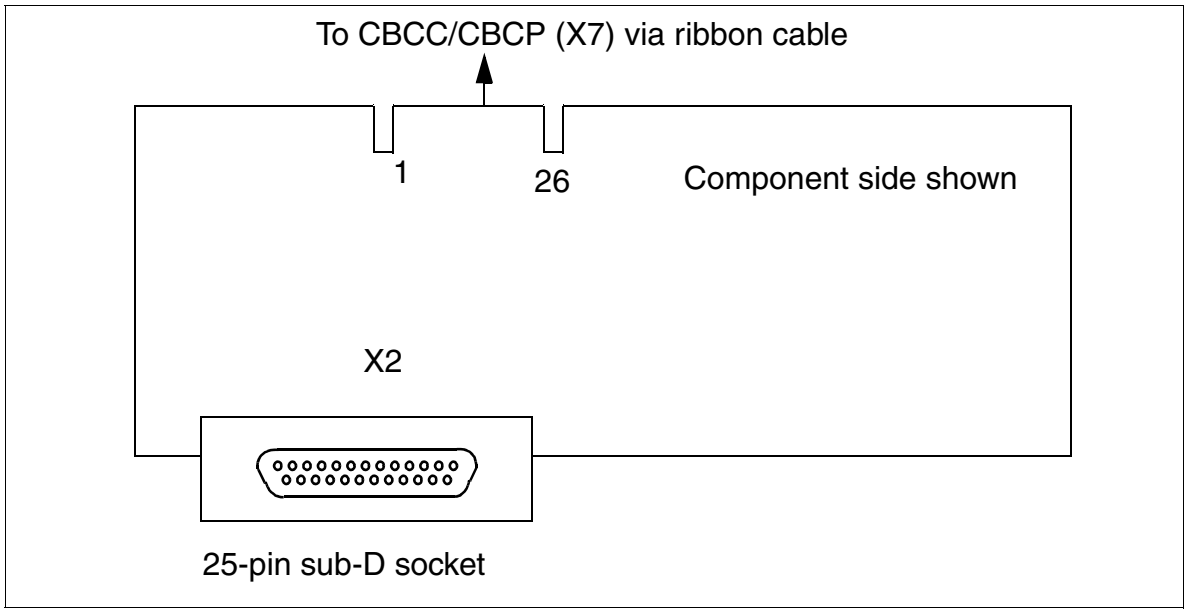


Figure 3-135 V24 Interface (S30807-Q6916-X100)

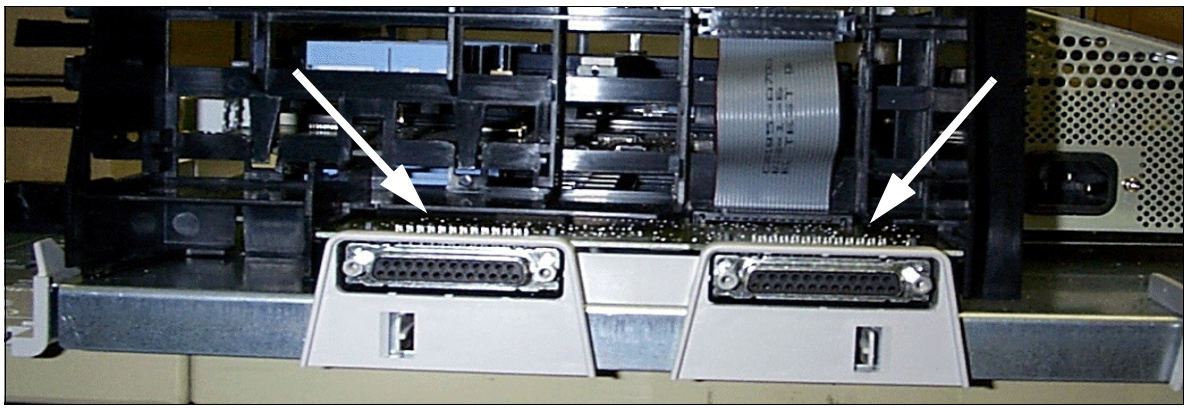


Figure 3-136 HiPath 3550 and HiPath 3350 - V.24 connection

Connector Assignment

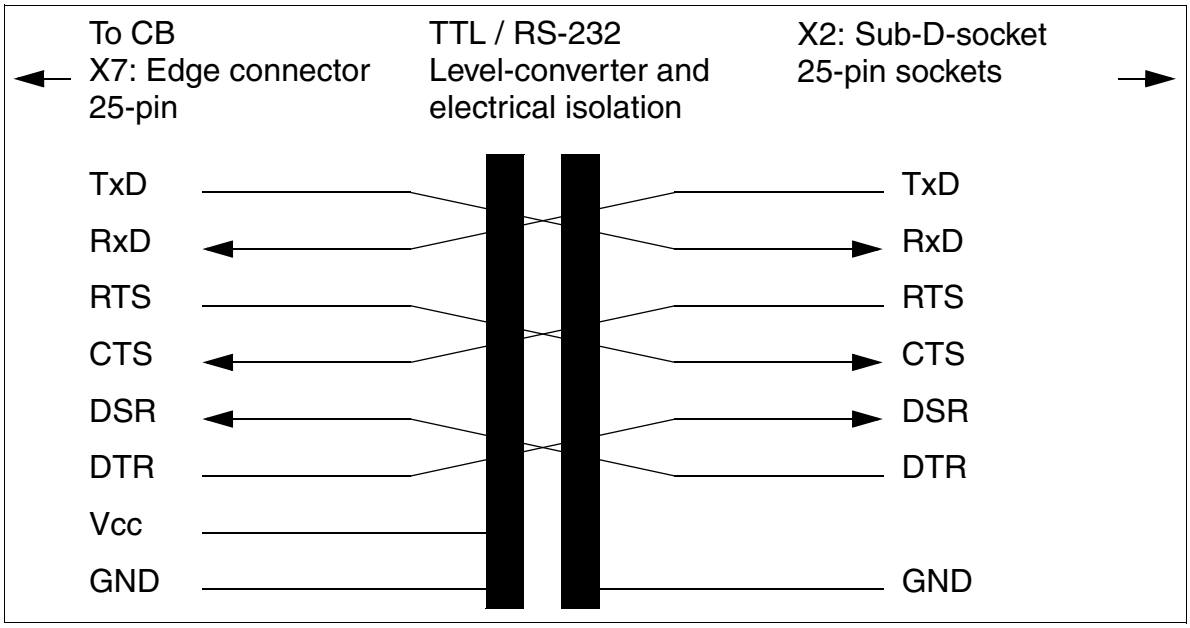


Figure 3-137 V.24 (RS-232) Contact Assignments, HiPath 3550 and HiPath 3350

Table 3-125 Pin Assignments of the V.24 Sockets

Connector X2	Signal	I/O
2	TxD_B	O
3	RxD_B	I
4	RTS_B	O
5	CTS_B	I
6	DSR_B	I
20	DTR_B	O
7	0V	-
No other pins in connector X2 are used.		

3.4.15 V.24 Adapter

The V.24 adapter is required as an adapter between the 25-pin connector on the cable (C39195-Z7267-C13) and a 9-pole jack for connection to the V.24 interface on all HiPath 3000 V1.2 (or later) systems.

V.24 Adapter Assignment

Table 3-126 V.24 Adapter Assignment (C39334-Z7080-C2)

9-Pole Jack	Signal	25-Pin Connector
Pin		Pin
1	DCD	8
2	RxD	3
3	TxD	2
4	DTR	20
5	GND	7
6	DSR	6
7	RTS	4
8	CTS	5
9	RI	22

3.4.16 V.24 Cable

The V.24 cable is used for connecting a service PC to the V.24 interface on all HiPath 3000 V1.2 systems (or later).

V.24 Cable Assignment

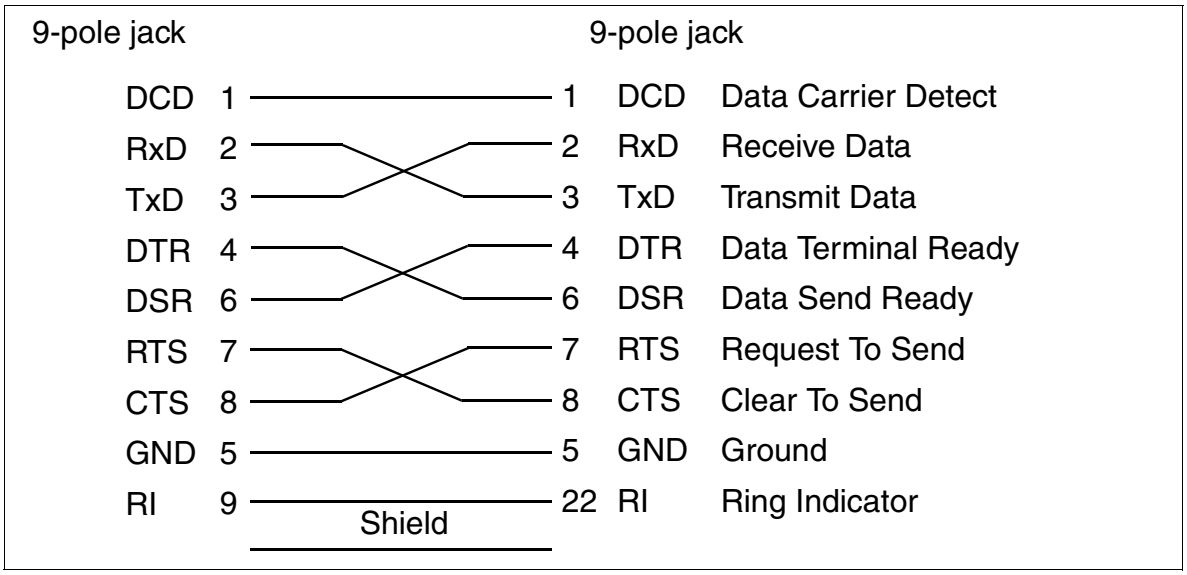


Figure 3-138 V.24 Cable Assignment (C30267-Z355-A25)

4 Installation

Chapter Contents

This chapter discusses the topics listed in the table.

4.1 HiPath 3750 and HiPath 3700 Installation

4.1.1 Installation Prerequisites

Danger
The system may be installed by authorized service personnel only.

Tools and help needed

The following are needed for installing the HiPath 3750 and HiPath 3700 system:

- **Tools**:
  - Hex or open-end wrench, 8 mm
  - Diagonal cutting pliers, telephone pliers, wire stripper, flat-nosed pliers
  - Slotted screwdrivers, from 2 to 8 mm
  - Phillips or cross-point screwdrivers, sizes 1 and 2
  - TORX screwdriver
  - Wire stripper (for example from Krone)
  - Electric drill, hammer
  - Level, tape measure
- **Help**:
  - Assistant T or HiPath 3000 Manager E
  - Digital-multimeter for testing ground connections and partial voltages
  - Telephone test set for analog interfaces
  - Not for U.S.: ISDN tester (such as K3000 or Aurora)
  - For U.S. only: Aurora^{Duet}, or similar, ISDN protocol analyzer (for PRI)
  - For U.S. only: Punch-down tool suitable for the block used (such as 66 block)

4.1.2 Installation Procedure

Table 4-1 HiPath 3750 and HiPath 3700 - System Installation Procedure

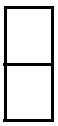
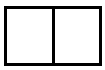
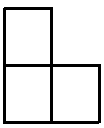
Step	Installation Activity	
	HiPath 3750 Installation	**HiPath 3700 Installation (19-Inch Cabinet)**
1.	Selecting the Installation Site (usually predetermined) page 4-6	Selecting the Installation Site (predetermined by the 19-inch cabinet) page 4-47
2.	Unpacking the Components page 4-8	Unpacking the Components page 4-47
3.	Mounting the Main Distribution Frame (MDFU or MDFU-E) (Not for U.S.) page 4-9	Mounting the System Cabinet in the 19-Inch Cabinet page 4-48
4.	Setting up the System Cabinets (page 4-10): Removing the Cabinet Covers Single cabinet  Two cabinets (stacked)  Two cabinets (side-by-side)  Three cabinets (only as shown)  Mount the stabilizer feet (for stacked system cabinets)	Mounting the Patch Panel in the 19-Inch Cabinet page 4-52
5.	Grounding the System Checking the Protective Grounding page 4-26	Grounding the System Checking the Protective Grounding page 4-53
6.	Connecting the Cables to the Backplane page 4-32	Connecting the Cable to the Backplane page 4-56
7.	Laying the Line Network and Setting Jumpers on the MDFU or MDFU-E page 4-41	Connecting the Line Network to the Patch Panel page 4-69

Table 4-1 HiPath 3750 and HiPath 3700 - System Installation Procedure

Step	Installation Activity	
	HiPath 3750 Installation	**HiPath 3700 Installation (19-Inch Cabinet)**
8.	Loading the System Software and Inserting Subboards on the Central Control Board page 4-70	
9.	Configuration Notes (already completed) page 4-71	
10.	Connecting Workpoint Clients page 4-78	
11.	Performing a Visual Inspection page 4-78	

4.1.3 HiPath 3750 Installation

This section contains information on the installation of the HiPath 3750 communication system. This chapter describes the standard installation procedures for the basic system. Refer to Chapter 6 for information about supplementary equipment and expansions.

Information on

- the possible equipment of central boards with optional plug-in boards
- board configuration
- final visual inspection

applies to both HiPath 3750 and HiPath 3700 and is described starting in Section 4.1.5.

4.1.3.1 Selecting the Installation Site

Selecting a Site

The customer usually has a preferred installation site in mind.

Make sure that the customer's site meets the following guidelines:

- To guarantee sufficient system ventilation, allow a minimum of 10 cm clearance in front of and behind the housing.
- Do not expose the systems to direct sources of heat (such as sunlight and heaters).
- Do not expose the systems to extremely dusty environments.
- Avoid contact with chemicals.
- Take every precaution to prevent the formation of condensation on the system during operation. If condensation forms on a system, make sure the system has time to dry completely before starting it up.
- Observe the environmental conditions specified in Section 2.9.4.

For U.S. Only:

- Install secondary-protection equipment
- Avoid standard carpeting, as it tends to produce electrostatic charges
- Ensure the availability of a power source that meets the requirements described in Section 4.1.3.1 on page 4-7.
- Ensure that Siemens equipment is 40 in. (101.6 cm) from other electrical equipment. The National Electrical Code (NEC) requires 36 in. (91.44 cm) of clearance in front of electrical equipment and 40 in. (101.6 cm) of clearance from other electrical service equipment.
- The equipment room for the system should provide adequate space for installation and maintenance activities (such as removing and replacing boards). Leave at least 16 in. (42 cm) on all sides of the system, and 36 in. (91.44 cm) in front.

You will find information on the design and dimensions of HiPath 3750 in Section 2.3.1.

4.1.3.1.1 AC Power (for U.S. Only)

One ac power source is required for each cabinet. The ac power source must meet the requirements specified in Table 4-2.

Table 4-2 AC Power Requirements (for U.S. Only)

Normal Input	Voltage		Frequency	
	Minimum	Maximum	Minimum	Maximum
120 Vac/60 Hz	110 Vac	130 Vac	47 Hz	63 Hz

WARNING
Under no circumstances should any HiPath 3750 system or combination of HiPath 3750 systems be connected directly to a wall outlet; use a UL Listed or CSA Certified transient surge protector for every two cabinets.

AC Power Outlet Requirements (for U.S. Only)

- Must have a UL Listed or CSA Certified transient surge protector between the outlet and the system. Up to two cabinets can be connected to the surge protector. Under no circumstances should any HiPath 3750 system or combination of systems be connected directly to a wall outlet.
- Must not be located more than 8 feet (2.4 m) from the system
- Must provide fused 120 Vac (single-phase) power at 50 to 60 Hz capable of delivering 20 amperes
- Should have a warning attached to the circuit breaker that controls it to prevent accidental removal of power
- Should be on a dedicated circuit with an isolated ground

Do not connect the power until the system is properly grounded as described in Section 4.1.4.5 on page 4-53. Refer to Section 5.1.3 on page 5-3 for more information about connecting the power supply.

4.1.3.2 Unpacking the Components

Procedure

Step	Activity
1.	Compare the components with the packing slip or customer receipt to make sure that they are correct and complete.
2.	Determine whether any damage has occurred during transport and report it to the appropriate departments or the shipper.
3.	Dispose of the packing materials properly.

Caution
Use only equipment and materials that are in perfect working order. Do not start up equipment with visible damage.

4.1.3.3 Mounting the Main Distribution Frame (MDFU or MDFU-E) (Not for U.S.)

Introduction

The following are used as main distribution frames:

- MDFU-E, which is shipped with new systems (see Figure 4-24).
- MDFU (one MDFU unit per system cabinet), which was used for Hicom 150 E OfficePro in Release 2.0 and earlier (see Figure 4-23).

Installation Notes

The MDFU or MDFU-E should be installed in the direct vicinity of the system (note length of connecting cable) and at eye level. Mount it on the wall according to the instructions that came with it. The bag attached to the cover contains a drill template and screws and wall anchors for attaching the MDF to the wall.

Procedure for Mounting the MDF on the Wall

Step	Activity
1.	Use the template to drill holes.
2.	Insert the wall anchors and screw in the screws, leaving 5 mm projecting.
3.	Mount the MDFU or MDFU-E on the brackets and remove the packing protection covering.
4.	Remove the housing cover and tighten the screws through the holes.

4.1.3.4 Setting up the System Cabinets

Introduction

Outside U.S., the cabinets are already equipped with the boards needed for the customer's specific requirements. In the U.S., you may need to install the boards.

> **Danger**
> Be sure to ground the system properly before starting it up and connecting the stations.

4.1.3.4.1 Overview

System Configurations

> **WARNING**
> A fully equipped HiPath 3750 cabinet weighs 22 kg (48.46 lb.). We recommend lifting cabinets only before they are equipped. Do not attempt to lift objects that you think are too heavy for you; use a hand truck or get assistance.

The following setup options are possible for system cabinets:

4.1.3.4.2 Removing the Cabinet Covers

How the Covers Are Secured

The front cabinet cover (for board servicing) and the rear cabinet cover (for cable servicing) are each secured by two snap fasteners.

You can remove the upper and lower grills in both covers. This facilitates routing the cables to the MDF.

To replace a cover, position the snap fasteners in the two guides and press down on the cover until it snaps into place.

Procedure (Figure 4-1)

Step	Activity
1.	Insert a slotted screwdriver (with the blade vertical) into a recess (1).
2.	Carefully swing the handle of the screwdriver toward the center of the cabinet (2) until the fastener snaps out and the cover loosens.
3.	Then insert the screwdriver in the second recess (3), loosen its snap fastener. You can then remove the cover.

Mounting the Cover

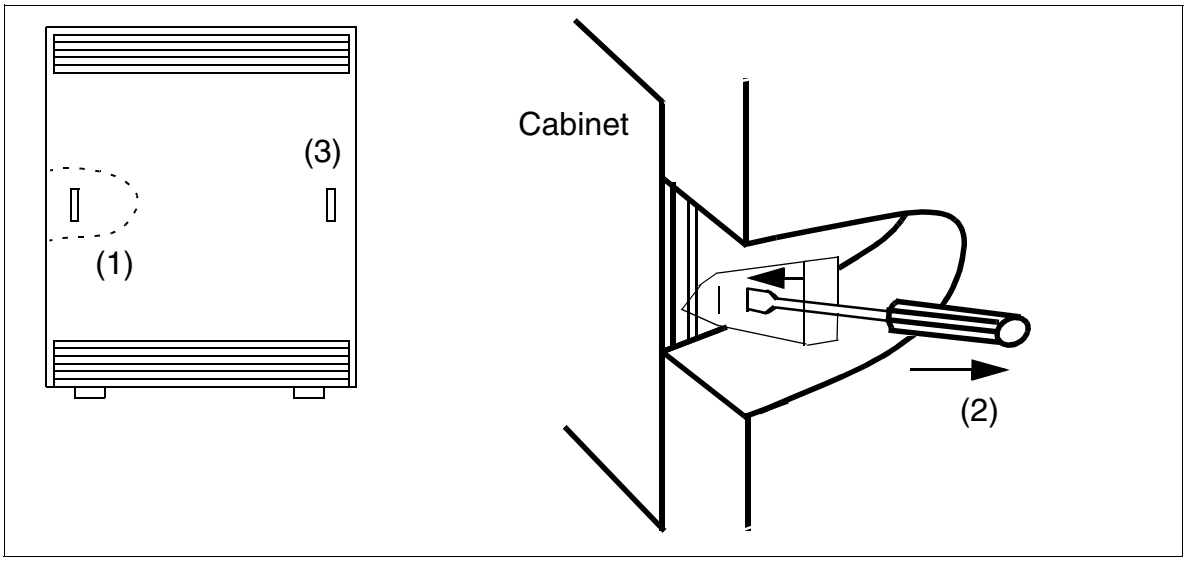


Figure 4-1 HiPath 3750 - Removing the Front and Rear Covers

4.1.3.4.3 Setting Up a One-Cabinet System

> **WARNING**
> An empty HiPath 3750 cabinet weighs 32 lb. (14.53 kg). Mount the cabinets before equipping them with boards and do not attempt to lift objects that you think are too heavy for you; get help.

Procedure

Step	Activity
1.	Remove the front and rear cabinet covers.
2.	Place the system cabinet in the installation site and make sure that it is level and stable. U.S. only: For wall mounting, refer to information below.

Mounting a One-Cabinet System on the Wall (for U.S. Only)

You can mount a one-cabinet system on the wall using the wall-mount kit.

Wall-Mount Kit

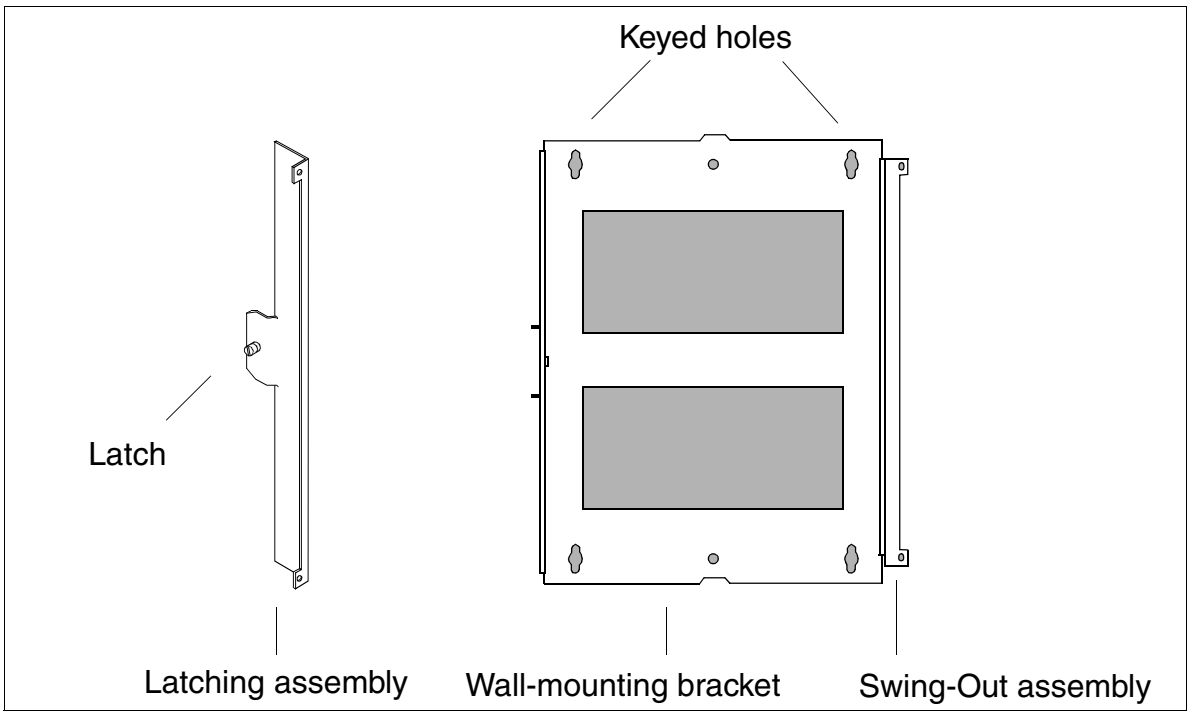


Figure 4-2 HiPath 3750 Wall-Mount Kit (for U.S. Only)

Procedure (Figure 4-3 on page 4-14**)**

WARNING
An empty HiPath 3750 cabinet weighs 32 lb. (14.53 kg). Mount the cabinets before equipping them with boards and do not attempt to lift objects that you think are too heavy for you; get help.

Step	Activity
1.	Install a plywood backboard at least 0.75 in. (19.05 mm) thick.
2.	Use the wall-mounting bracket as a template to drill three holes in the backboard. Use the keyed holes in the top of the bracket and the round hole in the bottom of the bracket.
3.	Install the screws in the top two holes, tightening them until 0.25 in. (6.35 mm) is protruding.
4.	Bolt the swing-out assembly on the wall-mounting bracket to the back of the cabinet.
5.	Close the swing-out assembly and hang the bracket and cabinet on the top screws.
6.	Swing the cabinet open and tighten the top screws completely.
7.	Insert and fully tighten the bottom screw in the round hole.
8.	Bolt the latching assembly to the opposite edge of the cabinet.

You can invert the bracket to have the cabinet swing out in the opposite direction.

WARNING
Do not fasten power cords to building surfaces when mounting cabinets on the wall.

Wall Mounting (One-Cabinet System)

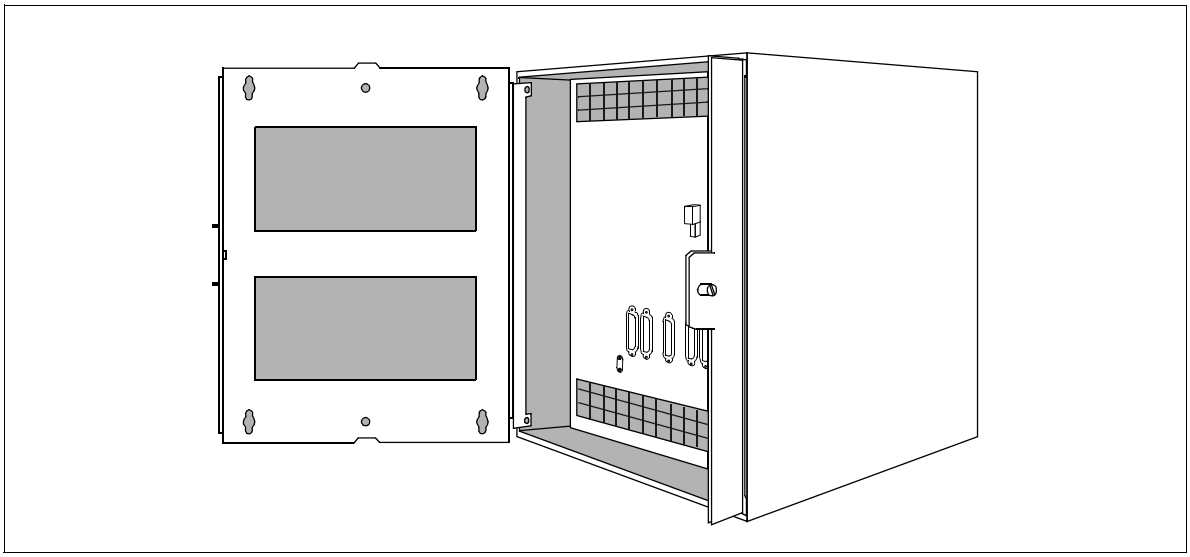


Figure 4-3 Wall Mounting for a One-Cabinet System (for U.S. Only)

4.1.3.4.4 Setting Up a Stacked Two-Cabinet System

Procedure

Step	Activity
1.	Remove the front and rear cabinet covers.
2.	Mount the stabilizer feet (not for U.S.) on the basic cabinet (BC). Place the basic cabinet in the installation site and make sure that it is level and stable.
3.	Place the expansion cabinet (EC1) on the basic cabinet. Make sure that the EC1 feet slide into the depressions in the top of the BC.
4.	If mounting the system on the floor or on a table, attach the two cabinets using the four connecting plates each held by two screws with washers (Figure 4-4 on page 4-16). Be sure to fasten all four of the adjoining corners. Make sure that the connecting plates are mounted in the correct direction (inside the cabinets and pointing inward).
5.	For U.S. only: If mounting the system on the wall, refer to page 4-17.

For U.S. Only

DANGER
The connecting plates must be installed to ensure proper grounding for systems mounted on a floor or other horizontal surface.

You can install seismic anchors for greater stability, as is required in some installations. Refer to Section 4.1.3.4 on page 4-24 for more information and take note that the bolts and inserts included in the seismic anchor kit are suitable for concrete floors; bolts for other surfaces must be supplied separately.

Installing a Stacked Two-Cabinet System

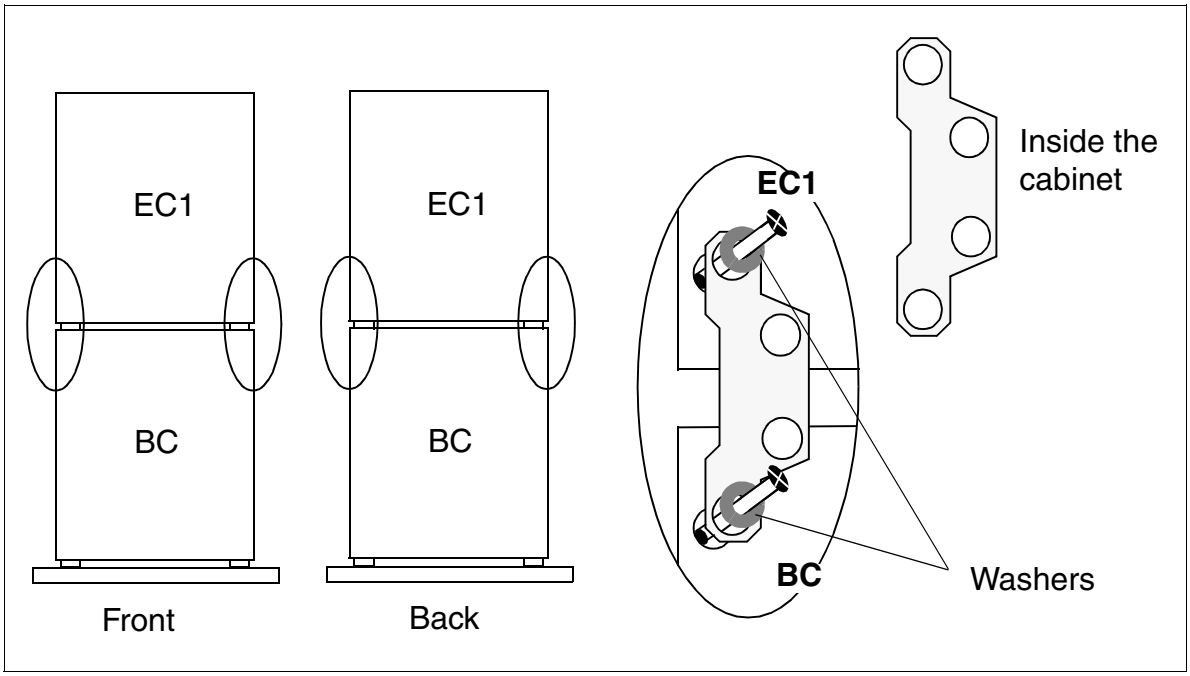


Figure 4-4 HiPath 3750 - Installing a Two-Cabinet System (Stacked)

Laying the Connecting Cables

To lay the connecting cables between the two cabinets, you can cut out the pre-stamped recesses in the bottom of EC1 and the top of the BC with a pair of diagonal cutting pliers and break them out with a pair of flat-nosed pliers.

Caution
Be careful when breaking out the recesses. Remove any sharp edges and corners.

Mounting Two Cabinets Stacked on the Wall (for U.S. Only)

You can mount two cabinets stacked on the wall using the wall-mount kit.

DANGER
The second cabinet also requires an earth ground as described on page 4-29. Do not fasten wall-mounted cabinets with the connecting plates, as this will interfere with the earth ground.

Wall-Mount Kit

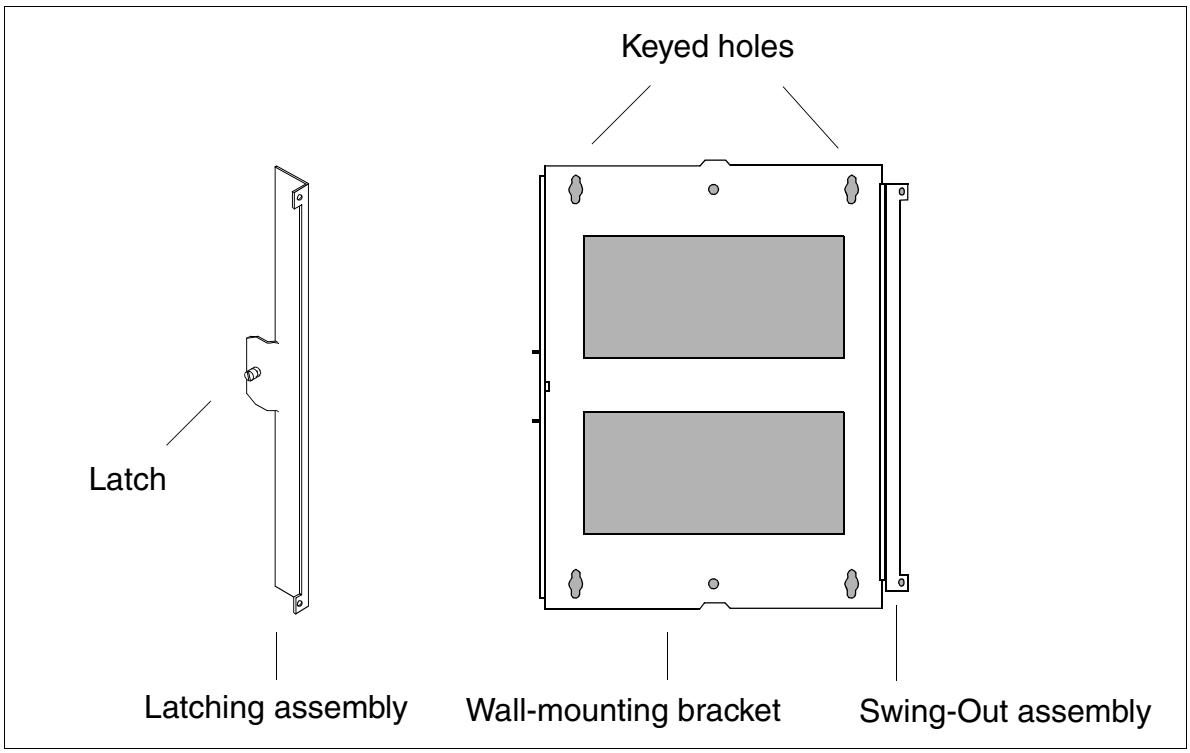


Figure 4-5 HiPath 3750 Wall-Mount Kit (for U.S. Only)

WARNING
An empty HiPath 3750 cabinet weighs 32 lb. (14.53 kg). Mount the cabinets before equipping them with boards and do not attempt to lift objects that you think are too heavy for you; get help.

Procedure (Figure 4-6 on page 4-19**)**

Step	Activity
1.	Install a plywood backboard at least 0.75 in. (19.05 mm) thick.
2.	Use a wall-mounting bracket as a template to drill three holes in the backboard for each cabinet. Use the keyed holes in the top of the bracket and the round hole in the bottom of the bracket.
3.	Install the screws in the top two holes for each bracket, tightening them until 0.25 in. (6.35 mm) is protruding.
4.	Bolt the swing-out assembly on the wall-mounting bracket to the back of each cabinet.
5.	Close the swing-out assembly and hang each bracket and cabinet on the top screws.
6.	Swing each cabinet open and tighten the top screws completely.
7.	Insert and fully tighten the bottom screws in the round holes.
8.	Bolt the latching assembly to the opposite edge of each cabinet.

You can invert the brackets to have the cabinets swing out in the opposite direction.

WARNING
Do not fasten power cords to building surfaces when mounting cabinets on the wall.

Wall Mounting (Stacked Two-cabinet System)

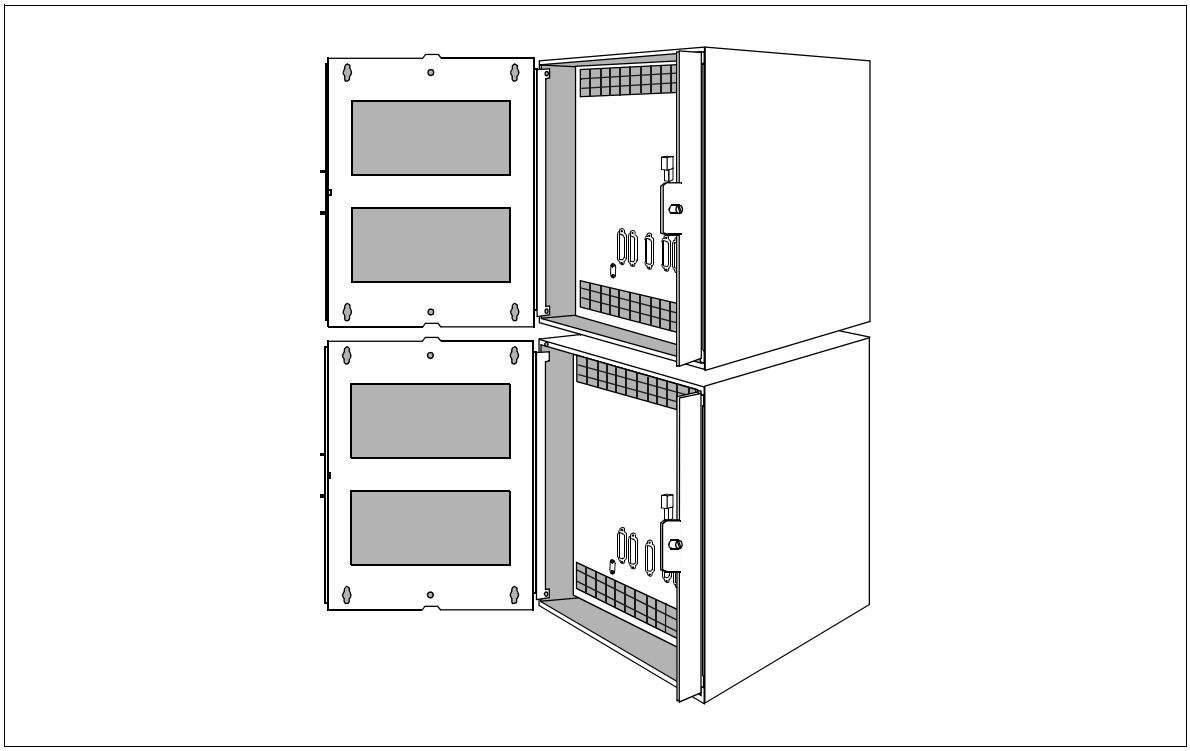


Figure 4-6 Wall Mounting for a Stacked Two-Cabinet System (for U.S. Only)

Laying the Connecting Cables

To lay the connecting cables between the two cabinets, you can cut out the pre-stamped recesses in the bottom of EC1 and the top of the BC with a pair of diagonal cutting pliers and break them out with a pair of flat-nosed pliers.

WARNING
Be careful when breaking out the recesses. Remove any sharp edges and corners.

Procedure: Mounting the Stabilizer Feet (Not for U.S.)

Caution
Always mount the stabilizer feet on stacked, surface-mounted system cabinets to ensure stability (Figure 4-7).

Step	Activity
1.	Place the stabilizer feet beneath the right and left outer edges of the cabinets. Insert the cabinet feet into the two holes in the stabilizer feet (1).
2.	Attach the stabilizer feet to the metal housing of the cabinet (2) by inserting two screws per foot into the pre-drilled holes in the housing.
3.	Continue installing the system.

Mounting the Stabilizer Feet

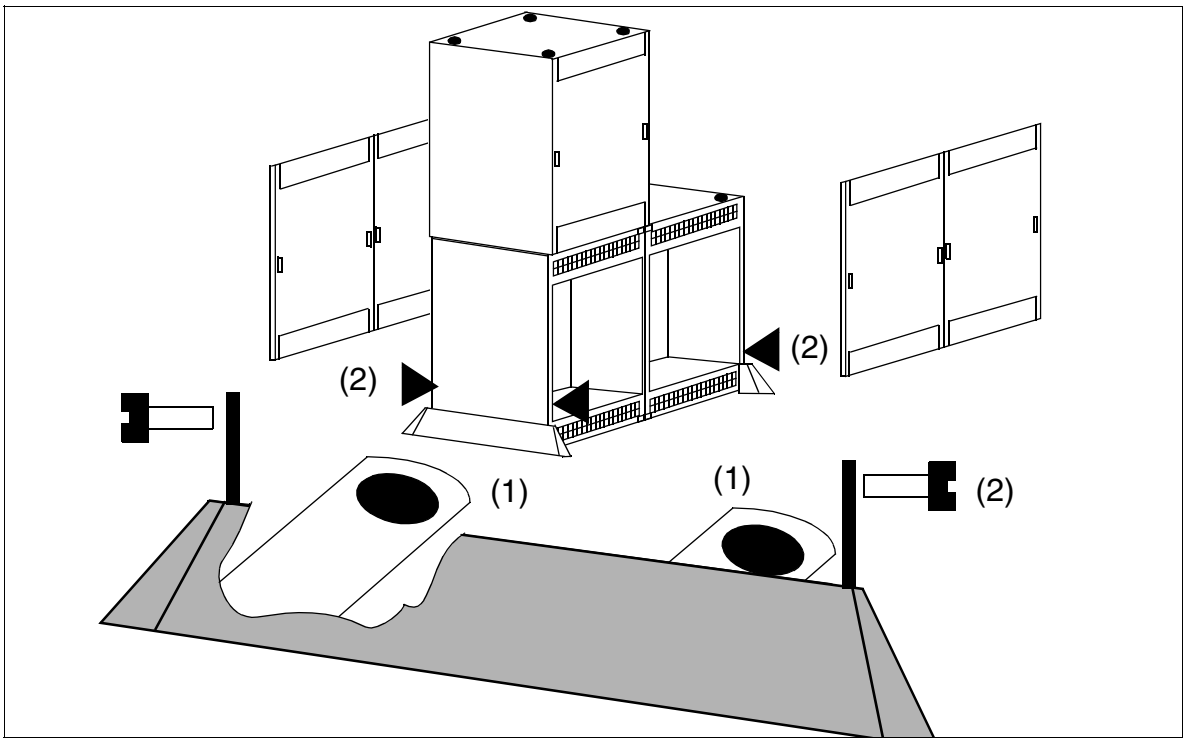


Figure 4-7 HiPath 3750 - Mounting the Stabilizer Feet (Three-Cabinet System Shown)

For U.S. only: You can install seismic anchors for greater stability, as is required in some installations. Refer to Section 4.1.3.4 on page 4-24 for more information and note that the bolts and inserts included in the seismic anchor kit are suitable for concrete floors; bolts for other surfaces must be supplied separately.

4.1.3.4.5 Setting Up a Two-Cabinet System Side by Side

Procedure

Step	Activity
1.	Remove the front and rear cabinet covers.
2.	Place the system cabinets side by side in the installation site and make sure that they are level and stable. Correct any differences in height.
3.	If mounting the system on the floor or on a table, attach the two cabinets using four connecting plates each held by two screws with washers (Figure 4-8). Be sure to fasten all four of the adjoining corners. Make sure that the connecting plates are mounted in the correct direction (inside the cabinets and pointing inward).

DANGER (for U.S. Only)
The connecting plates must be installed to ensure proper grounding for systems mounted on a floor or other horizontal surface.

Installing a Two-Cabinet System

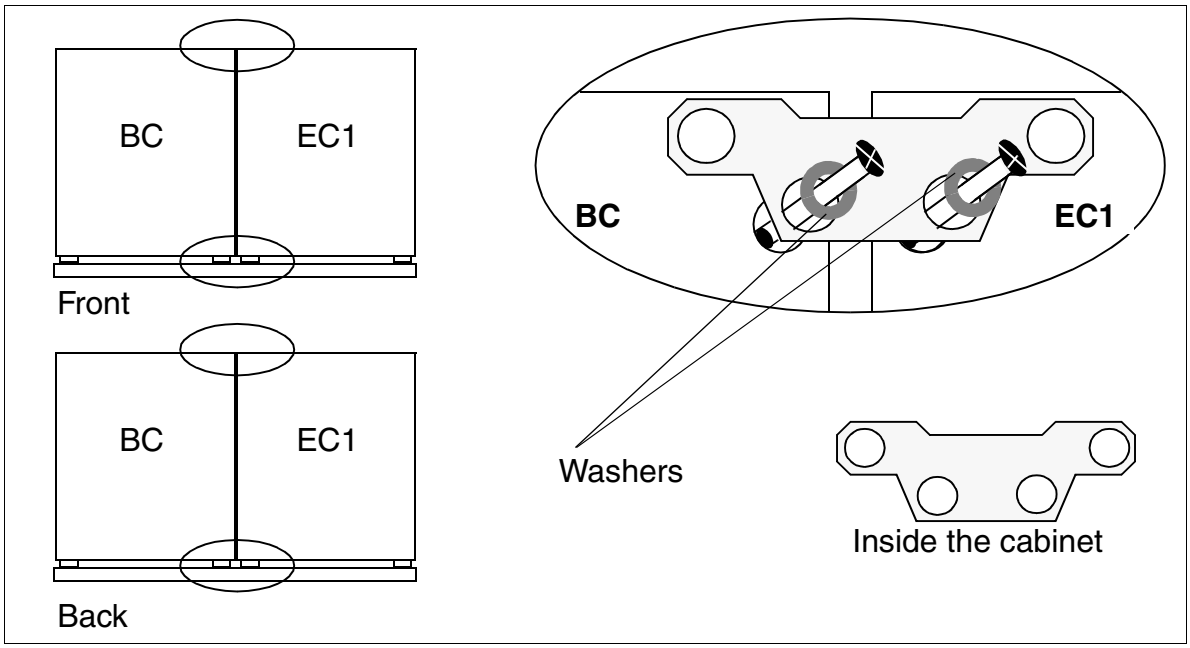


Figure 4-8 HiPath 3750—Installing a Two-Cabinet System (Side by Side)

Laying the Connecting Cables

To lay the connecting cables between the cabinets, first remove the lower grills in the rear covers.

4.1.3.4.6 Setting Up a Stacked Three-Cabinet System

Caution
Only two cabinets may be stacked vertically. When setting up a three-cabinet system place EC2 next to the BC.

Procedure

Step	Activity
1.	Remove the front and rear cabinet covers.
2.	Mount one stabilizer foot (not for U.S.) on the basic cabinet and one on the expansion cabinet (EC2). Place EC2 next to the BC in the installation site and make sure that it is level and stable. Correct any differences in height.
3.	Place expansion cabinet EC1 on the basic cabinet. Insert the feet of EC1 into the depressions in the top of the BC.
4.	Attach the three cabinets using four connecting plates, each held by two screws with washers (Figure 4-9). Make sure that the connecting plates are mounted in the correct direction (inside the cabinet and pointing inward).

DANGER (for U.S. Only)
The connecting plates must be installed to ensure proper grounding for systems mounted on a floor or other horizontal surface.

For U.S. only: You can install seismic anchors for greater stability, as is required in some installations. Refer to Section 4.1.3.4 on page 4-24 for more information and note that the bolts and inserts included in the seismic anchor kit are suitable for concrete floors; bolts for other surfaces must be supplied separately.

Installing a Three-Cabinet System

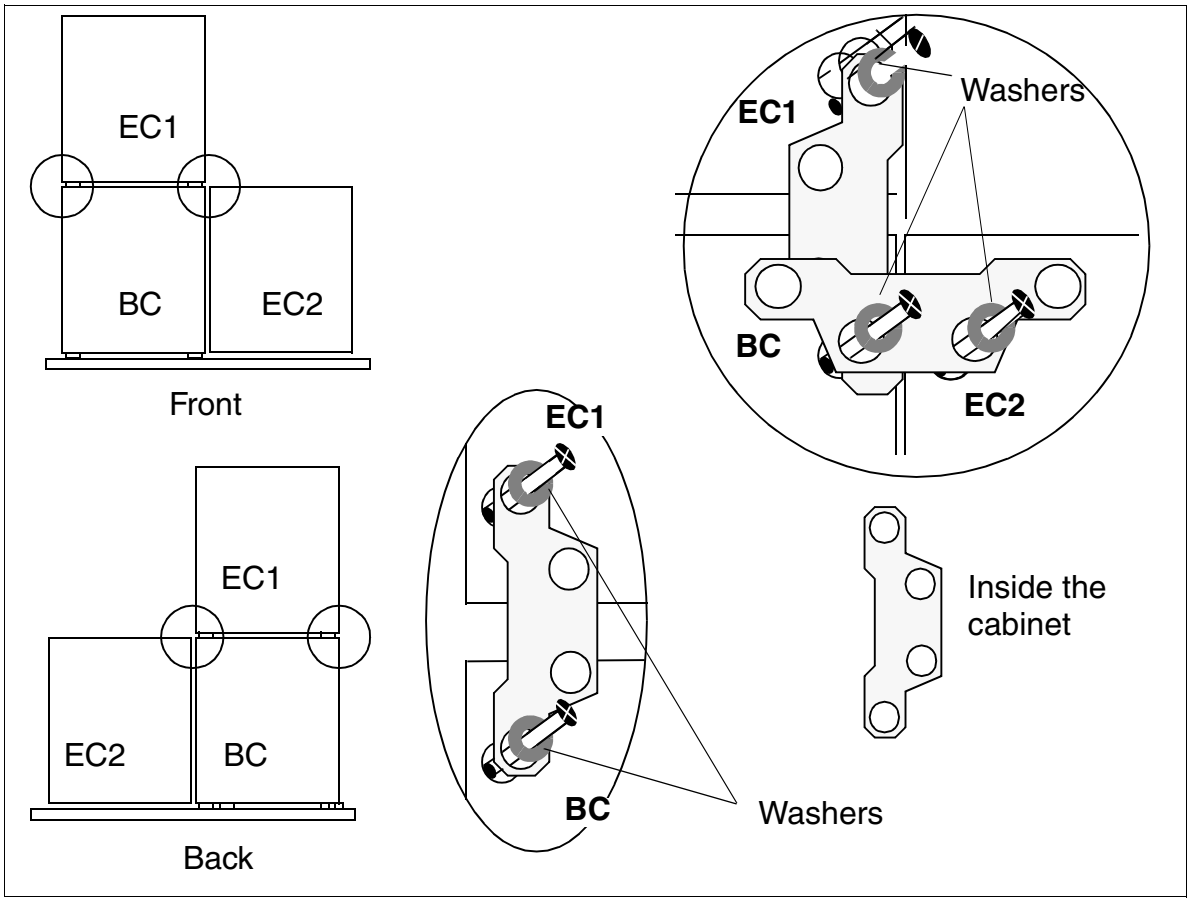


Figure 4-9 HiPath 3750—Installing a Three-Cabinet System (Stacked)

A three-cabinet system cannot be mounted on a wall.

Laying the Connecting Cables

- To lay the cables between the BC and EC2, remove the lower grills in the two rear covers.
- To lay the connecting cables between the BC and EC1, cut out the pre-stamped recesses in the bottom of EC1 and top of the BC with a pair of diagonal cutting pliers and break them out with a pair of flat-nosed pliers.

WARNING
Be careful when breaking out the recesses. Remove any sharp edges and corners.

4.1.3.4.7 Installing the Seismic Anchors (for U.S. Only)

Seismic anchors can be used for additional stability if desired by the customer or required by code.

Local building codes may require the use of seismic anchors in critical locations, such as hospitals. The HiPath 3750 seismic anchor kit includes bolts and inserts suitable for concrete floors. Consult the site planner for code requirements, or if the customer wishes to install the seismic anchors on another type of floor.

Procedure (Figure 4-10 on page 4-24**)**

Step	Activity
1.	Hook the anchor into the center holes in the lower grill on each cabinet, front and back.
2.	Bolt the anchor to the floor using the holes provided.

The anchor for the back of the cabinets is wider to provide space for cables.

Seismic Anchoring

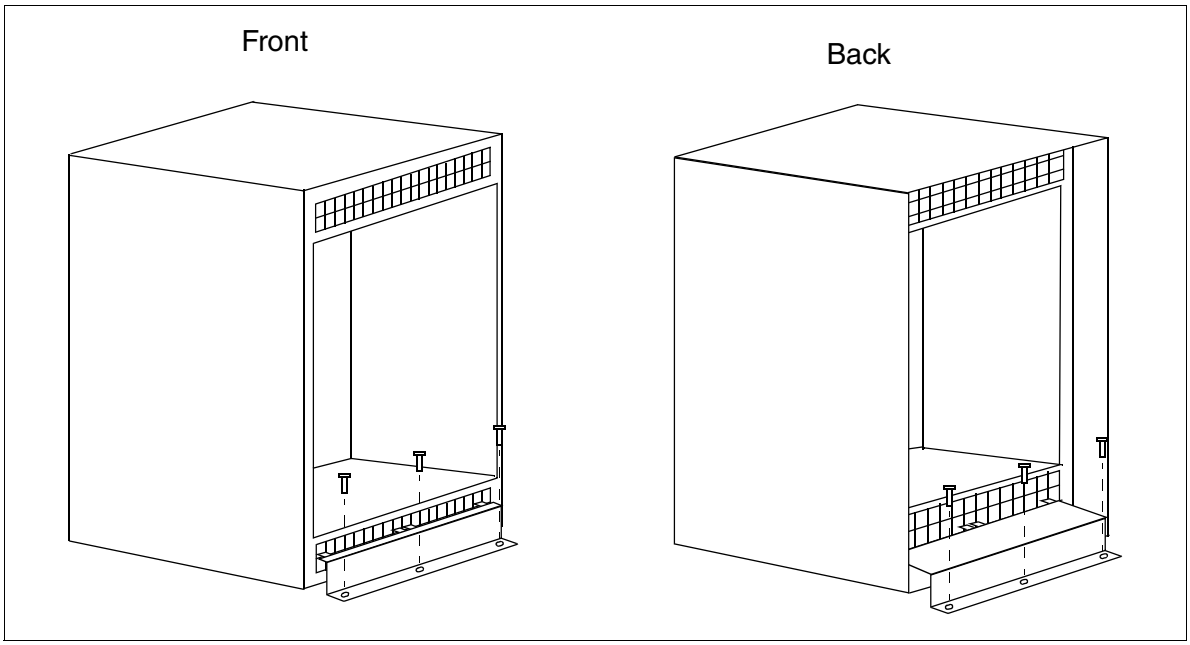


Figure 4-10 HiPath 3750 Seismic Anchors

Seismic Anchors for Multiple Cabinets

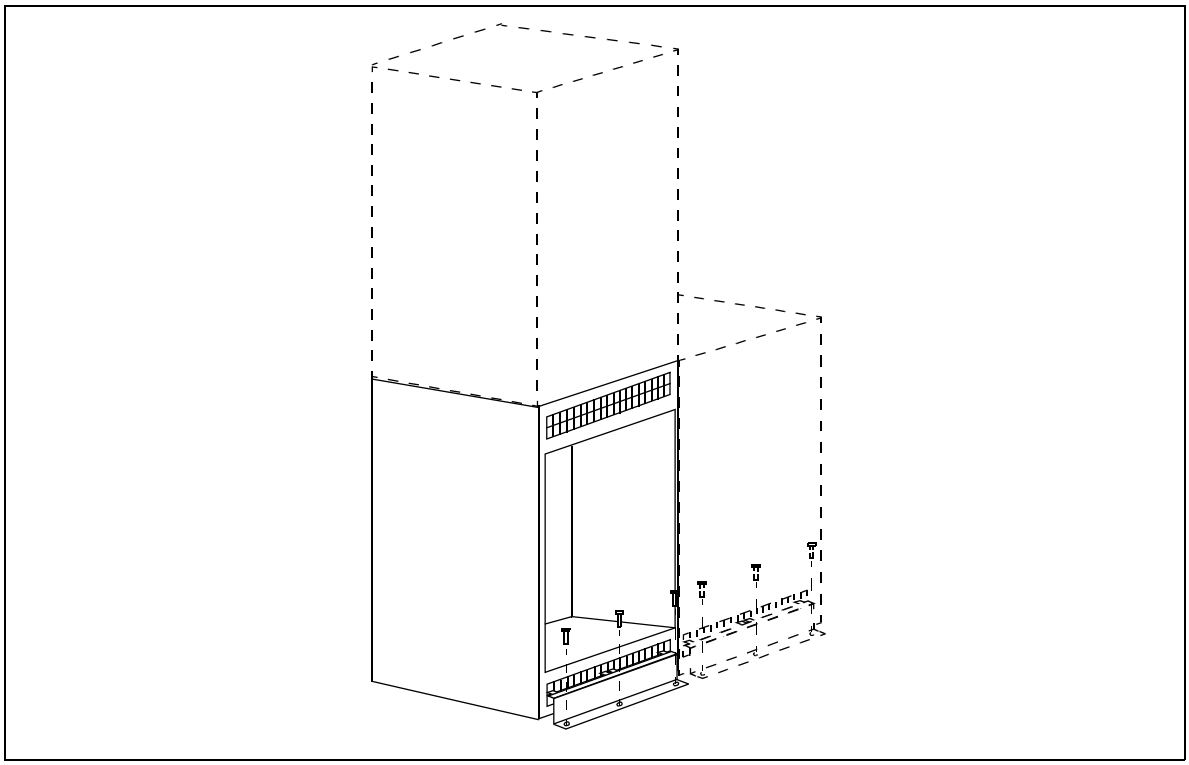


Figure 4-11 Seismic Anchoring for Multiple Cabinets (Front View)

4.1.3.5 Grounding the System

4.1.3.5.1 Not for U.S.: Grounding the System

Protective Grounding Options

DANGER
The HiPath 3750 system and the MDFU or MDFU-E must be grounded by a separate protective ground conductor (minimum cross-section: 2.5 mm^2) as shown in Figure 4-12. Make sure that the ground conductor is securely installed and strain-relieved.
Failure to follow these instructions can result in electrical shock.

If one or two surface-mounted expansion cabinets are used in addition to the base cabinet, the metal connecting plates must be installed to properly ground the expansion cabinets.

The illustrations starting with Figure 4-13 show different grounding options.

DANGER
If your personnel are not qualified to work on the low-voltage network (230 Vac), you must hire a licensed electrician to install the ground using option 1b (Figure 4-14).

Note on Possible Ground Loops

To avoid ground loops from remotely operated devices (V.24 system peripherals), the devices should be connected to the same low-voltage network (sub-distribution board) if possible.
If the building floor plan does not permit this, you may need a line driver to isolate the external devices if any malfunctions occur.

Grounding the System and Main Distribution Frame (Not for U.S.)

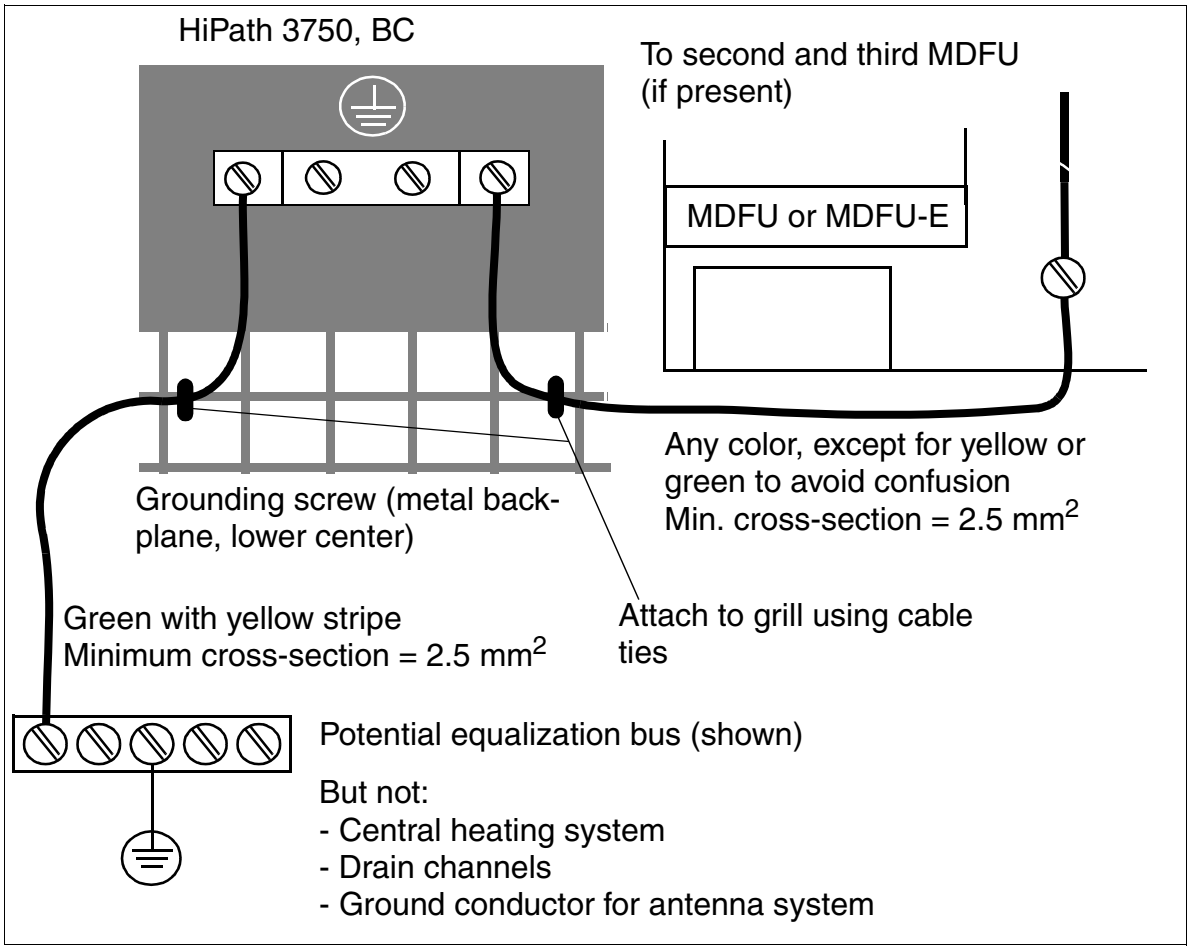


Figure 4-12 HiPath 3750 - Grounding the System and Main Distribution Frame

Protective Grounding Option 1a (Not for U.S.)

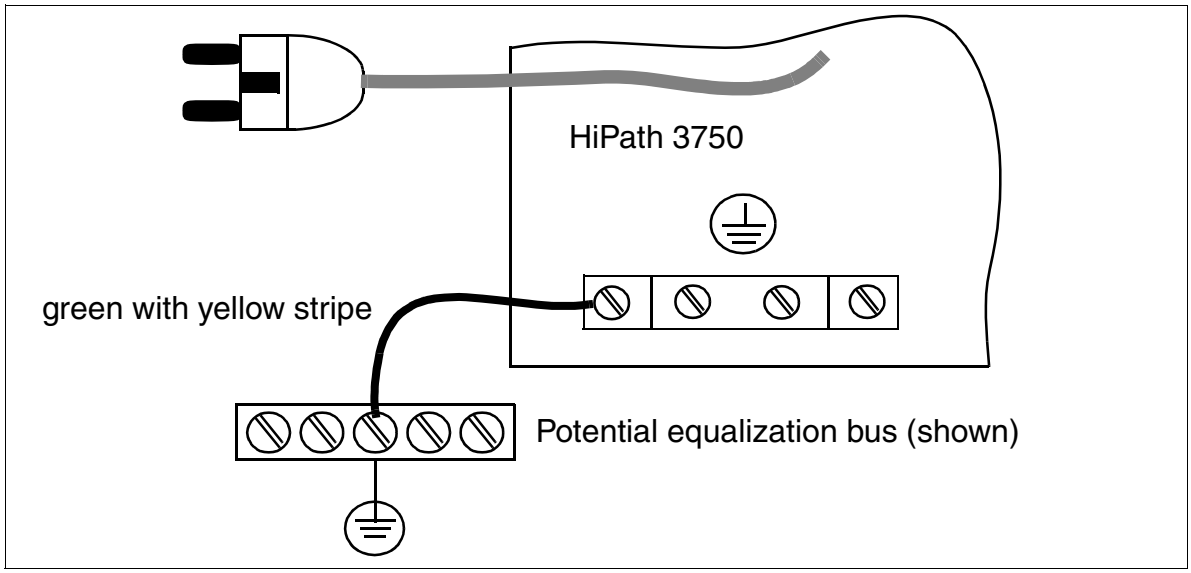


Figure 4-13 HiPath 3750 - Protective Grounding Option 1a

Protective Grounding Option 1b (Not for U.S.)

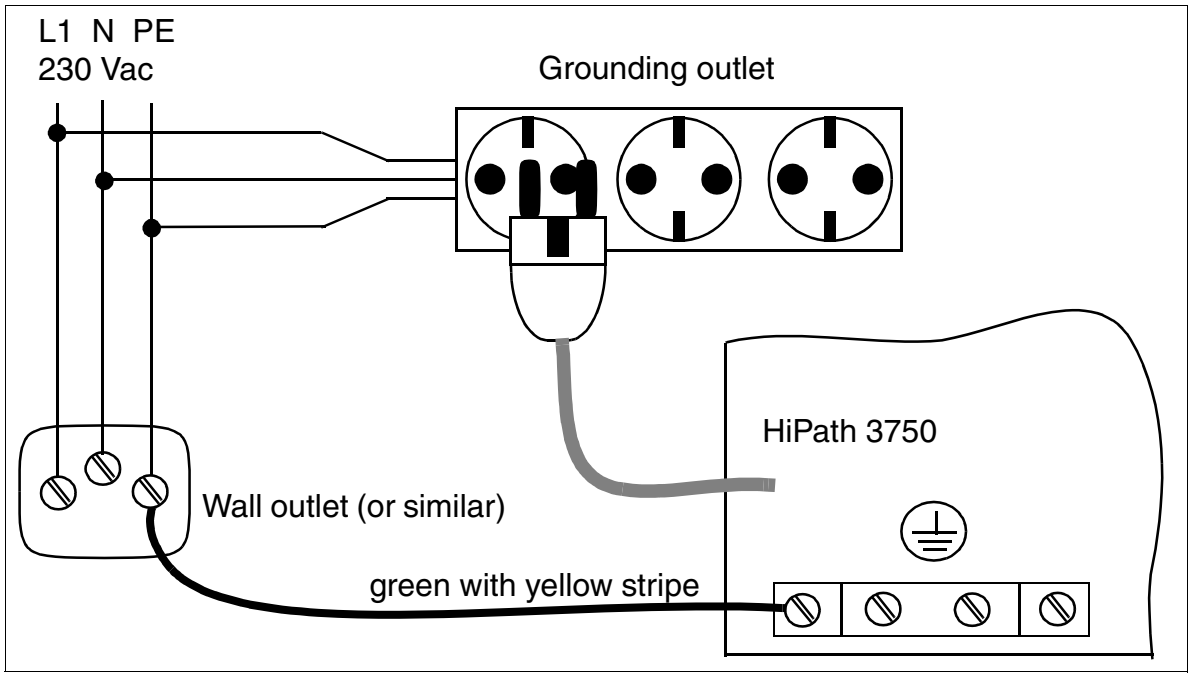


Figure 4-14 HiPath 3750—Protective Grounding Option 1b

4.1.3.5.2 For U.S. Only: Grounding the System

Grounding the System Cabinets

The system cabinets are grounded by their power cord, but an earth ground is also required. Choose an earth ground with less than 2 ohms of resistance, such as:

- Master ground busbar
- Ground field
- Copper ground rod

Run an earth ground conductor from the earth ground to the cabinet frame ground located in the center of the backplane. The minimum cross-section required is 14 AWG.

Figure 4-15 on page 4-30 shows the earth ground connections for the basic cabinet (BC). If expansion cabinets are added to surface-mounted systems, the metal connecting plates bond them to the basic cabinet. If two cabinets are mounted on the wall, the second cabinet requires an earth ground as well. Do not use the metal connecting plates on wall-mounted systems.

Earth Ground (for U.S. Only)

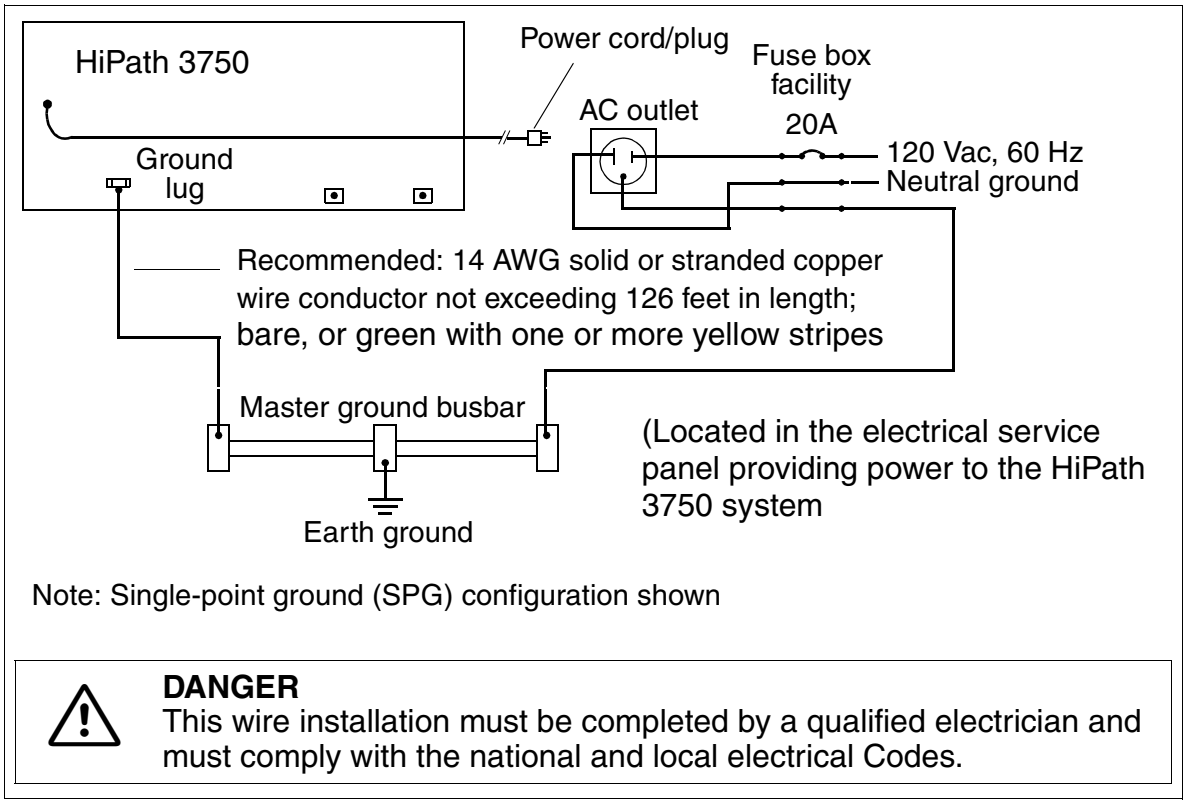


Figure 4-15 Basic Cabinet Earth Ground (for U.S. Only)

Grounding the Main Distribution Frame (for U.S. Only)

Follow the manufacturer's instructions for grounding the main distribution frame.

4.1.3.6 Checking the Protective Grounding

Procedure

Perform the tests in the table below to ensure that the system is properly grounded before startup

Step	Activity	Target
1.	Check the ohmic resistance of the ground connection to the system: Perform measurement between the PE (protective earth) on a socket in the internal installation (at the system's installation site) and HiPath 3750. Prerequisites: • HiPath 3750 is not yet connected to the low-voltage network via the power cable. • The system's separate protective grounding is connected.	< 10 ohms
2.	Check the ohmic resistance between the individual system parts (basic cabinet, expansion cabinets, main distribution frame). Prerequisite: HiPath 3750 is not yet connected to the low-voltage network via the power cable.	< 1 ohms

4.1.3.7 Connecting the Cables to the Backplane

All cables that leave the cabinet must be attached to the ventilation grill of the metal back panel using cable ties.

4.1.3.7.1 Backplanes of the “8-Slot” Cabinets

The “8-slot” basic cabinet has seven slots, while the expansion cabinets each have eight slots for peripheral boards.

Backplane of the “8-Slot” Basic Cabinet

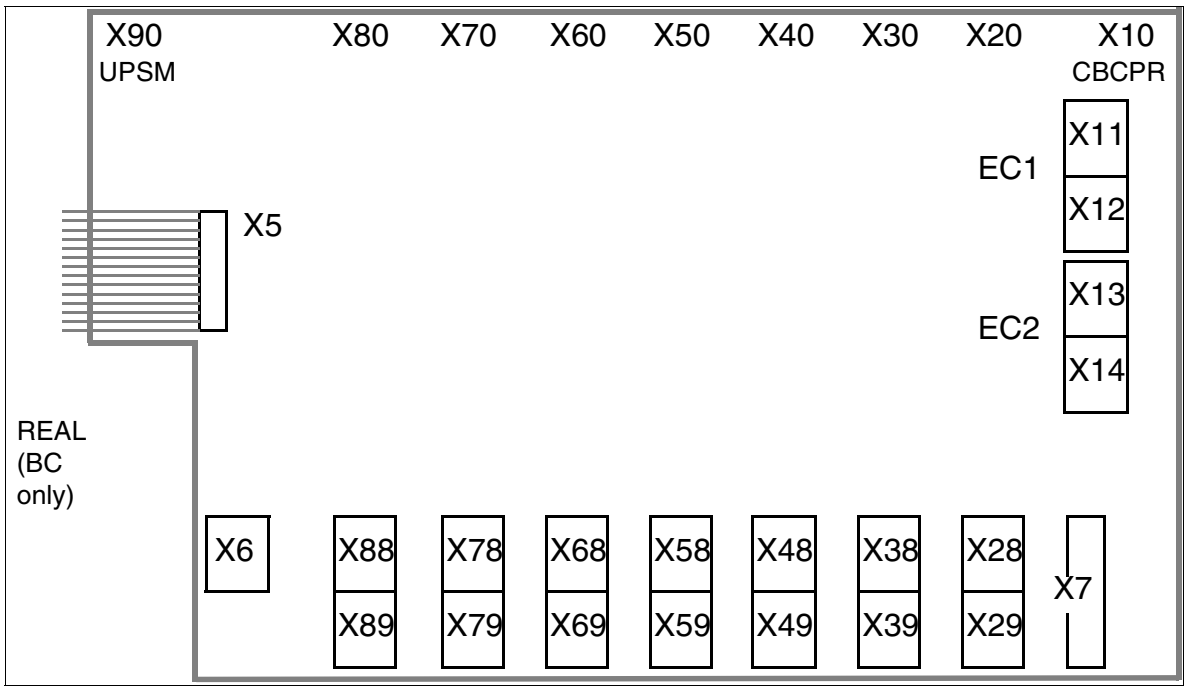


Figure 4-16 HiPath 3750 - Backplane of the “8-Slot” Basic Cabinet

Backplane of the “8-Slot” Expansion Cabinets

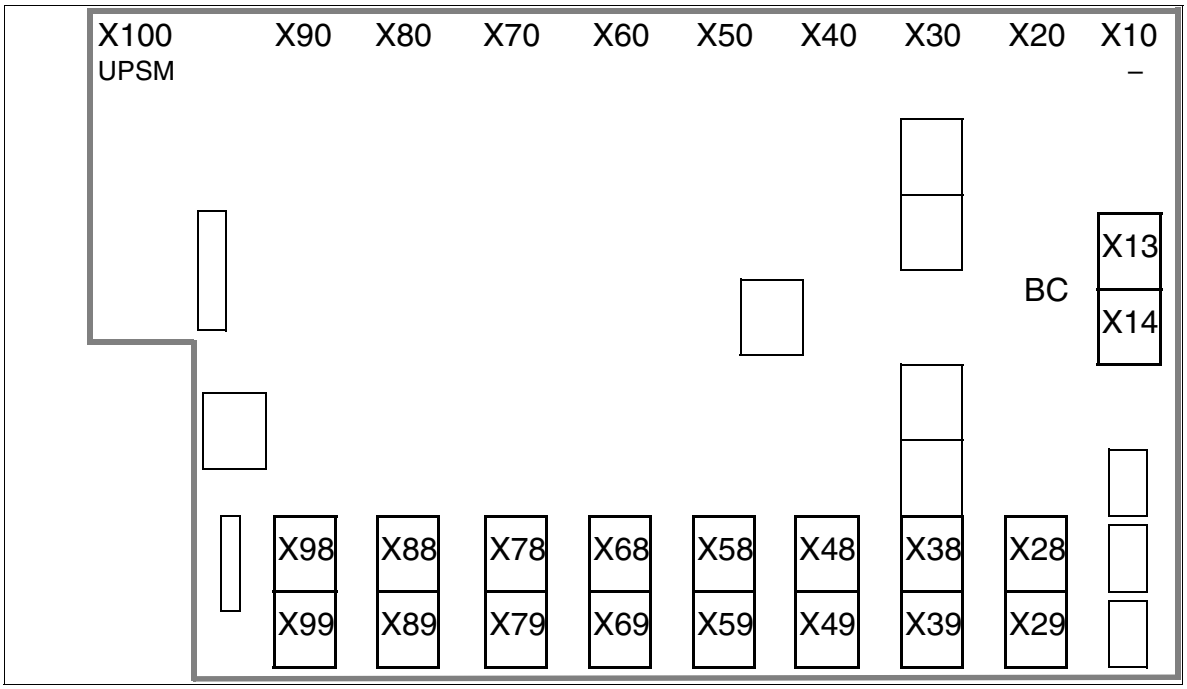


Figure 4-17 HiPath 3750 - Backplane of the “8-Slot” Expansion Cabinets

Connector Assignments on the “8-Slot” Backplane

Table 4-3 Connector Assignments on the “8-Slot Backplane

Connec-tor	Cabinet	Function
X7	BC	V.24/RS-232 (no electrical isolation) via 25-pin socket: Connection for printer, Plus products, and other devices.
X5	BC	Cable connector to REAL
X6	BC	MDFU-to-REAL connection via SU connector
X11	BC	Cable connector to EC1: X13
X12	BC	Cable connector to EC1: X14
X13	BC EC1 EC2	Cable connector to EC2: X13 Cable connector to BC: X11 Cable connector to BC: X13
X14	BC EC1 EC2	Cable connector to EC2: X14 Cable connector to BC: X12 Cable connector to BC: X14
X28 - X88	All	1 SU connector each (16 TW) to MDFU/MDFU-E

Table 4-3 Connector Assignments on the “8-Slot Backplane

Connec-tor	Cabinet	Function
X98	EC1 EC2	1 SU connector each (16 TW) to MDFU/MDFU-E
X29 - X89	All	1 SU connector each (8 TW) to MDFU/MDFU-E (not for S_{2M}, T1)
X99	EC1 EC2	1 SU connector each (8 TW) to MDFU/MDFU-E (not for S_{2M}, T1)

Connecting Cables Between the “8-Slot” Basic and Expansion Cabinets

If installing a multi-cabinet system, you must also connect the cables between the BC and ECs.

If	Then
Two-cabinet system	Connect BC to EC1 = 2 cables (S30267-Z178-A13) (see Figure 4-18)
Three-cabinet system	• Connect BC to EC1 = 2 cables (S30267-Z178-A13) • Connect BC to EC2 = 2 cables (S30267-Z178-A13) (see Figure 4-19)

Connecting Cables for a Two-Cabinet “8-Slot” System (see Table 4-3)

Cabinet part numbers

- BC = S30777-U757-X, S30777-U757-X103 (for U.S. only)
- EC1 = S30777-U708-X100, S30777-U708-X103 (for U.S. only)

Backplane part numbers

- BC = S30777-Q757-X
- EC1 = S30777-Q708-X100

Connecting cable part numbers

- Connect BC to EC1 = S30267-Z178-A13

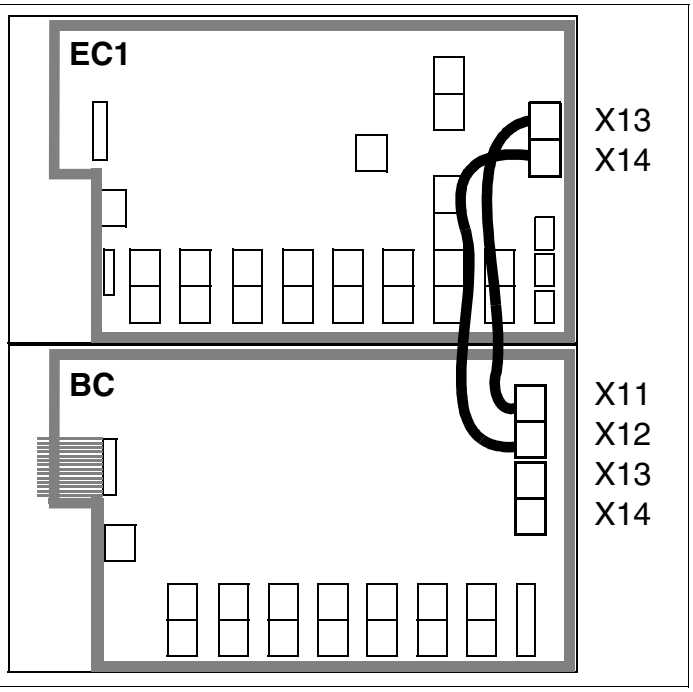


Figure 4-18 Two-Cabinet “8-Slot” System - Connecting Cables between BC and EC1

Connecting Cables for a Three-Cabinet “8-Slot” System (see Table 4-3)

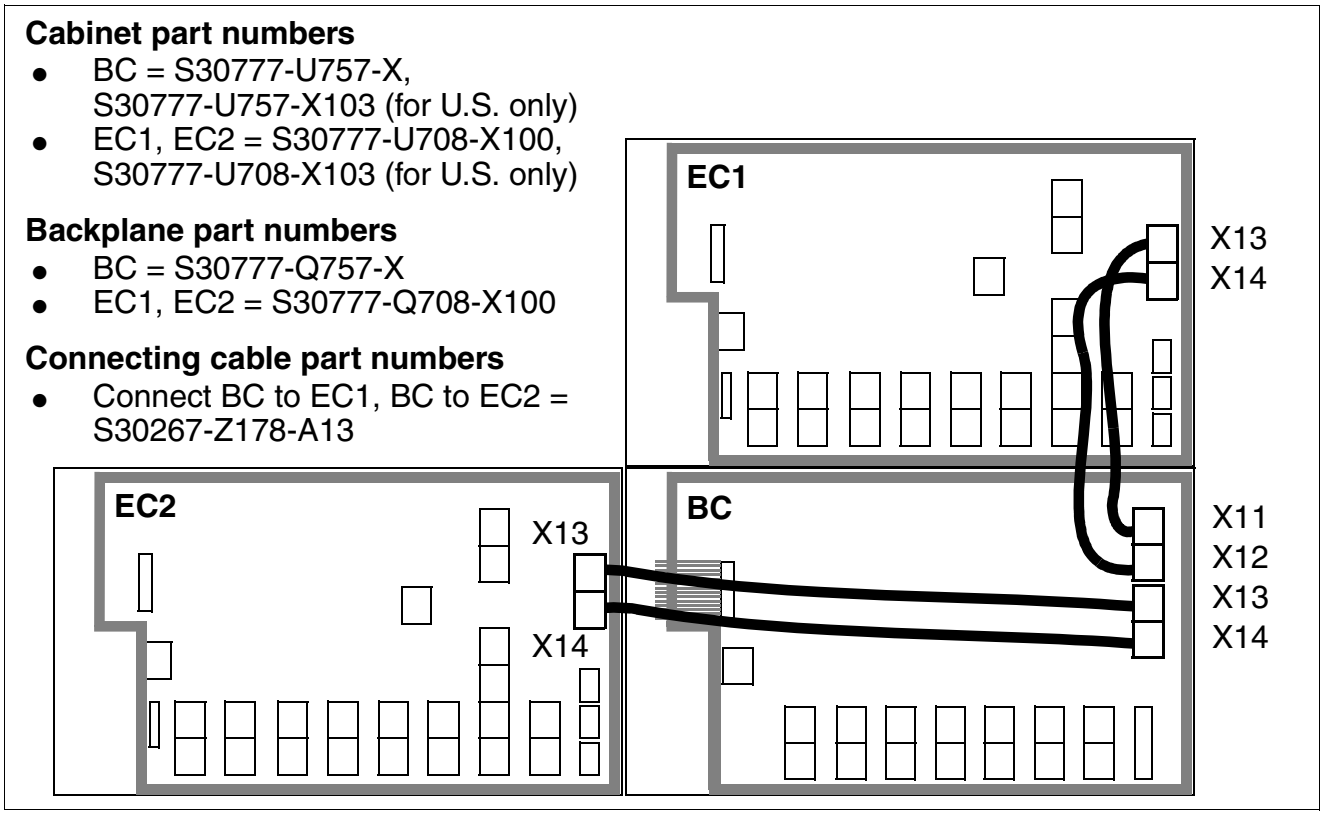


Figure 4-19 Three-Cabinet “8-Slot” System - Connecting Cables between BC, EC1 and EC2

The cables between the basic cabinet and the expansion cabinets are connected in a star configuration.

Terminating Resistors in “8-Slot” Cabinets

- BC: Between slots CBCPR + 2 and 3 + 4 and 8 + UPSM
- EC1: Between slots 11 + 12 and 13 + 14 and 15 + 16 and 17 + UPSM
- EC2: Between slots 20 + 21 and 22 + 23 and 24 + 25 and 26 + UPSM

4.1.3.7.2 Connection Between the MDFU or MDFU-E and Backplane

Introduction

Set up the connection between the main distribution frame and the system using CABLUs (prefabricated cabling units) with the following characteristics:

- System side: SIPAC 1 SU connector(s)
- Cable: 16 x 2 x 0.4 (the standard cable length is 2 m.)
- Main distribution frame side:
  - Not for U.S.: Different distribution strips or carriers (Figure 4-22)
  - For U.S. only: 50-pin Champ jack

Not for U.S.: You can use up to nine CABLUs per MDFU (Figure 4-23) and 21 CABLUs per MDFU-E (Figure 4-24), each with a 16 TW terminal strip or a 25 TW terminal strip (9 x 30 mm).

Use open-end cables for special applications in which the prefabricated CABLUs cannot be used.

CABLUs for the Slots Containing Peripheral Boards (Figure 4-40) (Not for U.S.)

If	Then
Slot with SLMO8, SLMO24, SLA8N, SLA16N or SLA24N	Route 16 TW to the MDFU or MDFU-E via SU_Xx8 and 8 TW via SU_Xx9, using a standard cable (with 16 TW) for each connection. Connect both cables (= 1 CABLU with SU connectors labeled 8 and 9) to the same jumper strip (25 TW). If replacing an old system, you can use existing standard CABLUs with splitting strips for 16 TW. If an SLMO24 board is used, you must lay an additional CABLU (SU Xx9) to the MDFU or MDFU-E.
Slot with TMS2	S_{2M} connections are not set up via the MDFU or MDFU-E. A direct connection is set up to the NT or networked system via the backplane connector SU Xx9 and a special cable (see Section 3.3.29, “TMS2 (Not for U.S.)”).
Slot with any other peripheral board	Route 16 TW to the MDFU or MDFU-E via SU_Xx8 using a CABLU.
Slot with REAL	16 TW are routed to (and manually laid at) the MDFU or MDFU-E via SU X6 (backplane) using an open-end cable.

CABLUs for the Slots Containing Peripheral Boards (Figure 4-40) (for U.S. Only)

If	Then
Slot with 24-port peripheral board	Route 16 TW to the main distribution frame via SU_Xx8 and 8 TW via SU_Xx9, using standard CABLU S30267-Z365-A30 (SU connectors are labeled 8 and 9.). Both cables are connected to the same 50-pin Champ jack.
Slot with max. 16-port peripheral board	Route 16 TW to the main distribution frame via SU_Xx8 using standard CABLU S30267-Z366-A30.
Slot with TMST1	T1 connections (see Section 3.3.28, “TMST1 (for U.S. Only)”) are not set up via the main distribution frame. An adapter (1 SU connector - 8-pole MW8 (RJ48C) jack, Figure 4-20) is connected directly to the SU Xx9 backplane connector. You can use a special cable to create a direct connection to the CSU or networked system.

TMST1 Adapter (SIPAC 1 SU - MW8 (RJ48C)) (for U.S. Only)

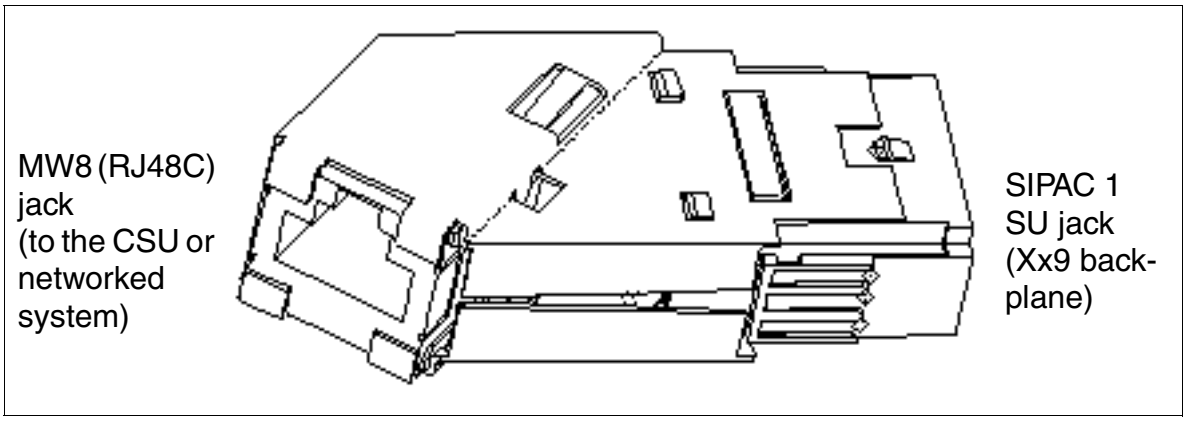


Figure 4-20 TMST1 Adapter (SIPAC 1 SU - MW8 (RJ48C)) C39228-A7195-A12 (for U.S. Only)

Stripping the Open-End Cable (Not for U.S.)

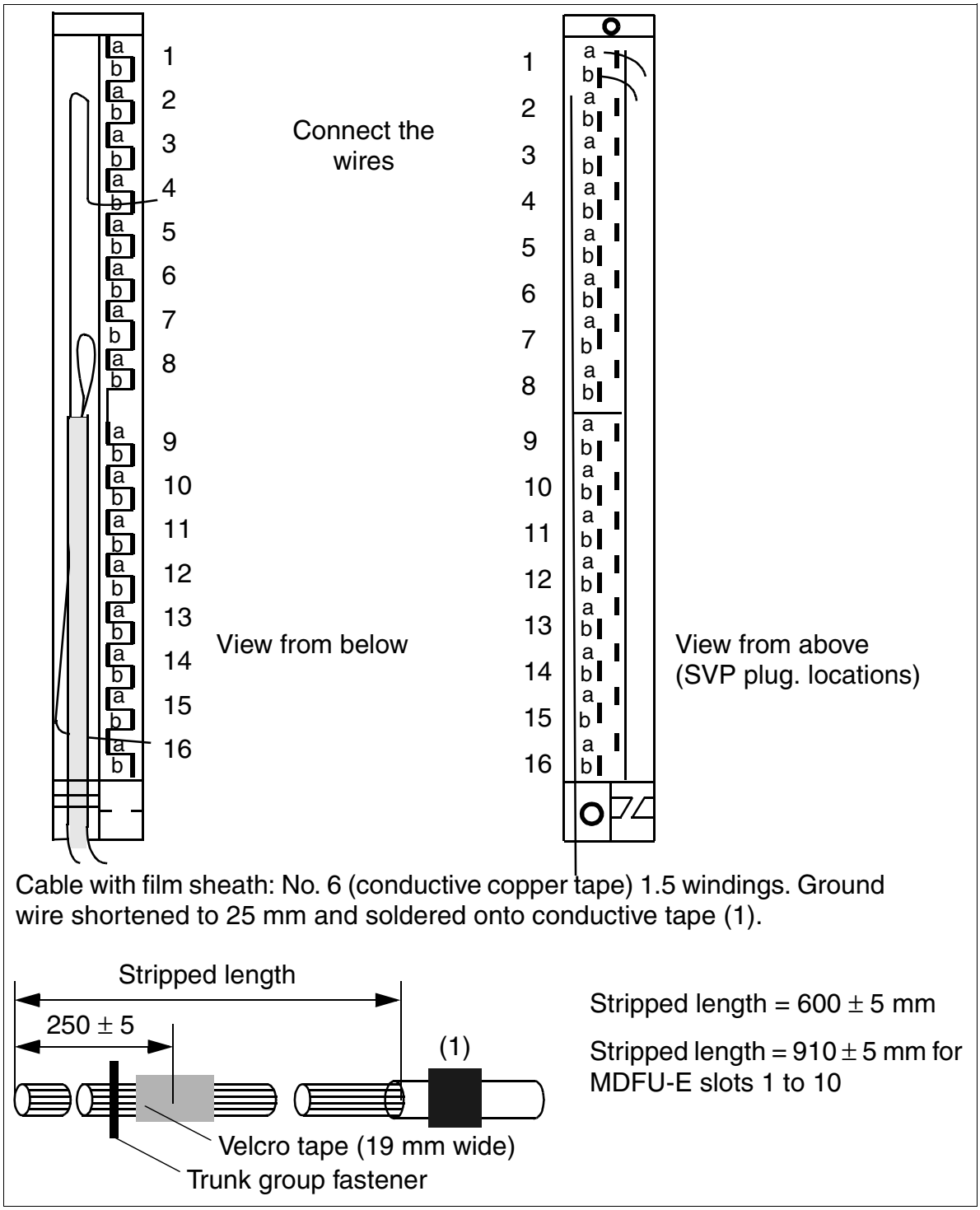


Figure 4-21 Stripping the Open-End Cable (Not for U.S.)

Color Codes for the Open-End Cable (Not for U.S.)

Table 4-4 Color Codes for the Open-End Cable (Not for U.S.)

Color Group	Pair	a-Wire	b-Wire	Group	Pair	a-Wire	b-Wire
1	1	wht/blu		3	11	blk/blu	
			blu/wht				blu/blk
	2	wht/ora			12	blk/ora	
			ora/wht				ora/blk
	3	wht/grn			13	blk/grn	
			grn/wht				grn/blk
	4	wht/brn			14	blk/brn	
			brn/wht				brn/blk
	5	wht/gry			15	blk/gry	
			gry/wht				gry/blk
2	6	red/blu		4	16	yel/blu	
			blu/red				blu/yel
	7	red/ora					
			ora/red				
	8	red/grn					
			grn/red				
	9	red/brn					
			brn/red				
	10	red/grn					
			grn/red				

4.1.3.8 Laying the Line Network and Setting Jumpers on the MDFU or MDFU-E

Danger
Connect the system to protective ground before connecting the stations.

Jumpers, External Line Network (Not for U.S.)

Most main distribution frames do not have an external side. You must jumper them to the incoming line network (see jumpering duct, Figure 4-23 = MDFU, Figure 4-24 = MDFU-E). Use a standard wiring tool for laying the cable wires.

If you jumper stations on the MDFU or MDFU-E (for example, with an ICCS network) without first entering the relocate code, when you reconnect them the stations affected will go into operation with the data of the stations originally installed.

Surge Protector (Not for U.S.)

To protect against surge voltage caused by lightning strikes, use the supplied surge protectors for analog subscriber boards (SLA8N, SLA16N, and SLA24N), the CMI board (SLC16) and loop start boards (TML8W). Connect the polarized surge protectors to the plugging locations on the splitting strip described above (see Figure 4-21).

Splitting and Jumper Strips (Not for U.S.)

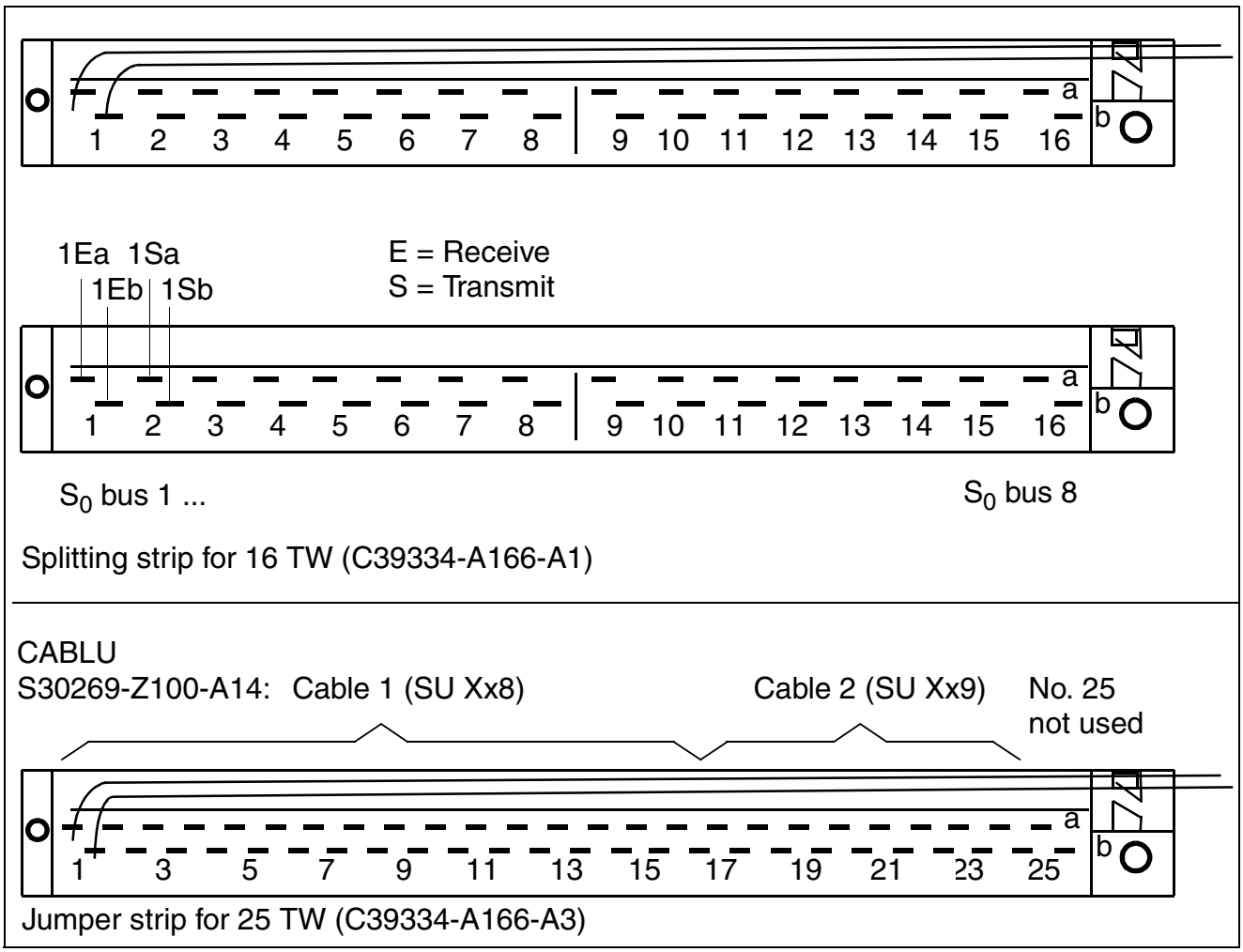


Figure 4-22 Assignments (Numbering) of the Splitting/Jumper Strips, view from above (Not for U.S.)

Layout and Dimensions of the MDFU (Not for U.S.)

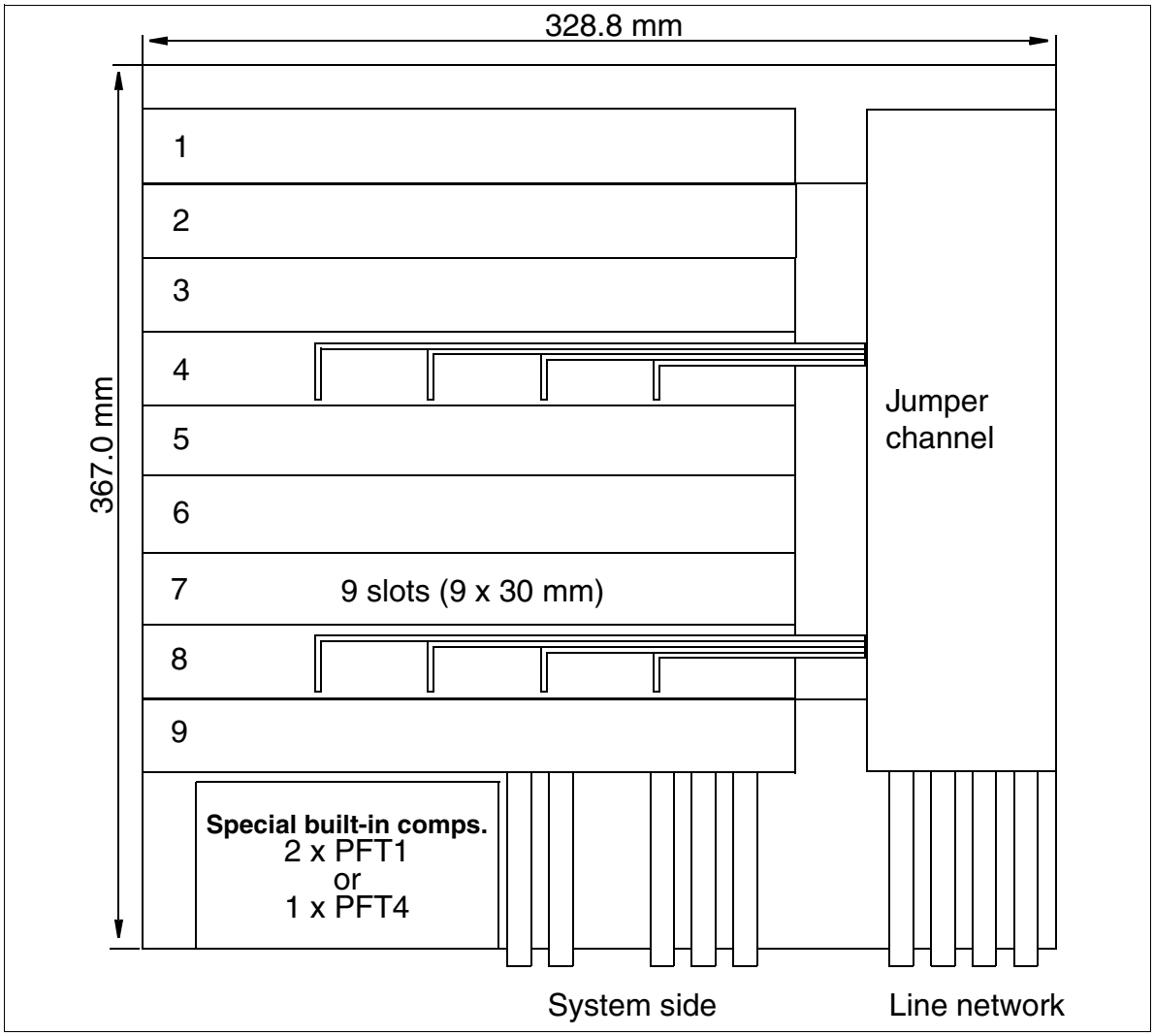


Figure 4-23 MDFU—Layout and Dimensions (367.0 x 328.8 x 125.4 mm) (Not for U.S.)

Layout and Dimensions of the MDFU-E (Not for U.S.)

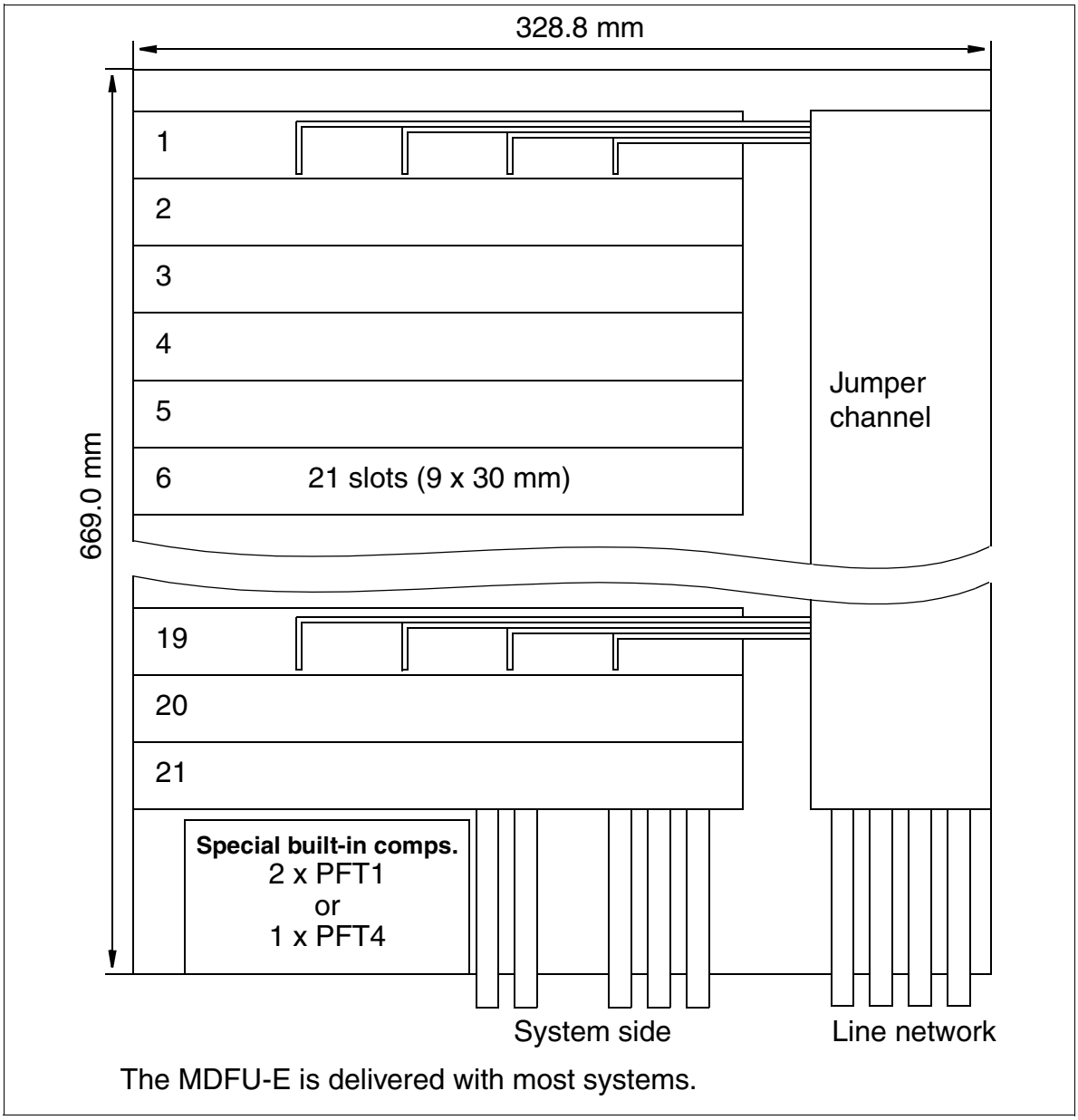


Figure 4-24 MDFU-E—Layout and Dimensions (669.0 x 328.8 x 125.4 mm) (Not for U.S.)

Connecting Network Facilities (for U.S. Only)

DANGER
Ground the system properly before connecting the stations.

Connecting to the Point of Demarcation (for U.S. Only)

Most main distribution frames (MDFs) are designed with a network demarcation block. You must cross-connect the MDF to the incoming trunks. Use a standard wiring tool for laying the cable wires.

Connecting to T1, PRI, or CorNet (for U.S. Only)

Caution
The TMST1 Module can be installed only in conjunction with a Listed channel service unit (CSU).

Secondary Protection (for U.S. Only)

DANGER
To protect against surge voltage caused by lightning, use secondary protection for the following HiPath 3750 boards when their wiring leaves the building where the main distribution frame is housed:

- SLA16
- SLA16N
- SLA24N
- TMDID8
- TMGL8
- TIEL4 (if not connected to facility provider terminal equipment)
- TMST1 (When this module is connected to the public network, secondary protection must be provided by the CSU.)

4.1.4 HiPath 3700 Installation (19-Inch Cabinet)

Overview

This section contains information on the installation of the HiPath 3700 communication system in a 19-inch cabinet. This chapter describes the standard installation procedures for the basic system. Refer to Chapter 6 for information about supplementary equipment and expansions.

Information on

- the possible equipment of central boards with optional plug-in boards
- board configuration
- final visual inspection

applies to both HiPath 3700 and HiPath 3750 and is described starting in Section 4.1.5.

4.1.4.1 Selecting the Installation Site

The installation site is generally determined by the existing 19-inch cabinet.

The environmental conditions specified in the system data chapter should also be taken into consideration in this case (Section 2.9.4).

You will find information on the design and dimensions of HiPath 3700 in Section 2.3.5.

4.1.4.2 Unpacking the Components

Procedure

Step	Activity
1.	Compare the components with the packing slip or customer receipt to make sure that they are correct and complete.
2.	Determine whether any damage has occurred during transport and report it to the appropriate departments or the shipper.
3.	Dispose of the packing materials properly.

Caution
Use only equipment and materials that are in perfect working order. Do not start up equipment with visible damage.

4.1.4.3 Mounting the System Cabinet in the 19-Inch Cabinet

Introduction

You can install up to three system cabinets in a 19-inch cabinet. Each cabinet must be mounted separately.

It is possible to extend the HiPath 3700 to a three cabinet system only if the 19” cabinets are next to one another and accessible from the back.

The cabinets are already equipped with the boards needed for the customer’s specific requirements.

Danger
Be sure to ground the system properly before starting it up and connecting the stations.

4.1.4.3.1 Removing the Cabinet Covers

How the Covers Are Secured

The front cabinet cover (for board servicing) and the rear cabinet cover (for cable servicing) are each secured by two snap fasteners.

You can remove the upper and lower grills in both covers. This facilitates routing the cables to the patch panel.

To replace a cover, position the snap fasteners in the two guides and press down on the cover until it snaps into place.

Procedure (Figure 4-25)

Step	Activity
1.	Insert a slotted screwdriver (with the blade vertical) into a recess (1).
2.	Carefully swing the handle of the screwdriver toward the center of the cabinet (2) until the fastener snaps out and the cover loosens.
3.	Then insert the screwdriver in the second recess (3), loosen its snap fastener. You can then remove the cover.

Mounting the Cover

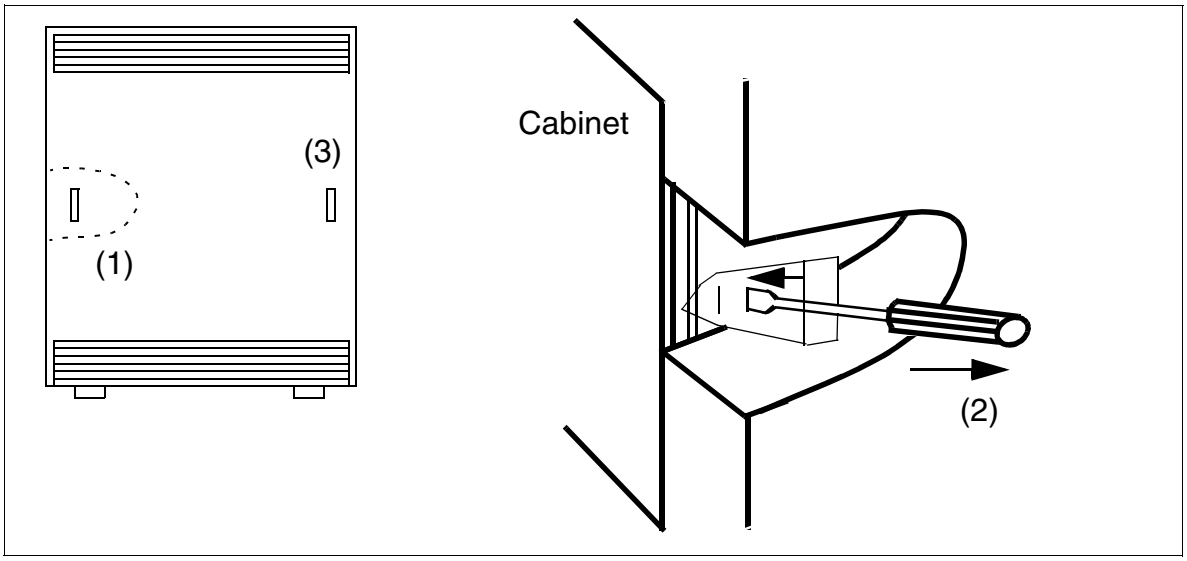


Figure 4-25 HiPath 3700 - Removing the Front and Rear Covers

Warning
The front and rear covers on all system cabinets must be closed before the system is started up in a 19-inch cabinet.
To replace a cover, position the snap fasteners in the two guides and press down on the cover until it snaps into place.

4.1.4.3.2 Mounting the System Cabinet with Angle Brackets

An assembly kit (C39165-A7027-D5) with eight angle brackets is provided for installing the 19-inch cabinet.

Procedure

Warning
Never attempt to lift a system cabinet into the 19-inch cabinet without assistance.

Step	Activity
1.	Attach the two support brackets (A in Figure 4-26) to the 19-inch cabinet using two screws per bracket.
2.	Remove the front and rear system cabinet covers.
3.	Remove both side pieces of the system cabinet.
4.	Attach the two angle brackets (B in Figure 4-26) to the front of the system cabinet using two screws per bracket.
5.	Attach the four angle brackets (C in Figure 4-26) to the rear of the system cabinet for base and cover support.
6.	Lift the system cabinet into the 19-inch cabinet and sit the cabinet on the two support brackets (A). Slide the cabinet into the 19-inch cabinet until the front edge of the system cabinet is flush with the front of the 19-inch frame.
7.	Attach the system cabinet to the angle bracket (B) in the 19-inch cabinet frame using two screws per bracket.

Installation in the 19-Inch Cabinet

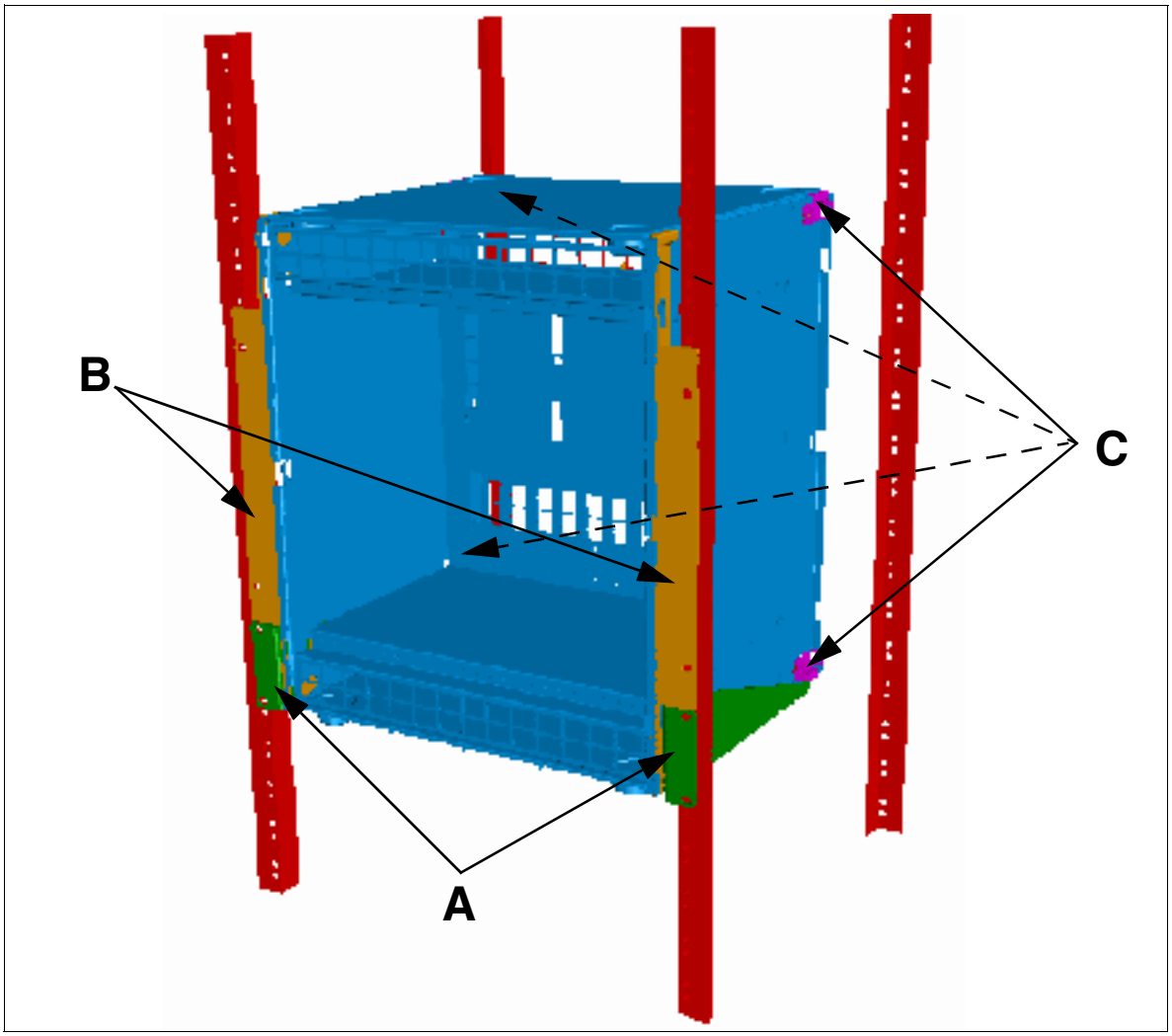


Figure 4-26 HiPath 3700 - Installation in the 19-Inch Cabinet

Laying the Connecting Cables

To lay the connecting cables between the system cabinets and patch panels, you can cut out the pre-stamped recesses in the bottom of the system cabinet with a pair of diagonal cutting pliers and break them out with a pair of flat-nosed pliers.

Caution
Be careful when breaking out the recesses. Remove any sharp edges and corners.

4.1.4.4 Mounting the Patch Panel in the 19-Inch Cabinet

The customer-specific communication network and HiPath 3700 are connected via patch panels. Patch panels are installed beneath the system cabinets in the 19-inch cabinet (upward thermal radiation).

Installation Procedure

Install the patch panel immediately under the system box (A in Figure 4-27) and attach it to the left and right of the 19-inch frame using two screws (B) on each side.

Mounting the Patch Panel

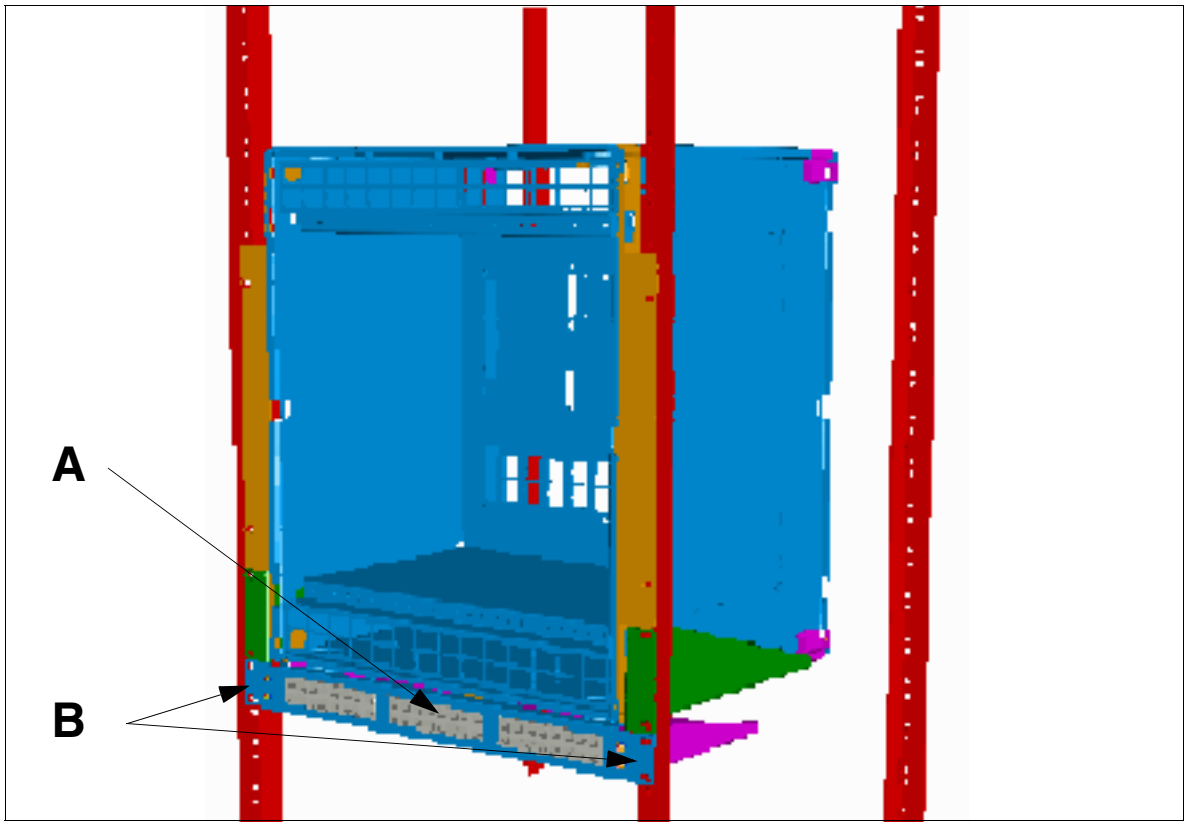


Figure 4-27 HiPath 3700 - Mounting the Patch Panel

4.1.4.5 Grounding the System

Protective Grounding Options and Inspection

Preliminary Inspection of the 19-Inch Cabinet:		
Is the 19-inch cabinet grounded by a separate **protective ground conductor** (green/yellow)?	**NO**	The 19-inch cabinet must be grounded by a separate protective ground conductor (green/yellow). **Danger** If your personnel are not qualified to work on the low-voltage network (230 Vac), you must hire a licensed electrician to install the ground.
YES		
Does the 19-inch cabinet have a **potential equalization bus** at which the HiPath 3700 can be grounded as shown in Figure 4-28?	**NO**	A potential equalization bus must be installed in the 19-inch cabinet and connected to the ground wire. **Danger** If your personnel are not qualified to work on the low-voltage network (230 Vac), you must hire a licensed electrician to install the ground.
YES		
If you answer “Yes” to both questions, the system (system cabinets, patch panels) may be grounded as described below.		

Danger
Each HiPath 3700 system cabinet and each patch panel (S30807-K6143-X) must be grounded as shown in Figure 4-28 by a separate protective ground conductor (minimum cross-section = 2.5 mm^2). Make sure that the ground conductor is securely installed and strain-relieved.
Please note:
The 19-inch cabinet’s potential equalization bus may only be used if it is grounded by a separate protective ground conductor.
Failure to follow these instructions can result in electrical shock.

Grounding the System Cabinets and Patch Panels

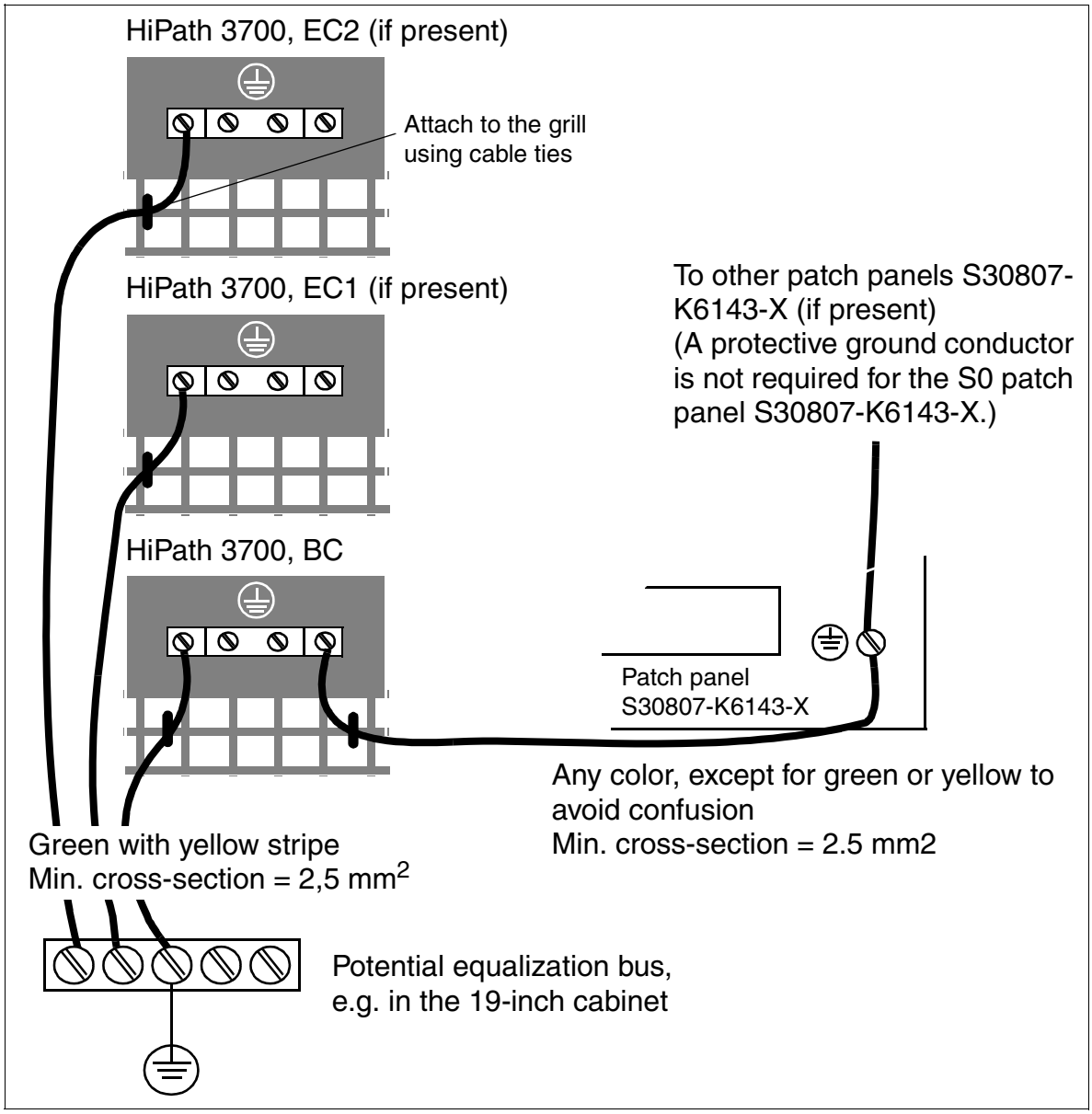


Figure 4-28 HiPath 3700 - Grounding the Systems and Patch Panel in a 19-Inch Cabinet

Note on Possible Ground Loops

To avoid ground loops from remotely operated devices (V.24 system peripherals), the devices should be connected to the same low-voltage network (sub-distribution board) if possible.
If the building floor plan does not permit this, you may need a line driver to isolate the external devices if any malfunctions occur.

4.1.4.6 Checking the Protective Grounding

Procedure

Perform the tests in the table below to ensure that the system is properly grounded before startup.

Step	Activity	Target
1.	Check the ohmic resistance of the ground connection to the 19-inch cabinet: Perform measurement between the PE (protective earth) on a socket in the internal installation (at the system's installation site) and HiPath 3700. Prerequisites: • No device in the 19-inch cabinet is connected to the low-voltage network via the power cable. • The system's separate protective groundings (basic cabinet, expansion cabinet, patch panel) and the 19-inch cabinet are connected.	< 10 ohms
2.	Check the ohmic resistance between the individual system parts (basic cabinet, expansion cabinets, patch panel). Prerequisite: HiPath 3700 is not yet connected to the low-voltage network via the power cable.	< 1 ohm

4.1.4.7 Connecting the Cable to the Backplane

All cables that leave the cabinet must be attached to the ventilation grill of the metal back panel using cable ties.

4.1.4.7.1 Backplanes of the “8-Slot” Cabinets

The “8-slot” basic cabinet has seven slots, while the expansion cabinets each have eight slots for peripheral boards.

Backplane of the “8-Slot” Basic Cabinet

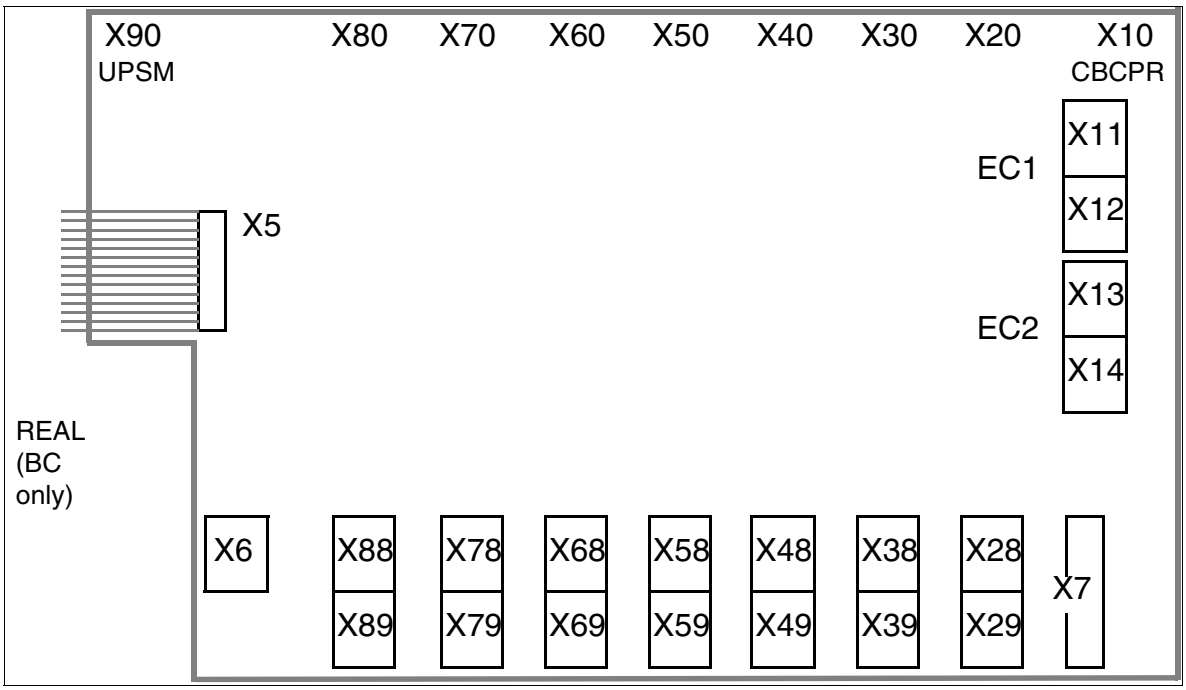


Figure 4-29 HiPath 3700 - Backplane of the “8-Slot” Basic Cabinet

Backplane of the “8-Slot” Expansion Cabinets

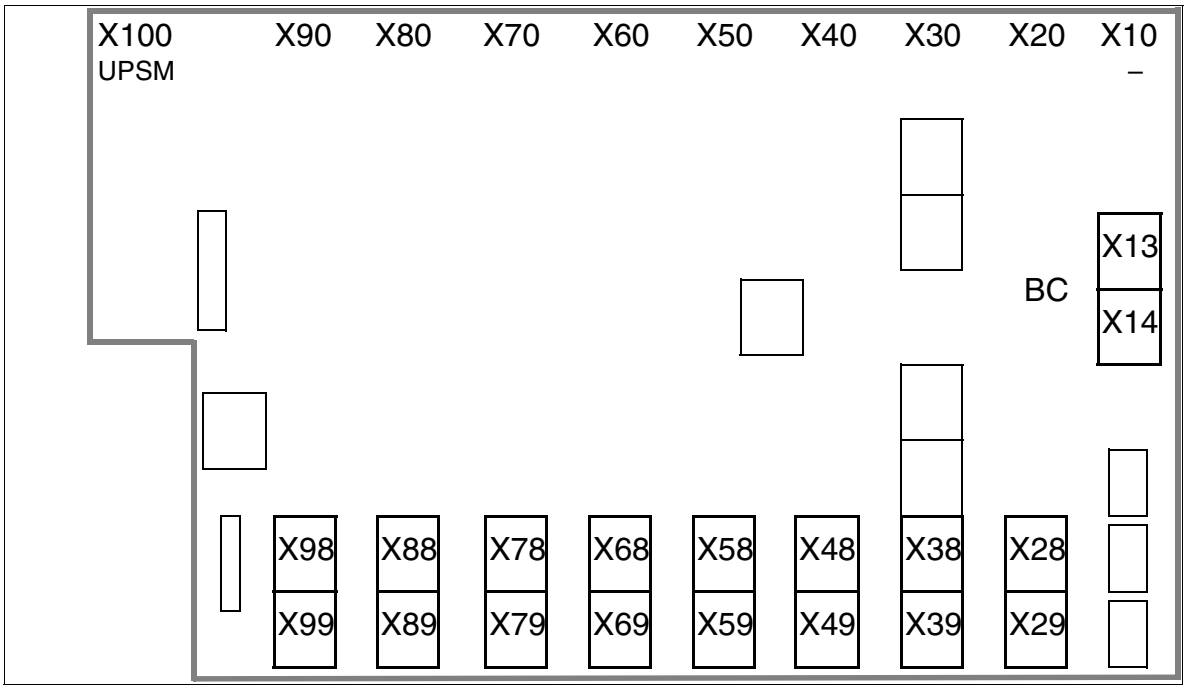


Figure 4-30 HiPath 3700 - Backplane of the “8-Slot” Exp. Cabinet

Connector Assignment in the “8-Slot” Backplane

Table 4-5 Connector Assignments on the “8-Slot Backplane

Connec-tor	Cabinet	Function
X7	BC	V.24/RS-232 (no electrical isolation) via 25-pin socket: Connection for printer, Plus products, and other devices.
X5	BC	Cable connector to REAL
X6	BC	S_0-patch-panel-to-REAL connection via SU connector
X11	BC	Cable connector to EC1: X13
X12	BC	Cable connector to EC1: X14
X13	BC EC1 EC2	Cable connector to EC2: X13 Cable connector to BC: X11 Cable connector to BC: X13
X14	BC EC1 EC2	Cable connector to EC2: X14 Cable connector to BC: X12 Cable connector to BC: X14
X28 - X88	All	1 SU connector each (16 TW) to the patch panel

Table 4-5 Connector Assignments on the “8-Slot Backplane

Connec-tor	Cabinet	Function
X98	EC1 EC2	1 SU connector each (16 TW) to the patch panel
X29 - X89	All	1 SU connector each (8 TW) to the patch panel (not for S_{2M}, T1)
X99	EC1 EC2	1 SU connector each (8 TW) to the patch panel (not for S_{2M}, T1)

Connecting Cables Between the "8-Slot" Basic and Expansion Cabinets

If installing a multi-cabinet system, you must also connect the cables between the BC and ECs.

If	Then
Two-cabinet system	Connect BC to EC1 = 2 cables (S30267-Z178-A13) (see Figure 4-31)
Three-cabinet system	• Connect BC to EC1 = 2 cables (S30267-Z178-A13) • Connect BC to EC2 = 2 cables (S30267-Z178-A13) (see Figure 4-32)

Connecting Cables for a Two-Cabinet "8-Slot" System (See Table 4-5)

Cabinet part numbers

- BC = S30777-U757-X, S30777-U757-X103 (for U.S. only)
- EC1 = S30777-U708-X100, S30777-U708-X103 (for U.S. only)

Backplane part numbers

- BC = S30777-Q757-X
- EC1 = S30777-Q708-X100

Connecting cable part numbers

- For connecting BC to EC1 = S30267-Z178-A13

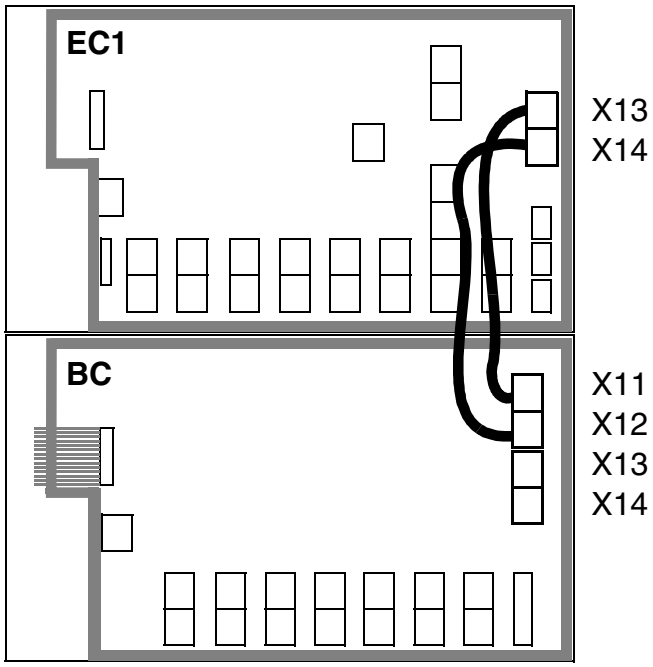


Figure 4-31 Two-Cabinet "8-Slot" System - Connecting Cables Between BC and EC1

Connecting Cables for a Three-Cabinet “8-Slot” System (see Table 4-5)

Cabinet part numbers

- BC = S30777-U757-X, S30777-U757-X103 (for U.S. only)
- EC1, EC2 = S30777-U708-X100, S30777-U708-X103 (for U.S. only)

Backplane part numbers

- BC = S30777-Q757-X
- EC1, EC2 = S30777-Q708-X100

Connecting cable part numbers

- Connect BC to EC1, BC to EC2 = S30267-Z178-A13

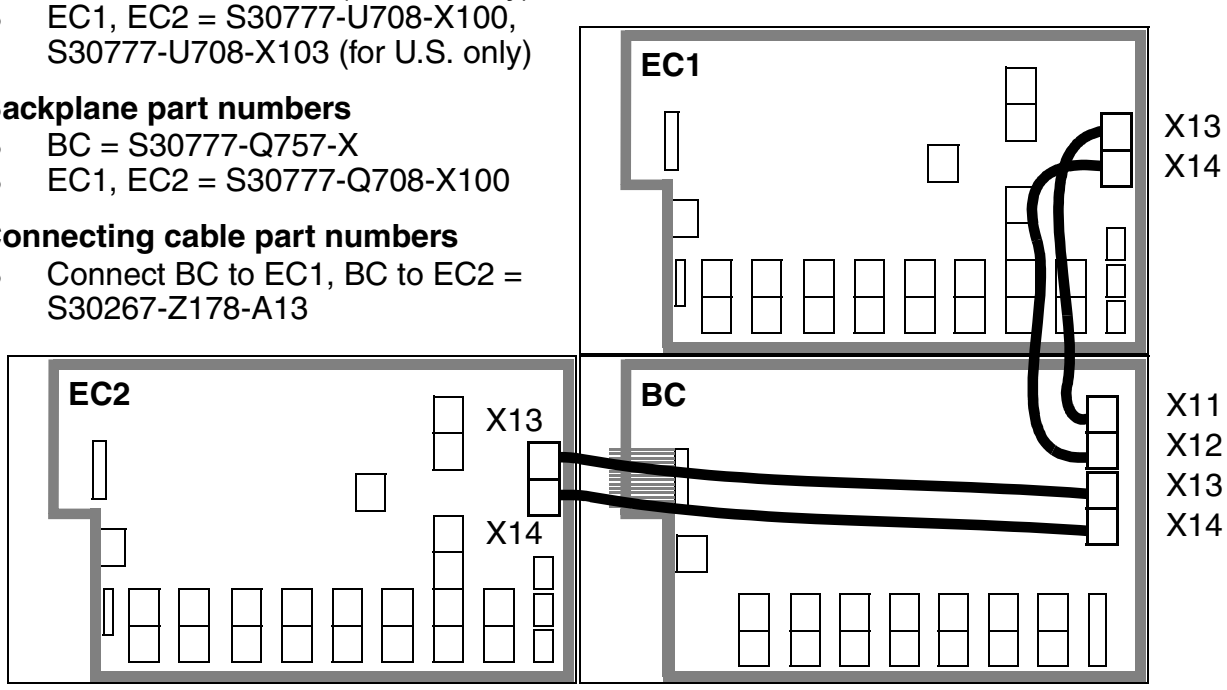


Figure 4-32 Three-Cabinet “8-Slot” System - Connecting Cables between BC, EC1 and EC2

The cables between the basic cabinet and the expansion cabinets are connected in a star configuration.

Terminating Resistors in “8-Slot” Cabinets

- BC: Between slots CBCPR + 2 and 3 + 4 and 8 + UPSM
- EC1: Between slots 11 + 12 and 13 + 14 and 15 + 16 and 17 + UPSM
- EC2: Between slots 20 + 21 and 22 + 23 and 24 + 25 and 26 + UPSM

4.1.4.7.2 Connecting the Patch Panel and Backplane (in the 19-Inch Cabinet)

Introduction

Set up the connection between the patch panel and system using CABLUs (prefabricated cabling units) with the following characteristics:

- System side: SIPAC 1 SU connector(s)
- Cable: 16 x 2 x 0.4 (the standard cable length is 2 m.)
- Patch panel side:
  - Not for U.S.: Open-end cable (for STMD8) or SIVAPAC socket connectors (for all other boards)
  - For U.S. only: ---

CABLUs for the Slots Containing Peripheral Boards (Not for U.S.)

If	Then
Slot with SLMO8, SLMO24, SLA8N, SLA16N or SLA24N	Route 16 TW to the patch panel via SU Xx8 and 8 TW via SU Xx9 using a standard cable (with 16 TW) for each connection. Connect both cables (= 1 CABLU with SU connectors labeled 8 and 9) to the same SIVAPAC socket connector (25 TW).
Slot with STMD8	You need a special S_0 patch panel (C39104-Z7001-B1) for this. The 16 TW is routed via (and manually laid at) SU Xx8 (backplane) using an open-end cable.
Slot with TMS2	S_{2M} connections are not set up via a patch panel. An adapter (SIPAC 1 SU connector - 8-pole MW8 (RJ48C) jack, Figure 4-38) is connected directly to the SU Xx9 backplane connector. You can use a special cable (see Section 3.3.29, “TMS2 (Not for U.S.)”) to create a direct connection to the NT or networked system.
Slot with any other peripheral board	Route 16 TW to the patch panel (S30807-K6143-X) via SU Xx8 using a CABLU.
Slot with REAL	Route the REAL board via an S_0 patch panel (C39104-Z7001-B1). The 16 TW is routed to (and manually laid at) the S_0 patch panel via SU X6 (backplane) using an open-end cable.

CABLUs for the Slots Containing Peripheral Boards (for U.S. Only)

If	Then
Slot with 24-port peripheral board	Route 16 TW to the patch panel via SU_Xx8 and 8 TW via SU_Xx9, using standard CABLU S30267-Z365-A30 (SU connectors are labeled 8 and 9.). Both cables are connected to the same 50-pin Champ jack.
Slot with max. 16-port peripheral board	Route 16 TW to the main distribution frame via SU_Xx8 using standard CABLU S30267-Z366-A30.
Slot with TMST1	T1 connections (see Section 3.3.28, “TMST1 (for U.S. Only)”) are not set up via the main distribution frame. An adapter (1 SU connector - 8-pole MW8 (RJ48C) jack, Figure 4-20) is connected directly to the SU Xx9 backplane connector. You can use a special cable to create a direct connection to the CSU or networked system.

Structure of the Patch Panel S30807-K6143-X

All incoming cables must be attached to the patch panel using cable ties.

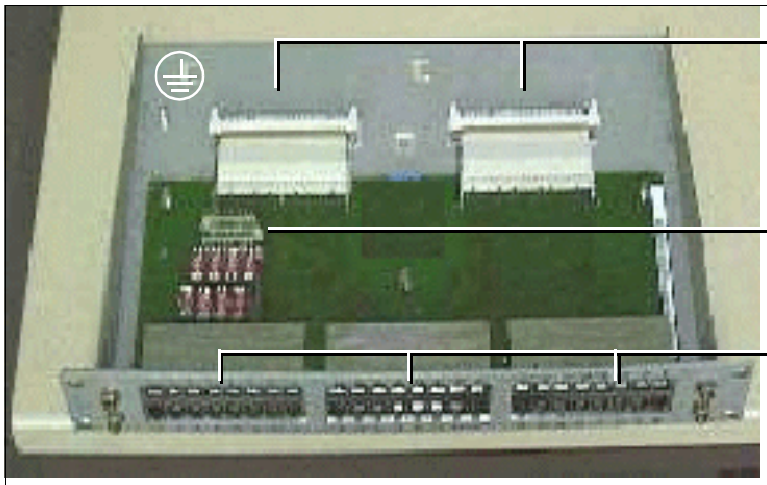


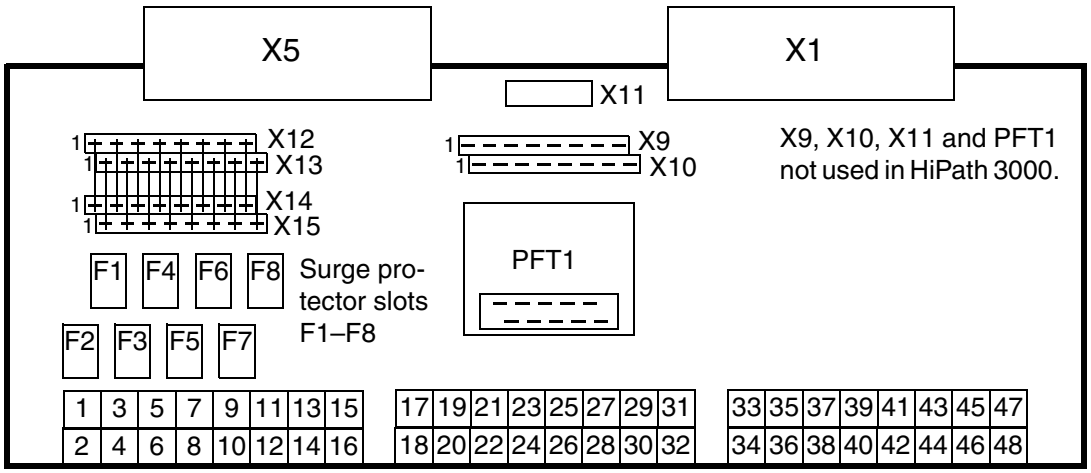
Figure 4-33 Patch Panel S30807-K6143-X

Information on MW8 jack assignment on the front of the patch panel is provided in the board descriptions (in the “Cable and Connector Assignment” table) in Chapter 3.

Surge Protector

To protect against surge voltage caused by lightning strikes, use the surge protectors for analog subscriber boards (SLA8N, SLA16N, SLA24N), the CMI board (SLC16), and the loop start boards (TML8W). Connect the polarized surge protectors to slots F1 – F8 provided on the patch panel (see Figure 4-34).

SIVAPAC Edge Connectors: Connecting the CABLUs to the Backplane



Front Panel with 3 x 16 MW8 Jacks

Options for connecting the external line network:

- Connection via the MW8 jacks on the front of the patch panels. Using jumper wire, bridges must be inserted between the terminal strips X12 and X14 and between X13 and X15. The contact between the connector X5 and the first eight MW8 jacks is only set up when wire bridges are present.
- Direct connector jumpering on the X12/X13 connector. Bridges are not necessary in this case.

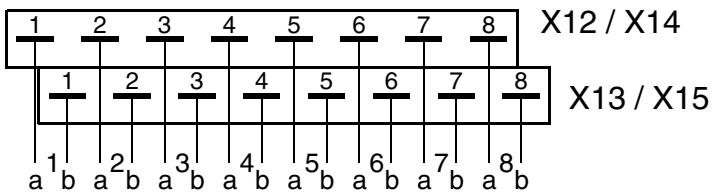
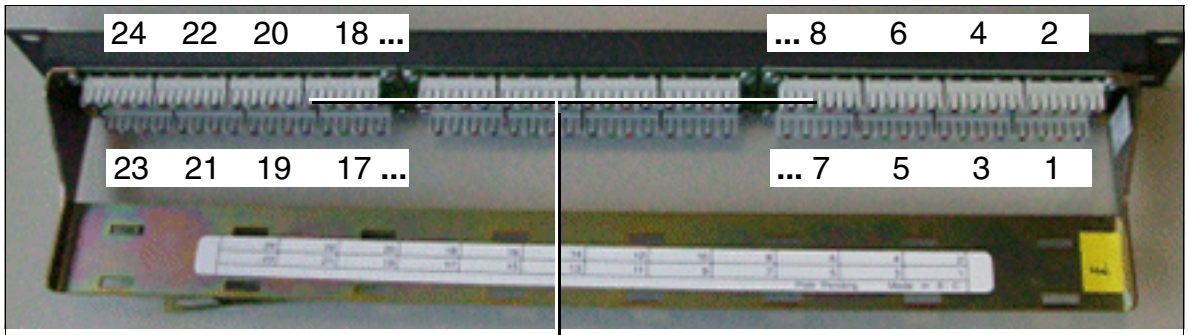


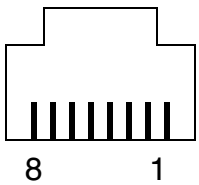
Figure 4-34 Patch Panel S30807-K6143-X Layout

Structure of the S_0 Patch Panel C39104-Z7001-B1

All incoming cables must be attached to the patch panel using cable ties.



3 x 8 MW8 jacks, numbering



Pin	MW8 jack assignment: as a subscriber line	as a trunk connection
3	Transmit +	Receive +
4	Receive +	Transmit +
5	Receive –	Transmit –
6	Transmit –	Receive –

Necessary height units for 19“ cabinet assembly: 1
(one height unit corresponds to approx. 1.7“ = 43 mm)

Figure 4-35 S_0 Patch Panel C39104-Z7001-B1

CABLUs must be manually connected to the S_0 patch panel (Figure 4-36). You can use the Krone wiring tool for this.

Refer to the following tables for information on the assignment of the MW8 jacks:

- Table 3-72 for STMD8 board (not for U.S.)
- Table 3-121 for REAL board

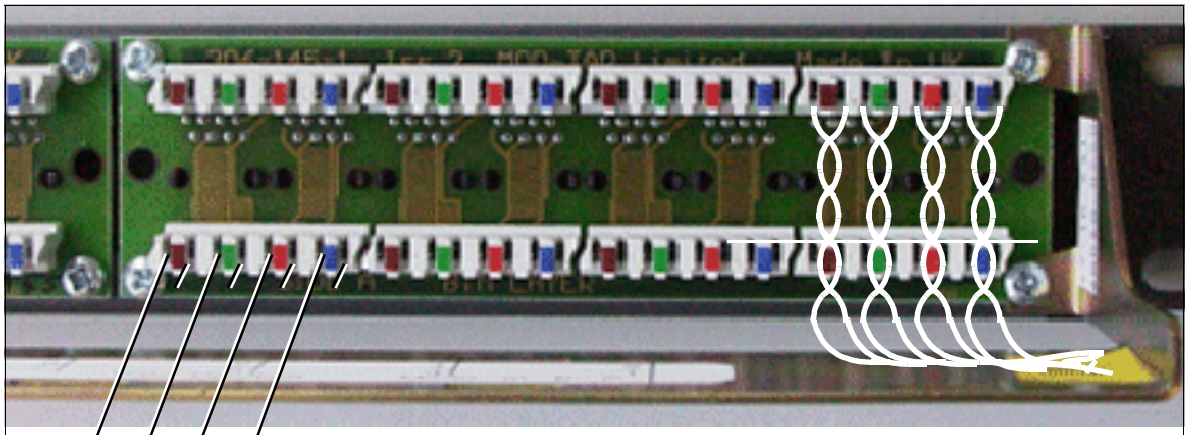
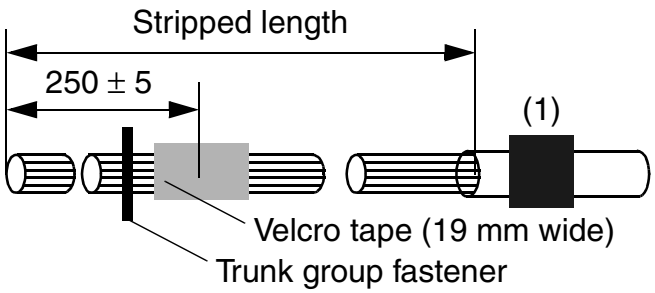


Figure 4-36 Laying Wire Pairs at the S_0 Patch Panel

Stripping the Open-End Cable for the S_0 Patch Panel



Cable with film sheath: No. 6 (conductive copper tape) 1.5 windings. Ground wire shortened to 25 mm and soldered onto conductive tape (1).

Stripped length = 600 mm ± 5 mm

Color Group	Pair	a-Wire	b-Wire	Color Group	Pair	a-Wire	b-Wire	Color Group	Pair	a-Wire	b-Wire
1	1	wht/blu		2	6	red/blu		3	11	blk/blu	
			blu/wht				blu/red				blu/blk
	2	wht/ora			7	red/ora			12	blk/ora	
			ora/wht				ora/red				ora/blk
	3	wht/grn			8	red/grn			13	blk/grn	
			grn/wht				grn/red				grn/blk
	4	wht/brn			9	red/brn			14	blk/brn	
			brn/wht				brn/red				brn/blk
	5	wht/gry			10	red/grn			15	blk/gry	
			gry/wht				grn/red				gry/blk
								4	16	yel/blu	
											blu/yel

Figure 4-37 Stripping the Open-End Cable for the S_0 Patch Panel

S_{2M}/T1 Adapter (SIPAC 1 SU - MW8 (RJ48C))

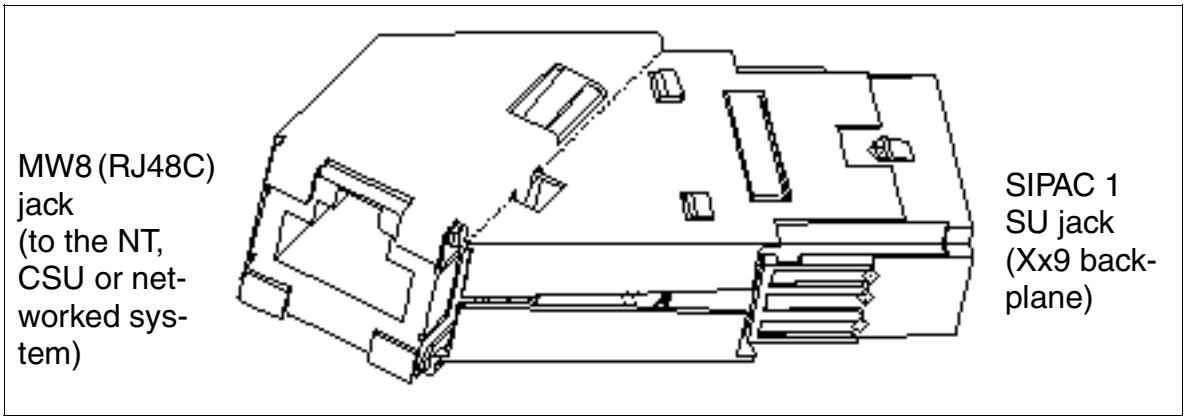


Figure 4-38 S_{2M}/T1 Adapter (SIPAC 1 SU - MW8 (RJ48C)) C39228-A7195-A12

4.1.4.8 Connecting the Line Network to the Patch Panel

Danger
Connect the system to protective ground before connecting the stations.

Telephones and trunks are connected directly to the MW8 jack on the front of the patch panel. Information on MW8 jack assignment on the front of the patch panel is provided in the board descriptions (in the “Cable and Connector Assignment” table) in Chapter 3.

If you jumper stations on the patch panel (for example, with an ICCS network) without first entering the relocate code, when you reconnect them the stations affected will go into operation with the data of the stations originally installed.

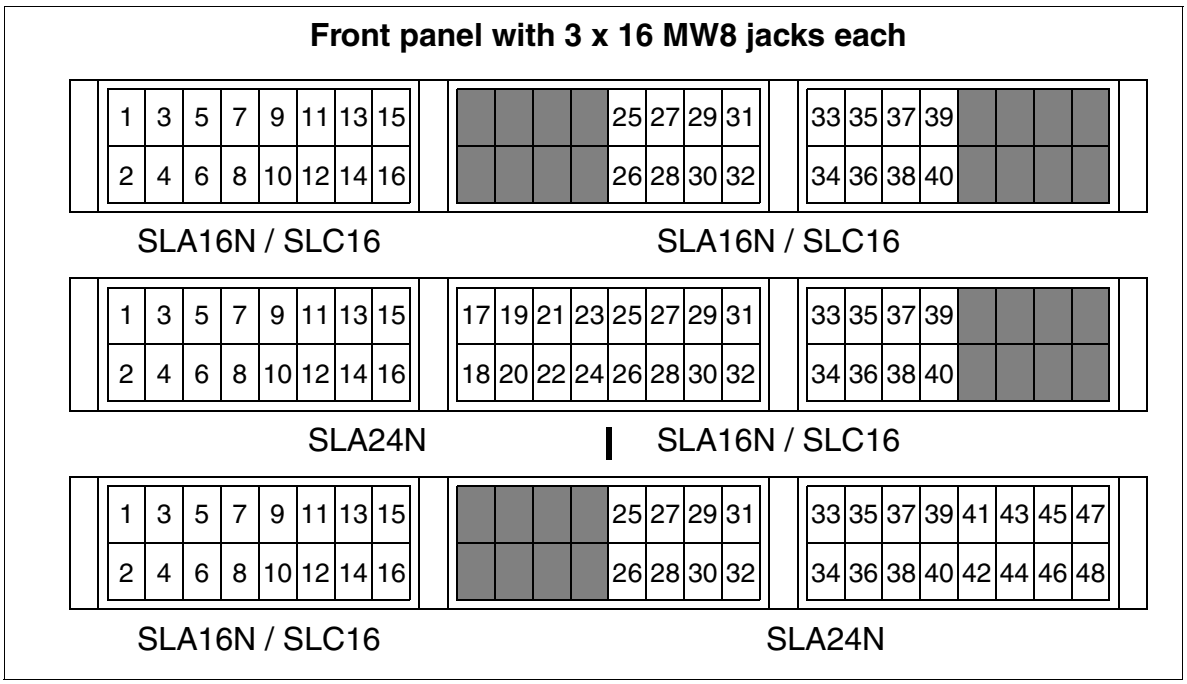


Figure 4-39 Layout of the Patch Panel S30807-K6143-X for Different Peripheral Boards

4.1.5 Loading the System Software and Inserting Subboards on the Central Control Board

Caution
Always wear an antistatic wristband when working on the system (especially when handling boards). Connect the wristband to the slide-in shelf in the cabinet using the alligator clip.

Outside the U.S., the cabinets are already equipped with the boards needed for the customer-specific requirements when the system is delivered.

In the U.S., you may need to install the boards.

The central boards are not always fully equipped when delivered. Optional plug-in boards are packaged individually.

See Chapter 3 for information on slots for subboards on the central control boards.

Caution
Place the central control board on a flat surface before inserting subboards (such as CMA, CMS, or IMODC).
The spacing bolts supplied guarantee the correct insertion of the subboard, so you should always mount them (see Figure 3-6).
Otherwise you may damage the board.

4.1.6 Configuration Notes

Introduction

Outside the U.S., the cabinets are already equipped with the boards needed for the customer-specific requirements when the system is delivered. In the U.S., you may need to install the boards.

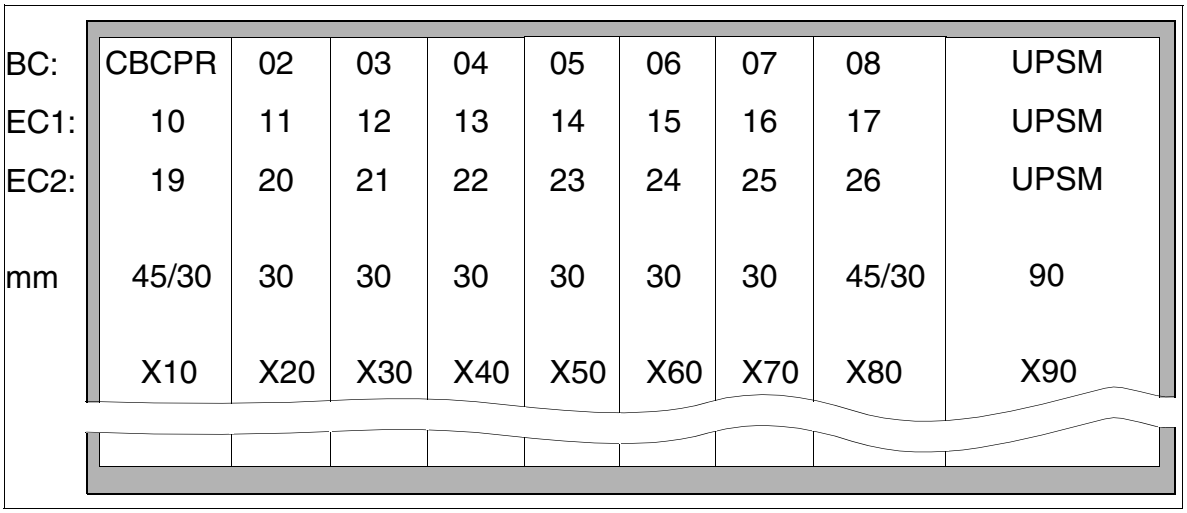
Board Slots in “8-Slot” Cabinets

Nine board slots are available in each cabinet. The following boards are assigned permanent slots:

- CBCPR central processor board -> slot 01 in the BC
- UPSM power supply unit -> slot 09 in the BC, slot 18 in EC1, slot 27 in EC2.

Depending on their width, peripheral boards can be inserted in slots 02 to 08 in the BC, 10 to 17 in EC1 and 19 to 26 in EC2 (the adhesive label beneath each slot identifies the slot) (see Figure 4-40).

Slots in “8-Slot” Basic and Expansion Cabinets



BC:	CBCPR	02	03	04	05	06	07	08	UPSM
EC1:	10	11	12	13	14	15	16	17	UPSM
EC2:	19	20	21	22	23	24	25	26	UPSM
mm	45/30	30	30	30	30	30	30	45/30	90
	X10	X20	X30	X40	X50	X60	X70	X80	X90

Figure 4-40 Slot Numbers and Widths in “8-Slot” BC, EC1, and EC2

Width of the Peripheral Boards

Peripheral boards are divided into

- Wide boards requiring a slot 45 mm (1.75 in.) wide
  (TML8W with GEE8: Use a 45 mm slot for the TML8W even if you are not installing a GEE8 so that you can easily add a GEE8 later.)
- Narrow boards requiring a slot 30 mm (1.2 in.) wide
  (all other boards)

You can insert wide boards into a 30 mm (1.2 in.) slot, but if you do so, you can no longer use the adjacent slot.

Caution
Always wear an antistatic wristband and observe the measures for protecting electrostatically sensitive devices**.**

Initializing the Boards

The first time the system starts up, the system software detects the boards in ascending order, starting with the lowest installation position. The system initializes subscriber line circuits and ports the direction of the arrow (Figure 4-41).

The system activates all connected boards in the following situations:

- The maximum configuration has not yet been reached. While sequentially scanning the slots for each board, the system software checks whether the maximum number of stations or trunks has been exceeded. If it has, the board is not activated. The board LED shows the board's status.
- At least one B channel on line trunk modules is available for the slot (only the available number of B channels is activated).

Initialization of Subscriber Line Circuits and Ports

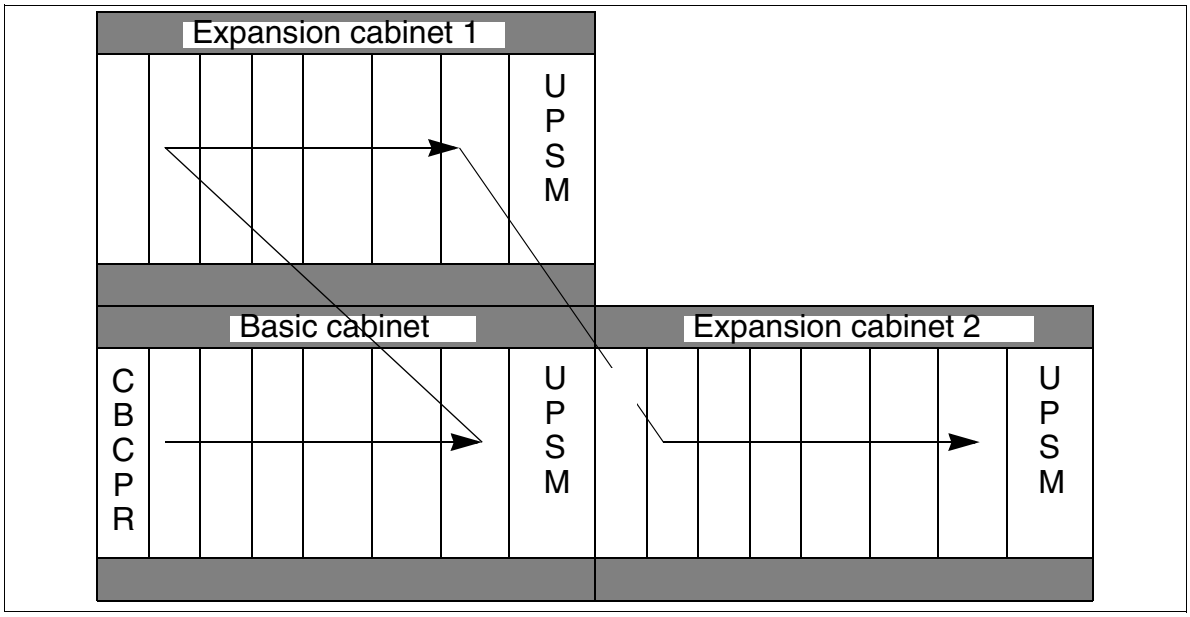


Figure 4-41 HiPath 3750 and HiPath 3700—Initialization of Subscriber Line Circuits and Ports

Recommended Configuration (for U.S Only)

To avoid B-channel blocking, install the TMST1 board only in the BC or in the first two slots of the ECs. HiPath 3000 Manager E observes this rule when performing off-line configuration.

Distribution of the PCM Segments

There are 64 time-division multiplex channels available for each PCM segment. If these are busy, blockades result. The system cannot execute any more call requests.

To guarantee that the system operates without blocking, make sure when you do the configuration that the boards on a PCM segment do not require more than the 64 time-division multiplex channels that are available. The following table lists the number of time-division multiplex channels that the different boards require.

Table 4-6 Number of Time-Division Multiplex Channels Required Per Board

Board	Number of time-division multiplex channels required
CR8N	8
HXGM	16
IVML8	8
IVML24	24
SLA8N, SLA16N, SLA24N	Depends on the number of stations
SLC16	Depends on the number of mobile telephones logged on
SLMO8, SLMO24	Depends on the number of stations (hosts (primary) **and** clients (secondary))
STMD8	16
TIEL	4
TML8W	8
TMOM	1
TMS2	30
TMT1	24

Caution
To guarantee that the system operates without blocking, it is necessary that you observe the following rules for the configuration of boards:

- **SLC16**
  - A maximum of one SLC16 per PCM segment; if possible, the SLC16 should stay alone on the PCM segment.
  - Note the following information on the subject of multi-SLCs: “SLC16 Board Distribution in HiPath 3750 and HiPath 3700 Cabinets” on page 3-120.
- **IVML8, IVML24** (see Section 3.3.3 on page 3-92)
  - A maximum of one IVML8 or IVML24 per system.
  - Only in the slot next to the UPSM in the basic cabinet (slot 08).
  - You may not insert an SLMO8, SLMO24, or SLC16 on the PCM segment of the IVML8 or IVML24.
  - If there is a TMS2 on the PCM segment of the IVML8 or IVML24, only a TIEL, TMOM, or TML8W is allowed on the free slot.
- **SLMO24**
  A maximum of two SLMO24s per PCM segment; the number of connected stations (hosts (primary) **and** clients (secondary)) may not be more than 64.

The figures below show the PCM segments (64 time-division multiplex channels each) for the different HiPath 3750 and HiPath 3700 system configurations.

PCM Segments for a One-Cabinet System:

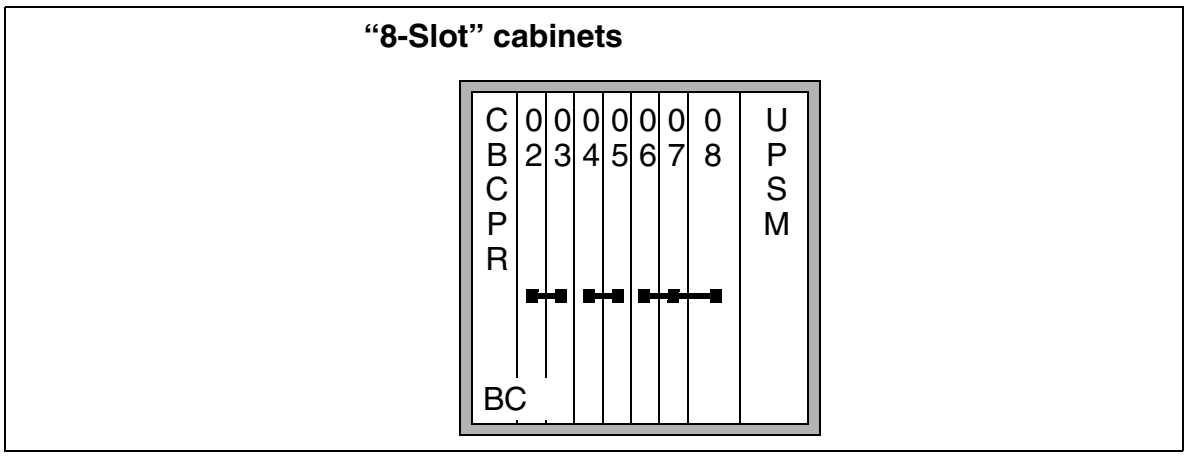


Figure 4-42 PCM Segments for a One-Cabinet System

PCM Segments for a Two-Cabinet System

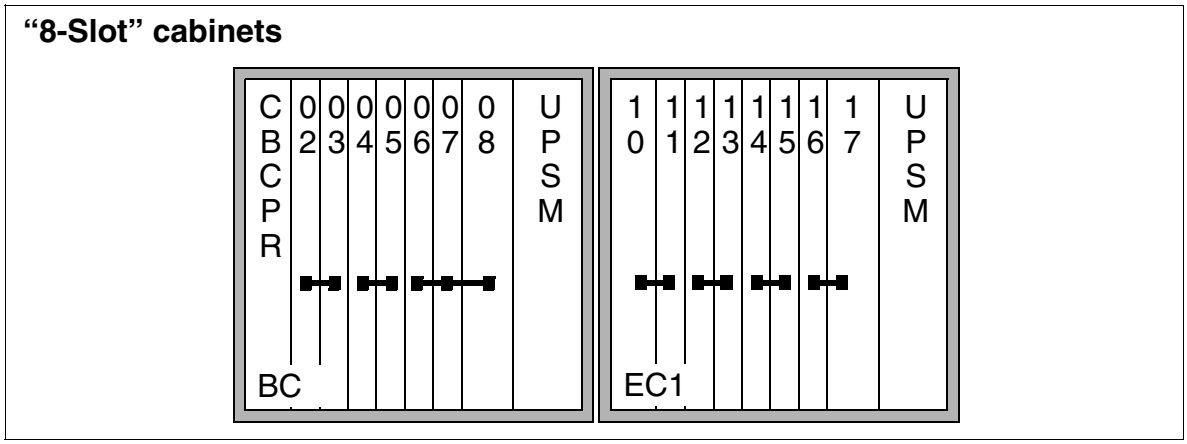


Figure 4-43 PCM Segments for a Two-Cabinet System

PCM Segments for a Three-Cabinet System

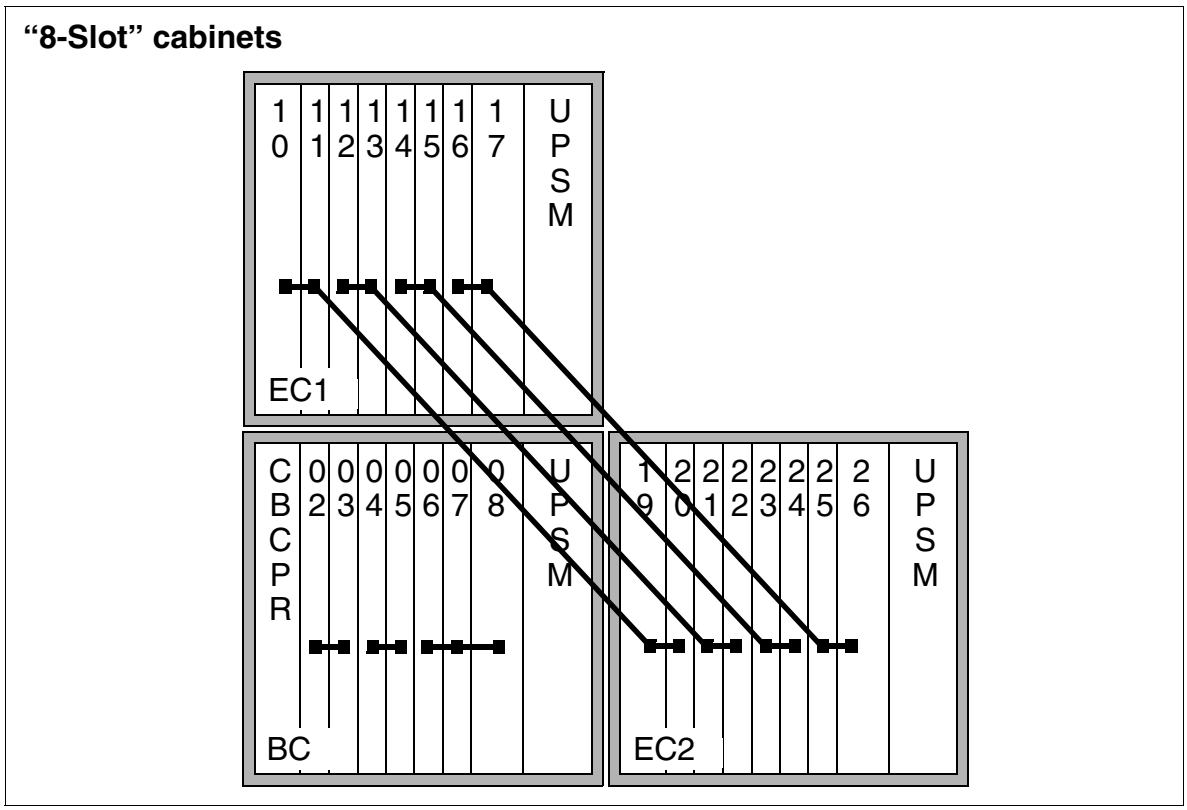


Figure 4-44 PCM Segments for a Three-Cabinet System

4.1.6.1 Inserting and Removing Boards

Introduction

Peripheral boards can be inserted and removed while the power is connected.

Two levers are attached to the front corners of the boards for inserting and removing the boards. When closed, these levers engage with the board, locking it in place.

See Section 6.1 for information on how to add new peripheral boards.

Procedure for Inserting and Removing the Boards (Figure 4-45)

If	Then
Unlocking the board (1)	Swing both plastic levers outward simultaneously. You can now pull the board out of the system on its guide rails.
Locking the board (2)	Slide the board into the system using its guide rails. Insert the hooks on the locking levers into the recesses in the shelf. Press down on both levers simultaneously in the direction of the shelf until they snap into place.

Locking and Unlocking Boards

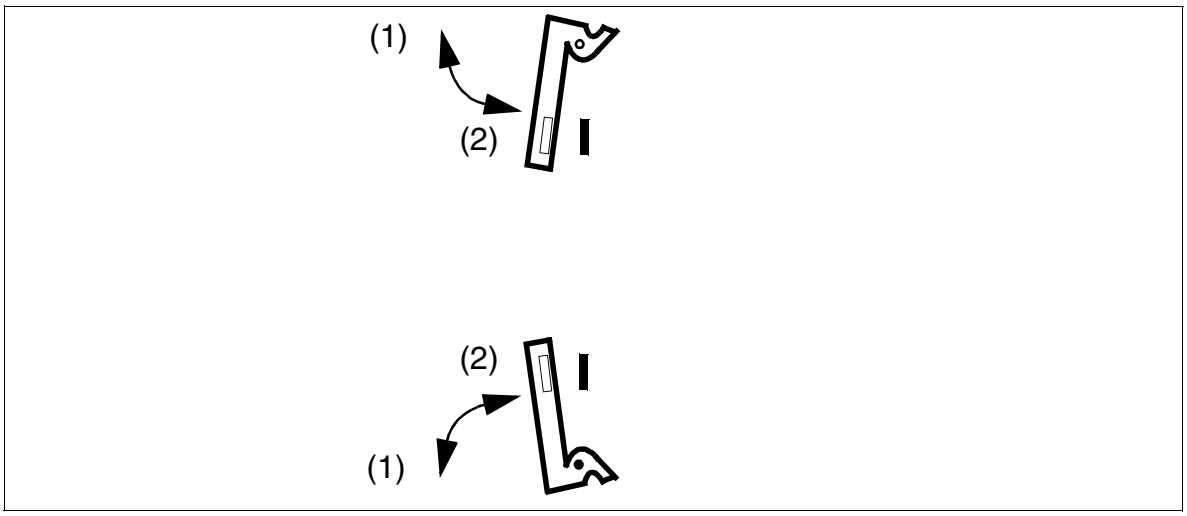


Figure 4-45 Locking and Unlocking Boards

Special Board Attachments

The power supply is screwed onto the grill of each cabinet.

The special REAL board is mounted on the metal back panel (basic cabinet only) and connected to the backplane with a ribbon cable.

4.1.7 Connecting Workpoint Clients

Refer to Chapter 9 for details.

4.1.8 Performing a Visual Inspection

Introduction

Before starting up the system, you must perform a visual inspection of the hardware, cables and the power supply. The procedure is shown in Table 4-7. The visual inspection must be performed while the system is disconnected from the power supply.

DANGER
Before beginning work, make sure that the system is grounded and disconnected from the power supply. For U.S. only: Use lockout/tagout (LOTO) procedures. Observe the measures for protecting electrostatically sensitive devices (see page 1-3).

Visual Inspection Procedure

Table 4-7 Visual Inspection Procedure

Step	Activity	Materials	Action
1.	Compare the slots for the existing boards with the card map.	Card map	Correct the board configuration and notify the sales department.
2.	Check all boards for proper seating.	Refer to page 4-77 Check the additional mechanical attachments for the UPSM.	Reconnect and fasten the boards.
3.	Check the local line voltage.	Digital multimeter	

After finishing the visual inspection, you can begin starting up the HiPath 3750 or HiPath 3700 system as described in Section 5.1.

4.2 HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300 Installation

4.2.1 Installation Prerequisites

Danger
The system may be installed by authorized service personnel only.

Tools and help needed

The following are needed for installing the HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300 systems:

- **Tools**:
  - Diagonal cutting pliers, telephone pliers, wire stripper, flat-nosed pliers
  - Slotted screwdrivers, from 2 to 8 mm (1/4 to 5/16 in.)
  - Phillips or cross-point screwdrivers, sizes 1 and 2
  - TORX screwdriver
  - Electric drill
  - Hammer
  - Level
  - Tape measure
- **Help**:
  - Assistant T or HiPath 3000 Manager E
  - Digital-multimeter for testing ground connections and partial voltages
  - Telephone test set for analog interfaces
  - Not for U.S.: ISDN tester (such as K3000 or Aurora)
  - For U.S. only: Trend Communications aurora^{plus}, or similar, ISDN protocol analyzer (for BRI)
  - For U.S. only: Aurora^{Duet}, or similar, ISDN protocol analyzer (for PRI)

4.2.2 Installation Procedure

Table 4-8 HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300 - System Installation Procedure

Step	Installation Activity	
	HiPath 3550 and HiPath 3350 Installation	**HiPath 3500 and HiPath 3300 Installation (19-Inch Housing)**
1.	Selecting the Installation Site (usually predetermined) page 4-81	Selecting the Installation Site (usually predetermined) page 4-103
2.	Unpacking the Components page 4-83	Unpacking the Components page 4-103
3.	Mounting the Main Distribution Frame (HiPath 3550 only) (Not for U.S.) page 4-84	Attaching a HiPath 3500 or HiPath 3300 to the Wall (19-Inch Housing) (Not for U.S.) page 4-104
4.	Remove System Housing Cover page 4-86	Installing a HiPath 3500 or HiPath 3300 in a Cabinet page 4-105
5.	Attaching the System to the Wall page 4-88	Grounding the System page 4-107
6.	Grounding the System and the External Main Distribution Frame page 4-89	Installing the Boards page 4-108
7.	Installing the Boards page 4-91	Connecting Cables and the Line Network page 4-109
8.	Laying the Line Network and Connecting Cables page 4-92	Configuration Notes page 4-110
9.	Attaching Ferrite page 4-96	Connecting Workpoint Clients page 4-112
10.	Configuration Notes page 4-98	Performing a Visual Inspection page 4-112
11.	Connecting Workpoint Clients page 4-101	
12.	Conducting a Visual Inspection page 4-101	

4.2.3 HiPath 3550 and HiPath 3350 Installation

This section contains information on the installation of the HiPath 3550 and HiPath 3350. This chapter describes the standard installation procedures for the basic system. Refer to Chapter 6 and Chapter 10 for information about supplementary equipment and expansions.

4.2.3.1 Selecting the Installation Site

Selecting a Site

The customer usually has a preferred installation site in mind.

Make sure that the customer's site meets the following guidelines:

- To guarantee sufficient system ventilation, keep the area surrounding the housing clear as follows: allow 30 cm clearance on the left (for board replacement), and 10 cm clearance on the right, top and bottom of the housing.
- Do not expose the systems to direct sources of heat (such as sunlight and heaters).
- Do not expose the systems to extremely dusty environments.
- Avoid contact with chemicals.
- Take every precaution to prevent the formation of condensation on the system during operation. If condensation forms on a system, make sure the system has time to dry completely before starting it up.
- Observe the environmental conditions specified in Section 2.9.4.

For U.S. Only

- Ensure that the installation site is in the immediate vicinity of an electrical outlet
- Allow space for a main distribution frame or other additional equipment
- Install lightning and surge arrester equipment
- Avoid standard carpeting, as it tends to produce electrostatic charges
- Ensure that Siemens equipment is 40 in. (101.6 cm) from other electrical equipment. The National Electrical Code (NEC) requires 36 in. (91.44 cm) of clearance in front of electrical equipment and 40 in. (101.6 cm) of clearance from other electrical service equipment.
- Ensure that the equipment room for the system provides adequate space for installation and maintenance activities, including removing and replacing the cover. See Figure 4-46 on page 4-82 for space requirements on the sides of the system. We recommend using a plywood backboard at least 0.5 in. (127 mm) thick and measuring at least 4 ft. (122 cm) by 4 ft. (122 cm).

You will find information on the design and dimensions in the following sections:

- HiPath 3550 Section 2.3.2
- HiPath 3350 Section 2.3.3

HiPath 3550 and HiPath 3350 Space Requirements (for U.S. Only)

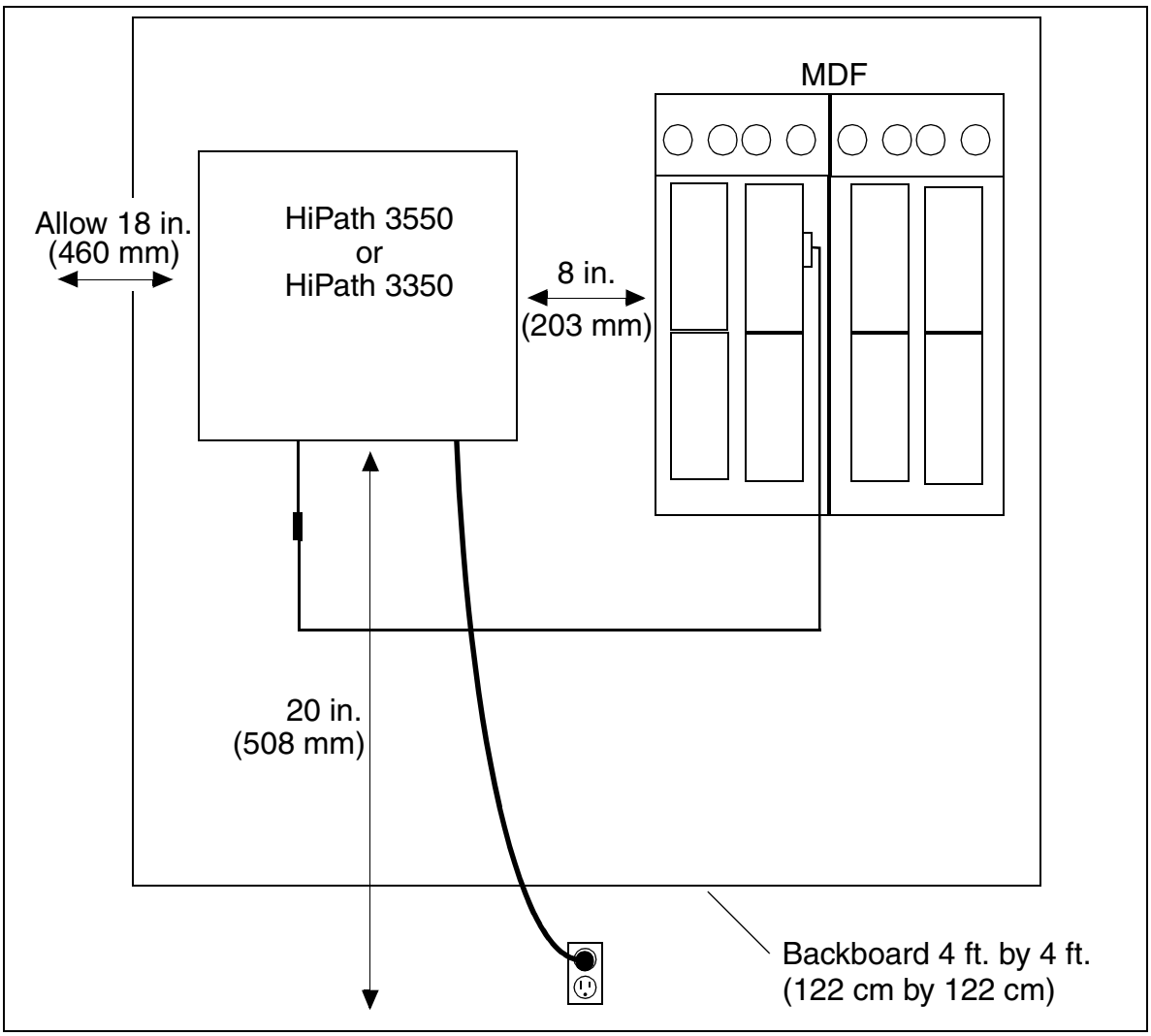


Figure 4-46 HiPath 3550 and HiPath 3350 Space Requirements (for U.S. Only)

For U.S. only: The system measures 18 by 17.7 inches (460 x 450 mm). It requires 18 in. (460 mm) of clearance on the left, and at least 8 in. (203 mm) of clearance on the top and right. Allow 20 in. (508 mm) of clearance on the bottom (for cords). Observe also the NEC requirements on page 4-81.

AC Power Outlet Requirements (for U.S. Only)

- Must not be located more than 6 feet (2 m) from the system
- Must provide fused 120 Vac (single-phase) power at 60 Hz
- Should be on a dedicated circuit with an isolated ground
- Should have a warning attached to the circuit breaker that controls it to prevent accidental removal of power
- Recommended: Add a power surge protector between the outlet and the system

4.2.3.2 Unpacking the Components

Procedure

Step	Activity
1.	Compare the components included in the delivery with the packing slip or customer receipt to make sure that they are complete.
2.	Determine whether any damage has occurred during transport and report it to the appropriate departments or the shipper.
3.	Dispose of the packing materials properly in accordance with local regulations.

Danger
Use only equipment and materials that are in perfect working order. Do not start up equipment with visible damage.

4.2.3.3 Mounting the Main Distribution Frame (HiPath 3550 only) (Not for U.S.)

Introduction

The main distribution frame unit (MDFU) (see Figure 4-47) is the main distribution frame used.

Installation Notes

The MDFU should be installed in the direct vicinity of the system (note length of connecting cable) and at eye level. Mount it on the wall according to the instructions that came with it. The bag attached to the cover contains a drill template and screws and wall anchors for attaching the MDF to the wall.

The MDFU must be grounded. Refer to Section 4.2.3.6 for an explanation of the procedure.

Procedure for Mounting the MDFU on the Wall

Step	Activity
1.	Use the template to drill holes.
2.	Insert the wall anchors and screw in the screws, leaving 5 mm projecting.
3.	Mount the MDFU on the brackets and remove the packing protection covering.
4.	Remove the housing cover and tighten the screws through the holes.

MDFU Layout and Dimensions (Not for U.S.)

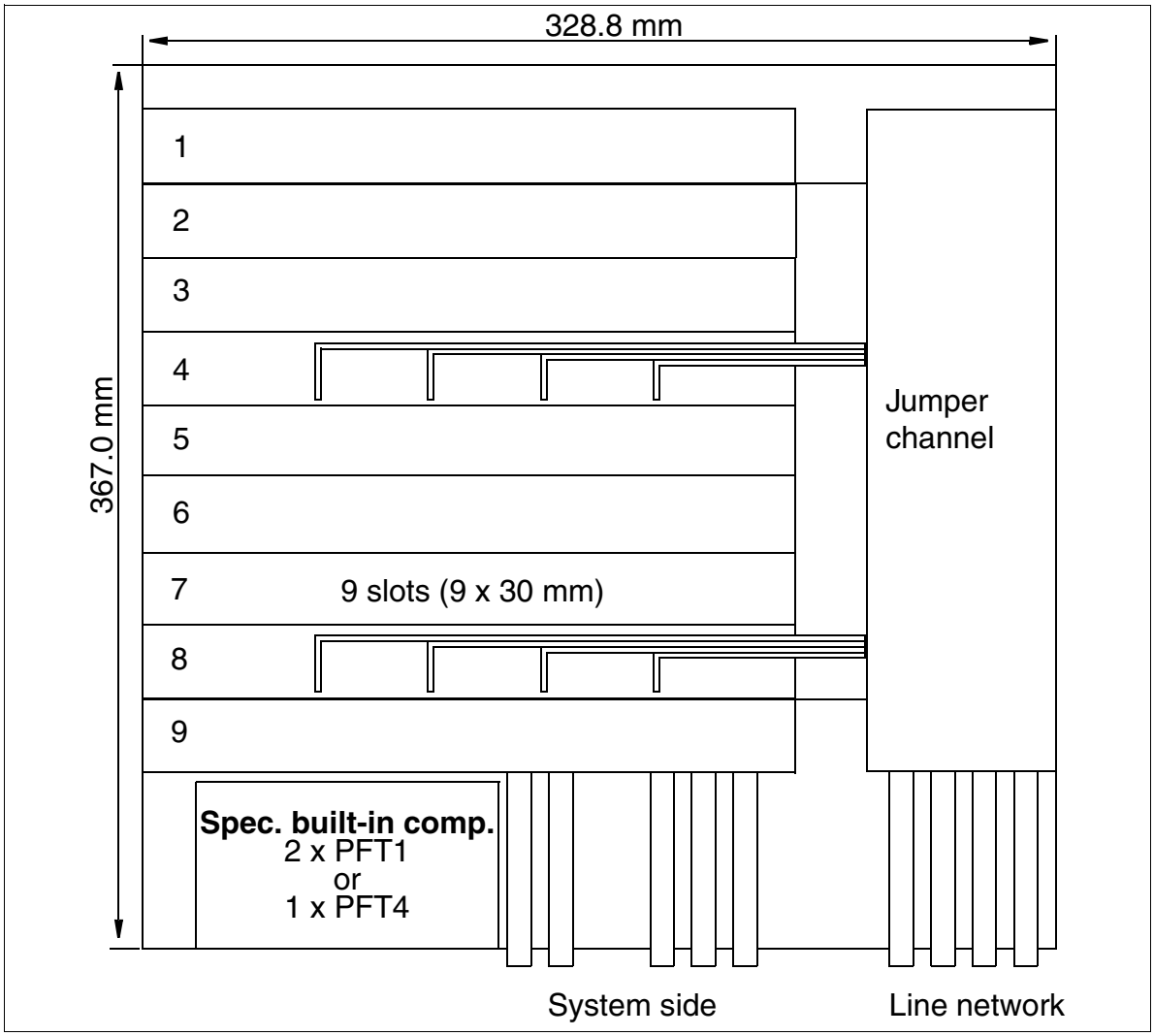


Figure 4-47 MDFU Layout and Dimensions (367.0 x 328.8 x 125.4 mm) (Not for U.S.)

4.2.3.4 Remove System Housing Cover

Warning
To prevent injuries, you must observe the following notes for the removal and attachment of the HiPath 3550 and HiPath 3350 housing cover.

Procedure

Step	Action
1.	Loosen the two screwed plugs on the housing cover with a slotted screw driver. Hold the housing cover so that it does not fall. 

Step	Action
2.	Remove the housing cover. **Warning** **Hold the housing cover by its external sides only.** The edges of the shielding on the inside of the cover may be sharp and can cause injury.   

Mounting the housing cover

To close the system housing again, put the cover on and fasten it with the two screwed plugs. To avoid injuries, hold on to the outside of the housing cover only when mounting it.

4.2.3.5 Attaching the System to the Wall

Attach the system to the wall as shown in Figure 4-48.

Attaching the HiPath 3550 or HiPath 3350 Housing to the Wall

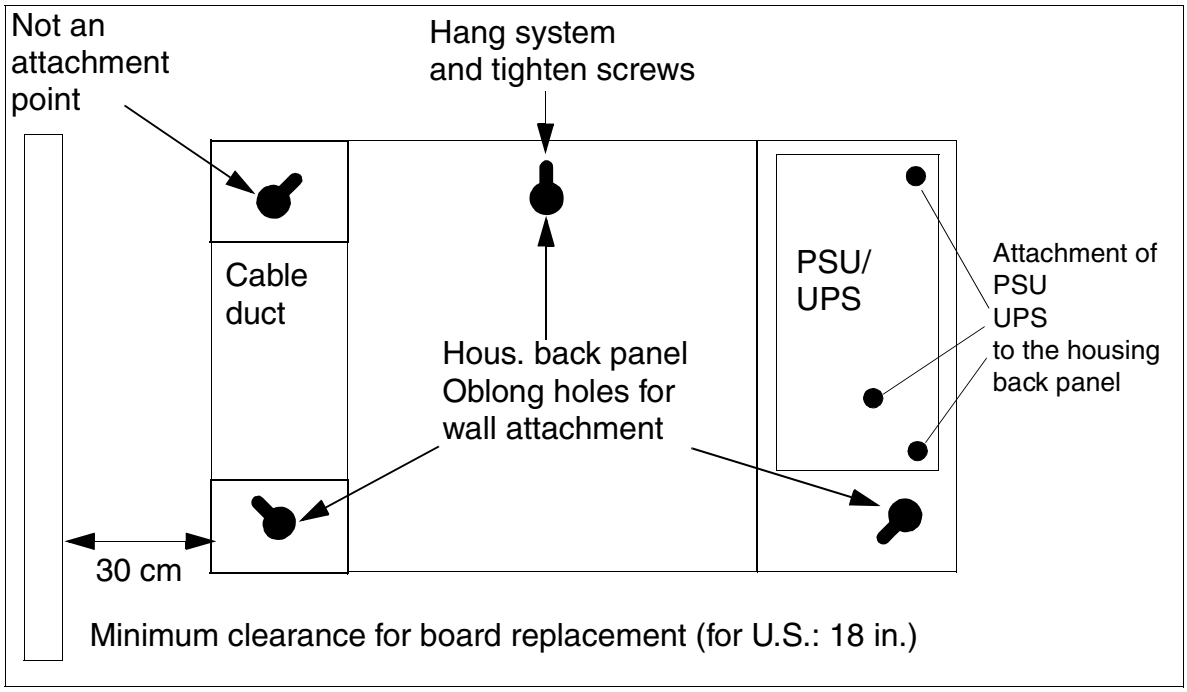


Figure 4-48 HiPath 3550 and HiPath 3350 - Wall Attachment

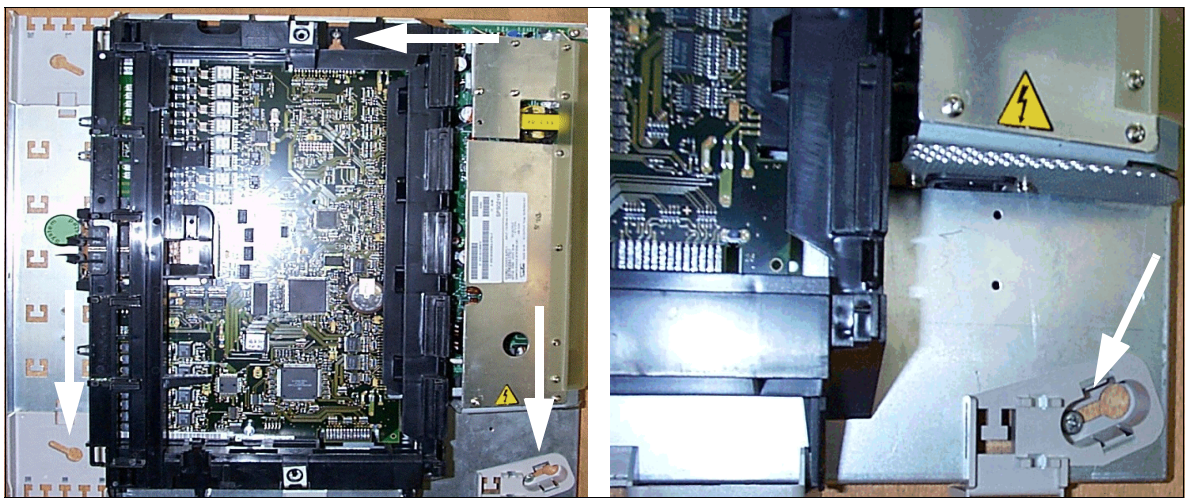


Figure 4-49 HiPath 3550 and HiPath 3350 - Mounting Holes

4.2.3.6 Grounding the System and the External Main Distribution Frame

Grounding the System (Not for U.S.)

Because of their safety class, the HiPath 3550 and HiPath 3350 (wall housing) do not have to be grounded.
If protective grounding is required in certain countries (for example in Finland, Norway, U.S.), the HiPath 3550 and HiPath 3350 must be grounded by a separate protective ground conductor via the ground connection marked "⏚".

Grounding the System (for U.S. and Canada Only)

The system power cord on the HiPath 3550 and HiPath 3350 system is grounded, but the systems also require an earth ground, as do all digital switching systems. The earth ground must meet the requirements of the U.S. National Electrical Code or Canadian Electrical Code. The earth ground must be connected between the lug provided on the HiPath 3550 or HiPath 3350 rear panel and the electrical service panel that supplies the HiPath 3550 or HiPath 3350 with power, using wire no smaller than 14 AWG.

Grounding the External Main Distribution Frame

Not for U.S.

- HiPath 3550: Shipments always include an MDFU (Germany only) and two grounding cables. Use one of the cables to ground the MDFU. It is not necessary to ground the connection between the MDFU and HiPath 3550 (see Figure 4-50).
- HiPath 3350: This system type does not require an external main distribution frame. The connecting cables to the peripherals are attached directly to the boards and routed to the outside via a cable duct inside the housing.

Danger
An external main distribution frame which requires grounding (if the existing ground connection is marked "⏚"), must be grounded by a separate ground wire (minimum cross section = 2.5 mm^2).
Failure to observe this requirement may cause irreversible damage to the system.

Refer to Figure 4-50 when replacing a customer system using the existing external main distribution frame.

For U.S. Only

The customer supplies a main distribution frame (MDF) to complete the communications system. Mount and ground the MDF in accordance with the manufacturer's instructions.

Grounding an External Main Distribution Frame

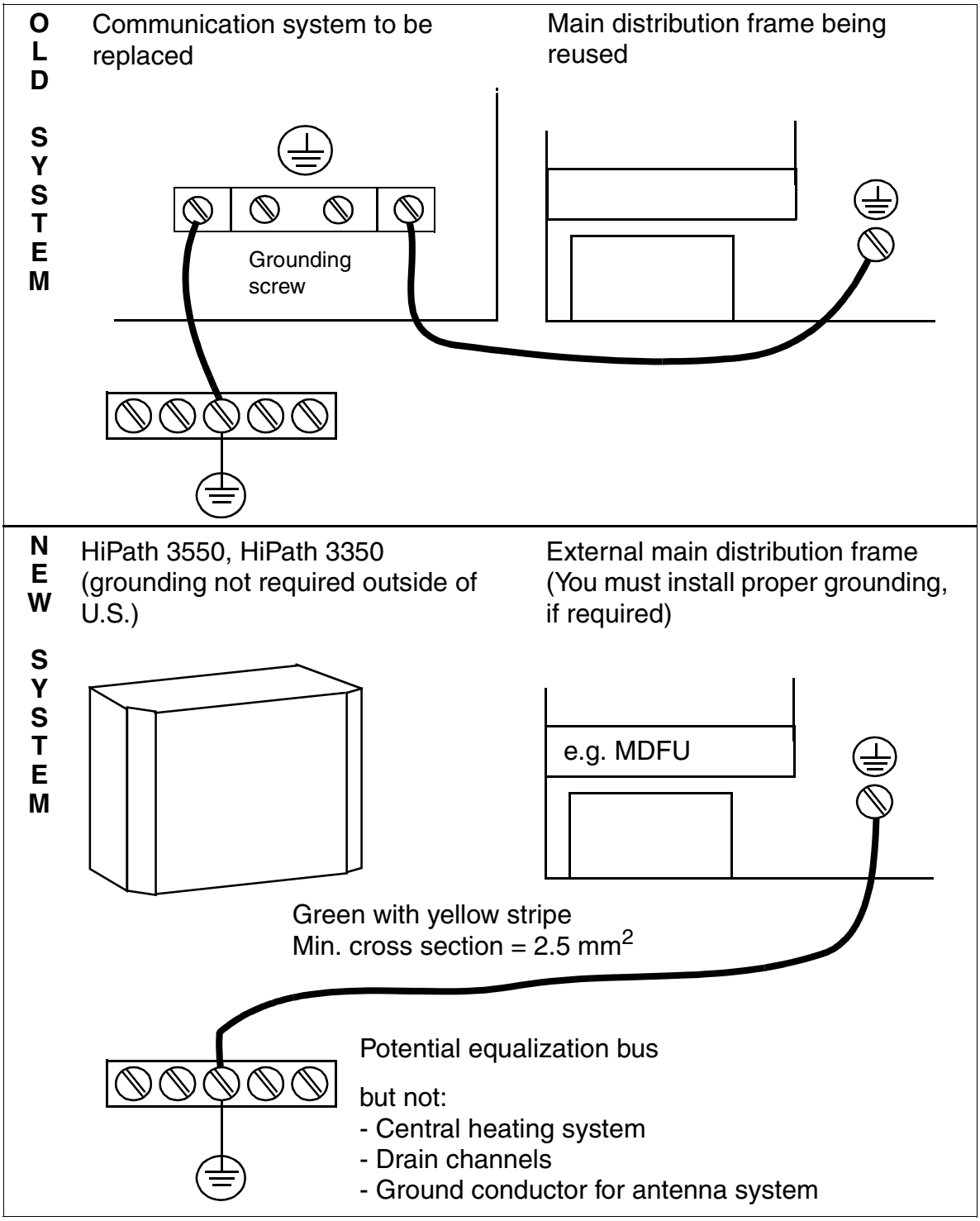


Figure 4-50 HiPath 3550 and HiPath 3350 - Grounding an External Main Distribution Frame

4.2.3.7 Installing the Boards

Outside the U.S., the cabinets are already equipped with the boards needed for the customer-specific requirements when the system is delivered.

In the U.S., you may need to install the boards.

Connecting to T1, PRI, or CorNet (for U.S. Only)

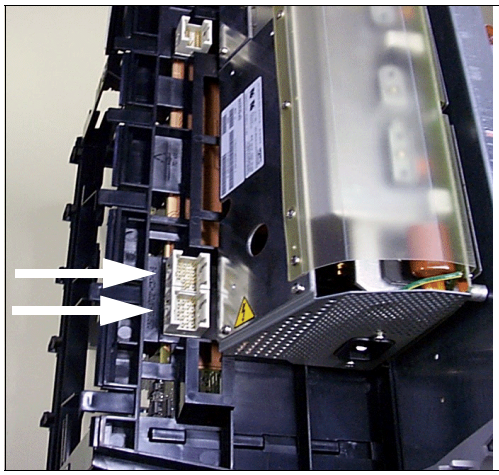
Caution
The TST1 Module (HiPath 3550) can be installed only in conjunction with a Listed channel service unit (CSU).

4.2.3.8 Laying the Line Network and Connecting Cables

HiPath 3550 (Not for U.S.)

If	Then
SLA8N SLA16N SLA24N SLC16 SLMO24	Route the 16 TW to the MDFU via SU_X8 and 8 TW via SU_X9 (see Figure 4-51), using a standard cable (with 16 TW) for each connection. Connect both cables (1 CABLU with SU connectors labeled 8 and 9) to the same jumper strip (25 TW).
Slot with any other peripheral board	• Without an external main distribution frame (MDFU): You can attach cables for the peripheral boards directly to the boards (see Figure 4-53 for the slip-on connectors) and route them to the MDFU through the cable duct inside the housing. • With an external main distribution frame (MDFU): Use CABLU S30269-Z41-A30 (Figure 4-52) to connect the peripheral boards to the customer's line network. As shown in Figure 4-53, you can connect the eight-pin slip-on connectors to the boards directly. The line network connects directly to the jumper strip.

HiPath 3550 - MDFU Ports for Peripheral Boards in HiPath 3750 Format



The two arrows on the left mark the connections for the cables coming from the main distribution frame (MDFU).

Figure 4-51 HiPath 3550 - Backplane Connection for a Peripheral Board in HiPath 3750 Format

HiPath 3550 and HiPath 3350 - CABLU for Connection to the External Main Distribution Frame

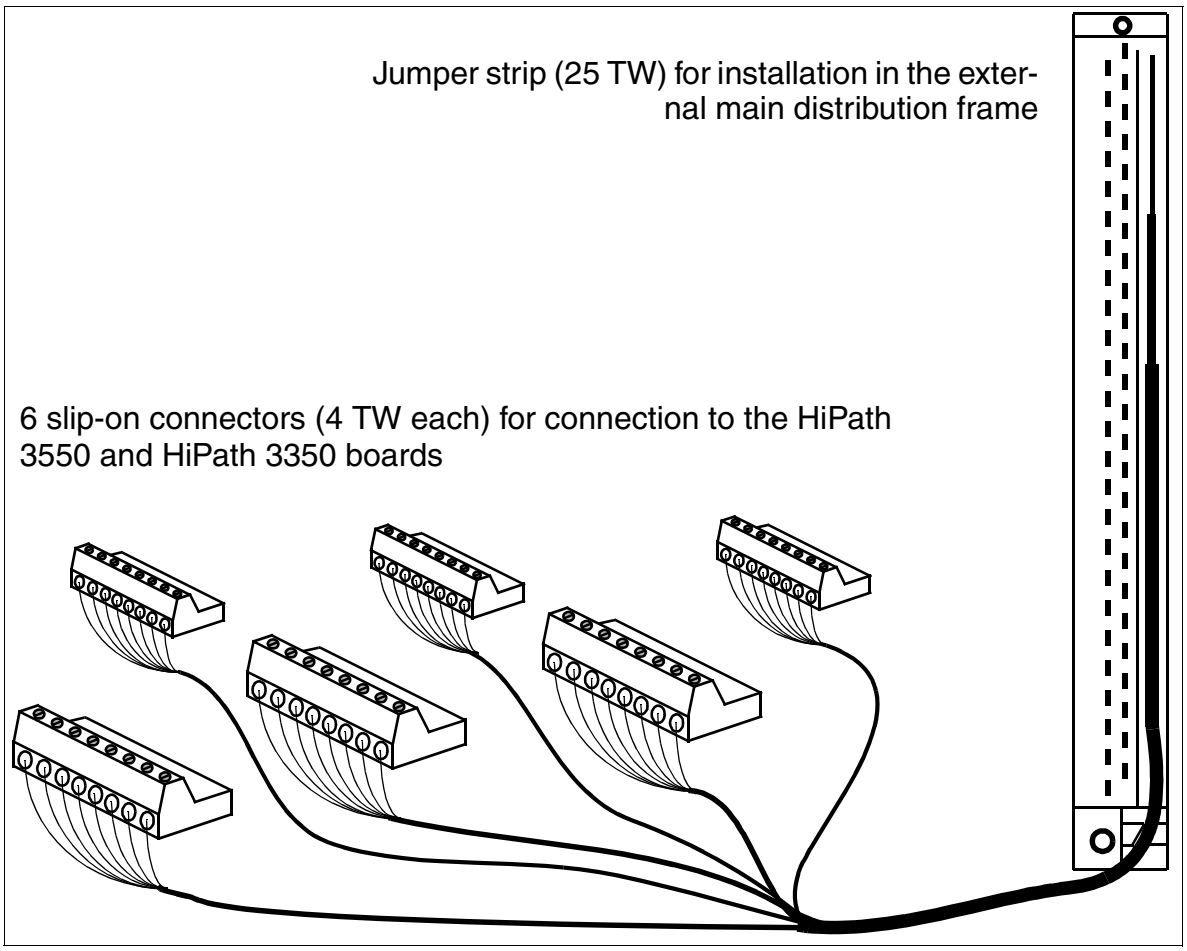


Figure 4-52 Layout of CABLU S30269-Z41-A30 (3 m long)

HiPath 3350 (Not for U.S.)

The **integrated distribution frame** in HiPath 3350 allows you to connect the cable network to the trunk and the stations using screw connections on slip-on connectors that can be easily removed for easy system connection and disconnection

The peripheral boards and optional boards contain a distribution frame component in the form of edge connectors on the boards. The slip-on connectors for these edge connectors are supplied with the boards. You insert the wires into the screw connections on the slip-on connectors, tighten, and then slide the slip-on connectors onto the board edge connectors.

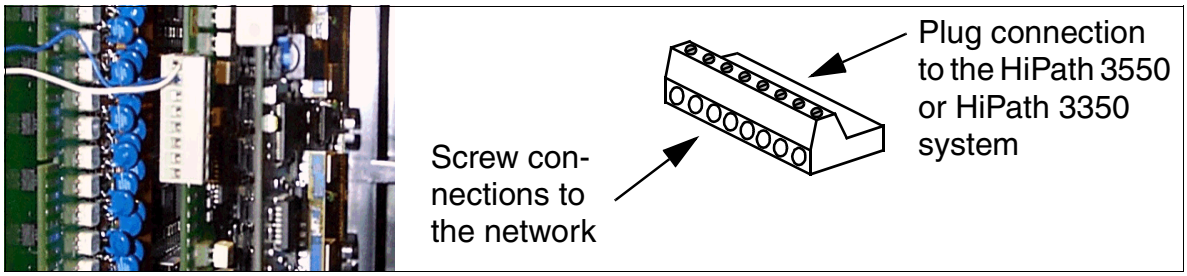


Figure 4-53 Integrated Distribution Frame - Slip-on Connector Screw Connections

If you have an **external main distribution frame** (MDFU), use CABLU S30269-Z41-A30 (Figure 4-52) to connect the peripheral boards to the customer's line network. As shown in Figure 4-53, you can connect the 8-pin slip-on connectors directly to the boards. The line network connects to the jumper strip.

Connecting the Cabling (for U.S. Only)

If the boards are not already connected to the appropriate cables leaving the system, you need to connect them.

- The TST1 Module (HiPath 3550) connects to a customer-supplied channel service unit (CSU) using the supplied cable. The CSU provides the required secondary protection.
- Each port on the STLS4 Module connects to an S_0 bus using the supplied, silver-satin connector cord and a surface-mounted RJ45X jack (a biscuit block). The surface-mounted RJ45X jack is not supplied.

  The signals must be reversed in the RJ45X jack; see Figure 3-61 on page 3-143.
- The board in Slot 10 of HiPath 3550 connects using a special cable from the backplane to the main distribution frame (MDF).
- The remaining peripheral boards and options connect to a customer-supplied main distribution frame (MDF) or similar equipment using the supplied MDF cables (octopus cables terminated in Amphenol connectors). You select the output pattern on the Amphenol connector by which slip-on connector you use on each board edge connector.

  Note that the MDF cables reverse the order of the signals from the boards, so that R/T at the board interface becomes T/R at the Amphenol connector.

4.2.3.9 Attaching Ferrite

To keep within the interference limit required by EMC Class B, you must attach ferrite to the following lines.

HiPath 3550 and HiPath 3350 Power Cables (Wall Housing)

The wall housing's power cable must be guided through the C39022-Z7000-C7 ferrite sleeve that is included in the accessory pack. Position the ferrite sleeve as shown in Figure 4-54 so that you will be able to close the housing cover.

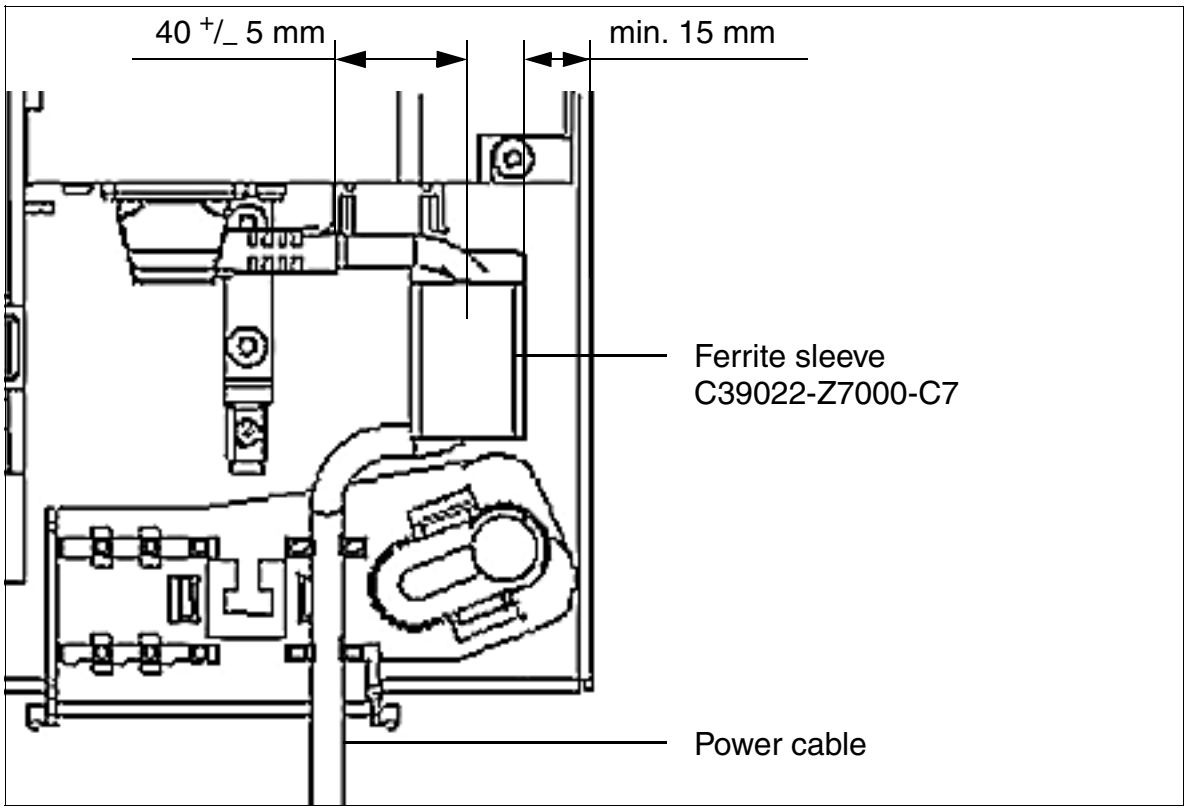


Figure 4-54 HiPath 3550 and HiPath 3350 - Power Cable with Ferrite Sleeve

Digital and Analog Trunks and Subscriber Lines of the HiPath 3550 (Wall Housing)

With maximum system configuration, there are not enough ferrite sleeves in the accessory pack for all trunks and subscriber lines. In this case, you will need to order additional ferrite.

If	Then
Trunk board or subscriber line modules in HiPath 3750 format	Guide both standard cables from SU_X8 and SU_X9 (see Figure 4-51) to the MDF through two ferrite sleeves (C39022-Z7000-C7) each. The ferrite should be placed as far inside the housing as possible.
Trunk board or subscriber line modules in “small” format	Guide the trunk and subscriber lines of all ports connected on a board through a ferrite sleeve twice, i.e. in a loop. The ferrite should be fixed in the cable duct as much as possible. If the number of lines makes this impossible, the ferrite can be attached directly at the output of the cable duct.

4.2.3.10 Configuration Notes

Restrictions for equipment with the IVMS8, LAN Bridge, TST1 and TS2 boards must be observed.

HiPath 3550 System Overview and Slots

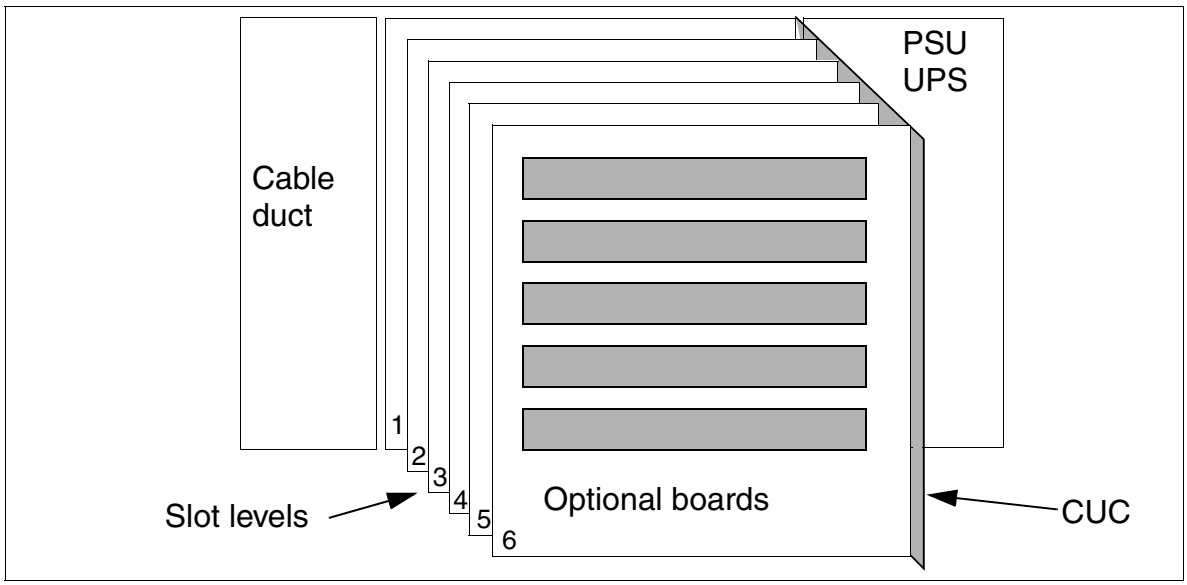


Figure 4-55 HiPath 3550 - Wall Housing System Overview

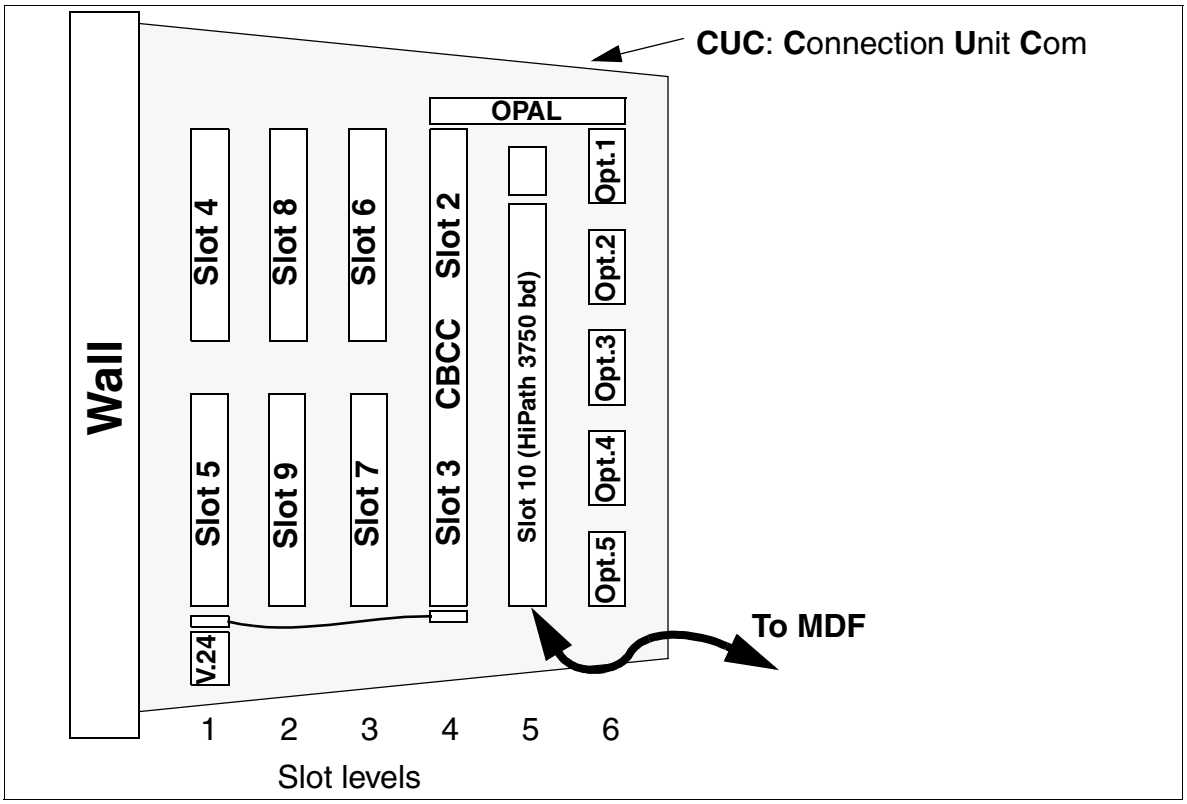
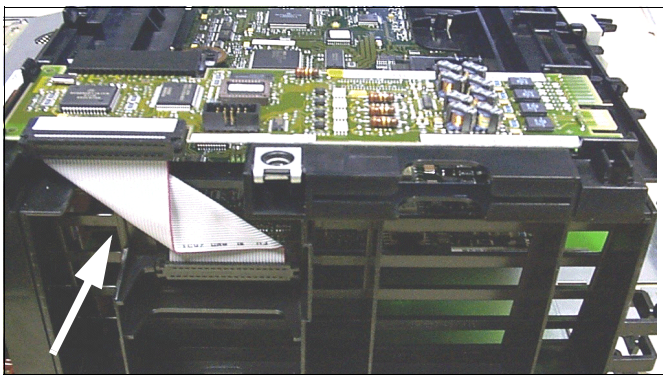


Figure 4-56 HiPath 3550 - Slots in the Wall Housing



The CBCC board is connected to the optional board via a ribbon cable (OPAL) (see adjacent figure).

Figure 4-57 HiPath 3550 - Options Adapter Long (OPAL)

HiPath 3350 System Overview and Slots

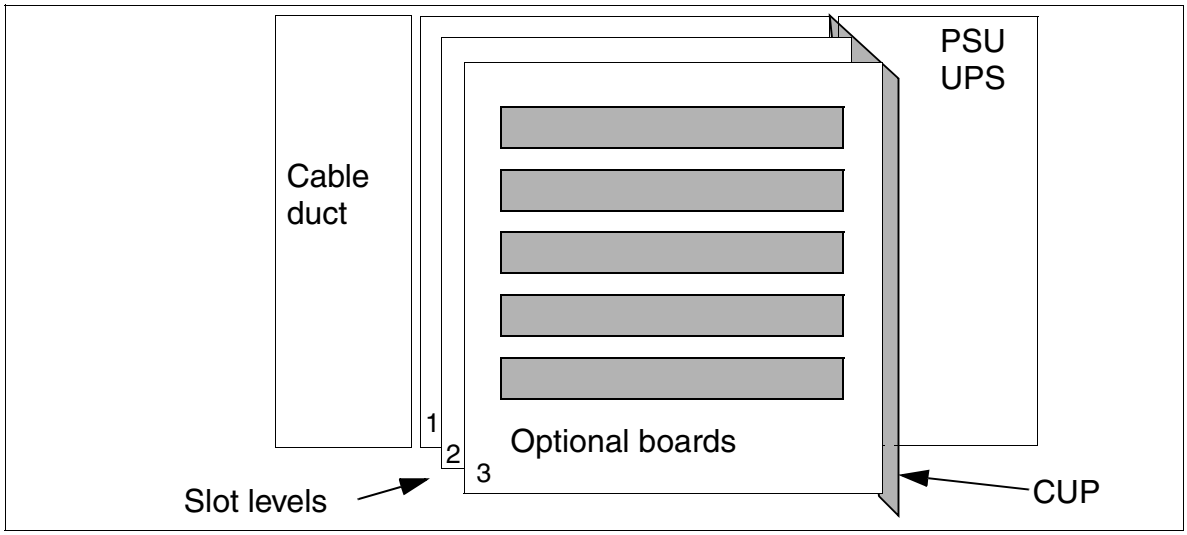


Figure 4-58 HiPath 3350 - Wall Housing System Overview

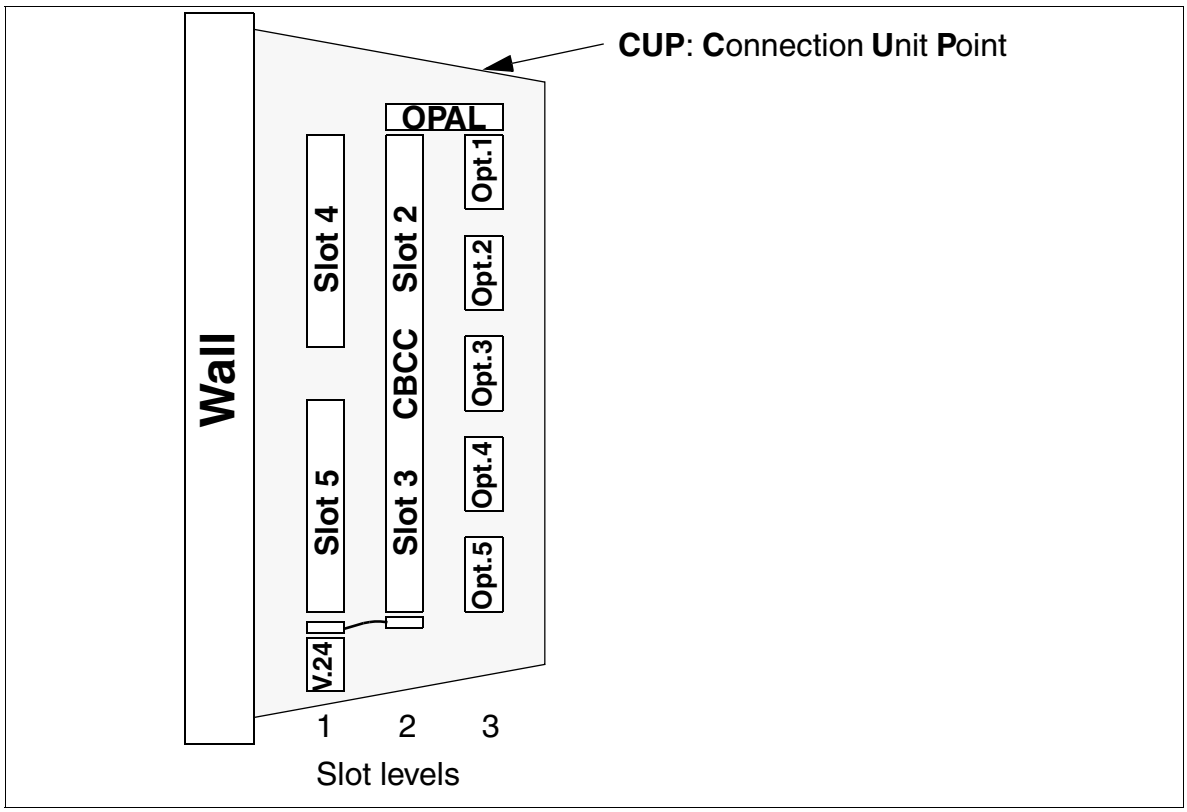


Figure 4-59 HiPath 3350 - Slots in the Wall Housing

4.2.3.11 Connecting Workpoint Clients

Refer to Chapter 9 for details.

4.2.3.12 Conducting a Visual Inspection

Before starting up the system, you must perform a visual inspection of the hardware, cables, and power supply. Conduct the visual inspection only while the system is disconnected from the power supply.

Caution
Before beginning the work, make sure that the system is grounded and disconnected from the power supply. For U.S. only: Use lockout/tagout (LOTO) procedures. Always wear an antistatic wristband and observe the measures for protecting electrostatically sensitive devices (see page 1-3).

Step	Activity	Materials	Possible remedies
1.	Compare the slots for the installed boards with the card map.	Card map	Correct the board configuration and notify the sales department.
2.	Check the local line voltage.	Digital multimeter	

After finishing the visual inspection, you can begin starting up the system as described in Section 5.2.

4.2.4 HiPath 3500 and HiPath 3300 Installation (19-Inch Housing)

This section contains information on the installation of the HiPath 3500 and HiPath 3300. This chapter describes the standard installation procedures for the basic system. Refer to Chapter 6 and Chapter 10 for information about supplementary equipment and expansions.

Danger
The HiPath 3500 and HiPath 3300 systems can only be operated with a closed housing.
The system must be powered down and de-energized as follows before the housing is opened:

- Disconnect the line cord on any connected battery pack (for UPSC-DR only).
- Disconnect the line cord on any connected EPSU2-R (for UPSC-DR only).
- Disconnect the power plug.

4.2.4.1 Installation Versions

The HiPath 3500 and HiPath 3300 construction is designed for the following three installations:

- Wall mounting (with assembly kit 39165-A7027-D2)
- Desk installation (assembly kit includes adhesive feet 39165-A7027-D2.) Stick the adhesive feet to the bottom of the housing.
- Installation in the 19-inch cabinet (with assembly kit 39165-A7027-D1 for HiPath 3500, assembly kit 39165-A7027-D4 for HiPath 3300)

You can also install an expansion cabinet rack ECR (not for U.S. and Canada) in which you can install a battery pack (for uninterruptible power supply) and/or an additional external power supply EPSU2-R (if the system's internal power supply is not sufficient) (see Section 6.4).

4.2.4.2 Selecting the Installation Site

Selecting a Site

The customer usually has a preferred installation site in mind, for example an existing 19-inch cabinet.

Make sure that the customer's site meets the following guidelines:

- To guarantee sufficient system ventilation, allow a minimum of 10 cm clearance around the housing.
- Do not expose the systems to direct sources of heat (such as sunlight or heaters).
- Do not expose the systems to extremely dusty environments.
- Avoid contact with chemicals.
- Take every precaution to prevent the formation of condensation on the system during operation. If condensation forms on the system, make sure that the system has time to dry completely before starting it up.
- Observe the environmental conditions specified in Section 2.9.4.

You will find information on the design and dimensions in the following section:

- HiPath 3500 Section 2.3.6
- HiPath 3300 Section 2.3.7

4.2.4.3 Unpacking the Components

Procedure

Step	Activity
1.	Compare the components included in the delivery with the packing slip to make sure they are complete.
2.	Determine whether any damage has occurred during transport and report it to the proper departments.
3.	Dispose of the packing materials properly according to local regulations.

Caution
Use only equipment and materials that are in perfect working order. Do not start up equipment with visible damage.

4.2.4.4 Attaching a HiPath 3500 or HiPath 3300 to the Wall (19-Inch Housing) (Not for U.S.)

Procedure for Wall Mounting

Step	Activity
1.	Drill a hole in the selected wall, insert a wall anchor and screw in the screws.
2.	Screw the angle brackets (A) and (B) for HiPath 3500 and HiPath 3300 onto the base of the device.
3.	Mount the system with the angle bracket (A) on the screws.
4.	Drill a second hole in the wall for the lower angle bracket (B), insert a wall anchor and attach the angle bracket with a screw.

Wall Mounting

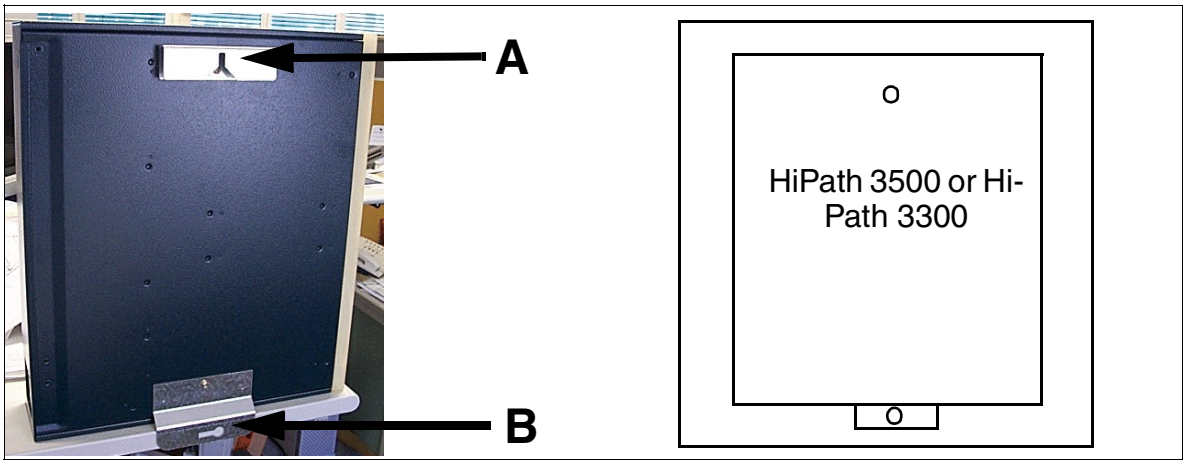


Figure 4-60 HiPath 3500 and HiPath 3300 - Wall Mounting

4.2.4.5 Installing a HiPath 3500 or HiPath 3300 in a Cabinet

Procedure for 19-Inch Cabinets

Step	Activity
1.	Attach the two angle brackets (A) to the 19-inch cabinet using two screws per bracket (the brackets supplied with HiPath 3500 and HiPath 3300 are different).
2.	Attach the two angle brackets (B) to the left and right of the HiPath 3500 or HiPath 3300 using two screws per bracket.
3.	Slide the HiPath 3500 or HiPath 3300 system into the 19-inch cabinet and attach it to the left and right of the 19-inch frame with screws.

Mounting the 19-Inch Cabinet

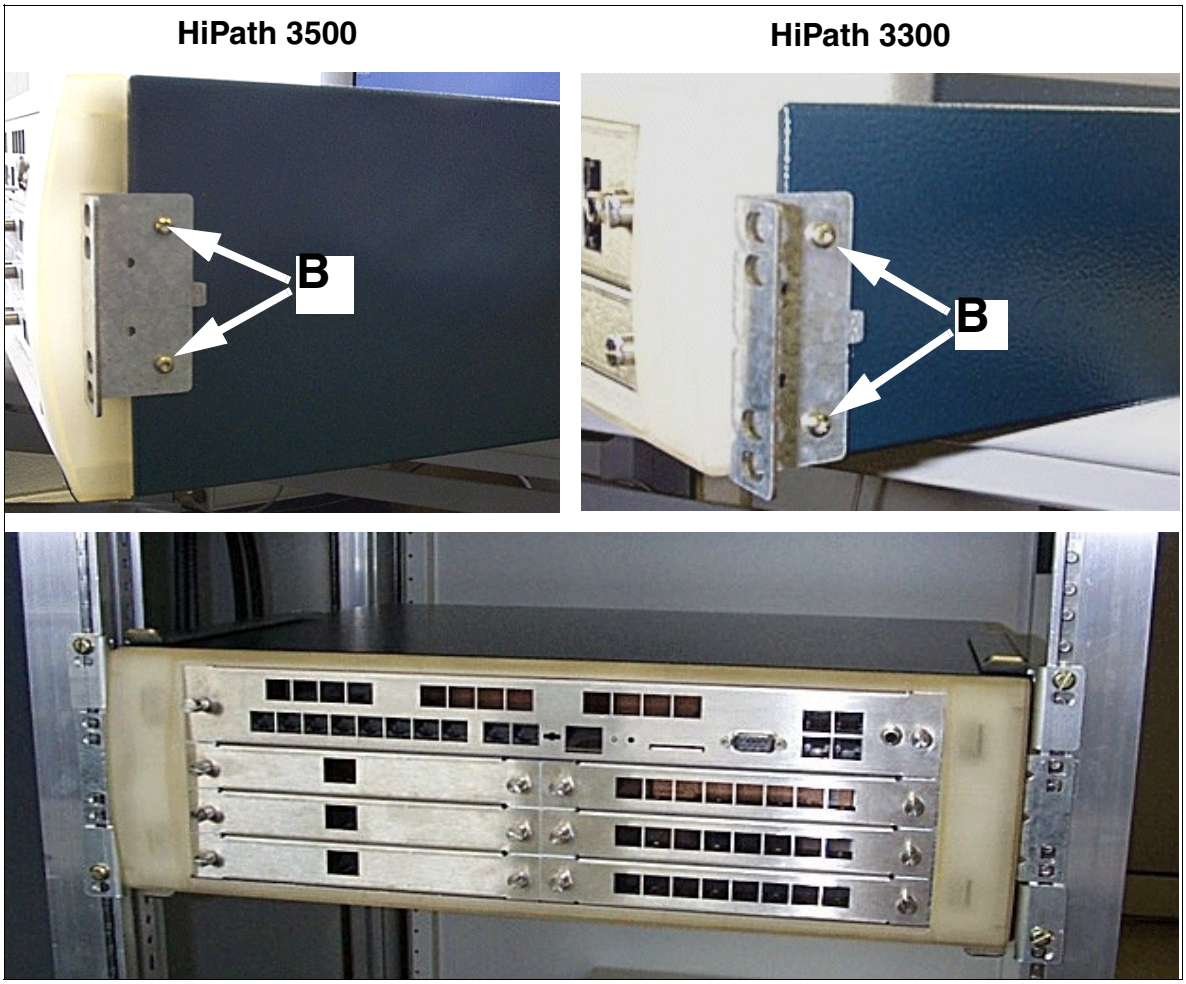


Figure 4-61 HiPath 3500 or HiPath 3300 - Mounting the 19-Inch Cabinet

4.2.4.6 Grounding the System

Protective Grounding Options and Inspection

Preliminary Inspection of the 19-Inch Cabinet:		
Is the 19-inch cabinet grounded by a separate **protective ground conductor** (green/yellow)?	**NO**	The 19-inch cabinet must be grounded by a separate protective ground conductor (green/yellow). **Danger** If your personnel are not qualified to work on the low-voltage network (230 Vac), you must hire a licensed electrician to install the ground.
YES		
Does the 19-inch cabinet have a **potential equalization bus** at which the HiPath 3500 or HiPath 3300 can be grounded?	**NO**	A potential equalization bus must be installed in the 19-inch cabinet and connected to the ground wire. **Danger** If your personnel are not qualified to work on the low-voltage network (230 Vac), you must hire a licensed electrician to install the ground.
YES		
If you answer “Yes” to both questions, the HiPath 3500 and HiPath 3300 systems may be grounded as described below.		

Grounding the System

Proceed as follows to ground the HiPath 3500 and HiPath 3300 systems (see also diagram below).

Step	Activity
1.	Connect the grounding cable to the potential equalization bar on the 19-inch cabinet.
2.	Connect the grounding cable to the system's ground connection with the grounding screw supplied (point A).
3.	Attach the grounding cable (strain relief) to the system (point B) with a cable tie.

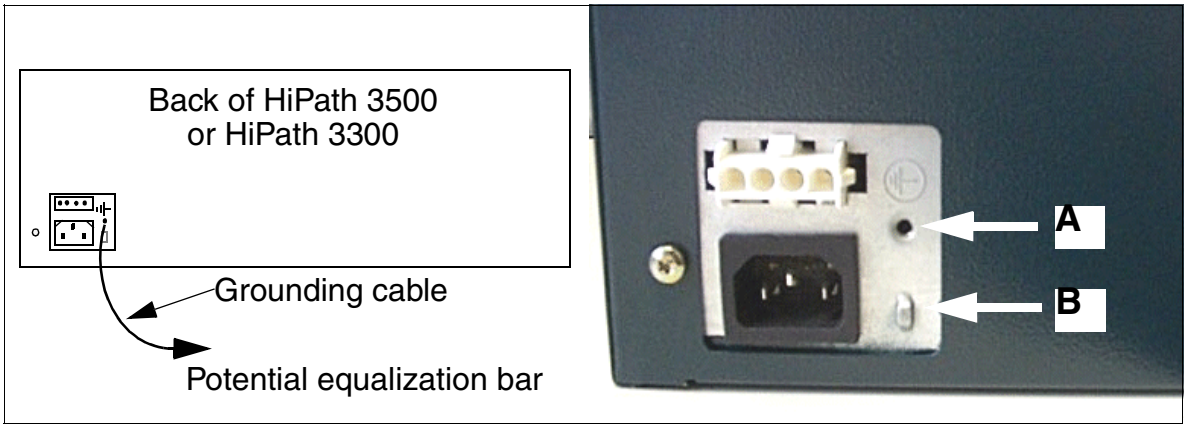


Figure 4-62 HiPath 3500 and HiPath 3300 - Grounding

Danger
The HiPath 3500 or HiPath 3300 19-inch housing to be wall-mounted must be grounded by a separate protective ground conductor (such as a potential equalization bar). Make sure that the ground conductor is securely installed and strain-relieved.
Failure to follow these instructions can result in electrical shock.

4.2.4.7 Installing the Boards

The systems are already equipped with the boards needed for the customer's specific requirements.

4.2.4.8 Connecting Cables and the Line Network

Connecting Cable for the Expansion Cabinet Rack ECR (if present) (not for U.S. and Canada)

To meet EMC requirements, the braided shields on the connecting cable must be connected to the housing on the HiPath 3500 or HiPath 3300 side **and** on the ECR side.

- Attaching to the HiPath 3500 or HiPath 3300 side

  A clip and a tooth lock washer are enclosed with the ECR mounting set. Use these and the housing cover mounting screw to attach the braided shield to the HiPath 3500 or HiPath 3300 housing (as shown in Figure 4-63). The tooth lock washer must be mounted between the painted surface of the cover and the clip.

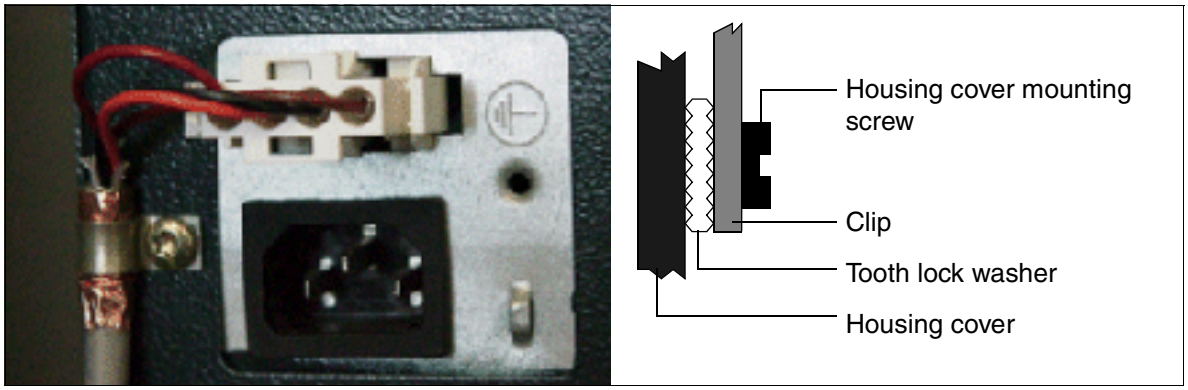


Figure 4-63 HiPath 3500 and HiPath 3300 - Connecting cable to ECR

- Attaching to the ECR side (see page 6-12)

Line Network

The connecting cords to the peripherals can be connected directly to the relevant MW8 jacks on the front panel of the 19-inch housing.

4.2.4.9 Configuration Notes

HiPath 3500 System Overview and Slots

Caution
For safety, operate HiPath 3500 only with the housing front closed. Always use dummy panels (C39165-A7027-B115) to close slots that are not equipped with boards.

		Slot levels:
Slots 1-3		5 (options) 4 (CBRC)
Slot 6	Slot 7	3 (peripheral boards)
Slot 8	Slot 9	2 (peripheral boards)
Slot 4	Slot 5	1 (peripheral boards)

Figure 4-64 HiPath 3500 - Slot Levels in the 19-Inch Housing

HiPath 3300 System Overview and Slots

Caution
For safety, operate HiPath 3300 only with the housing front closed. Always use dummy panels (C39165-A7027-B115) to close slots that are not equipped with boards.

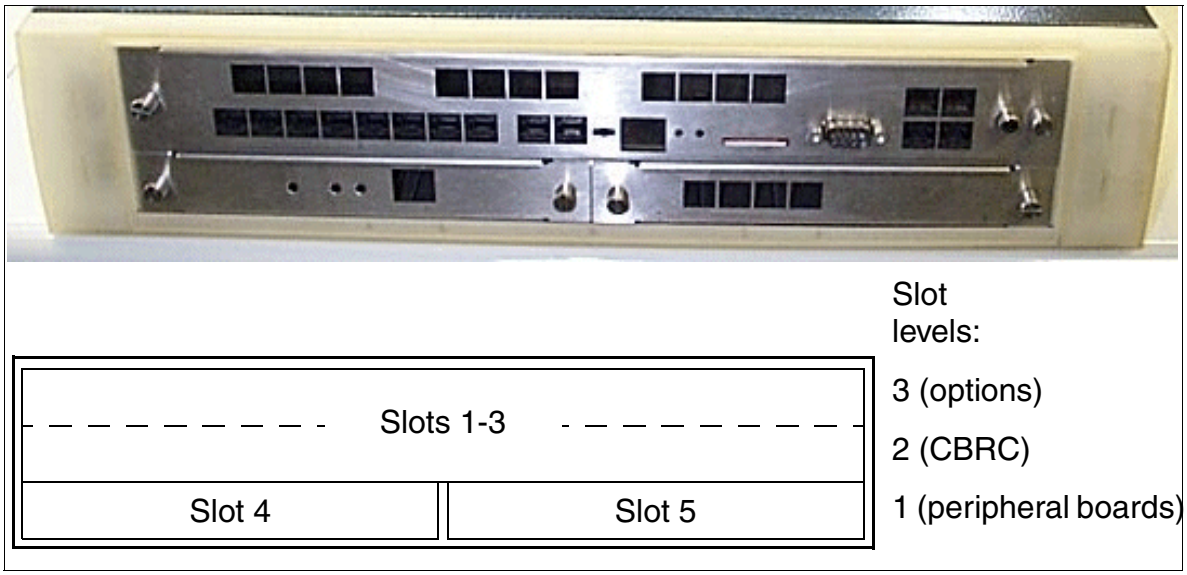


Figure 4-65 HiPath 3300 - Slot Levels in the 19-Inch Housing

4.2.4.10 Connecting Workpoint Clients

For information, see Chapter 9.

4.2.4.11 Performing a Visual Inspection

Before starting up the system, you must perform a visual inspection of the hardware, cables and the power supply. The visual inspection must be performed while the system is disconnected from the power supply.

Caution
Before beginning work, make sure that the system is grounded and disconnected from the power supply. For U.S. only: Use lockout/tagout (LOTO) procedures Observe the measures for protecting electrostatically sensitive devices (see page 1-3).

Step	Activity	Materials	Action
1.	Compare the slots for the existing boards with the card map.	Card map	Correct the board configuration and notify the sales department.
2.	Check the local line voltage.	Digital multimeter	

After finishing the visual inspection, you can begin starting up the system as described in Section 5.2.

4.3 HiPath 3250 and HiPath 3150 Installation (Not for U.S.)

4.3.1 Installation Procedure

Step	Activity
1.	Select the installation site (usually predetermined)
2.	Unpack the components
3.	Attach the system to the wall
4.	Lay the cables
5.	Connect the Workpoint Clients
6.	Connect the plug-in power supply unit
7.	Perform a visual inspection
8.	Close the hinged cover

4.3.2 Selecting the Installation Site

Selecting a Site

The customer usually has a preferred installation site in mind.

Make sure that the customer's site meets the following guidelines:

- To guarantee sufficient system ventilation, allow a minimum of 10 cm clearance around the housing.
- Do not expose the systems to direct sources of heat (such as sunlight or heaters).
- Do not expose the systems to extremely dusty environments.
- Avoid contact with chemicals.
- Take every precaution to prevent the formation of condensation on the system during operation. If condensation forms on the system, make sure that the system has time to dry completely before starting it up.
- Observe the environmental conditions specified in Section 2.9.4.

You will find information on the design and dimensions of HiPath 3250 and HiPath 3150 in Section 2.3.4.

4.3.3 Unpacking the Components

Procedure

Step	Activity
1.	Compare the components included in the delivery with the packing slip to make sure they are complete.
2.	Determine whether any damage has occurred during transport and report it to the proper departments.
3.	Dispose of the packing materials properly according to local regulations.

Caution
Use only equipment and materials that are in perfect working order. Do not start up equipment with visible damage.

4.3.4 Attaching the System to the Wall

Installation Notes

The HiPath 3250 and HiPath 3150 systems should be mounted at eye level. The length of the power cable (plug-in power supply unit) and the minimum clearance specified in Figure 4-66 must be taken into consideration.

A bag attached to the cover contains screws and wall anchors for installation.

Procedure for Wall Mounting

Step	Activity
1.	Drill a hole for the wall anchor [B], insert the wall anchor and screw in the screws, leaving 5 mm projecting.
2.	Insert the screwdriver into the hole on the housing cover under the triangle [A]. Slide the housing cover in the direction of the arrow and remove.
3.	If you have to remove the second housing cover (for board expansion), press the right and left locking elements [D] on the back of the system with a screwdriver and then slide the cover down [E]. Then press the cover firmly until the locking elements snap into place.
4.	Mount the system on the screw [B].
5.	Mark the position of the second wall anchor hole [C]. Remove the system.
6.	Drill a hole for the wall anchor [C] and insert the wall anchor.
7.	Mount the system again on the screw [B]. Screw in the screw [C], position the system and tighten the screw [C].

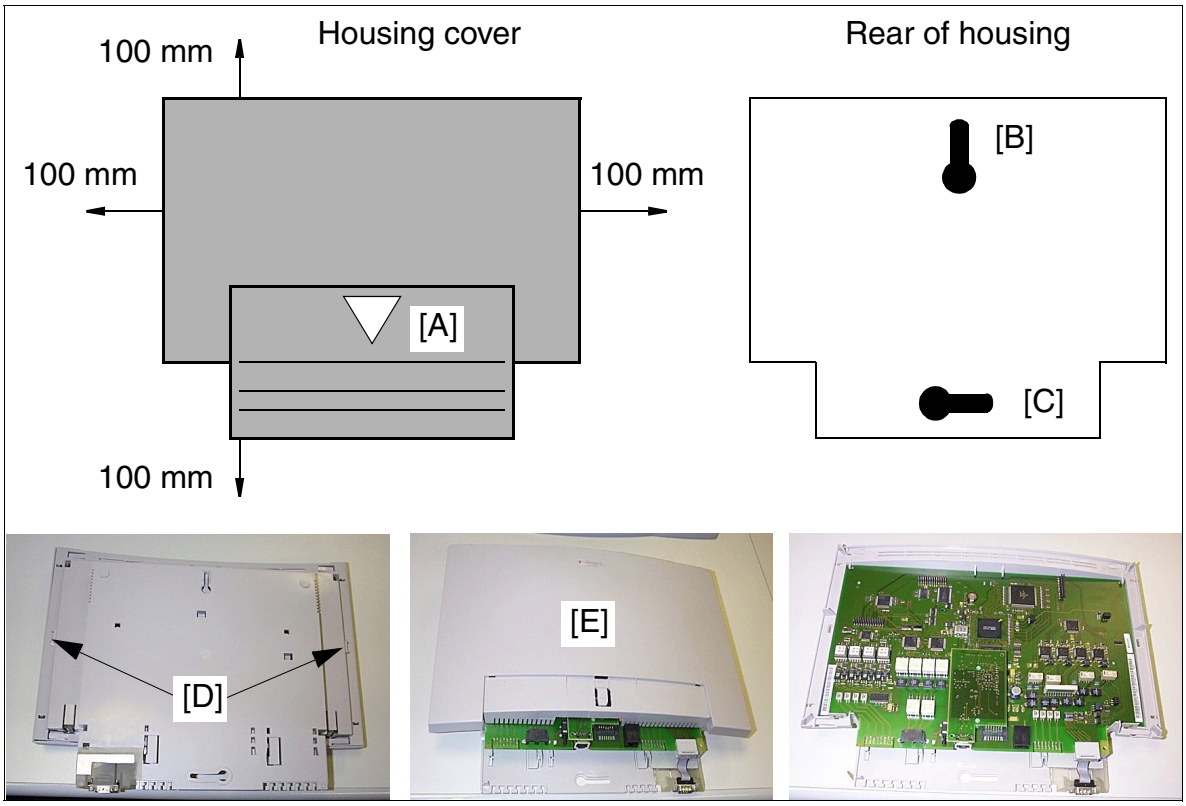


Figure 4-66 HiPath 3250 and HiPath 3150 - Wall Mounting, Minimum Clearance

Connection Overview

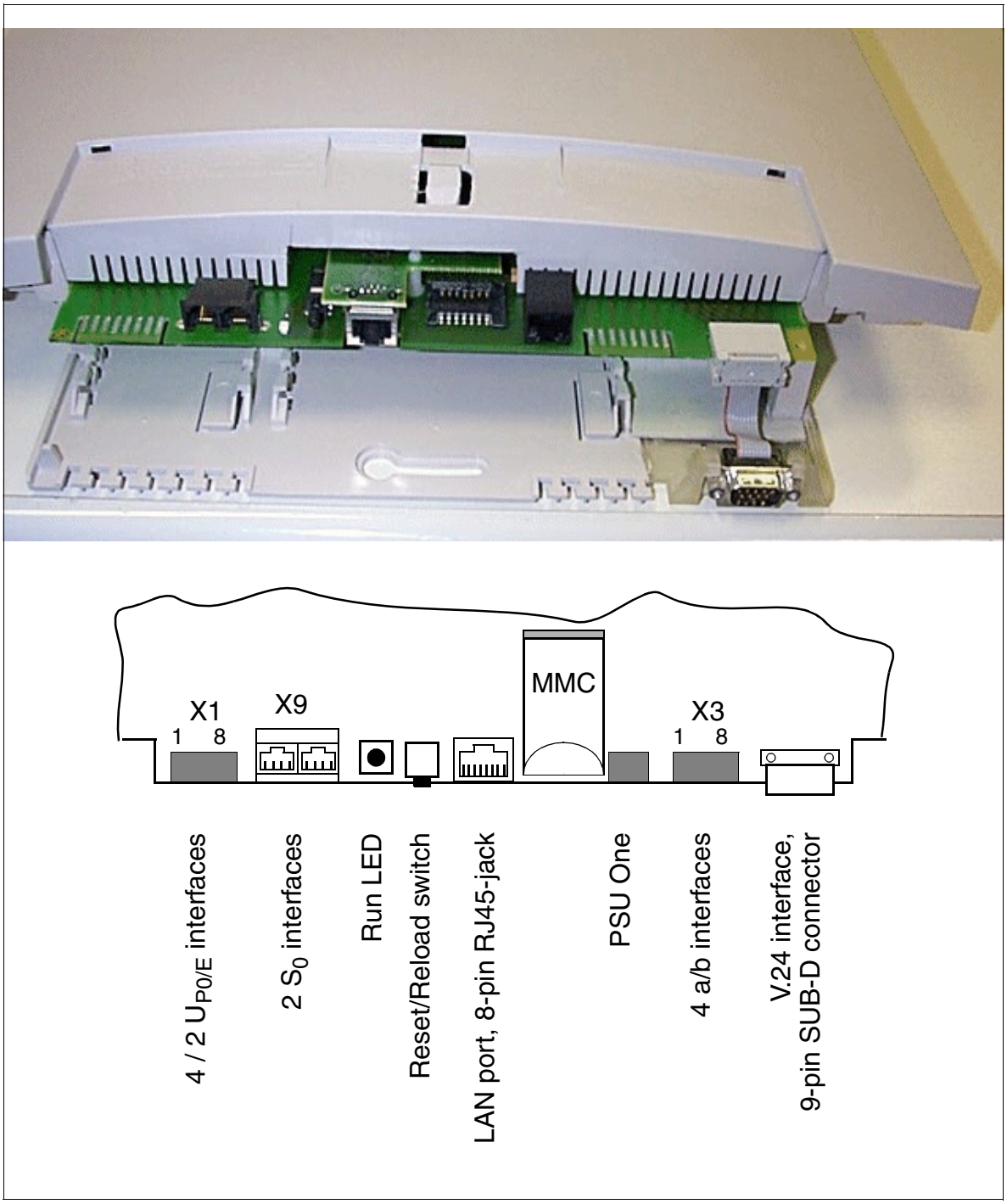


Figure 4-67 HiPath 3250 and HiPath 3150 - Connection Overview

Station Number Assignment

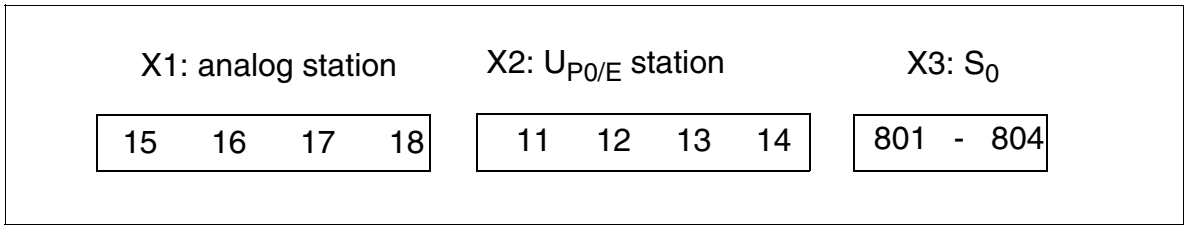


Figure 4-68 Station Number Assignment in HiPath 3250

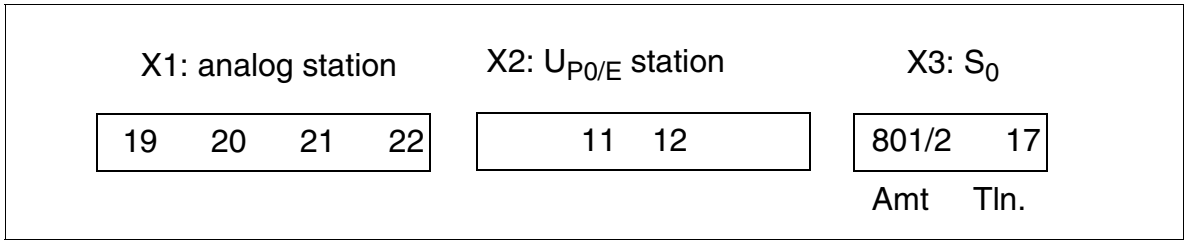


Figure 4-69 Station Number Assignment in HiPath 3150

4.3.5 Performing a Visual Inspection

Before starting up the system, you must perform a visual inspection of the hardware, cables, and the power supply. The visual inspection must be performed while the system is disconnected from the power supply.

After completing the visual inspection, you can start up the system as described in Section 5.2.

5 Startup

Chapter Contents

This chapter discusses the topics listed in the table.

5.1 HiPath 3750 and HiPath 3700 Startup

5.1.1 Overview

Section Contents

This section contains information on how to start up the HiPath 3750 and HiPath 3700 communication systems.

WARNING
Only authorized service personnel should start up the system.

5.1.2 Startup Procedure

Table 5-1 HiPath 3750 and HiPath 3700—Startup

Step	Startup Activity	
1.	Supplying the System With Power (Plugging in the power supply unit -> starting system boot)	page 5-3
2.	Carrying Out a System Reload	page 5-5
3.	Carrying Out the Country Initialization	page 5-6
4.	Entering the System Number (Not for U.S.)	page 5-7
5.	Conducting Customer-Specific Programming	page 5-8
6.	Carrying out a System Check	page 5-9

5.1.3 Supplying the System With Power

Procedure

Step	Activity
1.	Verify the voltage and plug in the power supply cable for each cabinet
2.	Watch the RUN LED on the CBCPR to observe the individual steps of the system boot (Table 5-2).

RUN LED HiPath 3750 and HiPath 3700

The CBCPR has a RUN LED that indicates the system status.

Table 5-2 RUN LED - LED Status Meaning

RUN LED	Meaning
Off	No power
On	Reset switch pressed briefly
Off	Reset switch held down more than 5 seconds (LED is extinguished to acknowledge that a reload has begun)
On	System boot
Off for 0.1 s	Load operation: APS in SDRAM, loadware, and card data
Flashing 0.5 s on/0.5 s off	Normal operating state (zero load)*
Flashing 0.1 s on/0.1 s off	MMC removed or defective

* The flashing rhythm depends on the load. The higher the system load the slower the flashing rhythm.

The HiPath 3750 or HiPath 3700 is ready when the date “1. JAN 00” and the time “00.00” appear in the display on the system telephone.

5.1.3.1 Assigning Station Numbers

The first time the system is initialized, the system determines its capacity and stores the result in the CDB (customer database). After each system reset, the system accesses this data and generates a continuous numbering plan.

If the system detects changes to the board configuration during startup, the following occurs:

If	Then
Missing or defective board	No action.
Different board type	Board is not activated.
Underequipped board variant	Board is activated with fewer ports. A gap remains in the database.
Over-equipped board variant	Board is activated with the number of ports stored in the database. The additional ports are not activated.
New board in empty slot	• Board was the last one installed in accordance with the placement sequence: All boards are activated and the numbering plan continues without a gap. • Board was inserted ahead of another board in the placement sequence: Board is activated and appended to the last board in the numbering plan.

Procedure: reinitialization

Proceed as follows if measures to expand the system configuration require reinitialization of the numbering plan:

Step	Activity	Description
1.	Disconnect the system from the power supply. Check that the system is de-energized. Expand as required.	
2.	Connect system to power supply	• A continuous numbering plan is generated (as was the case when the system was first initialized). **Notes:** • Changes to the extension numbers result in changes to the individual, extension-specific data. • Only those ports provided for in accordance with the maximum configuration are activated if the maximum line configuration is exceeded (too many trunk boards). • A mixture of subscriber line circuits and trunk lines on one STMD8 can result in gaps in line numbering. This is because all STMD8 ports are initially activated as trunks and are only subsequently reconfigured.

5.1.4 Carrying Out a System Reload

After supplying the system with power, you must carry out a system reload.

Procedure

Press and hold the reset switch on the CBCPR for at least 5 seconds (RUN LED goes out).

If you do not hold the reset switch for a full 5 seconds, the system may reset rather than reloading, or may not reload properly.

5.1.5 Carrying Out the Country Initialization

Since the system software no longer provides all languages, some systems no longer start up on the customary local language after the country code is entered. You must now load the local language **prior to country initialization**, using HiPath 3000 Manager E (see Section 7.12.5)
After carrying out the country initialization, but before loading the required local language, the displays come up in German.

The first time the system boots, the displays come up in German. Carry out the country initialization on the system telephone with internal station number 100 (port 01). This process loads the country-specific language and features and ensures that the system meets the country's conditions for approval.

In Germany, no country adaptation is required after a reload because the system boots with the German country code by default.

Input Procedure

Table 5-3 Entering the Country Code

Step	Input	Description
1.	*95	System administration code
2.	xxxxx ✓	User: 31994 (default)
3.	xxxxx ✓	Password: 31994 (default)
4.	29-5 *	Country initialization: Select a country code (refer to table Table A-4 on page A-8) such as 52 for the U.S.

Entering the country code starts the system. Any data that has already been stored, such as system speed-dialing destinations and classes of service, is deleted or reset to the default value.

After you enter a country code, the default data is guaranteed to load correctly only if the system software has been officially released for that country.

5.1.6 Entering the System Number (Not for U.S.)

Introduction

Depending on the configuration, enter one of the following on the system telephone with the internal station number 100:

- System number (without DID number and attendant code), or
- Tie trunk number, as when networking with Hicom 300

The system number is defined by the carrier or the responsible facility provider.

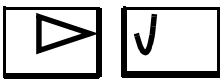
Sy**stem numbers cannot be entered with point-to-multipoint operation or tie trunks, such as Hicom 300 (depending on the configuration).**

Example

- Port number: 98008
- National number: 2302 (prefix without 0)
- International number: 49 (country code)
- Station number type: International

Input Procedure

Table 5-4 Entering the System Number

Step	Input	Description
1.	*95	System administration code
2.	Service	User name (identification)
3.	XXXXX	Enter password
4.		Watch the display. Scroll until “ISDN parameters” and “System stn. number” appear. Confirm your selection. Or: Expert mode: Enter the code 20 2 1 to 4.
5.		Follow the user prompting on the display.

5.1.7 Conducting Customer-Specific Programming

You can program the system using one of the following tools:

- Assistant T (programming telephone, see Section A.3)
- HiPath 3000 Manager E (PC tool)
- HiPath 3000 Manager C (customer PC tool)—for basic changes after installation

Changes to the system (such as key programming) that were made using HiPath 3000 Manager E during an offline programming session will be lost when the database is loaded.
When you program the system offline, the assignments of trunk and subscriber ports depend on the order in which the boards are inserted. Usually, the boards are inserted from the lowest slot to the highest.

Refer to Chapter 7, Implementing Features,, for information on how to program individual features.

Meaning of Call Charge and Hardware Options in the Transmission Dialog Box of HiPath 3000 Manager E

If	Then
You want to transfer the most recent CDB to a bootstrapped system.	Activate the call charge and hardware options (using HiPath 3000 Manager E). This returns the system to the status it had before bootstrapping.
CDB already in the system.	Transfer changes to the CDB without using the call charge and hardware options (in HiPath 3000 Manager E). Make sure you select delta mode.

Activate the call charge option to transfer the following additional information to the system:

- Station call forwarding destinations (using *1)
- Station PINs
- Text and advisory messages sent
- Call charges for trunks and stations
- Feature counters

Activate the hardware option to transfer the following additional data to the system:

- V.24 (RS-232) throughput rates
- Active callbacks
- Status of external call forwarding (*64)
- Telephone settings (contrast, ringer volume, and ringer pitch)
- Assignment between physical ports and logical ports
- Status of physical ports (active or inactive)
- Login information for HiPath cordless telephones

The system restarts when you transfer the CDB with the hardware option activated.

5.1.8 Carrying out a System Check

Checking the Telephones

- Check the time and date display on each optiset E telephone. If a display does not appear, the telephone or the link may be defective. Check if either the terminal or the link is defective. Replace the terminal or fix the link.
- Carry out the telephone test described in Section 12.5.7 on page 12-20 on all telephones.

Checking for Proper System Booting

Set up internal and external calls at random to check if the system is functioning properly.

5.2 HiPath 3550, HiPath 3350, HiPath 3250, HiPath 3150, HiPath 3500 and HiPath 3300 Startup

*HiPath 3250 and HiPath 3150 not available in the U.S.

5.2.1 Overview

Section Contents

This section contains information on how to start up the HiPath 3550, HiPath 3350, HiPath 3250, HiPath 3150, HiPath 3500 and HiPath 3300 communication systems.

WARNING
Only authorized service personnel should start up the system.

Caution
For safety, operate HiPath 3500 and HiPath 3300 only with the housing front closed. Always use dummy panels (C39165-A7027-B115) to close slots that are not equipped with boards.

5.2.2 Startup Procedure

Table 5-5 Startup

Step	Activity
1.	Supplying the system with power (Checking the LED status) Warning: HiPath 3250 and HiPath 3150 can only be activated or deactivated by connecting or disconnecting the mains cable.
2.	Carrying Out a System Reload
3.	Carrying Out the Country Initialization
4.	Entering the System Number (Not for U.S.)
5.	Conducting Customer-Specific Programming You can carry out the system programming either at the programming telephone, using Assistant T, or with the HiPath 3000 Manager E PC tool.
6.	Carrying out a System Check
When the date 1. JAN 00 and the time 00.00 appear in the display on the system telephone, the system is ready.	

Changes to the system (such as key programming) made during an offline programming session will be lost when data is restored to the PC.

HiPath 3550, HiPath 3350, HiPath 3250, HiPath 3150, HiPath 3500 and HiPath 3300 RUN LED

The central board has a RUN LED that indicates the system status.

Table 5-6 RUN LED - LED Status Meaning

RUN LED	Meaning
Off	No power
On	Reset switch pressed briefly
Off	Reset switch held down more than 5 seconds (LED is extinguished to acknowledge that a reload has begun)
On	System boot
Off for 0.1 s	Load operation: APS in SDRAM, loadware, and card data
Flashing 0.5 s on/0.5 s off	Normal operating state (zero load)*
Flashing 0.1 s on/0.1 s off	MMC removed or defective

* The flashing rhythm depends on the load. The higher the system load the slower the flashing rhythm.

5.2.3 Carrying Out a System Reload

After supplying the system with power, you must carry out a system reload.

Procedure

Press and hold the reset switch on the central board for at least 5 seconds.

If you do not hold the reset switch for a full 5 seconds, the system may reset rather than reloading, or may not reload properly.

5.2.4 Carrying Out the Country Initialization

Since the system software no longer provides all languages, some systems no longer start up on the customary local language after the country code is entered. You must now load the local language **prior to country initialization**, using HiPath 3000 Manager E (see Section 7.12.5).
After carrying out the country initialization, but before loading the required local language, the displays come up in German.

The first time the system boots, the displays come up in German. Carry out the country initialization on the system telephone with the internal station number **100** (HiPath 3550 and HiPath 3500) or **11** for (HiPath 3350, HiPath 3250, HiPath 3150 and HiPath 3300) (port 01). This process loads the country-specific language and features and ensures that the system meets the country's conditions for approval.

In Germany, no country initialization is required following a reload because the system boots with the German country code by default.

Input Procedure

Table 5-7 Entering the Country Code

Step	Input	Description
1.	*95	System administration code
2.	xxxxx ✓	User: 31994 (default)
3.	xxxxx ✓	Password: 31994 (default)
4.	29-5 *	Country initialization: Select a country code (refer to table Table A-4 on page A-8) such as 52 for the U.S.

Note: Entering the country code initiates a hard reset. Any data that has already been stored, such as system speed-dialing destinations and classes of service, is deleted or reset to its default value.

After you enter a country code, the default data is guaranteed to load correctly only if the system software has been officially released for that country.
HiPath 3550, HiPath 3350, HiPath 3250, HiPath 3150, HiPath 3500 and HiPath 3300 have not been introduced in some of the countries listed in Table A-4 on page A-8. The correct loading of the default data is not guaranteed for those countries.

5.2.5 Entering the System Number (Not for U.S.)

Introduction

Depending on the configuration, enter one of the following on the system telephone with internal station number 100 (HiPath 3550 and HiPath 3500) or 11 (HiPath 3350 and HiPath 3300):

- System number (without DID number and attendant code) or
- Tie trunk number, as when networking with Hicom 300.

The system number is defined by the carrier or the responsible facility provider.

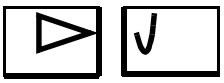
System numbers cannot be entered with point-to-multipoint operation or tie trunks, such as Hicom 300 (depending on the configuration).

Example

- Port number: 98008
- National number: 2302 (prefix without 0)
- International number: 49 (country code)
- Station number type: International

Input Procedure

Table 5-8 Entering the system number

Step	Input	Description
1.	*95	System administration code
2.	Service	User name (identification)
3.	XXXXX	Enter password
4.		Watch the display. Scroll until “ISDN parameters” and “System stn. number“ appear. Confirm your selection. Or: Expert mode: Enter the code 20 2 1 to 4.
5.		Follow the user prompting on the display.

5.2.6 Conducting Customer-Specific Programming

You can program the system using one of the following tools:

- Assistant T (programming telephone, refer to Section A.3 on page A-6)
- HiPath 3000 Manager E (PC tool)

Changes to the system (such as key programming) made using HiPath 3000 Manager E during an offline programming session will be lost when the database is loaded.
When you program the system offline, the assignments of trunk and subscriber ports depend on the order in which the boards are inserted. Usually, the boards are inserted from the lowest slot to the highest.

Refer to Chapter 7, Implementing Features, for information on how to program individual features.

Meaning of Call Charge and Hardware Options in the Transmission Dialog Box of HiPath 3000 Manager E

If	Then
You want to transfer the most recent CDB to a bootstrapped system.	Activate the call charge and hardware options (using HiPath 3000 Manager E). This returns the system to the status it had before bootstrapping.
CDB already in the system.	Transfer changes to the CDB without using the call charge and hardware options (in HiPath 3000 Manager E). Make sure that delta mode is selected.

Activate the call charge option to transfer the following additional information to the system:

- Station call forwarding destinations (using *1)
- Station PINs
- Text and advisory messages sent
- Call charges for trunks and stations
- Feature counters

Activate the hardware option to transfer the following additional data to the system:

- V.24 (RS-232) throughput rates
- Active callbacks
- Status of external call forwarding (*64)
- Telephone settings (contrast, ringer volume, and ringer pitch)
- Assignment between physical ports and logical ports
- Status of physical ports (active or inactive)
- Login information for HiPath cordless telephones

The system restarts when you transfer the CDB with the hardware option activated.

5.2.7 Carrying out a System Check

Checking the Telephones

Check the time and date display on each optiset E telephone. If a display does not appear, the telephone or the link may be defective. Check

- The telephone
- The jack
- The cabling
- The power connection

Carry out the telephone test described in Section 12.5.7 on page 12-20 on all telephones.

Checking for Proper System Booting

Set up internal and external calls at random to check if the system is functioning properly.

5.2.8 Station and Line Number Assignment

The station and line numbers are assigned consecutively when the system is booted.

This consecutive station number assignment proceeds according to the following rules:

- The first time the system is initialized, its capacity is determined and stored in the CDB (customer database). After each system reset, this data is accessed and used to generate the numbering plan.
- If a change in the board configuration is detected during booting:
  - Missing or defective board: No action.
  - Different board type detected: Board is not activated.
  - Same board type detected but with fewer channels: Board is activated with fewer ports, leaving a gap.
  - Same board type detected but with a greater number of channels: Board is activated with the number of channels stored in memory (EEPROM); the additional ports are not activated.
  - New board in empty slot:
    - Board was inserted as the last in the board placement sequence: All boards are activated and the numbering plan continues without a gap.
    - Board was inserted before another board in the board placement sequence: It is activated and appended to the last board in the numbering plan.
- Reinitialization: With newly defined passwords, the system is returned to its original, preinitialization state. The system configuration data stored in the CDB is deleted; you can make changes to the capacity stage.

  If you expand the system configuration, proceed as follows:
  - Disconnect the system from the power supply and insert the new boards.
  - Switch the system back on. the numbering plan continues without a gap, just like during initial activation.

When the station numbering plan changes, the station-specific data also changes.

- If the configuration exceeds the capacity limit for trunks, the ports are activated only up to the capacity limit.

- (Not for U.S.) Combining subscriber lines and trunks on the same S_0 board can result in gaps in trunk numbering because all the ports on the board are initially activated as trunks and are not reconfigured until later on.
- S_0 stations: If ISDN terminals are connected to an STLS board (S_0 bus), their station numbers are derived from the MSN programmed in the terminal regardless of the configuration.
- If no MSN is programmed in a terminal or if no MSN can be programmed, the system uses a default MSN. You can change the default MSNs using HiPath 3000 Manager E.
- (Not for U.S.) The MSN is first assigned by the system when the S_0 port is configured on the “Euro-bus” and can be read out by system administration (Assistant T: Code 20 4 3 > S_0 bus MSN).

5.2.9 Connecting ISDN (S_0) interfaces (Not for U.S.)

You can use the MW jacks on the STLS boards to connect from one to four ISDN S_0 busses. The interfaces on the STLS boards are freely configurable. The following configurations are supported:

- DSS1 trunk point-to-point
- DSS1 trunk point-to-multipoint
- EURO-bus
- CorNet-N secondary (only HiPath 3550, HiPath 3350, HiPath 3500, HiPath 3300)
- Using Assistant T, you can also set up configurations for networking and dedicated lines

Use the S_0 interface $S_0$1 for connection to the public telecommunications network (ISDN trunk).

You can also connect S_0 interfaces $S_0$2 to $S_0$4 to the ISDN trunk or to ISDN terminals (ISDN telephone, Fax Group 4, PC, dialing aid) via an S_0 bus.

The connection (networking) to HiPath 3000 and Hicom 300 (CorNet-N) can also be set up via S_0 interfaces $S_0$1 to $S_0$4.

S_0 connection options:

- Point-to-point (PP) (default)
- Point-to-multipoint (PMP)

5.2.9.1 Connecting an ISDN Trunk (Not for U.S.)

Plug one end of the connecting cord provided into jacks $S_0$1 to $S_0$4 and the other end into the NT (network termination).

5.2.9.2 Networking connection (Hicom 300 CorNet-N) (Not for U.S.)

Plug one end of the connecting cord provided into jacks $S_0$1 to $S_0$4 and connect the other end to the Hicom 300 port.

5.2.9.3 Connecting ISDN Terminals (Not for U.S.)

Depending on the system, you can set up a maximum of four internal S_0 busses ($S_0$1 to $S_0$4). A maximum of eight ISDN terminals can be addressed on each S_0 bus.

(Not for U.S.) The MSN is first assigned by the system when the S_0 port is configured on the Euro-bus and can be read out by system administration (Assistant T: Code 20 4 3 > S_0 bus MSN).

When you set up an S_0 bus, it is assigned an MSN. This MSN is the first free station number in the system. The S_0 station is immediately available under this MSN, without an outgoing seizure.

Not for U.S.: If no MSN is entered in the terminal, a default MSN is automatically assigned after you change the S_0 port to Euro-bus in system administration.

Setting Up an S_0 bus With A MW Jack (Not for U.S.)

ISDN terminals cannot be connected directly to the MW jack on the STLS using the cables supplied. You must first install a jack with cross-connected cables (see Figure 5-2 on page 5-20).

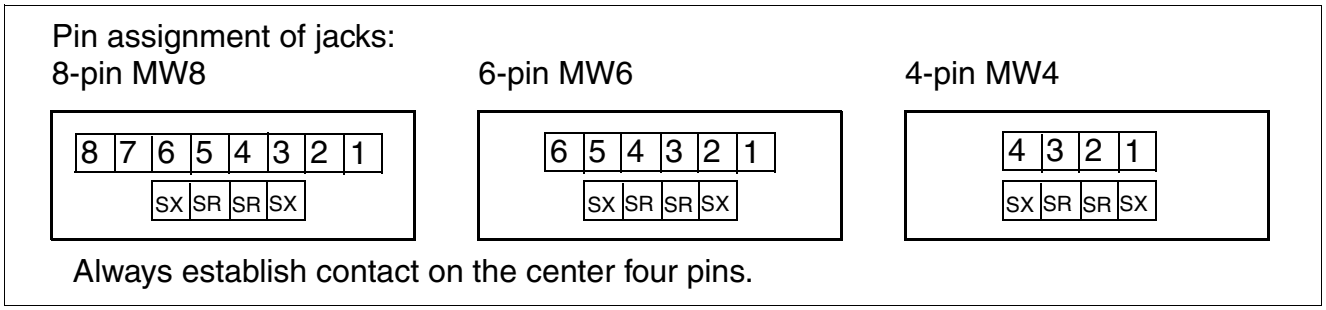


Figure 5-1 Pin Assignment of MW Jacks

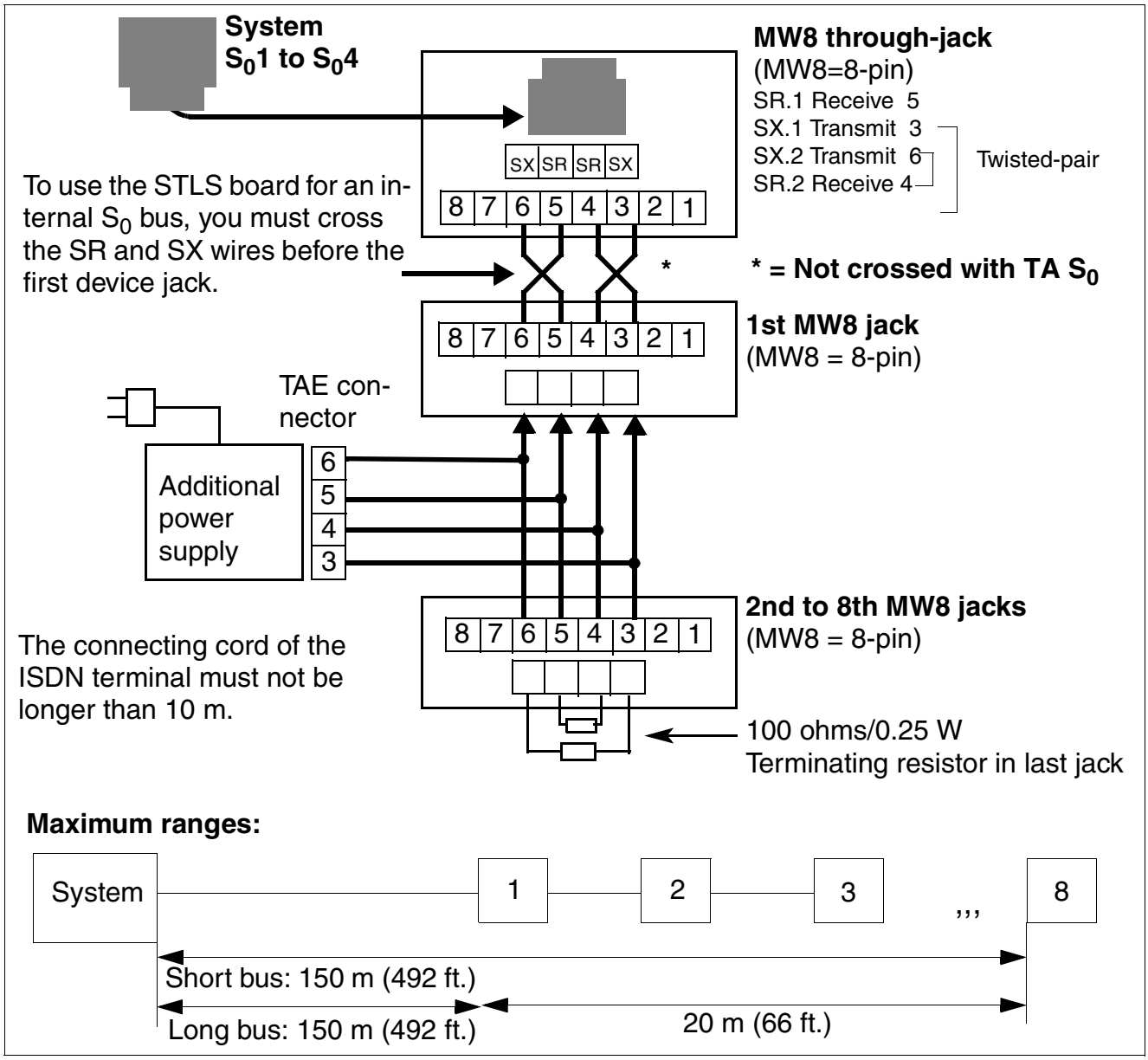


Figure 5-2 Wiring and Ranges for S_0 Bus Jacks (Not for U.S.)

5.2.9.4 Station Numbers for Internal S_0 Stations

- You must enter the station number in the codes for internal stations.
- The station number for the internal S_0 station must not be assigned to the station number of a subscriber board in the standard numbering plan.

Example

- HiPath 3550 CBCC (station numbers 100-111 or 500-507);
  refer to Table 3-8 on page 3-29
- Peripheral board 3 = SLU8 (station numbers 27-42)
- Peripheral board 4 = 8SLA (station numbers 43-50)

Possible station numbers for internal S_0 station: 51 to 74

5.2.9.5 Multi-Device Connection (for Germany Only)

In Germany, consider the following when implementing the multi-device connection feature (S_0 bus from Telekom):

- Telekom assigns an MSN (multiple subscriber number) for connectable terminals on the S_0 bus (normally at least three MSNs per basic access).
- Under port configuration (code 20 4 1) for the port used, set DSS1 trunk PMP in the ISDN parameters of the system settings.
- Enter the MSNs in the table for direct inward dialing (DID) numbers. In HiPath 3550, HiPath 3350, HiPath 3250, HiPath 3150, HiPath 3500, and HiPath 3300, one station, one group or one hunt group can be reached via direct inward dialing for each MSN assigned.
- You cannot make any entries under System stn. number.
- HiPath 3000 is always the last station to be looped in on the S_0 bus because the terminating resistors (2 x 100 ohms) are permanently installed in this system's trunk circuit. For this reason, remove any existing terminating resistors from the last socket.

External Call Forwarding With PMP

Station 100 (HiPath 3550 or HiPath 3500) or station 11 (HiPath 3350, HiPath 3250, HiPath 3150 or HiPath 3300) (port 01) can activate external call forwarding (service * 64) for an MSN assigned to it. This type of call forwarding applies only to these stations and not to the entire multi-device connection. All other stations with an MSN can still be reached by means of direct inward dialing.

In a mixed configuration, be careful to distinguish between the two directions.

6 Expanding and Upgrading the System

Chapter Contents

The following section provides information on supplementary equipment or extensions that are not described in Chapter 4, Installation.

6.1 Replacing Peripheral Boards for HiPath 3750 and HiPath 3700

Caution
Always wear an antistatic wristband when working on the system (especially when handling boards).

In the HiPath 3750 and HiPath 3700 only, you can remove and insert peripheral boards during operation (hot plugging). The following startup rules apply.

Rules for Removing and Inserting Boards

Caution
To ensure that the system operates without blocking, you must follow the rules in Section 4.1.6, “Configuration Notes” on page 4-71 concerning the board configuration.

Table 6-1 Startup Rules for Removing and Inserting Peripheral Boards

If	Then
Inserting new board in free slot	Board is integrated in the system per the rules for initial installation (refer to Initializing the Boards on page 4-72). • System with default numbering plan The station numbers on the new board are appended consecutively in ascending order to the numbers already assigned. • System with modified numbering plan The station numbers on the new board can be in any order. Using HiPath 3000 Manager E or Assistant T, you can assign a specific station number to a port. If the number is already assigned to another object, you can exchange the two station numbers.
Replacing with underequipped board of same type	The system activates the board and retains the surplus ports in the database.

Table 6-1 Startup Rules for Removing and Inserting Peripheral Boards

If	Then
Replacing board with overequipped board of same type	The system activates the board with the same number of ports as on the old board. After the old board is removed, you can reinitialize the slot using HiPath 3000 Manager E or Assistant T. When the new board is inserted, the system activates it as if it had been inserted in a free slot. However, the CDB (customer database) area used by the old board is left as a gap. In the case of subscriber line modules, you can use HiPath 3000 Manager E to retain the old station data by copying it to the new board, or you can delete it (reset to the default state). Copying is not possible for trunk boards.
Replacing with a different board type	The system does not automatically activate the board. After removing the old board, you can initialize the slot using HiPath 3000 Manager E or Assistant T. After you have inserted the new board, the system activates it as if it had been inserted in a free slot. However, the CDB area used by the old board is left as a gap. In the case of subscriber line modules, you can use HiPath 3000 Manager E to retain the old station data by copying it to the new board, or you can delete it (reset to the default state). Copying is not possible for trunk boards.

Suggested Configuration (for U.S. Only)

To prevent B-channel blocking, install the TMST1 Module only in the BC or in the first two slots of the ECs. HiPath 3000 Manager E observes this rule when performing off-line configuration.

6.2 Connecting a P 500 printer to HiPath 3750 and HiPath 3700 (Not for U.S.)

WARNING
Follow the safety and operating instructions provided by the printer manufacturer.

Introduction

The P 500 dot-matrix printer can be used as a CDR printer (serial data transmission) or as the output device of the call charge computer/manager (Hicom GCM) (parallel data transmission).

CDR Printer

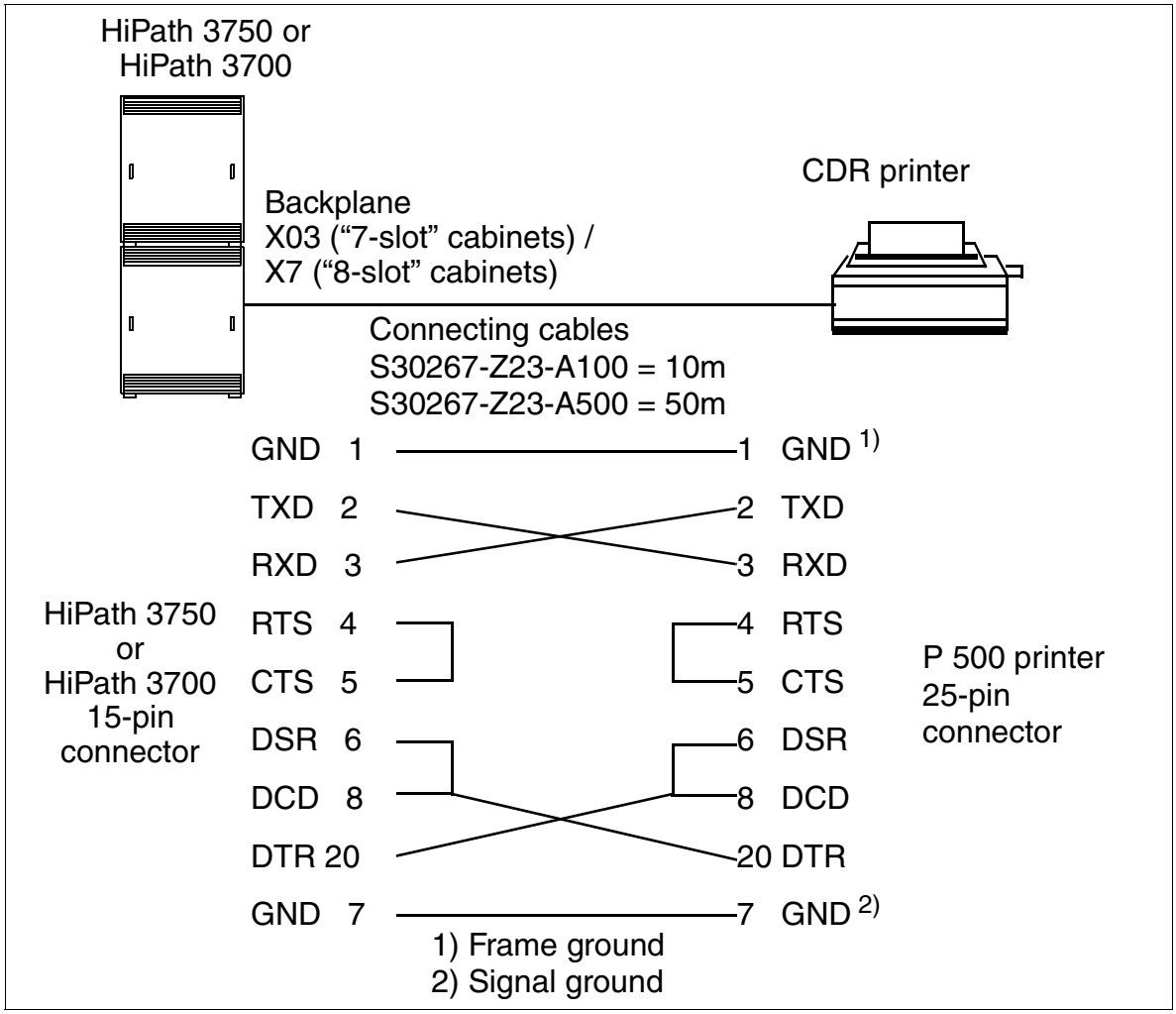


Figure 6-1 P 500 Printer as CDR Printer—Connection and Pin Assignments

Procedure: Setting Switches on Printer

Step	Action
1.	Remove printer cover
2.	Remove ribbon cartridge
3.	Remove cover (see Figure 6-2 on page 6-5)
4.	Select settings in accordance with Table 6-2 on page 6-6 and Table 6-4 on page 6-8

The printer must be turned off and on again for any changes to the settings made to become effective.
Observe the settings listed in the following table if using a different printer. Refer to the operating instructions provided with the printer for more details.

Position of DIP Switch Series 1 and 2

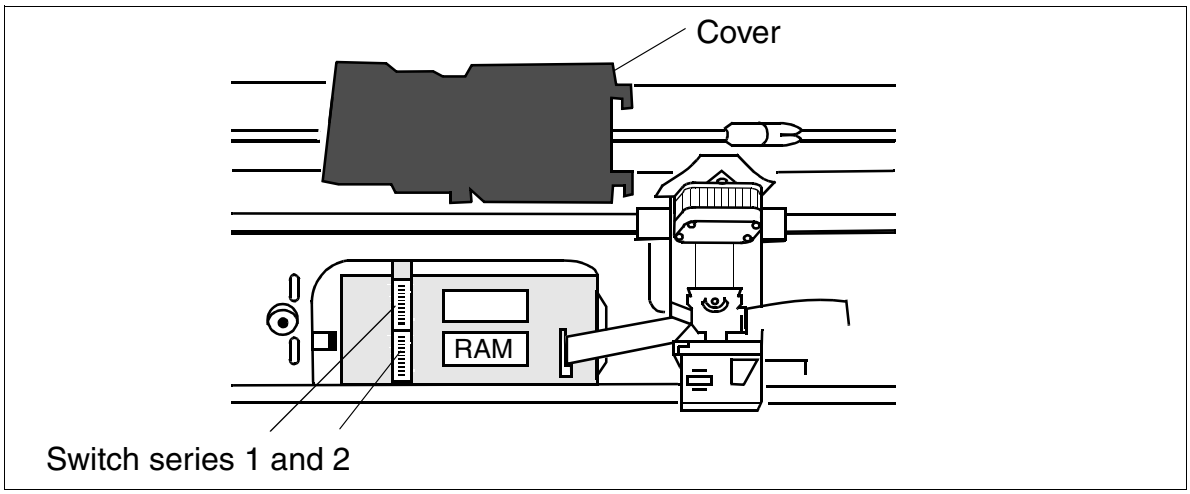


Figure 6-2 P 500 printer—Position of DIP Switch Series 1 and 2

DIP Switch Series 1

Table 6-2 P 500 Printer—DIP Switch Series 1

Switch no.	Function	Switch setting	
		On	**Off**
1-1 1-2 1-3	International characters	refer to Table 6-3 on page 6-7	
1-4*	EPSON or IBM mode	IBM	**EPSON**
1-5	Character set selection in IBM mode	Char. set 2	Char. set 1
	1-inch hole in EPSON mode	Yes	**No**
1-6	Page length	12 inches	**11 inches**
1-7**	LF code selection in IBM mode	LF+CR	LF only
	DC1/DC3 code selection in EPSON mode	No	**Yes**
1-8***	CR code selection in IBM mode	CR+LF	CR only
	CR code selection EPSON mode	CR+LF	**$\overline{\text{AUTOFEED}}$**
The default settings are shown in **bold**.			

* The mode (EPSON or IBM) is determined solely on the basis of DIP switches 1-4. There is no control code to select the mode.

** DC1 code = printer selection via software, DC3 code = printer deselection via software.

***CR and LF are activated if
$\overline{\text{AUTOFEED}}$ = low .

CR only is activated if
$\overline{\text{AUTOFEED}}$ = high .

DIP Switch Series 1, Switches 1-1 to 1-3

Table 6-3 P 500 Printer—DIP Switch Series 1, Switches 1-1 to 1-3

Country	Switch no.		
	1-1	**1-2**	**1-3**
USA	Off	Off	Off
France	Off	Off	On
Germany	Off	On	Off
England	Off	On	On
Denmark	On	Off	Off
Sweden	On	Off	On
Italy	On	On	Off
Spain	On	On	On

DIP Switch Series 2

Table 6-4 P 500 printer - DIP switch series 2

Function	**Switch no.**	**1200 bps**	**2400 bps**	**4800 bps**	**9600 bps**
Serial transmission speed	2-1	Off	On	Off	**On**
	2-2	Off	Off	On	**On**
Function	**Switch no.**	**XON/XOFF**		**Ready/In use**	
Serial printer selection	2-3	On		**Off**	
Function	**Switch no.**	**No parity**		**Odd parity**	**Even parity**
Parity	2-4	**Off**	Off	On	On
	2-5	**Off**	On	Off	On
Function	**Switch no.**	**7 bits**		**8 bits**	
Serial data length	2-6	On		**Off**	
Function	**Switch no.**	**Serial interface**		**Parallel interface**	
Interface selection	2-7	**On**		Off	
Function	**Switch no.**	**Selected**		**Non selected**	
CSF mode (single sheet feed)	2-8	On		**Off**	
The default settings appear in **bold**.					

Administration

Section 8.2 on page 8-6 describes how to administer the P 500 dot-matrix printer.

Output Formats

For information about the output formats (compressed or uncompressed) for call detail recording central, see Section 7.14.8 on page 7-488.

6.3 Connecting Hicom GCM to HiPath 3750 and HiPath 3700 (Not for U.S.)

Introduction

Hicom GCM supports call detail recording and evaluation (code book included) for up to 150 stations and 15,000 call detail records.

Refer to the Hicom GCM Service Manual (A31004-S4500-X100-*-92) for information on how to configure and start up call charge computer/manager.

Administration

Section 8.3 on page 8-7 describes how to administer Hicom GCM.

Connection

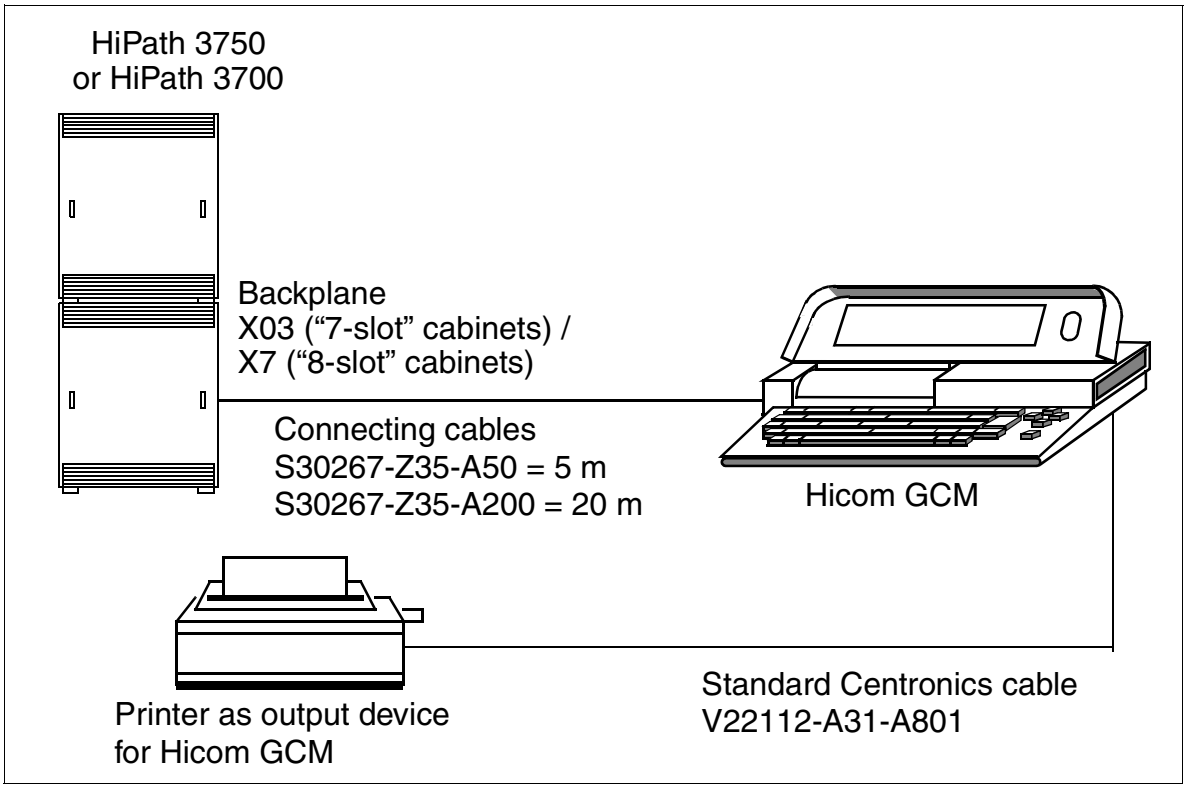


Figure 6-3 Connecting the Call Charge Computer/Managers (Hicom GCM)

Do not connect the cable between HiPath 3750 or HiPath 3700 and Hicom GCM until you have configured the call charge computer/manager.

Assignment of Connecting Cable S30267-Z35-A50/20

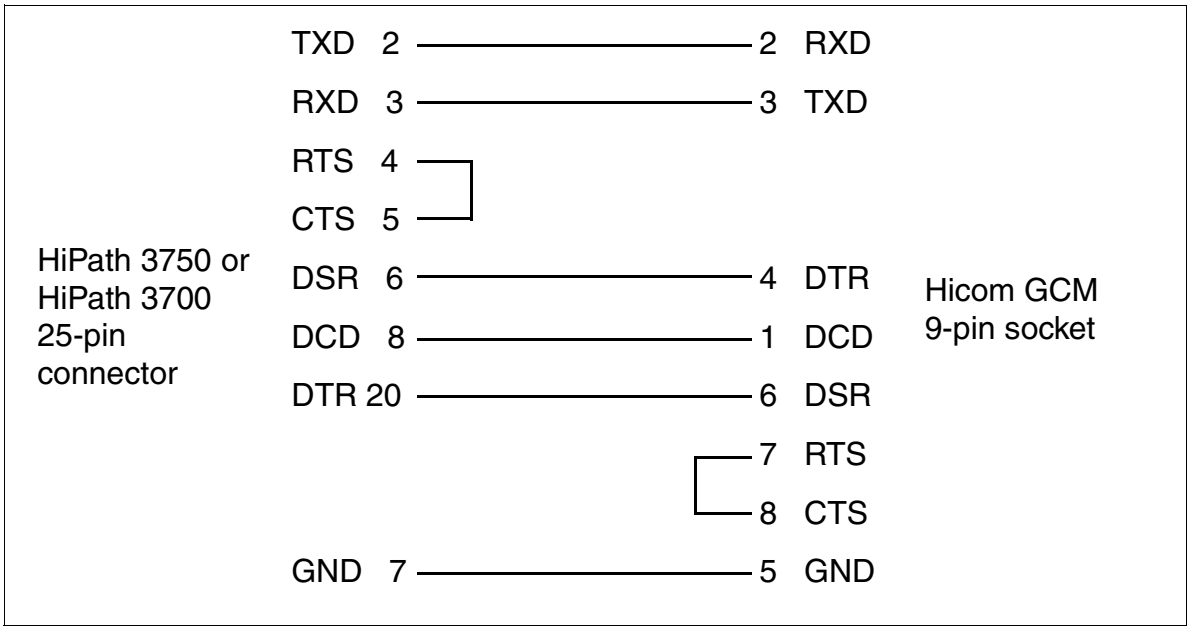


Figure 6-4 Assignment of Connecting Cable S30267-Z35-A50/20

Output Formats

For information about the output formats (compressed or uncompressed) for call detail recording central, refer to Section 7.14.8 on page 7-488.

6.4 Installing an ECR with HiPath 3700, HiPath 3500, HiPath 3300 (not for U.S. and Canada)

Caution
An expansion cabinet rack (ECR) equipped with an external power supply unit (EPSU2-R) may only be operated if the housing is closed.
Before opening the housing, disconnect the ECR from the power supply by

- removing the battery fuse on the ECR front panel and
- unplugging all power and connecting cables.

Introduction

When installing the system, an ECR in the 19” cabinet is required if

- emergency battery operation is necessary during a power failure or if the system requires uninterruptible power. The necessary battery pack is installed in the ECR.
- the internal system power supply unit for HiPath 3500 or HiPath 3300 is not sufficient enough to provide power to the overall telephone configuration (corded or cordless telephones). In this case, the EPSU2-R external power supply unit is installed in the ECR.

6.4.1 ECR Control, Display, and Connecting Elements

Front Panel (Figure 6-5**)**

- Top switch for disconnecting battery power
- Bottom switch for disconnecting line power
- 6.3 A/T battery fuse (Caution: do no confuse with EPSU2-R fuse.)

Necessary height units for 19“ cabinet assembly: 4
(one height unit corresponds to approx. 1.7“ = 43 mm)

Figure 6-5 ECR front panel (155 x 440 x 380 mm)

Rear Panel (Figure 6-6**)**

- Line voltage connections [1]
  - Top: Line output to UPSC-DR connection socket for HiPath 3500 and HiPath 3300
  - Below: Line input
- Battery pack / EPSU2-R [2] output voltage to UPSC-DR for HiPath 3500 and Hi-Path 3300
  or
  Battery pack output voltage [2] to UPSM for HiPath 3700
- Clip [3]
  Attach the braided screen of the connection cable (to the socket [2]) here.

If an EPSU2-R external power supply unit is installed in the ECR, the following additional display and control elements are also included:

- EPSU2-R 2.5 A/T [4] fuse for battery pack (Caution: Do not confuse with battery fuse on the ECR front panel.)
- LED [5] for the 48 V output voltage (DC output) in the EPSU2-R (see Table 6-5)
- LED [6] for the line input voltage (AC input) in the EPSU2-R (see Table 6-5)

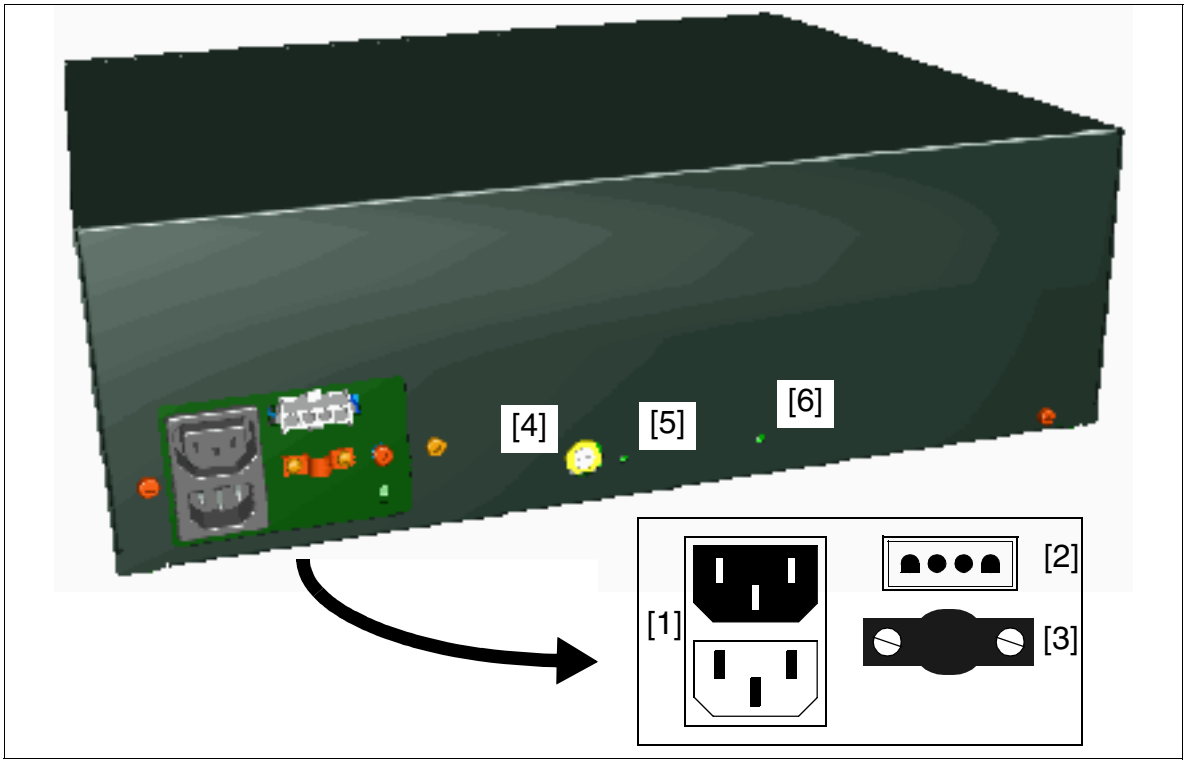


Figure 6-6 ECR Rear Panel With Connecting Elements

Table 6-5 EPSU2-R - Explanation of Display and Connecting Elements

LED [6] **(DC output)**	**LED [7]** **(AC input)**	**Explanation**
on	on	DC output and AC input voltage are working properly.
off	on	DC voltage not reaching output (DC consumer has a short circuit).
on	off	AC voltage not reaching input (power failure or system powered by battery, including additional power).
off	off	There is no AC input voltage (power failure) and the batteries are dead, or the EPSU2-R fuse is defective or was removed (by turning it to the left).

6.4.2 Components

The following components are also included in the delivery:

- Expansion cabinet rack (ECR): S30777-U711-E901
  A mounting set for installing the ECR in a 19” cabinet is included in the delivery: C39165-A7027-D1
- Mounting set for ECR wall installation or ECR table setup: C39165-A7027-D2
- EPSU2-R: S30122-K7221-X900
  A cable for making the ECR – HiPath 3500 or HiPath 3300 electrical connection is included in the delivery: C39195-Z7001-C14
- 4 batteries, 12 V/7 Ah: V39113-W5123-E891
- Connecting cable, ECR (battery pack) – HiPath 3700 (UPSM + power failure signalling (lamp-wire connector)): Signalling equipment, for example, can be operated over a relay that is connected in series.): C39195-A7002-B11
- Connecting cable, ECR – HiPath 3500 or HiPath 3300: S30267-Z361-A10

Caution
Both of the above-mentioned connecting cables are system specific.
- C39195-A7002-B11 is exclusively designed for HiPath 3700.
- S30267-Z361-A10 is exclusively designed for HiPath 3500 and HiPath 3300.

Failure to observe the above may damage the power supply unit.

6.4.3 Installation Options

Use the power cable to ground the ECR. Fixed, separate grounding is not required.

The expansion cabinet rack can be

- installed in a 19” cabinet (see Section 4.2.4.5).
- mounted on a wall (see Section 4.2.4.4).
- set up on a table using four adhesive mounting feet.

6.4.4 Expansion Cabinet Rack (19”) With Battery Pack

Caution
Before opening the housing, disconnect the ECR from the power supply by
- removing the battery fuse on the ECR front panel and
- unplugging all power and connection cables.

When using the UPSM or the UPSC-DR as the uninterruptible power supply unit, you need to install an additional battery pack in the ECR.

The ECR and batteries are packaged separately and included in the delivery. Insert the battery according to the assembly instructions provided. Only use batteries approved for HiPath 3000.

Figure 6-8 shows the position of the battery pack (= four batteries) inside the ECR.

The circuit diagram below illustrates the cable run between the battery pack in the ECR and the power supply unit of the system (UPSM for HiPath 3700, UPSC-DR for HiPath 3500 and HiPath 3300). The connecting cable between the expansion cabinet rack ECR and the system cabinet is also provided.

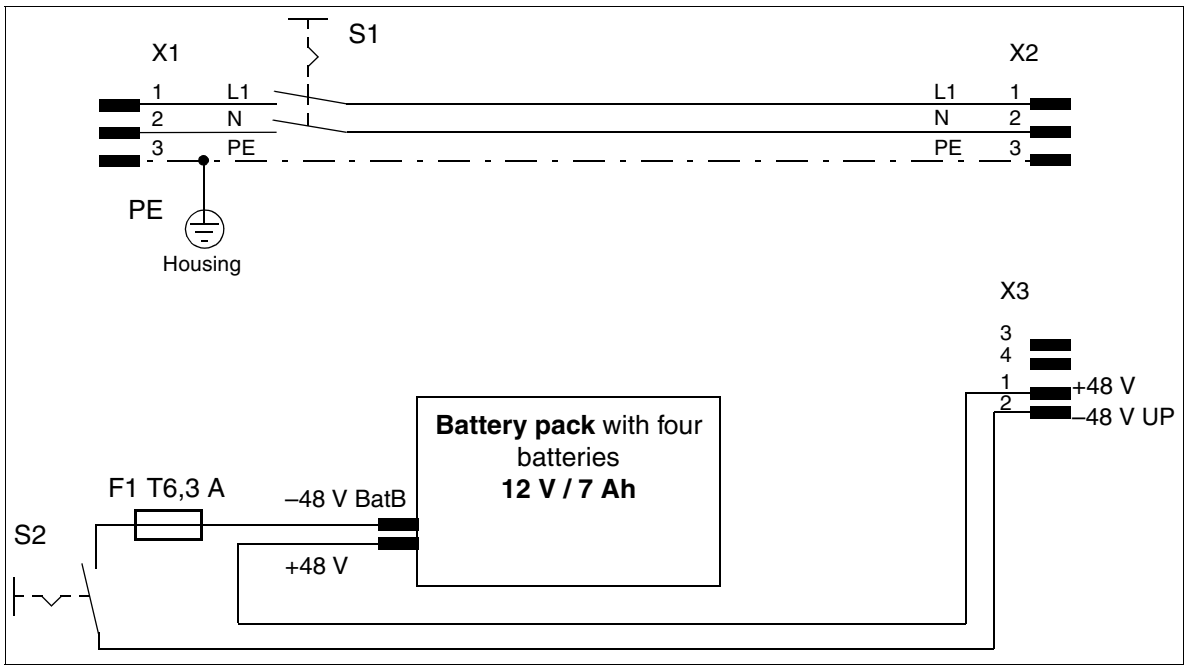


Figure 6-7 HiPath 3700, HiPath 3500, HiPath 3300 - ECR With Battery Pack

Caution
When storing an ECR equipped with a battery pack or if the ECR is inactive for a long period of time, remove the battery fuse (6,3 A/T) in the front panel of the ECR. Also, when shipping an ECR with a built-in battery pack, remove the batteries beforehand.

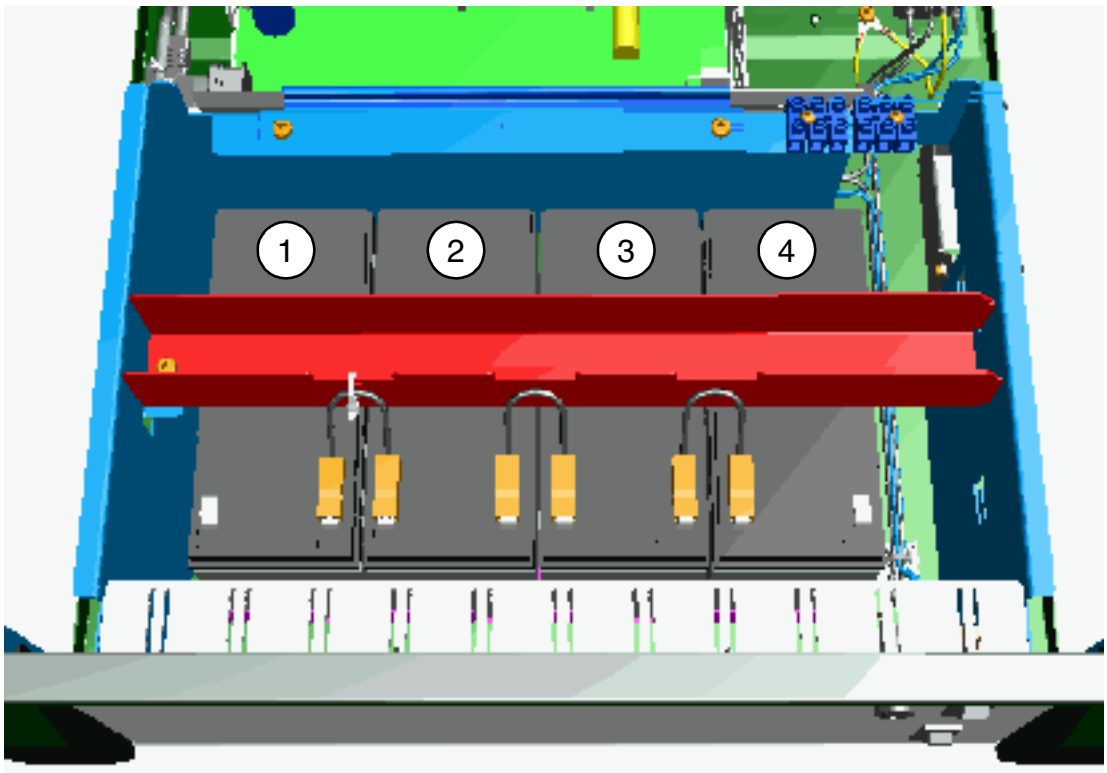


Figure 6-8 ECR With a Built-in Battery Pack

6.4.5 ECR With Battery Pack and EPSU2-R

Caution
An ECR equipped with an EPSU2-R may only be operated if the housing is closed. Before opening the housing, disconnect the ECR from the power supply by

- removing the battery fuse on the ECR front panel and
- unplugging all power and connecting cables.

If the internal system power supply unit for HiPath 3500 or HiPath 3300 does not provide enough power for the overall telephone configuration (corded and cordless telephones), an additional power supply is necessary. In this case, the EPSU2-R external power supply unit should be installed in the ECR.

Figure 6-10 shows the position of the EPSU2-R inside the ECR.

The block diagram below illustrates the cable run between the EPSU2-R and the battery pack inside the ECR and the power supply unit of the system (UPSC-DR). The connecting cable between the expansion cabinet rack ECR and the system cabinet is also provided.

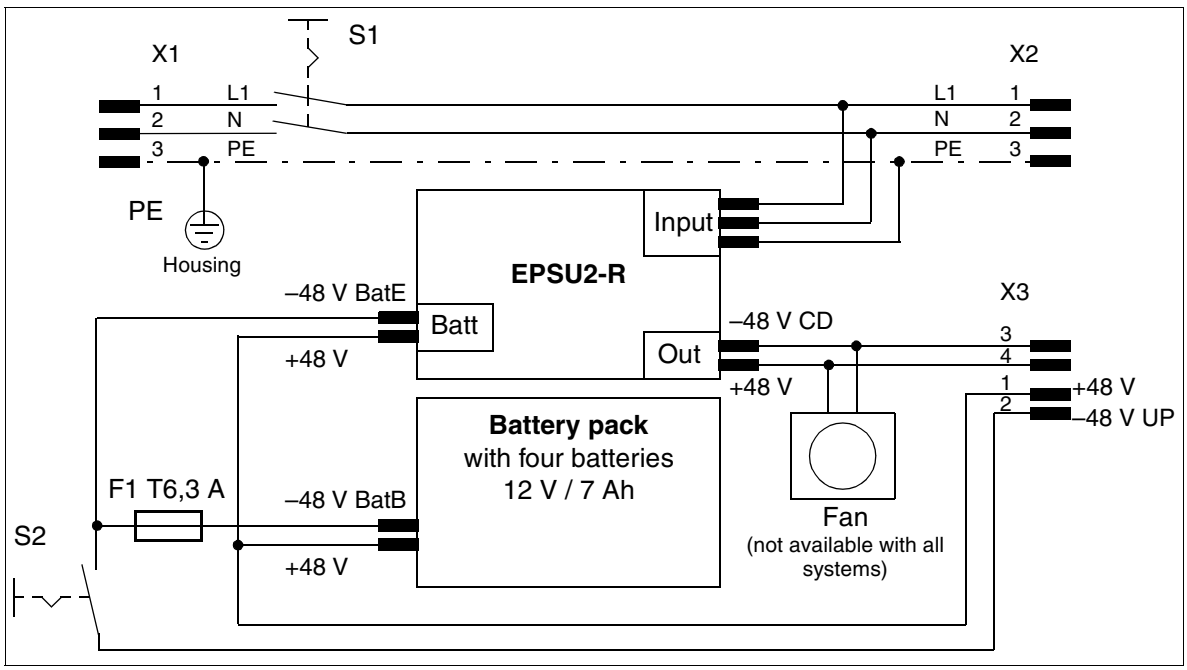


Figure 6-9 HiPath 3500, HiPath 3300 - ECR With Battery Pack and EPSU2-R

Caution
When storing an ECR equipped with a battery pack or if the ECR is not used for a long period of time, remove the battery fuse (6.3 A/T) in the front panel of the ECR. When shipping an ECR with a built-in battery pack, remove the batteries beforehand.

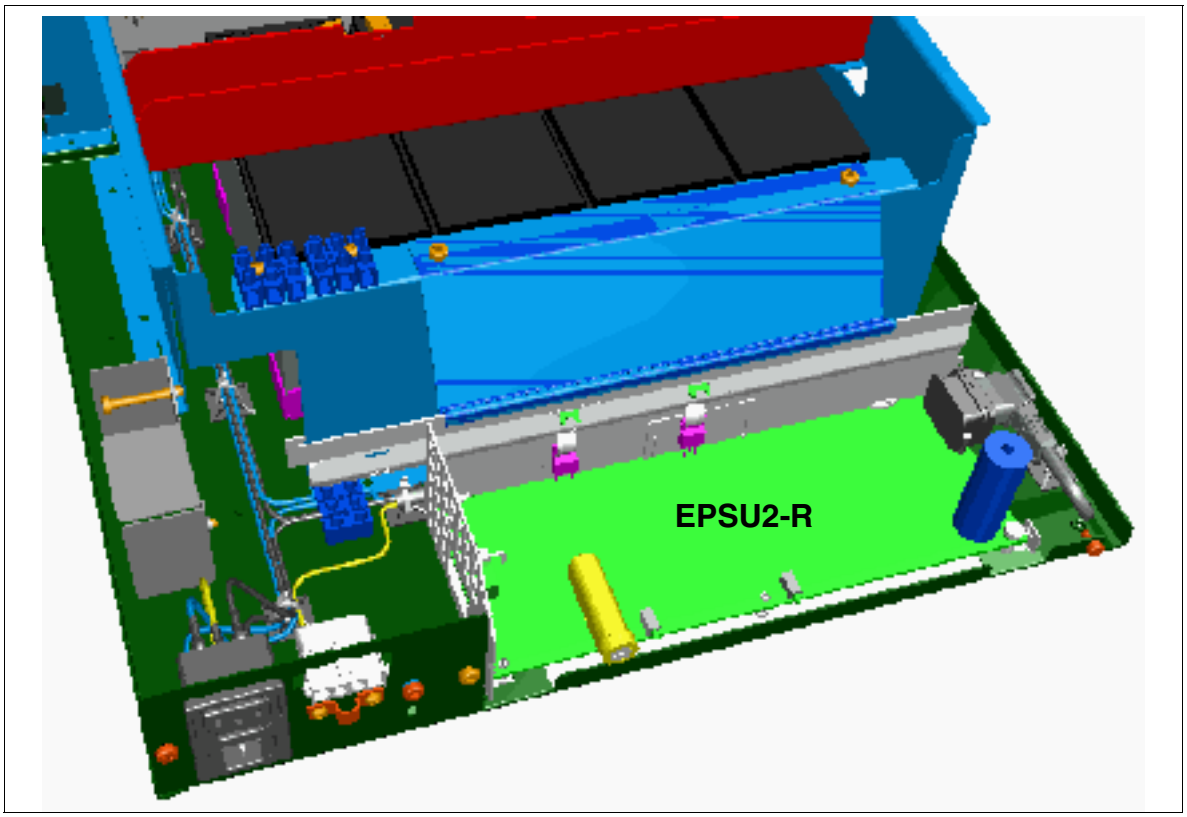


Figure 6-10 ECR with Built-in EPSU2-R

6.4.5.1 Connect Fan (if needed)

The ECR delivery usually includes a fan that is built in but not connected.

To connect the fan, proceed as follows:

Step	Action
1.	Cut off the plug on the fan connection line if there is one. Strip both wire ends and attach wire end sleeves.
2.	Connect both connection wires to the EPSU2-R terminal [A] as shown in Figure 6-11. Connect the red wire (fan) to the white wire (EPSU2-R) and the black wire (fan) to the black wire (EPSU2-R). Figure 6-9 shows the cable run between EPSU2-R and the fan.

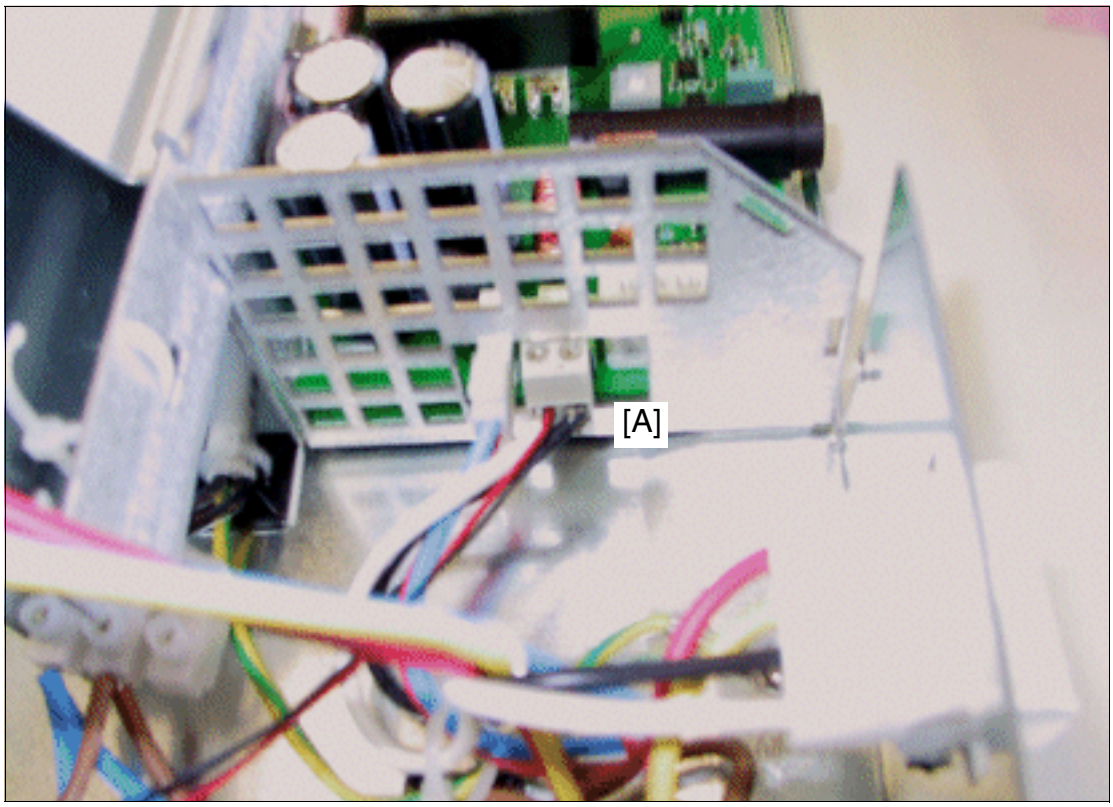


Figure 6-11 Connecting the Fan to the EPSU2-R

If you install the fan at a later time, you must make sure that the identification ([B] in Figure 6-12) is in the upper right corner when viewed from outside.

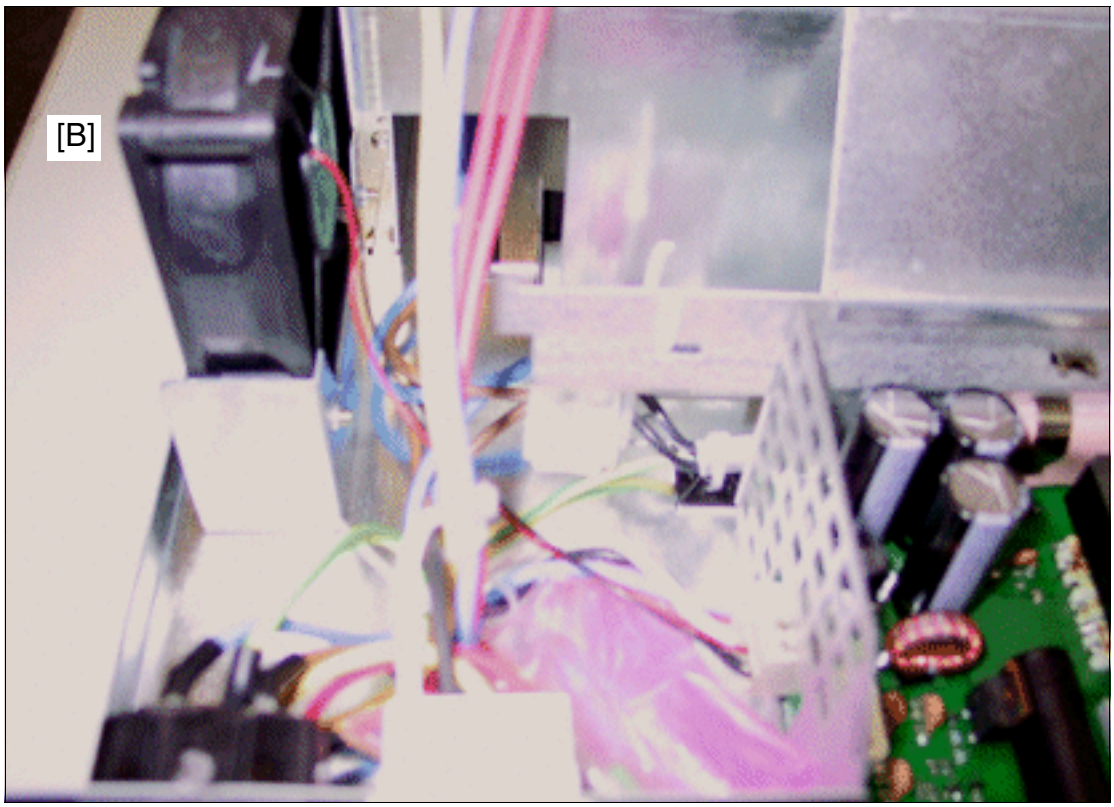


Figure 6-12 Placement of the Fan in the ECR

6.5 Upgrade System to HW and SW V1.2/V3.0

The following information describes the measures that are needed to upgrade the hardware **and** software to Version 1.2/3.0.

It is not an upgrade when SW Version 1.2 is used on old hardware (Version 1.2 or earlier); this is chiefly a corrective measure to use when there is an error. This special software (referred to as Release 3.1- SW in the release notices) runs exclusively on the old FMC. This measure results in a capability that is considerably less than that of the HiPath 3000 Version 1.2.

In general, the use of software as of V1.2 on “7-slot“ cabinets is possible; however, you should note that by doing this, the maximum capacity limits illustrated in Table 2-6 may not be attainable in all cases.

It is not possible to upgrade HiPath 3550 to HiPath 3500 or HiPath 3350 to HiPath 3300. This would require replacing the complete system.

- **HiPath 3150**

SW Release 1.0/2.0/ 2.2/3.0/SW Version 1.0	→	HW Version 1.2, SW Version 1.2/3.0 **Notes:** • It is necessary to replace the complete system. • CDB conversion is necessary.

- **HiPath 3250**

SW Release 1.0/2.0/ 2.2/3.0/SW Version 1.0	→	HW Version 1.2, SW-Version 1.2/3.0 **Notes:** • It is necessary to replace the complete system. • CDB conversion is necessary.

- **HiPath 3350**

SW Release 1.0/2.0/ 2.2/3.0/SW Version 1.0	→	HW Version 1.2, SW Version 1.2/3.0 **Notes:** • This requires the new CBCC control board. • If the following subboards are present, they must be replaced: IMODC (replaces the IMOD), MMC16 (replaces the FMC), CMA/ CMS (replaces the CGM/CGMC). • CDB conversion is necessary.

- **HiPath 3550**

SW Release 1.0/2.0/ 2.2/3.0/SW Version 1.0	→	HW Version 1.2, SW Version 1.2/3.0 **Notes:** • This requires the new CBCC control board. • If the following subboards are present, they must be replaced: IMODC (replaces the IMOD), MMC16 (replaces the FMC), CMA/ CMS (replaces the CGM/CGMC). • CDB conversion is necessary.

- **HiPath 3750**

SW Release 1.0/2.0/ 2.2/3.0/SW Version 1.0	→	HW Version 1.2, SW Version 1.2/3.0 **Notes:** • This requires the new CBCPR control board. • If the following subboards are present, they must be replaced: IMODC (replaces the IMOD), MMC16 (replaces the FMC), CMA/ CMS (replaces the CGM/CGMC). • CDB conversion is necessary.

Procedure: Convert the Customer Database (CDB)

Step	Action
1.	Start HiPath 3000 Manager E.
2.	Transfer current system CDB from the system to the PC.
3.	Save the CDB under new name.
4.	Convert CDB: • Open the CDB saved in step 3. • Enter customer data: – Name – Contract number • Enter system-wide data: – Target version: for example, Version 1.2 – Expansion: for example, HiPath 3550 CBCC – Country version: for example, Germany
5.	Save the converted CDB under a new name, for example, as offline_v12.cdb.

7 Implementing Features

Chapter Contents

This chapter discusses the following topics:
(The information on the HiPath 3250 and HiPath 3150 does not apply to the U.S.)

List of the described features in alphabetical order

C

D

E

P

7.1 Starting System Administration

Users can access system administration by entering a user name (ID) and password (authentication). Depending on the active password concept (refer to Section 12.9.1 for more details), the procedure is as follows.

7.1.1 Accessing Assistant T

Step	Input	Explanation
1.	*95	Start system administration
2.	XXXXX	Enter user name: • Fixed password concept: User name = 31994 • Variable password concept: Individual user name
3.	XXXXX	Enter password: • Fixed password concept: Password = 31994 • Variable password concept: Individual password

Only an optiset E memory telephone can accept input in the form of alphanumeric characters. Do not change a user name or a password to a name that includes alphanumeric characters unless Assistant T or Assistant TC will always use an optiset E memory telephone.

For an example of the first time system administration is called via Assistant T after the system is booted, refer to page 12-37.

7.1.2 Accessing HiPath 3000 Manager E

Step	Input	Explanation
1.	XXXXX	Enter user name: • Fixed password concept: User name = 31994 • Variable password concept: Individual user name
2.	XXXXX	Enter password: • Fixed password concept: Password = 31994 • Variable password concept: Individual password

7.2 Features for All Traffic Types

7.2.1 Call Hold

Definition

Users can place an active call on hold. Placing a call on hold means that the call stays connected, but in a waiting state, until the user retrieves it. After placing a call on hold, the user can either retrieve the held call or place another call on the same line.

A distinction is made between common hold and exclusive hold.

With common hold, any party can retrieve the held call; with exclusive hold, only the party who placed the call on hold can retrieve it.

The following describes other situations involving Hold states:

- **Call Waiting** (refer to Section 7.3.3 for more details)

  When a station is involved in a call and a second call is waiting to be answered, you can scroll to and select the prompt *Call Waiting*. This places the first caller on exclusive hold at your telephone and answers the incoming call. This is also known as the feature Answer Hold. You can process the second call (transfer, park) or “Quit and Return” to the held party and the incoming call is dropped.

- **Toggle and Automatic Hold** (refer to Section 7.2.3 for more details)

  When a station, using a trunk key or call key, is engaged in one conversation and another call is incoming on another key, you can automatically place the current call on exclusive hold and answer the incoming call by pressing the flashing key. You can then toggle between the 2 calls at will. The lines are alternately on Consultation Hold and the last call handled will recall if you go on-hook.

  Alternatively, you can place your original caller on Common Hold, by first pressing the HOLD key before answering the incoming call. Anyone with an appearance of the Trunk key or Call key can take the call by pressing the slowly flashing key.

- **Consultation Hold and transfer** (refer to Section 7.2.4 and Section 7.2.5 for more details)

  When a station is engaged in a conversation, whether or not the call is on an outside line button or not, you can place the current conversation on Consultation Hold to consult with another internal or external party. The held party is on exclusive hold on your telephone.

- **Hold and retrieve trunk** (refer to Section 7.5.4 for more details)

  This allows the display user to place an outside trunk call on hold whether there is an appearance of the trunk or not on the telephone. Pressing the Hold/transfer key, the trunk is placed on exclusive hold and the display provides the information

on the held trunk, which reads *Line held on xxx,* where *xxx* is the trunk number. You can go on-hook. To retrieve the held line, press the *Retrieve* line button or dial the access code followed by the trunk number.

Related Topics

- Section 7.2.2, Call Park, on page 7-23
- Section 7.2.3, Toggle, on page 7-25
- Section 7.2.6, Conference, on page 7-32

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Trunk key, Retrieve key	You can retrieve a call that was placed on hold by pressing either a trunk key (when the LED is flashing slowly), by pressing the Retrieve key, or by entering a code from the Program/Service menu. The trunk to be seized must be suffix-dialed (with the exception of the trunk key).
Internal calls (for U.S. Only)	To place an internal call on hold, users must either park the call or use an internal consult key.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up a call.
2.	Place the call on hold.
3.	Carry out another function.
4.	Resume the call.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.2.2 Call Park

Definition

With call park, users can place both internal and external calls on hold. Parked calls can be answered from any telephone in the system.

Users can activate the call park feature only when they are on another call. Users must assign a virtual number (park slot 0 through 9) to the call that they want parked. They must then enter the slot number to receive the call.

A parked call that is not retrieved within a given time (default is 160 seconds) recalls the originator and follows the recall rules.

Related Topics

- Section 7.2.1, Call Hold, on page 7-20
- Section 7.2.3, Toggle, on page 7-25
- Section 7.2.6, Conference, on page 7-32

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Number of calls parked simultaneously	Max. 10	Max. 10	Max. 10	Max. 10	Max. 10

Requirements and Conditions

Subject	Requirement or Condition
Park	You cannot park an undialed trunk.
Park	You must answer a call before you can park it.
Conference	You cannot park a conference call.
Call forwarding	In the case of a recall, a parked call does not follow call forwarding.

Subject	Requirement or Condition
DTMF	DTMF mode is not deactivated when you activate the park feature. This applies both to the station that parked the call and to the parked station.
Occupied park slots	If the park slot selected for parking a call is already occupied, a tone sounds, and the number does not appear on the screen. Select another park slot.
DND	A station in DND can place a call in a park location; however, if the parked call recalls and no other destination has been identified in call management, the call automatically is disconnected after the recall timer expires.
MOH	Parked callers hear Music on Hold (MOH).
CorNet-N	An incoming call over a CorNet-N link can only be placed in a Park location at the destination node. A call parked in one node cannot be retrieved from another node over the CorNet-N link.
DISA	The call park feature cannot be activated from a DISA connection.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up a call.
2.	Park the call. Enter service code *56 or press the feature key.
3.	Suffix-dial a park slot.
4.	Resume the call. Enter service code *56 or press the feature key.
5.	Suffix-dial a park slot.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.2.3 Toggle

Definition

Toggle enables a user to toggle between two parties, placing one of the parties on hold. The toggle feature can be used for internal and external calls.

The rules for consultation hold also apply to the active call. Users cannot toggle between conference calls.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Hold	If you are on hold, you cannot use the toggle feature.
DTMF	DTMF is not deactivated when you activate the toggle feature.
Two incoming calls	If the second party is also an incoming call, the user can answer the incoming call by using the feature Call Waiting (default access code is **55*) then Toggle between the first and second call as explained above.
Line keys	Users with line keys (Call keys, Trunk keys) can toggle between one call and another by pressing the flashing line key for the other incoming call, and *Toggle* between both by pressing one line key then the next. The lines are in exclusive hold. **Exception:** In the case of the General Call key appearances, users should always press the Hold button, followed by the Release button, before pressing another General Call key appearance. This places the first call on Common Call. Otherwise the call remains on Consultation Hold.
Music on Hold	MOH is always connected to the held party.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Use the consultation hold feature to set up a second call from a call in progress.
2.	You can then toggle between the two parties using *2.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.2.4 Unscreened Transfer

Definition

Users can transfer an internal or external call to another internal station before the called party answers. The other station can be in the same system or it can be in a networked system (CorNet-N or QSig [not for U.S.]).

If the requested station is unavailable, the call will remain in a wait state until the line is free (camp on). Only two calls can be transferred to a busy station simultaneously.

A telephone with display at the transfer destination can display the number of either the station initially called or the calling party.

Calls transferred to a station which is call forwarded follow the forwarding mode set at the internal destination.

A call transferred to an external destination over an analog loop start trunk does not recall because the HiPath 3000 does not know the state of the final destination. In this case, a pseudo answer is provided.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
External transfer destination	You cannot place an unscreened transfer to an external destination.
Recall	If a transferred call is not answered within a certain period of time, the system initiates a recall.
Recall timer	A transferred call that is not answered recalls to the transferring station. The recall timer, *Callback timeout for transfer before answering* (default is 45 seconds), is started when the transferring station releases the call from the station. This timer also controls the length of time that a caller is camped on the destination station.

Subject	Requirement or Condition
Call charges	Toll charges are assigned to the switching station until the call is picked up or released. After the destination station answers, the charges are assigned to it.
Call charges	If the destination is an external destination, the call charges are assigned to the transferring station as long as the destination answers the call.
DSS	Pressing a *DSS* key from a talking state, results in an immediate Consultation call with the party designated by the *DSS* key. In effect, it replaces the procedure: *Consult* + *destination*.
Do Not Disturb	Transferring a call to a station in Do not Disturb results in an immediate recall to the transferring station. If the transferring station is itself in a Do Not Disturb state, a *Recalling transferred call* overrides the DND function and rings the telephone.
Music on Hold	The called party hears MOH, if provided.
External destinations	An external call can only be transferred to another external destination (in the same system or in another node via CorNet-N) if one of the trunks can provide release supervision (ground start, PRI, BRI, DID, T1).
Busy stations	Only two calls can be transferred to a busy station simultaneously. On a display telephone, the state of the called party (if internal) is displayed—*Busy* or *Do Not Disturb*.

Configuration Options

- This feature does not have to be explicitly configured.
- A system-wide flag must be set in HiPath 3000 Manager E to allow or disallow (default) trunk-to-trunk transfer.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up a call.
2.	Activate consultation hold and call another internal station.
3.	Hang up the phone to transfer the call to the internal station before the station answers.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.2.5 Screened Transfer

Definition

Users can use screened transfer by initiating a consultation call to an internal user (a third party) after answering a call. After the third party answers, the user can hang up the phone, transferring the call received.

Users can also transfer an internal call to an external destination. The receiving station can be in the same system as the called party, or it can be in a different networked system (CorNet-N). If the requested station is busy and the call is nevertheless transferred, the call camps on until the line is free.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Call charges	Toll charges are assigned to the switching station until the call is transferred. After the destination station answers, the charges are assigned to it.
External destination	In the case of an external destination, the transfer must be initiated.
DSS	Pressing a DSS key from a talking state, results in an immediate Consultation call with the party designated by the DSS key. In effect, it replaces the procedure *Consult + destination*.
Music on Hold	The called party hears MOH, if provided.
External destinations	An external call can only be transferred to another external destination (in the same system or in another node via CorNet-N) if one of the trunks can provide release supervision (ground start, PRI, BRI, DID, T1).
Busy stations	Only two calls can be transferred to a busy station simultaneously. On a display telephone, the state of the called party (if internal) is displayed—*Busy* or *Do Not Disturb*.

Subject	Requirement or Condition
Transfer to CF station	Calls transferred to a station that is call forwarded follow the forwarding mode set at the internal destination. The display on a display telephone indicates the final destination.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up a call.
2.	Activate consultation hold and call another internal station.
3.	When the called station answers, transfer the call and hang up. In the case of external destinations, the transfer must be initiated.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.2.6 Conference

Definition

A user can combine up to five stations into a conference call.

The user setting up the conference can individually disconnect stations from the conference or release the conference entirely. In addition, the user can also exit the conference without terminating it, even if the conference includes external stations (trunk-to-trunk conference).

If internal stations still remain in the conference, the new conference leader is the user who has been in the conference the longest. If only external stations remain in the conference and no backward release criterion is present (on loop-start trunks), a timer, *Time until warning tone, in main station interface transit con*, is started; the default time is: 5 minutes. When this timer expires, the remaining stations receive a warning tone and the conference is disconnected after default 10 seconds. This timer, *Time from warning tone until release,* is variable from 0 to 42 min.

The initiator of the conference is designated as the Conference Master. If the conference master leaves the conference, control of the conference is passed on to the first internal member which was part of the conference.

Members of the conference call can leave the conference by going on-hook or by answering a call waiting. However, they must call the conference master to be added on to the conference once again.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Conferences per system	6	3	3	3	3
Stations per conference	5	5	5	5	5
External stations per conference	4	4	4	4	4

Requirements and Conditions

Subject	Requirement or Condition
Conference	Internal users cannot participate in more than one conference in the system (except with CorNet-N).
Analog stations	The following restrictions apply to HiPath 3350 and HiPath 3300: Analog stations can set up no more than a three-party conference. Up to four analog telephones can be passive participants in a conference.
Analog stations	Analog stations are not checked to see if they are voice devices.
Voice, data transmission	You can set up a conference between voice stations only.
Call charges	Toll charges are assigned to the party who set up the toll call. When a call is transferred or released, the toll charges are assigned to the remaining internal station from the moment the call is released.
Conference participants when external applications are connected via CSTA	CSTA Phase II places a limit on the length of CSTA messages. Conferences with more than three participants exceed this limit and can cause the connected applications to malfunction when at least one station is monitored by CSTA. This is why the option to expand conferences to include more than three participants is not offered in the menu and will be rejected if you try to invoke it with a code.
DISA	The conference feature cannot be invoked from an external DISA station.
Park	Conference calls cannot be parked.
Silent Monitoring	Silent Monitoring limits the maximum number of conferences. Maximum number of conferences possible in system = maximum number of simultaneous Silent Monitoring stations.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Using the consultation procedure, place an existing call on hold and set up a second call.
2.	Set up the conference using *3.
3.	If you want to include additional stations in the conference, place the conference on hold, set up another call and activate the conference.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.2.7 Music on Hold (Internal or External Source)

Definition

An integrated music source (hardware module) makes it possible to play music for waiting parties during switching operations.

As an alternative, you can use the following optional modules with HiPath 3350, HiPath 3550, HiPath 3300 and HiPath 3500 (in the U.S., the EXMNA board is included with every HiPath 3000 system):

- EXMNA (connection option for an external music source) (for U.S. only)
- EXM (connection option for an external music source) (not for U.S)
- EXMR (connection option for an external music source)
- MPPI (with music component) (not for U.S)

All HiPath 3000 models allow you to define up to six MOH sources on analog interfaces for the six possible ITR groups (Section 7.11.1, Tenant Service Configuration). Devices other than Genius or Mozart must be connected to a 600 Ohm transformer.

The EXMNA card limits the level at which MOH can be heard over outside lines and is therefore FCC compliant without external limiters.

Callers hear MOH if in Consultation Hold state, Park state, and in a transfer state if configured. Also, queued callers in an UCD environment can hear MOH if so configured.

MOH can be configured in one of three ways:

1. No Music on Hold: The held party will only hear silence.
2. MOH with ring tone: The held party will first hear MOH during the Consultation process. When a call is transferred to the destination, the MOH is replaced by ringback tone.
3. MOH without Ring Tone: The held party will hear MOH until the called party answers the call.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	Free analog subscriber ports				
HW options	SLA16, SLA8/16/ 24N, TIEL	EXM, EXMR, EXMNA, MPPI		–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
EXMNA	EXMNA is used only in the U.S.
EXM, EXMR, EXMNA, MPPI	Connecting the EXM, EXMR, EXMNA or MPPI board automatically switches the system over to the external music source.
MOH	You must unplug the external music source, EXM module, or EXMNA module to activate internal music on hold.
MOH (not for U.S.)	HiPath 3250 provides limited internal MOH.
MOH source	You cannot use the logical port “0” as an MOH source.
MOH source at analog ports	If the MOH source is turned on (loop active) you need to disconnect and then reconnect it (interrupting the loop) after configuring the analog port.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure MOH:** 22-11 => System settings - Music on hold - State (0...2) Status options: 0 = off, 1 = on, without ring tone, 2 = on, with ring tone
2.	**MOH via the analog interface**: 25-4 => Annoucement/music - ext. music - Select group (1...6) These groups correspond to the six ITR groups. Note: If you have programmed more than one MOH, you need to assign the stations to these MOHs via the ITR groups.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Internal MOH**: Options
2.	System parameters
3.	System settings
4.	Music on hold
5.	**MOH via analog port:** Options
6.	Connections
7.	Ext. connection
8.	External MOH Assign the MOH to internal traffic restriction (ITR) groups.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up a call.
2.	Activate consultation hold.
3.	The party on hold receives music from the correct source.

7.2.8 Announcements

Definition

For uniform call distribution (UCD), announcement before answering, and DTMF direct inward dialing (DID), users can connect announcement equipment. This announcement replaces music on hold (MOH) in certain situations (such as during hold or while a station is busy or being transferred).

Announcement devices can be connected to analog interfaces, or can be connected using E&M in the HiPath 3750 or HiPath 3700 system. Start/stop control can be implemented using relays and sensors or E&M. Up to 32 stations can be connected to an announcement device.

Both interfaces provide sequenced messages (as opposed to barge-in); however, the E&M interface can advise the announcement device to return to start when the queue is empty. With the SLA interface method, the announcement device must reach the end of its message before returning to start. This can be critical if the message is lengthy.

The following types of announcement are available:

- Recorded Announcement/Music on Hold (MOH) with UCD on page 7-110
- Announcement Before Answering on page 7-215
- Dual-Tone Multifrequency Direct Inward Dialing on page 7-212
- Message Texts/Mailboxes/Message Waiting on page 7-334

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	free analog subscriber ports (+ REAL for Start/Stop), analog tie traffic TIEL	Free analog subscriber ports (+ STRB/STRBR for Start/Stop)			
SW requirements	V1.0 or later				

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Announcement devices	16	4	1	1	1
Simultaneous announcements	30	30	30	30	30

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure announcement device**
2.	25-1 => Announcement device - Announcement device
3.	**Announcement device via sensors** (HiPath 3550, HiPath 3350, HiPath 3500, HiPath 3300)
4.	27-1 to 9 => Parameters for setting the sensors

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Configure announcement device Options
2.	Connections
3.	Announcement device
4.	Configure sensors Options
5.	Connections
6.	Sensors

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure announcement device.
2.	Assign station and port.
3.	Call the configured station.
4.	The installed announcement activates.

7.2.9 Consultation Hold

Definition

This feature allows users to place a new internal or external call on hold and consult with an existing caller on the same line by placing the existing caller on hold. The consultation call ends when the user retrieves the held call. If the user hangs up instead of retrieving the held call, the held call is transferred or recalled.

If users place an external call on hold and place another external consultation call, they must use the telephone transfer feature to connect the two calls.

Analog telephones can connect external calls to external stations using the conference feature.

Related Topics

- Section 7.2.4, Unscreened Transfer, on page 7-27
- Section 7.2.5, Screened Transfer, on page 7-30
- Section 7.2.6, Conference, on page 7-32

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Redial	You can use the redial feature when you are in a consultation call.
Do not disturb	It is not possible to set up a consultation call to a busy subscriber who has activated *do not disturb*.
DTMF mode	Initiating a consultation call will deactivate DTMF mode if it is active; it is reactivated when a consultation call is terminated.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up a call.
2.	Activate consultation hold.
3.	Set up another call.
4.	Terminate the second call.
5.	Terminate consultation hold by retrieving the first call.

Operating the Feature

- using display telephones
  To consult with an internal or external party, the user selects the *Consult?* prompt and dials the desired destination. If the called party answers, the following choices are available to the consulting party:
  - Quit and return
  - Toggle/Connect
  - Conference
  - Transfer
  - Consult
  - Save Number
  - Start Conference
  - Start Transfer
  - Mute On

  The user can further consult with other parties, placing the second on Consultation Hold simultaneously in order to contact a third party. The user can conference the second and third party, exit the conference and return to the first caller.

  If the telephone has *DSS* keys (*Repdial* keys with internal station numbers assigned to the key), pressing a *DSS* key while connected to anther party will automatically place that call on Consultation Hold and ring the DSS destination. The Prime Line feature must not be configured in the system.

- using non-display and analog telephones
  Non-display telephone users can also have several calls on Consultation Hold, but must use the *Consultation* key (or the hookswitch flash in the case of analog telephones) to invoke the feature. Features available to the consulting telephone:
  - Conference (*3)
  - Transfer (on hook or Release key)
  - Toggle (*2)

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.2.10 Recall

Definition

A held call that is not answered or a call that was not switched successfully is signaled at the initiating station as a recall. A display telephone at the initial caller's location can display the number of either the switched internal or external station or the number of the destination.

An automatic recall is always carried out if:

1. A call was parked for a certain period or was placed on common hold and was not answered. The recall occurs when the hold/park timer expires (recall a parked connection).
2. An unscreened transfer was placed to a party who did not answer the call within a certain period (recall a transferred/switched trunk).
3. An unscreened transfer was placed to a station and the destination did not exist, was busy with a second call, the telephone was defective (in the case of digital telephones) or the transfer type was not allowed (transfer external call to external destination). An immediate recall is carried out in these cases.

Timer Relationship

- Call Park Recall and Call Transfer Recall have separate timers.
- The *Park timeout and cancellation of hold* timer is started when a call is parked in a park location. When the time expires, the call recalls the originator. Default time is 180 seconds. If the originator is busy or in the Program/Service mode, when the timer expires, the recalling party is camped on to the originator, until the current conversation is terminated. Upon going on-hook, the recalling party immediately rings the originator. If the recalling party is an internal station, and has a DSS appearance on the originator's telephone, it will start flashing when the timer expired.
- If the originator is DND when the time expires, the recall overrides DND and the telephone rings.
- The *Callback timeout for transfer before answering* timer is started when a caller is transferred to another destination by an internal user. When the time expires, the call recalls the originator. Default time is 45 seconds. If the originator is busy or in the Program/Service mode when the timer expires, the recalling party is camped-on to the originator, until the current conversation is terminated. Upon going on-hook, the recalling party immediately rings the originator. If the recalling party is an internal station, and has a DSS appearance on the originator's telephone, it will start flashing when the timer expired.
- If the originator is DND when the time expires, the recall overrides DND and the telephone rings.

- When a call recalls the originator, the *Intercept timeout for recall* timer is started. The call will ring at the originator for the length of this timer. When the time expires the call is routed to the configured intercept position. Default is 30 seconds.
- When an unanswered call is routed to the intercept position, a final timer, *Timeout before recall to ATT is activated*, is started. The call will ring at the intercept position for the length of this timer. When the time expires, the call is released from the system. Default time is 60 seconds.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Configuration Options

This feature does not have to be explicitly configured.

Configuring the Feature Using HiPath 3000 Manager E

Although this feature does not have to be explicitly configured, HiPath 3000 Manager E permits the recall time to be configured as follows:

Step	Action
1.	System parameters
2.	Time parameters
3.	Dial time during transfer before answer
4.	Change in recall time

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up a call.
2.	Initiate consultation hold.
3.	Call another station.
4.	Perform an unscreened transfer.
5.	Do not answer the call at the destination. After the timer expires, the call returns in the form of a recall.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.2.11 Setting the Signaling Method for Analog Stations

Definition

After the system boots, all analog station ports are set to DTMF dialing. If users need to change an analog station port to dial pulsing, they can use Assistant T or HiPath 3000 Manager E. Users do not need to reset the system after changing the signaling method. The new signaling method is functional immediately.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Signaling method	If a dial pulsing signal is detected, the code receiver remains active so toll restrictions are not circumvented.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Select signaling method
2.	14-29 => Select the signaling method for the station

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Select signaling method Options
2.	Set up station
3.	Parameter
4.	Flags

7.2.12 optiPoint Attendant

Definition

Users can configure up to six telephones in the HiPath 3000 system to carry out switching services. The optiPoint Attendant telephone simultaneously serves as an intercept position and an attendant console (AC). All calls are routed to the AC if direct inward dialing is not available or if no station can be reached via the call allocation algorithms in call management (intercept). The operator then redirects incoming calls to the stations selected. For additional information, see also Section 9.6, Attendant Console Versions, on page 9-40.

Users can also configure a PC as the attendant console (PC AC). This specially configured PC is known as optiClient Attendant and is described in detail in Section 9.6.2, optiClient Attendant, on page 9-41.

For the layout and assignment of function keys on the optiPoint Attendant, refer to Section 9.6.1, optiPoint Attendant, on page 9-40.

Individual Intercept positions can be configured for day operation and another for night operation. Up to 4 optiPoint key modules can be connected to the optiPoint Attendant.

In general, external calls are directed to Call keys whereas internal calls appear on DSS/Repdial keys on the optiPoint key modules.

Intercept and attendant positions can form Hunt Groups. A hunt group where all members are busy, is not intercepted to the intercept position. The waiting calls remain in the queue.

Calls can be configured system-wide to be intercepted in the following conditions:

- Ring No answer, Busy, Invalid number dialed, Incomplete number, on an unanswered recalls and when an attempt is made to dial from specific stations which have activated CodeLock.
- In the case of Ring No Answer, the system first checks the Call Management tables for further configured destinations. If there are no none, the call is then diverted to the intercept position.

CorNet-N

CorNet-N calls can be internal or external depending on their source. If the calling party is an internal station in a remote node, the call is flagged as internal. If the call is from a trunk in the remote node, the call is flagged as external.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	x	x	x	x	x
HW requirements	Digital subscriber line module			–	–
General requirements	optiPoint 500 standard, optiPoint 500 advance, optiset E advance plus/comfort, advance conference/conference, or memory telephone (system telephone)				
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Overflow	You can configure numeric and time overflow to a programmable overflow destination. A maximum of 6 optiset E or optiPoint 500 telephones can be configured with overflow display.
Undialed trunk	You can switch an undialed trunk.
Busy external line	You can selectively release busy external lines.
Second number	You can also reach the AC under a second station number (default 9, USA/GBR 0).

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Configure intercept position
2.	16-12 => Incoming calls - Intercept, day
3.	16-13 => Incoming calls - Intercept, night
4.	16-14 => Incoming calls - Intercept mode

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Configure intercept position Options
2.	System parameters
3.	Intercept / Attendant

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure the AC.
2.	Call a telephone that is off-hook.
3.	The call is signaled through to the intercept station.

7.2.13 Busy Override

Definition

Authorized users and the current intercept position (day or night) can use a code or key to override a call in progress at an internal station. The participating stations are notified of the busy override by an alerting tone and a screen display.

The feature can be invoked during the busy signal or during the camp on state.

During an override condition,

- if the called party goes on-hook, all parties are released.
- if the party which was connected to the called party goes on-hook, the overridden and overriding parties remain connected.
- if the overriding party goes on-hook first, the original conversation can continue and the conference bridge is removed.
- If the called party had activated DND, the conversation will nevertheless be overridden. However, a station authorized to use the Busy Override feature, cannot override a station with DND active and in an idle state.

Any Voice terminal in the system can be configured for this capability.

A station with Data security (Assistant T) or Call Waiting rejection (HiPath 3000 Manager E) active, cannot be overridden.

CorNet-N

Override cannot be invoked over a CorNet-N link.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Voice channel signaling security	You cannot override a call if the called station or the internal party it is connected to is entered as a data station (voice channel signaling security), or if the called party is dialing a number.
Hunt group	Busy override is not possible if all stations are busy when a group or hunt group is called.
S_0 station	It is not possible to override an S_0 station.
Attendant console	The busy override feature is activated by default and cannot be deactivated.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure busy override:**
2.	14-13 => Configure station - Override Any individual station can be configured, or, all stations can be configured simultaneously using the *All stations* command.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure busy override:** Options
2.	Set up station.
3.	Set parameters on desired extension.
4.	Flags

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Place a call to an internal station that is engaged in an internal or external call.
2.	Dial the override code (*62).
3.	The station is notified of a busy override by an alerting tone when the override is first initiated.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.2.14 Overload Indication

Definition

Users can activate an overload indicator (attendant console) for a fixed station (first station port in the system). When the user presses the key, the waiting calls are displayed (key LED). The following signaling types are possible:

- Flashing: Waiting call and busy AC.
- Flickering: Waiting call was not answered within 30 seconds; there are more calls than can be processed by the attendant consoles.
- Off: The AC is not overloaded.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Digital subscriber line module			–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Overload indication	An LED that is already flickering is not reset to flashing.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Program key for overload: *91 => Enter key programming mode.
2.	Press the desired key.
3.	Assign the number of calls to the selected key.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Program key for overload: Options
2.	Set up station
3.	Key programming

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure an overload LED on the AC (or night station).
2.	Set up a call from the AC.
3.	An external call reaches the AC. The overload LED flashes.
4.	Another call reaches the AC. The overload LED flickers.

7.2.15 Shared Transfer Switch (Not for U.S.)

Definition

A shared transfer switch allows an analog trunk connection to be used for two stations. The switch divides the signal into positive and negative half-waves and assigns each to a station. The network provider (such as Deutsche Telekom AG in Germany) installs the shared transfer switch.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Shared transfer switch	This feature is for Germany only.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up an outgoing external connection.
2.	Set up an incoming external connection.

7.3 Features for General Incoming Traffic

7.3.1 ANI (for U.S. only)

Definition

The ANI feature (automatic number identification) displays the calling party's station number, which is transmitted over analog trunks.

While the phone is ringing, the station number is transmitted by BFSK (binary frequency shift keying) during the first ringing phase. HiPath 3000 support the feature only until the called party lifts the handset. Internally, the system handles ANI data just like an ISDN number.

To run the ANI feature, you must have the ANI4 (HiPath 3550, HiPath 3350) or ANI4R (HiPath 3500, HiPath 3300) options board, which is used in conjunction with the TMGL4 or TMGL4R trunk board.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**–**	**x**	**x**	**–**	**–**
HW requirements	–	ANI4 ANI4R	ANI4 ANI4R	–	–
SW requirements	–	V1.0 or later		–	–

Requirements and Conditions

Subject	Requirement or Condition
Country specifics	Requires country-specific boards or firmware versions.
Trunk boards	The trunk boards used must support call charging module assignment GMZ (not for U.S.).

Configuration Options

This feature does not have to be explicitly configured.

7.3.2 Distinctive Ringing

Definition

Distinctive tones indicate different call types. This enables the user to distinguish between incoming internal and incoming external calls. In ISDN systems, acoustic information is secondary to displays on the screen because different features can have the same ring signaling.

Depending on the telephone, three different types of acoustic signaling are possible:

- for optiset E and optiPoint 500 telephones:
  - Ring type 1 = External call CO (for example, double ring)
  - Ring type 2 = External call CO2 (for example, triple ring)
  - Ring type 3 = External call CO3 (for example, short/long/short)
- for analog telephones (Germany only):
  - Ring type 1 = External call CO (for example, double ring)
  - Ring type 2 = Recall
  - Ring type 3 = Door bell ring
- for analog telephones (not for Germany):
  - Ring type 1 = External call CO (for example, double ring)
  - Ring type 2 = External call CO (for example, double ring)
  - Ring type 3 = External call CO (for example, double ring)

The ring cadences depend on the country.

For U.S. Only: External cadences for optiset E telephones

Assistant T	HiPath 3000 Manager E	External call ring cadence
Type 1	External Call	• 125 ms ON/250 ms OFF, • 125 ms ON/1500 ms OFF
Type 2	External Call CO 2	• 200 ms ON/ 100 ms OFF • 200 ms ON/100 ms OFF • 200 ms ON/1700 ms OFF
Type 3	External Call CO 3	• 100 ms ON/100 ms OFF • 200 ms ON/100 ms OFF • 100 ms ON/1900 ms OFF

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	x	x	x	x	x
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Country specifics	Ring signals are country-specific and determined by the approval authorities.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Set call signaling (for stations and groups)**
2.	16-19 => Incoming calls - Call signaling

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Set call signaling (for stations and groups)** Options
2.	Set up station.
3.	Station
4.	Double-click the desired station's parameters.
5.	Flags: Call signaling
1.	**Change the ring cadences throughout the system.** Options
2.	System parameters
3.	Tones/ring types

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set call signaling for an internal call.
2.	Set call signaling for an external call.
3.	Call the station from an internal station.
4.	Call the station from an external station. You should be able to hear distinctive rings.

7.3.3 Call Waiting Tone/Call Waiting

Definition

If a caller reaches a busy extension, a call waiting tone sounds after 5 s to let the called party know that a call is waiting (camped-on). The called party then has the option of answering the call without ending the call in progress. If the called party has a display telephone, the display also indicates that the camped-on call is waiting.

An immediate call waiting tone is possible at a busy extension for V1.2 and later. The appropriate flag must be set for the port. The calling party hears the ring tone immediately instead of the busy tone.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Number of waiting calls per station	16	16	16	16	16

Requirements and Conditions

Subject	Requirement or Condition
Call waiting rejection	If a station has activated call waiting rejection (signaling security), a call cannot camp on.
CorNet-N	CorNet-N calls are treated like internal calls.
Group call	If one or more stations in a group call are free, the call will be offered to them. The other group members are not signaled. If all stations are busy, all of them receive a call waiting signal.
Speaker call	Speaker calls to busy stations are not possible.
Recall	Recalls of low-priority external calls that cannot be signaled are intercepted. Displaced internal calls are released.
Silent call waiting	Users can deactivate the call waiting tone for external calls using a procedure or HiPath 3000 Manager E. This setting does not affect signaling on the display.

Subject	Requirement or Condition
Call waiting Tone On/ Off	Individual stations can enable/disable the tone at their station. Default is: Tone On.
Call Waiting Rejection on	This station flag prevents any type of call waiting tone to be injected in the conversation. This flag is also called *Data Line Security* in the HiPath 3000 Manager E. When set, this flag will also prevent this station from being overridden. The calling station will only hear busy tone.

Configuration Options

This feature can be configured using HiPath 3000 Manager E.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Enable system-wide call waiting when busy** System parameters
2.	Intercept/AC
3.	Call waiting when busy
1.	**Enable immediate call waiting when busy by port** Options
2.	Trunks/networking
3.	Trunks: Double-click on parameters for each trunk.
4.	General flags: Immediate call waiting when busy

Testing the Feature

Check the feature for error-free functioning:

Step	Action
1.	**Call waiting** for internal calls: If an internal station is busy, the calling party receives a busy signal. Five seconds later, the busy party receives a display message indicating that a call is waiting, and the call waiting tone is activated. For the calling party, the busy signal changes to a ring tone. The busy party can answer the call with the “answer call waiting” feature. **Call waiting** for CorNet-N: Call waiting is activated immediately.
2.	**Immediate call waiting when busy** for internal calls: If an internal station is busy, the calling party receives a ring tone. A display message and call waiting tone inform the busy party that a call is waiting. The busy party can answer the call with the “answer call waiting” feature.
3.	**Ring injection**: (external calls) If a busy internal station receives a call from the public network, the busy station immediately receives a message indicating that a call is waiting. Any ISDN information (CLIP) is displayed on the screen if the calling party has enabled this feature.

7.3.4 Call Management (CM)

Definition

Call management (CM) determines how incoming calls are to be handled depending on the trunk type and the day and night services. Call management consists of four blocks:

Block 1: Two call allocation tables exist for calls on analog or digital (ISDN) trunks without a direct inward dialing (DID) option (see Figure 7-1). One call allocation table is evaluated during day service, and the other table during night service. For each trunk, these tables contain a reference to further day and night lists. Call management goes directly to these lists when a direct inward dialing (DID) call arrives. In the default setting, DID calls on all trunks that lead to an intercept are signaled at the day or night intercept position. Intercept criteria can also be entered in these tables.

Block 2: A total of three lists exist for day service, internal calls, and night answer (see Figure 7-1). These lists contain references to one of the possible call destination lists.

Block 3: The call destination lists are seven-column table (see Figure 7-2). A row of this table is also referred to as a CM element. The first four columns contain procedures. The stations and groups entered in these columns are called consecutively depending on the call forwarding—no answer (CFNA) time.

The fifth column contains an entry that determines the time until CFNA occurs.

The sixth column contains an entry indicating the night bell type and the telephone that should also be called.

The seventh column defines when the night bell entered in column six should be called (either immediately or after the first CFNA time entered in column five).

Block 4: If group numbers have been entered in the call destination lists, the last call management table handles any additional allocation. This table is provided for hunt groups (linear and circular) and group calls (see Figure 7-2).

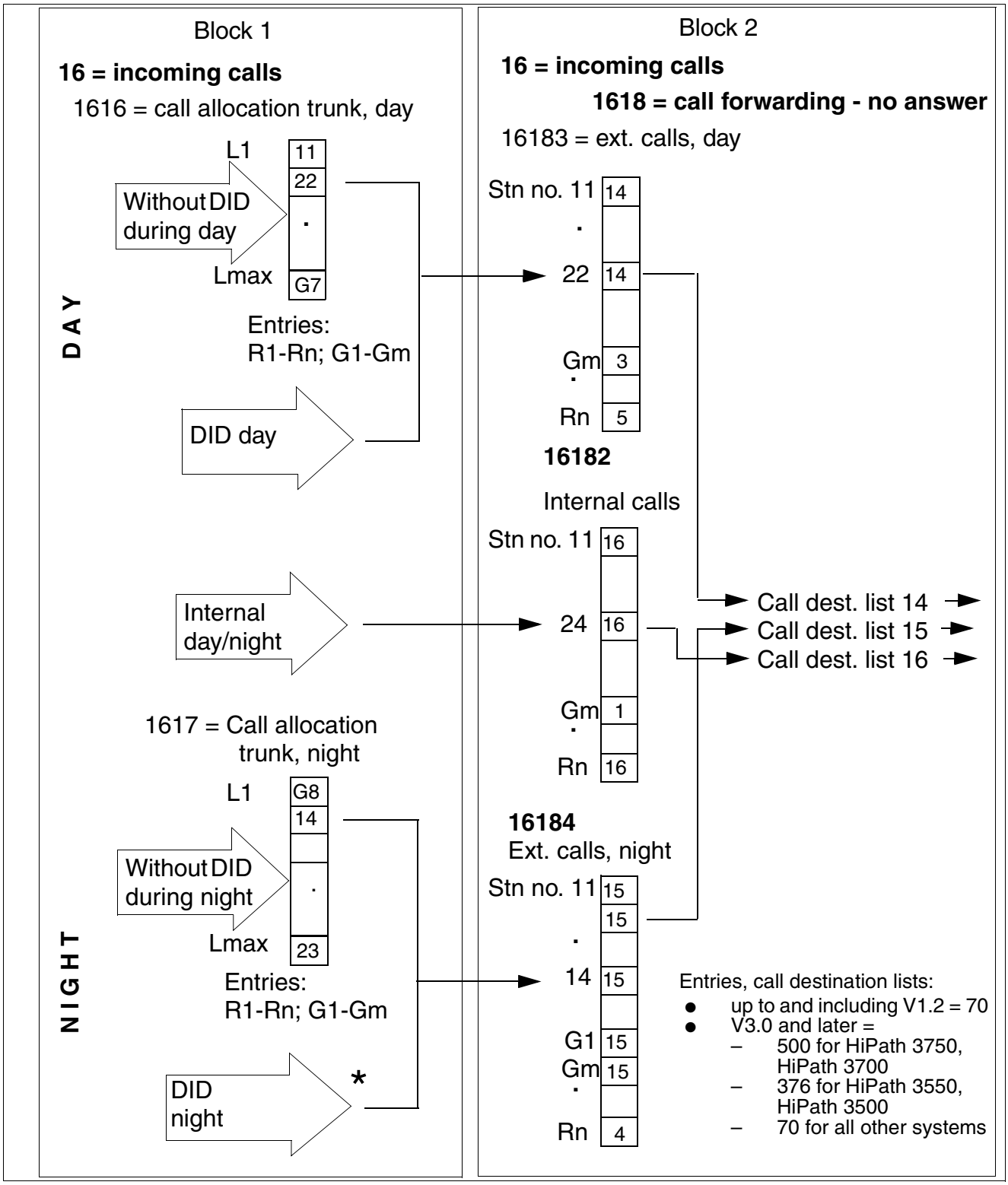


Figure 7-1 Call Management Relationships (Blocks 1 and 2)

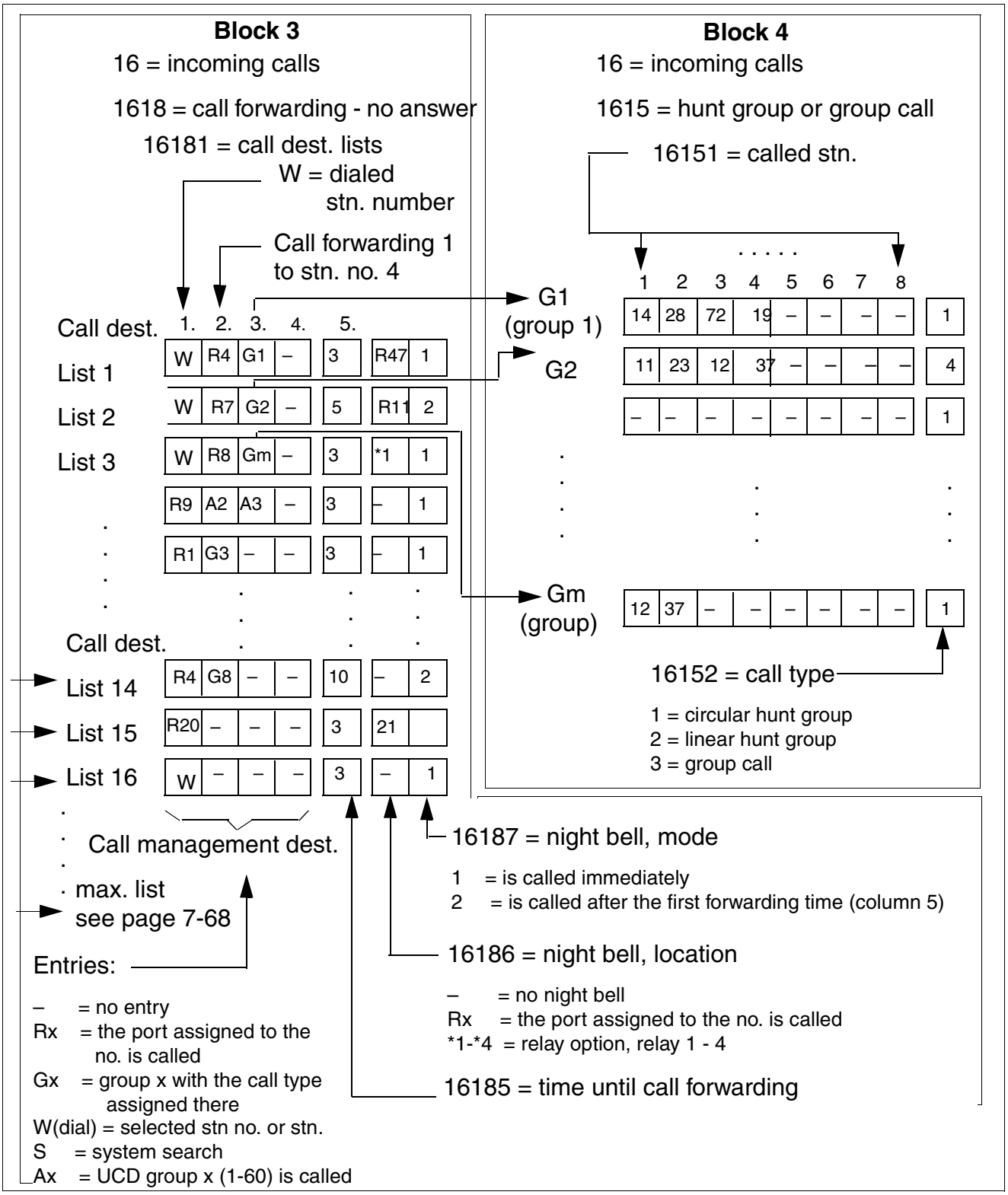


Figure 7-2 Call Management Relationships (Blocks 3 and 4)

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	x	x	x	x	x
SW requirements	V1.0 or later				
Number of call destination lists up to and including V1.2	70				
Number of call destination lists for V3.0 and later	500	376	70		
Number of UCD groups	60	60	10	–	–

Requirements and Conditions

Subject	Requirement or Condition
Call management	CM does not treat a station as a call forwarding—no answer destination if its telephone has failed, if the user has activated do not disturb or has activated data protection and is busy, or if the user does not have trunk access (for external calls).
Call management	If CM cannot find a station to which it can switch the call, it follows the intercept criteria.
Group/hunt group	If no stations in a group or hunt group are available, the call camps on at all telephones in the group.
Entrance telephone	Stations that cannot be reached via direct inward dialing (such as entrance telephones) should not be entered as stations to which calls are allocated; otherwise, an intercept will occur.
DTMF DID	With DTMF DID/DISA, an analog call can be released before the call forwarding—no answer process has concluded because the system uses fixed timers to prevent the trunks from freezing up.
Night bell	If a CM element does not have any entries in the first four columns, the system immediately calls the night bell regardless of the entry in the seventh column.
Call management	If a system search is the item in a CM element, the system ignores subsequent entries in this CM element.

Subject	Requirement or Condition
Call management	If a call can no longer be signaled in the system (due to an AC failure, for example), the system sends a busy signal or releases the call. *Solution:* Make an entry in the second column of the AC's call destination list.
System search	The system searches all stations and: • Does not follow call forwarding • Skips executive stations • Routes only one call to each station • Ignores call ringing groups

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Call Management - Options**
2.	16-11 Incoming calls - DID numbers
3.	16-12 Incoming calls - Intercept, day
4.	16-13 Incoming calls - Intercept, night
5.	16-14 Incoming calls - Intercept mode
6.	16-14-1 Incoming calls - Intercept mode - On no answer
7.	16-14-2 Incoming calls - Intercept mode - On busy
8.	16-14-2-1 Incoming calls - Intercept mode - Intercept
9.	16-14-2-2 Incoming calls - Intercept mode - Camp on to
10.	16-14-3 Incoming calls - Intercept mode - On wrong number
11.	16-14-4 Incoming calls - Intercept mode - On incomplete
12.	16-14-5 Incoming calls - Intercept mode - On recall
13.	16-15 Incoming calls - Hunt/group call
14.	16-15-1 Incoming calls - Hunt/group call - Group members
15.	16-15-2 Incoming calls - Hunt/group call - Group type
16.	16-15-3 Incoming calls - Hunt/group call - Group name

Step	Action	
17.	16-16	Incoming calls - Call alloc. day
18.	16-17	Incoming calls - Call alloc. night
19.	16-18	Incoming calls - Call FWD - no ans
20.	16-18-1	Incoming calls - Call FWD - no ans - Destination list
21.	16-18-2	Incoming calls - Call FWD - no ans - Internal calls
22.	16-18-3	Incoming calls - Call FWD - no ans - Ext. calls, day
23.	16-18-4	Incoming calls - Call FWD - no ans - Ext. calls, night
24.	16-18-5	Incoming calls - Call FWD - no ans - Number of rings
25.	16-18-6	Incoming calls - Call FWD - no ans - Night bell, loc.
26.	16-18-7	Incoming calls - Call FWD - no ans - Night bell, mode
27.	16-19	Incoming calls - Ring cadence
28.	16-20	Incoming calls - DID DTMF

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Call management - Options Options
2.	Incoming calls

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Specify a DID number using CM.
2.	Call the number.
3.	The desired station rings.

7.3.5 Call Forwarding—No Answer (CFNA) With a Timeout

Definition

With this feature, calls arriving at a specific destination are forwarded if they are not answered within a specified period.

Call forwarding—no answer in conjunction with direct inward dialing, call allocation, and internal calls is carried out according to station numbers in call management.

Each call signaled at a station is also signaled at stations in the call ringing group; in other words, the call is forwarded to these stations as well.

This type of forwarding is also referred as *Fixed call forwarding—no answer*; in that, once the destination has been set in the database, it cannot be activated/deactivated or changed by the end user. The destination can only be changed by maintenance personnel via Assistant T or HiPath 3000 Manager E. Call Forwarding—no answer in conjunction with Direct inward dialing, Call allocation, and Internal calls is carried out according to station numbers in Call Management. Up to three Call forwarding-no answer destinations can be configured in the Call Management tables for the stations. That is, if the initial station has assigned a *ring no answer* destination, the incoming call forwards to that assigned destination. If in turn this second destination does not answer, Call Management searches for a further destination to route the call.

Call forwarding—no answer chaining is only possible between destinations in the CM tables. That is, if a destination has Call Forwarding (CF) configured on the telephone, the incoming call forwards to this destination, but will NOT forward to a further destination even if that destination is itself forwarded.

A call forward destination can be a voice mail hunt group.

If the last destination in CM is busy, the incoming call does not progress beyond the ringing telephone until the busy telephone becomes idle. At which time, the call is forwarded to the now idle telephone.

The external and internal call ring cadences are carried over from one destination to the other.

Incoming Caller ID (PRI and BRI) is also carried over from one destination to the next. Except if CF external: then Caller ID is not presented, just the original CF number called.

Each call signaled at a station is also signaled at stations in the call ringing group. That is, the calls are forwarded to these stations as well.

CorNet-N

Calls can be forwarded over a CorNet-N link.

Related Topic

Section 7.3.4, Call Management (CM), on page 7-65

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Max. no. of CFNA destinations per station no.	3	3	3	3	3

Requirements and Conditions

Subject	Requirement or Condition
Call forwarding - no answer	If the CFNA destination is unavailable and no other call forwarding operation is configured for the trunk, call forwarding—no answer is not carried out.
External call forwarding	You can specify whether the system follows an external call forwarding procedure that a station has programmed in the CFNA table.
External call forwarding	If you activate external call forwarding—no answer for the entire trunk, the system circumvents internal call management (for more information, refer to the ISDN features CFB and CFNR).
DISA	This feature cannot be activated/deactivated or changed by other than the Assistant T or HiPath 3000 Manager E.
DND	A secondary destination which has activated DND, will be skipped.
Analog telephones	There is no indication at these telephones that the call being presented is a forwarded call.
Display telephones	An incoming call to a forwarded telephone displays the prompt: *Call from:xxx*. Secondary forwarding destinations will display the prompt: *Call from:xxx,* where *xxx* is the original destination dialed by the caller.

Subject	Requirement or Condition
Hunting to external call forwarding destination	The system-wide flag controls the call forwarding - no answer if an external CF has been activated within a call destination list. If the flag is not set, the call forwarding - no answer ends at the external CF destination. If the flag is set, the call forwarding - no answer continues out of the external CF destination to the station entered in the call destination list. Note: For CF on loop start trunks, the flag functions only if you have entered a call cycle for the cal forwarding - no answer.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Program call forwarding - no answer
2.	16-18 => Incoming calls - Call FWD - no ans

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Options
2.	Incoming calls
3.	Call destination list + Assignment int./ext. calls

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Program call forwarding—no answer for a station.
2.	Call the station.
3.	The call transfers to the programmed destination at the programmed time.

7.3.6 Call Forwarding (CF)—Busy and No Answer

The following call forwarding types are available:

- Call forwarding—no answer
  If an extension does not answer, the system forwards the call to an answering machine or voice mail system after a programmable period of time.
- Call forwarding—busy
  Callers who call a busy extension receive a busy signal. The call destination list determines whether the system carries out call forwarding—busy.

The following are special situations:

- Group call
  A group is always busy if all members of the group are busy.
- Hunt group
  A hunt group is always busy if all hunt group members are busy.
- Free group
  A free group is busy if at least one group member is busy and the caller reached the group by dialing the group number.
- UCD groups
  The system does not check this parameter for UCD groups.
- Announcements
  This parameter has no effect on announcements.

if a station signals a call and the call forwarding destination is busy, the call remains at the station. The system checks the call forwarding destination repeatedly until the destination is free.

Incoming calls on trunks that do not support busy signaling are forwarded or intercepted.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Max. no. of CF destinations per station no.	3	3	3	3	3

Requirements and Conditions

Subject	Requirement or Conditions
Call forwarding - no answer	If the call forwarding destination is unavailable and no other call forwarding operation is configured for the trunk, call forwarding—no answer is not carried out.
External call forwarding	You can specify whether the system follows an external call forwarding procedure that a station has programmed in the call forwarding table.
External call forwarding	If you activate external call forwarding—no answer for the entire trunk, the system circumvents internal call management (for more information, refer to the ISDN features CFB and CFNR).
Call waiting	If a user has activated call waiting, the caller camps on even if the user did not configure busy call forwarding in the local call management table. If call waiting is not possible for this user and the user has not configured busy call forwarding, the caller receives a busy signal.
Hunting to external call forwarding destination	The system-wide flag controls the call forwarding - no answer if an external CF has been activated within a call destination list. If the flag is not set, the call forwarding - no answer ends at the external CF destination. If the flag is set, the call forwarding - no answer continues out of the external CF destination to the station entered in the call destination list. Note: For CF on loop start trunks, the flag functions only if you have entered a call cycle for the cal forwarding - no answer.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

This feature can be configured using Assistant T as follows:

Step	Action
1.	Program call forwarding—no answer
2.	16-18 => Incoming calls - Call FWD—no ans
3.	16-18-8 = > Incoming calls - Call FWD on busy

Configuring the Feature Using HiPath 3000 Manager E

This feature can be configured using HiPath 3000 Manager E as follows:

Step	Action
1.	Options
2.	Incoming calls
3.	Call destination list + Assignment int./ext. calls

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Program call forwarding—no answer for a station.
2.	Call the station.
3.	The system forwards the call to the programmed destination after the programmed period of time.

7.3.7 Call Forwarding (CF)

Definition

Call forwarding (CF) enables users to forward all incoming calls (including speaker calls) to another destination. Call forwarding is based on the station number, regardless of how the call reached the activating telephone. If trunk keys have been configured, users can also activate CF individually for a specific trunk key. The following destinations are possible:

- Another subscriber station
- The attendant console
- An external destination
- A voice messaging system
- A hunt group
- ACD groups (such as Hicom Agentline Office)/UCD groups

The user is notified when call forwarding is activated. Notification can be in the form of a special dial tone, an indication on the display, or an LED signal.

Outgoing calls can still be made when call forwarding is activated.

End users can choose to forward only external calls or only internal calls. One single access code is used to deactivate any of these choices.

The following are the default feature access codes:

- Call forward both internal and external calls: *11
- Call forward external calls only: *12
- Call forward internal calls only: *13
- Call forwarding off: #1

Call forwarding is implemented on a station number basis, regardless of how the call reached the activating telephone. If trunk keys have been configured, CF can also be activated individually for a specific trunk key.

External Destination

The call forward destination can be an external party. Instead of entering an internal station number, enter the trunk access code, followed by the external number. Since it is possible that an incoming external call could be forwarded to an external destination, the system will check whether the combination of trunks can guarantee release supervision. (See table below) If not, a timer is started *Time up to warning tone for*

MSI - transit and default is 300 seconds. When the timer expires, a warning tone is heard by both parties and another timer is started *Time between warning tone and release*, default of 10secs, after which time the trunks are released.

CorNet-N

Calls can be forwarded over a CorNet-N link.

If a call is forwarded to another node, and it in turn is forwarded back to the originating node, the CorNet-N links will be released, if the function *Rerouting* is activated.

Incoming Caller ID (PRI, BRI) is passed from one destination to another within the same system. It is not transferred over CorNet-N to a remote node. If a voice mail system is located in a remote mode, and the call is forwarded, the voice mail system will receive the station number of the original called party.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Max. no. of simultaneous CFW operations	150	50	20	20	20

Requirements and Conditions

Subject	Requirement or Condition
Do not disturb (DND)	You cannot program CF on a telephone where DND is active.
Chaining	Up to five call forwarding procedures can be chained.
MSN trunk forwarding	In V1.0 and later, any user who has an assigned MSN for direct inward dialing can forward this number to the trunk (the feature must be requested from the carrier).
Ext. call forwarding	You can program only one external CF destination key on each telephone.
Ext. call forwarding	When dialing external destinations, users must prefix the destination number with the CO trunk group code.

Subject	Requirement or Condition
External call forwarding	User to User Signaling UUS can be deactivated using the flag “Deactivate UUS per direction” (routing parameters). One effect is that the transmission of the A party’s calling number is suppressed for external call forwarding in a User-to-User-Info-Element.
Prime Line	If Prime Line (automatic trunk seizure) is active, you must press the extension key before dialing an internal station number. In this case, you need not enter the trunk group code for external destinations.
Analog telephones	When using analog telephones, S_0 telephones (not for U.S.), and CMI telephones (not for U.S.) telephones, you must wait for a confirmation tone after entering external destinations.
Appointment, automatic wake-up system	When an appointment comes due, the reminder does not follow call forwarding.
CF destination is an ACD/UCD group	A call is not forwarded to an ACD/UCD group in the following cases: • A station is a member of a hunt group. If the hunt group is called and a station with CF to an ACD/UCD group is next in line, the call is not forwarded; instead, the next station in the hunt group is called directly. • A station is a member of a group call. If the group is called, the call is not forwarded to the ACD/UCD group. • A station is a member of a group call no answer. If the group is called, the call is not forwarded to the ACD/UCD group. Exception: The first station entered has activated CF to the ACD/UCD group. In this case, the call is forwarded.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Activate call forwarding (*1).
2.	Select the type (1 = all calls, 2 = external calls only, 3 = internal calls only).
3.	Call the station.
4.	The call arrives at the destination station according to the call forwarding type (all calls, external calls only, or internal calls only).

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.3.8 Subscriber Groups

Definition

Subscriber groups are preconfigured in the HiPath 3000 systems. They are provided as a common pool for the following features:

- Group call (with or without busy signaling)
- Hunt group (linear or circular)
- Paging

The type of group determines how the system handles each group. This means that each group can be either a group call or a hunt group. Names can be assigned to the individual groups from the system administration.

Default numbers are provided in the Assistant T and E but can be changed:

- General Hunt Group Call default call numbers are 350 to 499.
- UCD group default call number are from 440 to 499 (within in the General Hunt Group).

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Groups/stations	150/20	150/20	20/8	20/8	20/8

Requirements and Conditions

Subject	Requirement or Condition
Call forwarding	When a call is forwarded to a group, the system ignores call forwarding set by individual members of the group.
Call groups	Stations can belong to more than one group.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Configure groups
2.	16-15-1 => Incoming calls - Hunt/group call - Called stn no.
3.	16-15-2 => Incoming calls - Hunt/group call - Group type
4.	16-15-3 => Incoming calls - Hunt/group call - Group name

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Configure groups Options
2.	Incoming calls
3.	Hunt group

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Call the group.
2.	Check whether the subscriber group is ringing.

7.3.9 Group Call

Definition

Incoming internal and external calls are signaled simultaneously to all the stations in a group. The first station to answer the call is connected to the calling party.

You can implement group call in call management.

Any type of telephone can be used in a Group Call group. The telephones must be located in the same node.

Each Call Group can be assigned a name in database: 16 characters maximum.

The first station to answer the call is connected to the calling party. Subsequent calls are signalled at the remaining idle extensions. When all members are busy, they are signalled with Call Waiting tone. The first member to go on-hook will receive the waiting call.

Feature Interaction

A member of a group can activate DND. This means that the telephone will no longer ring when called through the Hunt Group number or when called directly.

Only display telephones can deactivate/activate Call Waiting Tone (#87/*87). They will not be signalled of a call waiting, but will receive a waiting call when they go on-hook.

Data Line security in Assistant T (Call Waiting rejection in HiPath 3000 Manager E) can be configured for a member telephone. An idle telephone rings when a call enters the group; however, a telephone is not advised of a call waiting, and if it goes on hook and calls are waiting, the telephone does not ring until a “new” call enters the queue.

Individual members of a group can Call forward-all calls on their telephones. With this feature active, the destination telephone becomes part of the group. However, if the first member of the group Call forwards - no answer to an internal destination, all calls to the pilot number of the group are immediately forwarded to that destination. Individual members can be reached by their station numbers, except for the first member. Only the forward destination can reach the first member through its station number.

Displays

- **Internal calls:** At the calling party, the display shows the name of the group assigned via Assistant T (16-15-3) or HiPath 3000 Manager E (Incoming Call -> Hunt Group -> Name). The group members with a display telephone see the station number placing the call *Call from: xxx*.
- **External calls:** The group members' display will show the calling party number. (same as call to a single station).

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Groups/stations	150/20	150/20	20/8	20/8	20/8

Requirements and Conditions

Subject	Requirement or Condition
Ext. call forwarding	If at least one subscriber in a group has activated external call forwarding, you cannot make an unscreened transfer within the group.
Analog telephones	The system does not check whether analog telephones are present. As a result, you must log the telephone onto the system by lifting the handset once.
Intercept	If the call cannot be signaled at any station, it is intercepted.
Call waiting	Busy stations receive call waiting or ring injection if no other stations are available.
Group call on/off	Each member of a group call can dial #85 to leave group call and *81 to reenter group call.
Hunt group	If a station is active in group call and a hunt group, any changes (such as dialing *81 or #81) apply to both features.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Configure group call
2.	16-15-1 => Incoming calls - Hunt/group call - Called stn no.
3.	16-15-2 => Incoming calls - Hunt/group call - Group type
4.	16-15-3 => Incoming calls - Hunt/group call - Group name

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Configure group call Options
2.	Incoming calls
3.	Hunt group

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up a group.
2.	Call the group's station number.
3.	The stations in the group should ring.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.3.10 Group Call with Busy Signaling

Definition

If a group member is busy, incoming calls to the group receive a busy signal. The call also camps on at the busy station.

This type of group (defined in Assistant T as *Grp call, No answer* and in HiPath 3000 Manager E as *RNA* under *Type*) functions in the similar manner as a *Group Call* arrangement; that is, when a new call enters an idle group, all member telephones ring. The first member to go off hook, is connected to the calling party.

However, if there are any subsequent calls to the pilot number while one member is busy, the calls camp on to the busy extension. No other telephone in the group is signalled. The other members are nevertheless allowed to place outside calls and to receive calls if their individual station number is dialed.

This type of arrangement is useful where an optiset E or optiPoint 500 telephone is associated with a wireless telephone.

Any type of telephone can be used in a Call Group.

Each Call Group can be assigned a name in database with 16 characters maximum.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Groups/stations	150/20	150/20	20/8	20/8	20/8

Requirements and Conditions

Subject	Requirement or Condition
Call waiting rejection	The call does not camp on if the busy station has activated call waiting rejection.
Direct inward dialing	If a station in the group is called directly, the call is signaled at the dialed extension.
Group	If an optiset E or optiPoint 500 telephone in the group is defective, the group is treated as though it were busy.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Configure group call
2.	16-15-1 => Incoming calls - Hunt/group call - Called stn no.
3.	16-15-2 => Incoming calls - Hunt/group call - Group type
4.	16-15-3 => Incoming calls - Hunt/group call - Group name

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Configure group call Options
2.	Incoming calls
3.	Hunt group

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up a group.
2.	Call the group's station number.
3.	The stations in the group should ring.

7.3.11 Hunt Group

Definition

A hunt group implements a call distribution cycle within a subscriber group. The stations in the hunt group are linked so that a call to the group that reaches a busy member or is not answered is forwarded to the next available station within the group.

The following hunt group options are available:

- **Circular selection:** The search begins with the station after the last station selected. If the call is not answered, it is forwarded to the next station after a timeout (CFNA in call management).
- **Linear selection:** When a call arrives, the search always begins with the first station in the group.

The stations can be reached either by a hunt group number or by the user's station number, depending on the hunt group type.

You can set up hunt groups in call management.

Each Hunt Group can be assigned a name in database with 16 characters maximum.

The stations can be reached either by a hunt group pilot number or by the user's station number, depending on the hunt group.

In the case of a Linear Hunt group, the last member of the hunt can be a pseudo number leading to a voice mail system. The pseudo number is the call number which will be transmitted to the voice mail system. It is also possible to have a call forwarding within the destination list.

One station can simultaneously be a member of two groups. Calls from either group are presented to the agent in the normal manner. If the user has a display telephone, he or she can identify the source of the call by the name assigned to the trunk/trunk group.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Groups/stations	150/20	150/20	20/8	20/8	20/8

Requirements and Conditions

Subject	Requirement or Condition
Call waiting	If all stations in a hunt group are busy, the call camps on at all stations.
Call signaling	If all hunt group stations hang up simultaneously, call signaling begins at all stations that previously had waiting calls.
Do not disturb (DND)	If all stations in the hunt group activate DND, a call management procedure handles the call.
Hunt group	Stations can belong to more than one group.
Queue	If the number of calls directed to the hunt group exceeds the number that can currently be processed, the excess calls are placed in a queue. You can configure an announcement or music to be played for calls placed in the queue (entry in call management before the hunt group).
Overflow, call forwarding—no answer	You can use call management to set up an overflow station as a CFNA destination for hunt groups.
Hunt group on/off	Each member of a hunt group can dial #85 to leave the hunt group and *85 to reenter the hunt group.
Group call	If a station is active in group call and a hunt group, any changes (such as dialing *85/#85) apply to both features.
Telephone type	Any type of telephone can be used in a Hunt Group.
Group call on/off	Each member of a group call can dial *85 to leave the group call and #85 to join it again.
CDRC	Same rules apply as in a normal conversation. Elapsed time of call is assigned to last station which handled the call.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure hunt group**
2.	16-15-1 => Incoming calls - Hunt/group call - Called stn no.
3.	16-15-2 => Incoming calls - Hunt/group call - Group type
4.	16-15-3 => Incoming calls - Hunt/group call - Group name
1.	**Set CNFA time** *9531994
2.	16-18-5 => Incoming calls - CFNA - Number of rings

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure hunt group** Options
2.	Incoming calls
3.	Hunt group
1.	**Set CFNA time** Options
2.	Incoming calls
3.	Call destination list

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure a hunt group.
2.	Call the hunt group number.
3.	The first station rings. If the call is not answered or if the station is busy, the second station rings.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.3.12 Leave Group Call/Hunt Group (Stop Hunt)

Definition

An internal extension that is entered in call management as a member of one or more groups (including MULAP groups) can:

- leave and rejoin individual selected groups and
- leave and rejoin all groups

by entering a code, using the service menu or pressing a key.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Groups/stations	150/20	150/20	20/8	20/8	20/8

Requirements and Conditions

Subject	Requirement or Condition
User access	The user must be part of a subscriber group to have access to this feature.
Default access codes	The default access codes are *#85* to leave the Hunt Group and **85* to rejoin the group.
DISA	Users can activate this function from a DISA connection for their station or for other stations (Associated Services).
Call Management	If all members of a group invoke the *Leave Hunt Group* feature, internal callers are diverted to the next Call Management destination, or if not defined, the call receives a busy tone.
Leave selected groups	Executive members cannot leave executive MULAP groups.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Dial #85 to leave the group.
2.	When the group is called, the telephone that left the group does not ring.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.3.13 Uniform Call Distribution (UCD)

Definition

With uniform call distribution (UCD), incoming internal or external calls are automatically assigned to the station (agent) idle longest in a UCD group.

If all stations in a UCD group are busy, any additional incoming calls are placed in the queue and then distributed to the group members according to the priority of the call and the length of time it has been waiting. Announcements or music can be played for the waiting callers.

Users (agents) can log on from any telephone by entering an ID. After logging on, the agent is available and is permanently assigned to that telephone until logged off. The assignment is retained even after a system reset.

The UCD group can be forwarded (night answer for UCD).

UCD groups are handled differently from the Call/Hunt Groups in the system call processing.

There are 150 Subscriber groups in the system. Of which, 60 can be UCD groups. The default access pilot numbers are 440 to 499.

The Pilot number can be changed but it must be a unique number, up to 6 digits in length. A name can be given to each group, with up to 16 characters each.

The agents states are maintained in the event of a power failure.

Agents

Any type of telephone can be part of a UCD group. Analog connections can also be used for remote agents (teleagents).

A UCD group contains agents that belong to a work group. Agent indexes are associated with each of the UCD groups. Each index contains up to 32 agent IDs. A maximum of 150 agents can be active simultaneously in the system. Accordingly, 150 fixed agent IDs can be assigned to one of up to 60 UCD groups. An ID can only be assigned to one group. Several IDs can be assigned to one agent, permitting the agent to work in more than one UCD group; however, the agent can only be active in one group at a time.

Certain system features are only available to UCD members.

An agent can logon/logoff from any optiset E, optiPoint 500 or analog telephone connection in the system using an ID. The agent is available after logon, and is permanently assigned to this device until logoff. An agent can only be logged on from one

device at a time and only one agent can be logged on per device. Each agent is assigned to one work group only. After logging off, the agent is no longer available for UCD calls.

At logon, this assignment to the UCD groups is checked. The port to which an agent logs on is stored in the non-volatile memory in order to retain the assignments should the system be reset.

Agent Indexes are defined in the following manner:

- HiPath 3000 Manager E: Options ->Incoming Calls ->UCD groups ->members.
- Assistant T: 31-1.

Operation

With uniform call distribution (UCD), an incoming internal or external call is assigned to the station idle longest in a UCD group.

Incoming calls are routed to the UCD group using one the following:

- Ring Announcement table
- DID
- Call Management table
- auto-attendant application
- station transfer

Prim. Ring cycles is the time the system places an unanswered call in an unavailable state before the next available agent is offered the call.

If the overflow queue timer expires before an agent is available, the call can be directed to another UCD group, a station, voice mail, or an external destination. If the overflow target is another UCD group, the caller remains in queue in the original group and is also be placed in queue in the overflow queue. Overflow targets are configured using the *Call destination* table.

A numeric threshold value can be assigned to each group. If the number of calls in queue equals the threshold value, the call overflows.

The UCD group can be forwarded (night answer for UCD).

Additional Parameters per Group

If all agents in a group are busy, each group can independently determine the length of time a caller will remain queued to one group. At the end of which, if no agent has answered the call in the first group, the call simultaneously is presented to the secondary group (if configured) for another predetermined time. The time is set by the number of ring cycles. The number of ring cycles can be set from 1-120, in both groups.

Each group can independently set the maximum number of queued calls; in the first group the maximum is 30, whereas, in the last group, the maximum is 72. These totals include internal and external calls. If more calls attempt to call the UCD groups, they are presented with busy tone, or diverted to voice mail, depending on the call management destination list.

Each group can be configured for calls to be automatically answered by agents: Automatic Incoming UCD Call Connection (AICC).

Each group can specify if the announcements change once or if they are cyclical. If the selection is *Once*, the announcements are presented to the callers once, as they are configured. If the selection is *Cyclic*, the last announcement and the second to last announcement in the configuration are repeated cyclically.

Each group can specify an overflow time. This time is only used to monitor a forwarded call to a remote UCD application.

Each group can specify the delay time before a queued call is switched to the recorded announcement device. The value for this timer is 0-600 seconds. Every call to an UCD Group gets an announcement. If no announcement device is configured, the internal MOH is sent to the calling party. To suppress the announcement, the delay should be configured to the maximum value, assuming that the call will be answered within this time.

Feature Keys/Codes

Agents using display telephones can program vacant keys with the following UCD functions:

Table 7-1 UCD Feature Key Options

	Default access codes	LED state when feature is ON
Log on/off	*401/#401	Lit
Available/Not available	*402/#402	Lit
Work on/off	*403/#403	Lit
UCD Night On/off	*404/#404	Lit
Calls in Queue	*405	N/A

Otherwise, agents can dial the access code from an idle state or press the *Program/ Service* key during a conversation and scroll to and select *UCD* and scroll to the UCD feature to activate/deactivate.

Non-display and analog telephones must dial the access codes from an idle state or during a conversation after putting the caller temporarily on Consultation Hold and dialing the access code. To return to the call, the agent must press the *Consultation* key once again, or do a hookswitch flash in the case of an analog telephone.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	x	x	x	–	–
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–
UCD groups	60	60	10	–	–
UCD agents	Max. 150	Max. 150	Max. 150	–	–
ID numbers	150	150	150	–	–
Agents per station	1	1	1	–	–

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Configure call distribution
2.	31-1 => UCD - Group assignment
3.	31-2 => UCD - Group parameters

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Configure call distribution
2.	Incoming calls
3.	UCD groups

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Call the UCD group.
2.	The logged-on agent who was idle the longest receives the call.
3.	If all agents are busy or unavailable, the call is placed in a defined queue.

Note

Refer to Section 8.42, Call distribution in HiPath 3000 With Hicom Agentline Office (Not for U.S.).

7.3.13.1 UCD Queues

Definition

If all stations (agents) in a UCD group are busy, incoming calls are placed on hold and entered in a queue.

Agents of a UCD group can display the number of calls in the queue for their UCD group. Waiting parties in the queue can receive an announcement or music on hold.

To display the number of UCD calls in queue, users with display telephones can program a feature key or during a call, press *Program/Service*, scroll to and select *UCD?*, and scroll to and select the wanted feature. Alternatively, during a conversation, users can press the *Program/Service* key and dial the access code.

Non-display and analog telephone users must dial the access codes from an idle state or, if during a conversation, they must temporarily put the calling party on Consultation Hold by pressing the *Consultation* key followed by the access code. Or, in the case of an analog telephone, a hookswitch flash must be performed.

Non-display telephones (optiset E or optiPoint 500) can have buttons on the telephones programmed for specific features; however, this can only be done via HiPath 3000 Manager E.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–
Queues per UCD group	1	1	1	–	–
Number of calls in queue (per UCD group)	30 for UCD groups 1 to 59, 72 for UCD group 60			–	–

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Configure UCD queue
2.	31-2-1 => UCD - Group parameters - Announcem. device
3.	31-2-2 => UCD - Group parameters - Wait times
4.	31-2-3 => UCD - Group parameters - Call cycles
5.	31-2-4 => UCD - Group parameters - Auto. incoming call connection
6.	31-2-5 => UCD - Group parameters - Waiting calls

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Configure UCD queue
2.	Incoming calls
3.	UCD groups

Testing the Feature

Check the feature for proper functioning as follows:

Step	Action
1.	Call the UCD group when all stations are busy. The system plays an announcement or music on hold.

7.3.13.2 UCD Call Prioritization

Definition

Within the queue, incoming internal and external calls for the UCD group are prioritized according to call type.

The system distributes waiting calls to the UCD group according to priority and then the length of time they have been waiting. In other words, a high-priority waiting call is answered before a low-priority call that has been waiting longer.

In the case of trunk circuits, the priorities are assigned according to trunk (per B channel).

A priority of 1 to 10 is allocated for the classification of internal calls. The system then distributes the queued calls to the UCD group according to the priority and queue time; that is, a queuing call with a high priority can be answered sooner than a call queuing for a longer time but with a lower priority. With trunk circuits, the system assigns priorities on a per trunk basis (per B channel). The system evaluates incoming calls for a UCD group by the priority established.

Priority levels are set in HiPath 3000 Manager E. The Internal call priority is also established on the HiPath 3000 Manager E Priority screen, under Priorities for internal calls (refer to Configuring the Feature Using HiPath 3000 Manager E).

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–
Priority levels	10	10	10	–	–

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Set call priority
2.	31-4 => UCD - External call priority
3.	31-5 => UCD - Internal call priority

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Set call priority
2.	Incoming calls
3.	UCD parameters

7.3.13.3 UCD Subscriber States

Definition

After a user (agent) logs onto the system, the current status of the UCD station where the agent logged on appears on the display. The following states are possible:

- **Available:** UCD calls are signaled to the UCD group member (agent).
- **Unavailable:** The UCD member (agent) has logged off from the workstation (to take a break or leave the group).
- **Work time:** The user (agent) needs time to process a UCD call.
- **Autowork time:** The member (agent) is automatically removed from the UCD group for a certain period after processing a call.
- **UCD incoming call:** The member (agent) is processing a UCD call (even after transfer).
- **Non-UCD internal call:** An internal non-UCD call is in progress.
- **Non-UCD external incoming call:** An external non-UCD call is in progress.
- **Non-UCD external outgoing call:** The member (agent) is engaged in an outgoing external non-UCD call.
- **Removed:** The telephone has physically failed.

Members (agents) can log off when they have completed their work and are no longer available. They can still be reached directly via their direct inward dialing (DID) number.

The above list of UCD subscriber states do not represent the actual display prompts on the telephone.

After a user logs onto the system, the status of the UCD station is automatically set to Available. The display prompt confirms this status. Whenever the agent changes states, the change is displayed; however, the highest priority display (Available/not available) appears and remains on the display.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
Do not disturb (DND), call forwarding (CF)	Members (agents) who activate DND or CF are logged off.
Call forwarding—no answer (CFNA)	If a member (agent) does not accept a call, the system automatically treats the member like an unavailable agent when CFNA is activated.

Configuration Options

This feature does not have to be explicitly configured.

7.3.13.4 Leave UCD Group

Definition

Members (agents) can temporarily leave a UCD group (for breaks, and so on) but still remain logged on to the UCD group. The system continues to signal direct calls to this agent. If necessary, the agent can send a message to any station, for instance to ask for help.

When an agent logs on to the group, the agent is immediately and automatically placed in the “available” state and can start processing calls.

The default access codes for this feature are:

- **Not available:** #402
- **Available:** *402

Display telephones can program Feature keys **Available/Not available** on the optiset E and optiPoint 500. Non-display telephones can have a key programmed using HiPath 3000 Manager E.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
Call forwarding—no answer (CFNA)	CFNA is activated when all members (agents) have left the UCD group.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Enter the code for leaving the UCD group at a station in the group.
2.	Calls for the UCD group are no longer signaled at that station.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.3.13.5 Work Time

Definition

With this feature, UCD members (agents) can temporarily prevent calls from being assigned to their workstations. This allows them to leave the UCD group for short periods to complete paperwork following a call. The agent is still logged on to the UCD group. Calls to the UCD group bypass any workstation that has this feature activated.

In addition, members (agents) can activate autowork time. In this case, the agent is automatically removed from the UCD group for a certain period after processing a call.

The Autowork flag is system-wide flag. It is configured in HiPath 3000 Manager E: Options ->Incoming Calls ->UCD parameters ->Automatic wrap up time.

The automatic wrap up time is variable up to 100 seconds, in steps of 5 seconds (ring cycle). At the end of the automatic wrap up time, the agent is placed back in the group.

An agent in the *Work* state can still be called by dialing the station number.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Configure work
2.	31-3 => UCD - Work time

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Configure work
2.	Incoming calls
3.	UCD parameters

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure the work time.
2.	Set up a call.
3.	Terminate the call.
4.	Call the UCD group again. No calls are signaled to the UCD station for the configured work time.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.3.13.6 Recorded Announcement/Music on Hold (MOH) with UCD

Definition

This feature allows customers to play a greeting message (announcement before answering) to internal callers or external callers while they are being switched. Trunk-by-trunk assignment of announcement devices is possible.

With UCD, music and/or further announcements can be played to callers if they cannot be switched immediately. These announcements (or music) can be played in any order (up to seven) until a group member (agent) becomes available.

It is possible to play music on hold or announcements from a connected external announcement device using the following types of devices:

- Devices that always start at the beginning of the message when activated (such as greeting messages).
- Continuous playback devices (for announcements and music on hold).

The announcements can be assigned to each UCD group individually.

The HiPath 3750 and HiPath 3700 supports access for 16 unique announcements and one MOH source. The HiPath 3550 and HiPath 3500 supports 4 announcements and one MOH source. Each UCD group can be configured with up to 7 announcement steps. A unique announcement and the duration of the announcement can be defined for each step. The time is defined as ring cycles, that is in increments of 5 seconds. The announcement script can be configured to play a single time or continue to cycle until the call is answered; this is configured in the UCD group parameter *Announcement change*.

Analog ports can be configured as a digital announcer interface. E&M Tie line ports can also be used in the HiPath 3750 and HiPath 3700 as the interface to the digital announcer.

The STRB option board can be used in the HiPath 3550 and HiPath 3500 to control the start of the external announcement device in lieu of the contacts on the TIEL circuit card in the HiPath 3750 and HiPath 3700.

Announcement devices are configured with a start time and a listen duration time. Music on Hold devices are endless loop type recordings with continuous play attributes. Up to 32 parties held in queue can hear an announcement.

The *Announcement Delay Time* parameter is used to configure the delay before a queued call is switched to the recorded announcement device (allowed value 0-600 seconds). Each call to an UCD Group gets an announcement. If no announcement device is configured, the internal MOH is sent to the calling party. To suppress the announcement, the delay should be configured to the maximum value, assuming that the call will be answered within this time.

For more information, refer to Music on Hold (Internal or External Source) on page 7-35.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	Free analog subs. ports TIEL	EXM, EXMR, MPPI (not for U.S.), free analog subs. ports		–	–
SW requirements	V1.0 or later			–	–
Ann. devices	16	4	1	–	–
Max. no. of announcements per group	7	7	7	–	–

Requirements and Conditions

Subject	Requirement or Condition
Seven announcements per group in HiPath 3550	Although only four announcement devices can be connected to HiPath 3550 and HiPath 3500, seven announcements can be used per group by connecting an individual announcement device or combining the four devices.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure announcement**
2.	25-1 => Announcement device - Announcement device
3.	25-2 => Announcement device - Announcement type
4.	25-3 => Announcement device - Announcement before answering

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure announcement** Connections
2.	Announcement
3.	Announcement device

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Announcement devices connected to SLA boards are called directly (announcement and music on hold only). Announcements via TIEL connections can be tested only if they have been registered as a wait queue for UCD or as an announcement for announcement before answering.
2.	If announcement devices are connected to SLA boards, the corresponding announcement or music on hold must be played. If they are connected to a TIEL board, the announcement must be played when an ACD/UCD group is called.

7.3.13.7 Overflow With UCD

Definition

If a call in the queue is not answered within a specific period, the agent is switched to unavailable mode and the call is transferred to the next available UCD member (agent). The call is forwarded to an overflow destination (CFNA destination) only if all UCD agents are unavailable. Users can specify the destination and time in call management.

Users can also define a maximum number of waiting calls. If this maximum limit is exceeded, any new calls are forwarded to the overflow destination.

The overflow destination can also activate external call forwarding.

The overflow destination can be a voice mail system. The number forwarded to the voice mail system is the original called party's number.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–
Overflow per group	3	3	3	–	–

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Configure overflow with UCD
2.	16-18-1 to 16-18-7 => Incoming calls - Call FWD-no ans

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Configure overflow with UCD
2.	Incoming calls
3.	Call destination lists

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Do not answer a call to the UCD group. After the call forwarding—no answer time has expired, the call is signaled at the overflow destination.

7.3.13.8 Automatic Incoming Call Connection (AICC) With UCD

Definition

This feature allows members (agents) to answer incoming calls without performing any operator actions. To do this, the member must have a headset and an enable key on the telephone. A tone in the headset lets the UCD member know that a call has arrived, and the call is then automatically switched through.

Automatic incoming call connection (AICC) can be configured separately for each UCD group. This feature activates automatically if a headset is detected or configured at a station.

Automatic incoming call connection (AICC) can be configured separately for each UCD group and applies to the whole group. Using Assistant T or HiPath 3000 Manager E, stations must be individually configured for headset operation; however, if the HiPath 3000 systems detect a headset adapter, the system automatically sets the headset flag in the database. AICC activates automatically if a headset is detected or configured for a telephone. The headset flag is set in the *Set up Station* tab in the HiPath 3000 Manager E.

The system routes calls to agents configured for AICC whether there is a headset physically connected or not.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–
General requirements	optiPoint 500 or optiset E, headset, release key			–	–

Requirements and Conditions

Subject	Requirement or Condition
Analog telephones	Analog stations cannot use this feature because the system cannot guarantee that a telephone is physically connected to the port.

Subject	Requirement or Condition
Display telephones	A brief tone is heard in the headset, signalling to the agent that a call has arrived, and the call is answered automatically.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Configure automatic incoming call connection
2.	31-2-4 => UCD - Group parameters - Auto. incoming call connection

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Configure automatic incoming call connection Option
2.	Incoming calls
3.	UCD groups

7.3.13.9 UCD Night Answer

Definition

UCD groups can activate a group-specific night answer independent of system night answer. If agents have activated the night answer feature for their own UCD group, all calls for this group are routed to the appropriate UCD night station.

Each user can activate or deactivate group-specific night answer. All users remain logged on after night answer has been activated. If system night answer is active simultaneously, it has priority, and call management follows it.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
Agent status	If you activate the night answer feature, your current status does not change.
System night answer	UCD night answer can be activated independently of system night answer and vice versa. If a call reaches a UCD group by way of system night answer, the call remains in the UCD group independently of UCD night answer.
Group-specific night answer destination	The group-specific night answer destination can be an internal, external, or any other UCD group.
Calls currently being processed	Calls that are being processed during activation of UCD night answer are not affected.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Activate UCD night answer.
2.	Call the UCD group.
3.	The call arrives at the UCD night station.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.3.13.10 UCD Group Status Display (Calls in Queue)

Definition

Users can use a procedure or code to display the number of calls waiting in the queue.

Users can program a feature button on the optiset E or optiPoint 500 telephone for this feature.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	Digital subscriber line module			–	–
SW requirements	V1.0 or later			–	–
General requirements	optiset E or optiPoint 500 with display			–	–

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	With a UCD station logged on, use a code or procedure to display the number of calls waiting in the queue.
2.	The number of calls in the queue is displayed.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.3.13.11 UCD Home Agent

Definition

Users can integrate an off-premises extension (analog telephone) into the UCD group as a home agent.

The off-premise station (OPS) telephone is configured in Call Management.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
UCD	Only the most important functions are accessible via codes (logon, work, unavailable).

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Configure call distribution
2.	31-1 => UCD - Group assignment
3.	31-2 => UCD - Group parameters

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Configure call distribution
2.	Incoming calls
3.	UCD groups

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure an UCD home agent.
2.	Call the UCD group. The call is signaled at the home station.

7.3.13.12 Transfer to UCD Groups

Definition

Internal and external calls can be transferred to a UCD group. If the call is not answered within a certain period, a recall is carried out. This time is fixed and cannot be changed.

Announcements can be played for the external transferred calls.

Internal calls transferred to a UCD group also hear the announcements as of system release N-Bind.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–
Max. number of UCD groups	60	60	10	–	–

Requirements and Conditions

Subject	Requirement or Condition
Announcements	Internal transferred calls do not receive announcements.
Recall	The recall time for transferring calls to UCD groups is longer than for other stations.

Configuration Options

This feature does not have to be explicitly configured.

7.3.14 Silent Monitoring

Definition

An authorized user can monitor a call in progress at any internal station without the other party's knowledge.

For V1.2 and later, it is possible for all stations in the system to use the Silent Monitoring capability, rather than just one station. Set the appropriate flag for each authorized station.

Some states require that the outside caller be advised that the call may be monitored.

The monitoring station can only be an optiset E or optiPoint 500 telephone; monitored telephones can be of any type.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.2 or later				

Requirements and Conditions

Subject	Requirement or Condition
Silent Monitoring	This feature can be used in the following countries only: Australia, Brazil, France, Great Britain, Hong Kong, India, Ireland, Malaysia, the Netherlands, Singapore, South Africa, Thailand, USA, international markets.
Silent monitoring	The call can be overridden only using code **944* + station number (not from a menu).
Signaling	The call is not signaled at the overridden station (no display, no alerting tone, no sound).
Conference	Silent Monitoring limits the maximum number of conferences. Maximum number of conferences possible in system = maximum number of simultaneous Silent Monitoring stations.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Enable Silent Monitoring**
2.	14-34 => monitoring
3.	Select station
4.	Select authorization: 0 = not authorized, 1 = authorized

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Enable Silent Monitoring** Options
2.	Configure station
3.	Station
4.	Double-click parameters of the station you want.
5.	Station flag: Silent Monitoring

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up a call.
2.	An internal station overrides another station.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.3.15 Do Not Disturb (DND)

Definition

Users can activate do not disturb (DND) on their stations so that no incoming calls are put through.

A user who has activated DND hears a special dial tone after lifting the handset. When the feature is active, the message *Do not disturb* is also displayed on optiset E or optiPoint 500 telephones with display. On all other optiset E or optiPoint 500 telephones, the station LED indicates a busy state.

The attendant console, night station, or any authorized station can override DND. In this case, the caller first hears a busy signal after dialing the number. The call is then signaled to the station that has activated DND. If the station has activated the ringer cutoff feature, the call is signaled visually only. If the station with do not disturb activated is engaged in a call, the incoming call is signaled as call waiting.

A caller who dials a telephone with DND activated receives a busy signal and is not allowed to camp on.

The *Flags* screen is one of three screens in the *System Status* pathway of the HiPath 3000 Manager E that provides station-specific (rather than system-specific) status information. You can use the *Flags* screen to see if a station has activated DND or not.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
AC, night station	The AC and night station cannot activate DND.
Call forwarding	You cannot specify DND if call forwarding is active on the same telephone.
Call forwarding	You cannot activate call forwarding to a telephone with DND.

Subject	Requirement or Condition
Callback	If a callback is initiated to a station with DND activated, the callback is not executed until DND is deactivated. If the subscriber with DND activated initiates a callback, this will override the DND function.
Appointment, automatic wake-up system	If a station has set an appointment and activated DND, an audible signal is sent to the telephone when the appointment comes due.
DISA	The feature can be activated by users for their own stations, or can be activated by one user for another (Associated Services).

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Activate do not disturb (*97). *Do not disturb* appears in the display.
2.	Call the station with DND activated. You should hear a busy signal.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

- Display Telephones

  From an idle state, the user dials the default access code **97*; the display confirms the action with the prompt *Do Not Disturb on*. The prompt remains on the display as a reminder to the user. Furthermore, when the user goes off hook, he or she hears a broken dial tone as a further reminder. To cancel DND, the user dials the default access code *#97*; the action is confirmed by the display prompt *Do not disturb off*.

  The user can also program a button on the telephone to activate/de-activate the feature. The LED remains on as long as Do not disturb is active on that telephone.

The user can also activate/deactivate the feature while engaged in a conversation by pressing the *Program/Service* key followed by the access code. This will have no effect on the current call, nor will it have any effect on any call camped-on prior to the activation of DND. Those camped on calls will be presented to the user. However, any call which attempts to camp on after DND is activated, is denied.

- Non-Display and Analog Telephones

  From an idle state, the user dials the default access code **97*; the action is confirmed by an acknowledgment tone. When the user goes off hook, he or she hears a broken dial tone as a further reminder. To cancel DND, the user dials the default access code *#97*; the action is confirmed.

  As with display telephones, the user can activate/deactivate the feature while engaged in a conversation by pressing the *Consultation* key (or a hook switch flash in the case of an analog telephone), followed by the access code. To return to the call, the user presses the *Consultation* key once again.

7.3.16 Ringer Cutoff

Definition

If this feature is activated by an optiset E or optiPoint 500 telephone with display, incoming calls are signaled with a brief alerting tone and then shown in the display only.

The *Flags* screen is one of three screens in the *System Status* pathway of the HiPath 3000 Manager E that provides station-specific (rather than system-specific) status information. You can use the *Flags* screen to see if a station has activated Ringer Cutoff or not.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
General requirements	optiset E or optiPoint 500 with display				

Requirements and Conditions

Subject	Requirement or Condition
Ringer cutoff	You can only activate this feature for optiset E or optiPoint 500 telephones with display.
Appointment, automatic wake-up system	If a station has activated ringer cutoff and an appointment comes due, it is signaled audibly.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Activate the feature (*98). *Ringer cutoff* appears in the display.
2.	An incoming call is audibly signaled **once**; then it is displayed on the screen only.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.3.17 Caller List/Station Number Storage

Definition

Unanswered calls to an optiset E or optiPoint 500 telephone can be automatically stored in a chronological caller list. The time of each call is specified, and the user can dial the entered callers directly.

Users can also manually store incoming and outgoing calls in the caller list.

You can program a system parameter so that the telephone also automatically stores external calls that were answered. Because the parameter is system-wide, this setting applies to all caller lists in the system.

Each new entry can be automatically indicated by an LED. In addition, unanswered entries can be displayed on the screen by pressing a preprogrammed key. The LED is deactivated as soon as the user retrieves the list.

On telephones with a 2-line display, the oldest entry is displayed first.

This feature is valid only for display telephones.

By default, the feature is active for all telephones and stores all incoming internal and incoming external ISDN calls (which have caller ID information from the CO). Any station can be prohibited from using the feature by changing the station default. Also, a system-wide flag can change the Caller List mode to store only external call information instead of internal and external.

The Caller List operates in a first-in-first-out (FIFO) manner. If the List is full, and another call rings in, the oldest call in the list is deleted, and so on.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	$U_{P0/E}$ stn.	$U_{P0/E}$ stn.	$U_{P0/E}$ stn.	$U_{P0/E}$ stn.	$U_{P0/E}$ stn.
SW requirements	V1.0 or later				
General requirements	optiset E or optiPoint 500 telephone with display				
Subscriber group	Maximum of 10 entries				
Lists/entries	650/10	650/10	100/10	100/10	100/10

Requirements and Conditions

Subject	Requirement or Condition
Analog trunk	Only calls with a station number or a name are recorded (calls on analog trunks are not recorded).
Power failure	The entries are deleted in the case of a power failure or a system reset.
Internal/external calls	You can store either external calls only or both internal and external calls.
Repeated calls	If a subscriber calls repeatedly, only the time of the entry is updated.
Group	If you belong to a group, you can access the group's caller list in addition to your own caller list.
Storing an external answered call	You can access the "store station number" function manually from the service menu.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Query caller list**: via Program/Service menu or code (#82)
2.	Use the dialog keys to store the station numbers
3.	**Class of service**:
4.	14-21=> Configure station - Caller list
5.	**Caller list mode**:
6.	22-15=> System settings - Caller list mode

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Class of service**: Options
2.	Set up station
3.	Stations
4.	Parameters => Flags
5.	**Caller list mode**: Options
6.	System parameters
7.	System flags

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Call a station and hang up the phone.
2.	If a *Caller list* key is programmed, the LED lights up. Otherwise, retrieve the entries from the caller list via the menu or by entering a code (*82).

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

- Using 2-line display telephone

  The time stamp of a call can be viewed by selecting the prompt *Time/Date sent?*. A name is provided, if available, by selecting the *Name?* prompt.

  If a party has called several times, the number of calls from that party will be displayed. Once the party has been dialed, the call proceeds as a normal call.

  The user can also delete any entry by selecting the *Delete* prompt. When there are no more entries, the display confirm by *List is empty*.

  One entry, or all calls from one party, can be removed manually (Delete), or the entry is automatically removed when the called party answers.

The user can also manually save a dialed destination number: during the call, the user scrolls to *Save Number* or presses the *Program/Service* key and scrolls to *Save Number*. If the user programmed a button for this function, the LED lights.

The LED of the feature button is extinguished whenever the user accesses the Caller List, whether there are still calls in the list or not.

An outgoing number saved by the user, cannot be automatically deleted; the user must manually do so. These outgoing numbers are identifiable by the digit zero in the field for the number of calls; the digit is set to zero.

If the user is part of a Hunt Group or Call Group, the user can view unanswered calls to his or her number and to the Group number, whether the telephone rang or not. To view these calls, the user presses the *Next* prompt on the telephone: the display shows calls to his or her personal number and if any, calls to the group name. Further selecting *Next,* scrolls through the Group's unanswered numbers.

- optiset E memory telephone

  The procedure is the same for a memory telephone, except that the displays provides a view of the first five calls received or sent before scrolling is necessary.

  In lieu of using the dialog keys, the memory telephone user can use the buttons located on the keyboard for *Dial*, *Card*, *Del*. and *End*.

  If the user is part of a Hunt Group or Call Group, the user can view unanswered calls to his or her own number and to the Group number, whether the telephone rang or not. The + symbol in the display prompt in the Caller List (for example, *....for xxx* +) indicates that there are more calls than shown in the display. To view these calls, the user presses the *Down arrow* on the keyboard: the display shows the additional calls to the personal number or calls to the name of the group, if any. Continuing to push the *Down arrow*, returns the caller to the personal Caller List.

7.3.18 Call Pickup Within Call Pickup Groups

Definition

Calls that are signalled acoustically at a station in a call pickup group are simultaneously indicated by an LED (next to the programmed key) and signaled on the displays of the other group members. The call can be picked up by pressing the programmed key or dialing a code. Acoustic pickup signaling (after 5 rings) can also be configured system-wide.

The time from start of ring to acoustic notification of all group members, is not variable. If there are several calls ringing the group, they are picked up in order of arrival.

Calls destined for Call Keys, Trunk Keys or General Call Keys, can be picked up by another user. The LED on these keys will indicate busy after the pick up. Calls directed to MUSAP keys can be picked up, but after pick up, they will show the key as idle.

The following versions of call pickup are also available:

- Targeted Call Pickup Outside of a Pickup Group on page 7-137

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Groups/stations	32/32	32/32	8/8	8/8	8/8

Requirements and Conditions

Subject	Requirement or Condition
Call pickup	Only voice devices can be selected. A station can belong to only one group.
Recall Callback	Recall and callback calls are not signaled to the other group members.
Do not disturb (DND)	Stations that have activated DND do not receive call pickup signaling.
Transfer	Unscreened transfer calls cannot be picked up within the group.

Subject	Requirement or Condition
Groups	All group members are authorized to pick up calls.
Call waiting	A camped-on call can be picked up. If more than one call is waiting, the first caller is always picked up.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Program call pickup key** *91 => Access key programming.
2.	Press the key to be assigned.
3.	Assign *Pickup - group* to the key selected.
4.	Exit key programming.
5.	Configure call pickup group
6.	14-18 => Configure station - Call pickup groups

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure pickup groups** Options
2.	Incoming calls
3.	Call pickup
4.	**Program pickup key** Options
5.	Set up station
6.	Key programming

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Call a station in a pickup group.
2.	Use the pickup key or enter *57 to pick up the call from another station in this pickup group.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

- Display telephones

  An incoming call to one member of a Call Pick up group is displayed at all other stations: *Call for xxx*. where *xxx* is the station being called. Selecting the command *Pick up - group?* connects the user to the calling party.

  If the called party does not answer the call within three rings, the other members of the group can be alerted of the incoming call by a brief ring burst to attract their attention to the display.

  Alternatively, a feature button can be programmed on the telephones to facilitate call pick up. Users can program the key on their telephones, or the key can be programmed via HiPath 3000 Manager E. When a call enters the Pick up group, the LED flashes. To pick up the call, the user presses the key.

- Non-Display and Analog Telephones

  From an idle state, the user dials the default access code **57*. The user is immediately connected to the incoming call.

  Call Pick up-Group can be invoked from a Consultation state; that is, upon hearing a telephone ring, the user presses the *Consultation* key (or performs a switch hook flash in the case of an analog telephone), putting the current conversation on Consultation Hold. The user then dials the access code. He or she can then dispose of this second call in a normal manner before returning to the held party.

7.3.19 Targeted Call Pickup Outside of a Pickup Group

Definition

Users can also pick up calls for other internal parties who do not belong to the same call pickup group and therefore do not appear on the screen. This increases the likelihood that incoming calls are always answered. To pick up the call, the user must press a programmed call pickup key or enter a code and then dial the selected party's station number.

Display telephone users can program a feature key on their telephone for this feature or as with non-display telephones, request that this feature key be installed via HiPath 3000 Manager E.

Calls destined for Call Keys, Trunk Keys or General Call Keys can be picked up by another user. The LED on these keys will indicate busy after the pick up. Calls directed to MUSAP keys can be picked up, but after pick up, the key indicates it is idle.

The following versions of call pickup are also available:

- Call Pickup Within Call Pickup Groups on page 7-134

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Call waiting	A camped-on call can be picked up. If more than one call is waiting, the first caller is always picked up.
CDRC	Charges and/or elapsed time incurred as a result of a Picked up call, are assigned to the station which picked up the call.

Configuration Options

This feature does not have to be explicitly configured.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Program a call pickup key *91 => Access key programming.
2.	Press the key to be assigned.
3.	Assign *Pickup - directed* to the key selected.
4.	Exit key programming.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Program pickup key Options
2.	Set up station
3.	Key programming

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Call a station.
2.	Pick up the call using a key or code *59 ...

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

- Display Telephones

  Directed Call Pickup can be invoked from a Consultation state; that is, upon hearing a telephone ring, the user presses the *Consultation* prompt, putting the current conversation on Consultation Hold. The user then dials the access code and the destination number or accepts the call shown on the display. The user can then dispose of the call in a normal manner before returning to the held party.

The same procedure applies to the optiset E memory telephone, except that more than one ringing call can be seen simultaneously on the screen, which allows the user an easier interface as to which call to answer.

- Non-Display and Analog Telephones

  From an idle state, the user dials the default access code **59* followed by the number of the station which is ringing. The user is immediately connected to the incoming call.

  Directed Call Pickup can be invoked from a Consultation state; that is, upon hearing a telephone ring, the user presses the *Consultation* key (or performs a switch hook flash in the case of an analog telephone), putting the current conversation on Consultation Hold. The user then dials the access code and the ringing station's number. He or she can then dispose of this second call in a normal manner before returning to the held party.

7.3.20 Call Pickup from an Answering Machine

Definition

optiset E or optiPoint 500 users have the option of picking up a call that has already been answered by an answering machine by pressing the appropriate *DSS* key. This releases the connection to the answering machine.

Several optiset E and optiPoint 500 telephones can have the appearance of the *Answering machine DSS* key, affording each the opportunity to pick up the call.

The purpose of this feature is to allow the answering device to act as a filter for incoming calls. The called party can decide to accept the call or let the device record the caller's message.

optiset E and optiPoint 500 telephone users have the option of picking up a call that was already answered by an answering machine by pressing the appropriate DSS key. This releases the connection to the answering machine. Several optiset E and optiPoint 500 telephones can have the appearance of this DSS key, affording each the opportunity to pick up the call

An incoming call is received at the answering machine. The LED for the DSS key corresponding to the answering machine is lit at the user's telephone. If users want to talk to calling parties directly, they press the DSS key. This connects them to the calling party and disconnects the answering machine.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	$U_{P0/E}$ station				
SW requirements	V1.0 or later				
General requirements	optiset E or optiPoint 500 telephone				

Requirements and Conditions

Subject	Requirement or Condition
Answering machine	The answering machine port must be configured as an answering machine in system administration.
Answering machine	You must program an *Answering machine call pickup* DSS key on the optiset E or optiPoint 500 telephone for this feature to work.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure port**
2.	14-11 => Configure station - Station type *Answering machine*
3.	Assign *Pickup - directed* to the key selected.
4.	Exit key programming.
5.	**Program DSS key** *91 => Access key programming.
6.	Press the key to be assigned.
7.	Assign *DSS key* to key selected.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure port** Options
2.	Set up station
3.	Stations
4.	Parameters
5.	Type
6.	**Configure DSS key** Options
7.	Set up station
8.	Program keys

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Call the answering machine.
2.	After the answering machine has answered the call, press the programmed DSS key to pick up the call from the answering machine.

7.3.21 Fax Waiting Message/Answering Machine

Definition

A *Fax/Answering Machine* key has an LED to let the user know that a fax waiting message or a call for the answering machine has arrived.

A call directed to an analog port configured as a FAX machine or as an Answering Machine lights an LED at a station to advise the user that the FAX or the Answering Machine has answered an incoming call. The LED is lit steadily.

The user can turn off the LED by pressing the key.

The HiPath 3000 Manager E can program a key on the optiset E or optiPoint 500. The button name in the Key Programming tab is Message for FAX/answ.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	$U_{P0/E}$ station				
SW requirements	V1.0 or later				
General requirements	optiset E or optiPoint 500 telephone				

Requirements and Conditions

Subject	Requirement or Condition
Program key	You must also enter the station number when programming the key.
Analog port	The analog port must be configured as a fax machine or answering machine.
Info key	The LED goes out when you press the key.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure key** *91 => Access key programming.
2.	Press the key to be assigned.
3.	Assign *Fax/Answering Machine* to the key selected.
4.	Enter the station number of the fax/answering machine.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure key** Options
2.	Set up station
3.	Program keys

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Program the key.
2.	Place a call to the appropriate extension.
3.	The programmed key will light up when the call is answered.

7.3.22 Deferring a Call

Definition

While an incoming call is being signaled at a station, the called party can set up an outgoing connection without answering the incoming call.

The waiting call is then signaled as a camped-on call.

Operation

As an incoming call is presented, the user presses a *Call* key or *Trunk access* key and places an external call. The feature can be used on a Basic telephone, if you change the default keys.

The calling party does not notice a change in signalling if Call Waiting is set for ringing on Call Waiting.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	$U_{P0/E}$ station				
SW requirements	V1.0 or later				
General requirements	optiset E or optiPoint 500 telephone with display				

Requirements and Conditions

Subject	Requirement or Condition
Deferring the call	You must have trunk keys or at least two call keys programmed on the telephone.
Deferring the call	An key for the feature must be available.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure key** *91 => Access key programming.
2.	Press the key to be assigned.
3.	Assign the *Call key* or *Trunk key* service to the key selected.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure key** Options
2.	Set up station => Key programming
3.	Program keys

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Call an internal station that has the keys programmed.
2.	Press an available trunk or call key on this telephone to set up an outgoing connection.

7.3.23 Station Number Configuration Using Assistant T

Definition

HiPath 3000 automatically assign the following:

- Internal station numbers (depending on the configuration)
- Internal group numbers (depending on the model)

Station number assignment does not need to be explicitly configured. This feature allows users to modify the preset internal station numbers using Assistant T.

You can use the menu option Search for number to locate individual station numbers. After you enter an internal station number, its logical port is displayed in the format SSPP (SS = slot, PP = port).

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
SW requirements	V1.0 or later				
Max. number of internal station numbers	In accordance with the HW configuration				
Max. number of internal group numbers	150	150	150	20	20

Requirements and Conditions

Subject	Requirement or Condition
Station number configuration	An internal station or group number must always be unique in the system and must not conflict with other station numbers in the numbering plan.

Configuration Options

This feature can be configured using Assistant T.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Change internal station number**
2.	16-10-1-1 => Incoming calls - Internal numbers - Station - Change number
3.	16-10-1-2 => Incoming calls - Internal numbers - Station - Search for number
4.	16-10-2 => Incoming calls - Internal numbers - Change group number

7.3.24 Reject Calls

Definition

This feature allows internal and external incoming initial calls to be rejected by pressing

- the release key on optiset E or optiPoint 500 telephones with display or
- the consult key on mobile telephones (CMI).

The rejected call then follows the Call Management. If there is no other call destination, the previously called destination is called again.

Model-Specific Data

Topic	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	optiset E or optiPoint 500 telephone with display / mobile telephone				
SW requirements	V1.2 or later	V1.2 or later	V1.2 or later	V1.2 or later	V1.2 or later

Requirements and Conditions

Subject	Requirement or Condition
Recall, callback, park, hold	Transferred recalls, queued callbacks, held or parked calls cannot be rejected.
Group call, hunt group call, MULAP	In these cases, the entire group call ends and follows Call Management. The call is released if there is no other call destination.
Call forwarding	There is no immediate call forwarding after the call is rejected. The entries in Call Management determine the next step.
Intercept	This follows the intercept criteria in Call Management.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Press the release key (optiset E or optiPoint 500) or the consult key (CMI) on an internal or external incoming initial call.
2.	The call is rejected.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.4 Features for General Outgoing Traffic

7.4.1 Dual-Tone Multifrequency Transmission (DTMF)/Temporary Signaling Method Changeover

Definition

When this feature is activated, all keystrokes that the user enters on the dialing keypad while engaged in an internal or external call are transmitted as DTMF digits.

Users can activate this feature:

- System-wide (automatic DTMF).
  Users are automatically switched over to DTMF mode after each successful connection (even with CMI [not for U.S.]).
- Individually while engaged in an internal or external call by pressing a key or entering a code.
  Afterwards, all keystrokes from the dialing keypad are transmitted as DTMF digits. The feature is activated temporarily and is deactivated when the handset is replaced.

DTMF mode remains activated even when the following features are activated:

- Transfer
- Consultation hold
- Toggle
- Call pickup
- Accepting a camped-on call

Users can configure the pulse/pause in the system. However, configuring the pulse/pause is not recommended. Contact your second-level service organization if required.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	–	–
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Dial pulsing (DP) station	DP stations cannot use this feature.
Station on hold	A station on hold cannot transmit any DTMF signals.
Conference, call park, recall	DTMF mode remains activated during a conference, during a recall, or in call park mode.
Other features during DTMF mode	When DTMF mode is active, you must always use the Program/Service key to activate features during a call.
Voice mail	DTMF mode is automatically activated when a station configured as voice mail is selected.
US DTMF Default	In the US, this default value for this feature is *On*.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure DTMF mode system-wide**
2.	22-20 => System settings - DTMF automatic

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure DTMF mode system-wide** Options
2.	System parameters
3.	System flags
4.	DTMF automatic

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	**Check system-wide DTMF mode** Set up a call.
2.	The connection automatically switches over to DTMF mode after it is successfully set up.
3.	Each keystroke on the dialing keypad transmits a DTMF signal.
1.	**Check temporary DTMF mode** Set up a call.
2.	Enter code *53 after the connection is successfully set up.
3.	Each keystroke on the dialing keypad transmits a DTMF signal.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.4.2 Individual Telephone Lock (Changeover)

Definition

Users can activate a telephone lock that restricts outgoing external calls (COS 1), although they can continue to place internal calls and forward incoming calls to internal stations. Users activate the telephone lock by pressing a key or dialing a code and entering their 5-digit personal identification number (PIN).

System speed dialing remains active while the telephone lock is on.

The PIN must be configured first; only digits 0-9 are allowed. The default PIN is set at 00000 for all telephones. If the user has forgotten the PIN, the PIN can be reset to the default value 00000 by the HiPath 3000 Manager E or by the Attendant position (station 10/100).

While the Telephone Lock feature is activated, the user can only use the following features:

- System speed-dialing
- Room Monitor
- Speaker Call
- internal calls
- conferences with internal stations

The function *#0=Reset all services* does not deactivate this feature. It is not possible to change the PIN from a locked telephone. This PIN is the same PIN that a user must enter when entering the system via Direct Inward System Access (DISA). The external user can activate/deactivate Individual Telephone Lock from a DISA connection, but the user cannot change the PIN from a DISA connection.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Extension trunk access	After telephone lock is activated, the extension trunk access is set to a system-wide class of service (default = 1).
Extension trunk access	After telephone lock is activated, you can reduce the class of service but not select a higher class of service.
Telephone lock	While telephone lock is active, you cannot activate any features that could result in charges being assigned to this station. Exception: system speed dialing.
Telephone type	This feature works with any type of telephone in the system.
Non-display/analog feature reminder	Upon going off-hook, broken dial tone is presented to the user as a reminder that a feature is active on the telephone.
Invoke from a talk state	During a conversation, the user presses the *Consultation* key (or performs a switch hook flash in the case of an analog telephone), putting the current conversation on Consultation Hold. The user then dials the access code and the PIN and confirmation tone is returned. The user can then return to the held party by pressing the *Consultation* key once again.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Lock the telephone (code + PIN). *66 + PIN (default = 00000)
2.	Change the PIN. *93 + old PIN + new PIN + new PIN.
3.	Outgoing calls are not possible.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.4.3 System Telephone Lock (Changeover)

Definition

An authorized user can lock a telephone for an internal station. This feature has the same function as the individual telephone lock. The telephone lock can be deactivated from the attendant console or the station.

System speed dialing remains active while the telephone lock is on.

The default authorized user is station 10/100. The authority can be transferred by the default station to another station using the expert mode of Assistant T or via HiPath 3000 Manager E. The default access code is **943*. The authorized station can be any type of telephone, although a display telephone is recommended.

Activating the telephone lock feature changes the station's class of service (COS) to 1: *Outward-restricted trunk access* (incoming calls only), (refer to Section 7.7.10, Configurable Toll Restriction), which prevents all outgoing external calls, although they can continue to place and forward internal calls.

While the Telephone Lock feature is activated, the user can only use the following features:

- System speed-dialing
- Room Monitor
- Speaker Call
- internal calls
- conferences with internal stations

The function *#0* = Reset all services does not deactivate this feature. It is not possible to change the PIN from a locked telephone.

If the authorized station has activated a Telephone Lock, the authorized user must first deactivate the Telephone Lock feature before attempting to activate/deactivate another station's Telephone Lock.

To activate/deactivate another station's telephone lock, the authorized station does not need to know or use the individual's PIN. No PIN is required to activate/deactivate the other stations' Telephone Lock.

Related Topics

- Section 7.4.2, Individual Telephone Lock (Changeover)
- Section 8.7, Configuring Toll Restriction per Station

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Extension trunk access	After telephone lock is activated, the extension trunk access is set to a system-wide COS (default = 1).
Extension trunk access	After telephone lock is activated, you can reduce the class of service but not select a higher class of service.
Telephone lock	While telephone lock is active, you cannot activate any features except for system speed dialing, room monitor, speaker call, and conferences with internal stations.
Feature Active Notice	At the destination telephone, the user is advised of a feature activation by hearing broken dial tone when going off hook, or if the user has a button for this feature, the LED will be lit. If the telephone is unlocked, the broken dial tone is removed and/or the LED is extinguished.
Non-display/analog	If the authorized station is a non-display or analog telephone, the user, from an idle state, can access the feature by dialing **943*, followed by the destination station for which Telephone Lock is to be activated/deactivated, followed by * to activate or # to deactivate. Confirmation tone is returned only after all digits have been dialed. Error tone will not be returned if the authorized station inadvertently attempts to lock an already locked telephone, or attempts to unlock an already unlocked telephone

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure subscriber class of service**
2.	22-19-2 => System settings - System PIN
3.	Define a station number for the station authorized to activate the system telephone lock.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Enter subscriber class of service** Options
2.	System parameters
3.	System settings

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Use the input procedure to lock the telephone.
2.	After the system has been programmed, you can no longer place the external calls prohibited by the class of service.

7.4.4 Hotline

Definition

With the hotline feature, the telephone automatically connects to a predefined internal or external destination after the user lifts the handset. Users can also configure the feature so that the two locations connect only after a defined period (hotline after timeout). This delay is configured centrally and can be activated and deactivated on each station.

Call forwarding and call forwarding—no answer are evaluated at the destination.

If the Hotline Delayed station (originator) dials a digit before the timeout limit, the timer is cancelled and the station is not forwarded to the Hotline destination whether another digit is dialed or not.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Hotline destinations	6	6	1	1	1

Requirements/Conditions

Subject	Requirement/Condition
DND	If the destination station is in *Do not disturb* (DND), the caller hears busy tone.
Destination	• If the internal destination is busy, the caller camps on. • If the internal destination is a display telephone, the destination's display shows *Call from: xxx*, where *xxx* is the Hotline originator's station number. • The destination can be an internal station, an external destination (up to 32 digits can be programmed in HiPath 3000 Manager E or Assistant T) or a Subscriber group.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure hotline**
2.	18-2-1 => Traffic restriction - Hotline - Hotline dest.
3.	18-2-2-2 => Traffic restriction - Hotline - Hotline stn no.
4.	18-2-3 => Traffic restriction - Hotline - Hotline timeout
5.	18-2-2-1 => Traffic restriction - Hotline - Hotline mode

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure hotline** Options
2.	Set up station
3.	Parameters
4.	Flags
5.	**Hotline destination** Options
6.	System parameters
7.	System settings

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure a hotline.
2.	Lift the handset at the station.
3.	The telephone connects to the hotline destination as configured (immediately or after a timeout).

7.4.5 Mobile PIN

Definition

This feature allows a user (active station) to conduct internal or trunk calls (flex calls) from a remote telephone (passive station) using his or her own user profile (station number, name, toll restriction, call detail recording). The call detail data (CDRC/ CDRS) is assigned to the active station.

To activate this feature, perform one of the following steps on the remote terminal:

- Enter “Mobile PIN” code + local station number + PIN
- Call service menu + enter local station number + enter PIN
- Press the programmed key + enter local station number + enter PIN

The feature remains activated until the active station terminates the call.

As long as this feature is activated, the current telephone (passive station) cannot be reached under its actual station number. Do not disturb is activated.

An active station can be a:

- Station
- MULAP (in this case, the PIN of the primary station in the MULAP group is requested)

An active station **cannot** be a:

- Hunt group
- ACD group

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Services	This feature supports only the voice service.
Call detail data	Call detail data (CDRC/CDRS) is assigned to the station number of the active station. The passive station number is supplied as additional information. If the active station is the primary station in a MULAP group, call charges are recorded just as though the MULAP primary station had placed the call.
Recall	A recall is signaled on the passive station telephone but is no longer part of the flex call. For this reason, it is conducted using the profile of the passive station (number, name and classes of service).
Busy indication	Busy indication applies to the passive station telephone. Only the trunk of the active station is signaled as busy.
Features that can be used after flex call is activated	• Speaker call (paging) • Conference • Busy override (busy override class of service taken from active station) • Toggle • Park • Consultation hold • Transfer • Call pickup (during a flex call, calls are picked up using the profile of the active station) • Do not disturb • Call forwarding • Send message (message waiting) • Callback • Station number suppression • Group ringing

Configuration Options

This feature can be configured using HiPath 3000 Manager E.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Options
2.	Set up station
3.	Key programming

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Press Mobile PIN key.
2.	Enter PIN.
3.	When the LED on the Mobile PIN key lights up, the feature is activated.
4.	The LED goes out when you terminate the call.

7.4.6 B Channel Allocation (V3.0 and later)

Definition

This feature allows you to allocate outgoing connection B channels on an S_{2M} link to different trunk groups.

For outgoing calls, only B channels that also correspond to the trunk group are selected (by the code-selected trunk group, overflow trunk group, or LCR-selected trunk group). If there is no free B channel available for this trunk group, the system rejects the connection request and reacts in the way it has been configured.

Incoming calls are always accepted if a B channel in the corresponding S_{2M} line is available, regardless of the trunk group. This is usually the B channel offered by the partner. If the remote system or the public network does not support B channel allocation, there is no guarantee that the call will be correctly assigned to the right trunk group.

HiPath 3000 Manager E allocates an S_{2M} link to the trunk groups; a route can be assigned to each line (B channel).

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**–**	**–**	**–**
HW requirements	TMS2	TS2 / TS2R	–	–	–
SW requirements	V3.0 SMR-3 and later		–	–	–

Requirements and Conditions

Subject	Requirement or Condition
IP networking	B channel allocation is not useful in IP networking because it is not possible at this time to assign incoming calls to the correct trunk group.

Configuration Options

This feature can be configured using HiPath 3000 Manager E.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure B channel allocation** Settings
2.	Lines/networking
3.	Lines: Assign lines (B channels) to the correct routes.

Testing the Feature

Check the feature for error-free function on outgoing calls as follows:

Step	Action
1.	Set up a series of connections in the affected routes.
2.	Check the status of the boards to see whether a B channel on the required route was seized each time.

7.5 Features for General External Traffic

7.5.1 Multi-Device Connection (Not for U.S.)

Definition

HiPath 3000 can be operated on an ISDN multi-device connection (S_0 bus). This allows parallel operation with other ISDN devices located on the same connection. You can program a DID number up to 11 digits long (multiple subscriber number [MSN] of the multi-device connection).

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	STMD8	S_0 trunks			
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
ISDN terminals	Any parallel-connected ISDN terminals must be given an MSN to ensure unique call assignments.
Trunk groups with PP and PMP	If you connect different basic access points (point-to-point and point-to-multipoint) to the system, they must be entered in different trunk groups.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure S_0 port**
2.	20-4-1 => ISDN parameters - EU parameters - S_0-port config.
1.	**Configure station number**
2.	16-11 => Incoming calls - DID numbers

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure S_0 port** Options
2.	Trunk/networking
3.	Trunks
4.	Flags
5.	ISDN flags
1.	**Configure station number** Options
2.	Set up station
3.	Station

7.5.2 Multi-Device Connection (for U.S. Only)

Definition

The HiPath 3000 systems support ISDN data and video devices using an Industry standard ST interface. The ISDN terminal devices are connected to the system using the ISDN adapter or a port on an S_0 interface card:

- STLS4 for the HiPath 3350 and HiPath 3550
- STLS4R for the HiPath 3300 and HiPath 3500
- STMD8 on the HiPath 3750 and HiPath 3700

The ISDN devices are assigned a call number for internal dialing and an 11-digit Multiple Subscriber Number (MSN) for incoming DID applications.

Each ST port consists of two 64 Kbps channels. Two devices can be connected to the ISDN adapter. Eight devices can be connected to an S_0 port on an interface card. The devices connected on an S_0 port share the 128 Kbps bandwidth for video and data calls.

Basic Rate Interface (BRI) Operation

In a BRI environment, each CO B channel is assigned a Special Profile Identifier (SPID) number and a Terminal Identifier (TID) for identification purposes from the Public Network. The SPID and TID received from the network provider must be associated with the call number assigned to the data or video equipment connected to the ST interface. If a system is equipped with three BRI trunks, the maximum number of ISDN data sessions is either three 128 Kbps sessions or six 64 Kbps sessions. Typically CACH (Call Appearance Call Handling) values or Phantom Directory numbers are required for Voice terminals only. In some COs, CACH values or Phantom Directory numbers can be required for the ST data devices as well.

Due to the complexity of BRI configuration, it is recommended that ST applications be limited to 128 Kbps. The call number for each ST port must be associated with a Public Network SPID. This means that the number of 64-Kbps channels that can be called up is limited to the number of Public Network SPIDs.

Refer to the Configuration Note for *S_0 Device Installation*.

The STLS4 module is used also as a trunk interface in Europe. For subscriber applications, the receive and transmit leads must be reversed before connecting to the first device on the bus. This crossover is already performed in the ISDN adapter.

Usually the ST device is connected to an ISDN NT-1 adapter and the SPID-TID numbers assigned by the CO are programmed in the device. However, since the ST device is located behind the switch on an ST bus, the HiPath 3000 provide SPID-TID

identification control. Each ST channel used by the ST device requires a Call Number for internal dialing. An MSN number also is required to enable the ST device to communicate with the HiPath 3000 system.

The protocol should always be set to ATT NI-1 in the ST device. The HiPath 3000 perform all protocol conversions.

Primary Rate Interface (PRI) Operation

In a PRI or CorNet-N environment, SPIDs, TIDs and CACH values are not required. Internal SPID/TID entries called Multiple Subscribers Numbers (MSN) are used by the ST devices for call setup. DID numbers must be assigned to each channel that connects to an ST device.

The DID numbers can be assigned from the numbers received from the CO. The DID number can be from 1 to 11 digits. The DID numbers are required to set up incoming calls to the device.

Assign a call number to each *No-Port* station port used for the ST device. The call number can be from 1 to 6 digits. The call number does not need match the DID number.

An MSN number must be assigned to the ST device for each B-Channel required for the application. The MSN numbers act as SPIDs for the ST device. The MSN number can be from 7 to 14 digits. If the entry is 9 to 14 digits, the last 2 digits are used as the TID number. The last 2 digits should be 00 for B channel 1, and they should be 01 for B channel 2 on each ST interface used.

It is suggested that the MSN number consists of the DID number, followed by 5 zeros, followed by a 2-digit TID number.

Related Topic

Section 7.17.10, Multiple Subscriber Number, on page 7-562

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	S_0 board			–	–
SW requirements	V1.0 or later			–	–

Requirements/Conditions

Subject	Requirement/Condition
ISDN terminals	Any parallel-connected ISDN terminals must be given an MSN to ensure call assignments.
Trunk groups with PP and PMR	If you connect different basic access points (point-to-point and point-to-multipoint) to the system, they must be entered in different trunk groups.

Configuration Options

This feature can be configured using Assistant T and HiPath 3000 Manager E.

Programming Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Configure S_0 port *9531994
2.	20-4-1 => ISDN parameters - EU parameters - S_0 port config.
1.	Configure station number *9531994
2.	16-11 => Incoming calls - DID numbers

Programming Feature Using HiPath 3000 Manager E

Refer to the Configuration Note S_0 Device Installation.

7.5.3 Trunk Groups

Definition

The external trunks in the system can be combined into trunk groups by B channels. The order in which the trunk groups are seized can be linear (always the first free trunk) or circular (after the last trunk seized in the outgoing direction). An overflow trunk group can be configured for each of the trunk groups. If all the trunks in a trunk group are busy during a seizure attempt, the search for trunks continues in the overflow trunk group. The search is performed in the specified overflow trunk group only. If all the trunks are busy in this trunk group as well, no additional overflow attempts are made.

It is common practice to seize outgoing trunks starting with the highest numbered trunk, whereas incoming trunks will seize the lowest numbered trunks first. In the case of Key Systems, this reduces the risk of glare, or collision on loop start trunks.

A trunk group key can be assigned for these trunk groups. The key is for outgoing calls only. A maximum of 10 *Trunk group* keys can be configured on one station. *Trunk group* keys can appear on more than one optiset E or optiPoint 500 telephone. These keys can only be installed on display telephones.

Calls placed on *Trunk group* Keys are subject to COS toll restriction levels and rules.

The system can monitor the line for the presence of dial tone. If not present, the system releases the trunk, and an error message is generated and recorded. The display user is presented with the text *Not possible* and reselect the *Trunk group* key to seize another trunk.

It is possible to turn off the detection and set fixed delay; contact your second-level Service group if this is recommended.

Operating

The user presses the trunk group key and receives a dial tone. The trunk number is displayed. If all trunks in the trunk group are busy, the corresponding LED will be lit. The LED also lights even if the trunk group has overflowed to another trunk group.

The user can put the call on Consultation Hold, transfer the call, place it in a Park location, or put it on station hold.

The trunk can be placed on hold. However, the user must use the *Retrieve Line* feature. When the user presses the *Hold* key, the display shows which line is being held; for example, *Held on line: xyz*. To retrieve the held call, the user must be in an idle state. The user presses the *Program/Service* key, scrolls to and selects *Retrieve Line* followed by the line number *xyz*.

Alternatively, the user can dial the default access code **63* followed by the held line number; the user is reconnected to the held party. A Feature key can also be programmed on a user's telephone to retrieve a held line.

The recall timer used is *Time for parking and change to hold*. The default value is 180 seconds.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Trunk groups	16 trunk groups with up to 72 B channels per trunk group	16 trunk groups, 64 B channels	8 trunk groups with max. all B channels per trunk group	4 trunk groups with max. all B channels per trunk group	
No. of trunk group keys on optiset E or optiPoint 500	6	6	6	4	4

Requirements and Conditions

Subject	Requirement or Condition
Analog trunks	You must physically disconnect analog trunks from the trunk group.
optiset E or optiPoint 500, trunk group key	You can program up to 6 or 4 trunk group keys on an optiset E or optiPoint 500 telephone. If all trunks in a trunk group are busy, its trunk group key lights up.
Overflow	If a trunk group is busy and overflow for this trunk group is entered in the system, the system continues searching in the overflow trunk group. If all trunks in this trunk group are also busy, no second overflow operation is performed.
Prime Line on (automatic line seizure)	With prime line, trunks can be programmed in other trunk groups. You cannot define an overflow from trunk group 1 to another trunk group.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Assign trunk groups**
2.	17-11 => Networking - Prime Line
3.	17-12 => Networking - Assign trk group
4.	17-13 => Networking - Overflow trk grp

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Assign trunk groups** Options
2.	Lines/networking
3.	Lines + Routes + Routing parameters

7.5.4 Trunk Keys

Definition

On optiset E or optiPoint 500 telephones, users can program trunk keys by B channel. This enables them to answer a call or seize a trunk by pressing the trunk key. The LED signals the trunk status.

LED	Meaning
Off	Trunk is free
Continuously lit	Trunk is busy
Flickering	Incoming call or recall
Flashing slowly	Trunk is on hold
Flashing rapidly	Call waiting mode; call is at own station

Users can use the trunk keys for the following features:

- Call pickup
- Retrieve trunk on exclusive hold
- Retrieve trunk on common hold
- Answer calls
- Toggle between several different trunks

A *Trunk* key is used for receiving incoming trunk calls and placing outgoing calls on the selected trunks. A *Trunk* key represents an analog CO trunk appearance, a BRI link appearance, a T1 DS0 channel, or an analog E&M Tie line channel.

A Trunk key can not be programmed on the same station that is using Call Keys to manage the trunk group associated with the trunk appearance.

A *Trunk* key can appear on more than one station. All stations with the appearance of the *Trunk* key can also ring on an incoming call, if they are programmed in a Call Group, otherwise they only have LED signalization.

A user can place a trunk appearance on Common Hold by pressing the *Hold* key and going on-hook. The trunk appearance will flash slowly at all other appearances of the *Trunk* key.

Calls placed on *Trunk* keys are subject to COS toll restriction levels and rules.

Trunk keys can be used in a Centrex environment. The system can cut through immediately to the Centrex CO to allow the user to hear if special tones, indicating Message Waiting. In this case, Dial Tone Detection must be turned off because the special CO tones are not recognized by the HiPath 3000 as dial tone.

Feature Interaction:

- **Call pickup:** An incoming call ringing on a *Trunk* key can be picked from another station via the feature Call Pickup - Group or via Call Pickup - Directed.
- **Retrieve trunk on exclusive hold:** A *Trunk* key is placed on exclusive hold at the station which put it on Hold by pressing another flashing *Trunk* key which results in a Toggle operation. To retrieve the held trunk, the user needs only to press the flashing key.
- **Retrieve trunk on common hold:** Another user with the appearance of the same *Trunk* key, can retrieve a trunk call on Common Hold (Appearance flashing slowly) by pressing the flashing key.
- **Answer calls:** Any user with the appearance of the trunk can answer an incoming call on the *Trunk* key by pressing the flickering *Trunk* key.
- **Toggle between several different trunks:** If a user has an appearance of several *Trunk* keys on his or her telephone, the user can toggle between any of the trunks by pressing the desired *Trunk* key. The first trunk is placed on Consultation Hold at the station. Any subsequent depression of another Trunk key places the last call on Consultation Hold at that telephone. If the user goes on-hook at any point, the last held party is immediately recalled per the Consultation Hold procedure.
- **Call Forwarding:** An incoming call appearing on a *Trunk* key can be forwarded by the station to another destination. If the forward destination does not have an appearance of the trunk, the user can handle the call via the dialog keys as a normal incoming call. If the forward station answers the call, the LED on all appearances of the *Trunk* key will be steadily lit.

  If the station has forwarded the external calls to a voice mail system, the original destination's station number is forwarded to the voice mail system.

Operating

If the default station templates are in effect, this feature can only be used on display telephones.

- **Placing a call:** The user presses an idle *Trunk* key. Simulated dial tone can be presented to the user until the trunk cuts through (See Routing Parameters -> Analog Trunk Seizure delay).

- **Receiving a call:** An incoming call is signalled audibly and visually at the station. The display shows the trunk group name. If Caller ID is available, the user display indicates the calling party's Caller ID number. Calling party name is not available. The user presses the flickering key to answer the call.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	x	x	x	x	x
HW requirements	$U_{P0/E}$ telephone				
SW requirements	V1.0 or later				

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure trunk key** *91 => Access key programming.
2.	Press the key to be assigned.
3.	Assign *Trunk key* to the key selected.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure trunk key** Options
2.	Set up station
3.	Key programming

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Program the trunk key.
2.	Press the trunk key.
3.	You can place an outgoing call if a trunk is available.

7.5.5 Call Keys

Definition

Users can program up to 10 call keys (together with multiple subscriber numbers outside of the U.S. and MUSAP keys in the U.S.) on an optiset E or optiPoint 500 telephone. These keys are used for incoming and outgoing calls. The call keys are assigned to trunks virtually; that is, the trunks are not permanently assigned to a specific key (like trunk group keys). When performing an outgoing external seizure, users press a call key to seize a trunk group. When users connect without a call key, an available call key is automatically seized, depending on the trunk group. With incoming calls, an available call key corresponding to the trunk group is also assigned.

The call keys should be viewed as temporary trunk keys that allow quick access to the following features:

- Answering and signaling calls and recalls
- Toggle
- Cancel consultation hold
- Pickup

Operating

If the default station templates are in effect, this feature can only be used on display telephones.

- **Answering and signaling initial calls and recalls:** The *Call* key can also operate as a *Loop* key. That is, a user can have two or more *Call* keys on his or her telephone representing the same trunks. The first incoming call will be presented to the first idle *Call* key; the second call to the next idle *Call* key, and so on. The call can be transferred using the Consultation Hold function using a feature button or with the dialog keys. Unanswered calls or unretrieved parked calls recall the station on the *Call* key and can be answered again on the *Call* key (Common hold: still assigned to that *Call* key).
- **Toggle:** If a user has an appearance of several *Trunk* keys on his or her telephone, the user can toggle between any of the *Call* keys by pressing the desired *Call* key. The first trunk is placed on Consultation Hold at the station. Any subsequent depression of another *Call* key places the last call on Consultation Hold at that telephone. If the user goes on-hook at any point, the last held party immediately recalls per the Consultation Hold procedure.
- **Pickup:** An incoming call ringing on a *Call* key can be picked up from another station via the feature Call Pickup - Group or via Call Pickup - Directed.

  Conversely, if a user with a *Call* key on the telephone, picks a trunk call from another station, the trunk appears on the *Call* key.

- **Placing a call:** The user presses a *Call* key. The user is presented with simulated dial tone if LCR is in effect or, if not, CO dial tone.
- **Receiving a call:** An incoming call is signalled audibly and visually at the station. The display will show the Trunk group name. If Caller ID is available, the user display will indicate the calling party's Caller ID number. Calling party name is not available. The user presses the flickering key to answer the call. The LED of the *Call* key remains lit.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Digital telephone				
SW requirements	V1.0 or later				
Max. no. of call keys per optiset E or optiPoint 500 telephone	10	10	10	10	10

Requirements and Conditions

Subject	Requirement or Condition
Trunk groups, busy state	The busy state is not displayed for the entire trunk group.
Unscreened transfer, recall	The call key is reassigned if the internal destination is not reached following unscreened transfer and a recall occurs.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure call key** *91 => Access key programming.
2.	Press the key to be assigned.
3.	Assign *Call key* to the key selected.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure call key** Options
2.	Set up station
3.	Key programming

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Program a call key.
2.	The call key starts flashing when an incoming call arrives.

7.5.6 Transit Traffic

Definition

Transit traffic refers to external voice calls that are handled by the telephone system in the incoming and outgoing directions. External connections can be set up to either the central office or to a networked system.

It is possible to handle transit traffic both manually and automatically over digital trunks and analog lines with a backward release criterion. Transit traffic can also be processed on analog trunks without a backward release criterion (loop start) by using timeout control followed by automatic release (maximum time is 42 minutes). Transit traffic is needed in the following situations:

- Networked systems
- Trunk-to-trunk connections (including DISA)
- Transition from a private network to the public network and vice versa

Transit traffic is used in conjunction with the following features:

- Call forwarding
- Transfer
- Callback (CorNet-N and QSig networks; if supported on the trunk side, transit traffic can be used externally as well)
- Message waiting for central voice mail servers in CorNet-N and QSig (not for U.S.) networks.

External access from a remote node is not possible over HiPath 3550 or HiPath 3500 BRI trunks. Such calls are intercepted to the HiPath 3550 or HiPath 3500 intercept position.

Definition of Features Associated with Transit Traffic

- **Call forwarding:** A trunk-to-trunk connection is possible using Call Forwarding - No Answer (only with a pseudo port) or Call Forwarding (CF) to an external destination. Care should be taken concerning the release capability of the trunks. Using LCR, an incoming call can also be forwarded (CF or CNA) to a CorNet-N link to a station in the remote node, to the Attendant in the remote node, to a voice mail system in the remote node, or rerouted to an external destination by the remote node. When calls from a HiPath 3000 are routed through a CorNet-N link to internal and external destinations, the CorNet-N channels must be split between these functions. In the case of a transfer to a remote voice mail system, the HiPath 3000 sends the originally called destination's station number to the voice mail to activate the proper answer message.

Always refer to the latest CorNet-N Configuration Note or the CorNet-N Sales Positioning Guide for the latest information.

- **Transfer:** It is possible for the user to transfer calls (screened and un-screened) to an external destination or to a remote node, via a CorNet-N link.
  The transfer can also be initiated by a voice mail call processing feature or by an IVR which automatically transfers, unscreened, a call to an external or CorNet-N destination.
- **Callback:** If Callback was activated by the user to a CorNet-N user in a remote node (a closed numbering scheme is required to activate this feature), the Callback will be activated the same as an internal Callback activation. (This feature is not available with connections to a ROLM 9005.)
- **Message waiting for central voice mail servers in CorNet-N networks:** Message Waiting notification is possible from a remote voice mail system connected via CorNet-N links. In the case of PhoneMail, the SW version must be 6.3 or higher.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	S_0/S_{2M} board		TLA board	–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
Loop-start trunks (loop-start/ground-start in U.S)	Loop-start trunks are automatically released after a programmable period (default: 310 seconds. A tone sounds 10 seconds before release). The time parameters only can be changed by using HiPath 3000 Manager E.

Configuration Options

This feature can be configured using HiPath 3000 Manager E.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure transit traffic** Options
2.	System parameters
3.	System flags

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Activate external call forwarding on an authorized telephone.
2.	Call the station using the CO station number.
3.	The call arrives at the external destination number.

7.5.7 Translate Station Numbers to Names for System Speed Dialing

Definition

With system speed-dialing calls, the name of the destination programmed in the system speed-dialing facility is displayed after outgoing dialing instead of the speed-dialing number. If the station number of an incoming call corresponds to a station number in system speed dialing, the name of the caller appears on the display.

This feature only applies to systems with ISDN trunk connections or with Analog Caller ID on the HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300.

The HiPath 3000 filters out the access code in the System Speed Dial table; however, the rest of the number must be an exact match to the incoming number for this feature to function.

Programming Hints

1. If using Assistant T, always enter the speed-dial number first, then enter the corresponding name. Assistant T does not allow a name to be entered for a specific index unless a number has been previously entered. Names can only be entered using the memory telephone or HiPath 3000 Manager E.
2. Assistant T and HiPath 3000 Manager E both check the first digit(s) of the speed-dial number you are programming against the default or current digits used in your database for external access codes. For example: entering the speed-dial number 71 510 555 1212, may be disallowed if the numbers 7 or 71 or 715 are not CO access codes.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Number of speed-dialing numbers	1000	1000	300	300	300

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Speed-dialing destinations**
2.	12-1 => System speed dial - Speed dial number
3.	**Speed-dialing names**
4.	12-2 => System speed dial - Speed dial name

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure speed dialing** Options
2.	System parameters
3.	System speed dialing

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up a call using system speed dialing.
2.	The name of the destination appears on the display.

7.5.8 Message Waiting Indication (MWI) at the Trunk Interface (V3.0 and later)

Definition

You can use this function only if the public exchange supports it.

You can activate and delete the “Mailbox key”.

This function supports sending (service menu or code) from the idle, ringing, busy, and talk states and supports the receiving of messages.

On the receiver side, telephones with a display show the message “Please call back”.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	digital trunk connection				
SW requirements	V3.0 SMR-3 and later				

Configuration Options

This feature does not have to be explicitly configured.

7.6 Features for Incoming External Traffic

7.6.1 Call Allocation

Definition

Within call management, two call allocation tables are provided for incoming calls on analog or digital trunks. One of these tables is evaluated for day service and the other for night service. These tables define the station to which a call should be forwarded. This feature can also be used to assign a trunk to a specific station.

The Ringing Assignments screen in HiPath 3000 Manager E is used to determine which stations (or groups) are assigned to each of the system trunks. Each port is assigned a call number in the Stations/Groups: Line Assignments table. This call number can be the internal call number of an active or an inactive station or group. Different call numbers can be assigned for day and for night. The call number in this table tells the system that when a call comes in through that port, it should be signaled, not at this station, but according to the Call Destination List for this station.

Refer to Section 7.3.4, Call Management (CM) for details.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
DTMF DID	An analog call may be released before call forwarding—no answer is completed. This is due to the permanent timers that prevent trunks from becoming frozen.
Call allocation table	A number of calls can be waiting simultaneously at the stations entered in the call allocation tables.
Intercept	Calls are intercepted if they cannot be switched because there are no available stations.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure call allocation**
2.	16-16 => Incoming calls - Call alloc. day
3.	16-17 => Incoming calls - Call alloc. night
4.	16-18 => Incoming calls - Call FWD - no ans

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure call allocation** Options
2.	Incoming calls
3.	Ringing assignment per line

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	In the case of analog trunks, assign the trunk to one station in call management.
2.	Call the analog trunk via the central office. The station entered in call management rings.

7.6.2 Group Ringing

Definition

Users can administer a personal list of internal station numbers that are also called when their stations are signaled.

In this list, users can also enter their own station numbers. They might do this, for example, if a station number is permanently routed to another station (executive/secretary).

This feature is available to all types of telephones.

A feature button can be programmed on the optiset E or optiPoint 500 telephones to activate/deactivate the feature. More than one *Group Ringing* button can be programmed on one telephone to allow for different variations. More than one button can be activated at one time, however, the maximum number telephones to ring cannot exceed five.

The *Forwarding* screen is one of three screens in the *System Status* pathway in HiPath 3000 Manager E that provides station-specific (rather than system-specific) status information. You can use the Call Forwarding screen to see if a station has a Ring Group activated or if it is part of a Ring Group.

This feature can be activated/deactivated via a DISA connection by its own station user or for another user with the aid of the feature Associated Services.

Group Ringing can be invoked during a conversation by following the above procedure using the *Program/Service* key.

If the feature is used frequently, the user can place the feature on a vacant button on the telephone. The feature button name is *Ringing Group On* in the button menu. When the feature is active, the LED is lit.

The station flag “no group ringing on busy” determines which stations in a call ringing group receive a call when the primary telephone (the one activating the feature) is busy, and which ones do not.
If the same station or smartset is in the ringing group of more than one master telephone, the flag applies to all calls signaled at this station or smartset.

If the flag is not set, group ringing always takes place, provided that the station in the call ringing group is available (default).

If the flag is set, group ringing depends on the availability of the primary telephone:

- If the primary telephone is available, group ringing takes place immediately
- If the primary telephone has activated call waiting, group ringing takes place after a 5-second delay.

- If the primary telephone cannot receive a call, or if call waiting is inactive, call ringing does not take place.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Recall System search Callback	Group ringing is not carried out with an immediate recall (operator error), system search, or callback.
Call forwarding (CF)	If the station that activated group ringing has also activated call forwarding, group ringing is not carried out.
Do not disturb (DND)	If the station in the call ringing group has activated DND, group ringing is not carried out at that station.
Appointment	An active timed reminder does not follow group ringing.
No group ringing when busy	If the flag is set, no group ringing will take place if the station is busy.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Activate group ringing on an internal station (*81 + station number).
2.	Place a call to this station.
3.	The station in the call ringing group also rings.

7.6.3 Night Answer

Definition

Night answer forwards all calls that reach the attendant console to a predefined destination. Users can define either an individual station or a group as a destination. Users can also use a central bell in conjunction with night answer to alert any personnel (night shift) to night calls.

HiPath 3000 distinguishes between day service, fixed night answer, and variable night answer.

In the case of day service and fixed night answer, incoming external calls follow the tables and call destination lists entered in CM for day service and night answer, regardless of the station type.

With variable night answer to a voice station, calls follow the call destination lists for fixed night answer and are then intercepted by the variable night station. All other call destinations for fixed night answer are considered to be invalid and are replaced by the variable night station. As a result, the system behaves in every respect in the same way as it would for call forwarding to a night destination.

A list for night answer controls external DID calls. This method is also known as assigned night answer because it enables users to assign different night destinations to individual lines.

Night Service

The Night Service function defines how calls are handled when the system is placed in night service mode.

The maximum number of stations that can be authorized to place the system into night service is five. The list can be changed via HiPath 3000 Manager E (*Authorized Station for Night Service* list).

An Intercept station can also be defined for Night Service. This station does not need to be the same station called during Night Service. This intercept position can be an individual station or a group. Separate intercept positions can be entered for day calls and for night calls. The Night Intercept position will intercept the same type of calls as the Day Intercept position. The Day Intercept position can be programmed to intercept any or all of the following types of calls:

- no answer
- busy
- wrong number
- incomplete
- recall

System Administration assigns which trunks ring into which station (See Call Management) in Day mode and in Night mode. When the system is switched to night service, the system checks against the *Call Allocation - Night* list in Assistant T (*Ringing Line Assignments* list in HiPath 3000 Manager E) to see where to send the incoming call. The destinations can be either an individual station or a group.

Users can also use a central bell in conjunction with Night answer to alert any personnel (night shift) to night calls. In Call Management, an additional station can be called by means of the *Additional call number* entry shown as *Second Target* in *Call Destination Lists* in HiPath 3000 Manager E. This entry supports the *common ringer* function. An actuator (relay) or an additional extension at which a call is also to be signaled is entered here. The last field *Type* defines when ringing assignment takes place (immediate or after CF timeout).

The night bell (instead of a telephone) may be physically connected to the station interface, in which case, the night bell can be answered by dialing the station number or by call Pick up, if so configured.

An external night bell adapter may be required to prevent excessive current from damaging the station interface.

A Night answer station can be any type of telephone, providing their COS allows, at minimum, for incoming calls.

When in Night mode, all stations use the Night COS table. The table, similar to the Day COS table, also has 15 classes to choose from. (Refer to Section 7.7.10, Configurable Toll Restriction for details).

A variable night station (universal night answer position) can be specified. The variable night station can be configured by any of the stations authorized to place the system in Night Service mode.

This feature can be activated/deactivated via a DISA connection by the station user.

If the feature is used frequently, the user can place the feature on a vacant button on the telephone. The feature button name is *Night answer on* in the button menu. During programming of the button, it can be configured to activate the default destination(s) or a variable destination. The variable destination can still be overwritten by the access code. In either case, the LED on the key remains lit.

Night Service Security

To prevent unauthorized deactivation of Night Service (returning the system to its normal day COS toll Restriction scheme), the authorized user can activate Individual Telephone Lock at the telephone (*66+PIN).

If there are several authorized stations, they must all activate Telephone Lock to ensure security.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Call forwarding	Calls follow call forwarding if activated on the night station.
Night station	An intercom only phone cannot be entered as a night station.
Lines	Variable night answer makes no distinction between the individual trunks; that is, calls on all trunks reach the night station.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure night answer/call allocation**
2.	16-17 => Incoming calls - Call alloc. night
3.	**Configure authorized station**
4.	22-19-1=> System settings - Access - Night answer
5.	**Configure intercept position, night**
6.	16-13 => Incoming calls - Intercept, night

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure night answer/call allocation** Options
2.	Incoming calls
3.	Ringing assignment per line
4.	**Configure authorized station** Options
5.	Classes of service
6.	Stations
7.	Authorized station for night service
8.	**Configure intercept position, night** Options
9.	System parameters
10.	Diversion criteria

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Activate night answer.
2.	Dial the system number via the central office.
3.	The call arrives at the night station.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.6.4 Direct Inward Dialing

Definition

With direct inward dialing (DID), an incoming call can reach a station without intervention by the attendant console.

This feature is handled in call management. The internal and external numbering systems are defined in the numbering plan.

Public Networks require that DID calls to a station that is out of service, or is otherwise unreachable (for example, do not disturb) must be intercepted to a station, an answering position, or to an announcement device. It is therefore necessary to program intercept destinations for DID stations.

In HiPath 3000 Manager E and Assistant T, the DID number corresponding to an internal call number can up to 11 digits in length.

For an incoming call on an ISDN PRI line, the PBX number is blanked out to the left of the incoming call number. The remaining portion of the call number is interpreted by the system as a DID number.

DID calls can appear on *MUSAP* keys. Refer to Section 7.6.5, Selective Seizure of a DID Number Using a MUSAP Key.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Outside of U.S.: S_0 trunk board				
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Entrance telephone, MOH, room monitor, speaker telephone type	These stations cannot be reached from the outside by direct inward dialing.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Enter DID numbers**
2.	16-11 => Incoming calls - DID numbers
3.	**Enter intercept criteria**
4.	16-12 => Incoming calls - Intercept, day
5.	16-13 => Incoming calls - Intercept, night
6.	16-14 => Incoming calls - Intercept mode
7.	**Enter system number**
8.	20-2 => ISDN parameters - System stn number

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Enter DID numbers** Options
2.	Set up station
3.	Stations
4.	**Enter system number** Options
5.	Lines/networking
6.	Routes
7.	**Enter intercept criteria** Options
8.	System parameters
9.	Diversion criteria

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Place a DID call to a user via the central office.
2.	The dialed user answers the call (talk state).
3.	Terminate the call.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.6.5 Selective Seizure of a DID Number Using a MUSAP Key

Definition

For users to seize one of the system DID numbers for outgoing calls, they must either use a procedure or configure a multiple station appearance (MUSAP) key. This key is assigned a DID number in the system. However, pressing this key is not sufficient for seizure. The trunk group, trunk, or Prime Line must be suffix-dialed for seizure to occur.

For incoming calls, the MUSAP key functions as a call key. The LED is activated in the same way as for trunk keys, call keys, or DSS keys, depending on the status of the trunk key to which it is connected. Features such as toggle and consultation hold are possible.

For outgoing calls, the MUSAP key functions as a call key after the external seizure is completed.

A MUSAP key is used as a target location for incoming DID calls from the public network. The key can also be used as a target for incoming calls from a CorNet-N location. If the station is assigned a MUSAP key, the DID number associated with the key is sent to the ISDN Public Network on BRI and PRI outgoing calls.

Up to 10 MUSAP keys can be programmed on the same station to support rollover buttons for additional calls to the same DID number. A maximum of 10 MUSAP and/or Call Keys can be programmed on an optiset E and optiPoint 500.

The MUSAP key can be installed by the user on the telephone through the following procedure:

- *91 to program key
- select the key which will be the MUSAP key
- scroll to the button called *Assign stn. no*
- Enter the 3-digit call number corresponding to the DID number

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Digital trunk board			–	–
SW requirements	V1.0 or later				
Max. no. of MUSAP keys per telephone	10	10	10	10	10

Requirements and Conditions

Subject	Requirement or Condition
MUSAP	MUSAP keys do not seize trunk groups directly. After you press the key, you must dial the trunk group separately.

Configuration Options

This feature does not have to be explicitly configured.
The MUSAP key can be configured using Assistant T or HiPath 3000 Manager E.

Configuring a MUSAP Key Using Assistant T

Configure a MUSAP key using Assistant T as follows:

Step	Action
1.	*91 => Access key programming.
2.	Press the key to be assigned.
3.	Assign *Assign stn. no.* to the key selected.

Configuring a MUSAP Key Using HiPath 3000 Manager E

Configure a MUSAP key using HiPath 3000 Manager E as follows:

Step	Action
1.	Options
2.	Set up station
3.	Key programming
4.	Assign station number.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Use a procedure to assign a station number.
2.	Place an outgoing call. This number is transmitted in the outgoing direction.

7.6.6 Signaling of Direct Inward Dialing Numbers for Incoming Calls

Definition

When an internal station receives an external call, the direct inward dialing (DID) number that the caller originally dialed is displayed. A variety of acoustic signaling methods are also available to signal the call. The LED assigned to the appropriate MUSAP key (see Section 7.6.5) also signals the call.

Three different types of acoustic signaling are possible depending on the telephone. Refer to Section 7.3.2.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	$U_{P0/E}$ station or analog station				
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Signaling	Not for S_0 stations (not for U.S.).

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Set up call signaling (for station and groups).**
2.	16-19 => Incoming calls - call signaling

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Set up call signaling (for station and groups)**. Options
2.	Set up station.
3.	Station
4.	Double-click parameters of the station.
5.	Flags: call signaling
6.	**Change ring cadences throughout the system.** Options
7.	System parameters
8.	Tones/ring types

7.6.7 Direct Inward System Access (DISA)

Definition

Direct inward system access (DISA) enables users to use features in the HiPath 3000 system via an external connection. External callers must enter a password to gain access to the system. They can then use certain system features just like an internal user. They can also set up an outgoing external seizure via the incoming external connection.

Users can use the following features via DISA:

- Direct services for internal stations:
  Send message texts, relay on/off, night answer on/off, advisory message on/off, group ringing on/off, telephone lock on/off, do not disturb on/off, call forwarding on/off, leave/join hunt group, reset services.
- Associated services:
  Advisory message on/off, group ringing on/off, telephone lock on/off, do not disturb on/off, call forwarding on/off, leave/join hunt group, reset services.

An internal station can also be reached via DISA. In the case of a fixed numbering plan (such as in France), virtual networking is also possible.

The DISA access line can be configured as dedicated, or it can be accessed during day or night operation; these parameters are set in the General Flags of *Lines/Networking/Parameters* tabs in HiPath 3000 Manager E; in the *DISA day/night* field, code receiver (CR) parameters can be configured for each line.

One of the following options may be selected:

- Line always has CR connected
- Line has CR connected during day only
- Line has CR connected during night only
- Line has no CR connection

The DISA trunk is released at the completion of each function/feature. The user must reenter the system if another function needs to be accomplished.

The stations authorized to access the system via DISA must first be configured in System Administration. Refer to Configuring the Feature Using Assistant T on page 7-205 or Configuring the Feature Using HiPath 3000 Manager E on page 7-206.

A DISA trunk can be a DID number or a LS/GS trunk. If the DISA trunk is a DID number, this number is programmed in *System parameters*. The field allows up to 12 digits. If the trunk is LS/GS, the trunk is programmed in the Ringing Assignments.

A password is required to log onto the system. This password consists of the internal station call number and the Telephone Code lock PIN. Entry of the password is only acknowledged after a timeout or entry of the end symbol #. This selection is system-wide and is done in the System Parameters.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Analog trunk Night answer	Analog trunks can be programmed for DISA access. They can be used as normal analog trunks during the day and then switched over to DISA mode when the night answer function is activated.
Call data output	DISA calls are specially marked in call data output.
System speed dialing	The system speed-dialing memory can be used via DISA.
Trunk	The trunk is released each time you activate the service.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Enter DISA authorization**
2.	14-15 => Configure station - DISA
3.	**Configure DISA**
4.	34 -1 => DISA - Day, night
5.	34 -2 => DISA - DID number
6.	34 -3 => DISA - End-of-dialing criterion

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Enter DISA authorization** Options
2.	Set up station
3.	Station
4.	Parameter
5.	Flags
6.	**Configure DISA** Options
7.	System parameters
8.	System settings

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure DISA.
2.	Call DISA number by DID.
3.	Activate call forwarding for a station by means of a DISA procedure.
4.	Call forwarding is activated for this station.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

The calling station must be a DTMF device.

The external station dials the trunk directory number or DID number. The system automatically answers and returns a continuous tone. The external caller dials his or her internal station number followed by the Telephone Lock PIN number. Depending on the system parameter programmed in the system, the user dials the pound symbol (#) or waits to be automatically connected. The user dials the access codes for the function he or she wants to perform, or dials the external CO access code to seize an outgoing trunk.

If the PIN number is incorrect, the trunk is released.

7.6.8 Intercept Conditions

Definition

Intercept forwards incoming calls to another destination. A call is intercepted if the original destination is invalid or if limitations exist.

Users can specify the following as intercept destinations:

- PC AC
- Station
- Hunt group
- Announcement (external announcement device)

If an intercept position or AC is configured in the system, calls are routed to this intercept position during an intercept. If an intercept position has not been configured, intercepted calls are signaled at the station that has a call assignment for the intercepted trunk.

During intercepts, call management is entered using the intercept station as the basis. If the intercept position cannot be reached, the call is signaled at a night bell, if entered, or the call waits in a queue at the intercept position.

Users can activate the intercept feature under the following conditions:

- **Intercept no answer**

  If there is no answer, the call follows the entries in call management. If the end of the CM elements is reached, the system determines whether or not an intercept after timeout should occur. If the system cannot find a station to which it can route the call, the call is intercepted.

- **Intercept busy, if no additional forwarding is possible.**

  If a station is busy, the system determines whether or not call waiting is possible.

  If call waiting is not possible (signaling security or intercept criterion), the call follows the entries in call management. If the call cannot be signaled at any station, the system determines whether the call should be intercepted or released.

  In general, intercept busy only applies to the first call, not to switched or outgoing connections. A recall of an external station is not immediately intercepted when the destination station is busy; instead, call waiting is activated.

- **Intercept if incomplete or invalid number dialed**

  When an incorrect station number was dialed, the system determines whether the call should be intercepted or released. Calls are always intercepted with pseudo-DID.

- **Intercept if no number dialed**

  If no station number is dialed within a timeout, the system determines whether the call should be intercepted or released. If an intercept position has not been configured, the interception follows the call assignment per trunk.

- **Intercept with Serial FWD**

  It is not possible to chain calls for forwarding; an attempt to initiate this procedure is rejected on activation. For example, if a station has activated external call forwarding and the call destination has also forwarded its calls, you have a chained calls situation. This is not allowed by the system. If this flag is turned on, these calls are intercepted.

- **Codelock Diversion**

  If the telephone lock for a station is active, and a trunk group code is dialed from that station, the call is immediately forwarded to the intercept destination. The Codelock Diversion function is set individually for each station through the *Flags* screen in the *Set up Station* Parameters.

One intercept position can be configured for Day operation. During Night Service, the same destination or a different destination can be configured as the intercept position.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Hunt group	Intercepts cannot extend beyond a hunt group; the call is forwarded to the first hunt group station and always remains in the hunt group.
Release	Calls with the service ID *data service* (ISDN message) are released, not intercepted.
Incomplete dialing	Not evaluated in the case of a central intercept position.
Tenant service	When a tenant service is configured (see Section 8.48, Tenant Services (Not for U.S.) or Section 8.49, Tenant Services (for U.S. Only)), users can only configure intercepts on a cross-system basis. This means that intercept no answer (for example) applies to all system users.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure intercept**
2.	16-12 => Incoming calls - Intercept, day
3.	16-13 => Incoming calls - Intercept, night
4.	16-14 => Incoming calls - Intercept mode

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure intercept** Options
2.	System parameters
3.	Diversion criteria

Testing the Feature

Check the feature for error-free functioning as follows:

- **Intercept no answer**

Step	Action
1.	Seize the trunk and call any station in the system using DID.
2.	The called station is switched to the intercept position or the call forwarding station in accordance with the ring cycle.

- **Intercept busy**

Step	Action
1.	Set up an external or internal call from a station.
2.	Use DID to attempt to reach this station via the trunk.
3.	The call is either signaled at the intercept position or forwarded as entered in CM.

- **Intercept if incomplete or invalid number dialed**

Step	Action
1.	Seize the trunk and use DID to dial any station in the system with an incomplete station number (for instance, omit the third digit in the DID number).
2.	The call is routed to the intercept position.
3.	Seize the trunk and dial a DID number that does not exist in the system.
4.	The call is routed to the intercept position.

- **Intercept if no number dialed**

Step	Action
1.	Seize the trunk and dial the system station number without a DID number.
2.	After a timeout, the call is intercepted or released.

7.6.9 Dual-Tone Multifrequency Direct Inward Dialing

Definition

This feature enables users to use direct inward dialing (DID) on non-DID trunks such as analog trunks. This type of pseudo-DID is achieved by suffix-dialing dual-tone multifrequency (DTMF) digits.

External calls that reach the system via this feature are released after a timeout if they are not answered. This prevents analog trunks from freezing up. The timer R*elease if no dialing* is activated when the trunk answers. Default time is 10 seconds.

An announcement lets callers know that they can use DID. A customized announcement is available in the system. This feature requires an external announcement device.

The LS/GS trunk must be flagged as *DTMF DID* for proper operation. Refer to Configuring the Feature Using Assistant T on page 7-213 or Configuring the Feature Using HiPath 3000 Manager E on page 7-214.

Operating

The user calls the trunk number flagged as *DTMF DID*. The system answers. No tone is presented to the user. The user dials the station number and is connected. If the call is not answered within 60 seconds (not variable) the trunk is automatically released.

If a recorded announcement has been configured for callers, the caller can be presented with an audio message and can start dialing. During the announcement a Code Receiver is on line to detect dialing.

The announcement device is connected to an analog port and must be able to present an open loop to the system at the end of the message.

Refer also to Section 7.6.10, Announcement Before Answering.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	Analog trunk board			–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
DTMF DID	If the incoming call is not answered within 60 seconds, the trunk is released.
Intercept	The trunk is released 30 seconds after the call is intercepted.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure DTMF DID**
2.	16-20 => Incoming calls - Analog DID

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure DTMF DID** Options
2.	Trunks/networking
3.	Double-click on trunk parameters
4.	Analog trunk flags
5.	Click on DTMF DID

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Seize the trunk and dial the analog trunk.
2.	Suffix-dial the DID number.
3.	The DID station rings.

7.6.10 Announcement Before Answering

Definition

This feature plays an announcement for external callers from an optional external announcement device. This applies to both analog and digital trunks.

The announcement can be played either parallel to ringing or only if the call is placed in the announcement device queue. The announcement begins after a programmable period and can be heard by several callers simultaneously.

Users can configure an announcement before answering to relieve an intercept station. For this purpose, users connect an announcement device, which is capable of answering an incoming call and forwarding it to a specific station. This feature is configured with call management.

Users must configure the subscriber ports that connect to announcement devices as answering machines. If the announcement device is connected to an analog port and it must be able to present an open loop to the system at the end of the message.

The UCD feature can also be used to start the announcement only after a programmable period. The announcement can be heard by several callers simultaneously.

The feature can be used to present callers with a company message before being answered, for example, by the Attendant or by a group.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	TIEL or anlaog port	Analog port			
SW requirements	V1.0 or later				
No. of callers who can hear an announcement simultaneously	30	30	30	30	30

Requirements and Conditions

Subject	Requirement or Condition
Group/station	If the announcement port is entered as a call forwarding—no answer destination, the appropriate announcement is played if the group or station is busy. The call is then forwarded to the next station or the programmed intercept criteria apply.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure announcement before answering**
2.	25-1 => Announcement device - Announcement device
3.	25-2 => Announcement device - Announcement type
4.	25-3 => Announcement device - Ann. before answer

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure announcement before answering** Options
2.	Connections
3.	Announcement equipment

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure announcement before answering.
2.	Dial the system from an external telephone.
3.	The announcement plays.

7.6.11 Collect Call Barring per Trunk (for Brazil Only)

Definition

This feature provides for automatic release of incoming collect calls; users can configure it individually for each analog trunk (loop start). If this feature is enabled for a trunk, the system opens the loop for 2 s (default value) one second (default value) after an incoming call is accepted. This ensures that collect calls are released in the network, while other calls continue unaffected.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**–**	**–**	**–**
HW requirements	Analog trunk (loop start)	Analog trunk (loop start)	–	–	–
SW requirements	V1.0 or later	V1.0 or later	–	–	–

Requirements and Conditions

Subject	Requirement or Condition
Collect call barring per trunk	Only available in Brazil. This setting is ignored in all other countries.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure collect call barring per trunk**
2.	16-21 => Incoming calls - Collect protection per CO line

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure collect call barring per trunk** Options
2.	Lines/networking
3.	Parameters
4.	Loop start flags

7.6.12 Collect Call Barring per Station

Definition

This features allows automatic release of incoming collect calls. Users can configure it separately for each station, even in combination with functions such as call forwarding, call pickup, or intercept.

Users can also program collect call barring system-wide. This applies if a caller dials a hunt group instead of an individual station or misdials a number.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**–**	**–**	**–**
HW requirements	TMAMF	TMAMF (HiPath 3550 only)	–	–	–
SW requirements	V1.0 or later	V1.2 or later	–	–	–

Requirements and Conditions

Subject	Requirement or Condition
Collect call barring per trunk	Neither the system-wide parameters for collect call barring nor the setting made for the stations affect trunk calls (analog trunks).
Collect call barring per trunk	Only for MFC R2 countries that offer this feature.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure collect call barring per station**
2.	14-31 => Configure station - Collect protection per station
3.	**Configure collect call barring system-wide**
4.	22-34-1 => System settings - MFC-R2 parameter - Collect protection

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure collect call barring per station** Options
2.	Set up station
3.	Set collect call barring per station
4.	**Configure collect call barring system-wide** System parameters
5.	Set collect call barring

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Place a collect call to a station in the system.
2.	Check whether the system releases the call automatically.

7.6.13 Analog Direct Inward Dialing via MFC-R2

Definition

An MFC-R2 trunk is an analog trunk interface for direct inward dialing that allows external callers to reach extensions directly without the assistance of an attendant.

The system supports MFC-R2 (SMFC) as the default setting, MFC-R2 with caller ID, tone dialing, and dial pulsing. It is not possible to use tone dialing and MFC-R2 (with or without caller ID) simultaneously.

To implement the CLIP feature (see Section 7.15.6) for incoming calls, you can enter the calling party number when MCF-R2 (SMFC) is active. When receiving calls for which the trunk supplies this information, the calling party's number appears on the screen of the called party's telephone.

This feature must be configured for each trunk (signaling method parameter set to MFC-R2 with caller ID).

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**–**	**–**	**–**
HW requirements	TMAMF	TMAMF (HiPath 3550 only)	–	–	–
SW requirements	V1.0 or later	V1.2 or later	–	–	–

Requirements and Conditions

Subject	Requirement or Condition
Analog direct inward dialing with MFC-R2	Available in Brazil, India, Malaysia, Singapore and ATEA countries only. The setting is ignored in all other countries. The ATEA countries listed below require country initialization with the international country code = 21. In addition, parameter PAR_05 (System status - System-wide - Boards: MFC/R2 table) must be set in HiPath 3000 Manager E expert mode. • Egypt = 05h (default) • Nigeria = 06h • Oman = 07h • Saudi Arabia = 08h • Syria = 09h • Tunesia = 0Ah • United Arab Emirates = 0Bh
Caller ID	Displayed exactly as received from the trunk. The system does not add any digits (such as trunk access codes or discriminating digits) or remove any digits (such as the local area code supplied by the central office). Likewise, the displayed station number cannot be redialed directly and does not appear in the caller list.
Caller ID	Not available in Singapore.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure analog direct inward dialing with MFC-R2**
2.	21-1 => Analog CO interface - Signaling method
3.	21-4 => Analog CO interface - Distance from CO
4.	22-34-2 => System settings - MFC-R2 parameter - DID number

If caller ID is active, remove the trunk group code so that it will not appear on the screen.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure analog direct inward dialing with MFC-R2** Options
2.	Lines/networking
3.	Double-click the trunk parameter
4.	Loop start flags
5.	Highlight the signaling method
6.	Highlight the distance from CO
7.	**Configure analog direct inward dialing with MFC-R2** System parameters
8.	Set the number of DID digits

Testing the Feature

Check the feature for proper functioning as follows:

Step	Action
1.	Receive an incoming call on the MFC-R2 trunk.
2.	Check whether direct inward dialing is functioning properly.

7.6.14 Centralized Attendant Service CAS (for U.S. only)

Definition

This feature allows for the conservation of T1 TIE line trunks when the attendant at a center PBX system answers a call that originated at the store PBX (branch) and who's destination extension is also at the store PBX. Without the CAS feature, this type of scenario would force the system to use 2 T1 channels for every call that was transferred back to the branch. CAS will conserve the T1 channels by releasing the T1 channel after the call is transferred so that no T1 channels are in use for the duration of the call after transfer.

The typical CAS application for a Federated store consists of the CAS store PBX (branch), the CAS center PBX (center) and a minimum of two tie lines that function as release link trunks RLT.

The typical RLT is a channel on a T1 card in the branch PBX that is mapped in a private network to a CAS center to be answered by a pool of operators.

A typical store (branch PBX) would have a T1 card with the first 8-12 channels mapped as tie trunks to one hub to carry standard tie line traffic. 2 or more of the remaining channels on the same T1 card are mapped as RLT's.

Example for an incoming call: A customer calls the branch PBX on the main DID number. The branch PBX then routes this DID call to a RLT. The RLT carries the call to the CAS center and the CAS operator answers the call. The operator finds out what our customer is calling for and then transfers the call to the appropriate extension in the branch PBX.

If all RLT's are busy then the call will que. The caller will hear a recording all operators are busy please hold. When a RLT becomes idle then the queued call hits the RLT.

The transfer process consists of:

1. The CAS center operator hits the „CAS flash" key after have talked to the customer and found out which extension number to transfer the call to.
2. The CAS center PBX transmits a „hook switch flash" over the RLT.
3. The branch PBX recognizes the „hook switch flash" and puts the DID trunk on hold and gives dial tone back to the CAS operator.
4. The CAS center operator dials the destination extension number.
5. The branch PBX receives the extension number and starts to ring the phone.
6. At this point the CAS center operator can
   - stay on the call and wait for answer and do a supervised transfer, or
   - release the call and let the transfer finish as unsupervised transfer.
7. When the CAS operator releases the call the RLT drops, the branch PBX finish's the transfer.

8. The DID trunk is directly connected to the destination extension.
9. The RLT is idle and ready for the next call.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	**x**	**x**	**–**	**–**	**–**
HW requirements	TMST1	TST1			
SW requirements	V1.0	V1.0	–	–	–

Requirements and Conditions

Subject	Requirement or Condition
CAS store PBX (branch)	HiPath 3000 supports the CAS store PBX (branch) of the application.
CAS center PBX (center)	Support for the CAS center PBX (center) of the application is supplied by another type of PABX (e. g. Rolm 9005 or a Lucent switch) that supports the center where the attendants are located in the application.

Configuration Options

This feature can be configured using HiPath 3000 Manager E.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure centralized attendant service for the CAS store PBX (branch)**
2.	System wide ...
3.	SW expansion: insert TMST1 Analog / TST1 Analog board(s)
4.	Card configuration
5.	T1 configuration: ports used for the TIE lines are set to trunks and ports used for the RLTs are set to stations.
6.	Card data: choose template TMST1 / TST1 Analog mod. (checkboxes SF/ESF and AMI/B8ZS must always be selected)

Step	Action
7.	Set up station ...
8.	Station: Param column: double-click this field for the relevant station (TMST1 / TST1) to display the "Parameter" mask. Choose operating mode template 21_OPS_RLT_short.
9.	**Configure hunt group**
10.	Incoming calls
11.	Groups/hunt group
12.	**Configure announcement**
13.	Auxiliary equipment ...
14.	Announcement

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Initiate an incoming call from the central office.
2.	The incoming call will ring into the linear hunt group. If the group is busy, the call is queued and an announcement is applied to the caller. If one of the ports gets idle the call is applied.
3.	The call will be directed to the centralized attendant position(s) without any dialing.
4.	Answer the call and press a trunk transfer key. Enter the call number for the destination station at the HiPath 3000 system. Supervised transfer or unsupervised transfer must be possible.
5.	The HiPath 3000 must receive, process and transfer the call to the destination.
6.	When the call is answered at the destination station, the T1 OPS DS0 channel and the associated T1 immediate Start RLT at the CAS center PBX will be returned to an idle state. Control of the call will be returned to the HiPath 3000 (CAS store PBX) as if the call was being transferred and released by a local analog station.

7.7 Features for Outgoing External Traffic

7.7.1 Last Number Redial (LNR)

Definition

Each time users place an outgoing call, the dialed number is stored. On optiset E or optiPoint 500 telephones with displays, the system stores the last three numbers dialed.

To retrieve a specific number and use it to set up another call, press the Redial key.

- Press the key once to dial the last number dialed.
- Press the key twice to dial the next-to-the-last number dialed.
- Press the key three times to dial the number that was stored the longest.

On optiset E or optiPoint 500 telephones without displays, the system stores only the last number dialed.

For V1.2 and later, the system also uses the last number redial memory to store account codes ACCT that were entered. This is true only if the appropriate system-wide flags are set.

Last Number Redial

This feature applies only to non-display optiset E or optiPoint 500 models; however, it uses the same feature key (Redial) as the *Expanded Redial* feature for display telephones.

Only external calls are saved. Every new outgoing call overwrites the previous number stored. This is also true if System or Station speed dial is used. When using LCR access, only the number dialed by the station is stored in the LNR memory.

A call to a user in a networked system over a CorNet-N link is stored in LNR memory; likewise, an external call routed via CorNet-N to a trunk in another node, is also stored.

This feature cannot be invoked if Telephone Lock has been activated.

Each time users place and dial an external destination, the number is stored. If the destination was busy or not reachable, users can press the redial key to redial the same number.

This feature can only be invoked from the *Redial* key. No feature access code is possible.

Expanded Redial

This feature applies only to display optiset E or optiPoint 500; however, it uses the same feature key (Redial) as the *Last Number Redial* feature for non-display telephones.

The system stores the last three external calls dialed by a display telephone. The expanded redial memory operates in a first-in-first-out (FIFO) manner; that is, the fourth external call number placed from that telephone is placed at the top of the redial table, and the oldest call is removed from memory, and so on.

Only external calls are saved. This is also true if System or Station speed dial is used.

A call to a user in a networked system over a CorNet-N link is stored; likewise, an external call routed via CorNet-N to a trunk in another node is also stored.

This feature cannot be invoked if Telephone Lock has been activated.

Any post-dialed digits beyond the initial destination, (for example, digits sent to a connected voice mail system) are not stored in expanded redial memory. In the case of a call routed through LCR, only the number dialed by the station is stored.

This feature can only be invoked from the *Redial* key. No feature access code is possible.

To reach the last number dialed, the user presses the *Redial* key once, and after a brief delay the number is dialed. Alternatively, the user can view the last three entries by pressing the *Redial* key successively and selecting the number to be redialed.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	$U_{P0/E}$ telephone with display				
SW requirements	V1.0 or later				
Max length of stored number	25 digits+code				
Maximum number of entries	3	3	3	3	3

Requirements and Conditions

Subject	Requirement or Condition
LNR	DTMF signals are not considered dialing information and are not stored. This does not apply to mobile telephones, which store DTMF signals in the internal redial memory.
LNR	After CO through-connect to the initial destination, further post-dialed digits are not stored.
System speed dialing	Speed-dialing numbers overwrite redial memory.
Telephone lock	You cannot use redial if the telephone lock is active.
Internal calls	Internal calls have no effect on the redial memory.
Telephones without displays	Only the last number dialed can be stored.

Configuration Options

The last number redial feature does not have to be explicitly configured.

The redial with ACCT flag can be enabled using HiPath 3000 Manager E.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Schritt	Tätigkeit
1.	**Enable redial with ACCT throughout the system.** Options
2.	System parameters
3.	Flags

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up an external connection.
2.	Release the external connection.
3.	The dialed number is in the redial memory.
4.	Set up and release an internal connection.
5.	The dialed external number remains in the redial memory.
6.	If “redial with ACCT” is enabled, enter ACCT.
7.	Press the redial key. Press the redial key to step through the stored numbers (and the ACCT).
8.	The system dials the station number (ACCT) after a short waiting time.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.7.2 System Speed Dialing

Definition

Users can store frequently dialed station numbers in system memory. For convenience, the system uses a short code to represent each station number so that the user does not need to dial the complete number.

Speed-dialing numbers are predefined in the system. Users can dial the codes from any subscriber station that is assigned to a speed-dialing group.

Use the redial key or the pound (#) key to program a dial pause and DTMF changeover.

- Only external calls can be stored.
- A name can be associated with each destination.
- This feature cannot be invoked if Telephone Lock has been activated.
- System Speed Dial overrides the COS Toll Restriction rules.
- System Speed Dial feature is system-wide and cannot be split, for example in the case of Tenant Service.
- The default access code is **7* followed by the index number. The abbreviated speed dial numbers are therefore:

System model	Abbreviated number
HiPath 3350	*7 000 to *7 299
HiPath 3550	*7 000 to *7 999
HiPath 3750	*7 000 to *7 999

- A feature button can be programmed on an optiset E and optiPoint 500. The button simulates the dialing of the access code (*7). The user is then prompted (display) to enter the index number.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Speed-dialing entries in the system	1000	1000	300	300	300
Max. length of speed-dialing entries	25 digits + 6 digit trunk access code	25 digits	25 digits	25 digits	25 digits
Max. no. of charactters per name	16	16	16	16	16

Requirements and Conditions

Subject	Requirement or Condition
External station numbers	Speed-dialing destinations can contain external station numbers only.
External station numbers	The external station number must include the trunk group or seizure code.
Translation of station numbers to names	You can assign a name to each speed-dialing destination.
Tenant service	If a tenant service is implemented via toll restrictions, the system does not check whether trunk seizures are authorized. If speed dialing is used, the system automatically seizes the next free trunk, regardless of whether or not the user is authorized to seize this trunk. As a result, an incorrect system number may be displayed at the destination. For this reason, users should only implement tenant service via ITR groups.
Entrance telephone	The entrance telephone cannot access speed-dialing numbers.

Subject	Requirement or Condition
Assistant T	If using Assistant T, enter the speed dial number first, then enter the corresponding name. Assistant T will not allow a name to be entered for a specific index unless a number has been previously entered. Names can only be entered using the memory telephone or the HiPath 3000 Manager E.
Disallowed digits	Assistant T and HiPath 3000 Manager E both check the first digit(s) of the speed-dial number you are programming against the default or current digits used in your database for external access codes. For example: entering the speed dial number 71 510 555 1212, may be disallowed if the digits 7 or 71 or 715 are not CO access codes.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure system speed dialing**
2.	12-1 => System speed dial - Speed dial number
3.	Enter speed-dialing destination.
4.	Enter destination station number and trunk group code.
5.	**Configure name for speed-dialing destination**
6.	12-2 => System speed dial - Speed dial name
7.	Enter speed-dialing destination.
8.	Enter name from the optiset E memory keypad.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure system speed dialing** Options
2.	System parameters
3.	System speed dialing
4.	Enter the trunk group code, station number, and name for the desired speed-dialing destination.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Program the speed-dialing destination.
2.	Access the speed-dialing destination by entering *7 + the destination number or by pressing a key and entering the destination number.
3.	The external connection is set up.

7.7.3 System Speed Dialing in Tenant Systems

Definition

This feature lets you select specific speed-dialing destinations, depending on the internal traffic restriction (ITR) groups. To do this, you can assign a range of speed-dialing numbers to internal traffic restriction groups using HiPath 3000 Manager E or system administration.

When a user dials a speed-dialing number, the system identifies the ITR group for the number, which determines whether the user is authorized to dial this number. If not, an error message appears and the dialing attempt is rejected.

The speed-dialing number ranges can overlap in the ITR groups.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Speed-dialing entries in system	1000	1000	300	300	300
Max. length of speed-dialing entry	25 digits + 6-digit trunk access code	25 digits	25 digits	25 digits	25 digits

Requirements and Conditions

Subject	Requirement or Condition
External station numbers	Speed-dialing destinations can contain external station numbers only.
External station numbers	The external station number must include the trunk group or seizure code.
Translation of station numbers to names	You can assign a name to each speed-dialing destination.

Subject	Requirement or Condition
Tenant system	If a tenant service is implemented using toll restrictions, the system does not check whether trunk seizures are authorized. If speed-dialing is used, the system automatically seizes the next free trunk, regardless of whether or not the user is authorized to seize this trunk. As a result, an incorrect system number may be displayed at the destination. For this reason, users should implement tenant service only via ITR groups.
Entrance telephone	The entrance telephone cannot access speed-dialing numbers.
ITR groups	You cannot enter more than one speed-dialing number range for the same ITR group.
ITR groups	By default, all speed-dialing numbers are assigned to ITR group 1.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure system speed dialing**
2.	18-3 TRG groups
3.	18-3-1Traffic restriction - TRG groups - Group assignment.
4.	18-3-1-3 Traffic restriction - TRG groups - Group assignment
5.	12-1 => System speed dial - Speed dial number
6.	Enter speed-dialing destination.
7.	Enter destination number and trunk group code.
8.	**Configure name for speed-dialing destination**
9.	12-2 => System speed dial - Speed dial name
10.	Enter speed-dialing destination
11.	Enter name from the optiset E memory keypad

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure system speed dialing** Options
2.	System parameters
3.	System speed-dialing
4.	Enter the trunk group code, station number, and name for the desired speed-dialing destination.
5.	Administer the speed-dialing number range under “Classes of service/ ITR group assignment”.

Testing the feature

Check the feature for proper functioning as follows:

Step	Action
1.	Configure the speed dialing destination.
2.	Access the speed-dialing destination by entering a code (*7 + destination number) or using a key + destination number.
3.	The system sets up an external connection.

7.7.4 Station Speed Dialing in System

Definition

The user can create a separate speed-dialing list for frequently dialed numbers.

Users can enter external numbers in the system database. Access depends on the station's dial-up access rights. Users must enter the trunk group code before the station number.

There is only one list of maximum 10 numbers per telephone. The HiPath 3000 systems have a pool of dial entries which is shared with the feature *Repdial*. (HiPath 3750, HiPath 3550, HiPath 3700 and HiPath 3500 = 2000 entries, HiPath 3350 and HiPath 3300 = 300 entries). The system does NOT dedicate 10 Station speed dial entries per telephone. Any unused entries remain in the entry pool and can be used by other stations. It is therefore possible that a station user may not be able to program an entry on the telephone even though not all entries in the list have been used. This could indicate that the system pool of entries has been fully used up.

All types of telephones have access to this feature.

Station speed-dial numbers are stored in the system but must be entered by the individual user from the telephone. System Administration cannot enter these numbers for a user. Only external calls can be stored. A name can be associated with each destination.

This feature cannot be invoked if Telephone Lock has been activated.

Use the *Redial* key or the *pound* (#) key to program a dial pause and a DTMF changeover function.

Station speed dial is constrained by the COS toll restriction rules.

The default access code is **7* followed by the index number. The abbreviated station speed-dial numbers are therefore: **7*0* through **7*9*.

A feature button can be programmed on an optiset E or optiPoint 500. The button simulates the dialing of the access code (*7). The user is then prompted (display telephone) to enter the index number. This is the same button used to dial the access code for System speed dial.

The trunk group code must be entered before the station number. Names cannot be assigned to Station speed dial numbers.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Maximum number of station speed-dialing entries per station	10	10	10	10	10
Maximum length of station speed-dialing entry	25 digits + code	25 digits + code	25 digits + code	25 digits + code	25 digits + code
Maximum number of speed-dialing entries in the system	2000	2000	300	300	300

Requirements and Conditions

Subject	Requirement or Condition
Telephones without display	Following station number entry, telephones without a display must wait for the confirmation tone.
Analog telephones (with DP), S_0 stations	Station speed dialing is not possible.
Internal station numbers, features	You cannot store internal station numbers and features in the station speed-dialing list.
optiset E or optiPoint 500 telephones	In the case of optiset E or optiPoint 500 telephones, users can store station speed dialing using codes or the telephone's programmable keys.
Repdial keys, station speed-dialing memory	Station speed-dialing destinations can be assigned until station speed-dialing memory in the system is exhausted. Speed-dialing memory is used for both repdial keys and station speed-dialing destinations.
Rotary dial analog telephones	Station speed-dialing is not possible.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure a repdial key.
2.	Configure a station speed-dialing destination.
3.	Dial the station speed-dialing destination (press programmed repdial key).

7.7.5 Trunk Seizure Type and Prime Line On (Automatic Line Seizure)

Definition

The HiPath 3000 systems permit trunk seizure via the trunk keys or call keys on an optiset E or optiPoint 500 telephone.

Trunk seizure is also possible from any telephone using the trunk or trunk group codes. To seize the second trunk using a trunk or call key, Prime Line must be active and a second trunk group assigned.

Trunk seizure via trunk group code is not possible by entering the trunk group code and pressing the trunk group key.

When the system receives a seizure request, it searches for an available trunk in the trunk group. If a trunk is available, it is seized.

Prime Line

The *Prime Line* feature is a system-wide feature that allows users to dial directly to external destinations without the use of *Trunk* or *Trunk Group* keys. The external access code is automatically dialed by the system. Only one outgoing Trunk Group is possible with this arrangement. To dial internal stations, the user must first press the *Internal* key and dial the station number.

When this feature is NOT active in the system, the reverse operation is true; that is, internal stations can be dialed directly, while outside connections require a *Trunk*, *Trunk Group* key or an access code.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Trunk board			–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Trunks	You must use system administration to cancel nonexistent or physically disconnected trunks.
COS changeover	If you activate a telephone lock, you cannot seize a trunk.

Subject	Requirement or Condition
Entrance telephone	You cannot seize a trunk from an entrance telephone.
Hold/park	An undialed or partially dialed trunk cannot be parked or placed on hold.
Automatic line seizure (Prime Line on)	optiset E entry and optiset E basic, and optiPoint 500 telephones cannot use this feature.
Prime Line on (automatic line seizure)	With automatic line seizure, you can program trunks in different trunk groups. You cannot define an overflow from trunk group 1 to another trunk group.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure Prime Line on**
2.	17-11 => Networking - Prime Line
3.	**Configure trunk keys/call keys** *91 => Access key programming.
4.	Program the relevant key.
5.	Assign the key selected as a trunk key/call key.
6.	**Assign trunk group**
7.	17-12 => Networking - Assign trk group

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure Prime Line on** Options
2.	Lines/networking
3.	Routing parameters
4.	**Assign trunk group** Options
5.	Lines/networking
6.	Trunks
7.	**Configure trunk keys/call keys** Options
8.	Set up station
9.	Key programming

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure Prime Line on.
2.	Dial a number.
3.	The trunk is automatically seized.

7.7.6 En-Bloc Dialing

Definition

With en-bloc dialing, the digits dialed are combined to form a block, stored in the system, and forwarded when they are recognized as complete.

If no additional digits are entered within a certain period (timer: *End of Dial on Incomplete dialing*; the default time is 15 seconds), the system interprets the last number entered as the last digit in the block.

When the timer expires (when the last dialed digit is recognized), dialing automatically begins. Dialing can also be started manually by entering the end-of-dialing code (#).

In the case of PRI, en-bloc dialing to the central office is mandatory. Block dialing is also used in Cornet-N networks.

Timing parameters are only accessible via the Expert Level in HiPath 3000 Manager E. Contact your second-level service group if a change is required.

Related Topics

- Section 7.8, Least Cost Routing (LCR) (Not for U.S.), on page 7-283
- Section 7.9, Least Cost Routing (for U.S. Only), on page 7-296

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Digital trunk board			–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
CorNet-N	En-bloc dialing is used in CorNet-N networks.
QSig	En-bloc dialing is used in QSig networks.
USA, PRI	En-bloc dialing is required with PRI in the USA.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant TT

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure en-bloc dialing**
2.	35-1 => Least cost routing - LCR on/off
3.	35-2 => Least cost routing - Dialing mode
4.	35-3 => Least cost routing - Outdial rule
5.	35-4 => Least cost routing - PIN
6.	35-5 => Least cost routing - Schedule
7.	35-6 => Least cost routing - Access
8.	35-7 => Least cost routing - Path tables
9.	35-8 => Least cost routing - Dial plan

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure en-bloc dialing** Options
2.	Automatic LCR

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure automatic least cost routing with en-bloc dialing.
2.	Dial an external station number.
3.	The trunk is seized when the timer has expired and outdialing is completed.

7.7.7 Dial Tone Detection

Definition

The system always links analog trunk connections to the *Dial Tone Detection* routine. The system checks the trunk to determine whether the audible tone is present. The dialing information is not transmitted to the trunk until this check has been performed.

The reason for this is that the time until the CO dial tone is received can differ depending on the network operator and network status.

Dial Tone Detection is performed:

- After trunk seizure
- After dialing of administrable digits (for example, discriminating digit in the main communications server, LCR)
- When a second dial tone is monitored

Dial Tone Detection may not be appropriate, for example, in a Centrex environment, where different tones (to indicate CO Call Forwarding activation, etc.) need to be heard by the user. In such cases, the *Trunk Supervision* flag (*Dial Tone Detection*) must be turned off. Then a trunk seizure delay can be programmed before dialing can begin. If trunk supervision is activated, the system waits until a dial tone is detected, even if *No pause* is selected in this field.

The Trunk Seizure delay choices are *No Pause, 1, 3, 6* or *9* seconds.

If *Trunk Supervision* is activated, and dial tone is not detected (timer: *Dial Tone Monitoring time*, default 10 seconds), this line is taken out of operation if there is no dial tone after seizure. Thereafter, the system checks at cyclical intervals whether a dial tone is once again present. When it is, the line in question is put back into operation. Dial tone monitoring time.

The *Dial Tone Monitoring* timer is only accessible via the Expert Level in HiPath 3000 Manager E. Contact your second-level service group if a change is required.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	Analog trunk board			–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
Audible tone	If audible tone monitoring is not possible or not desired, you can configure a *pause before dial*.
Audible tone	You can modify the monitoring of a second audible tone and the audible tone monitoring time only using HiPath 3000 Manager E.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure audible tone monitoring**
2.	21-2 => Analog CO interface - Delayed dialing

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure audible tone monitoring** Options
2.	Lines/network
3.	Routing parameters (*Digit request with LS/GS* and *Analysis of second dial tone*)
4.	**Configure times** Options
5.	System parameters
6.	Time parameters (*Dial tone monitoring tim*e and *Time between HT analysis and dialing*).

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure pause before dialing.
2.	The digits are transmitted after the pause time expires.

7.7.8 End-of-Dialing Recognition

Definition

As in the case of en-bloc dialing, the end of dialing is signaled either automatically after the timer expires or manually when the user enters the end-of-dialing code (#).

The timer invoked in this case is *End-of-dial on incomplete dialing*. If dialing is not continued within the specified timeout, an end-of-dial is generated automatically. The default is 15 seconds.

Timing parameters are only accessible via the Expert Level in HiPath 3000 Manager E. Contact your second-level service group if a change is required.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Trunk connection				
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
End-of-dialing time	The longer the time for end of dialing, the longer it takes for the final digit to be transmitted on an analog trunk.

Configuration Options

This feature can be configured using HiPath 3000 Manager E.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Change end-of-dialing time** Options
2.	System parameters
3.	Time parameters

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Dial an external number.
2.	The last digit is transmitted after the timer expires.

7.7.9 Trunk Signaling Method

Definition

The signaling methods currently in use are:

- Dial pulsing (DP)
- Dual-tone multifrequency (DTMF)

Pulses are analyzed in the case of DP, while tones are analyzed in the case of DTMF.

When the system uses analog trunk boards, the signaling method is automatically detected as long as the user has not configured a signaling method or *pause before dial*. Otherwise, the signalling method can be set on a per trunk basis.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	Analog trunk board			–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
Signaling method	If you set the trunk to PABX (communications server), the DTMF method is activated.
Pause before dial	If you configure *pause before dial*, the DP signaling method is activated.
Power reset (power failure)	The signaling method that is detected is stored until the next power reset (power failure).

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure signaling method**
2.	21-1 => Analog CO interface - Signaling method

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure signaling method** Options
2.	Lines/networking
3.	Trunks
4.	Flags
5.	LS/GS flags

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Seize an analog trunk.
2.	The correct signaling method is detected automatically.

7.7.10 Configurable Toll Restriction

Definition

Each user in a communications server can be assigned different toll restrictions. Each time a station attempts to seize a trunk, that station's class of service (COS) is checked (toll restriction). The system distinguishes between 15 different classes of service:

- 0 = no trunk access
- 1 = outward-restricted trunk access
- 2 to 7 = allowed lists
- 8 to 13 = denied lists
- 14 = unrestricted trunk access

System configurations with CorNet-N and/or a fax server use class of service 7 for these trunks and devices. In this case, you should not assign class of service 7 to a subscriber with restricted access. Instead, use classes of service 0 to 6 and 8 to 14 for these subscribers.

The following list describes the classes of service in greater detail.

- **No trunk access**
  Users can make internal calls only. Users can use speed-dialing destinations. Cannot make calls via CorNet-N link.
- **Outward-restricted trunk access (incoming authorized)**
  Users can only answer external calls. Users can use speed-dialing destinations.
- **Allowed lists**
  Allowed lists define the station numbers that the user is allowed to dial. If no numbers are entered in an allowed list, the station functions like a telephone with outward-restricted trunk access.
- **Denied lists**
  Denied lists define the station numbers that the user is not allowed to dial. If no numbers are entered in a denied list, the station functions like a telephone with unrestricted trunk access.
- **Unrestricted trunk access**
  Users can answer and set up incoming and outgoing calls without restriction.

The Allowed numbers lists contain the digit sequences which may appear at the start of a call number. The maximum length of the digit sequence is seven digits (0..9, *,#). A maximum of 100 entries can be made in the allowed numbers list no. 1 and the lists numbered 2-6 each contain a maximum of 50 entries.

The Barred numbers lists contain the digit sequences which cause a call number to be rejected. The maximum length of the digit sequence is seven digits (0..9,*,#). A maximum of 50 entries can be made in the barred numbers list no. 1 and the lists numbered 2-6 each contain a maximum of 50 entries.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Trunk connection			–	–
SW requirements	V1.0 or later				
Number of classes of service	15	15	15	15	15
Number of characters in list entries	25	25	25	25	25
Total number of allowed lists	6	6	6	6	6
Allowed lists, long 100 entries	1	1	1	1	1
Allowed lists, short 10 entries	5	5	5	5	5
Total no. of denied lists	6	6	6	6	6
Denied lists, long 50 entries	1	1	1	1	1
Denied lists, short 10 entries	5	5	5	5	5

Requirements and Conditions

Subject	Requirement or Condition
System speed dialing	You can use system speed-dialing destinations regardless of the COS.
Toll restriction	The toll restriction classes of service regulate which denied or allowed lists are used for the stations for each trunk group. The classes of service apply to data and voice stations.
CS/CorNet-N/QSig	If the trunk group for networking is set to communications server (CS), the toll restriction check is not performed.

Subject	Requirement or Condition
CorNet-N/QSig	With networking, you should enter the trunk access code of the main communications server as a second trunk access code so that the toll restriction will be checked when a trunk in the main communications server is seized.
Toll restriction for two networked systems	When there is an external seizure of a station from the satellite CS (with COS 2-13) over the main CS, the main CS's first denied list always does the seizing. For this reason, keep the first denied line of the main CS free for the assessment of the stations from the satellite CS. The system keeps COS 0, 1 and 14 of the satellite CS.
Least cost routing (LCR)	A distinction is made between classes of service and the LCR class of service; if both are configured, both apply..
Telephone lock	After telephone lock is activated, you can reduce the class of service but not select a higher class of service.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure allowed lists**
2.	15-3-1 => Toll restriction - Allowed lists - Allowed 1, long
3.	15-3-2 => Toll restriction - Allowed lists - Allowed 2, short
4.	**Configure denied lists**
5.	15-4-1 => Toll restriction - Denied lists - Denied 1, long
6.	15-4-2 => Toll restriction - Denied lists - Denied 2, short
7.	**Configure toll restriction for stations**
8.	15-1 => Toll restriction - Restriction, day
9.	15-2 => Toll restriction - Restriction, night

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure allowed/denied lists** Options
2.	Classes of service
3.	Permitted/prohibited numbers
4.	**Configure station class of service** Options
5.	Classes of service
6.	Stations

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Authorize a station for outward-restricted trunk access.
2.	The station cannot set up an outgoing external connection (exception: system speed dialing).

7.7.11 Traffic Restriction Groups

Definition

Multiple traffic restriction groups (ITRs), also known as Connection Groups (CON), are provided in the system for all stations. These groups define information on toll restriction and trunk group reference (incoming or outgoing) for stations and trunks.

An ITR matrix defines whether a station

- Is authorized to seize a trunk
- Can seize a trunk only in the incoming or only in the outgoing direction
- Can seize a trunk in the incoming and outgoing directions
- Is authorized to seize certain speed-dialing destinations
- Can access another station internally

The CON matrix permits or suppresses traffic between stations/lines within a subsystem and between subsystems. The CON matrix is configured system-wide.

The system default setting assigns all stations and trunks to ITR group 1. That is, all stations are allowed to seize all trunks in the system. Which of the six groups can connect to which other groups is entered in the matrix.

Tenant Service call restrictions would be defined with the ITR (CON).

Related Topic

Section 7.7.10, Configurable Toll Restriction, on page 7-254

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
No. of ITR groups	6	6	6	6	6

Requirements and Conditions

Subject	Requirement or Condition
ITR group	All stations and trunks are assigned to ITR group 1 by default.
MOH devices	Up to six MOH devices can be defined for the six possible ITR groups. This means that the analog interfaces used for connection are part of the ITR groups. The particular MOH device used depends on the ITR group of the station that places the call on hold.
MOH source	You cannot use the logical port “0” as an MOH source.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure ITR station**
2.	18-3-1-1 => Traffic restriction - ITR groups - Group assignment - Stations
3.	**Configure ITR trunks**
4.	18-3-1-2 => Traffic restriction - ITR groups - Group assignment - Trunks
5.	**Configure ITR matrix**
6.	18-3-2-1 => Traffic restriction - ITR groups - Connection matrix - Matrix

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure ITR matrix** Options
2.	Class of service
3.	ITR matrix
4.	**Configure ITR groups** Options

Step	Action
5.	Class of service
6.	ITR group assignment

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure several ITR groups.
2.	From one station, attempt to call another station in a different ITR group.
3.	Stations with different ITR classes of service cannot make calls to each other.
4.	Whether stations can make calls to one another depends on their class of service in the ITR matrix.

7.7.12 Private Trunk

Definition

The private trunk feature provides a station with immediate access to a trunk via a programmable feature key.

Users can program toll restrictions for private trunks by using the traffic restriction group (ITR) feature or by configuring a separate trunk group.

Care should be exercised when configuring a Private Trunk. By definition, a Private Trunk implies that it will only terminate at one station. However, because features are implemented on a device-basis, activation of some features could impact the operation of the Private Trunk, for example, DND, Call forward, intercept.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure ITR station**
2.	18-3-1-1 => Traffic restriction - ITR groups - Group assignment - Stations
3.	**Configure ITR trunks**
4.	18-3-1-2 => Traffic restriction - ITR groups - Group assignment - Trunks
5.	**Configure ITR matrix**
6.	18-3-2-1 => Traffic restriction - ITR groups - Connection matrix - Matrix

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure ITR matrix** Options
2.	Class of service
3.	ITR matrix
4.	**Configure ITR groups** Options
5.	Class of service
6.	ITR group assignment

Testing the Feature

Check the feature for error-free functioning as follows

Step	Action
1.	Only the station configured can seize the private trunk.

7.7.13 Trunk Queuing

Definition

If users receive a busy signal following a trunk seizure request (because no free trunk is available), they can use a procedure to queue on a seized trunk (book a line). As soon as the trunk becomes available, the system recalls the first user in the queue. The user hears the CO dial tone and can set up the external connection.

It is not possible to invoke Trunk Queueing if the attempted call was placed through LCR.

Trunk Queueing can be invoked when all trunks on a *Trunk group* key show busy.

If the user is busy at the time of the recall, the trunk will camp on to the busy station and if the *camp-on to* is not answered within the default 20 seconds, the reservation is cancelled and the trunk is offered to the next station in the queue list.

If the user activated DND prior to receiving a recall from a queued trunk, the trunk reservation is cancelled and the trunk is offered to the next station in the queue list.

If the user had invoked Call forward (CFNA or CF), the recalling trunk will ignore the call forward and continue to ring at the requesting station. If not answered within default 20 seconds, the trunk reservation is cancelled.

A recalling trunk cannot be picked up by either Call Pick up - group or Call pick up - Directed.

If a reservation is placed against a trunk which has an appearance at one or more stations, the *Trunk* key's LED flashes at the recall rate at the station that invoked the queue request. The LED will be lit steadily at all other appearances.

Only one queue/reservation request is possible per telephone. If a second reservation is attempted, it overwrites the first.

A system-wide flag, *Trunk reservation*, enables/disables this feature

This feature can be invoked in one of the following two ways:

- Manual reservation (for display telephones)
- Automatic reservation (for all other types of telephones)

Trunk Reservation—Automatic

When this flag is activated and if a station is not assigned a free trunk after the usual trunk seizure procedures (random or specific), Busy tone is signaled at the station. After a fixed period (5 seconds), a positive acknowledgment tone is applied and the trunk is reserved, provided that the station has the appropriate CO call privilege.

Trunk Reservation—Manual

- This feature is available only to display telephones.
- This feature does not need to be configured in the database.

Trunk reservation is not possible in hands-free mode. In this case, the system interrupts call setup when it recognizes that the line is seized.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
Queue trunk	A station can queue only one trunk.
Queue trunk	Trunk queuing does not apply to S_0 (not for U.S.).
Recall	A recall does not follow call management.
Speakerphone mode	Users can also use trunk queuing in speakerphone mode
Trunk	If a number of stations queue a trunk, the trunk is assigned in the order that the requests were received.
LCR	If LCR is active, trunks can not be queued.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure trunk queuing**
2.	22-25 => System settings - Trunk reservation

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure trunk queuing** Options
2.	System parameters
3.	Flags

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Station A seizes a trunk.
2.	Station B presses the trunk key or dials a discriminating digit.
3.	Confirm that *trunk queuing* should be performed.
4.	Station A hangs up.
5.	Station B rings; user picks up the handset and hears a dial tone.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

Display Telephones
Having dialed a trunk group access code, or a trunk access code, or after pressing a busy trunk or *Trunk group* key, the user is presented with the display message *Currently busy,* and the display prompts the user with *Reserve trunk?*. If the user selects this prompt, the system returns an acknowledgment *Trunk reserved.*

When a trunk becomes free, it recalls the first station queued for this trunk. A recall ring is heard and the display indicates *Trunk is free*. Going off-hook, the user is presented with dial tone and can proceed to dial the wanted destination.

7.7.14 Temporary Station Number Display Suppression

Definition

This feature prevents a calling or called party from receiving a station number display. The feature is designed as a changeover function; the changeover applies until it is deliberately canceled (changeover repeated).

This feature applies only to incoming from or outgoing calls to an ISDN public network connection. The system-wide flag, *Call Number suppression on,* can be set to suppress the system Caller ID display. The default setting is *off*; that is, the number is not suppressed.

The feature is designed as a changeover function; that is, the changeover applies until it is deliberately canceled (changeover repeated).

The system-wide flag Call Number Suppression Override does not apply in the US.

All types of telephones can invoke this feature.

The *Flags* screen is one of three screens in the *System Status* pathway of HiPath 3000 Manager E that provides station-specific (rather than system-specific) status information. You can use the *Flags* screen to see if a station has activated Number Suppression or not.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Station number transmission	Temporary station number suppression must be supported by the trunk.
System-wide station number display suppression	If station-wide station number display suppression is activated (CLIR and COLR), it cannot be overridden.

Subject	Requirement or Condition
CLIR	It is possible to ignore an activated CLIR setting and display the station number of the calling station. This feature is helpful in various situations, as in of emergency calls.
Default access codes	*86 to suppress, #86 to display the number

Configuration Options

The feature *Temporary station number display suppression* does not need to be explicitly configured; however, system-wide flags need to be set.

Programming Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Set system-wide flag to suppress Caller ID:** *9531994
2.	20 - 1: ISDN parameters -> Suppress Caller ID, On or Off.

Programming Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Set system-wide flags to suppress Caller Id and for override:** Options
2.	System parameters
3.	Display -> Call Number Suppression.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Enter *86 to activate station number suppression.
2.	Set up an outgoing connection. The station number is not displayed on the remote station.
3.	Enter the code #86 to deactivate station number suppression.
4.	Set up an outgoing connection. The station number is displayed on the remote station.

7.7.15 Denied List for Undialed Trunks

Definition

This feature restricts the dial-up access rights for a trunk selected by the attendant console. An attendant console may seize an outside line and transfer it to an internal station. This feature restricts the dial-up access rights for a trunk selected by the attendant console; the user receiving the transferred trunk will not be able to reach the destinations denied by the class of service (COS) level.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Class of service	The class of service of the selected reference station applies.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	33-4-1 => Attendant console - Xfer undialed trunk
2.	15-4 => Denied list or 15-3 Allowed list
3.	15-8 => Configure reference station
4.	15-1 => Toll restriction - Restriction, day for reference station 15-2 => Toll restriction - Restriction, night for reference station

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Activate feature for attendant console
2.	Permitted/prohibited numbers
3.	Assign reference station under “Class of service/Stations”
4.	Assign COS group for reference station

Testing the Feature

Check the feature for proper functioning as follows:

Step	Action
1.	A user calls the attendant console (AC).
2.	The AC sends dial tone to the user via the “Transfer trunk” menu option.
3.	The user can set up a call within the allowed area by seizing a trunk (0).

7.7.16 Assigning Speed-Dialing Numbers to ITR Groups

Definition

You can assign a specific speed-dialing number to a specific user or a specific trunk.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Number of speed-dialing groups	You can configure up to six speed-dialing groups (from KWZx to KWZy), including overlapping ones.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	18-3-1 => Speed-dialing group assignment
2.	3-1 => Speed dialing, minimum
3.	F2 => Go to Speed dialing, maximum
4.	18-3-1-1 => Assign station to speed-dialing group

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Classes of service/ITR group assignment/ Assign station to speed-dialing group

Testing the feature

Check the feature for proper functioning as follows:

Step	Action
1.	A user dials an allowed speed-dialing number: OK.
2.	A user dials a denied speed-dialing number: no authorization.

7.7.17 Intercept With Telephone Lock

Definition

If a station with an activated telephone lock (codelock) dials a trunk group code, the system immediately forwards the call to the entered intercept destination. If the station makes a call to a destination for which it is unauthorized, the extension indicated always receives a signal.

The “Codelock intercept” function can be configured for each station individually using “Set up station: Parameters”.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
SW requirements	V1.0 or later				

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure intercept destination.**
2.	22-23 => System settings: destination for telephone lock

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure intercept destination.** Options
2.	System parameters
3.	Intercept/AC
4.	Codelock intercept

7.7.18 Keypad Dialing

Definition

In some countries, network provider services are controlled using keypad dialing instead of functional control. To activate these services in the central office, you can use the so-called stimulus interface for V1.2 and later of the HiPath 3000.

The user acknowledges the message traffic using the display. As a result, keypad dialing can be done only on optiset E and optiPoint 500 telephones with display, mobile telephones (HiPath cordless) with optiset E or optiPoint 500 menu navigation and IP telephones with stimulus interfaces.

An authorized station can activate keypad dialing using the service menu or using the *503 code. This is possible only in the idle state. Then the station must select an ISDN trunk that the feature can use.

The actions carried out using keypad dialing are not subject to any system control. HiPath 3000 cannot prevent improper use, such as call charges fraud or trunk blocking.
The customer must be informed that Siemens AG accepts no liability whatsoever for damages resulting from the improper use of this feature!

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	digital trunk connection optiset E or optiPoint 500 telephone with display, mobile telephone (HiPath cordless) with optiset E or optiPoint 500 menu navigation, or IP telephone with stimulus interface				
SW requirements	V1.2 or later				

Requirements and Conditions

Subject	Requirement or Condition
Telephone lock	Keypad dialing cannot be used when the telephone lock has been activated.
ISDN telephones	ISDN telephones are not supported.
Services	Each network provider determines which services can be used with keypad dialing.
Call detail recording	Depending on the messages sent by the central office (such as when connecting), keypad dialing entries can have consequences for the call data recording. The number of the station using keypad dialing, the line used, and the time period when the feature was executed are protocolled.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Enable keypad dialing by trunk group**
2.	20-7 => keypad dialing
3.	Select trunk group
1.	**Enable keypad dialing by station**
2.	14-35 => keypad dialing
3.	Select station

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Enable keypad dialing by trunk group** Options
2.	Trunks/networking
3.	Routing parameters
4.	Select trunk group and set keypad dialing routing flag.
1.	**Enable keypad dialing by station** Options
2.	Set up station
3.	Station
4.	Double-click parameters of the station you want.
5.	Station flag: keypad dialing

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Activate keypad dialing (service menu or code *503).
2.	Select trunk.
3.	Enter keypad information.
4.	Test appropriate network provider service.

7.7.19 E911 Emergency Call Service for the USA (for U.S. only)

Danger
In systems with the E911 emergency service activated for the USA, you are not allowed to use the Relocate feature (see Section 7.12.11 on Page 7-384) if the system has more than one Location Identification Number (LIN).

Definition

The E911 expanded emergency call service makes it possible to transmit information about the physical location of a station in addition to the station number. Therefore not only the number of the station placing the call is available in the emergency call center, but the location too.

This requires that each subscriber line with a valid DID number be assigned a Location Identification Number LIN. The LIN is an unambiguous number that corresponds to the 10-digit NANP (North American Numbering Plan). Subscriber lines that are physically close to one another are given the same LIN. The emergency call center has a database that contains all the LINs and that uses the transmitted LIN to identify the name and address of the one placing the emergency call.

Danger
Quick help after an emergency call is possible only when valid information concerning the location of the caller who is in trouble is available. For this reason, the correct assignment of the LINs to the available DID number must always be guaranteed. If the customer assumes the system administration, then the customer also assumes the responsibility for the correct assignment of the LINs. In this case, the customer must be informed that Siemens AG accepts no liability whatsoever for damages resulting from the improper use of this feature.

V1.2 and later of HiPath 3000 supports this feature for analog (loop start protocol) and digital trunks (Primary Rate Interface PRI).

Analog trunks require an additional converter (such as Telident STS) to translate the transmitted DTMF characters (LS protocol) into the CAMA protocol used for the Emergency Call Service ECS (see Figure 7-3).

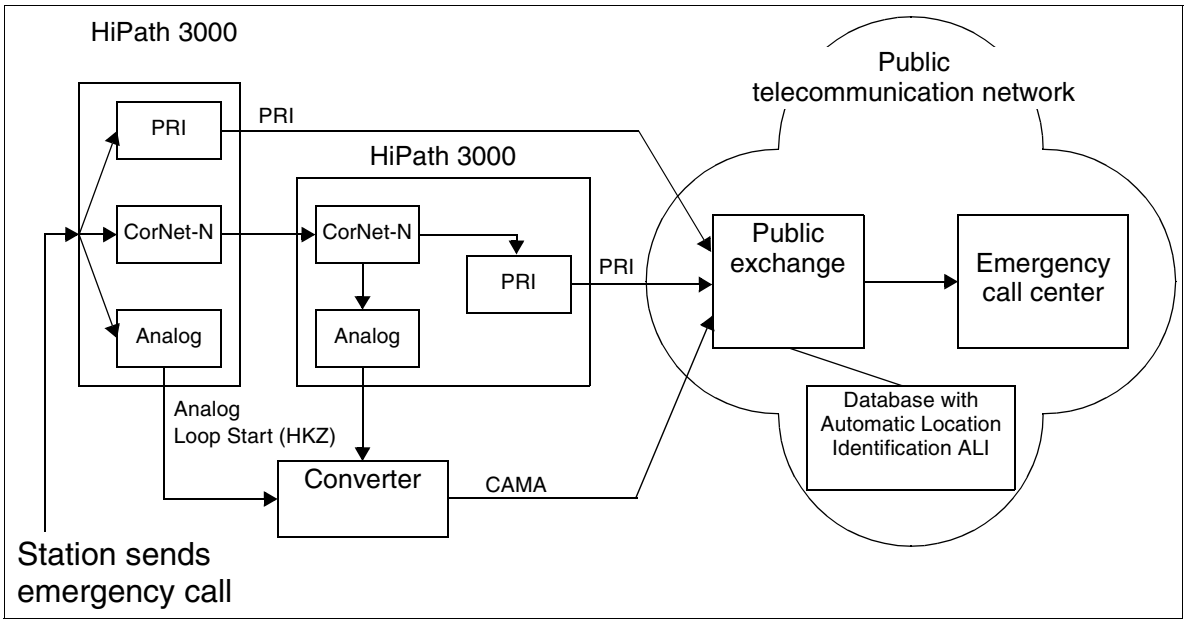


Figure 7-3 E911 Expanded Emergency Call Service E911 (for USA only)

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature for analog trunks available in	–	x	x	–	–
HW requirements	–	analog (LS) trunk connection		–	–
SW requirements	–	V1.2 or later		–	–
Feature for digital trunks available in	x	x	–	–	–
HW requirements	digital (PRI) trunk connection		–	–	–
SW requirements	V1.2 or later		–	–	–

Requirements and Conditions

Subject	Requirement or Condition
E911 emergency call service	for USA only

Configuration Options

This feature can be configured using HiPath 3000 Manager E.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Enable E911 emergency call service** Options
2.	Trunks/networking
3.	Trunks
4.	Double-click parameters of the trunk you want.
5.	General flags: E911 emergency call service

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	After installing and configuring the feature, arrange a test call with the emergency call center; this test call verifies that the call proceeds without errors.

7.7.20 Automatic Call Completion on No Reply (CCNR) on the Trunk Interface (V3.0 and later)

Definition

You can use this function only if the public exchange supports it.

An internal subscriber who reaches an available external subscriber can activate a call completion request in the trunk. As a result, the system monitors the connection of the called subscriber. As soon as the called subscriber initiates a connection setup and then ends this connection, the system attempts to produce a connection between the two subscribers.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	trunk connection				
SW requirements	V3.0 SMR-3 and later				

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Call free subscriber
2.	The calling station is offered “Callback” in the display.
3.	Select OK key to request the callback.
4.	The display of the calling station shows “Will call back”.

7.7.21 CLIP no screening (V3.0 and later)

Definition

The essential characteristic of this feature is that the HiPath 3000 “System number - outgoing” does not have to be the same as the “International/national system number - incoming“.

To make this possible, the “System number” parameter that has been used until now has been split into “System number - incoming” and “System number - outgoing” for V3.0 SMR 3 and later.

Incoming and outgoing calls usually use the same system number. In this case, the entry under “System number - outgoing” is either empty or the same as the one under “System number- incoming”. If this is not the case, you can

- enter a different number under “System number - outgoing”.
- use the routing parameter “No. and type, outgoing” to define whether the entered “System number - outgoing” contains the station number without area code (subscriber), with area code (national), or also with the international country code (international).

You can also activate the flag “Suppress station number” for special customer applications. This prevents the system from sending out the DID number of the station along with the “Station number - outgoing”.

Example: You want to prevent customers from directly reaching a service staff member who is reached centrally with a general service number. To conceal his or her own DID number, enter the general service number as “System number - outgoing” and activate the “Suppress station number” flag. Then called subscribers see only the general service number on their display as the CLIP.

In a Centrex environment, you generally enter the number of the Centrex group as “System number - outgoing” and deactivate the “Suppress station number” flag. The called subscriber then sees the Centrex number plus station DID number as the CLIP.

If the entry under “System number - outgoing” is empty, the system automatically sends the entries under “System number - incoming”.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	digital trunk connection				
SW requirements	V3.0 SMR-3 and later				

Requirements and Conditions

Subject	Requirement or Condition
CLIP no screening	You must configure the “no screening” option for the trunk connection in the public exchange.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure CLIP no screening**
2.	20-2 => ISDN parameters - System number - incoming
3.	20-8 => ISDN parameters - System number - outgoing: 1 = port number, 2 = national number, 3 = international number, 4 = suppress station number

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure CLIP no screening** Settings
2.	Lines/networking
3.	Routes: Enter system number - incoming Enter system number - outgoing Activate or deactivate “suppress station number”
4.	Routing parameters: Select No. and type, outgoing

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Have the “no screening” option configured in the public exchange.
2.	Call a free subscriber.
3.	The subscriber display shows the configured system number - outgoing.

7.8 Least Cost Routing (LCR) (Not for U.S.)

Definition

Least cost routing provides HiPath 3000 with automatic control over the path of an outgoing call. This path can be one of various public-network carriers or a private network. Based on routing tables, the system seeks the least expensive connection path for the outgoing call.

The system seizes a trunk only after it has scanned the routing tables. The system sends dial tone as a function of the dial plan so that the station is informed of the ready-to-dial condition. The signals dialed are buffered until the routing tables have been scanned. Only then does the system make the connection.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Number of LCR classes of service	15	15	15	15	15

Requirements and Conditions

Subject	Requirement or Condition
LCR	If all the least expensive connection paths have been seized, LCR automatically switches to defined more expensive paths. The system can signal user of this fact both visually and acoustically.
LCR	The dialed station number is displayed until the station number information on the other party is received.
LCR	If LCR is activated, the system checks for the least costly route for every trunk seizure (except when a trunk code is dialed).
LCR	Digits can be transmitted either singly or en-bloc, depending on the access method and the dial plan.
LCR	After an account code is entered, it applies to the entire connection setup.

Subject	Requirement or Condition
LCR	The allowed and denied lists are also used for LCR. The toll restriction check then refers to the digits dialed at the station without considering the trunk group code.
LCR class of service	The LCR class of service determines whether a station can use the route recommended in the path table.
Prime Line on (automatic line seizure)	LCR is not possible when Prime Line is active.

7.8.1 Carrier Types

Since in many cases individual carriers provide specific connections and conditions at different tariffs (sometimes with different signaling methods), least cost routing can be used to automatically select the most economical connection or most economical carrier for each outgoing phone call.

The following carrier types and networks are available for implementing least cost routing (LCR).

7.8.1.1 Mercury Communications Limited Single Stage

Definition

With this type of LCR, a prefix is used to dial the desired network carrier and the station number is subsequently dialed.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
MCL Single Stage	Dialing is carried out in the D channel (with ISDN) or as normal dialing (on analog trunks).

7.8.1.2 Mercury Communications Limited Two Stage

Definition

With this type of least cost routing, the system initially selects the carrier using a configurable access code (as with single stage). Afterwards, the system also waits for a connect (synchronization during timeout).

After the connect, the system transmits an authorization code and the destination station number as DTMF signals in the B channel.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
MCL	With synchronization during timeout, you must program a pause of 2 to 12 seconds.

7.8.1.3 Dial-In Control Server (DICS)

Definition

With this type of least cost routing, the system uses the routing table to determine whether the call should be made via the DICS or the public network. If the DICS is used, the system dials the DICS using a configurable access code and an authorization code and transmits the station number dialed by the station in the SUB address (on the D channel). The DICS checks the authorization based on the CLIP information and the transmitted authorization code.

If the DICS is not present during the first connection setup, the system reroutes the connection to the public network. This alternative access must be configured.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Station number suppression	Temporary or permanent station number suppression cannot be activated.
ISDN/SUB addressing	The ISDN feature SUB must be applied for or released in the public network.
Analog trunk	DICS can only be used with ISDN.

7.8.1.4 Corporate Network (CN)

Definition

A corporate network is an alternative network, such as a company-owned network, that is connected directly to the HiPath 3000.

The LCR function determines the corresponding trunk group based on the station number dialed and then routes the call either via the trunk group in the public exchange or via the trunk group in the corporate network.

If necessary, the system translates the station number.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

7.8.1.5 Primary Carrier

Definition

When a trunk is seized by the primary carrier, simplified dialing is performed by en-bloc dialing or by dialing individual digits into the public network.

If primary carrier was the method selected in the outdial rule table, forwarding in the trunk group table is not performed for entries after the route configured as a primary carrier.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

7.8.2 Routing Tables

Definition

The routing tables evaluate the digits dialed by the user and determine the station number that the system should dial. In the process, the digits are modified as necessary. This modification can mean that digits are repeated, suppressed, added, or reordered. It is also possible to add a dial pause and change the signaling method. A distinction is made between the following types of routing tables:

- **Outdial rule table**: This table determines how the digits dialed by the user will be converted and dialed by the system. The following special characters can be defined:

  A: Repeat remaining fields (transmit). This letter causes all subsequent digit fields to be transmitted. The point of reference is the last field pointer before *A*. The combination E1A is permitted only at the beginning of a string.

  D (n): Dial digit sequence (1 to 25 digits). This letter can be inserted multiple times and at any position in the string.

  E (n): Repeat field from dial plan (from 1 to 10 times). This letter can be inserted multiple times and at any position in the string. *E* can also appear in any order with relation to (n). A specific field can be addressed multiple times, including in sequence. With the exception of *E1*, this letter can be surrounded by any parameter.

  P (n): Pause (1 to 60 times the system-wide pause unit). This letter can be inserted multiple times and at any position in the string.

  M (n): Authorization code (1 to 16). This letter must not be in the final position.

  S: Switch, changes signaling methods from DP to DTMF (with CONNECT, PROGRESS or CALL PROC with PI). This letter can be inserted in the string only once and may not be in the final position. The *C* parameter cannot be used after *S*.

  U: Use subaddress signaling method. This letter can be inserted in the string only once and may not be in the final position. Subsequent characters are again dialed in *INFO*. The *S, P,* and *C* parameters cannot be used after *U*.

  C: Access code. This letter can be inserted in the string only once. The subsequent characters are transmitted without a dial pause and are used for single stage, two-stage, DICS (not for U.S.), BRI, and PRI carrier access.

- **Authorization code**: The authorization code is divided into the carrier ID and customer ID. The carrier ID is entered as one entry in the authorization code table and the customer ID is entered as another entry in the authorization code table.

The authorization code entry in the outdial rule then consists of the two authorization codes. Only a protected authorization code is supported (represented by *****).

- **Class of service**: Each station is assigned a class of service (COS). A station can then seize a path only if its COS is greater than or equal to the COS in the path table; for example, a station with a COS 7 cannot seize a path with COS 8.
- **Schedule**: Up to eight time zones per day can be configured for each day of the week to control LCR. A search is performed based on the schedule ID entered in the path table to determine whether the current time matches the value entered in the schedule. If it does and if the correct class of service is present, dialing is performed as per the outdial rule entered in the path table.
- **Path table**: Up to 254 path tables with 16 paths each can be created. Each path in a path table is described by a combination of the trunk group, outdial rule, toll restriction, schedule, and an option for warning against a more expensive route. The table is scanned from top to bottom. The system checks to determine whether the trunk group is free and the station has the requisite class of service. If so, the system dials per the outdial rule and schedule entered in the path table.

  Depending on the entry in the path table, a warning can be issued to the station informing the user that the call is being routed. This warning can be signaled by a warning tone and a display message. The display shows the outdial rule name.
- **Dial plan**: Each station number dialed for external traffic is checked against the dial plan for up to 30 positions (including field separator and trunk group code). If the number dialed matches an entry in the dial plan, LCR is handled in accordance with the path table in the dial plan.

  To use all available features (such as callback) in conjunction with LCR, the trunk group code must be separated from the dialed station number by a dash (–) in the dial plan (sample dial plan entry: 0–CZ).

The first entry in a dial plan does not have to be a trunk group code; it can also be a station number in a networked system.

The following station number entries are valid:

0...9: Permissible digits

-: Field separator

X: Any digit from 0 to 9

N: Any digit from 2 to 9

Z: One or more digits to follow up to the end of dialing

C: Simulated dial tone (can be entered up to three times)

To **block incoming external calls**, enter a dash (–) in the **Routing table** field of the dial plan.

Example:

Dialed Digits (Code + Station Number)	Path Table	Explanation
9C1-900-XXX-XXX	–	The dash (–) blocks all 900 numbers.
9C1-976-123-3456	–	The dash (–) blocks only the number 976-123-3456.

Do not confuse the hyphen (–) in the **Dialed digits** field, which separates the digit blocks in the number, with the dash in the **Path table** field, which blocks the numbers.

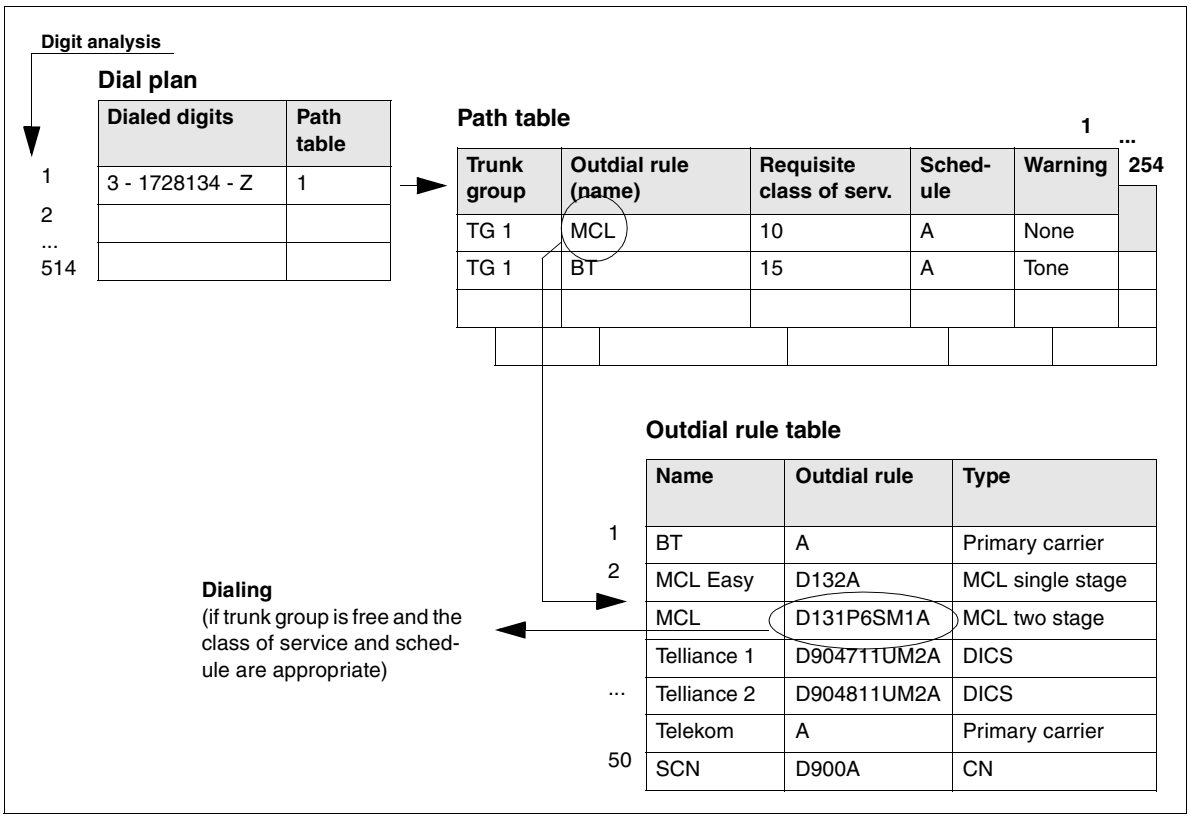


Figure 7-4 Sample LCR Flow Diagram (Not for U.S.)

The dialed call number is used as the criterion for the connection path to be used. The system can evaluate up to 24 digits of the digit sequence plus up to 9 field separators. The digit sequence that can be dialed can consist of up to 32 digits. The evaluation can be carried out both *destination dependently* and *time dependently* and in dependence on the station's LCR class of service (COS).

The system contains 254 route tables with 16 routes each. The LCR class-of-service is evaluated hierarchically for LCR.

The outdial rule is described in the HiPath 3000 Manager E by its name, which consists of not more than 16 characters, and in the System Administration by its index.

The station can cancel automatic selection by seizing a line directly (Carrier Select Override - CSO). The LCR class-of-service cannot be transferred between CorNet-N networked systems.

General Operating Principle

The system analyzes the number dialed to determine if the digits input are valid. If the digits are recognized, a reference route table is scanned for Route group choices. Once the Route group is selected, the availability of the route is checked against the time schedule. If the Route group is available, the LCR COS requirement assigned to the route group is compared to the LCR COS associated with the dialing device. If the LCR COS associated with the dialing station is equal to or greater than the route group COS, the Toll Restriction tables are checked for additional screening information. This process is repeated for every call using the system LCR application.

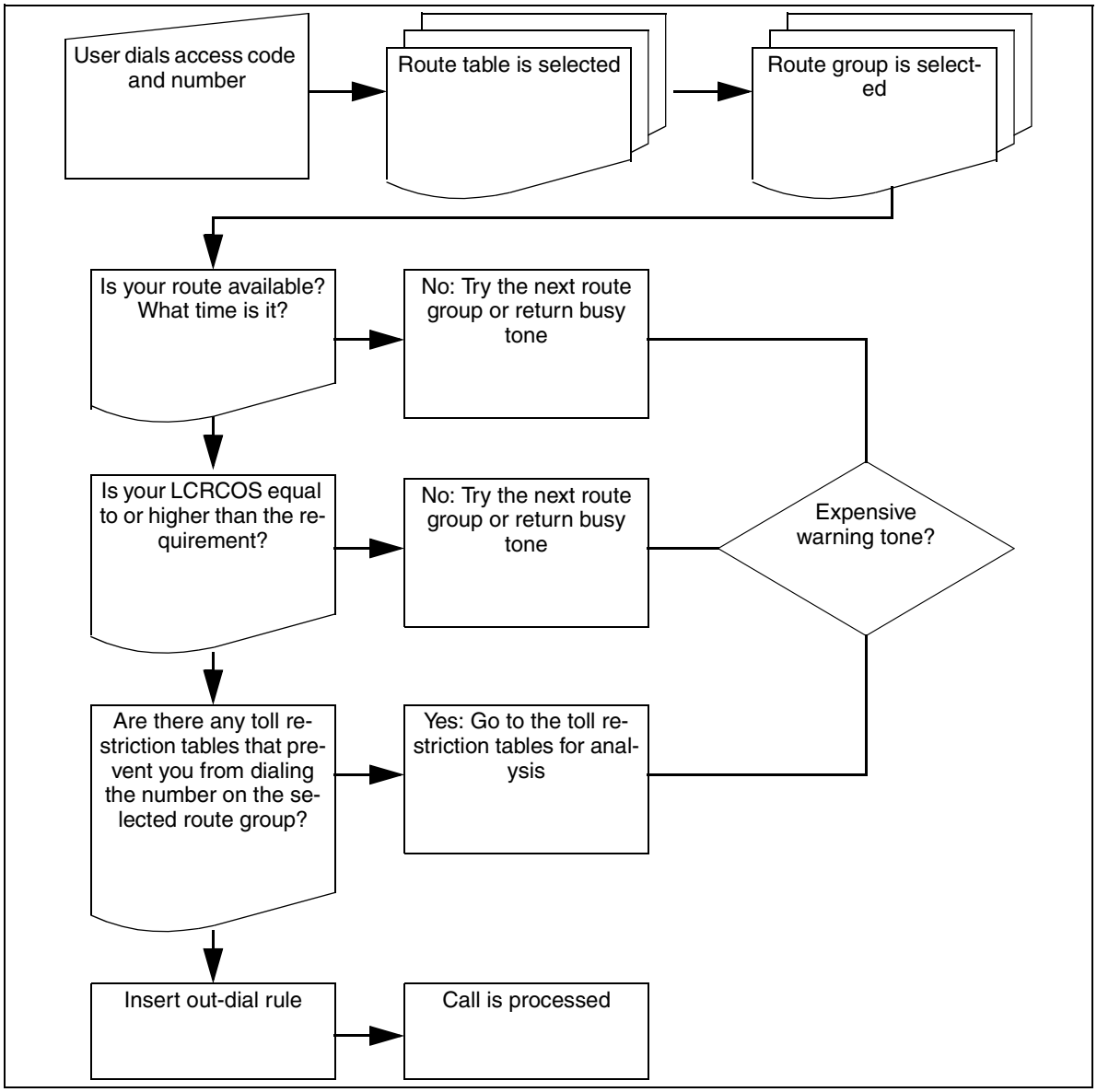


Figure 7-5 General LCR Flow

- A system-wide flag activates LCR via Assistant T or HiPath 3000 Manager E.
- When LCR is activated, the check is performed for every trunk seizure (except when dialing a trunk code).
- If all the least expensive connection paths have been seized, LCR automatically switches to defined *more expensive* paths. The user can be signaled of this fact both visually and acoustically.

- In the case of outgoing calls on the ISDN network, the dialed number continues to be displayed until the destination number information on the other party is received.
- Digits can be transmitted either per digit or en-bloc, depending on the access method and the dial plan.
- Once an account code is entered, it applies to the entire connection setup.
- The allowed and denied lists are also used for LCR. The toll restriction check then refers to the digits dialed on the station without the trunk group code.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
No. of path tables	254	254	254	254	254
Number of paths per path table	16	16	16	16	16
No. of time zones	8	8	8	8	8
No. of outdial rules	254	254	254	254	254
Number of characters per outdial rule	40	40	40	40	40
No. of dial plans	514	514	514	514	514
Number of digits dialed (including trunk group code)	32	32	32	32	32
No. of digits evaluated	25	25	25	25	25

Requirements and Conditions

Subject	Requirement or Condition
LCR	With per-digit dialing, the last element in the outdial rule cannot be E(n); it may be E(n)A.
Networking	In networking with open numbering, route optimization cannot be activated.
Least cost routing (LCR)	If *primary carrier* is entered as a type in the outdial rule, re-routing is not done in the path tables. If routing should be carried out when the trunk is busy or when S_0 lines are disrupted, the type should be set to *Single Stage*.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure LCR**
2.	35-1 => Least cost routing - LCR on/off
3.	35-2 => Least cost routing - Dialing mode
4.	35-3 => Least cost routing - Outdial rule
5.	35-4 => Least cost routing - PIN
6.	35-5 => Least cost routing - Schedule
7.	35-6 => Least cost routing - Access
8.	35-7 => Least cost routing - Path tables
9.	35-8 => Least cost routing - Dial plan

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure LCR** Options
2.	Least Cost Routing

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure LCR.
2.	Place an outgoing call.
3.	The call is routed according to the setting.

7.9 Least Cost Routing (for U.S. Only)

7.9.1 Introduction

This section explains the definitions and procedures used by the HiPath 3000 least cost routing (LCR) feature to control the path over which outgoing calls are routed to the public network.

The system analyzes each trunk call placed using least cost routing. If the digits are recognized, a reference route table is scanned for route-group choices. After the route group is selected, the availability of the route is checked against the time schedule. If the route group is available, the LCR class-of-service requirement assigned to the route group is compared to the LCR class of service associated with the dialing device. If the LCR class of service associated with the dialing device is equal to or greater than the route-group class of service, the toll-restriction tables are then checked for additional screening information.

The dialed call number is used as the criterion for the connection path to be used. The system can evaluate up to 24 digits of the digit sequence plus up to 9 field separators. The digit sequence that can be dialed can consist of up to 32 digits. The evaluation can be carried out both *destination dependently* and *time dependently* and in dependence on the station's LCR class of service (COS).

General Operating Principle

The system analyzes the number dialed to determine if the digits input are valid. If the digits are recognized, a reference route table is scanned for Route group choices. Once the Route group is selected, the availability of the route is checked against the time schedule. If the Route group is available, the LCR COS requirement assigned to the route group is compared to the LCR COS associated with the dialing device. If the LCR COS associated with the dialing station is equal to or greater than the route group COS, the Toll Restriction tables are checked for additional screening information. This process is repeated for every call using the system LCR application.

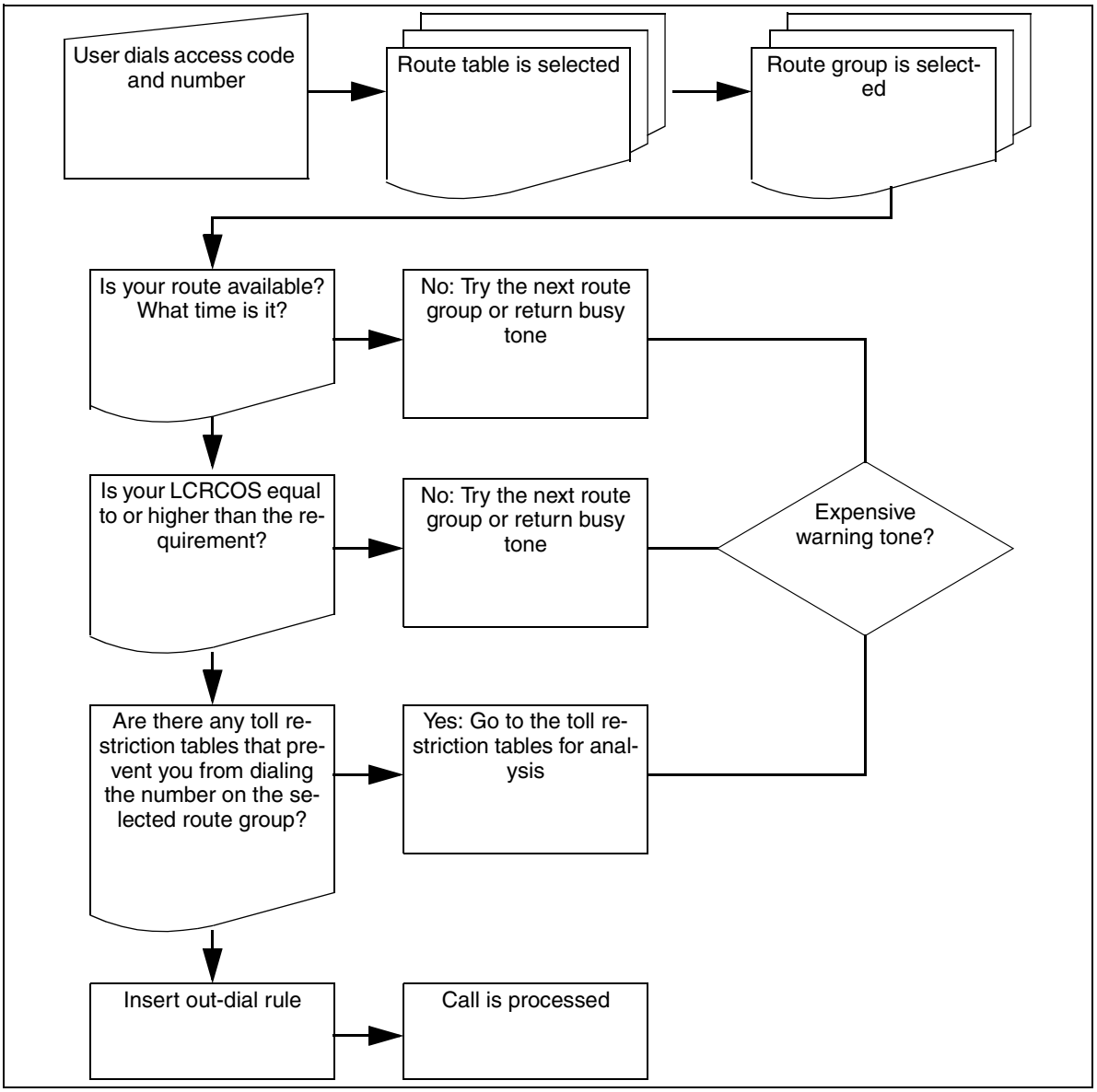


Figure 7-6 General LCR Flow (for U.S. Only)

- A system-wide flag activates LCR via Assistant T or HiPath 3000 Manager E.
- When LCR is activated, the check is performed for every trunk seizure (except when dialing a trunk code).
- If all the least expensive connection paths have been seized, LCR automatically switches to defined *more expensive* paths. The user can be signaled of this fact both visually and acoustically.

- In the case of outgoing calls on the ISDN network, the dialed number continues to be displayed until the destination number information on the other party is received.
- Digits can be transmitted either per digit or en-bloc, depending on the access method and the dial plan.
- Once an account code is entered, it applies to the entire connection setup.
- The allowed and denied lists are also used for LCR. The toll restriction check then refers to the digits dialed on the station without the trunk group code.

Configuration

- For instructions on configuring least cost routing using HiPath 3000 Manager E, refer to Section 8.32.1.
- For instructions on configuring least cost routing using Assistant T, refer to Section 8.32.2.

7.9.2 Carrier Types

Since in many cases the individual carriers provide specific connections and conditions at different tariffs (with different signaling methods, when applicable), the least cost routing feature can be used for automatically selecting the most economical connection or most economical carrier for each outgoing telephone call.

The following carrier types and networks are available for implementing least cost routing (LCR):

- AT&T
- MCI
- Sprint
- Westinghouse
- U.S. Government Federal Telephone System FTS-2000

Connections to the local exchange carrier (LEC) are toll-free. Connections to the inter-exchange carrier (IEC) are handled by the carriers listed above. The LEC has a default IEC that it uses for long distance calls unless the user selects another carrier. To select another carrier, the user must first dial the IECs Carrier Access Code (CAC) and Carrier Identification Code (CIC).

There are two different types of CIC numbering schemes: one for a 3-digit CIC and another for a 4-digit CIC. The four-digit code consists of the three-digit code preceded by the number 0. For example, the CIC for MCI is 222 or 0222.

The CAC for a three-digit CIC is 10, and the CAC for a four-digit CIC is 101.

7.9.3 Using Alternate Carriers

Alternate carriers may be connected to each trunk route group. The selection of the carrier is defined in the least cost routing outdial-rule section.

7.9.3.1 Carrier Access Methods Supported

Main Carrier

When seizing a trunk using the main carrier, the system can use en-bloc dialing or send single digits to the public network to set up the outgoing call. Note that this access method is used when routing calls over the public switching network.

MCL Single Stage

The system calls the selected carrier using a prefix and then dials the destination number. Digits are sent in the D channel when using ISDN service or as normal dialing when using analog service. This selection may be used in CorNet applications for advancing to public network facilities for overflow applications.

MCL Two Stage

The system calls the selected carrier using a prefix in this method as well. After a short synchronization phase, it sends a programmable authorization code and then the destination number using DTMF digits.

Corporate Network (CorNet)

When a corporate network (CN) method is used, the alternate network is connected directly to the HiPath 3000. This can be seen as a company network. LCR determines the trunk group by analyzing the number the user has dialed and routes the call either over the CO trunk group or over the corporate network. This method allows both an open and closed numbering plan to be implemented by manipulation of digits.

Dial-In Control Server

The system calls the selected carrier using a prefix and calls a dial-in control server (DICS). The authorization code and the destination number are transmitted within the SUB address. Dialing information is sent in the D channel.

Primary Rate Interface

The choice of a carrier or of a calling service is encoded in the following information elements:

- Network specific facility
- Operator system access
- Transit network selection

LCR Dial Plan

The dialed destination number serves as a criterion for the route group to be used. The system can evaluate up to 24 digits in the dialed sequence plus the routing code. The system evaluates and routes the call based on a time of day schedule and the station's least cost routing class of service.

Destination-Dependent Evaluation

The dialed digit sequence may be converted to a new digit sequence after evaluation, or it may be preceded by additional digits such as the carrier information of the destination.

7.9.4 LCR Time of Day Evaluation

The time table allows the system to evaluate the availability of a selected route according to a maximum of eight time zones. For each weekday, the number can be evaluated in hour:minute intervals throughout the day.

7.9.5 LCR Outdial Rules

The dialed number can be converted to any new digit sequence (up to 40 digits). The system can evaluate up to 514 digit sequences dialed from the station. Wildcards may be used in the LCR dial-plan table. The system supports 254 outdial rules for digit translation requirements as well.

7.9.6 Expensive Route Identification

If the first route selection in the route table is busy, the LCR function can advance to the next expensive path configured in the route group table. The system can notify the user of this with an audible signal, an optical signal, or both. Users can then decide whether they would like to use the assigned path or hang up.

7.9.7 Overflow Options

When the LCR function determines that the preferred trunk or tie-trunk group cannot be used, it can select an alternate trunk group within the selected route-group table.

7.9.8 LCR Class of Service

Up to 15 station-specific trunk classes of service are possible. The class of service setting controls access to the configured route groups in the LCR route-group table.

7.9.9 Carrier-Select Override

Carrier-select override (CSO) can be implemented using selective line seizure. In this case a connection can only be set up via the main carrier.

7.9.10 Handling of Numbers and Destinations and Trunk Group Access Codes

All numbers except internal station numbers are stored as an LCR digit string. All numbers dialed by a user are displayed without routing information. The dialed numbers remain displayed until answer supervision is received from the central office. If more than one trunk group access code is programmed for a trunk group, the first access code is the default.

If the number of the called party during an outgoing connection is also stored in the optiset E or optiPoint 500 caller list or if a callback is activated, the number dialed by the user is stored instead of the destination number sent by the system. In this case, the trunk group access code is also stored so that the system can recall the party from the caller list using the correct access code.

7.9.11 Correlation With Other Features

This section describes how the least cost routing application interacts with other system features

7.9.11.1 Station-Related Features

- System speed-dialing call numbers must be prefixed with the LCR access codes for proper operation.
- Station redial will insert the access code used for the original call.
- Repertory dial keys to external destinations must have the LCR access code for proper operation.
- Electronic notebook entries on optiset E memory telephones must include an LCR access code.
- General call keys will be activated when the route is selected by the system.
- Call keys will be activated when the route is selected by the system.
- MUSAP keys may be used for external calling using the LCR access code.
- DTMF tones may be input manually when answer supervision is received.
- Toll restriction class of service is checked as part of the LCR analysis.

7.9.11.2 Trunk-Related Features

- Basic rate ISDN trunks may be accessed by stations assigned CACH values or PDID values.
- Verified forced account codes may be requested before a selected route group is accessed.
- DTMF or rotary pulse dialing may be selected based on the outdial rule

Additional Information Concerning the Setup of Public Network Trunks

- The class of service configured is valid on a locked terminal (code lock).
- It is possible to send speed-dialing numbers after selecting the network.
- If speed-dialing numbers are used without first selecting the network, the default network is used (carrier-select override).
- When LCR is activated, no trunk group overflow is performed. An alternative route can be determined using the path table.
- When LCR is activated, no digit repetition is performed; the routing tables are followed instead.
- Message waiting and automatic callback follow the rules for LCR.
- An account code entered by the user is valid for the whole connection, even if more than one route over different trunk groups was tried during connection set-up.

- In the case of connections via other network providers or carriers, the provider or carrier may not transmit the actual connection costs, i.e., it may send the HiPath 3000 only the charges to the dial-in node (such as a dial-in control server [Europe only]).

7.9.12 Routing Tables

The routing tables evaluate the digits that the user has dialed and determine the destination number to be dialed from the system. The digits may be changed (manipulated) during this process. Digit translation makes it possible to repeat, suppress, and add digits or convert digit sequences. It is also possible to insert an inter-digit pause and change the signaling method. A distinction is made between the routing tables discussed in the following sections.

7.9.13 LCR Dial Plan

In the case of external calls, the system checks each number dialed up to a total of 25 digits, including field separators and trunk-group access codes. The dial-plan entry is associated with a route group for the destination number and the system assigns this path to the station for setting up the connection.

The dial plan may be separated into unique fields for identification and configuration purposes using the outdial rules. Table 7-2 shows the numbers 4922000 and 14084922000 entered in the dial-plan table.

Table 7-2 Sample Entries in a Dial-Plan Table

Field 1		Field 2		Field 3		Field 4		Field 5
9	C	492	–	2000				
9	C	1	–	408	–	492	–	2000
62659321	Reset boards and port assignments stored in the system.							

The following entries are valid for the destination:

- 0 . . . 9 Allowed digits
- – Field separator (maximum of 10 fields per dial-plan entry)
- C Simulated dial tone (can be entered up to three times). This entry is also interpreted as a field separator.
- X Any digit between 0 and 9
- N Any digit between 2 and 9
- Z One or more digits follow before end of dialing

- C Simulated dial tone (can be entered up to three times)

Notes: The character # within a dial string means end of dialing or signaling method changeover. For this reason, * and # are not valid entries. Outdial rules may be used to insert the * and # in the dial string to the public network.
Do not confuse the dash (-) symbol in the destination field, which functions as a field separator, with the dash in the Route Table field, which functions as a call blocker (refer to Table 7-3).

If Prime Line is used, no LCR is possible.

For the LCR dial plan to accurately select the route group, the dial-plan entries must be entered as follows.

Entries should be placed in ascending numeric order from 0 to 9. Specific dialed numbers must precede wildcard entries to prevent conflicts in matches with wildcard entries. Table 7-3 is an example of the suggested entry order.

Table 7-3 Sample Entries in a Dial-Plan Table

Entry No.	Dialed Digits (code + station no.)	Route Table
1	9C0Z	1
2	9C011Z	
3	9C492-5001	1
4	9CNXX-XXXX	1
5	9C1-NXX-XXX-XXXX	1
6	9C1-900-XXX-XXX	-*
7	9C1-976-123-3456	-**
...		
254		

* In this example, the dash (-) blocks all 900 numbers from being dialed.
** In this example, the dash (-) blocks only the specific number (976-123-3456) from being dialed.

The fields formed by the field separators “–” and “C” in the dial plan can be addressed selectively to repeat, suppress, exchange, or insert digits.

7.9.13.1 Rules for Creating LCR Dial Plan Entries

- The first field should contain only a programmed trunk group access code. It must not contain any wildcards.
- The wildcards N and X can occur more than once in any field except the first field.

- The wildcard Z can occur only in the last field. It represents an undetermined number of suffix digits.
- A digit sequence can be divided into a maximum of 10 fields.

7.9.14 Route Table

A route table contains up to 16 paths. Each path is described by a combination of the following:

- Route group
- Outdial rule
- Trunk access
- Time schedule plan
- Code for an expensive path

Paths

The system contains 254 path tables, each with 16 paths. LCR evaluates the trunk access in hierarchical order.

Search Order

The system searches the path table from top to bottom. If the located path is busy, or if the station does not have the proper class of service, the system continues to the next path.

Outdial Rule

The outdial rule is described in HiPath 3000 Manager E by its name, which can be up to 16 characters long, and by its index in system administration.

Carrier-Select Override

Users can deactivate automatic selection within the path by selecting a specific carrier (carrier-select override, CSO). For CSO to work, the requested carrier must be located in the dial plan and the path table assigned by the dial plan, and the user must have the required trunk access.

7.9.15 Time Table

To control LCR it may be necessary to configure up to eight time zones per day. These time zones are programmable for every day of the week. Each day begins at 12:00 a.m. Entering the end time in each of the columns delineates the time zones.

7.9.16 Outdial Rule Table

Table 7-4 is a sample outdial rule table. The outdial rule table determines the following:

- The way the digits entered by the user are converted and dialed by the system
- The route on which dialing will take place
- The maximum amount of time the LCR function has to control dialing
- Up to 254 outdial rules, each up to 40 characters long, can be defined.

Outdial rules are defined by the following parameters:

A: Repeat all remaining fields (transmit).

D (n): Dial a digit sequence (1 to 24 digits).

E (n): Repeat field (1 to 10) from dial plan.

M (n): Authorization code (1 to 16). This letter must not be in the final position.

P (n): Pause (1 to 60 times the system-wide pause unit)

S: Switch, changes signaling methods from DP to DTMF (with CONNECT, PROGRESS or CALL PROC with PI).

C: Access code

U: Use subaddress signaling method.

N (n): Network SFG (1 to 5) or Band Number (1)

Table 7-4 Sample Outdial Rule Table

Number	Name	Outdial Rule	Type
1	Dial All	A	Main network provider
2	Dial Fld 2 Then 3	E2E3	Main network provider
3	Dial All _P_ D444	AP1D444	Main network provider
4	Dial 4 Dial All	D4DA	Corporate network
...			
254			

The outdial rules provide access to different carriers via digit translation. The outdial rules address the dial plan fields selectively for the following operations:

- Repeating digits
- Suppressing digits
- Exchanging digits
- Inserting digits
- Inserting pauses
- Switching the signaling method
- Detecting a dial tone.

Using the *A* Parameter

The parameter *A* ensures that all subsequent digit fields are transmitted. The reference point is the last field indicator preceding *A*. The parameter *A* can occur more than once in the string and can be placed in any position. The *AA* combination has the same effect as *A*. The *E1A* combination is permitted only at the beginning of a string.

Using the *D* Parameter

The parameter *D (n)* can occur more than once in the string and can be placed in any position. The parameter *D (n)* can be surrounded by any other parameters. It should be no more than 25 characters long.

Using the *E* Parameter

The parameter *E (n)* can occur more than once in the string and can be placed in any position. The parameter *E (n)* can be arranged in any order, depending on *n*. A determining field can be addressed more than once, even consecutively. With the exception of the *E1A* combination, *E (n)* can be surrounded by any other parameters. The *n* can be any number between one and 10.

Using the *M* Parameter

The parameter *M (n)* can occur only once in the string. The parameter *M (n)* should not be placed in the final position in the string. The n can be any number between one and 16.

Using the *P* Parameter

The parameter *P (n)* can occur more than once in the string and can be placed in any position. The parameter *P (n)* can be surrounded by any other parameters. The pause length is *n* times the length of the system pause. The *n* can be any number between one and 60.

Using the *S* Parameter

The parameter *S* can occur only once in the string and should not be placed in the final position in the string. It cannot precede the *C* parameter.

Using the *C* Parameter

The parameter *C* can occur only once in the string. The digits following *C* are sent without dial pause. The parameter *C* is used for carrier access with single stage, two stage, DICS and PRI. It cannot be used after *S*.

Using the *U* Parameter

The parameter *U* can occur only once in the string. It should not be placed in the final position in the string. The subsequent characters are re-selected in INFO. The following parameters may not be used after *U*:

- S
- P
- C
- M

Using the *N* Parameter

The parameter *N* can occur only once in the string and should not be placed in the first position. The subsequent digits are the SFG or the band number, depending on the calling service.

Authorization Code

Up to 16 authorization codes with a maximum of 16 digits can be entered for accessing services from different carriers. The codes may be used for accessing special common carriers or adding additional digits to a dial string as part of the outdial rule.

Example: 53276543

One secure authorization code is provided (displayed as **********).

7.9.17 Operation

The system does not seize a trunk until it has completed the routing tables. To inform the user that the telephone is ready for dialing, you can insert a dial tone into the LCR dial plan using the letter *C*. The dialed digits are buffered until the system completes the routing tables. Only then is a connection set up.

The route table (1 to 254) is first determined via the dial plan on the basis of the dialed destination number. If the destination number is not found in the dial plan, the user receives a busy signal.

The route table for each route element describes the following:

- The trunk group assigned to the path
- The outdial rule
- The trunk access needed for seizure
- The required time plan
- The code of an expensive path (warning tone)

The out-dial rule determines the outgoing dialing procedure for the selected trunk group. Selection may be unsuccessful for one of the following reasons:

- Busy route group
- Time-of-day restriction
- LCR class-of-service restriction

In this case, another carrier can be selected via the alternative paths. You can configure an expensive-path warning tone to sound when an expensive carrier is selected.

The destination number that the user dialed is generally displayed until the requested party answers (ALERT or CONNECT). Then the destination number reached is displayed if available. The dialed destination number is stored in the station's redial memory.

Figure 7-7 shows a sample LCR flow diagram.

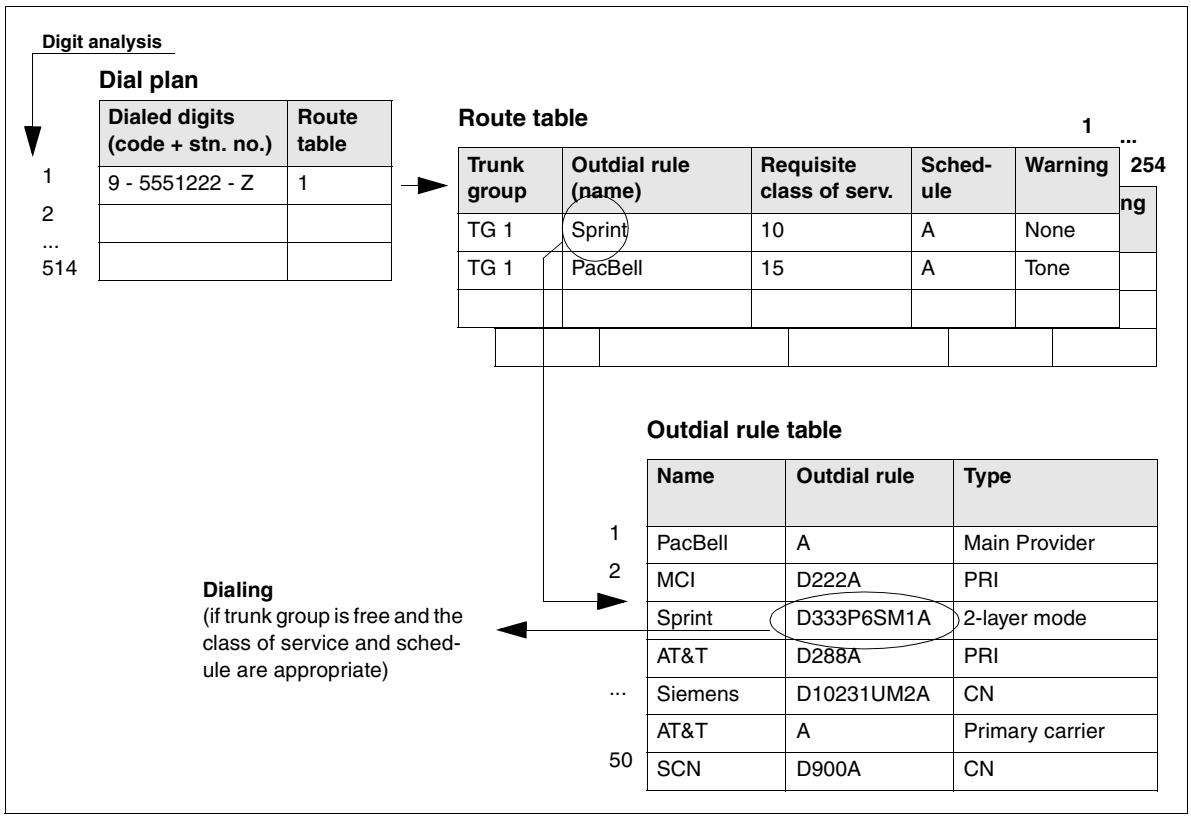


Figure 7-7 Sample LCR Flow Diagram (for U.S. Only)

7.10 Features for Internal Traffic

7.10.1 Internal Traffic

Definition

Internal traffic refers to connections between two internal stations. If the system is equipped with Prime Line on, users can set up an internal call on optiset E or optiPoint 500 telephones by using the extension key.

If Prime Line on is not configured, users can set up an internal call by dialing the internal station number.

The Prime Line feature is a system-wide feature that allows users to dial directly to external destinations without the use of *Trunk* or *Trunk group* keys. The external access code is automatically dialed by the system. Only one outgoing Trunk group is possible with this arrangement. To dial internal stations, the user must first press the *Internal* key and dial the station number.

Without Prime Line, outside connections require a Trunk, Trunk group key, or an access code.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Extension key	LED signaling is not assigned to the extension key.
Prime Line on (automatic line seizure)	Prime Line is a system-wide feature that allows users to dial directly to external destinations without the use of call or trunk keys. The requisite trunk or trunk group code is automatically dialed by the system. If Prime Line is deactivated, you must press a trunk or call key or dial a trunk or trunk group code to set up an external connection.

Configuration Options

This feature does not need to be explicitly configured; however, Prime Line can be configured using Assistant T and HiPath 3000 Manager E.

Programming Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure Prime Line on** *9531994
2.	17-11 => Networking - Prime Line, On, off

Programming Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure Prime Line on** Options
2.	System Parameters
3.	Flags -> Simplified Dialing

7.10.2 Direct Station Selection (DSS)/Repertory Dial Key

Definition

The programmable function keys on optiset E and optiPoint 500 telephones (or key modules) can be configured as direct station select (DSS) keys. In this case, users program the keys with the number of an internal station or station group. Pressing the *DSS* key calls the destination station (direct station selection). The associated LED indicates the call status of the station (ringing, busy, free).

The DSS key is also used as a means to quickly transfer an incoming call to another station. The user, during a conversation with an external party, can press a *DSS* key; this places the current call on Consultation Hold. The user can then transfer the call screened or unscreened to the DSS destination. If the destination does not answer, a recall is effected and the user can retrieve the call by pressing the *DSS* key once again.

A DSS appearance can appear on multiple stations. A station cannot have a *DSS* key with its station on the telephone.

The HiPath 3000 has programmable *Repertory Dial* (Repdial) keys. *Repdial* keys store destination numbers. Feature access codes cannot be stored under a *Repdial* key. External destinations up to 25 digits, including the trunk, trunk group, and LCR access code, can be stored under a *Repdial* key as well as internal Call Group numbers. When operating the repdial key, the LED is not functional.

Programming of RepDial destinations and *DSS* keys must be done via HiPath 3000 Manager E in the case of non-display telephones. *DSS* keys can also be programmed by the user on a display telephone.

Model-Specific Data for optiPoint key module

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	optiPoint 500 basic, optiPoint 500 standard, optiPoint 500 advance, optiset E advance plus/comfort, optiset E advance conference/conference, optiset E memory				
SW requirements	V1.0 or later				
Max. number of key modules per telephone	4	4	4	4	4
Max. number of key modules per system	100	100	30	30	30

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Max. number of programmable keys per key module	16	16	16	16	16
Number of key modules per cabinet	50	–	–	–	–

Model-Specific Data for optiPoint Busy Lamp Field BLF (optiPoint BLF)

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	**x**	**x**	**–**	**–**	**–**
HW requirements	optiPoint 500 basic, optiPoint 500 standard, optiPoint 500 advance		–	–	–
SW requirements	V1.0 or later		–	–	–
Max. number of optiPoint BLFs per telephone	2	1	–	–	–
Max. number of optiPoint BLFs per system	12	6	–	–	–
Max. number of programmable keys per optiPoint BLF	90	90	–	–	–
Number of optiPoint 500 telephones with optiPoint BLF	6	6	–	–	–

Requirements and Conditions

Subject	Requirement or Condition
DSS	This feature functions on optiset E and optiPoint 500 telephones only.
Pick up	A call can be picked up by pressing the DSS key for that station.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure DSS key** *91 Access key programming
2.	Press the key to be assigned.
3.	Assign *Station number* to the key selected.
4.	Press the extension key (if simplified dialing is enabled).
5.	Enter station number.
6.	Confirm entry.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure DSS key** Options
2.	Set up station
3.	Key programming

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Press the DSS key. The programmed extension rings.

7.10.3 Names

Definition

Users can assign names to each station, to each station group, and to each trunk group. These names are displayed for internal calls (including calls via CorNet-N). If an incoming call does not contain station number information (analog trunk), the trunk group name is displayed. If the incoming call contains station number information (ISDN), this information is displayed. Refer to Section 7.5.7, Translate Station Numbers to Names for System Speed Dialing, on page 7-184 for more information.

A memory telephone is required as Assistant T to enter characters of the alphabet. Characters which can be used: all letters found on the memory telephone keyboard, digits 0-9, * , #.

If no name has been assigned to an internal station, the number is displayed instead.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Maximum number of letters in station and group names	16	16	16	16	16
Maximum number of letters in trunk group names	10	10	10	10	10

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure station names**
2.	14-12 => Configure station - Station name
3.	Select the relevant station.
4.	Enter name.
5.	**Configure group names**
6.	16-15-3 => Incoming calls - Hunt/group call - Group name
7.	Select the relevant group.
8.	Enter name.
9.	**Configure trunk groups**
10.	17-15 => Networking - Trunk group names
11.	Select the relevant trunk group.
12.	Enter name.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure station names** Options
2.	Set up station
3.	Station
4.	Change name for relevant station.
5.	**Configure group names** Options
6.	Incoming calls
7.	Hunt group
8.	Enter name for the relevant group.
9.	**Configure trunk groups** Options
10.	Lines/networking

Step	Action
11.	Trunk groups
12.	Enter name for the relevant trunk group.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure a station name.
2.	Call the station from another internal telephone with display.
3.	The calling party name appears on the display.

7.10.4 Automatic Callback When Free or Busy

Definition

Users can activate an automatic callback to a free or busy internal station. When the callback destination finishes its call (when busy) or initiates an outgoing call, the system calls back. First, the system calls the user who initiated the call. After that user answers, the system calls back the station the initiating user wishes to speak with. For more information on external callbacks, refer to Section 7.13.11 on page 7-447.

A telephone can initiate up to two Callback requests and be the destination for up to two requests. Further requests beyond these limits are rejected.

Callback requests are deleted when:

- the call is completed
- the initiator cancels the request
- the system deletes daily at 11:57 p.m. all callbacks that were initiated towards other CorNet-N nodes

Callback requests can be set on internal stations and groups, but not to groups located in other CorNet-N nodes.

Callback Requests Set on a Group

- A request set on a hunt group is set on the first member of the group.
- A request set on a Group Call is set on the first member of the group.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Callbacks per station	65	65	65	65	65

Requirements and Conditions

Subject	Requirement or Condition
Callback	The callback is not deleted until the call is completed or the initiating station deletes the callback.
Callback	Every night at 11:57 p.m., all callbacks that are not within the system (CorNet) are deleted.
Callback	A callback can be set to an internal group (not DSS1, CorNet-N, or QSig [not for U.S.). The callback is stored with the first station in the group.

Configuration Options

This feature does not have to be explicitly configured.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

- Display Telephones

  The called station does not answer or is busy. The user selects the prompt *Callback?*. The called station stops ringing, and the display confirms the request with *Will call back*.

  The next time the called party uses the telephone, the system calls the initiator back with a special three-ring call. The display informs the initiator *Callback: name of party*. The initiator then goes off hook, and the called party rings again.

  If the called party answers, the Callback request is deleted. If not, the Callback request remains active and a Callback is initiated the next time the called party uses the telephone.

  Deleting Callback requests: From an idle state, the initiator dials the default access code #58, or presses *Program/Service*, scrolls to *More Features* and scrolls to and selects *#58=View callbacks?*. The initiator can then select either of the two messages *Sent* and *Delete*.

- Non-Display Telephone

  The called station does not answer or is busy. The initiator presses the *Consultation* key (or performs a switch hook flash in the case of an analog telephone) and dials the default access code **58*. Confirmation tone (three short bursts of tone) is heard.

The next time the called party uses the telephone, the system calls the initiator back with a special three-ring call. The initiator then goes off hook, and the called party rings.

If the called party answers, the Callback request is deleted. If not, the Callback request remains active and a Callback is initiated the next time the called party uses the telephone.

Deleting Callback requests: From an idle state, the initiator dials the default access code *#58*. Because requests may be active for many hours and there is no way to display to the user to whom the requests were made, the system deletes all callbacks invoked from the station.

7.10.5 Entrance Telephone/Door Opener

Definition

With this feature, the system signals a defined user (entrance telephone ring destination) when the doorbell function activates. Lifting the handset connects the user at the entrance telephone with the user at the ring destination. The ring destination user can then activate the door opener from the ring destination if desired.

In addition, users can activate the door opener from the entrance telephone by entering a 5-digit PIN using a hand-held DTMF transmitter. Users can also set up a voice connection to the entrance telephone.

The following settings can be implemented:

- **Opener:** In this configuration, the door opener is set up via an analog interface; the entrance telephone must be connected via an adapter.
- **DTMF:** This setting specifies whether the door opener is activated by a DTMF transmitter.
- **Call forwarding:** This specifies determines whether the call from the entrance telephone is forwarded to an external call forwarding destination.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Entrance telephone or ET/A or ET w/amplifier				
SW requirements	V1.0 or later				
Max. no. of entrance telephones	4	4	4	1	1

Requirements and Conditions

Subject	Requirement or Condition
Entrance telephone ring destination	If a call is already indicating camp-on at the entrance telephone ring destination, an intercept is performed. If the intercept station is also busy, the system searches all optiset E and optiPoint 500 telephones.
Night answer	Night answer is not taken into account in the signaling.
HiPath 3250 (not for U.S.)	Door busy and messenger call are possible using the optiset E control adapter.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	Before setting up an entrance telephone, you should first delete all features for this station.
2.	24-1 => Entrance phone - Entrance phone
3.	24-2 => Entrance phone - Destination
4.	24-3 => Entrance phone - Door opener
5.	24-4 => Entrance phone - Call FWD, external
6.	24-6 => Entrance phone - Door opener, DTMF
7.	Select station to be allowed to open the door.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Before configuring an entrance telephone, you should first delete all features for this station.
2.	Configure entrance telephone/door opener Options
3.	Set up station
4.	Ext. connection
5.	Door relay

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Press the doorbell.
2.	The entrance telephone ring destination sets up a voice connection to the entrance telephone.
3.	You can activate the door opener from the ring destination if configured.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

Going off hook at the door telephone sets up a call to the reception station. The reception telephone rings with repeated three short ring bursts and the display shows the name programmed for the door. If there is no answer, the Call Management rules are followed.

To answer, the reception goes off hook and is connected to the door telephone. To release the door latch, the reception selects the prompt *Open Door?*. The door latch is activated for the time determined in the database (default is 255 x 100ms or 2.55 seconds) and the call is dropped.

Alternatively, to release the door latch without a call from the entrance telephone: the reception dials the default access code **61* or presses the *Program/Service* key and scrolls to and selects the prompt **61=Open Door?*, then dials the station number assigned to the entrance telephone. One burst of ring is sent to the entrance telephone and the latch is released. Any telephone is allowed to release the door latch.

Allowing an Outside User to Open the Door

Only authorized telephones can enable this function by dialing the default access code **89* or pressing the *Program/Service* key and scrolling to and selecting the prompt **89=Door Opener on?*, followed by the entrance telephone's station number and the authorization PIN (Default is 00000). The user must then choose one of two modes of operation: enable without ring or enable with ring. That is, if the external user uses the door opener feature, the reception telephone will either be advised or not by a ring. The reception can further change the default password 00000. Authorization is determined in the database and provided to any telephone. A non-display telephone must follow the sequence exactly; confirmation tone is heard at each step.

To disable the external access capability, the authorized telephone dials the default access code *#89*.

With this feature enabled, the outside user can open the door without assistance from an internal station. Going off-hook will alert the reception telephone with repeated three ring bursts (if programmed as *With ring*). The outside user dials the PIN number. The door latch is released and the reception telephone stops ringing.

7.10.6 Speaker Call/Handsfree Answerback/Internal Paging (OptiPage)

Definition

A speaker call allows an internal connection to be set up without the called user lifting the handset; the speaker on the called user's telephone is activated. Handsfree answerback without lifting the handset can be done via phones with a microphone. Through lifting the handset, the call becomes a normal two-party call.

Speaker calls permit announcements to groups (paging zones) of up to 20 stations. This feature is also called internal paging. In this case, group members have no handsfree answerback option. If a member of a paging group goes off hook during a page, the call then becomes a normal two-party call. Group members can include optiset E and optiPoint 500 telephones.

Speaker calls and internal paging are possible with internal optiset E or optiPoint 500 telephones with speakers. They are activated by means of a key or a code. For each extension, it is possible to configure whether the user can receive a speaker call.

Speaker Call

To place a Speaker Call to a station, the user dials the default access code **80* or can press the *Program/Service* key, scroll to and select the prompt **80=Speaker Call?*, then enter the destination number, hears confirmation tone and announces the call. Non-display and analog telephones use the access code followed by the station number.

At the receiving end, the user hears a short burst of ring, followed by the introduction from the calling party. The *Mic. Mute* key LED is lit to advise the called party that the caller cannot hear. The called party can go off-hook to answer the call or, if the telephone has a microphone, press the *Mute* button to reactivate the microphone.

The caller can invoke this feature by using a key programmed on the telephone. The LED is lit for the duration of the Speaker call.

Handsfree Answerback

The operation is similar to the above, except that the called party can allow Speaker calls to be immediately connected without having to enable the microphone.

To enable the Handsfree Answerback function, the user dials the default access code **96* or presses the *Program/Service* key and scrolls to and selects the prompt **96=HF answerback On?*.

To disable the feature (the feature Speaker Call remains active), the user dials the default access code *#96*.

Internal Paging

The operation is similar to the feature Speaker Call except that the caller dials **80* followed by a Call Group number. After the hearing the tone, the user can make an announcement.

Stations in a group which are busy or in DND, do not receive the internal paging. Calls placed to a group while an internal page is in progress, hear only busy, and only camp on to after the paging has been terminated. Calls placed to a telephone which has been called via Speaker Call, only hear busy and are not allowed to camp on to until the *Mic. Mute* function has been disabled.

Internal Paging and Speaker calls are forwarded if the destination or member of the paging group is forwarded.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	optiset E or optiPoint 500 telephone with speaker				
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Handsfree answerback	When you dial **96*, the microphone is automatically activated for each speaker call. You can deactivate this function by dialing *#96*.
Do not disturb (DND)	You cannot use this feature with stations that have activated DND.
Toggle, consultation hold, transfer	You cannot use toggle, consultation hold, or transfer with this feature.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Dial an optiset E or optiPoint 500 telephone with a speaker or a speaker group (*80 or a speaker phone key + internal destination station number).
2.	The destination station receives an alerting tone and the speaker is activated.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.10.7 Transfer from Announcement

This feature lets you make announcements to groups (paging zones). It is also known as internal paging. Members of the group can answer the call handsfree.

The procedure is as follows:

- A user answers an external call.
- The user places a consultation call and begins the group announcement.
- The system sets up a two-party call when another party lifts the handset or turns on the speaker, and the party who answered the call hangs up. The remaining group members are removed from the call.

Speaker calls and internal paging are available on internal optiset E or optiPoint 500 telephones with speakers. You can use a key or code to activate the feature, and you can program the speaker call capability separately for each extension.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	optiset E or optiPoint 500 telephone with speaker				
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Handsfree answer-back	When you dial *96, the microphone is automatically activated for each speaker call. You can deactivate this function by dialing #96.
Do not disturb	You cannot use this feature with stations that have activated DND. However, an authorized caller can override do not disturb, in which case a busy signal sounds for five seconds. The user then receives a call (not a speaker call).
Toggle, consultation hold, transfer	The toggle, consultation hold, and transfer features are not available.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for proper functioning as follows:

Step	Action
1.	Dial a station by entering code *80 or pressing a speaker phone key and entering the internal destination number (the destination must be an optiset E or optiPoint 500 telephone with speaker or a speaker group).
2.	The destination user hears an alerting tone and the speaker is activated.

7.10.8 Radio Paging Equipment (PSE) (Not for U.S.)

Definition

Radio paging equipment can be used to transmit type-dependent voice announcements or alphanumeric data (test messages) to users with portable radio receivers. Users being sought can use a procedure to answer this call from any telephone.

Radio paging equipment (PSE) can be connected via analog interfaces, analog trunk circuits, or a special module (TMOM for enhanced radio paging equipment in HiPath 3750 and HiPath 3700 only). There are two types of PSE:

- Simple radio paging equipment
- Enhanced radio paging equipment (HiPath 3750 and HiPath 3700 only with TMOM)

7.10.8.1 Simple Radio Paging Equipment/Simple PSE (Not for U.S.)

Definition

Simple PSE allows users to transmit voice announcements and numeric data to the PSE user. One of the two types of message informs PSE stations of waiting calls. Users being sought can use a procedure to answer the call from any telephone.

Radio paging equipment can be the destination for call forwarding or group ringing; it can also be a member of a group.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Analog ports				
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Simple radio paging equipment	Does not support expanded call processing characteristics such as those available with enhanced radio paging equipment.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure radio paging equipment**
2.	32-1 => Radio paging equip - Radio paging port
3.	32-2 => Radio paging equip - Radio paging type

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure radio paging equipment** Options
2.	Connections
3.	External connections

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure radio paging equipment.
2.	Select the procedure for a PSE search.
3.	The sought user is paged.

7.10.8.2 Radio Paging Equipment via ESPA/Enhanced Radio Paging Equipment (Not for U.S.)

Definition

Enhanced radio paging equipment also includes certain communications server functions. It offers the following options:

- Transmission of alphanumeric data
- Automatic connection setup to the paging subscriber after answering
- Automatic transmission of paging subscriber‘s number
- Storage of up to 15 paging and answer requests
- Radio paging for internal and external calls
- Waiting for callback answer with handset on or off hook
- Selectable displays and ring and paging procedures (selected when entering the paging request)

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	–	–	–	–
HW requirements	TMOM	–	–	–	–
SW requirements	V1.0 or later	–	–	–	–

Dependencies/Limitations

Subject	Dependency/Limitation
Voice call	Voice calls are not possible.

Configuration options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure radio paging equipment**
2.	32-1 => Page - Radio paging port
3.	32-2 => Page - Radio paging type

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure radio paging equipment** Options
2.	Trunk modules
3.	Ext. connection

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure radio paging equipment
2.	Select procedure for paging radio paging equipment.
3.	The sought user is paged.

7.10.9 Message Texts/Mailboxes/Message Waiting

Definition

- **Sending a message**

  Internal extensions can select a text message from an internal system message list and send the message to any internal optiset E or optiPoint 500 telephone with display. Users can transmit these messages in the idle, ringing, or busy state, or during a call. (During a call, the station number information is omitted.) A station that can be reached via a CorNet-N tie trunk is also considered to be an internal station. The initiating party can also be an analog voice mail system or central voice mail server in the CorNet-N network. A separate, fixed text is available for messages from these devices.

- **Receiving a message**

  The system indicates the presence of a message depending on the type of telephone. The following applies to the default setting:

  – On optiset E or optiPoint 500 telephones with display, a waiting message is signaled via the display and a *Mailbox* key, if programmed. In addition, there is acoustic signaling using a special dial tone.

  – On optiset E or optiPoint 500 telephones without display, a message is signaled by the *Mailbox* key. In addition, there is acoustic signaling using a special dial tone.

  – (Not for U.S.) On special analog telephones with a mailbox LED (special board), a waiting message is signaled via the LED (not a key). These extensions must be configured accordingly. An audible signal also sounds, like on analog telephones. To signal messages with the mailbox LED, set the PSUI ring voltage (HiPath 3750 and HiPath 3700) to 75 V.

  – On analog telephones, a waiting message is signaled by a special dial tone (HiPath 3550, HiPath 3350, HiPath 3250, HiPath 3500 and HiPath 3300) or by the announcement “Message waiting” (HiPath 3750 and HiPath 3700).

  – On mobile telephones, a waiting message is signaled by an advisory ring and the mailbox symbol appearing on the screen.

  You can use HiPath 3000 Manager E to adjust the optic and acoustic signaling in the following way:
  If the flag “Status display for info message” is not set, the status display “Display infos” is not visible until you scroll in the system menu.
  Use the Plus Products flag “Acoustic message signaling” to set whether the signaling on optiset E or optiPoint 500 telephones and other telephones should use the special dial tone or an announcement (only for HiPath 3750 and HiPath 3700) or if no signaling should be done.

- **Callback**

  On telephones with display, a caller can retrieve information such as the sender's name and number, text message, date, and time using a dialog menu. The user can then call back the sender of the message without entering a station number. To activate callback on analog telephones, users must use a procedure code; on optiset E or optiPoint 500 telephones without a display, users can press a *Mailbox* key.

- **Deleting a message**

  The sender and receiver can use a dialog menu or a procedure code to delete the message. Otherwise, the message is deleted only if it results in a call to the station.

- **Central voice mail server**

  A station in a satellite communications server can program use call forwarding or call forwarding—no answer to send its calls to the central voice mail server. Calls received are then indicated at the station via message waiting. External station numbers cannot be programmed in the call management lists. For this reason, a pseudo port should be configured as a PhoneMail® port for call forwarding to the external voice mail server.

  The default text messages are:
  0 = Please callback
  1 = Someone is waiting
  2 = Appointment
  3 = Urgent call
  4 = Do not Disturb
  5 = Fax waiting
  6 = Dictation please
  7 = Please come see me
  8 = Please make copies
  9 = Ready to depart

This feature can be activated/deactivated via a DISA connection, by its own station user.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Maximum number of simultaneous texts	100	100	30	30	30
Maximum number of characters in text	24	24	24	24	24
No. of message texts	10	10	10	10	10
Max. no. of messages on optiset E or optiPoint 500 telephone with display	5	5	5	5	5
Max. no. of messages on mobile telephones	5	5	5	–	–
Max. no. of messages on optiset E or optiPoint 500 telephone without display or analog telephone.	1 + voice mail message	1 + voice mail message	1 + voice mail message	1 + voice mail message	1 + voice mail message

Requirements and Conditions

Subject	Requirement or Condition
Message texts	The texts are automatically deleted when a call is set up between the two stations.
Message texts	Telephones with alphanumeric keyboards can also be used to enter individualized texts that are not stored.
Voice mail	A separate text is available for voice mail. The maximum number of texts is not affected by the system.
Special dial tone/ announcement	With HiPath 3750 and HiPath 3700, an announcement is issued instead of a special dial tone.
France	The country-specific default for France is to use the special dial tone as the acoustic signaling for all telephones.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Change message texts**
2.	19-11 => Displays - Text messages
3.	Select desired text.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Change message texts** Options
2.	System parameters
3.	Texts
4.	Info texts

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Enter *68 or press the *Send Message* key.
2.	Enter the internal station number of the destination.
3.	Select the desired text (0-9), or enter a text if using an optiset E memory telephone).
4.	The transmitted text appears on the display of the destination station.
5.	Enter the code (#68-0) or press the key to delete the message.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

Display telephones
A memory telephone can compose a personal message with a maximum number of 24 characters. The message is not stored for future use.

The user can also send a text message while calling an internal station by following the above *Program/Service* procedure.

A voice messaging system can also leave a message at a station. If the user has programmed a button, the LED will be lit (optiset E and optiPoint 500 telephones only).

7.10.10 Advisory Messages

Definition

optiset E and optiPoint 500 telephones with display can activate an advisory message that has been configured in the system. When a user calls a station that has activated this type of message, the advisory message appears on the caller's display.

Messages can contain variable parameters. The user enters the parameters (such as the time) when activating the feature. Users can use the numeric keypad on the telephone to enter additional characters.

With an optiset E memory telephone, users can enter and send, but not store, an additional, individualized message.

The message is also displayed at the initiator's telephone so that co-workers are also advised. 10 default system-wide advisory messages are provided. These can be changed via administration, using Assistant T, HiPath 3000 Manager C, and HiPath 3000 Manager E.

This feature can be activated/deactivated via a DISA connection, by its own station user or for another user with the aid of the feature Associated Services.

The *Flags* screen is one of three screens in the *System Status* pathway of HiPath 3000 Manager E that provides station-specific (rather than system-specific) status information. You can use the *Flags* screen to see if a station has activated an Advisory Message or not.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	optiset E or optiPoint 500 telephone with display				
SW requirements	V1.0 or later				
Number of advisory messages in system	10	10	10	10	10
Max. no of characters in advisory message	24	24	24	24	24

Requirements and Conditions

Subject	Requirement or Condition
Call forwarding	With call forwarding, the telephone displays the advisory message of the called station.

Configuration Options

This feature does not have to be explicitly configured.

Configuring the Feature Using Assistant T

Users can change the advisory messages using Assistant T and an optiset E memory telephone):

Step	Action
1.	Change advisory messages
2.	19-12 => Displays - Advisory messages
3.	Select the desired text.

Configuring the Feature Using HiPath 3000 Manager E

Users can change the advisory messages using HiPath 3000 Manager E:

Step	Action
1.	Change advisory messages Options
2.	System parameters
3.	Texts
4.	Advisory message

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Use code *69 or a configured function key on an optiset E or optiPoint 500 telephone with display to activate an advisory message.
2.	Call the station from another optiset E or optiPoint 500 telephone with display.
3.	The activated message appears in the display.

Operating the Feature

From an idle state, the user dials the default access code **69* or presses the *Program/Service* key, scrolls and selects the prompt **69=Advisory msg on?*. The user then scrolls to and selects the appropriate message.

A memory telephone can compose a personal message with a maximum number of 24 characters. The message is not stored for future use.

The user can delete the advisory message by dialing the default access code *#69* or via the *Program/Service* procedure.

A key can be programmed if the feature is to be used frequently.

The default advisory messages are:

0 = Will return at:
1 = On vacation until:
2 = I am out until:
3 = Put all day
4 = Out to lunch
5 = Not available
6 = Home phone:
7 = Contact:
8 = Avail at:
9 = Am in room:

Digits can be added to all messages ending with a colon.

The user can prevent someone from changing the message by locking the telephone. Refer to Section 7.4.2, Individual Telephone Lock (Changeover).

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.10.11 Internal Directory

Definition

On all optiset E and optiPoint 500 telephones with display, users can view a directory of all internal stations with their names and numbers. In addition, users can view entries from the system speed-dialing facility (name, destination station number), to search for and call the desired station. The name of the desired station is entered directly using the GSM procedure.

After selecting the **Directory** option from the menu, you can enter the name of the party you want to reach directly with the GSM procedure. To do this, press the key containing the letter you wish to access. Press the key once to access the first letter, twice to access the second letter, and three times to access the third letter (the one farthest to the right).

You can also program a key to provide access to the feature, or you can select either *Internal stations?* or *System speed dial*. Then you scroll through each name by selecting *Next?* or scroll to and select the first letter of the wanted name. Selecting a name automatically dials the destination.

Users of optiset E memory telephones use the keys on the keyboard:

- ***Dial* and *Enter* (*Return*) key:** dials the number beside the cursor.
- ***Card* key:** Retrieves entries from the highlighted name.
- ***End* key:** Closes the telephone directory.
- ***Up* and *Down* keys:** moves the cursor up or down.

HiPath 3000 Manager E allows you to define whether a station number will appear in the directory for each station individually.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	optiset E or optiPoint 500 telephone with display				
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Electronic directory	After selecting the *Directory* menu command, users can enter the name of the desired station directly using the GSM procedure. To do this, press the key displaying the required letter. If the letter is in the first position, press the key once. If it is in the second position, press the key twice. If the letter is in the third position (that is, the farthest to the right), press the key three times. All the letters in the name can be entered consecutively, using this procedure. Of course, scrolling through the dialog keys is also possible.
Electronic notebook (ENB)	If you activate the telephone's local ENB, you cannot use the internal directory feature.
System speed dialing	If system speed dialing is selected, names are displayed only if the telephone directory is activated.
Directory	On telephones with a two-line display, groups are formed for the search. In the case of optiset E or optiPoint 500 telephones with ENB, the keyboard can be used for a search.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure directory**
2.	22-12 => System settings - Directory

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure directory** Options
2.	System parameters
3.	System flags

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	On an optiset E or optiPoint 500 telephone with display, lift the handset. *Directory?* appears on the display.
2.	Confirm your selection.

7.10.12 Room Monitor

Definition

The room monitor feature can be used to monitor a room. All telephone types can be used for this purpose. Only internal stations can use room monitoring.

When a user monitors a room, the room monitor telephone receives no call signaling, and the call is immediately through-connected.

A system-wide flag must be set via HiPath 3000 Manager E only.

To monitor a room, monitored telephones without a microphone must have the handset off-hook.

If an optiset E or optiPoint 500 telephone calls a station activated as a room monitor, in the standard configuration the microphone on the calling optiset E or optiPoint 500 telephone is deactivated.

If a call is received by a monitoring station, camp on tone is heard at the monitoring station, but not at the monitored station. The user must disconnect from the monitored station call connection to answer the incoming call. The user can once again call the monitored station at a later time. The feature is still active at the monitored station until it goes on-hook.

The *Flags* screen is one of three screens in the *System Status* pathway of HiPath 3000 Manager E that provides station-specific (rather than system-specific) status information. You can use the *Flags* screen to see if a station has activated Room Monitor or not.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Room monitor	To monitor a room, telephones without a microphone must have the handset off-hook (exception: optiset E and optiPoint 500 telephones with speakerphone function).

Subject	Requirement or Condition
Hunt group	If the room monitor station is in a hunt group, the station is not taken into account for incoming calls to the hunt group.
Analog trunks	If you connect an external station by consultation hold to a station that has activated room monitoring, the external trunk must have a backward release criterion.
Room monitor	If an optiset E or optiPoint 500 telephone calls a station activated as a room monitor, the speakerphone function on the calling telephone is deactivated in the standard configuration.

Configuration Options

This feature can be configured using HiPath 3000 Manager E.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure room monitor** Options
2.	System parameters
3.	Flags
4.	Activate room monitor

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Lift the handset (on telephones without a microphone).
2.	Activate the room monitor feature by dialing *88 or pressing the *Room Monitor* key.
3.	Call this extension from another internal station. The call is immediately through-connected. All sounds in the room are transmitted.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

- Monitored system

  Going off-hook, dial the default access code **88* or press the *Program/Service* key and scroll to and select the prompt **88=Room monitor?*. Leave the telephone off-hook or in speakerphone mode. The Speaker key remains lit but the speaker is deactivated. Normal incoming calls do not ring the telephone.

  A feature can be programmed on the monitored station if this feature is to be used frequently.

- Monitoring Station

  Dial the monitored station's number; connection is established without ring or tone.

  The call is dropped when the monitoring station goes on hook, but the monitored station can be called from another telephone. The monitoring station can receive and process calls in the normal manner providing a separate trunk key is used for external calls. Call waiting tone is applied, but not signaled on the monitored station.

  The feature is deactivated when the monitoring station goes on hook.

7.10.13 Editing the Telephone Number

Definition

This feature allows the user to edit the station number digits before the digit transmission; this is common with mobile telephones, among others.

The user can edit after entering the first digit. After entering a sequence of digits, the user can edit it from right to left by pressing a key; each time the key is pressed, one digit is deleted. The user first enters the complete correct sequence of digits and then presses the confirm key or lifts the handset to start the digit transmission.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	optiset E or optiPoint 500 telephone with display				
SW requirements	V1.2 or later				

Requirements and Conditions

Subject	Requirement or Condition
Call waiting	Call waiting during editing is possible because the telephone is in the digit input state and is busy for incoming traffic.
Consultation hold	After a consultation hold, the telephone is in the digit input state. This makes it possible to edit station number digits.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure edit telephone number:** 14-33 => configure station - edit tel. number (0 = off (default), 1 = on)

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure edit telephone number:** Options
2.	Configure stations.
3.	Stations: Double-click the station parameters.
4.	Flags: edit tel. number.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Enter station number.
2.	Edit station number.
3.	Activate digit transmission.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.11 Tenant Service

The tenant service feature is implemented using existing features. This means that it is not necessary for users to explicitly configure subsystems.

Users can control permitted and barred connections between individual stations and trunks via traffic restriction groups.

The functionality of all features remains unchanged.

Features in tenant service include:

- Intercept
- System number
- Caller list
- Busy override
- DISA
- Speaker call
- Call detail recording
- Hotline destinations
- Text messages, advisory messages
- Internal calls
- Internal directory
- CDB printout
- Night answer
- optiClient Attendant
- Park slot
- Prime Line
- Traffic restriction groups
- Voice mail
- Toll restriction

7.11.1 Tenant Service Configuration

Definition

The HiPath 3000 systems can be used as a tenant service, which allows it to be used simultaneously by more than one customer. All features have the same functionality for all customers.

However, certain resources must be divided among the tenants (customers). They can be assigned to one, several, or all tenants. The resources to be divided are:

- Stations
- Trunk groups
- PC-AC (optiClient Attendant)
- Intercept position
- Announcement devices, voice mail
- Traffic restriction matrix (ITR matrix)
- Door opener
- Hotline
- DISA trunks
- Traffic restriction groups determine the ability of tenants to access each other.
- Hotline destinations can be configured for each system.
- A PC-AC can be assigned to each tenant.
- Six MOH devices can be defined for six possible ITR groups. This means that the analog interfaces used for connection are part of the ITR groups. Which MOH device is used depends on the ITR group of the station that places the call on hold. You cannot use the logical port “0” as an MOH source.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–
Number of tenant service systems	3	3	3	–	–
Hotline destinations	6	6	1	–	–
Announcement devices	16	4	1	–	–
MOH-devices	6	6	6	–	–
Trunk groups	16	16	8	–	–
Number of trunk group keys per optiset E or optiPoint 500 telephone	6	6	6	–	–
Max. number of entrance telephones	4	4	4	–	–

Requirements and Conditions

Subject	Requirement or Condition
Call detail recording central (CDRC)	Only one CDRC exists for all tenants.
Internal calls	Internal calls are possible between stations in different systems if allowed by the traffic restriction groups.
Prime Line	Prime Line can be configured only for the entire system.
CDB printout	The database can only be printed for the entire system.
Internal directory	The internal directory displays the names of all stations and speed-dialing numbers in the system.
Switch	It is not possible to transfer undialed trunks.
Simplified dialing	Simplified dialing is not possible.
Speed transfer	Speed transfer is not possible.
Intercept	Intercept can be configured only for the entire system.

Subject	Requirement or Condition
Tenant	Users can configure a maximum of three different tenants.
System configuration	The system configuration can be changed from only one telephone (programming telephone).

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Assign trunks to stations via an ITR group** 18-3-1-1 => Traffic restriction - ITR groups - Group assignment - Stations
2.	18-3-1-1 => Traffic restriction - ITR groups - Group assignment - Stations
3.	18-3-1-2 => Traffic restriction - ITR groups - Group assignment - Trunks
4.	18-3-2-1 => Traffic restriction - ITR groups - Connection matrix - Matrix
5.	**Configure toll restrictions per tenant** 15-1 => Toll restriction - Restriction, day
6.	15-2 => Toll restriction - Restriction, night
7.	Delete intercept position 16-12 => Incoming calls - Intercept, day
8.	16-13 => Incoming calls - Intercept, night
9.	Enter call allocations 16-16 => Incoming calls - Call alloc. day
10.	16-17 => Incoming calls - Call alloc. night
11.	**Enter trunk groups** 17-12 => Networking - Assign trk group
12.	17-13 => Networking - Overflow trk grp

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Options
2.	Classes of service, CON matrix
3.	Classes of service, Group assignment
4.	Classes of service, Station
5.	Classes of service, Day
6.	Classes of service, Night
7.	System parameters, Diversion/Attendant
8.	Incoming calls, Ringing assignment per line
9.	Lines/networking, Trunks
10.	Lines/networking, Routes

For a detailed description of how to configure two tenants, refer to Section 8.48, Tenant Services (Not for U.S.), on page 8-181 or Section 8.49, Tenant Services (for U.S. Only), on page 8-187.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Customer A has trunks 1 and 2.
2.	Customer B has trunks 3 and 4.
3.	Both customers should be able to seize the trunk using “0.” (9 in U.K. and U.S.)
4.	The trunks are assigned to stations via an ITR group.
5.	Customer A’s stations are entered in ITR1 and customer A’s trunks are entered in ITR2.
6.	Customer B’s stations are entered in ITR3 and customer B’s trunks are entered in ITR4.
7.	The ITR groups for customer A’s stations and trunks receive mutual ITR.
8.	For its own stations, customer A receives mutual ITR for customer B’s stations.

Step	Action
9.	For its own stations, customer A receives incoming ITR for customer B's trunks.
10.	The ITR groups for customer B's stations and trunks receive mutual ITR.
11.	For its own stations, customer B receives incoming ITR for customer A's trunks.
12.	Customer A's trunks must receive mutual ITR.
13.	Customer B's trunks must receive mutual ITR.
14.	Trunk 1 and trunk 2 are placed in trunk group 1.
15.	Trunk 3 and trunk 4 are placed in trunk group 2.
16.	Overflow from trunk group 1 to trunk group 2.
17.	Customer A receives incoming and outgoing class of service for trunk group 1 and incoming class of service for trunk group 2.
18.	Customer B receives incoming and outgoing class of service for trunk group 2 and incoming class of service for trunk group 1.
19.	The intercept is removed in system settings, and for each trunk the intercept position for "0" (9 in U.K. and U.S.) is entered in the call allocation for trunks.

7.12 Other Features

7.12.1 Voice Channel Signaling Security

Definition

This feature prevents tones from being injected in the voice channel, so that data on the voice channel are not corrupted. With this feature, no tones can be injected in the voice channel, and the connection cannot be overridden. A station configured as a fax machine automatically receives signaling security.

optiset E and optiPoint 500 telephones can also be protected by programming the feature Call Waiting Rejection in the database.

Callers will not be able to camp on and will continue to receive busy tone.

This feature can only be set via database. For optiset E and optiPoint 500 display telephones, refer to the Requirements/Conditions table below for an alternative.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
S_0	This feature does not function with ISDN terminals.
Recalls	Recalls are postponed until the stations are free.
Call waiting	Call waiting tone can also be suppressed from optiset E and optiPoint 500 telephones with display, using a procedure (*87=Call waiting tone off; #87=Call waiting tone on). This has no effect on display signaling.
Call hold	A station on hold always has signaling security.
Conference	If a station in a conference has activated *call waiting rejection*, an unprotected station can still be camped-on.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure station as a fax machine (analog only)**
2.	14-11 => Configure station - Station type
3.	**Configure call waiting rejection**
4.	14-16 => Configure station - Call waiting rejection

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Options
2.	Set up station
3.	Stations
4.	Param
5.	Flags

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Place a call from a telephone with call waiting rejection.
2.	Call the station.
3.	The call waiting tone does not sound. You receive a busy signal on the calling station.

7.12.2 Date and Time Display

Definition

The system contains a real-time clock and a calendar. Each optiset E and optiPoint 500 telephone with display indicates the time and date information based on this clock.

In the case of digital trunks (not for U.S.), the date and time are set automatically, provided that the information is transmitted from the central office (during the first outgoing call). The system changes automatically from standard time to daylight savings time (and vice versa).

When manually setting the time of day, observe the following:

- after a system boot
  The “ISDN time” always overwrites the time that was manually set after a system boot when the first outgoing ISDN trunk call is made.
- when the system is running
  If the time that was manually set differs from the “ISDN time” that is received by 2 - 70 minutes, the system uses the “ISDN time”.
  If the difference is < 2 minutes or > 70 minutes, the system uses the time that was manually set.

If it is not possible to synchronize using the ISDN trunk, the switchover data can be entered in a table that is internal to the system. Edit the table using HiPath 3000 Manager E.

The day and month when daylight savings time should begin or end is specified for each year. The system switches over, as appropriate, at 2 or 3 a.m.

The date can be displayed in the following formats:

- Europe: 20.JUN 01
- USA: JUN 20.01
- International: 20 JUN 01
- International 2: 20.06.01

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	x	x	x	x	x
HW requirements	optiset E or optiPoint 500 telephone with display				
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Date/time	Changes can be made from the configuration station only.

Configuration Options

This feature does not have to be explicitly configured for operation on digital trunks that automatically set the time (not for U.S.). Otherwise, it can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	In systems without digital trunks and in the U.S. Set the time: * 95
2.	User: *95 ✓ (default) Password: ✓ (default)
3.	12
4.	Set the date: * 95
5.	User: *95 ✓ (default) Password: ✓ (default)
6.	13

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	In systems without digital trunks and in the U.S. Set daylight savings time table: Options
2.	System parameters
3.	Daylight saving time
4.	Set the date format: Options
5.	System parameters
6.	Display

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	For digital trunks, set up an external call. The date and time are set automatically if the central office generates a message containing this information (not for U.S.).
2.	In systems without digital trunks and for digital trunks in the U.S., set the date and time using the procedure described above.

7.12.3 Relays

Definition

HiPath 3000 provide control outputs (relays) on an optional control relay module. This enables you to perform the following functions from any connected telephone by entering codes:

- Manual switch on and off
- Timer-controlled switch
- Door opener control
- Connection-controlled entrance telephone amplifier
- Door busy display
- Night bell
- Announcement device start and stop control
- External music on hold (MOH) control
- second ringer simulation
- simulation of call charge pulses
- station active

The optional control relay modules STRB (with HiPath 3550 and HiPath 3350) and STRBR (with HiPath 3500 and HiPath 3300) can be implemented with four control inputs and four outputs each for functions such as monitoring, alarm, control and adjustment. This can be used in security systems or Property Management Systems (PMS). A control relay module can be connected for each system (HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300). The relay card REAL which provides four control outputs is available for HiPath 3750 and HiPath 3700.

The signal input function (control input) is triggered by closing any of the external floating contacts. The external electric circuit is supplied by the control relay module and electrically isolated from the system controller by means of an optocoupler.

The relays can be controlled via codes from every connected telephone and remotely via the trunk line (DISA) by the station user associated with the relay function or for with the aid of the feature Associated Services.

Assigning Functions to the Actuators (Relays)

- **No function type**

  The relevant actuator is either not operating or is entered as a common ringer under *Call management, Call destination lists*.

- **Manually on and off type**

  The relay can be activated or deactivated for switching purposes by means of the codes *Activate or deactivate selected switch*. In the case of key terminals this function can also be programmed on one key. A specific station, a group or all stations can be allocated to this relay type by selecting *NONE*. For this relay type, shutdown can be delayed if a value greater than 0 is entered in the *Switching time* field. The switching time is a multiple of 100ms.

- **Automatic off after timeout type**

  The relay can be activated or deactivated as a time switch by means of the code *Activate selected switch* (see above). For key terminals this function can also be programmed on a key. A specific station, a group or all stations can be allocated to this relay type by selecting *NONE*. The switching time is a multiple of 100ms.

- **Door busy indicator type**

  The relay is activated if the allocated station ceases to be in the idle condition. This means that the handset has been picked up, the loudspeaker is activated or the extension is being called. The relay is deactivated when the allocated station returns to the idle condition. This means that the handset has been replaced, the loudspeaker has been deactivated and the extension is not being called. The relay can also be activated directly by means of the code *Activate/deactivate selected switch*. For system telephones, this function can also be programmed on a key. If the relay was activated by means of a code or a key, the status of the allocated station is ignored and the relay can only be deactivated again by means of a code or a key.

  Practical uses: Door busy indicator Do not disturb, Meeting, Conference, PC connection for data transmission (power management). A specific station must be allocated to this relay type. In the case of this relay type, shutdown can be delayed if a value greater than 0 has been entered in the switching time field. The switching time is a multiple of 100ms.

- **Second ringer simulation type**

  The relay is activated for the allocated station if it is being called. This relay is deactivated when the called party answers or the call is terminated. This relay is not clocked. A specific station must be allocated to this relay type. In the case of this relay type, shutdown can be delayed if a value greater than 0 has been entered in the `switching time' field. The switching time is a multiple of 3 seconds.

- **Door opening system type**

  See Automatic after timeout type. The text *Door opening system* is displayed for the allocated terminals.

- **Doorphone amplifier type**

  The relay is activated when connected to the doorphone. The relay is deactivated when disconnected from the doorphone or entrance telephone/loudspeaker. This makes it possible to control a doorphone amplifier so that it is only activated when required. A doorphone or the loudspeaker port must be allocated to this relay type.

- **Music-on-hold type**

  The relay is activated if at least one station or a line in the system is not in the idle condition. The relay is deactivated if all stations and lines in the system are in the idle condition.

  Practical application: Activation of a tape device, CD player, PC connection power management etc. *NONE* must be entered as allocated station for this relay type, and it must only occur once in the system. In the case of this relay type, shutdown can be delayed if a value greater than 0 has been entered for the *Switching time* field. The switching time is a multiple of 100ms.

- **Station active type**

  The relay is activated if the allocated station is active. This means that the handset has been picked up or the loudspeaker has been activated. The relay is deactivated if the allocated station resumes the idle condition. This means that the handset has been replaced or the loudspeaker has been deactivated. The relay can also be activated directly by means of the code *Activate/deactivate selected switch*. For system telephones, this function can also be programmed on a key. If the relay was activated by means of a code or a key, the status of the allocated station is ignored and the relay can only be deactivated again by means of a code or a key. A specific station must be allocated to this relay type. In the case of this relay type, shutdown can be delayed if a value greater than 0 has been entered in the *Switching time* field. The switching time is a multiple of 100ms.

Assigning Actuator Names

Any names (up to 16 characters) can be assigned to the actuators to be administered.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	REAL	STRB / STRBR		–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
DISA	Relays can be controlled from the outside via trunk access.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure relays** 26-1 => Relays - Type
2.	26-2 => Relays - Switching time
3.	26-3 => Relays - Assigned station
4.	26-4 => Relays - Relay name

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure relays** Options
2.	Connections
3.	Actuators

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Program a relay
2.	Dial the code for the relay
3.	The relay activates as configured.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

- Display telephones

  All station types can activate/deactivate the relays.

  From an idle state, the user dials the default access code **90* or presses the *Program/Service* key, scrolls to and selects the prompt **90=Control relay on?*, then enters the relay number.

  A feature button can be programmed on an optiset E or optiPoint 500 if the feature is to be used frequently.

  The user can deactivate the relay dialing the default access code *#68* or via the *Program/Service* procedure.

- Non-display and analog telephones

  From an idle state, the user dials **90*, followed by the relay number, or *#90* and the relay number, to deactivate the relay.

7.12.4 Sensors

Definition

HiPath 3000 support control inputs (sensors) via an optional control relay module. When a sensor is activated, the assigned station is called automatically. After the station answers the call, a message can be played from an announcement device. The signal input function activates when an external floating contact closes. Optocouplers provide electrical isolation between the external circuit and the system controller.

The sensors can initiate the following functions:

- Distinctive ringing on telephones
- Message display on optiset E and optiPoint 500 telephones with display
- Analysis of announcement device start and stop signals
- Answering machine control
- Automatic dialing with a predefined telephone number (internal number, group ringing or external destination call number)
- Activation of the following services for a STN (with *code* + *STN*):
  - Actuator on/off
  - Do-not-disturb feature on/off
  - Call forwarding on/off
  - Codelock on/off
  - Send message texts
  - Withdraw message texts
  - Night service on/off
  - Ring transfer on/off
- Direct activation of the following services (without *code*+*STN*):
  - Actuator on/off
  - Use speed dialing system
- Error signaling; the following types are possible:
  - Display of programmable error message (sensor name, max. 10 characters: for example, Temp-Alarm) on a specific optiset E or optiPoint 500 telephone (no acoustic signaling)
  - Display of calls on a specific optiset E or optiPoint 500 telephone with error message during call (destination station number)

– Error entry in error history (entry in error memory = activated)

Destination Call Number

An associated analog port is programmable for the sensors. This port is called by the system once a setup signal has been received. The calling party then overrides this connection. A recorded announcement can be activated via an answering machine connected to this port, which informs the dialed station of the response of the sensor. An analog port programmed in this way cannot be contacted from the outside.

If an external call number has been programmed for a sensor, but an analog port has not, the external connection will be established but an audible signal in relation to the response of the sensor is not transmitted. However, if necessary, the called STN can identify the origin of the call on the basis of the call number (CLIP).

Message Texts Box Control Data

Input of the control string with a maximum of 24 characters for the Phonemail system (mailbox call number). If the connection has been established, the control string is transmitted to the recorded announcement port. If a recorded announcement port is not available, the control string is transmitted to the destination.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**–**	**x**	**x**	**–**	**–**
HW requirements	–	STRB / STRBR		–	–
SW requirements	–	V1.0 or later		–	–

Requirements and Conditions

Subject	Requirement or Condition
Special ring	If the notified station is an internal station, a special ring sounds.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure sensors**
2.	27-1 => Sensors - Type
3.	27-2 => Sensors - Dest. station no.
4.	27-3 => Sensors - Stn. no. for announ
5.	27-4 => Sensors - Announcem. control
6.	27-5 => Sensors - Ring duration
7.	27-6 => Sensors - Ring interval
8.	27-7 => Sensors - Number of rings
9.	27-8 => Sensors - Blocking time
10.	27-9 => Sensors - Sensor name

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure sensors** Options
2.	Connections
3.	System flags

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Program a sensor.
2.	Dial the code for the sensor.
3.	The sensor activates.

7.12.5 Multilingual Text Output

Definition

The language for display messages can be selected system-wide or for a specific station only. Depending on the particular system, the following languages are available:

- HiPath 3750, HiPath 3550, HiPath 3350, HiPath 3700, HiPath 3500, HiPath 3300 (four fixed and four variable languages):
  Dutch*, English (UK), English (US), French, German, Italian*, Portuguese*,Spanish*
- HiPath 3250 with SBS, HiPath 3150 with SBS (two fixed and two variable languages):
  English (UK), French*, German, Italian*
- HiPath 3250 with SBSCO, HiPath 3150 with SBSCS (four fixed and four variable languages):
  Dutch*, English (UK), English (US), French, German, Italian*, Portuguese*, Spanish*,

The languages marked ”*” are variable and can be replaced (overloaded) by one of the available languages from the list below. This is possible only with HiPath 3000 Manager E.
You cannot reload an individual text language. Variable languages that should not be replaced (overloaded) must therefore always be specified separately. It is not possible to reload a fixed language once it is already there.

Available languages: Catalan, Chinese, Czech, Danish, Dutch, English (UK), English (US), Estonian, Finnish, French, German, Greek, Hungarian, Italian, Latvian, Lithuanian, Norwegian, Polish, Portuguese, Russian, Serbo-Croatian, Slovak, Slovenian, Spanish, Swedish, Telekom (Germany), Turkish.

Note the following with regard to system-wide and station-specific language settings:

- **Default language setting**
  You set the language when you enter the country initialization code during system booting (refer to Section 5.1.5 for HiPath 3750, HiPath 3700 and Section 5.2.4 for HiPath 3550, HiPath 3350, HiPath 3250, HiPath 3150, HiPath 3500, HiPath 3300). The parameters for Germany are the defaults.
  If the APS does not contain the local language set during country initialization, it uses German as the default language until you replace one of the variable languages in the APS with the local language.
- **Changing the language setting system-wide**
  You can access system administration by entering a code or using the service menu on the first two telephones with display in the system. Select the desired language from the service menu to switch all stations to the new language.

- **Changing the language setting for an individual station**
  You can change language of individual stations only from the first two stations with display in the system. To change the language of a station, specify the station in the service menu and the language to be used.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	x	x	x	x	x
HW requirements	optiset E or optiPoint 500 telephone with display				
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
System administration	The following languages are not available for system administration: Czech, Serbo-Croatian, Slovenian, and Turkish.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Select a language for each station** 14-26 => Configure station - Select language
2.	Define the station
3.	Selection options: a) Change only the defined station with confirmation. b) Change all stations of the same type. c) Change all stations.
4.	Confirm the language selected

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Replace existing system language** Load new language
2.	Text: Select the text to be loaded or deleted
3.	Communication: Start loading the text
1.	**Select a language for each station** Options
2.	Set up station
3.	Stations
4.	Flags

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Change the language setting for an optiset E or optiPoint 500 telephone.
2.	The display on the telephone appears in the language selected.

7.12.6 Associated Dialing

Definition

With a PC, users can have the system set up a voice connection from one station (typically their own, but not necessarily so) to another station within the system. With analog telephones, the PC uses a dialing aid interface (Teleint in Germany). Another option is to connect a PC to an ISDN S_0 application bus.

Any authorized station in the system can execute associated dialing for another station. The user defines the station number of the destination station in the PC address book and activates dialing. The PC seizes the ISDN S_0 application bus and transmits the station number to the system using an ISDN message.

The user accesses the function by dialing a code and specifying the station for which a number should be dialed. The system then interprets this information as though the specified station were dialing.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Trunk group	Depending on the system configuration, you may have to dial a trunk group code in order to seize a trunk.
Call forwarding	A call waiting operation activated on the station for which the number is to be dialed is not carried out.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure station**
2.	14-14 => Configure station - Associated dial

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure station** Options
2.	Set up station
3.	Param
4.	Flags

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	From an authorized station, dial a station number for another station. (For example, an authorized station dials a number to the central office for station 12).
2.	The authorized station dials * 67 12 0 (or 9) [number].
3.	The call goes through as if station 12 had dialed.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

An analog telephone must be off hook to activate this feature.

The authorized user, from an idle state, dials the default access code **67* followed by the extension number or whom the call will be placed, and then the actual destination. The call is set up; the initiator can hang up and the call will proceed.

A CDRC record is created for the party **placing** the call, not the initiator of the associated dialing feature.

With an external call, the station for whom the call is placed must have the appropriate COS toll restriction level to complete the call; otherwise, the call is denied.

7.12.7 Associated Services

Definition

An authorized user can activate or deactivate services for any other station in the system using a procedure. Authorized users initiate access by entering a code and the station number that they want to activate or deactivate. The system behaves the same as if the initiating station were activating the feature for itself.

With this feature, users can control the following:

- Do not disturb
- Call forwarding
- Telephone lock
- Group ringing
- Advisory message
- Hunt group
- Reset services
- Actuators
- Night answer
- Timed reminder

All features set by another station can be deactivated from the station on which the feature was set. If the destination station has the feature Telephone lock active, services cannot be activated at that telephone. Likewise, a feature which was activated at a telephone before the telephone was locked and is still active, cannot be deactivated with the Associated Services feature.

The destination station must first be authorized in database (where this applies), in order to use the feature/function.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
ISDN terminal	From an ISDN terminal, dial the substitute code (75) for the asterisk (*).

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure station**
2.	14-14 => Configure station - Associated dial

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure station** Options
2.	Set up station
3.	Parameter
4.	Flags

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	From an authorized station, activate a feature for another station using the procedure. (For example, station 11 activates call forwarding to internal station 13 for station 16.)
2.	Station 11 dials * 83 16 *11 13.
3.	The feature is activated on the other station.

Operating the Feature

The authorized user, from an idle state, dials the default access code **83* followed by the extension number for whom the service is to be activated or deactivated and then the service access code. (Special considerations are noted on some of the following features).

The following list includes the access codes and some special considerations that users can control with this feature:

- **Do not disturb on/off (*97/#97)**
- **Call forwarding on/off** (*11, *12, *13/#1): Activating a Call Forwarding to an external destination for another station is possible; however, the station involved must have the proper COS toll restriction level.
- **Telephone lock on/off** (*66/#66): The correct sequence must be followed: *83 + stn no. + *66/#66 + PIN.
- **Group ringing on/off** (*81/#81): The correct sequence must be followed: *83 + stn no. + *81/#81+ stn no. which will also ring.
- **Advisory message on/off** (*69/#69): It is only possible to enter additional information into the variable sections of the advisory message from a display telephone.
- **Hunt group on/off** (*85/#85)
- **Reset services** (#0)
- **Actuators on/off** (*90/#90)
- **Night answer on/off** (*44/#44)

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.12.8 Display Number of Stations with Direct Trunk Access (for Austria Only)

Definition

You can use system administration to display the number of stations with direct trunk access available in the system. This includes all stations currently in operation which have at least outward restricted trunk access.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Display	Available in Austria only

Configuration Options

This feature does not have to be configured explicitly.

Displaying the Feature with Assistant T

Display the feature using Assistant T as follows:

Step	Action
1.	**Display stations**
2.	15-5 => Authorized stns - Number of stations

Displaying the feature with HiPath 3000 Manager E

Display the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Display stations** System status
2.	System-wide
3.	Telephone
4.	CO call privileges: Number of...

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Display the number of stations with direct trunk access using the procedure.

7.12.9 Services in the Talk State

Definition

During a call, a station can activate services or perform administrative tasks in the system via system administration.

Users activate this feature by pressing the *Program/Service* key or, with a non-display or an analog telephone, by pressing the *Consultation* key or hook switch flash.

The features that can be activated during a call are identified in each of the descriptions.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Call forwarding	Call forwarding can be activated during a call.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Using the procedure, initiate call forwarding during a call.
2.	Call forwarding is active.

7.12.10 Reset Activated Features

Definition

Users can reset all of the features currently set on the telephones by entering a code.

The following features can be reset:

- Call forwarding
- Send/cancel messages
- Advisory message
- Group ringing
- Hunt group
- Station number suppression
- Silent camp-on
- Do not disturb
- Ringer cutoff
- Timed reminder
- Cancel all callbacks

The system can also reset the above features per telephone from a local or remote location using the HiPath 3000 Manager E administration tool. (Refer to Executing feature using HiPath 3000 Manager E on page 7-382). The administrator first down-loads the information to HiPath 3000 Manager E and working off-line can selectively view the state of each of the features activated on each telephone. In HiPath 3000 Manager E, the administrator can reset all these features on any telephone and up-load the file to the HiPath 3000 system.

The following table illustrates the features that can be reset from the station by dialing the access code #0, individually.

Station	HiPath 3000 Manager E
Call Forward	Call Forward on
Received messages	
Advisory message	Answer text
Group Ringing	
Leave Hunt Group	Hunt Group
Caller ID suppression	Suppress Calling ID
Call Waiting Tone	Call Waiting Tone

Do Not Disturb	Do Not Disturb
Ringer cutoff	Disable incoming ring

The additional features in the HiPath 3000 Manager E *System Status - Flags* screen: Room Monitor, Lock Code, Call Connection and Direct answering will not be deactivated.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Send messages	You can also use *Reset all services* to delete received messages.
Sensors/send messages	A warning can be sent via a sensor to a station in the form of a text message (send message) and then reset by a **different** relay.
Cancel all callbacks	Access the procedure from *Reset all services*.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Executing feature using HiPath 3000 Manager E

Execute the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Execute reset activated features** System status
2.	System-wide
3.	Flags
4.	Select the station whose features you want to delete.

Testing the feature using Assistant T

Check the feature for error-free functioning as follows:

Step	Action
1.	Activate call forwarding on a telephone.
2.	Dial the code for *reset activated features* (#0) .
3.	Call forwarding has been reset.

Operating the Feature

All types of telephones can use this feature.

To reset the above features, from an idle state, the user can dial the default access code *#0*; alternatively, with a display telephone, users can press the *Program/Service* key, scroll to and select the prompt *#0=Reset services?*.

Confirmation tone is returned to non-display or analog telephones, while a text message is given for display telephones: *Services off*.

The feature can be accessed via DISA for a caller's own telephone or for another station's telephone via Associated Services.

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.12.11 Relocate (Hoteling)

Danger
In systems with the E911 emergency service activated for the USA (see Section 7.7.19 on Page 7-276), you are not allowed to use the Relocate feature if the system has more than one Location Identification Number (LIN).

Definition

This is an expansion of the Relocate feature found in V1.0 or earlier.

The new Relocate feature allows an optiset E and optiPoint 500 station to use a procedure to change the assignment between the physical telephone port and the logical station data (user profile).

Example: the telephone used by station 220 is connected to the second port of the SLMO board in slot 01 (220 = 0102) and the telephone used by station 330 is on the fourth port of the SLMO board in slot 03 (330 = 0304). After executing the relocate function, the station data belonging to station 220 is assigned to the fourth port of the SLMO board in slot 03 (220 = 0304) and the data belonging to station 330 is assigned to the second port of the SLMO board in slot 01 (330 = 0102).

You may only exchange user profiles of the same type of optiset E or optiPoint 500 (key layout).
If you exchange user profiles from different types of optiset E or optiPoint 500s, individually programmed key functions on the basic device are replaced with the default values.

You can also use Relocate on preconfigured SLMO or SLU boards, which means on boards that are not physically present, and on SLMO or SLU ports that do not have telephones connected.

Examples: The feature is useful in companies that have a large number of field representatives. These staff members are provided with a pool of workstations in the company headquarters. Furthermore, a separate station configuration (station number, key programming, trunk access, etc.) is defined for each staff member. To carry out work at the company headquarters, the staff member selects a workstation and activates the Relocate feature on the accompanying optiset E or optiPoint 500 telephone. This provides him or her with his or her personal user profile (station configuration).

A customer has 24 hour help desk operation that does not use UCD. Each desk position will have three different users each day. With the Relocate feature enhancement a user will be able to relocate a virtual port configuration to any desk that is available. This will then allow the user to receive calls to the DID numbers assigned to that user.

An additional application of this Relocate feature would be if two users decide to change desk locations and both users share the same phone types. The users can easily perform the Relocate operation without the assistance of a Telecommunications engineer.

If you want to use the Relocate feature, you must enable it system-wide. You can carry out one of the following steps on the optiset E or optiPoint 500 telephone to activate it (the telephone lock PIN is not required if the PIN is set to the default “00000”.):

- Enter “Relocate” code + internal number of the destination station + telephone lock PIN
- Start the service menu, enter “Relocate” + internal number of the destination station + telephone lock PIN
- Press the appropriate programmed key and enter the internal number of the destination station + telephone lock PIN

After you have entered the destination station number, no other stations may use the feature until the procedure has completed. When executing the exchange, both telephones involved are reset.

The display of the new station number (display “Stn. number: XXXXX”) on both telephones signals that the feature has executed successfully.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 SMR-J and later V1.2 SMR-E and later				

Requirements and Conditions

Subject	Requirement or Condition
Host-client configuration (master-slave configuration)	You can only initiate the feature on optiset E or optiPoint 500 host (master) telephones in the idle state. The data from any client (slave) stations that may be connected will also be exchanged. The affected client (slave) telephones are reset during the execution of the exchange, just as the hosts (master) are.
Assistant T	It is not possible to execute the feature on telephones that have programming authorization.

Subject	Requirement or Condition
UCD	You cannot execute the feature if a UCD agent is logged on to one of the (host (master)) telephones involved.
DISA	You cannot execute the feature over DISA/DISA internal.
Associated services	If the user confirms the feature with associated services (default: *83<DID>#9419) the call does not follow the call management for non-physical ports. It is not possible to activate the feature via associated services.
Physically not available stations	For incoming calls to stations, which are no longer physically available, the call follows the call management (CFW to PM instead dropping the call to the intercept). This mechanism is available 1 minute after proceeding with this feature or 5 minutes after a system hard restart.
Display status information	If a relocate session was successful the user will see in the optiset E or optiPoint 500 display status information. Higher prior display texts like „View Messages“ cover up the status indication.
Key LED	The feature access can be set up on a key of an optiset E or optiPoint 500 station. The LED of this key will be never used.
Code lock	Hoteling is possible with code lock active. To delete the status indication, during code lock active, is possible.
Activation of relocate	Activation of the feature is only possible if the station is idle.
Frst two SLMO or SLU hardware ports	The feature cannot be accessed on the first two SLMO or SLU hardware ports.
optiClient	You cannot execute the feature with optiClient.
IP device	You cannot execute the feature with any IP device.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Enable Relocate system-wide**
2.	22-24 => System settings - Stn. relocate

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Enable Relocate system-wide**
2.	System parameters
3.	Flags
4.	Terminal Exchange allowed

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Start Relocate function (code or Service menu, etc.).
2.	Enter internal number of the destination station.
3.	Enter telephone lock PIN (if needed).
4.	After confirmation that the feature has executed successfully (display “Stn. number: XXXXX”), check that the exchange of the individual user profiles (station number, key programming, trunk access, etc.) has taken place.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.12.12 Automatic Wake-up System/Timed Reminders

Definition

Each user can program an appointment. When activated, a timed reminder is issued at the scheduled time. The appointment can be programmed for a single reminder (once within a 24-hour period) or for regularly scheduled daily reminders.

The time format is four-digits. The first two digits are the hour, and the second two digits are the minutes. A 12-hour clock mode is supported for the U.S.: users enter the four digits and then select *am* (key 2) or *pm* (key 7). The default is *am*. The mode for all other countries is the 24-hour clock system.

The default timed reminder sounds for 20 seconds and will repeat a maximum of five repeats at 1-minute intervals. The timed reminder is cleared automatically as soon as the user lifts the handset or presses the speaker button, or after the fifth repeat (number of repeats is configurable). Alternatively, a programmed timed reminder can be canceled using a procedure. Display telephones also support queries.
The duration of signaling, the time between signals, and the number of repeats are configurable.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Maximum no. of timed reminders (system-wide)	50	50	50	50	50

Requirements and Conditions

Subject	Requirement or Condition
Appointments	Standard analog telephones, optiset E entry, optiset E basic, optiPoint 500 entry, and cordless telephones support only programming of non-repeating (once only) appointments
Timed reminders	A timed reminder which is due but cannot be signaled (user busy, for example), is postponed until the next cycle.
Influence of other active features	Activation of other features such as call forwarding, do not disturb, group ringing, ringer cutoff has no effect on timed reminder, in other words the timed reminder is always issued at the telephone at which it was activated.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Activity
1.	**Configure automatic wake-up/timed reminders** Press the Program/Service
2.	* 46

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Activity
1.	**Configure automatic wake-up / timed reminders** Options
2.	System parameters
3.	System flags

Testing the Feature

Check the feature for error-free functioning as follows (example for HiPath 3750 and HiPath 3700):

Step	Activity
1.	Press the Program/Service key
2.	Enter * 46
3.	Program the appointment
4.	Timed reminder is signaled at the correct time.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.12.13 Delete All Station Numbers

Definition

This feature allows you to delete all station numbers quickly and easily (refer to Table 7-5).

Using this feature, it is much easier to customize the default numbering plan when installing a new system or retain an existing numbering plan when replacing a non-Siemens system.

Table 7-5 HiPath 3000—Deleting Station Numbers

Type of Number	Default Station Numbers			Delete
	HiPath 3750 HiPath 3700	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3250 HiPath 3150 HiPath 3300**	
Station numbers	100-349 500-749	100-278 500-687	11-30 51-70	Yes
Station DID numbers	100-349 500-749	100-287 500-687	11-30 51-70	Yes
Trunk numbers	7801-7920	7801-7860	801-816	Yes
Trunk group codes (external codes)	0 = World 9 = U.S.	0 = World 9 = U.S.	0 = World 9 = U.S.	**No**
	80-84	80-84	82-88	Yes
	850-859	850-859	---	Yes
USBS station number Internal & DID	891	891	891	Yes
IMOD station number Internal & DID	890	890	890	Yes
Digital modem Internal & DID	879	879	77 & 879	Yes
Group numbers Internal & DID	350-499	350-499	31-50	Yes
Internal attendant code (intercept position)	9 = World 0 = U.S.	9 = World 0 = U.S.	9 = World 0 = U.S.	Yes
DID attendant code (intercept station)	0 = World 9 = U.S.	0 = World 9 = U.S.	0 = World 9 = U.S.	**No**
Substitution for "*"	75	75	75	Yes
Substitution for "#"	76	76	76	Yes
Service codes	*xxx #xxx	*xxx #xxx	*xxx #xxx	**No**

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	x	x	x	x	x
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Configuration Options

This feature can be configured using HiPath 3000 Manager E.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Delete station numbers** Options
2.	Delete station numbers

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Using HiPath 3000 Manager E, check whether all the station numbers were deleted.

7.12.14 Team/Top

Definition

Team/Top is based on MULAP lines, which are generally “looped” via several telephones. These telephones are combined in a MULAP group that has only one station number in the system (for more information, refer to Section 7.12.14.3).

7.12.14.1 Team Configuration

Example of a Team with Two Members

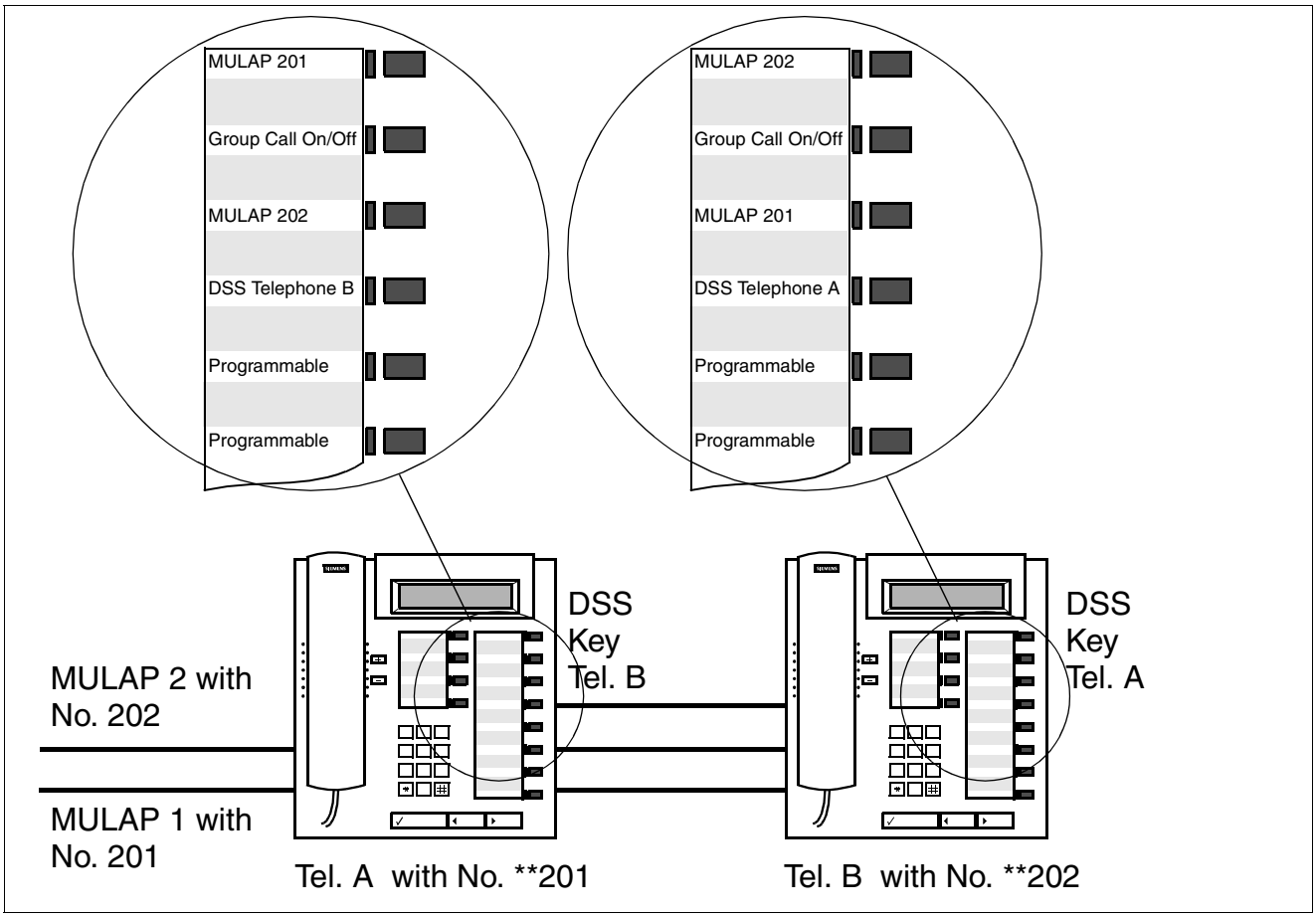


Figure 7-8 Example of a Team with Two Members

The Team configuration in Figure 7-8 includes the following components:

- MULAP 1 and MULAP 2: MULAPs (basic MULAP groups) that appear on both Telephone A and Telephone B.
- DSS keys: Telephone A to Telephone B and Telephone B to Telephone A.

A group call key allows you to activate or deactivate incoming MULAP call signaling.

Table 7-6 Transfer in Team ("Switch Lines for DSS" System Option Not Set) (Not for U.S.)

Operation	Tel. A M1	Tel. A DSS Key B	Tel. B M1	Tel. B DSS Key A
	X = busy; XX = hold (consultation, exclusive, common); XXX = being called; XXXX = ringing			
Tel. B is talking on M1	X	X	X	–
Tel. B presses DSS Tel. A key	X	XXXX	XX	X
Tel. B performs unscreened transfer to Tel. A (1)	XXXX	–	XXX	XXX
or				
Tel. A answers (2)	X	X	XX	X
Tel. B performs screened transfer to Tel. A (3)	X	–	X	X
1) Tel. B performs unscreened transfer; call is transferred to M1. 2) Tel. A answers and could answer the call on hold on M1 by call pickup (menu). 3) Tel. B performs screened transfer to Tel. A and Tel. A continues to conduct the call on M1.				

Table 7-7 Transfer in Team (“Switch Lines for DSS” System Option Set) (for U.S. Only)

Operation	Tel. A M1	Tel. A DSS Key B	Tel. B M1	Tel. B DSS Key A
	X = busy; XX = hold (consultation, exclusive, common); XXX = being called; XXXX = ringing			
Tel. B is talking on M1	X	X	X	–
Tel. B presses DSS Tel. A key (1)	X	XXXX	XX	X
Tel. A answers (2)	X	X	XX	X
Tel. B goes on-hook (3)	XX	–	XX	–
Tel. A retrieves M1 (4)	X	–	X	X
1) Tel. B switches lines (exclusive hold), switches to the local station number and calls Tel. A under the local station number. M1 continues to be signaled as busy on Tel. A. 2) Tel. A can answer only by going off-hook or pressing the Tel. B DSS key. Tel. A then conducts the call under the local station number. 3) If Tel. B goes on-hook, the connection to Tel. A is released and M1 is placed on common hold. 4) Tel. A can retrieve the held call by pressing M1.				

Table 7-8 Team—Sequence of Operations for Consultation Hold on Second Line

Tel. A	M1	M2	Explanation
	X = busy; XX = hold (consultation, exclusive, common); XXX = being called; XXXX = ringing		
Call on M1	X	-	
Consultation hold	XX	-	Dial tone
Presses M2	-	XX	M1 is released, M2 is placed on consultation hold, dial tone remains.
Call on M1	X	-	
Ringing on M2	X	XXXX	If ringing for MULAP 2 is activated on Tel. A, Tel. A hears an advisory ring.
Consultation hold	XX	XXXX	Dial tone If ringing for MULAP 2 is activated on Tel. A, Tel. A hears an advisory ring.
Presses M2	-	XX	M1 is released, consultation call on M2.
Call on M1	X	-	
Switches to M2	XX	X	Dial tone

Table 7-8 Team—Sequence of Operations for Consultation Hold on Second Line

Tel. A	M1	M2	Explanation
	X = busy; XX = hold (consultation, exclusive, common); XXX = being called; XXXX = ringing		
Call on M2	XX	X	
Consultation hold	XX	XX	Dial tone
Presses M1	XX	-	M2 is released, consultation call on M1.

Tel. B	DSS Key A	M2	Explanation
Conducts call with Tel. A	X	-	Tel. A was called by means of DSS key A.
Consultation hold	XX	-	Dial tone
Presses M2	XX	XX	Consultation call on M2*, dial tone remains.

* Because of dual signaling, DSS key A continues to indicate call on hold (state of local station number is always signaled as well).

Example of a Team with Eight Members

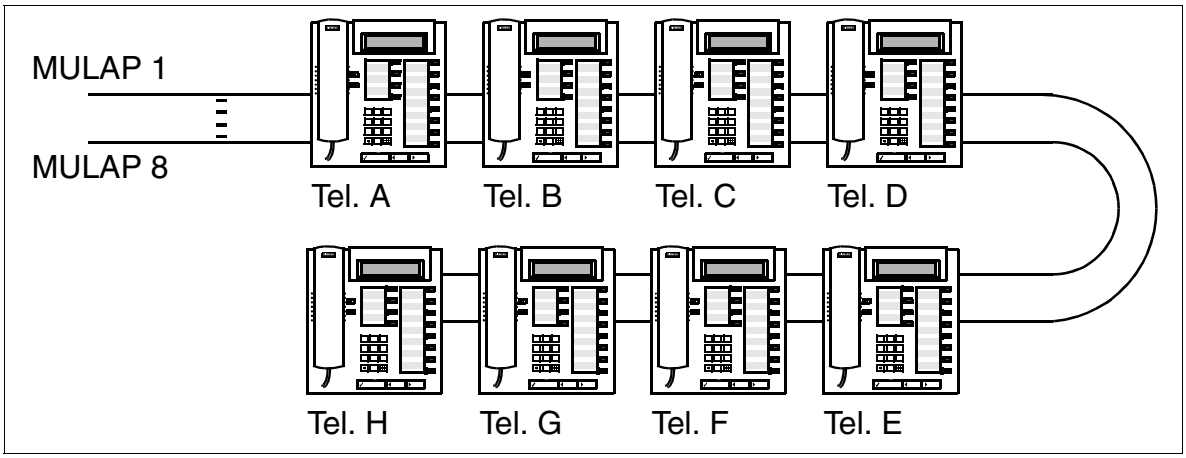


Figure 7-9 Example of a Team with Eight Members

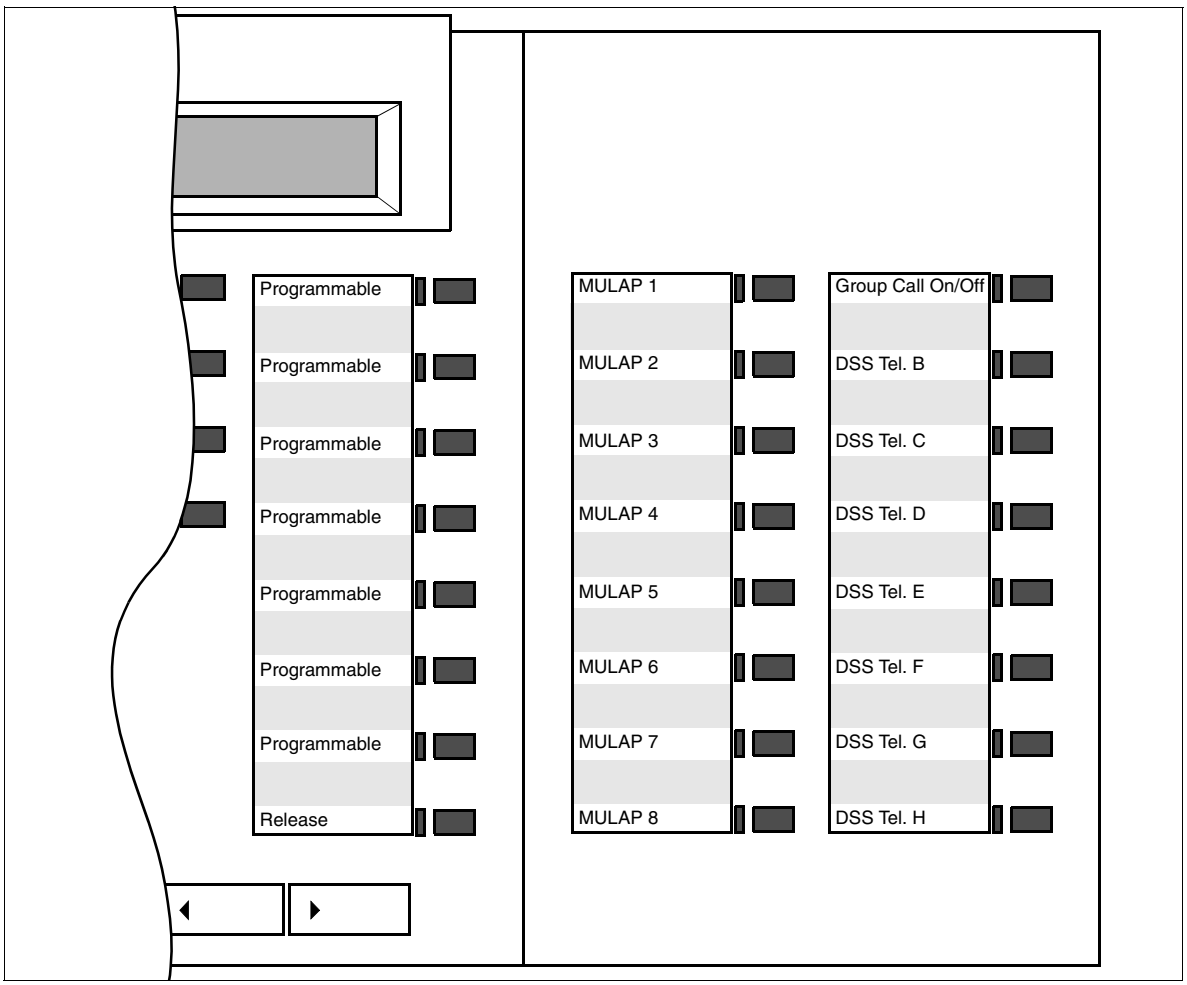


Figure 7-10 Team with Eight Members: Default Key Assignments for Tel. A on key module

The following options are available for assigning Team keys using HiPath 3000 Manager E:

- No key assignment
- Assignment to first or second key module
  A key module is automatically added (refer to example in Figure 7-10). If applicable, existing keys are overwritten.
- Assignment to first free keys
  Free keys on the telephone and any existing key modules are used. If no keys are available, key modules are added. Key assignment sequence for Team: Local MULAP, Group Call key, other MULAPs, DSS keys.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Maximum number of Team/Top configurations	500	50	10	10	10
Maximum number of stations (members) in a Team/Top configuration	10	10	8	8	8
Maximum number of telephones in a Team/Top configuration	10	10	8	8	8
Maximum number of MULAPs per telephone	32	32	10	10	10

Requirements and Conditions

Subject	Requirement or Condition
Manually configured basic MULAP group	Members of a basic MULAP group can use key programming to • Configure a MULAP key for the basic MULAP group. • Configure DSS keys to other members. • Program a “Group Call” key.
Universal Call Distribution (UCD)	You cannot use MULAPs in the universal call distribution system.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Teams should normally be configured using HiPath 3000 Manager E. Configuration using Assistant T is possible only to a limited extent.

Configuring the Feature Using HiPath 3000 Manager E

HiPath 3000 Manager E can be used to configure a default Team (Team/Top mask). Members can be added to the team by drag and drop. The basic MULAP group(s) and DSS keys are configured automatically. The basic MULAP groups are assigned the station numbers of the primary station and the primary station is assigned a pseudo station number (examples: 4711 becomes **4711, 12345 becomes **2345, 654321 becomes **4321).

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure team (default)** Options
2.	Incoming calls
3.	Team/Top

7.12.14.2 Top Configuration

Example of a Top Configuration with One Executive and One Secretary

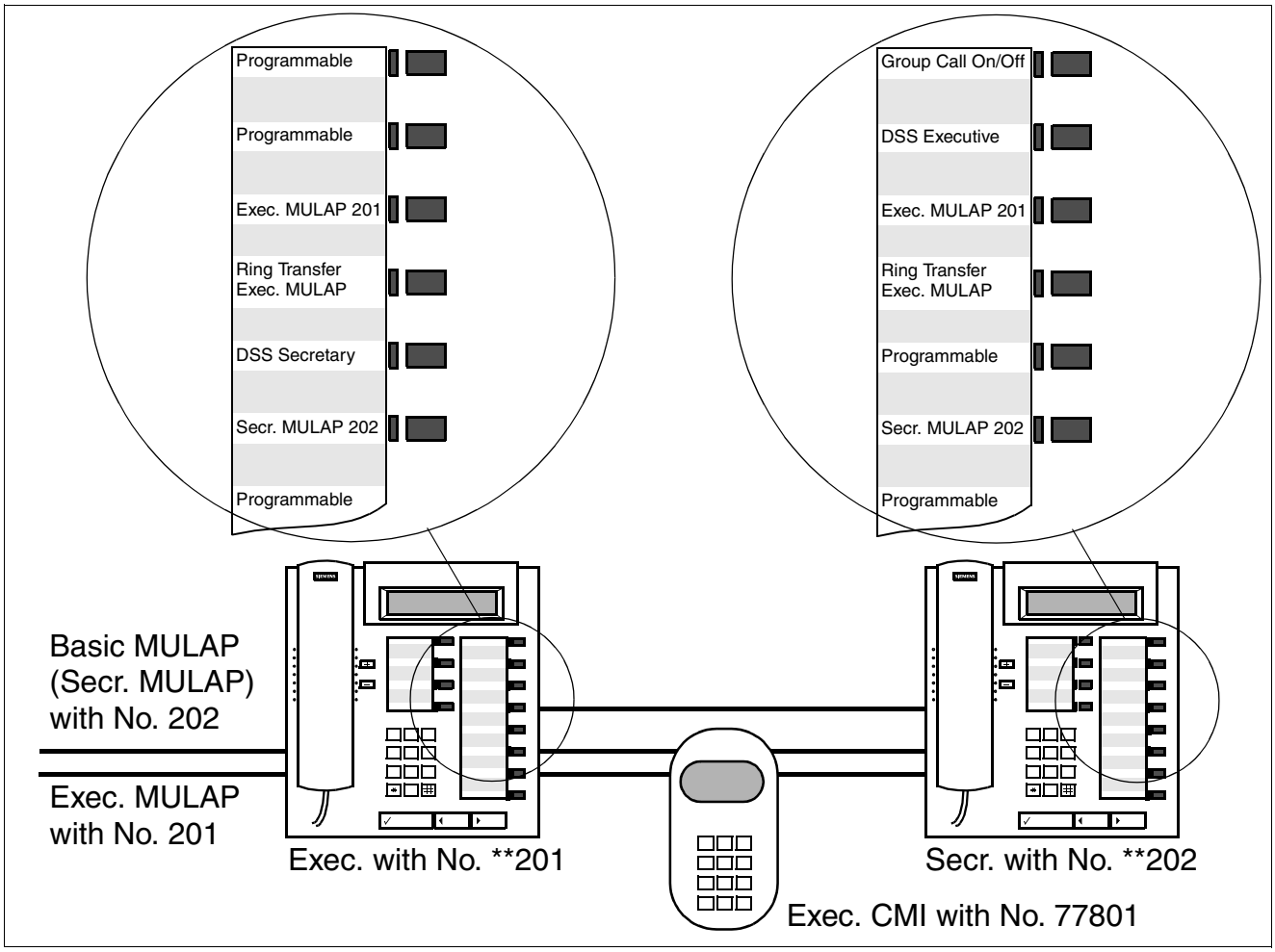


Figure 7-11 Example of Top with One Executive and One Secretary

This Top configuration includes the following components:

- Executive MULAP 201 with an executive and executive CMI as executives and with a secretary as member.
- Basic MULAP 202 with a secretary as primary station and an executive and executive CMI as members.
- DSS keys: Secretary to executive (executive CMI) and executive to secretary.
- Ring transfer keys: For controlling incoming MULAP call signaling. The default setting for the ring transfer key is “deactivated” (LED off). Calls are signaled on the secretary.

In addition, incoming MULAP call signaling can be activated or deactivated by means of a group call key (on non-executive telephones only). Ring transfer has priority, meaning that the group call key is activated only when ring transfer is deactivated.

Table 7-9 Transfer in Top ("Switch Lines for DSS" System Option Not Set) (Not for U.S.)

Operation	Executive Telephone			Exec. CMI Mobile Tel.	Secretary Telephone		
	Exec. MULAP	Secr. MULAP	DSS Key Secretary		Secr. MULAP	Exec. MULAP	DSS Key Executive
	X = busy; XX = hold (consultation, exclusive, common); XXX = being called; XXXX = ringing						
Secr. is talking on exec. MULAP	X		X			X	
Secretary presses DSS Executive key (1)	X		XXXX	XXXX		XX	X
Secretary performs unscreened transfer to exec. or exec. CMI (2)	XXXX			XXXX		XXX	XXX
or							
Executive answers (3)	X		X			XX	X
Secretary performs screened transfer to executive (4)	X					X	X
1) Call signaled on executive MULAP and executive CMI. 2) Secretary performs unscreened transfer; call is transferred to executive MULAP. 3) Executive answers. Executive could also answer the held call on executive MULAP by call pickup (menu). 4) Secretary performs screened transfer to exec. and exec. continues to conduct the call on exec. MULAP.							

Table 7-10 Transfer in Top ("Switch Lines for DSS" System Option Set) (for U.S. Only)

Operation	Executive Telephone			Exec. CMI Mobile Tel.	Secretary Telephone		
	Exec. MULAP	Secr. MULAP	DSS Key Secr.		Secr. MULAP	Exec. MULAP	DSS Key Executive
	X = busy; XX = hold (consultation, exclusive, common); XXX = being called; XXXX = ringing						
Secr. is talking on exec. MULAP	X		X			X	
Secretary presses DSS Executive key (1)	X		XXXX	XXXX		XX	X
Executive answers	X		X			XX	X
Secretary hangs up after executive answers (2)	XX					XX	X
Executive retrieves executive (3)	X					X	X
1) Secretary switches lines; executive is placed on exclusive hold; call signaled on exec. MULAP and exec. CMI. 2) Secretary goes on-hook; connection between exec. and secr. is released. Executive is placed on hold. 3) Executive can retrieve held call on executive MULAP.							

Example of Top with Two Executives and Two Secretaries

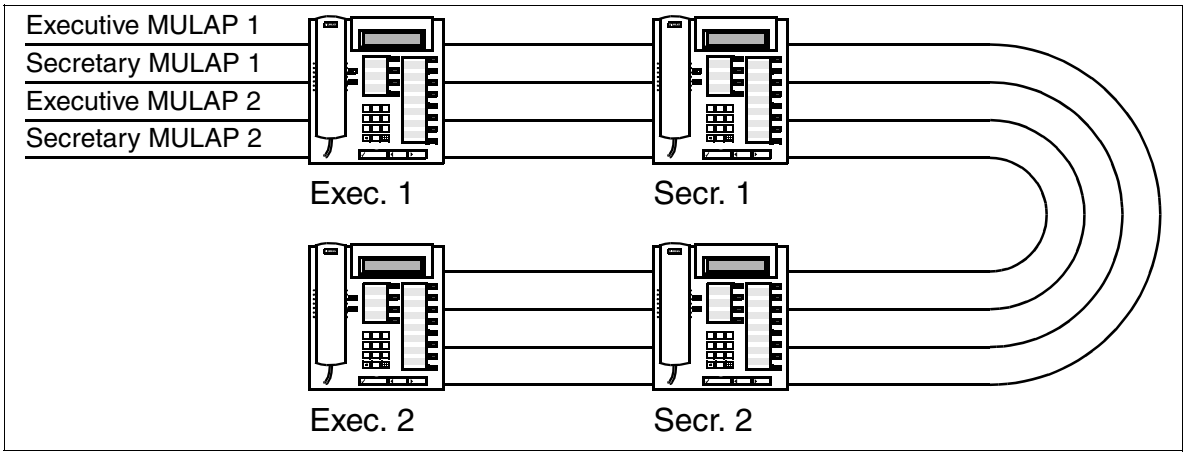


Figure 7-12 Example of Top with Two Executives and Two Secretaries

The following options are available for assigning Top keys using HiPath 3000 Manager E:

- No key assignment
- Assignment to first or second key module
  A key module is automatically added (refer to examples in Figure 7-13 and Figure 7-14). If applicable, existing keys are overwritten.
- Assignment to first free keys
  Free keys on the telephone and any existing key modules are used. If no keys are available, key modules are added. Key assignment sequence for Top: DSS Executive 1, Exec. MULAP 1, Ring Transfer Exec. MULAP 1, DSS Secretary 1 (on executive telephone) or Group Call (on secretary telephone), DSS Executive 2, Exec. MULAP 2, etc.

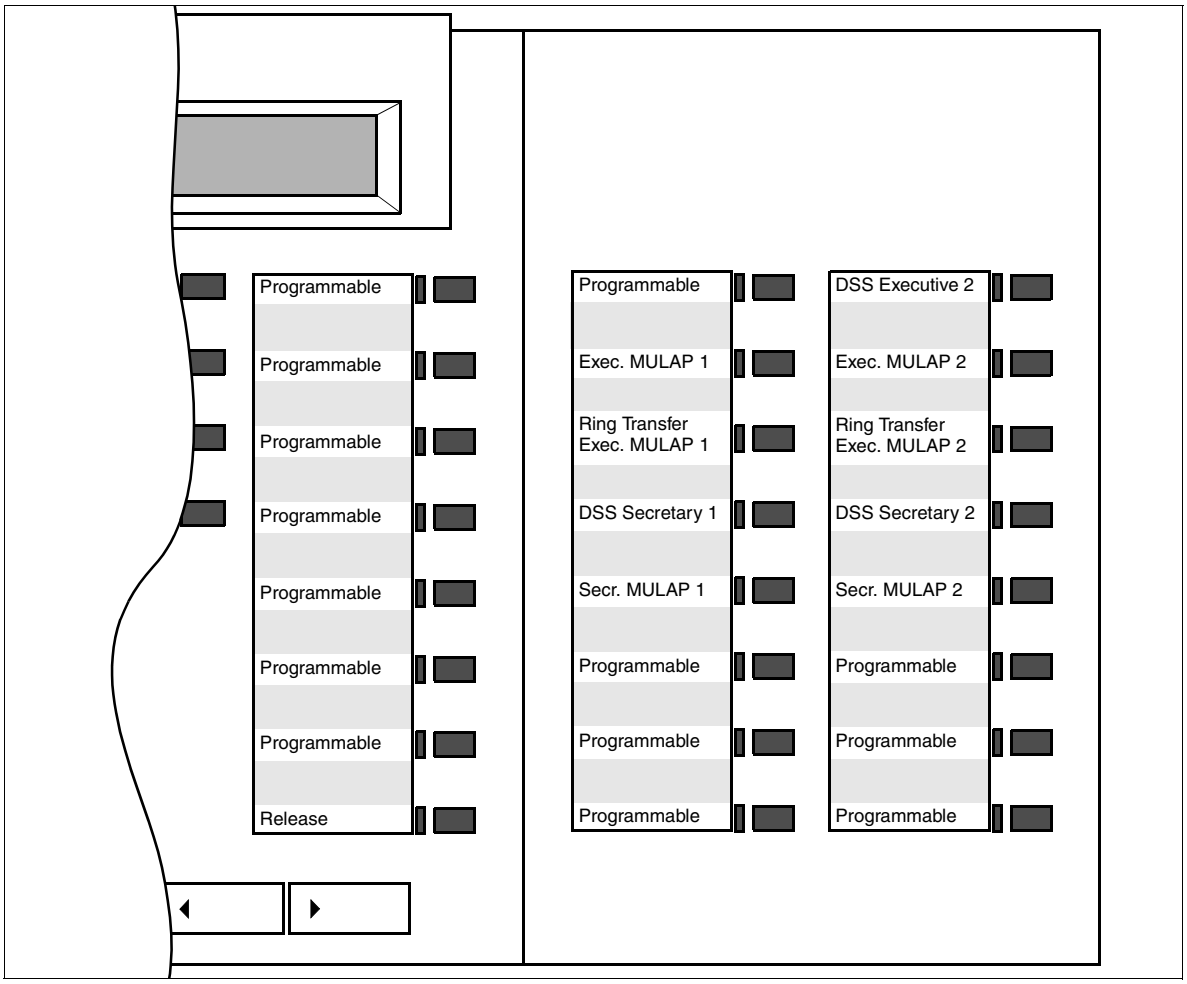


Figure 7-13 Top with Two Executives and Two Secretaries: Default Key Assignments for Executive 1 on key module

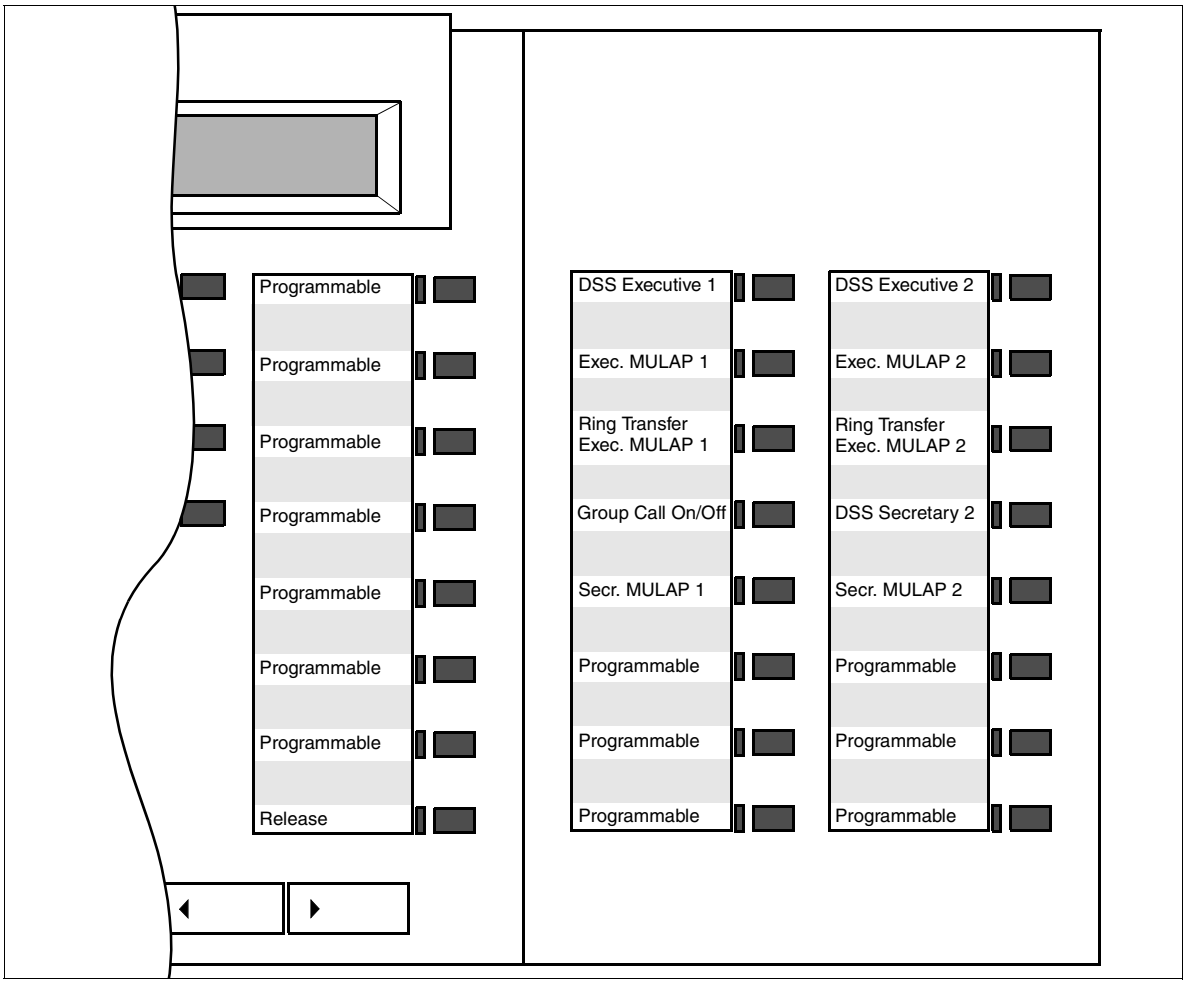


Figure 7-14 Top with Two Executives and Two Secretaries: Default Key Assignments for Secretary 1 on key module

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Maximum number of Team/Top configurations	500	50	10	10	10
Maximum number of stations (members) in a Team/Top configuration	10	10	8	8	8
Maximum number of telephones in a Team/Top configuration	10	10	8	8	8
Maximum number of MULAPs per telephone	32	32	10	10	10

Requirements and Conditions

Subject	Requirement or Condition
Manually configured executive MULAP group	Members of an executive MULAP group can use key programming to • Configure a MULAP key for the executive MULAP group. • Configure DSS keys to other members. • Program a “Group Call” key. • Program a ring transfer key for each executive MULAP group. **Note:** In an executive MULAP group, the executive should program a DSS key to the secretary (station number) and the secretary should program a DSS key to the executive (station number).
Executive as primary station	An executive can also be a primary station in a basic MULAP group but can be defined as an executive only in an executive MULAP group.

Subject	Requirement or Condition
Executive ring	If an executive in the executive MULAP group calls a non-executive in the local executive MULAP group, the call is signaled by a special, acoustic executive ring.
Group call key, incoming MULAP call signaling	• In the executive MULAP group, incoming MULAP call signaling can be administered only for non-executives. • Executives cannot configure a group call key (for activating and deactivating MULAP call signaling) for the executive MULAP group. If necessary, the ringer cutoff function can be used to deactivate the acoustic ring on an executive telephone. An advisory ring is issued. • Non-executives (secretaries) can configure a group call key for activating and deactivating MULAP call signaling. Ring transfer has priority, meaning that the group call key is activated only when ring transfer is deactivated. Signaling on the two keys is separate.

Subject	Requirement or Condition
Call transfer key, incoming MULAP call signaling	• All members of an executive MULAP group can program a local ring transfer key for each executive MULAP. A secretary with multiple executives has multiple executive MULAPs and, therefore, multiple ring transfer keys. The default setting for the ring transfer key is “deactivated” (LED off). Calls are signaled on the secretary. When the ring transfer key is pressed (LED on), MULAP call signaling is transferred within the executive MULAP group. Executives are signaled with MULAP call signaling and non-executives are signaled visually. • Calls between members of the executive MULAP group or within a Top are not affected by ring transfer: Executives in the executive MULAP group always ring. Calls to another executive MULAP group always take ring transfer into account. Exceptions: Calls set up by means of a DSS key. • Ring transfer can be activated or deactivated using a – Code: Analog telephones, CMI telephones, optiset E and optiPoint 500 telephones. Afterwards, the MULAP number must be suffix-dialed. – Menu (after dialing the ring transfer code): CMI telephones, optiset E and optiPoint 500 telephones with display. • The ring transfer state is not indicated by a special dial tone. • Ring transfer has priority, meaning that the group call key is activated only when ring transfer is deactivated. Signaling on the two keys is separate.
Conversion to V1.0	Top functions (executive/secretary) from earlier releases of Hicom 150 E Office (such as Rel. 2.2) cannot be converted to HiPath 3000 V1.0.
Top configuration	If the Top configuration has more than one executive and one secretary, you need to use a key module.
Universal Call Distribution (UCD)	You cannot use MULAPs in the universal call distribution system.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Tops should normally be configured using HiPath 3000 Manager E. Configuration using Assistant T is possible only to a limited extent.

Configuring the Feature Using HiPath 3000 Manager E

HiPath 3000 Manager E can be used to configure a default Top (Team/Top mask). Members can be added to the team by drag and drop. The executive MULAP group, basic MULAP group and its MULAP key, and the ring transfer and DSS keys are configured automatically. The basic and executive MULAP groups are assigned the original station numbers of the primary station/executive and the primary station/executive is assigned a pseudo station number (examples: 4711 becomes **4711, 12345 becomes **2345, 654321 becomes **4321).

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure Top (default)** Options
2.	Incoming calls
3.	Team/Top

7.12.14.3 MULAP Groups

There are two types of MULAP group:

- **Basic MULAP groups**
  These groups form the basis for Team configurations. In addition, secretary MULAPs are configured by means of basic MULAP groups.
  Members can be primary stations, primary station CMIs and non-primary stations.
  Primary stations and primary station CMIs are automatically assigned the “outgoing preference” and incoming MULAP call signaling (tone, LED and display).
  The following can be administered:
  - “Outgoing preference” (automatic outgoing seizure) for all primary stations and primary station CMIs.
  - “Incoming preference” (automatic incoming seizure) for all members.
  - Incoming MULAP call signaling for all members.
  - DSS keys for all members.

  All members can activate and deactivate MULAP call signaling for each MULAP using a key (Group Call).

- **Executive MULAP groups**
  These groups form the basis for executive/secretary configurations (Top). All members of the Top (CHESE) become members of the executive MULAP; the executive(s) function as primary stations.
  The following members are possible: Executive 1, 2 ..., CMI executive 1, 2 ..., conference corner tel. executive 1, 2 ..., secretary 1, 2 ..., CMI secretary 1, 2 ...
  An executive MULAP group defines which members will be executives (= primary stations). These members are automatically assigned the “outgoing preference” without incoming MULAP call signaling (tone and display).
  All non-executives (= non-primary stations) are automatically assigned incoming MULAP call signaling (tone, LED and display).
  The following can be administered:
  - “Outgoing preference” for all executives, CMI executives and conference corner telephone executives.
  - “Incoming preference” for all members.
  - Incoming MULAP call signaling for all non-executives.
  - DSS keys for all members.
  - Ring transfer key.

  Non-executives can activate and deactivate MULAP call signaling using a key (Group Call).

  Secretary MULAPs are configured by means of basic MULAP groups.

Telephone Types

The following types of telephone can be defined as both primary stations and non-primary stations in a basic or executive MULAP group:

- Analog telephones
- Cordless telephones (CMI)
- all optiPoint 500 telephones described in Chapter 9 and the optiset E telephones described in the Hicom 150 H V1.0 Service Manual

LED Statuses of a MULAP Key

The LED for the MULAP key indicates the status of the MULAP group and can assume the following signaling statuses:

- LED off = MULAP free (seizure possible).
- LED on = MULAP busy (seizure not possible).
- LED flickering = MULAP being called (call can be answered).
- LED flashing slowly = MULAP on hold (call can be retrieved or picked up).

A key can be configured for a MULAP group number on each station (including on a busy lamp field and optiClient Attendant).

LED Statuses of a DSS key

The LED for the DSS key indicates the status of the DSS destination as follows:

- LED off = DSS destination is free.
- LED on = DSS destination is busy (off-hook, in talk state, etc.) or the telephone on which the DSS key was configured is calling the destination.
- LED flashing rapidly = The telephone (DSS destination) is not being called by a DSS key.
  Example: Telephone A has a DSS key to telephone B. Telephone C calls telephone B. The DSS key LED on telephone A flashes rapidly.
- LED flickering = The telephone (DSS destination) is calling the telephone on which the DSS key was configured.
- LED flashing slowly = The telephone on which the DSS key was configured has placed a destination on hold.

General MULAP Functionality

Incoming Calls to a Free MULAP	
All the members of the MULAP group have deactivated the MULAP ring (group call off) and/or have activated do not disturb.	The MULAP is busy and the caller receives a busy signal. There is no call signaling on the MULAP.
At least one member of the MULAP group has activated the MULAP ring (group call on) and deactivated do not disturb.	The call is signaled on all members of the MULAP group (LED). • Members of the MULAP group who are currently free, have activated the MULAP ring, and have not activated do not disturb are also signaled by an acoustic ring and display. • Members of the MULAP group who are free and have activated the ringer cutoff feature are also signaled by an advisory ring. • Busy stations in the MULAP group (busy on another line) that have activated the MULAP ring and have not activated do not disturb are signaled by – An acoustic advisory ring (single ring) and, after scrolling, an “Accept waiting call” message on optiset E and optiPoint 500 telephones. – An advisory tone (single short tone) on analog, CMI and optiset E and optiPoint 500 telephones without display. The latter is not affected by do not disturb. **Note:** The advisory ring is also issued for calls to the local station number (for example, call to DSS key or call to general call key).

Incoming Calls to a Busy MULAP	
All the members of the MULAP group are busy.	• An internal caller receives a busy signal and camps on after a timeout. An external caller camps on immediately. • The busy members of the MULAP group are signaled by: – A call waiting tone and, after scrolling, an “Accept waiting call” message on optiset E and optiPoint 500 telephones. – A call waiting tone on analog, CMI and optiset E and optiPoint 500 telephones without display. • In the case of busy MULAP group members who have activated do not disturb, the caller receives a busy signal regardless of whether the station has activated or deactivated the MULAP ring. There is no change in signaling for any “other” members of the MULAP group.
Answering of Incoming Calls	
Signaled MULAP key (LED with call signaling)	Calls can be answered by going off-hook, pressing the speaker key or pressing the MULAP key. If the user goes off-hook or presses the speaker key, the incoming preference applies (automatic incoming seizure). An incoming call (LED with or without call signaling) can always be answered using the MULAP key, regardless of the incoming preference.
Incoming Preference	
Incoming preference (automatic incoming seizure)	• Although the MULAP settings determine the incoming preference, this setting applies to a particular telephone. If more than one MULAP is connected to a telephone, an incoming preference can be set for each MULAP. Only the last setting entered for the incoming preference applies to the telephone. • If incoming preference is deactivated, a call cannot be answered by going off-hook or pressing the speaker key; the system attempts to execute an outgoing seizure. • If “No incoming preference” is selected for a telephone, the setting applies to all incoming calls to this telephone. Calls to the local station number can be answered only by pressing a station number, DSS or general call key.

Outgoing Calls	
Initiating an outgoing call	An outgoing call can be initiated by going off-hook, pressing the speaker key, or pressing a call, digit, MULAP, station number or DSS key. When an outgoing call is initiated, a station number is assigned and the called party is displayed. In the default configuration (device without MULAP), the local station number is assigned when the line is seized. If seizure is via a MULAP, the MULAP group number is assigned.
Outgoing Preference	
Outgoing preference (automatic outgoing seizure)	• Each station is assigned an outgoing preference. • The primary stations in the MULAP groups and the executives in the executive MULAP groups are assigned the MULAP group number as a preference. Primary stations and executives always have the same preferences. • If the outgoing preference for a primary station or executive changes, it is also changed for the other primary stations and executives in this MULAP group. • When the user goes off-hook, presses the speaker, station number, MUSAP or general call key, or dials while on-hook, the preference is assigned as a station number for the outgoing seizure. If the MULAP preference is busy when the user goes off-hook or presses one of the above-mentioned keys, an overflow to the local station number is possible only on analog, CMI and optiset E entry telephones. Other optiset E and optiPoint 500 telephones must select a free trunk. Application: An executive CMI goes off-hook. The executive MULAP (its outgoing preference) is still seized by the secretary. The executive CMI receives a dial tone (overflow) for the local station number. At the end of dialing, the station number of the executive MULAP appears in the display of the called party. • If the user presses a MULAP key, the outgoing preference is not used. Instead, the group number of the MULAP key is used.

Busy Signaling	
	If one MULAP group member presses the MULAP key or seizes the MULAP by preference (goes off-hook, presses the speaker key or dials while on-hook), MULAP keys indicate the busy state on all the stations in the MULAP group.
Station Number Key, DSS Key	
	• The destination of a station number key can be a station number or a group number. An outgoing seizure using a station number key is output to the outgoing preference. If the outgoing preference is a MULAP, the MULAP is also seized. If a station number key is activated during a call on a MULAP, the call is placed on consultation hold. • The station number is always entered as the destination of a DSS key. It is also possible to configure destinations that do not belong to a basic or executive MULAP group. • Differences: – A DSS key bypasses the outgoing preference and the local station number is always output (a MULAP is not seized). – A DSS key switches lines (for U.S. only) or initiates consultation hold (not for U.S.) if the active call is being conducted on a MULAP. – At the destination, a DSS key bypasses call management and ring transfer but follows call forwarding. • DSS on executive or primary station: The executives in the executive MULAP group or the primary stations in the basic MULAP group have the “free” status as a group; in other words, as soon as one is busy, the DSS and station number keys indicate busy.

Line Switchover	
	• Line switchover is possible only from the call state. Otherwise, the line is released. A line switchover is always executed between two MULAP keys. Between a MULAP and a DSS key, – A line switchover is executed = for U.S. only – Consultation hold is activated = not for U.S. The setting is selected by means of the “switch lines for DSS” option, which is part of the country default settings. • After pressing the hold key, the party initiating hold receives a dial tone (on the outgoing preference) and can set up an outgoing call or answer an incoming call on another line key. • If a user presses another free, calling or held MULAP key (line switchover) during a call (outgoing or incoming) on a MULAP key (call state), the first MULAP is also placed on exclusive hold. • The party who initiated hold can retrieve a MULAP on exclusive hold at any time by pressing the MULAP key. The active call is then placed on exclusive hold. • Both external and internal calls can be placed on hold. All the members of the MULAP can retrieve a MULAP on common hold at any time.
Call Pickup	
	Calls to MULAP groups are not signaled in any call pickup group and cannot be picked up.
Night, Intercept and Overflow Destinations	
	MULAP groups can be used as night, intercept and overflow destinations.
Telephone Directory	
	Administration (Assistant T/HiPath 3000 Manager E) indicates which station number or name will appear when the directory is displayed.
Call Forwarding	
CF destination	A MULAP group can also be a call forwarding destination.

Call forwarding per MULAP group	• After dialing the CF-per-MULAP code, the user must enter the MULAP number. optiset E and optiPoint 500 telephones with a display and CMI telephones use the same menu system as a CF device. • The user must also enter the MULAP number when programming a CF-per-MULAP key. The menu system is the same as for a CF key. • Instead of entering the MULAP number, the user can press the MULAP key. • A partially programmed (with MULAP number, without CF destination) or fully programmed (with MULAP number and CF destination) CF-per-MULAP key can also be programmed. • For each MULAP, a CF-per-MULAP key with an internal or external destination can be configured for each telephone.
Call forwarding via associated services	In this case, the MULAP number must be entered twice, once to indicate the source and once to indicate the trunk.
Execution of call forwarding	• When a forwarded MULAP is seized, a special dial tone is activated. • When a call is forwarded, a CF device has priority. A call is forwarded to the station CF destination. If CF per MULAP is activated, the call is forwarded to the MULAP CF destination. • There is no parallel signaling on the MULAP and CF destination. Only the call forwarding destination is called.
Secretarial function transfer	Using the ring transfer function, the secretary can switch calls to the executive and initiate a secretarial function transfer by means of CF per MULAP. The deputy can override call forwarding (caller is a CF destination), in which case the executive is called directly on the MULAP. The executive can receive calls directly by deactivating CF per MULAP.

Results and signaling of a CF device and CF per MULAP	• If a CF device is activated for a primary station or executive, this state is indicated by a special dial tone on all the primary station or executive telephones within the same MULAP. The CF device can be deactivated from any primary station or executive telephone. The CF destination is stored in the telephone that initiated call forwarding. CF is signaled (LED, display and special dial tone) on all primary stations or executives. • If CF per MULAP is activated, this state is indicated by the LED for the CF-per-MULAP key (fully and partially programmed) of all the members of the MULAP group (no continuous display). Any member of the MULAP group can deactivate CF per MULAP. • If a MULAP is entered as a CF destination, this state is indicated by the CF device LED (slowly flashing) of the primary stations in the MULAP group and by the CF-per-MULAP LED of all the members. • If a member attempts to activate CF per MULAP and a primary station has already activated a CF device, a warning is issued. The action is not executed until the primary station deactivates the CF device.

Number/Name Display	
	• When an outgoing call is set up, a station number is assigned (local station number or MULAP group number). • When an incoming MULAP call is answered, the MULAP group number is assigned. • In the case of calls to a MULAP: – Before the call is answered, the display of the calling party shows the MULAP name and/or MULAP number being called. – After the call is answered, the display of the calling party shows the station name and/or MULAP number of the answering party. • In the case of calls from a MULAP station (MULAP key or preference), the display of the called and answering parties always shows the station name and/or MULAP number. • The following generally applies to outgoing seizures: If a station conducts a call using the local station number and the outgoing preference differs from the local station number, the display of the called party always shows the station number of the outgoing preference.
Consultation Hold, Recall, Conference	
Consultation hold state	The following activities are among the options available in the menu in the consultation hold state: • Return to held call • Toggle • Transfer • Conference When the user goes on-hook, the call is transferred or an immediate recall is performed.
Consultation hold on local MULAP	If a MULAP group member is a primary station, it can reach the other members of the same MULAP by activating consultation hold and then dialing the local MULAP number. This is useful if no station number key or DSS key is configured or if the station number of the member is unknown. Example of an application: An executive wishes to transfer the call to his or her CMI or conference corner telephone. The executive activates consultation hold on the local executive MULAP. Only the executive stations ring because ring transfer within the executive MULAP is ignored. The executive can pickup the call on his or her CMI or conference corner telephone.

Unscreened and screened transfer (important Top feature)	If a member of the local MULAP is called while on consultation hold (by dialing the local station number, pressing the station number key or pressing the DSS key (not for U.S.)), the ring/call continues to be signaled/conducted on the MULAP after the transfer. Before the transfer, “common hold” is signaled on both MULAP members and the held call can be picked up.
Recall after transfer, hold or immediately after going on-hook during consultation hold	This function is signaled only on the MULAP station initiating consultation hold or hold. The MULAP LED indicates a call (busy indication on all other MULAP stations). The call is always signaled by an acoustic ring and display (MULAP ring and group call are ignored).
Consultation hold on second line	“Consultation hold on a second line” occurs when a second MULAP line is activated after consultation hold is initiated from a MULAP line. This function is useful when activating features that can only be activated from consultation hold (such as transfer and conference). Once a second line has been placed on consultation hold, the first line is released. Example of an application: A call is being conducted on MULAP M1. By pressing a trunk key, the user switches the line to MULAP M2, thus placing M1 on exclusive hold. A new connection is set up on M2. In order to add the party on M1 to a conference, the user must press consultation hold, M1 (M2 is released) and conference. The conference continues on M1. Instead of being added to a conference, the call can be transferred. In this case, the two parties are interconnected and M1 is released.
Conference	A conference can always be initiated or expanded (to maximum five participants).

Callback, Message Waiting, Caller List	
	• Callback and Message Waiting are station-related features. If a member of a MULAP initiates a call-back or sends a text message, the sender (i.e. only the initiating station in the MULAP) is called back. • When the callback is initiated on a busy MULAP, it is executed as soon as the MULAP is released. • When the callback is initiated on a free MULAP, the primary stations of the basic MULAP or the executives of the executive MULAP are monitored. The callback is not executed until a primary station or executive has been activated. • The MULAP is always called when the callback is executed. This means that a callback initiated on a free executive MULAP will also call the executive MULAP when it is executed. • When a user sends a text message to a MULAP, the message is delivered to all the primary stations in the basic MULAP or all the executives in the executive MULAP. • The message waiting LED for the mailbox is also activated on all the primary stations in the basic MULAP or executives in the executive MULAP. • MULAP calls are indicated only in the caller list of the primary stations and executives.

7.12.15 Storing Procedures on Procedure Keys

Definition

This feature allows the user to configure procedure keys and to program them with procedures. The programming (storing) follows the same steps as the normal execution of a procedure.

If you use a procedure key during a call, DTMF signals are automatically sent in the B channel. A consultation hold is not initiated.

Procedures can contain internal and external station numbers and additional information. Some of the possibilities are:

- Trunk group code number + ACCT + destination station number
- Trunk flash code + destination station number
- Code numbers for control of services + destination station number (such as send/query message (Message Waiting): * 68 + station number + text number)
- Digit combination for Voice Mail or for answering machine
- Call waiting or busy override when destination station is busy
- Initiation of a callback when destination station is idle or busy

The following table shows which services (features) can be programmed on procedure keys. The table also shows any conditions that apply to the use of the procedure keys.

Refer to Table A-1 for the code numbers for activating or deactivating the services (features) in the list.

Feature	Use of the procedure key not possible						Comments
	in the digit input-state (no digit dialed)	in the digit input-state (at least 1 digit dialed)	in the busy state	in the talk state	during outgoing call	during incoming call	
Account code (ACCT)							
Account code ACCT in prefix		X	X		X	X	
Advisory message on			X			X	Key with toggle function
Associated dialing							

Feature	Use of the procedure key not possible						Comments
	in the digit input-state (no digit dialed)	in the digit input-state (at least 1 digit dialed)	in the busy state	in the talk state	during outgoing call	during incoming call	
Associated services			X			X	
Automatic wake-up system: activate appointment							Key with toggle function
Automatic wake-up system: deactivate appointment							Key with toggle function
Callback requests - display or delete		X	X	X	X	X	Key with toggle function
Call forwarding, internal or external, on			X			X	
Call forwarding, external, on (not for tenant services)			X			X	Key with toggle function
Call forwarding, logon			X			X	Key with toggle function
Call forwarding, night destination on			X			X	Key with toggle function
Call forwarding per MULAP							
Dial station speed dialing			X			X	
Dial system speed dialing			X			X	
Directed call pickup		X	X		X	X	
Door opener via adapter box							
DTMF transmission	X	X	X		X	X	
DTMF transmission in the talk state using procedure key							
Flash on analog trunk							
Group ringing off			X			X	Key with toggle function
Group ringing on			X			X	Key with toggle function
Night answer off			X			X	Key with toggle function

Feature	Use of the procedure key not possible						Comments
	in the digit input-state (no digit dialed)	in the digit input-state (at least 1 digit dialed)	in the busy state	in the talk state	during outgoing call	during incoming call	
Night answer on			X			X	Key with toggle function
Park on	X					X	Key with toggle function
Parked call retrieval		X	X	X	X	X	Key with toggle function
Radio paging system, answer							
Radio paging system, page							
Release trunk (emergency trunk access)			X			X	
Retrieval of an external call from common hold							
Send messages (message waiting)			X			X	
Silent monitoring		X	X		X	X	
Speaker call		X	X		X	X	
Switch relays off			X			X	
Switch relays on			X			X	
System telephone book		X	X		X	X	
Telephone Data Service TDS			X			X	
Voice selections							

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.2 or later				

Requirements and Conditions

Subject	Requirement or Condition
Procedure length	A maximum of 32 characters can be stored in a proceudre key.
optiClient Attendant	It is not possible to configure procedure keys.
Second key level	No procedures can be configured on the second key level (Shift).
Pause	A pause can be inserted in the programming process by pressing the redial key.
Suffix-dialing	Procedure keys can be used in suffix-dialing.
PIN	It is not possible to program procedures that require a PIN (such as activating or deactivating an individual telephone lock).

Configuration Options

This feature can be configured using HiPath 3000 Manager E.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure and program procedure key** Options
2.	Configure station
3.	Program key
4.	Select key
5.	Key code = procedure key Procedure = max. 32 characters (0 ... 9, *, #, P (Pause))

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	**Configure and program procedure key.**
2.	Press procedure key.
3.	The procedure is executed.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.12.16 Customer-Specific Display (V3.0 and later)

Definition

The feature allows you to make customer-specific adjustments to the optiPoint 400 CorNet-IP-TS, the optiClient 130, and the optiset E and optiPoint 500 telephone displays when the telephones are in the idle state.

You can change only the right portion (maximum of 15 characters) of the second display line, which displays “HiPath” as a default. For example, you can enter a company identification or hotel name here. The text lines up with the left part of the date if the length of the text allows it.

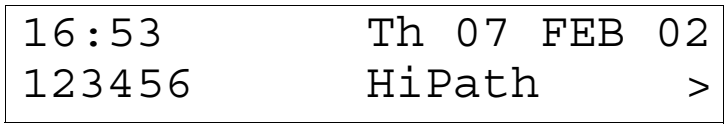


Figure 7-15 Default Display in Idle State

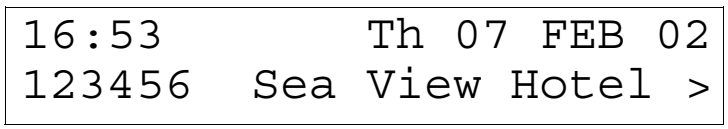


Figure 7-16 Example of a Customer-Specific Display in Idle State

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	optiset E or optiPoint 500 telephone with display				
SW requirements	V3.0 or later	V3.0 or later	V3.0 or later	V3.0 or later	V3.0 or later

Requirements and Conditions

Subject	Requirement or Condition
Display	The display appears only when the telephone is in the idle state.

Configuration Options

This feature can be configured using HiPath 3000 Manager E.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Activity
1.	**Configure customer-specific display** Settings
2.	System parameters
3.	System settings

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Activity
1.	The new text appears in the display on all telephones immediately after you change it.

7.13 Networking

In private and public networks, switching operations are performed by trunk interfaces, numbering plans, least cost routing functions, and station number translations.

HiPath 3000 provide networking on digital trunks using the CorNet-N (from Section 7.13.4) or QSig (Section 7.13.19) networking protocol.

In addition to the capability described here, to network HiPath 3000 systems using CorNet-N and QSig, for V1.0 and later you can also use IP Networking (HiPath 3750, HiPath 3550, HiPath 3350, HiPath 3700, HiPath 3500, HiPath 3300). HiPath HG1500 makes this possible. For information on the startup and configuration, refer to the HiPath HG1500 Administration Instructions.

CorNet-N is a data protocol from Siemens AG for digital communication between HiPath 3000 and Hicom 300 E and other private communications servers from Siemens AG.
QSig is a data protocol for digital communication between HiPath 3000 and Hicom 300 E and the communications servers of other manufacturers.

The HiPath 3000 systems (HiPath 3750, HiPath 3550, HiPath 3700, HiPath 3500) can be connected to other Communications Servers to form private networks. The system can use analog tie lines (TIEL board in HiPath 3750 and HiPath 3700) or digital T1 services (TST1 in HiPath 3550 and HiPath 3500, TMST1 in HiPath 3750 and HiPath 3700) to support network call traffic. Varying degrees of network functionality, from basic call routing to transparent user features, can be achieved, depending on the signaling format. Software features for basic connectivity through advanced CorNet-N ISDN networking come standard in the basic HiPath 3000 system.

For examples of maximum possible distances from the CO for CorNet-N direct networking, refer to Table 2-8 on page 2-25.

Satellite Tie Line

HiPath 3000 systems can be configured for basic call handling between other communications systems supporting common E&M signalling protocol. The HiPath 3000 LCR features can be implemented to support a coordinated dialing plan in simple network designs. The HiPath 3000 support off-premise call forwarding over these types of tie-trunk circuits and can be used to route inbound call traffic to remote answering destinations.

While this simple network design does not afford feature transparency, economical call routes using analog E&M tie lines or standard T1/D4 tie lines can be used. The HiPath 3550 and HiPath 3500 do not support an analog tie-line interface card.

- **CorNet-N call traffic and signalling (for U.S. Only)**

  CorNet-N is a point-to-point (peer-to-peer) protocol and requires an ISDN link for signalling and call traffic between connected systems. A standard clear channel T1 facility is required between systems to support the CorNet-N application. No ISDN signalling or ISDN feature of the public-switched telephone network (PSTN) is used in a CorNet-N network.

  CorNet-N call information (digitized voice or data) is handled over 64-Kbps B channels. The call setup and call intelligence are communicated between systems over an associated D channel. This technique is called Message-Oriented Signaling/Common Channel Signaling (CCS/MOS). A T1/DS0 facility used for CorNet-N ISDN calls has a capacity of 23 B channels + 1 D channel. Multiple T1 links can be configured in a logical call route using the system's LCR feature.

- **CorNet-N and international links**

  The HiPath 3000 can be configured at installation to be used in either US mu-law or international a-law digital PCM formats. Digital T1 interface cards cannot be used in a system defined for a-law use and E1 cards cannot be used in a mu-law system. External transmission equipment capable of handling both a-law and mu-law formats is required to support matching the two international PCM formats. Exchange carriers handling international traffic can often supply this service.

  Whereas T1 interfaces offer 24 channels (23+1) at a total bandwidth of 1.544 Mhz, an E1 interface (also known internationally as an S2 interface) provides 32 channels (31+1) with a total bandwidth of 2.048 Mhz.

  In an international network between a T1 equipped system and an E1 equipped system, only 23 B channels can be used. The remaining 9 channels of the E1 interface are not used.

- **CorNet-N on fractional T1**

  The HiPath 3000 support fractional T1 service, which can be used in a CorNet-N, PRI or analog T1 (non-ISDN) environment. Any of the B channels that have been disabled in the HiPath 3000 configuration can be used for other T1 applications. External multiplexing equipment is required to provide mapping of the alternate application's T1 channels into the unused B channels of the CorNet-N link. (Refer to CorNet-N Configuration and Sales Positioning guides).

- **CorNet-N and data applications**

  ISDN data applications are supported over CorNet-N links using the STLS4, STMD8, ILAN card and ISDN adapter.

- **CorNet-N network topologies**

  The HiPath 3000 can be configured in point-to-point, star, or mesh network configurations, with other HiPath 3000 systems (HiPath 3550 and HiPath 3750 only) and/or with other Siemens ICN systems. (Refer to CorNet-N Configuration and Sales Positioning guides for details).

- **CorNet-N network and** HiPath 3000 **system feature compatibility**

  All the following CorNet-N features are supported between HiPath 3000 systems. Refer to the CorNet-N Configuration and Sales Positioning guides for complete feature compatibility between the HiPath 3000 and other Siemens Communications Systems.

7.13.1 Satellite CS Capability

Definition

Users can connect the HiPath 3000 system to an existing communications server (CS) as a satellite CS and use the functions of the second CS.

Tie trunk traffic can be processed via direct connections between the CSs as well as via public trunks and dedicated lines. In addition, with HiPath 3750 and HiPath 3700, users can process tie trunk traffic via E&M trunks.

Basic interconnection of two communication systems can be formed by connecting analog station interfaces from one system to loop start analog trunks of the other system. This type of connection provides only basic connectivity between systems. To support such connectivity, the HiPath 3000 provide a configurable trunk flash which changes the flash from a ground signal to an open loop to signal the other system.

The Assistant T parameter *CO* or *PBX* or the HiPath 3000 Manager E *Trunk Type* parameter changes the flash from long to short.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	Digital trunk board or analog tie trunk board	Digital trunk board	Digital trunk board	–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
Closed numbering	With closed numbering, trunk group codes must be deleted for CorNet trunk groups, although trunk access codes remain.
Least cost routing (LCR)	In a CS with CO access, LCR must be active to handle transit calls.
CorNet-N trunk groups	On CorNet-N trunk groups that can seize a trunk in the remote CS, the second discriminating digit in the trunk group must be entered from the remote CS.
Analog trunks	On analog external trunks, a flash (not ground) signals the main CS.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Set trunk type**
2.	17-14 => Networking - Trunk type CO/CS
3.	**Set ISDN parameters**
4.	20-4 => ISDN parameters - EU parameters (not for U.S.)
5.	**Set trunk group codes**
6.	23-4 => Codes - Trunk group code
7.	23-6 => Codes - Second CO ID
8.	35-1 => Least cost routing - LCR on/off

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Set trunk type** Options
2.	Lines/networking
3.	Routing parameters
4.	**Set ISDN parameters** Options
5.	Lines/networking
6.	Trunks
7.	Parameters, Flags
8.	Routes

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Call a station in another networked system.

7.13.2 Tie Trunk Via TIEL

Definition

The TIEL (Tie Line Ear & Mouth) board supports tie traffic with other private communication systems and contains four two-way analog tie trunks with E&M signaling for HiPath 3750 and HiPath 3700. Each tie trunk has eight connections: two incoming speech paths, two outgoing speech paths, two incoming signaling paths, and two outgoing signaling paths.

The speech paths can switch between four-wire and two-wire modes. To ensure high-quality transmission, a four-wire connection should be used for analog networks. The advantage of providing separate speech paths for incoming and outgoing calls is that it helps maintain call stability (echo). Repeaters in the transmission equipment can also compensate for attenuation losses.

The E&M signaling paths exchange signals that control connection setup and clear-down. Depending on the requirements of the remote system or the transmission equipment, you can use different types of interfaces that have a different number of wires or different potentials.

Before placing a tie trunk in service, you must determine which interface type the two participating systems should share. Details can be found in Section 3.3.16.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	–	–	–	–
HW requirements	TIEL board	–	–	–	–
SW requirements	V1.0 or later	–	–	–	–

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

7.13.3 Closed Numbering

Definition

In private networks, users can assign station numbers, trunk access codes, and feature codes according to a customer-defined numbering plan.

HiPath 3000 support both closed and open numbering. If unique extension numbers are used within the network, any user in the network can call another extension by dialing its extension number.This is a closed numbering plan.

CorNet-N dial plans support extension numbering. In the CorNet-N network, users assign unique private extension numbers of up to six digits. This type of numbering is also called closed numbering.

An open numbering plan is also supported for networks that use a leading digit and a common system dial plan for each location.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
Numbering	Users can change internal numbering only using HiPath 3000 Manager E.

Configuration Options

This feature can be configured using HiPath 3000 Manager E.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Options
2.	Set up station
3.	Station
4.	Automatic LCR

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Call the internal number of another networked station.

7.13.4 Toll Restriction with CorNet-N

Definition

HiPath 3000 support satellite CS traffic via CorNet-N. The system can be operated as a node (CS without CO access, CorNet-N trunk group only), transit node (CS with at least two CorNet-N trunk groups, no central office), and gateway (CS with CO and CorNet-N trunk groups).

In addition to the basic call functions (outgoing and incoming calls), the CorNet-N system supports the toll restriction feature.

If users operate the HiPath 3000 in networked environments, the user's toll restriction is checked, transmitted, or received in the incoming direction (class-of-service transfer) when a CorNet-N trunk is seized. To a gateway system, the system performs standard class-of-service toll restrictions for outgoing calls and when an extension answers.

A station's toll restriction class of service (COS) is passed from communication server to communication server within a CorNet-N network. When a call originating in a remote system is destined for an external trunk route, the HiPath 3000 perform COS checking of the calling party before allowing the call to proceed.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–
Restrictions	Host/client (master/slave)		Client (slave)	–	–

Requirements and Conditions

Subject	Requirement or Condition
Classes of service	The following 15 classes of service exist for class-of-service transfer: • Internal access only (0) • Outward restricted trunk access (1) • Local public network (2-13, including 11 allowed/denied lists) • Unrestricted trunk access (14)

Subject	Requirement or Condition
Classes of service for two networked systems	When there is an external seizure of a station from the satellite CS (with COS 2-13) over the main CS, the main CS's first denied list always does the seizing. For this reason, keep the first denied line of the main CS free for the assessment of the stations from the satellite CS. The system keeps COS 0, 1 and 14 of the satellite CS.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure toll restriction**
2.	15-1 => Toll restriction - Restriction, day
3.	15-2 => Toll restriction - Restriction, night
4.	15-3 => Toll restriction - Allowed lists
5.	15-4 => Toll restriction - Denied lists
6.	17-14 => Networking - Trunk type CO/CS
7.	23-6 => Codes - Second trunk access code

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure toll restriction** Options
2.	Classes of service
3.	Station
4.	Allowed/denied numbers
5.	Lines/networking
6.	Lines: parameters
7.	Routes

Step	Action
8.	Routing parameters

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Dial an external, outgoing connection from the satellite CS via the main CS.
2.	Outgoing connections are possible if permitted by the subscriber class of service.

7.13.5 Call Detail Recording With Networking

Definition

In a networked environment, each system records call details locally. Networking does not affect call detail recording in HiPath 3000. Call details continue to be recorded for outgoing calls provided they are transmitted by the main CS. In environments with satellite CSs without a separate central office, the main CS centrally records call details that originate within the main CS (call detail recording central [CDRC]).

In addition, CDRC logs call detail information received for incoming calls (for example, transfer of a toll call from a networked system).

In networked environments, a centralized call accounting device can be used to record all calls originated or in transit through the hub system.

Each system can only record calls that are routed through its own trunks or transit calls. A centralized CDR device can be used to collect CDR data from each individual systems' RS-232 interface.

CDR data that originates in one node is not transmitted to another network node. The secondary CDR collecting devices located at each node are typically polled by a main CDR device located at the main node to collect the stored data. Siemens' responsibility is limited to the data provided out of the RS-232 port. Integration of external devices must be confirmed with Siemens ICN prior to installation.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
Buffer box	If a system in a network has local trunk accesses, a local buffer box can be used for the call charges.
Call via the trunk gateway of the remote CS	If a station in a CS conducts an outgoing call via the CO access of the remote CS, the call details that apply to the CS in which the trunk is seized are output as call type 6 (direct outward dialing).

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure call charge factor**
2.	11-4 => CDR - Call charge factor
3.	**Configure ISDN call detail recording**
4.	11-5 => CDR - Call charge factor ISDN
5.	**Configure currency designation**
6.	11-6 => CDR - Currency

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure call charges** System status
2.	Call charges
3.	Output format

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Conduct a chargeable call. The call charges are displayed as configured.

7.13.6 Incoming Call

Definition

CorNet-N handles incoming calls the same way as any other internal calls. Users can configure digit analysis in the networked system so that they can reach all HiPath 3000 extensions by dialing the prefix.

The extension number corresponds to the external numbering plan and is analyzed accordingly. When the connection is made, the following information is passed to the remote CS placing the call:

- Toll restriction
- Extension number
- Station name

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Call a networked station via CorNet-N.
2.	If the name of the station dialed is entered in the networked system, it appears on the display.

7.13.7 Consultation Hold/Transfer/Pickup

Definition

When users activate **consultation hold** between a HiPath 3000 station and a station in a networked system, the consultation hold is initially set up via a second B channel. Whenever possible, the connection is set up by path replacement (path replacement activates after connection). If path replacement is not possible, the connection remains on the second B channel.

When an external call is **transferred** to a station connected via CorNet-N, the station number, name, and class of service for the A and C stations are transmitted.

Users can **pick up** from the networked system if the call is identified as a consultation call. If the consulted party picks up the call, the request from the main CS causes the call to be switched in transit, and the system disconnects the consulting party. If the consulted party disconnects the consultation call, the consultation is automatically reconnected to the last call on hold.

Unscreened transfer is possible to a busy or idle station in a remote node.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
Unscreened transfer	Unscreened transfer is possible on a free or busy station in a networked system.
Call pickup groups with fractional T1s	If you are using a portion of B channels on a T1 for data applications (for example, with a data server), you must bar the data B channels from being used for call pickup groups. Do this by deselecting the B channel modes *incoming* and *outgoing* in HiPath 3000 Manager E. (Refer to the table on page 7-443 for information on how to configure this feature with HiPath 3000 Manager E).

Configuration Options

This feature does not have to be explicitly configured.

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure Fractional T1 with call pickup groups** Options
2.	Lines/networking
3.	Parameters
4.	B channel mode
5.	Incoming/outgoing (deselect B channels used for data)

7.13.8 Recall

Definition

The system initiates a recall if the network cannot perform an unscreened transfer. The recall applies locally and not network-wide.

In homogeneous HiPath 3000 networks, an unanswered call from one node to another recalls the initiating station in the originating node.

In non-homogeneous networks, an unanswered call to a non-HiPath 3000 system recalls at the transferring system's intercept position or originator, depending on the system configuration.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Configuration Options

This feature does not have to be explicitly configured.

7.13.9 Call Waiting

Definition

Networked systems handle call waiting the same way as internal call waiting.

Corresponding D channel messages are generated for waiting calls.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Call a networked station that is busy.
2.	If internal call waiting is enabled for this station, the station is camped-on.

7.13.10 Distinctive Ringing in the Network

Definition

The calls are evaluated in the network and signaled accordingly.

CorNet-N calls are handled and signaled the same as internal calls.

Distinctive internal and external ring types are provided over CorNet-N.

Network station-to-station calls provide internal ringing patterns, whereas external trunk calls routed over CorNet-N provide external ringing patterns.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Call a networked station.
2.	This station receives the same call signaling as it would for an internal call.

7.13.11 Callback on Free/Busy

Definition

Users can activate the callback feature across systems. The user interface is the same as for internal callback. Instead of the internal extension number, the number of the networked station is stored and displayed.

If an open-numbering scheme is used, this feature only operates in a CorNet-N network of two HiPath 3000 systems, where at least one system is an HiPath 3750 or HiPath 3700.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Configuration Options

This feature does not have to be explicitly configured

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Call a busy or free user in the networked system.
2.	Initiate callback and hang up.
3.	When the user is free or lifts the handset, the system calls you back.

7.13.12 Station Number/Name Display

Definition

In addition to the calling station's number, HiPath 3000 transmit the calling station's name via CorNet-N. When a name is available for incoming calls, the station displays the name instead of the station number.

This feature supports both uppercase and lowercase letters. In addition, users can configure whether the telephone display shows the caller's name or station number.

The HiPath 3000 send both the calling station number and calling station name (if applicable) via the ISDN D channel.

If external and internal calls are routed via CorNet-N to another node, it is necessary to split the B channels of a T1 span for internal and external traffic. This can lead to the situation that for certain calls not all 23 B channels are available.

In an incoming call from another node's ISDN trunk, the calling party's Caller ID is received on the HiPath 3000 optiset E or optiPoint 500.

An ISDN trunk call transferred or redirected from the HiPath 3000 (either by a station or by a voice processing device) passes the calling party's Caller ID to the next node.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
Station number suppression	Each user can use the station number suppression function to activate or deactivate station number and name display.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure name/station number**
2.	19-16 => Displays - Names/stn. numbers

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure name/station number** Options
2.	System parameters
3.	Display

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Call a networked station.
2.	You see either the station name or the station number.

7.13.13 Call Forwarding With Rerouting

Definition

Calls can be rerouted for call forwarding via CorNet-N to optimize B channel utilization.

For example, station A in CS 1 calls station B in CS 2. Station B then forwards the call to station C in CS 1. The two B channels between CSs 1 and 2 are released. This means that the connection is set up directly within CS 1. For this to be possible, both CSs must activate rerouting.

HiPath 3000 users can forward their incoming internal and/or external calls to users within their own system, to a node within the private network, or off-site (if the feature is allowed in the system administration). Call forwarding-no answer is possible using Call Management pseudo ports in the HiPath 3000 system.

Pseudo numbers are used for identification and steering purposes. A pseudo number is a call number/DID number assigned to a port not associated to a physical device. The pseudo numbers are assigned in the *Set up station* screen (HiPath 3000 Manager E) and can be configured with a name and Call Management steering information. Pseudo numbers cannot be programmed as Repertory Dial (Repdial) keys on the optiset E or optiPoint 500 telephones. Pseudo numbers can be forwarded using the Associated Services feature code (*83) from a station with the Associated Services authorization flag activated.

Route optimization can be defined in the database as follows:

- Rerouting is deactivated
- Reroute only if the route is known
- Rerouting is always activated

This option is only available for CorNet-N networking, and must be activated in the same way in both networked systems.

Refer to the CorNet-N Configuration Notes for the proper setting.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure CF with rerouting**
2.	17-17-1 => Networking - Rerouting - Rerouting active

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure CF with rerouting** Options
2.	Lines/networking
3.	Routing parameters

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Forward a call to station C in the main CS from station B in the satellite CS.
2.	Call station B in the satellite CS from station A in the main CS.
3.	If possible, the trunks to the satellite CS are released.

7.13.14 Toggle

Definition

The conditions described under Section 7.2.3, Toggle also apply to networked systems. That is, station users can use the Toggle feature to toggle between callers, including those originated or received on CorNet-N call routes.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
Call hold	A station on hold cannot toggle between calls.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up a call.
2.	Activate consultation hold.
3.	Set up a second call via CorNet-N.
4.	Switch between the two parties called using toggle.

7.13.15 Conference

Definition

The conditions described in Section 7.2.6, Conference also apply to networked systems.

Voice station users on the HiPath 3000 can establish internal and external conference calls using local and CorNet-N call routes as needed. The system limits the number of conferees in a conference to five. A party in another node connected to the conference via CorNet-N is allowed to add additional parties within its own node using its own conference circuit. Members of a conference within another node will not be updated with the conference display information (number of conferees in the conference) of the HiPath 3000 system.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
Conference	A conference can be set up between voice stations only.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up a call.
2.	Activate consultation hold.
3.	Set up a second call via CorNet-N.
4.	Set up a conference using the input procedure.
5.	If you want to include additional stations in the conference, place the conference on hold, set up another call, and activate the conference.

7.13.16 Central Attendant Console

Definition

A central attendant console supports the switch and recall functions in the network. A local intercept position can redirect intercepted calls via a networked station (with call forwarding).

Pseudo numbers can also be entered that are forwarded to a remote system for centralized answering applications. The Associated Service feature must be used to call forward the pseudo number to the target location.

The console display shows the calling party number if available. There is no indication specific display for intercept—same display as for incoming external calls.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Configuration Options

This feature does not have to be explicitly configured.

7.13.17 Sharing System Speed Dialing in a Gateway System

Definition

Satellite CSs can share the system speed-dialing destinations in a gateway system. However, the local telephone directory cannot display the system speed-dialing numbers of the gateway system.

There are some restrictions, depending on the type of system in the network. Refer to the Configuration Notes prior to installation.

The satellite station user must dial the gateway system's speed-dialing number. Service code conflicts must not exist between the nodes. The service code is analyzed via LCR and sent to the destination node

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	From the satellite CS, dial the system speed-dialing code for the main CS.

7.13.18 Sharing a Central Voice Mail Server

Definition

Users in a networked system can program call forwarding to a central voice mail server. HiPath 3000 stations are informed of calls received by means of the message waiting indication (either the optiset E or optiPoint 500 LED, the optiset E or optiPoint 500 display, or the HiPath 3750 and HiPath 3700 analog telephone's broken dial tone or message).

The central voice mail server can be queried in DTMF mode.

In a homogeneous HiPath 3000 networks, the centralized voice mail system must be located at the HiPath 3750 or HiPath 3700 system. Special attention should be taken during the presales investigation concerning the amount of traffic from all nodes to the voice mail server. The HiPath 3000 support a maximum of 8 VMIe analog ports connected from the voice mail server to the HiPath 3750 or HiPath 3700.

With the Siemens PhoneMail system, users can assign one mailbox to up to six independent telephones so that the Message Waiting indication is turned on at all telephones assigned to this mailbox. These telephones can be part of different systems that are served by the same PhoneMail system. The *Plus Feature* package is required for this function. The PhoneMail SW level must be 6.3 or above.

If external and internal calls are routed via CorNet-N, it is necessary to split the CorNet-N link B channels for internal and external traffic. This can lead to a situation where, for certain calls, not all B channels are available.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Requirements and Conditions

Subject	Requirement or Condition
	Follow the configuration guidelines.

Configuration Options

This feature does not have to be explicitly configured.

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Activate call forwarding from a networked station to the central voice mail server.
2.	Call the forwarded station. The call is forwarded to voice mail.

7.13.19 QSig (Not for U.S.)

Definition

CorNet-N is usually the protocol used for networking HiPath CS' with each other. QSig, the cross-vendor signaling protocol, is used for networking HiPath and non-HiPath CS'. In homogeneous networks, HiPath 3000 supports the following basic features.

In QSig environments, you can operate HiPath 3000 as an end node, transit node, or gateway.

You can use the QSig protocols, which are based on the following specifications:

- ECMA V1.0 and ECMA V2.0 (for the MWI feature only)
  with the partial specifications
  – ETS 300172: Basic Call/ECMA 143
  – ETS 300239: Generic Functions / ECMA 165
- ISO partial specifications
  – ISO 11572: Basic Call, ID Identifications (CLIP, CLIR, COLP, COLR)
  – ISO 13868: Name Identification
  – ISO 13869: Call Transfer
  – ISO 13870: Call Completion (Call Completion Busy, Call Completion No Reply)
  – ISO 13873: Call Forward Unconditional
  – ISO 15506: Message Waiting Indication

These networked systems collectively act like a single system, transmitting the following over the S_0 trunk:

- Callback option
- Station number
- Name
- Party category
- Transit counter

Called parties with toll restriction 0 (no direct trunk access) for a QSig trunk, cannot answer an incoming QSig call for another station (call pickup, trunk key). However, direct calls and forwarded calls to the B party are possible.

Interworking With Other Protocols

- CorNet-N
  All existing features implemented for both CorNet-N and QSig support interworking in the QSig direction and vice-versa. The only exceptions are the callback feature (CCBS/CCNR) and the message waiting indication (MWI) because the message flows between the two protocols and the ones between two nodes are too different.
- ETSI
  The requirements for interworking between CorNet-N and ETSI apply here as well.

7.13.19.1 Basic Features

Numbering plan

- ISDN numbering plan
- The system does not support a private numbering plan.

Call detail recording

Direct inward dialing (external)

- In the local system: Same as before.
- There is no transfer of call charges in transit traffic.

Consultation hold

- In the local system: Same as before.
- To remote system:
  Consultation calls over a second trunk are possible, that is the calls are switched from the local system over two B channels, and they can be transferred. When a user releases the call, the call last placed on hold becomes active.

Callback

- Users can activate completion of calls - no reply (CCNR) or completion of calls to busy subscribers (CCBS) to the remote system. They can activate CCNR if the other party does not answer or if a call is waiting. They can activate CCBS in the following situations: The other party is busy with one or multiple calls, engaged in a consultation call or a conference, or has activated do not disturb.
- Users cannot set a callback to a call forwarding destination, a member of a group call or hunt group, a room monitor, or an entrance telephone.
- Callback calls are deleted manually, when the CS is reset, a trunk fails, a port is reprogrammed. The same applies to calls from A to B and from B to A.

Call forwarding

- The system supports only the CFU (call forwarding unconditional) QSig version.
- To optimize B channel usage a forwarded call to a telephone of the main PBX is handled in accordance with the specifications for *Call Forwarding/Partial Rerouting*. If *partial rerouting* is rejected, *forward switching* is used.
- If HiPath 3000 is a gateway*, forward switching* is implemented.

Name display

- Only UPPERCASE letters are transferred. Users can specify whether a transferred name or the caller's station number is displayed.

7.13.19.2 Central Attendant Position/Attendant Console

This function is available in transit only.

7.13.19.3 Intercept

For operation in networked environments, users can configure an external station number as the attendant console or intercept position in HiPath 3000. If an intercept occurs in a CS, based on the locally valid intercept criteria, the call is forwarded to the external station number programmed in the CS or discarded.

The central attendant console intercepts calls according to the CINT (call interception) QSig specification. The cause of the intercept, which is transferred in encoded format, is an important item of data.

The attendant always intercepts calls via a second B channel, because problems could otherwise occur in a network with different CSs.

7.13.19.4 Originator of the Intercept

The dialed digits or the station number of the party originating the intercept can be sent to the intercept destination as the originator of the intercept.

In the HiPath 3000 systems, users specify only the number of the station where the intercept originated. In the case of call forwarding and hunt groups, this is the original station dialed. No information is transferred if the caller dials an incorrect or incomplete number.

7.13.19.5 Busy Override

An authorized network station (such as the central attendant position or a HiPath 3000 station with override authorization) can override a call being conducted at a busy station in the network. Users cannot override conference calls in HiPath 3000. The feature is implemented according to QSig specification CI (call intrusion).

The HiPath 3000 systems handle a busy override according to QSig in a network just like an internal busy override. This means that every user who is authorized to override busy calls is authorized to do so throughout the network. The override operation transforms a two-party call into a three-party call.

7.13.19.6 Recall

This feature activates a recall to the originating station in the network, for example if a transfer was unsuccessful. The feature is implemented according to QSig specification RE (recall).

7.13.19.7 Message Waiting Indication (MWI)

This feature allows you to activate and delete the *Mailbox* key (callback signaling). It supports the sending of messages (using the service menu or a code) from the idle, ringing, busy and talk states, and message reception. You cannot select text messages. Because the protocol does not support the transmission of text information, the receiving end always receives and displays the “Please call back” message.
A central voice mail server in the QSig network can also initiate a message. In this case, the name administered for this voice mail server for callback access is displayed. It is not possible to send a message to voice mail.

In the case of Octopus E 300/800, message waiting indication is supported either for voice mail or for other stations. If the feature is activated for voice mail, it must be deactivated for other stations.

7.13.19.8 Central Cross-System Busy Signaling

This feature is supported only in the direction of an Octopus E 300/800 system (A6, Release 6.3 or later) from Deutsche Telekom AG. The destination of cross-system busy signaling can only be the central Octopus E 300/800 attendant console (AC). Systems in the QSig network can report the operating states of selected stations to the central attendant console of a CS (can be main CS or satellite CS). The following operating states can be signaled for the telephones:

- Free
- Busy internally
- Busy externally
- Defective

The numbering plan in this network must be closed and it must be possible to access the CS via the first administered QSig port on the remote system.
Operating states cannot be transmitted via CSs functioning as gateway or transit nodes.

7.13.19.9 System Telephone Lock-Reset Code (V3.0 SMR-3 and later)

Manufacturer-specific expansions to the QSig protocol (QSig+) allow the individual telephone lock code of a station networked over QSig+ to be reset to the default value “00000”.

Initiate the reset with the code “System telephone lock/Reset code” or by selecting the correct entries in the service menu. The system then prompts you to enter the station number (with the leading trunk group code, if needed). Mark the end of the entry with the confirm key or the “#” key on telephones without a display.

Requirements for resetting the telephone lock code:

- The telephone number of the telephone that you are using to initiate the reset must be entered as a station for “system telephone lock” (system settings).
- The system must be networked over the QSig+ protocol with the ISO-QSig protocol version.

7.13.19.10 COS Changeover (V3.0 SMR-3 and later)

Manufacturer-specific expansions to the QSig protocol (QSig+) allow you to activate the telephone lock of a station networked over QSig+ with the “System telephone lock/COS changeover” feature.

The effects on the telephone are the same as for the individual telephone lock: the trunk access is reduced to the COS set system-wide (default = 1).

Initiate the COS changeover with the code “System telephone lock” or by selecting the correct entry in the service menu. Then the system prompts you to enter the station number (with the leading trunk group code, if needed).

On telephones with a display, you can use the confirm key after you have completed your entry to activate or deactivate the telephone lock, depending on the current state of the telephone lock. After you confirm the selection, the system displays an acknowledgment text.

On telephones without a display, you can turn the telephone lock on with the “*” key and off with the “#” key. These keys also indicate that you have finished entering the station number.

Requirements for COS changeover:

- The telephone number of the telephone that you are using to initiate the changeover must be entered as a station for “system telephone lock” (system settings).
- The system must be networked over the QSig+ protocol with the ISO-QSig protocol version.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later			–	–

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Activity
1.	**Configure QSig**
2.	20-4-1 => S_0 port configuration (QSig=7) or 20-4-2 => S_{2m} port configuration (QSig=4)
3.	20-5-2-11 => protocol type (QSig=22)

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Activity
1.	**Configure QSig**
2.	Lines/Networking
3.	Double-click trunk parameters
4.	ISDN-flags => Protocol

7.14 Features for Call Detail Recording

7.14.1 Silent Reversal at Start and End of Call (Not for U.S.)

Definition

Many countries use silent reversal to mark the beginning and end of outgoing calls on loop start trunks. These criteria are used for time recording within central call detail recording. This is particularly important when exact tracking of call charges is required (as in a hotel).

The feature can be configured per circuit.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	TML8W	TLA2/4/8 + GEE12 TLA4R		–	–
SW requirements	V1.0 or later			–	–
General requirements	Loop start trunk			–	–

Requirements and Conditions

Subject	Requirement or Condition
Silent Reversal	In countries where silent reversal is not signaled at the end of a call, the call duration is determined by the calling party hanging up the phone.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure silent reversal per trunk**
2.	21-6 => Analog CO interface - Silent-Reversal

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure silent reversal per trunk** Options
2.	Lines/networking
3.	Parameter
4.	MSI flags
5.	Activate silent reversal

7.14.2 Advice of Charges at Station During Call (AOC-D) (Not for U.S.)

Definition

Call charge information can be recorded on both analog and digital trunks.

Call charge evaluation for connections on loop start trunks is performed using the call charge pulses transmitted from the trunk in countries where call charge pulses are used.

In the case of digital trunks, the display on the user's telephone shows the call detail information received during an external call with the "AOC" (advice of charges) feature, assuming that the carrier provides this information.

The following types of AOC are supported in the public network:

- AOC-S - Advice of charges at call setup
  - Call charge display on the telephone is the same as for AOC-D.
  - The charges are not displayed if the call was not fully set up or if HiPath 3000 is unable to evaluate the call detail information of a service provider.
- AOC-D = Advice of charges during call
- AOC-E = Advice of charges at end of call

As long as the user has not initiated another action, the final call charges for a call are displayed for a specific period of time at the end of a call and then added up in call charge memory.

Call charge pulses are converted to monetary amounts on the basis of the call charge factor defined as a currency amount (including any extra charges that may apply) per call charge unit or pulse (refer to Section 7.14.11, Call-Charge Display With Currency (Not for U.S.)).

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Loop start: GEE8; optiset E or optiPoint 500 telephone with display	Loop start: GEE12/16/50; optiset E or optiPoint 500 telephone with display		optiset E or optiPoint 500 telephone with display	
SW requirements	V1.0 or later				
General requirements	Call charge information from public network				

Requirements and Conditions

Subject	Requirement or Condition
Analog telephone	On analog telephones, call charge pulses can be updated using a relay and a call charge counter.
Loop start	Loop start trunks require a separate call metering receiving equipment board.
Transfer	In the case of AOC-D, the station to which a call is transferred receives only those call charges that have accrued since the transfer.
Recall	If a call is returned as a recall for unscreened transfer, the overall amount is displayed and calculated.
Toggle	Call charges for the current call are always displayed.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure call charge factor**
2.	11-4 => CDR - Call charge factor
3.	**Configure ISDN call charge factor**
4.	11-5 => CDR - Call charge factor ISDN
5.	**Configure currency designation**
6.	11-6 => CDR - Currency

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure call charge factor** System status
2.	Call charges
3.	Output format

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Conduct a chargeable call. The charges for this call are displayed as configured.

7.14.3 Call Duration Display on Telephone

Definition

A call duration display is provided for external calls (outgoing or incoming) when no call charge information is available.

The starting point for call detail recording is set for analog trunks by means of a timer (5 seconds after end of dialing). The timer used is *Artificial end-of-selection.*

In the case of digital trunks, recording is started when the call is received (at *connect*).

The Call Duration is displayed on the display line above the feature prompts. The format is *HH:MM:SS*.

The dialed number is displayed until the Connect message is received (ISDN trunks) or until the end of the pseudo-answer timer. Post-dialed digits are displayed for approximately 5 seconds, then the Call Duration display is returned to the display. When the user goes on-hook, the idle state display is presented: *Current time and date*.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	optiset E or optiPoint 500 telephone with display				
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
S_0 / cordless telephone	The system does not support the call duration display feature on S_0 and cordless telephones (not for U.S.).

Configuration Options

This feature can be configured using HiPath 3000 Manager E.

Configuring the Feature Using HiPath 3000 Manager E

By default, the feature is active, but can be deactivated as follows using HiPath 3000 Manager E:

Step	Action
1.	System parameters
2.	Display
3.	Call duration: Deactivate timer display.

7.14.4 Call Detail Recording at Station (CDRS) (Not for U.S.)

Definition

- Every optiset E, optiPoint 500, analog telephone, S_0 (or MSN), and cordless telephone in the system has two storage devices:
  - A call charge summation memory (call detail memory)
    At the end of an external call, the system adds the final charges to the charges already stored in the call detail memory on the station. optiset E and optiPoint 500 users with a display can display their current charges by entering a code.
  - An individual call memory
    The system adds up the charges incurred during a call in this memory, even if the call consists of individual call segments, as in the case of the toggle feature. At the beginning of a new call, the individual call memory is reset to 0.

  The contents of the individual call memory appear first. A short time later, the contents of the cumulative call charge memory are displayed.
- You can use the system telephone (phone with programming authorization) as a charge display station. The user of this station can use the system administration to:
  - Display the cumulative call charge memory for one station.
  - Display the cumulative call charge memory for all stations (organized by station numbers).
  - Reset the cumulative call charge memory memory for a specific station.

Call charge pulses are converted to monetary amounts on the basis of the call charge factor defined as a currency amount (including any extra charges that may apply) per call charge unit or pulse (refer to Section 7.14.11, Call-Charge Display With Currency (Not for U.S.)).

From the system telephone, you can print the latest CDRS data on a printer connected to the V.24 interface, thereby priting the cumulative call charges for all stations connected to the system.

CDRS Data Output to $U_{P0/E}$ Port

You can also output the CDRS data to a $U_{P0/E}$ port. To do this, an optiset E control adapter, to which you can attach a printer or terminal, must be connected to this port. The system supports only one adapter per call data output. You can configure the output as follows:

- On the communications server, set call data output to adapter.
- Enter the telephone number.
- If only one optiset E control adapter is connected, you can choose any slot in the telephone.
- If two optiset E control adapters are connected, set the right adapter to Printer Pipe Mode for call data output. The other adapter is used in API1 or API2 mode.
- The transmission rate is permanently set to 9600 baud.

GET Data Output via LAN Interface

You can transfer CDRS data to external applications via the LAN interface (Ethernet) (for more information, refer to Chapter 13).

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Loop start: GEE8; optiset E or optiPoint 500 telephone with display	Loop start: GEE12/16/50 optiset E or optiPoint 500 telephone with display		optiset E or optiPoint 500 telephone with display	
SW requirements	V1.0 or later				
General requirements	Call detail information from the public network				

Requirements and Conditions

Subject	Requirement or Condition
Adapter in API2 mode	If an optiset E control adapter is in API2 mode, you cannot switch it to Printer Pipe mode.

Configuration Options

This feature does not have to be explicitly configured.

Use Assistant T or HiPath 3000 Manager E to configure output to the $U_{P0/E}$ port.

Testing the feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Conduct a chargeable call.
2.	At the end of the call, enter *65 on your own telephone to display the charges, or display the charges for the station on the programming telephone.

7.14.5 Call Detail Recording, Attendant (CDRA) (Not for U.S.)

Definition

The CDRA feature enables you to selectively record the call details for incoming and outgoing voice calls for which at least one call charge pulse has accumulated.

Call charge pulses are converted to monetary amounts on the basis of the call charge factor defined as a currency amount (including any extra charges that may apply) per call charge unit or pulse (refer to Section 7.14.11, Call-Charge Display With Currency (Not for U.S.)).

If a V.24 (RS-232) port was programmed for CDRA in the customer database, the call details are output to the printer. If the telephone is an optiset E or optiPoint 500 telephone with display that has a programmed CDRA display key, the charges are also signaled on the station.

CDRA Data Output to $U_{P0/E}$ Port
You can also output the CDRA data to a $U_{P0/E}$ port. To do this, an optiset E control adapter, to which you can attach a printer or terminal, must be connected to this port. The system supports only one adapter per call data output. You can configure the output as follows:

- On the communications server, set call data output to **adapter**.
- Enter the telephone number.
- If only one optiset E control adapter is connected, you can choose any slot in the telephone.
- If two optiset E control adapters are connected, set the right adapter to Printer Pipe Mode for call data output. The other adapter is used in API1 or API2 mode.
- The transmission rate is permanently set to 9600 baud.

CDRA provides the following data at the end of each call segment:

- Internal station number or name of the station.
- The external station number dialed (for outgoing calls) or the station number of the calling party (for incoming calls).
- Time (beginning of call) in hours, minutes, and seconds.
- Call duration in hours, minutes, and seconds.
- Amount due in local currency.

The data is entered at the beginning of each call segment and at the end of the call. Up to 20 call segments can be logged simultaneously. This data is stored in the system until it is output to the printer and deleted from the attendant console using a procedure. If an overflow occurs, the oldest entry is overwritten first. The stored data is lost if there is a power failure.

Signals on the CDRA display key:

- LED lights up continuously:
  New CDRA call details that have not yet been displayed are waiting.
- LED off:
  Either CDRA call details that have been displayed at least once are waiting, or no entry was made.

Configuring a station as a pay phone (automatic CDRA):

If an internal station is configured as a pay phone, all chargeable calls are automatically identified as CDRA calls. A call that is transferred to another station from the pay phone is logged as a CDRC or CDRA call, depending on how the pay phone is configured.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements (call detail recording)	Loop start: GEE8	Loop start: GEE12/16/50		–	–
HW requirements (telephone)	optiset E or optiPoint 500 telephone with display				
SW requirements	V1.0 or later				
General requirements	Call details from the public network				

Requirements and Conditions

Subject	Requirement or Condition
Call charges	Each call segment is assigned to the user who picked up the segment.
Conference	In a conference, each external connection is recorded separately as a single segment.

Subject	Requirement or Condition
Pay phone	A user can always display the call charges of only those call segments which were conducted from the assigned *pay phones*.
Adapter in API2 mode	If an optiset E control adapter is in API2 mode, you cannot switch it to Printer Pipe mode.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure call charge factor**
2.	11-4 => CDR - Call charge factor
3.	**Configure ISDN call charge factor**
4.	11-5 => CDR - Call charge factor ISDN
5.	**Configure currency designation**
6.	11-6 => CDR - Currency
7.	11-8 => CDR - Pay phone

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure CDRA** System status
2.	Call charges
3.	Output format
4.	Pay phone (if required)

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Conduct a call from the *pay phone*.
2.	At the end of the call, the LED on the *Display charges* key lights up.

7.14.6 Call Detail Recording Per Trunk (CDRT) (Not for U.S.)

Definition

The system has a cumulative memory function for call charge amounts accrued per trunk. One memory area is permanently assigned to each trunk.

A system telephone can display and delete the cumulative memory via the system administration. Call charge deletion requires confirmation. The current CDRT data can be printed out via system administration. The printout contains a list of CDRT data for all trunks connected to the system. The current CDRT data can be printed out on a printer connected to one of the V.24 (RS-232) interfaces on the system.

Call charge pulses are converted to monetary amounts on the basis of the call charge factor defined as a currency amount (including any extra charges that may apply) per call charge unit or pulse (refer to Section 7.14.11, Call-Charge Display With Currency (Not for U.S.)).

CDRT Data Output to $U_{P0/E}$ Port
You can also output the CDRT data to a $U_{P0/E}$ port. To do this, an optiset E control adapter, to which you can attach a printer or terminal, must be connected to this port. The system supports only one adapter per call data output. You can configure the output as follows:

- On the communications server, set call data output to adapter.
- Enter the telephone number.
- If only one optiset E control adapter is connected, you can choose any slot in the telephone.
- If two optiset E control adapters are connected, set the right adapter to Printer Pipe Mode for call data output. The other adapter is used in API1 or API2 mode.
- The transmission rate is permanently set to 9600 baud.

CDRT Data Output via LAN Interface
You can transfer CDRT data to external applications via the LAN interface (Ethernet) (for more information, refer to Chapter 13).

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Loop start: GEE8 optiset E or optiPoint 500 telephone with display	Loop start: GEE12/16/50 optiset E or optiPoint 500 telephone with display		optiset E or optiPoint 500 telephone with display	
SW requirements	V1.0 or later				
General requirements	Call details from the public network				

Requirements and Conditions

Subject	Requirement or Condition
Adapter in API2 mode	If an optiset E control adapter is in API2 mode, you cannot switch it to Printer Pipe mode.

Configuration Options

This feature does not have to be explicitly configured.

Use Assistant T or HiPath 3000 Manager E to configure output to the $U_{P0/E}$ port.

Configuring the Feature Using Assistant T

Configure output to the $U_{P0/E}$ port using Assistant T as follows:

Step	Action
1.	**Configure CDRT output to $U_{P0/E}$ port**
2.	22-13-2-3 => System settings - V.24 configuration - Port assignment - CDRT

Configuring the Feature Using HiPath 3000 Manager E

Configure output to the $U_{P0/E}$ port using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure CDRT output to $U_{P0/E}$ port** System status
2.	Call charges
3.	Output format
4.	CDRT (select $U_{P0/E}$ port)

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Conduct a chargeable call.
2.	Display the call charges for the trunk from the system telephone.

7.14.7 Account Code (ACCT)

Definition

The account code feature is used together with central call detail recording (CDRC).

This feature enables you to assign call charges for a specific project to an account code so that call charges for specific projects can be printed out.

Users can enter an ACCT from any station.

ACCT offers two procedures and three options:

Procedures:

- Mandatory ACCT:
  Users must enter an ACCT before the start of a call (after a trunk group is seized). For incoming calls, the ACCT entry is optional. The system applies the ACCT according to the option selected. If least cost routing is active, a flag in the dial plan signals that you need to enter an ACCT after the access code. The system treats this input as a “mandatory ACCT”.

	LCR Active	**LCR Inactive**
	Mandatory Dial Plan (35-8-3)	**Mandatory ACCT TG Set**
ENB	ACCT requested	ACCT requested
SSD		
ISD		
Redial		
Caller list		
DSS key		

  A mandatory ACCT can be defined in the dial plan (LCR).|

- Optional ACCT:
  Users can enter an optional ACCT from any telephone before the start of a call. During an incoming or outgoing call, users can enter the ACCT from Upn telephones only. You can enter an ACCT during a call from optiset E entry, optiset E basic, and optiPoint 500 entry telephones only if the ACCT feature was programmed on a key or if automatic DSS system-wide has been turned off.

Options:

- ACCT not checked:
  The system does not check for an ACCT, which means you can enter an 11-digit ACCT. If the ACCT is less than 11 digits long, press # to mark the end of the procedure. If the ACCT is 11 digits long, you can dial another number immediately afterward (depending on the option, you need to enter the trunk group code or the station number).

  On analog (DP) and ISDN telephones, the “not checked” option can be used only if the ACCT is 11 digits long. Otherwise, the system will not complete dialing. You cannot use the # key or the substitution code to mark the end of input on these telephones.

- ACCT list checked:
  The system checks the ACCT against a list of verifiable ACCTs and accepts only valid entries. You can enter 11-digit ACCTs in the list. After entering a valid ACCT, you can dial another number immediately (depending on the option, you need to enter the trunk group code or the station number). Do not press # to mark the end of the input. The system rejects invalid ACCTs by outputting a negative confirmation tone.

- Number of ACCT digits checked:
  The system checks an ACCT entry only to determine the number of digits. The number of digits (11 max.) to be checked is set in the system. After the system checks the number of ACCT digits, you can dial another number immediately (depending on the option, you need to enter the trunk group code or the station number).

Account codes are not printed out of call detail recording (CDRC) if the RS-232 output is connected directly to a printer because the printer format does not have a sufficient number of columns. However, if a call-accounting device is used, the compressed format of CDRC will include the account code information.

The ACCT is assigned to all subsequent parts (even if transferred or forwarded to another station) of the current call for CDRC.

There are 1000 possible account code entries; only digits 0-9 are allowed in an account code number.

If an optiset E or optiPoint 500 user finds that during a call the current account code applied to a call is incorrect or that a different account code is needed, the user can enter a different code number. The system will overwrite the currently flagged account code. CDRC sends a call record after each segment; therefore, previously completed call segments will be identified with the old account code number.

The *non-verified* and *forced* parameters determine, per trunk group, whether an account code is optional (non verified) or mandatory (forced). There are 16 possible trunk groups for the HiPath 3750, HiPath 3550, HiPath 3700 and HiPath 3500 systems, and eight for the HiPath 3350 and HiPath 3300 system. The default setting is *non-verified* (optional).

If you select forced for a trunk group, all stations using that trunk group are required to use account codes to dial out. If you want some users to use account codes and other users not to use account codes, you need to program different trunk groups.

With the *Check number of characters* option, the contents of the account code number are not checked. You determine how many digits are permitted by using the drop-down list box *Characters to be checked* in HiPath 3000 Manager E, or *Code Length* in Assistant T. The number of digits checked can be from one to eleven digits.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				
Number of ACCTs in the system	1000	1000	1000	1000	1000
Max. length of ACCT	11	11	11	11	11

Requirements and Conditions

Subject	Requirement or Condition
DISA, external CF, callback, transit	The system does not query the mandatory ACCT.
Electronic notebook (ENB)	You can program ACCT code + ACCT + station number in the ENB.
Conference	An ACCT entered during a conference with external station is assigned to all participating calls and trunks.
Redial	For V1.2 or later, an ACCT entered can also be stored in redial memory. This requires that you set the appropriate system-wide flag (refer to Section 7.7.1, Last Number Redial (LNR)).

Subject	Requirement or Condition
Least cost routing (LCR)	Mandatory ACCT is possible with or without LCR.
Telephones	Users of telephones without displays must dial the seizure code after the ACCT. On system telephones with displays, a prompt to enter the ACCT appears on the screen.
S_0 telephones	If the unchecked ACCT option is selected on S_0 telephones, you must always enter the full number of digits (you cannot press #). If the ACCT is checked, or a fixed number of digits is entered, the system detects the end of the ACCT.
ACCT while on a call	Only optiset E and optiPoint 500 users can enter an account code while engaged in a call.
When to enter ACCT	You can enter an account code from any type of terminal (optiset E, optiPoint 500, analog) before the call begins (before line seizure). Only an optiset E or optiPoint 500 telephone (includes optiClient Attendant) can enter an account code during an incoming or outgoing external call.
No check option	This option is not possible if there are trunk groups flagged with the *forced* (mandatory) entry procedure. That is, the parameter *forced* and the option *No check* are mutually exclusive.
Invalid entry	If the ACCT entry is incorrect, the user sees the display *Invalid entry* and the call is dropped.
Non-display telephones	If an account code is required, the user hears silence after dialing the trunk group access code. If the user does not dial an account code within 30 seconds (this timer is not variable), the user receives a busy tone, and the call is dropped. If the correct entry is made, confirmation tone (three short bursts of tone) is heard and the user can proceed with dialing.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure ACCT**
2.	13-1 => Account code - Code entries
3.	13-2 => Account code - Verification mode
4.	13-3 => Account code - Trunk group mode
5.	13-4 => Account code - Code length
6.	Additional step if LCR is active and mandatory ACCT is used: 35-8-3 => Account code - Line

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure ACCT** System status
2.	Call charges
3.	Project codes
4.	Additional step if LCR is active and mandatory ACCT is used: 35-8-3 => Account code - Line

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure *mandatory ACCT*.
2.	You cannot seize a trunk until you enter the ACCT.

Operating the Feature

Refer to the electronic operating instructions for information on operating the feature.

For a list of additional documentation, refer to Section 1.2.3, Related Information, on page 1-7.

7.14.8 Call Detail Recording Central (CDRC)

Definition

The HiPath 3000 can transmit consecutive call detail recording central (CDRC) information for each call segment completed or for each incoming call to a connected device. The device is normally a PC for analyzing the received data or a printer.

In V1.2 and later, call data records can be recorded for external calls that were not completed. For example, this gives the party calling proof that the destination station did not accept the attempted call (marked in the output log with the call time "00:00:00"). The "CDRC outgoing without connection" feature applies to digital external traffic using ISDN and CorNet-N/Qsig and to all stations. With analog external traffic (loop start), a call data record is always recorded, no matter whether "CDRC outgoing without connection" has been configured or not.

Call charge pulses are converted to monetary amounts on the basis of the call charge factor defined as a currency amount (including any extra charges that may apply) per call charge unit or pulse (refer to Section 7.14.11, Call-Charge Display With Currency (Not for U.S.)).

The following options are available for **exporting the data to an external output device**:

- Application programming interface (V.24) (RS-232)
  CDRC data is exported to call detail recording applications such as Teledata.
- PC attendant console port
  Users can also forward the CDRC data to a optiClient Attendant (PC attendant console port). This transfers the call data to the Charge.dat file, which is created or updated whenever a new record is entered. You can use software to evaluate this data. The PC attendant console supports the optiset E control adapter, optiset E data adapter, and $U_{P0/E}$ card.
- $U_{P0/E}$ port
  An optiset E control adapter, to which you can attach a printer or PC, must be connected to the $U_{P0/E}$ port. The system supports only one adapter per call data output. You can configure the output as follows:
  - On the communications server, set call data output to adapter.
  - Enter the telephone number.
  - If only one optiset E control adapter is connected, you can choose any slot in the telephone.
  - If two optiset E control adapters are connected, set the right adapter to Printer Pipe Mode for call data output. The other adapter is used in API1 or API2 mode.

  - The transmission rate is permanently set to 9600 baud.

- LAN interface (Ethernet)
  CDRC data can be exported to external applications via the LAN interface (Ethernet) (for more information, refer to Chapter 13).

The CDRC output can be in two **different formats**:

- Compressed format (via V.24 / via LAN) for PC or call charge computer
  The system outputs all data (including ACCT) without separating spaces, without headers, and without form feed. Call charge pulses, call charge amounts or arithmetic units are output.
- Long format for printer
  The system outputs all data (except ACCT) separated by spaces, with header (in the language selected for the system) and form feed. The call charge amount is output.

The following rules apply to the line format:

- The carriage return (CR) and line feed (LF) control characters are transmitted at the end of each record.
- Data not supplied and unused fields are filled with spaces.
- In compressed format, the data output is consecutive. No form feed (FF) is transmitted.
- In long format, each page contains a one-line header followed by a blank line. After 62 characters are printed, a form feed automatically executes.

The output contains the following information:

- Date (at end of call), 8 characters
- Time (at end of call), 8 characters
- Number of seized trunk, 3 characters
- Internal station number (max. 6 digits)
- Incoming ring duration
- Call duration, 5 characters
- External station number (up to 25 digits if available)
- Call charge pulse/amount, 11 characters (blank in U.S.)
- Additional information (such as incoming call, outgoing call, transferred call, conference, DISA, call setup charges), 2 characters

The following data is always compressed prior to output:

- ACCT (up to 11 digits)

- MSN used (up to 11 digits for multi-device connections)
- LCR access code (trunk access code, 6 digits)
- LCR route used (path table, 2 digits)
- Additional data in U.S.:
  - PRI Nodal Service
  - PRI WATS band
  - PRI Carrier Identification Code

Information element—contains the following call information:

- Incoming connection, voice/3.1khz audio
- Outgoing connection, voice/3.1kHz audio.
- Incoming connection, other services
- Outgoing connection, other services
- Incoming connecting forwarded
- Outgoing connection forwarded
- Int/ext/ext conference with incoming connection/transit through external transfer
- Conference with outgoing connection/transit through external transfer
- Outgoing connection via call forwarding to external destination

Call information is output immediately when an incoming call is received—only used in external applications.

The above information elements have a special designation if DISA was involved in the call.

Options

All fields are predefined and cannot be changed except for the options mentioned in this section.

- The last four digits of the destination number can be suppressed in the call record. If selected, the last four spaces are filled with the symbol *?*.
- The Call Duration field can be suppressed from the record. If selected, this field is blank.
- Incoming calls can be recorded. The default value is *No* (only outgoing calls are recorded.
- A call record is started as soon as an incoming call starts ringing into the system.

- Other configurable parameters: which RS-232 port is to be used for the CDRC output and the baud rate (2400, 9600, or 19200).

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
SW requirements	V1.0 or later				
General requirements	Printer, call charge computer				
Number of calls buffered	300	150	50	50	50

Requirements and Conditions

Subject	Requirement or Condition
PC/printer failure, buffer full	If the connected device fails, some records are buffered in the system and transmitted when the device is reactivated. If the buffer is full, all additional data records are lost.
Timer for analog trunks	A system pseudo-answer timer (*Artificial End-of-Dial*) is used when the call is placed over analog trunks without answer supervision to determine the beginning of the call record
CDRC outgoing without connection	No logging takes place • for call attempts that are not allowed (LCR, denied lists). • for premature termination of the call attempt.
Charges before connect	If charges arise even before the connection is made (such as occurs in Austria), these are recorded, regardless of whether or not “CDRC outgoing without connection” has been selected.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure CDRC**
2.	11-3-1 => CDR - CDR, central - Print format
3.	11-3-2 => CDR - CDR, central - Stn. number format
4.	11-3-3 => CDR - CDR, central - Incoming call
5.	11-3-4 => CDR - CDR, central - Call duration
6.	11-3-5 => CDR - CDR, central - Print MSN
7.	11-3-6 => call detail recording - CDR central - charge format
8.	11-3-7 => call detail recording - CDR central - outgoing without connect.
9.	**Configure port for CDRC** 22-13- 2-1 => 1 to 3 System settings - CDR central
10.	**Set baud rate** 22-13-1 => System settings - Baud rate

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure CDRC** System status
2.	Call charges
3.	Output format

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Conduct a chargeable call
2.	The call charge details are transferred to the V.24 (RS-232) interface.

“CDRC outgoing without connection” can be tested using a call that is not chargeable.

Output formats

- Compressed Output Format for Call Details – Output via Application Programming Interface (V.24) (RS-232)

```
--------------------------------------------------------------------------------------------------------------
                                                                                                   1         1
0         1         2         3         4         5         6         7         8         9         0         1
12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
--------------------------------------------------------------------------------------------------------------
1 Date (8 characters)
|       2 Time (8)
|       |       3 Trunk (3)
|       |       |  4 Internal station number (6)
|       |       |  |     5 Ring duration (5)
|       |       |  |     |    6 Call duration (8)
|       |       |  |     |    |       7 Station number (25)
|       |       |  |     |    |       |                        8 Call charge pulses (11) (blank in U.S.)
|       |       |  |     |    |       |                        |          9 Information element (2)
|       |       |  |     |    |       |                        |          | 10 ACCT (11)
|       |       |  |     |    |       |                        |          | |          11 MSN (11)
|       |       |  |     |    |       |                        |          | |          |          12 Seizure code (5)
|       |       |  |     |    |       |                        |          | |          |          |    13 LCR route (2)
|       |       |  |     |    |       |                        |          | |          |          |    |  ...
|       |       |  |     |    |       |                        |          | |          |          |    |    ...
V       V       V  V     V    V       V                        V          V V          V          V    V
11.12.0008:23:23  4    16     00:05:2302317324856                       12 2                902725  841     (1)
11.12.0009:12:45  3    18     00:01:23834756                            34 212345678901                 2   (2)
11.12.0009:25:34  2    1100:34                                             1              (3)
11.12.0010:01:46  1    12     00:12:5383726639046287127384               5 2
11.12.0010:03:42  2    14     05:42:4338449434444495598376             245 2
11.12.0010:23:24  2    15     00:02:221234567890123412????              83 2              (4)
11.12.0011:12:45  3    18     00:01:23834756                            34 2
12.12.0012:23:34  3    1200:1500:03:12                                     1              (5)
12.12.0012:23:50  4    11     00:03:583844733399                         7 2
12.12.0013:23:54  3    17     00:02:233844733399                         8 5              (6)
12.12.0014:05:24  3    18     00:01:23834756                            31 2
12.12.0014:38:43  2    12     00:03:242374844                           63 2              (7a)
12.12.0014:43:33  3    12     00:00:255345545556                         5 2              (7b)
12.12.0014:44:12  2    12     00:12:122374844                           12 8              (7c)
12.12.0014:44:12  3    12     00:12:125345545556                        10 8              (7d)
12.12.0014:56:24  2    12     00:23:462374844                           84 2              (7e)
13.12.0009:43:52  1     5     00:01:0539398989983                       76 4              (8)
14.12.0012:23:34  1     600:1400:02:3427348596872347569036                 3              (9)
**  100 calls lost  **                                                                    (10)
15.12.0009:44:34  4    15     00:02:12189????                           23 2
15.12.0009:56:33  3    14     00:05:451283394495                        28 2
15.12.0012:20:26  1    12             0230298007766                        0              (11a)
15.12.0012:23:34  1    1200:3400:02:340230298007766                        1              (11b)
15.12.0013:43:25  3    15     00:05:2408972212345                          1              (12a)
15.12.0013:43:25  4    15     00:05:240231471154321                     74 9              (12b)
15.12.0013:45:28  4    18             0230298007252                        0              (13a)
15.12.0013:45:28  4    32             0230298007252                        0              (13a)
15.12.0013:45:28  4    16             0230298007252                        0              (13a)
15.12.0013:46:18  4    1600:50        0230298007252                        1              (13b)
15.12.0013:49:28  4    16     00:00:0002317324856                          2              (14)
01.01.0000:00:00  8                                                     23 2              (15)
--------------------------------------------------------------------------------------------------------------
```

Explanation of the sample entries shown on page 7-493:

(1) Outgoing connection from stn 16 on trunk 4 using the MSN “902725”. End of call at 8:23:23 on 12/11/00. Duration of the call: 5 minutes, 23 seconds. Called number: 02317324856. Accrued call charge pulses (blank in U.S.): 12. The seizure code “841” was used for call setup.

(2) Outgoing connection with 11-digit account code (ACCT) “12345678901”. Route “2” was used for LCR.

(3) Unanswered incoming call without station number (missing origin address, active station number suppression CLIR at calling station).

(4) Outgoing connection with suppression of the last 4 digits.

(5) Incoming connection with ringing and call duration.

(6) Forwarded call.

(7) Int/ext/ext conference:
(7a) Stn 12 sets up a first external call on trunk 2 (“2374844”),
(7b) Stn 12 sets up a second external call on trunk 3 (“5345545556”),
(7c) Stn 12 is involved in a conference with trunk 2 and
(7d) with trunk 3.
(7e) Trunk 3 drops out of the conference. The call on trunk 2 is treated like a normal outgoing call.

(8) Outgoing connection (other services).

(9) Incoming connection (other services).

(10) Loss message: 100 records were lost.
Due to a problem such as the following:
- Connected device is turned off or suffers a power failure
- Printer is out of paper
- Printer is offline
- Printer has a paper jam
- CDRC output is interrupted by CDB output
- Interface cable is defective or incorrect

In these or similar cases, the call records accumulated during this time are buffered in the system. The first 300 (HiPath 3750 and HiPath 3700), 150 (HiPath 3550 and HiPath 3500) or 50 (HiPath 3350, HiPath 3300 and HiPath 3250 [not for U.S.]) records can be buffered.
Additional records are only counted by the system and then discarded. If the connection can be restored to the connected device, a loss message indicating the number of lost records (that is,100 calls lost) is issued after the buffered records are output.

(11) Incoming call with transmitted caller station number:
(11a) Caller list: When the call arrives, an information line is immediately output indicating the date, time, trunk, station number, incoming external station number (if available), and information element “0” (used, for example, with a PC: start database search -> message appears on station’s monitor).
(11b) Station 12 accepted the call after a ringing duration of 34 seconds. This line is output at the end of the call.

(12) Call forwarding with an external destination:
(12a) Incoming call for station 15 on trunk 3 with transmitted station number, no ringing duration due to call forwarding (see 12b),
(12b) Call forwarded (12a) to trunk 4 for station number 0231471154321, 74 call charge pulses (not for U.S.) have accrued for the forwarded call.

(13) Incoming call to subscriber group (stations 18, 32, and 16):
(13a) The three entered stations are called simultaneously; they are listed in the order in which they were entered in the group (the second station is listed first).
(13b) The call was not accepted by any group member. After the call has ended, a line is output indicating the ringing duration for the last called or entered station.

(14) Outgoing connection attempt (CDRC outgoing without connection) from Stn 16 on line 4 at 13:49:28 (1:49:28 p.m.) on December 15, 2000. Number called: 02317324856.

(15) Output after a power failure or reset: 23 call detail units on trunk 8 were present before the power failure.
When a power failure or reset occurs, the call charges accrued for each trunk are stored in nonvolatile system memory (CDRT).
The system checks for consistency between the output and internally stored data following a power failure or system restart. The system also checks to determine whether call charges are still stored that have not yet been output via the V.24 (RS-232) interface. If this is the case, the system outputs a data line using the format illustrated in the example (15) for each affected trunk: (output does not include station number).

- Compressed Output Format for Call Details – Output via LAN Interface

```
                                                                                                   1         1
0        1         2         3         4         5         6         7         8         9         0         1
12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
--------------------------------------------------------------------------------------------------------------
1 Date (8 characters)
|        2 Time (8)
|        |        3 Trunk (3)
|        |        | 4 Internal station number (6)
|        |        | | 5 Ring duration (5)
|        |        | | | 6 Call duration (8)
|        |        | | | |        7 Station number (25)
|        |        | | | |        |           8 Call charge pulses (11) (blank in U.S.)
|        |        | | | |        |           |  9 Information element (2)
|        |        | | | |        |           |  | 10 ACCT (11)
|        |        | | | |        |           |  | |           11 MSN (11)
|        |        | | | |        |           |  | |           |      12 Seizure code (5)
|        |        | | | |        |           |  | |           |      |   13 LCR route (2
|        |        | | | |        |           |  | |           |      |   |  ...
|        |        | | | |        |           |  | |           |      |   |    ...
V        V        V V V V        V           V  V V           V      V   V
13.12.99;08:23:23;4;16;;00:05:23;02317324856;12;2;12345678901;902725;841;;
```

Call detail records can be output via a LAN interface using two different settings:

- DOS mode (carriage return (CR), line feed (LF)) = default or UNIX mode (line feed (LF)) at the end of a call data record.
- Separators (“;” = default or “|”) between the logical elements of a call data record; the record is no longer position-oriented.

Table 7-11 Compressed Output Format—Explanation of Output Fields (Sheet 1 of 7)

Field position	Fields (V.24 output only)	Definition	Number of characters	Orientation
1	1 to 8	Date at end of call: DD.MM.YY (DD = day, MM = month, YY = year)	8	Left
2	9 to 16	Time at end of call segment or an unanswered incoming call: hh:mm:ss (hh = hours: value range 00 - 23, mm = minutes: value range 00 - 59, ss = seconds: value range 00 - 59)	8	Left
3	17 to 19	Trunk: Trunk number Value range 1 - 120	3	Right

Table 7-11 Compressed Output Format—Explanation of Output Fields (Sheet 2 of 7)

Field position	Fields (V.24 output only)	Definition	Number of characters	Orientation
4	20 to 25	Station: Internal station number Value range: 000000 - 999999 (missing digits are replaced by spaces.) In the case of unanswered calls, this is the last station called (as in a hunt group, call forwarding, call forwarding—no answer). With group call, this is the last station entered. In the case of answered calls, it is the station that accepted the call. A programmed SNO prefix (with networking only) is not output. If the internal numbering was converted to a maximum 6-digit numbering plan, the converted station number is output.	6	Right
5	26 to 30	Ringing duration of an incoming external call: mm:ss (mm = minutes: value range 00 - 59, ss = seconds: value range 00 - 59) The system displays all incoming calls as long as the output of ringing duration has been configured in the system. If a counter overflow occurs (duration > 59:59), “59:59” is output. A change in date or time during system operation can result in this situation.	5	Left
6	31 to 38	Duration of the call or call segment: hh:mm:ss (hh = hours: value range 00 to 23, mm = minutes: value range 00 to 59, ss = seconds: value range 00 to 59) If a connection has not been established for an incoming call, 8 spaces are output here. If a counter overflow occurs (duration > 23:59:59), “23:59:59” is output.	8	Left

Table 7-11 Compressed Output Format—Explanation of Output Fields (Sheet 3 of 7)

Field position	Fields (V.24 output only)	Definition	Number of characters	Orientation
7	39 to 63	Dialed or received external station number (if available): nnnnnnnnnnnnnnnnnnnnnnn (n = dialed or received characters: value range: 0 - 9, *, #, ?) Output occurs for incoming and outgoing calls (if available). With outgoing calls, the dialed station number or, if available, the station number transmitted via COLP is displayed. In the case of an active data protection function, the last four digits dialed are replaced by the symbols *????*. If no station number information is available, 25 spaces are output.	25	Left

Table 7-11 Compressed Output Format—Explanation of Output Fields (Sheet 4 of 7)

<table>
<tr><th>Field position</th><th>Fields (V.24 output only)</th><th>Definition</th><th>Number of characters</th><th>Orientation</th></tr>
<tr><td>8</td><td>64 to 74</td><td>Call charge pulses for a call segment:
zzzzzzzzzzz (blanks in U.S.)
(z = digit: value range 0 - 9)
You can select either call charge pulses or call charge amounts.

Use the call charge factor, which is defined as a currency amount (including a mandatory surcharge) for each call charge unit or pulse, to convert call charge pulses to monetary amounts (see Section 7.14.11, Call-Charge Display With Currency (Not for U.S.)).
Setting the call charge factor:
• With calculation detail: call charge factor = 100% + mandatory surcharge
• Without calculation detail: call charge factor = amount/unit + mandatory surcharge
The system records the call charges with or without a surcharge depending on the calculation detail (Section 7.14.11):
<table><tr><th rowspan="2">Call Charge Display</th><th colspan="2">Calculation Detail</th></tr><tr><th>With</th><th>Without</th></tr><tr><td>Pulses</td><td>HiPath arithmetic units output without surcharge</td><td>Call charge pulses output without surcharge</td></tr><tr><td>Amounts</td><td>HiPath arithmetic units output with surcharge</td><td>Monetary amounts output with surcharge</td></tr></table>
The system outputs the data whenever charges accrue for the call segment (even when calls are transferred). If no call charge information is available, these 11 positions remain blank.</td><td>11</td><td>Right</td></tr>
</table>

Table 7-11 Compressed Output Format—Explanation of Output Fields (Sheet 5 of 7)

Field position	Fields (V.24 output only)	Definition	Number of characters	Orientation
9	75 to 76	Information element: additional information Value range: 0 - 9 Meaning: • 1 = Incoming connection (voice/ 3.1 kHz audio call) • 2 = Outgoing connection (voice/ 3.1 kHz audio call) • 3 = Incoming connection (other services) • 4 = Outgoing connection (other services) • 5 = Incoming connection forwarded • 6 = Outgoing connection forwarded • 7 = Int/ext/ext conference with incoming connection/transit through external transfer • 8 = Conference with outgoing connection/transit through external transfer • 9 = Outgoing connection via call forwarding to an external destination • 0 = Call information (caller list) is output immediately when an incoming call is received (output can be suppressed). This can be used, for instance, for a database search by a PC. When multiple stations are called, a line is output for each individual station (without ring duration, call duration, call detail information).	2	Right

Table 7-11 Compressed Output Format—Explanation of Output Fields (Sheet 6 of 7)

Field position	Fields (V.24 output only)	Definition	Number of characters	Orientation
Continuation of 9	75 to 76	• +20 = Offset as a code for call setup charges (connection setup without call duration) • +30 (HiPath 3000 V1.0 and later) = offset as an ID for a follow-up data record in the case of – call duration > 24 h. – contiguous call segments with the same line/station number (for example, after transferring a call, after clearing a conference). Can occur in combination with offset +40. • +40 = Offset for a data record with transit code (by an extension in the subsystem). Can occur in combination with offset +30. • +50 = Offset as a code for DISA calls • +70 = combination of offsets +30 and +40	2	Right
10	77 to 87	Account code (ACCT) entered by the user for this call: pppppppppp (p = ACCT digit: value range 0 - 9) If an ACCT has not been entered, 11 spaces are output. If the ACCT is shorter than 11 digits, the remaining characters are filled with spaces.	11	Left
11	88 to 98	MSN used: mmmmmmmmmm (m = MSN digit: value range 0 - 9) Information is displayed if the user has programmed an MSN key. Non-existent characters are replaced by spaces. If MSN information is not available (as in a point-to-point connection), 11 spaces are output instead of these characters.	11	Right
12	99 to 103	Seizure code used, access code: bbbbb (b = digit of the seizure code: value range 0 - 9) Non-existent characters are replaced by spaces.	5	Right

Table 7-11 Compressed Output Format—Explanation of Output Fields (Sheet 7 of 7)

Field position	Fields (V.24 output only)	Definition	Number of characters	Orientation
13	104 to 105	LCR route used: rr (r = digit of the dialed route: value range 0 - 9) Non-existent characters are replaced by spaces.	2	Right
14	106 to 107	PRI nodal service: nn (n = digit: value range 0 - 9) Non-existent characters are replaced by spaces.	2	Right
15	108	PRI WATS band: w (w = digit: value range 0 - 9) If no information is available, a space is output.	1	–
16	109 to 112	PRI Carrier Identification Code (CIC): cccc (c = CIC digit: value range 0 - 9) Non-existent characters are replaced by spaces.	4	Right
14	106 to 107	U.S.-specific fields are filled with blanks in other countries.	2	Right
15	108		1	–
16	109 to 112		4	Right
17	113 to 114	End of line control character (carriage return [CR], line feed [LF])	2	–

- Long Output Format for Call Data

The header in the long output format (Figure 7-16) is output in the language used across the system.
After 62 lines have printed (including header), a form feed (FF) is carried out and the next page begins with a header.

```
-------------------------------------------------------------------------------------------------------------------------
Date     Time      Trk   Stn Call  Duration Station number             Amount I

11.12.93 08:23:23   4     16       00:05:23 02317324856                20,23  2
11.12.93 09:12:45   3     18       00:01:23 834756                      0,69  2
11.12.93 09:25:34   2     11 00:34                                            1
11.12.93 10:01:46   1     12       00:12:53 83726639046287127384      413,69  2

-------------------------------------------------------------------------------------------------------------------------
```

Table 7-12 Long output format - explanation of output fields

Field	Fields	Definition	Number of characters	Orientation
Date	1 to 8	See Table 7-11, Field position 1	8	Left
Time	10 to 17	See Table 7-11, Field position 2	8	Left
Trk	19 to 21	See Table 7-11, Field position 3	3	Right
Stn	23 to 28	See Table 7-11, Field position 4	6	Right
Call	30 to 34	See Table 7-11, Field position 5	6	Left
Duration	36 to 43	See Table 7-11, Field position 6	8	Left
Station number	45 to 64	Dialed or, if available, the received external station number:nnnnnnnnnnnnnnnnnnn (n = dialed or received character: value range 0 - 9, *, #, ?) See also Table 7-11, field position 7	20	Left
Amount	66 to 76	Call charge amount for a call segment: zzzzzzzzzzz (blank spaces in U.S.) (z = digit: value range 0 - 9) Output always occurs when call charges accrue for the call segment (even with transferred calls). If no call detail information is available, these 11 characters are filled with spaces. A comma (,) separates the amount from the decimal places.	11	Right
I	78 to 79	See Table 7-11, field position 9	2	Right
–	80 to 81	End of line control character (carriage return [CR], line feed [LF])	2	–

7.14.9 Toll Fraud Monitoring

Definition

This feature can provide the customer with protection against toll fraud.

In the case of trunk-to-trunk connections, the customer can detect a possible fraudulent use by monitoring outgoing trunk calls.

When connection times exceed a defined duration, an indication is displayed on the attendance console (AC). If necessary, the connection can be released by means of a procedure.

No default time (*Toll Fraud monitoring* timer) is specified for this feature; that is, the attendant console will not be alerted unless the timer is set to a specific value.

Operation

If a trunk-to-trunk connection (for example a connection set up via DISA) exceeds the system timer defined by *Toll Fraud monitoring* timer, a display message is sent to the Attendant position.

The attendant is presented with the following display: *Time exceeded Clear Error Message?*. The attendant first scrolls to find the number of the trunks involved in the call and can release the trunks. On the Memory telephone, there is a cursor to select the individual line. Or, after taking note of the numbers, the attendant clears the error message and can invoke the Release Trunk feature to clear the connection at a later time, if appropriate.

The attendant invokes the Release Trunk feature from an idle state by dialing the default access code **43* or by pressing the *Program/Service* key and scrolling to and selecting the prompt **43=Release trunk?*. The attendant is then prompted to enter a trunk number. After entering the trunk number from above, the connection is released.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Configuration Options

This feature can be configured using HiPath 3000 Manager E and a special password.

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Options
2.	System parameters
3.	Time parameters

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Set up an outgoing connection (station has external call forwarding) using direct inward dialing and the DISA function.
2.	When the timer expires, the message *Time exceeded* appears on the AC display

7.14.10 Printer Pipe Mode (V.24 [RS-232] Range Extension for Call Data)

Definition

This feature outputs call charges to the optiset E control adapter. Only *one* printer pipe mode can be active in a system, and only *one* call detail recording (CDR) output can be supported in a system (via RS-232 or the optiset E control adapter).

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Settings	The parameters for call data output to the optiset E control adapter are permanently set to 9600,N, 8, 1.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	22-13 => V24 configuration
2.	2 => Select CDRC, CDRS, CDRT, or CDRA
3.	1 => Select $U_{P0/E}$ port for control adapter

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	Call charges
2.	Output format
3.	Port assignment
4.	$U_{P0/E}$ port=station number with control adapter

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Conduct a chargeable call.
2.	If CDRC is set, a call data record appears on the output device (such as the printer) at the end of the call.

7.14.11 Call-Charge Display With Currency (Not for U.S.)

Definition

Call charge information received with the AOC (advice of charges) feature during external calls on digital trunks appears on the telephone display, provided that the carrier makes this information available.

The public network supports the following AOC types:

- AOC-D = Charging information during the call
- AOC-E = Charging information at the end of a call
- AOC-S = Charging information at call setup

With AOC-D and AOC-S, digital exchanges can also transmit currency amounts that are then added to the call data evaluated in the system. These amounts are not multiples of the call charge pulses or call detail units; they are actual currency amounts.

The new *calculation accuracy* parameter helps avoid inaccuracies from arising when recording the call data. It determines

- The number of decimal points the system uses for evaluating the call data = minimum currency amount.
- The maximum number of currency amounts added up in memory = maximum total currency amount.

Set the *Calculation accuracy* parameter so that the system accuracy is equal to the accuracy of the currency amounts transmitted by the ISDN exchange. If the maximum of three decimal places is insufficient, the system automatically rounds up the number to the next unit. The following values are possible:

Calculation Accuracy	Minimum Currency Amount	Maximum Currency Amount
3 (Pounds Sterling)	$1 \times 10^{-3} = 0.001$	$1 \times 10^{-3} \times (2^{32} - 1)$ = around 4.3 million
2	$1 \times 10^{-2} = 0.01$	$1 \times 10^{-2} \times (2^{32} - 1)$ = around 43 million
1	$1 \times 10^{-1} = 0.1$	$1 \times 10^{-1} \times (2^{32} - 1)$ = around 430 million
0 (Italian Lira)	$1 \times 10^{0} = 1$	$1 \times 10^{0} \times (2^{32} - 1)$ = around. 4.3 billion

If you set *Calculation accuracy = delete*, the system switches back to evaluating call data in the form of call-charge pulses.

You cannot use HiPath arithmetic units if the digital exchange supplies call charge pulses.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Plus Products	Select the factor for converting call detail units to currency amounts as follows: Conversion factor = (call charge factor in %) **/** (100 x $10^{\text{calcuation accuracy}}$)

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure the calculation accuracy, call charge factor**
2.	11-9 => Precise currency
3.	11-4 => Call charge factor
4.	**Delete call charge data**
5.	11-1-1 => View CDR/station (delete)
6.	11-2-1 => View CRD/station (delete)

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure the calculation precision, call charge factor** System status
2.	Call charges
3.	Factors
4.	**Delete the call data** System status
5.	Call charges
6.	Delete call charges at station
7.	Delete call charges per trunk
8.	**Transfer call charge data (PC –> System)** Transfer
9.	Communication
10.	Read/write CDB - Mark call charges

7.15 Euro-ISDN Features (Not for U.S.)

Definition

The HiPath 3000 system complies with the DSS1 standard, which specifies the requirements for the uniform communication structure standardized by ETSI throughout Europe.

Euro-ISDN provides users with various features that can be activated either permanently in the trunk or by means of a procedure. It is not necessary to configure the feature specifically.

The features available with Euro-ISDN and HiPath 3000 are listed below.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Digital trunk connection				
SW requirements	V1.0 or later				

Requirements and Conditions

Subject	Requirement or Condition
Long S_0 bus	Not available with TA-S_0 and STMD8 (HiPath 3750 and HiPath 3700).
Features	Operation for features is the same as for analog stations. Control is by means of information elements in the protocol.
PC connected to S_0	A PC can be connected to the internal S_0 applications bus using an ISDN S_0 card.

7.15.1 Direct Inward Dialing (DID)

Definition

This feature allows a direct connection via the public network to an extension in a communications server using the ISDN numbering plan.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Digital trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	–	–	–	–	–

Requirements and Conditions

Subject	Requirement or Condition
DID	The extensions in the communications server must have at least outward restricted class of service, and direct inward dialing must be permitted.

7.15.2 Multiple Subscriber Number (MSN)

Definition

Multiple subscriber numbers enable you to assign several different station numbers on the same S_0 basic access (bus or multi-device connection). You can assign each terminal an MSN up to 11 digits long so that it can be called selectively.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	S_0 trunk board				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
MSN	MSNs can be up to 11 digits long. If an MSN is too long, the system evaluates the first 11 digits, beginning at the right.
MSN	The system activates features based on MSNs.
CDRC	Call detail recording central is possible.
MSN	If the MSN for a *Setup* is missing or invalid, a default MSN appropriate to the situation is used. When a station number is specified that is already in use (optiset E or optiPoint 500), the *Setup* is rejected.

7.15.3 Default Station Number Instead of Multiple Subscriber Number (MSN)

Definition

This feature was created to increase security and to settle call charges (in a hotel environment, for example). Previously, the system was able to automatically configure each valid MSN. This meant that the settlement of call charges and call detail recording took place under a number which the CS operator did not necessarily enter.
In addition to dialing an MSN, users now have the option of dialing the internal default station number instead.
Below is a brief explanation:
The system assigns a sequential default number to each port, and therefore each telephone, in ascending order (starting with 101 in the HiPath 3750 and HiPath 3700 system). This means that each ISDN S_0 bus is assigned a default number. For an ISDN adapter, the default number is identical to the number of the logical port in the client (secondary) optiset E or optiPoint 500 telephone. The system assigns valid station numbers by default, although they can be changed with HiPath 3000 Manager E. Every station number is always assigned to one logical port number.
The default numbers can be used as follows:

- **Outgoing call setup**:
  The system sets up the call using the default number, regardless of the MSN sent by a telephone or application. Customers are billed on the basis of the default number (in a hotel environment, this can be the room number), combined with a fixed number combination.
- **Incoming call setup**:
  When a customer equates the MSN of an application (which may be installed on a notebook computer and connected to the hotel telephone network via an ISDN adapter) with the default number of a hotel room (combined with a fixed number combination), callers can reach the PC directly from the outside by direct inward dialing.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	S_0 trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

7.15.4 Calling Line Identification Presentation (CLIP)

Definition

This feature transmits the caller's own station number to the called party, where it can be displayed if proper equipment is available. The public network must support station number transmission.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	optiset E or optiPoint 500 telephone with display				
HW requirements	Digital trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
CLIP	Must be released by the carrier.

7.15.5 Calling Line Identification Restriction (CLIR)

Definition

This feature suppresses the transmission of the calling party's station number. The public network must support suppression (temporary or permanent).

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	S_0 trunk connection				
SW requirements	V1.0 or later				
Co feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
CLIR	Calling line identification restriction can be defined across the system.
CLIR	HiPath 3000 Manager E can be used to ignore an activated CLIR setting across the system, allowing the calling party's station number to be displayed (on the development level only). This can be useful for emergency calls and in similar situations.
CLIR	Calling line presentation restriction per station: • *86 = activate • #86 = deactivate It is not possible to ignore an activated CLIR setting per station.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Activate CLIR across the system**
2.	20-1 => ISDN parameters - Caller ID suppression

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Activate CLIR across the system** Options
2.	System parameters
3.	Display
4.	Activate Call number suppression on
1.	**Activate ignore CLIR across the system (password required)** Options
2.	System parameters
3.	Display
4.	Deactivate Call number suppression on

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Configure CLIR.
2.	Call an internal station.
3.	The station number of the calling party is no longer displayed.

7.15.6 Connected Line Identification Presentation (COLP)

Definition

This feature allows the calling party to determine whether the connection has actually been connected to the station called or whether it was picked up by a different station.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	optiset E or optiPoint 500 with display				
HW requirements	Digital trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
COLP	Must be released by the carrier.

7.15.7 Connected Line Identification Restriction (COLR)

Definition

This feature suppresses transmission of the called party's station number to the calling station. Called parties can use COLR to prevent their numbers from being displayed on a calling station.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	S_0 trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
COLR	Same CDB entry as CLIR.

7.15.8 Advice of Charge (AOC)

Definition

This feature offers the user call detail information and must be provided by the pubic network. The information is transmitted in three ways:

- AOC-S - Advice of charges at call setup
  - Call charge display on the telephone is the same as for AOC-D.
  - The charges are not displayed if the call was not fully set up or if HiPath 3000 is unable to evaluate the call detail information of a service provider.
- AOC-D - Advice of charges during the call.
- AOC-E - Advice of charges at the end of the call.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Digital trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
AOC	Some countries transmit call charge pulses instead of the amount. In this case, the received pulses are converted to currency amounts using a call charge factor (as on analog trunks).

7.15.9 Call Forwarding (CF)

Definition

There are three different call forwarding types:

- **Chaining call forwarding unconditional**
  Users can activate variable call forwarding or call forwarding preset by key programming (unconditional, immediate) for the following call types:

  – Incoming internal calls only

  – Incoming external calls only

  – All calls

  This is possible even if the same station is already set as a forwarding destination or if the forwarding destination has already activated call forwarding.
  The message “Chaining invalid” no longer appears when you enter a second call forwarding destination during programming.
  When a user forwards a dialed party to a station which already activated unconditional, immediate call forwarding to another station, the system monitors the number of call forwarding operations allowed. A preprogrammed counter limits the number of call forwarding operations to a total of 5.

  The following example clarifies this procedure:

  – Stn A activated call forwarding to stn B: 1. CFU

  – Stn B activated call forwarding to stn C: 2. CFU

  – Stn C activated call forwarding to stn D: 3. CFU

  – Stn D activated call forwarding to stn E: 4. CFU

  – Stn E activated call forwarding to stn F: 5. CFU

  – Stn F activated call forwarding to stn G: 6. CFU (not possible)

  If stn X calls stn **A**, the call reaches stn **F**, **not stn G**.
  The system forwards the counters with CFU, but not with CFB or CFNR.

- **Call forwarding busy (CFB)**)
  Same as CFU but only if the line is busy.

- **Call forwarding no reply (CFNR)**)
  Same as CFU, but only if the call is not answered within 15 seconds (time is configurable).

Use call management to define the lines for *busy* and *no reply*.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Digital trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
CF	Not possible with an S_{2M} line.
CF	In the case of a point-to-point connection, the entire line is forwarded. In the case of a point-to-multipoint connection, only the MSN assigned to the extension with programming authorization is forwarded. If no MSN is assigned to this station. call forwarding cannot be activated.
CF	Call forwarding is always executed for the first basic access, that is the first S_0 port must also be available in the system.
Internal to S_0	Internal stations support CFU only (to prevent conflicts with call management).

7.15.10 External Call Forwarding

Definition

Any user who has an MSN as a DID number can activate and deactivate external call forwarding for this MSN, provided that the user is authorized to use external call forwarding. A total of 10 multiple subscriber numbers can be forwarded.

If you have assigned an MSN to a subscriber group, any member of the group can activate and deactivate external call forwarding for this MSN.

Users can enter only one forwarding destination per MSN.

There are three different versions of the feature:

- **Call forwarding unconditional (CFU)**
  The carrier forwards all calls to this MSN directly, regardless of the MSN status.
- **Call forwarding busy (CFB)**
  Calls are forwarded only if the MSN dialed is busy.
- **Call forwarding no reply (CFNR)**
  Calls are forwarded only if the destination does not answer the incoming call within a preset period of time, such as 15 seconds (time is configurable).

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Digital trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
CFU	External call forwarding has a higher priority than night answer.
CFU	The number of MSNs for external call forwarding cannot exceed 10.

Configuration Options

This feature does not have to be explicitly configured.

To activate the external call forwarding of a particular MSN, the S_0 port must be set to point-to-multipoint.

7.15.11 Call Deflection (CD)

Definition

If a station has activated external call forwarding, HiPath 3000 attempt to forward calls to the trunk using this feature. In this case, the new call destination and the station number of the forwarding station are provided to the trunk in the call deflection activation message when the call arrives. If external call forwarding by call deflection is not possible, the system handles call forwarding.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	S_0 trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	–	–	–	–	–

Requirements and Conditions

Subject	Requirement or Condition
Call detail information	When call deflection is used, HiPath 3000 receive no call detail information for the forwarded call. Customers are billed by their local Telecom.

7.15.12 Subaddressing (SUB)

Definition

Subaddressing allows the addressing capacity to be expanded regardless of the ISDN station number or additional information to be transmitted to the station dialed. This makes it possible to initiate certain procedures.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	S_0 trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
SUB	The flow of information is in one direction only.

7.15.13 Malicious Call Identification (MCID)

Definition

This feature makes it possible to identify unwanted callers. The feature is activated in the public network, and the caller's station number and name are also stored in the public network. With each incoming call, the release of the connection to the called station is delayed for a specific period of time after the caller hangs up, enabling the called station to activate this feature. Release is delayed only if the feature has been requested from the carrier or facility provider.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	S_0 trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
MCID	Malicious call ID is supported only on a direct trunk connection and not in tie traffic (QSig or CorNet-N).
MCID	Trunk release is delayed.
MCID	The *malicious call ID* class of service can be programmed for individual stations.
MCID internal to S_0	Activation is forwarded to the trunk.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure malicious call ID**
2.	14-22 => Configure station - Trace call

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure malicious call ID** Options
2.	Set up station
3.	Station
4.	Param
5.	Flags

7.15.14 Competition of Calls to Busy Subscribers (CCBS)

Definition

This feature sets automatic callback from an external station that is busy. When the station becomes free, the trunk attempts to set up a connection between the two stations.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	S_0 trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
CCBS	The feature must be supported by the trunk and the remote station.
CCBS	Does not function with 1TR6.
CCBS	A callback option to the networked system is generated within networked communications servers.

7.15.15 Call Hold (CH)

Definition

Users can interrupt a call in progress without releasing it. Doing so places the call on hold. Call hold (CH) is important in conjunction with other features such as call waiting, consultation hold, toggle, and three-party conference. The ISDN port on hold receives an indication of the hold state and retrieval of the call.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Digital trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
CH	The feature is available only on multi-device connections. In communications servers, the call is held in the server. The information element is sent to the trunk.
CH	Non-ISDN stations do not receive an advisory announcement (except that the station is placed on hold in the CS).
CH	A call can be placed on hold only in the active phase or during connection setup.

7.15.16 Three Party Service (3PTY)

Definition

A three-party (3PTY) conference is possible with a multi-device connection. The conference status is indicated at the ISDN port.

On the user side, note that the other conference participants join the conference in the system, that is, only one B channel is needed for the S_0 applications bus.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Digital trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
Conference	For multi-device connections only. In the case of CSs, the conference is executed in the CS. The information element is transmitted to the trunk.

7.15.17 Call Waiting (CW)

Definition

When a busy party receives a call, a call waiting tone indicates that another call has arrived and may be answered. The call waiting status is transmitted to the trunk.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Digital trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
CW (call waiting)	For multi-device connections only. In the case of CSs, call waiting is executed in the CS. The information element is transmitted to the trunk.

7.15.18 Telephone Portability (TP)

Definition

This feature allows a user to park a call on the bus, unplug the telephone, plug it in again at another location on the bus, and resume the parked call. The parked station receives a message indicating that the user is porting. The user has three minutes to move the telephone.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	S_0 trunk board				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
TP	At multi-device connections only. In the case of CSs, the external station is parked in the CS. The information element is transmitted to the trunk.
TP	The call must be resumed within 3 minutes.
TP	This feature cannot be used with services such as fax, teletex and data transmission.
TP internal to S_0	In the case of a Gigaset ISDN, this feature is used for a handover between two radio cells and for implementing the call park feature. Implementation is by the system.

7.15.19 User to User Signaling (UUS1)

Definition

This feature allows users to exchange messages during connection setup. The network transmits the messages transparently; checking only the length. Three UUS services are available:

- **UUS1**: Information is exchanged in control messages for connection setup and during connection release.
- **USS2**: Information is exchanged during the ringing phase. The number of messages is limited to two per trunk group. USS2 is available for telecommunications ports only.
- **USS3**: Information is exchanged during the active state of a connection.

HiPath 3000 currently support only UUS1.

Model-Specific Data

Subject	**HiPath 3750 HiPath 3700**	**HiPath 3550 HiPath 3500**	**HiPath 3350 HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	S_0 trunk connection				
SW requirements	V1.0 or later				
CO feature	x	x	x	x	x
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
USS1	In the case of a multi-device connection, the user must ensure that only one device transmits a message to an incoming call.
USS1	HiPath 3000 currently support only UUS1

7.15.20 Explicit Call Transfer (ECT)

Definition

A station with two calls can connect the other two call parties to one another. One of the calls must have already been set up. Transfer before and after answering is possible.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	S_0 trunk connection				
SW requirements	V1.0 or later				
CO feature	–	–	–	–	–
Station feature	x	x	x	x	x

7.15.21 Point-to-Point Connection on the User Side

Definition

It is possible to configure an S_0 port on the user side as a point-to-point connection, for example to use a connected fax server. The port is assigned a station number that supports direct inward dialing. Call forwarding can also be programmed at this port.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	S_0 subscriber line				
SW requirements	V1.0 or later				
CO feature	–	–	–	–	–
Station feature	x	x	x	x	x

Requirements and Conditions

Subject	Requirement or Condition
PtP	Only the DID, CLIP, CLIR, and AOC features are supported.

7.15.22 Programming National and International Codes for Outgoing Calls

Definition

The caller's station number, including the trunk access code (0, for example), the national prefix (0, for example) or the international prefix (00, for example), appears in the optiset E and optiPoint 500 telephone display, the caller list, and dialing aids (such as Smartset).

Carriers are reached by dialing a separate national prefix (1 digit) or international prefix (2 digits). If a HiPath 3000 system provides access to more than one carrier (separate port or shared port), it is not possible to determine the carrier from which incoming calls arrive.

To represent a prefix, this feature enables you to configure the national and international access codes (national and international prefixes). A number between 0 and 9 can be used as the values for the programmable digits.

This allows calls to be answered with the help of caller lists and Smartset even when carriers are used. The existing prefixes are also used for the carriers.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	S_0 board			–	–
SW requirements	V1.0 or later				
CO feature	**–**	**–**	**–**	**–**	**–**
Station feature	**x**	**x**	**x**	**x**	**x**

Requirements and Conditions

Subject	Requirement or Condition
National or international prefix	Only one national or international prefix exists for the entire system. The programmed prefix (and the carrier codes) can be up to 2 digits long.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure codes**
2.	20-2-5 => ISDN parameters - System stn. number - National prefix
3.	20-2-6 => ISDN parameters - System stn. number - International prefix

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure codes** Options
2.	Lines/networking
3.	ISDN parameter
4.	Enter national/international prefix

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Place a call via ISDN.
2.	Enter number in the caller list.
3.	Set callback from the number list.

7.15.23 Caller ID After Release (Police)

Definition

This feature places the calling party's number in caller list 0 after the call is released.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	–	–	–	–	–
SW requirements	V1.0 or later				

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the Feature Using Assistant T as follows:

Step	Action
1.	20 => System settings
2.	15 => Caller list mode
3.	* Change
4.	3 ext. rings/call

7.15.24 Collect Call Barring for ISDN Trunks (V3.0 and later)

Definition

This feature allows the automatic release of incoming collect calls in the network; other calls are not changed.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	Digital trunk connection				
SW requirements	V3.0 or later	V3.0 or later	V3.0 or later	V3.0 or later	V3.0 or later

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure collect call barring per station**
2.	14-31 => Configure station - Collect protection per station

Configuring the Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure collect call barring per station** Options
2.	Set up station
3.	Set collect call barring per station

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Place a collect call to a station in the system.
2.	Check whether the system releases the call automatically.

7.16 U.S. ISDN (for U.S. Only)

Definition

In the United States, ISDN is offered by most local telephone companies. ISDN is an all-digital voice and data transmission technology. In contrast to analog transmissions, ISDN uses B (bearer) channels to carry voice and data traffic and a D (data) channel to carry customer call data and control signals. There are two basic types of ISDN interfaces. These interfaces are the primary rate interface (PRI) and the basic rate interface (BRI).

A PRI is for large commercial telephony operations and consists of 23 B channels and 1 D channel. A BRI is for smaller or residential-type telephony needs and consists of 2 B channels and 1 D channel. To configure these ISDN interfaces, users must know the type of HiPath 3000 system that they are configuring. The following are the ISDN interfaces that were designed to work with the HiPath 3000 system:

- BRI with the HiPath 3350 and HiPath 3300
- Both PRI and BRI with the HiPath 3550 and HiPath 3500
- PRI with the HiPath 3750 and HiPath 3700

The ISDN features are activated at the central office (CO).

7.16.1 PRI

Introduction

The HiPath 3750, HiPath 3550, HiPath 3700 and HiPath 3500 systems can be configured to support Primary Rate services from the public network. A primary rate interface (PRI) consists of 23 bearer (B) channels and 1 data (D) channel. Each channel supports 64 Kbps of bandwidth.

The HiPath 3750 and HiPath 3700 support a maximum of five T1 interfaces (TMST1) that can be configured as primary rate interfaces. A Channel Service Unit (CSU) is required for each interface connected to the public network. (Siemens ICN supports certain models of CSU that have been tested with the HiPath 3000. Contact your Siemens ICN representative for the model numbers). The HiPath 3750 and HiPath 3700 support a maximum of four Call by Call (CBC) groups. Each group can be configured with a maximum of eight CBC trunk groups.

The HiPath 3550 and HiPath 3500 support one T1 interface (TST1 module) that can be configured as a primary rate interface. A CSU is required for each interface connected to the public network. The HiPath 3550 and HiPath 3500 support a maximum of one CBC group. The group can also be configured with a maximum of eight CBC trunk groups. Typically, the entire T1 span is placed in a single trunk group, but depending on the application, the primary rate channels can be separated into discrete route groups. This may be required for applications where a portion of the channels can be separated out for non-system data applications.

A span or spans must be selected as the reference interface for the Central Office. A hierarchical table is provided for assigning four reference-clock points. If the primary clock source fails, the next clock source specified is used as the reference. When the primary clock source returns, the system automatically resynchronizes to this clock. A maximum of four reference clocks can be defined per system.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**–**
HW requirements	TMST1	TST1	–
Number of T1 modules per system	5	1	–
Number of CBC groups per system	4	1	–
Number of trunk groups per CBC group	8	8	–

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
SW requirements	V1.0 or later		

Depending on the PRI provider's requirements, users need to configure some or all of the following for PRI setup:

- Signal, protocol, and emulation type
- Frame/line/encoding
- B channel allocation mode and identifier
- Number of B channels
- Trunk group calling service

For networking with PRI, customers can use either tie trunks or the public-switched telephone network.

Protocol type allows customers to select the interface between the HiPath 3750, HiPath 3550, HiPath 3700 or HiPath 3500 and the PRI provider. Protocols are different for local exchange carriers (LECs) and for inter-exchange carriers (IECs). Customers might prefer an IEC, for example, if they want to place calls on a tie trunk using station numbers without going through the local exchange.

Customers can choose a different carrier and protocol for each PRI span. The HiPath 3000 systems support seven commonly used LEC protocols and seven commonly used IEC protocols.Table 7-13 and Table 7-14 on page 7-546 show the protocols available for each slot.

LEC Protocols

Table 7-13 Supported LEC Protocols

LEC Carrier	Switch	Protocol
AT&T	5ESS	Custom
AT&T	5ESS	NI-2
Bell Canada	DMS100	Custom
GTE	GTT5	NI-2
Nortel	DMS100	Custom
Siemens	EWSD	Custom
Siemens	EWSD	NI-2

IEC Protocols

Table 7-14 Supported IEC Protocols

IEC Carrier	Switch	Protocol
AT&T	4ESS	Custom
MCI	DMS250	AT&T 4ESS emulation
MCI	DEX600	AT&T 4ESS emulation
Sprint	DMS250	AT&T 4ESS emulation
Westinghouse	DMS250	AT&T 4ESS emulation
GSA	DMS250	DMS250
GSA FTS 2000	5ESS	5ESS

Emulation type is determined by the protocol. Users need to select the emulation type that matches the ISDN service they have ordered: Super Frame (SF) or Extended Super Frame (ESF).

The data format for SF emulation is inverted high-level data link control (HDLC); The data format for ESF is normal HDLC.

Frame/line/encoding allows customers to select the type of encoding used on the D channel. The choices are normal or inverted. Normal is the default. The type of frame and line encoding depends on the protocol. HiPath 3550 and HiPath 3500 automatically set the correct type of frame and line encoding according to the protocol.

B channel allocation mode and identifier allows customers to select the system method of finding an available B channel when needed. The choices are high and low. High begins searching at the highest-numbered B channel of the highest-numbered T1 span in the PRI trunk group and continues in descending order. Low begins searching at the lowest-numbered B channel of the lowest-numbered T1 span in the PRI trunk group and continues in ascending order.

Select the opposite mode from that used by the CO; this will avoid collisions when both the CO and the HiPath 3000 are trying to seize a channel.

Number of B channels allows users to enter the number of B channels for the system, so that the system knows where to begin searching for channels to allocate. The number entered here depends on the number of B channels that the customer has ordered.

Trunk group calling service allows users to select the type of service for each trunk group. The HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300 support 36 types of trunk group service. Customers select the type of service according to the service ordered from the ISDN provider.

If you are unsure the trunk group calling service, consult the ISDN provider for more information.

The following tables outline the voice and data services available through the public network providers in the North American market.

Table 7-15 Inter-Exchange (IEC) Protocol Calling Services

	ATT 4ESS	**MCI DMS250/ MCI DEX600**	**SPRINT DMS250**	**Westing. DMS250**	**FTS2000 DMS/5ESS**
In-WATS (800)	Megacom 800-TFM	MCI 800	ULTRA 800	WICN-In-WATS	N/A
Out-WATS	Megacom	MCI Prism-WATS	SPR Ultra WATS	WICN-Out-WATS	N/A
In-WATS (900)	Multiquest	MC!/900	N/A	N/A	N/A
Intl IN-WATS	Inter-800	MCI 800	N/A	N/A	N/A
PVN	AT&T SDDN	MCI VN-VS	SPRINT-VPN	N/A	N/A
Intl VPN	AT&T SDN-GSDN	N/A	SPRINT-VPN	N/A	N/A
SDS 56	Accu-SDS	NONE	Accu-SDS	Accu-SDS	N/A
SDS 94-c/r	Accu-SDS	NONE	Accu-SDS	Accu-SDS	N/A

Table 7-16 Local Exchange (LEC) Protocol Calling Services

	AT&T 5ESS/ Siemens EWSD	Nortel DMS100 Bell Cnd DMS100	Generic NI2 Siemens NI2 AT&T 5ESS NI2
In-WATS (800)	Megacom	DMS100 In-WATS	NI2 InWATS
Out-WATS	Megacom	DMS100 Out-WATS	NI2 OutWATS
In WATS (900)	N/A	N/A	N/A
Intl InWATS (800)	N/A	N/A	N/A
PVN	N/A	DMS100 PV	N/A
Multiband OutWATS	Megacom	DMS100 Out-WATS	NI2 OutWATS
Access to LEC operator	None	None	None
Access to default IEC operator	None	None	None
Equal access to IEC Long Distance services	Megacom	DMS100 Out-WATS	NI2 OutWATS
Basic CO access	None	None	None
Access to IEC operator	None	None	None
SDS-56	None	None	None
SDS-64 c/r	None	None	None

7.16.2 BRI

Introduction

To set up the HiPath 3000 for BRI ISDN, users must receive service profile identifier designator (SPID) numbers from the telephone company (telco). SPID numbers identify the type of ISDN service and the variety of features that customers receive. In addition, to allow direct access to specific devices, some BRI interfaces can be set up with CACH EKTS. Depending on the central office (CO) switch type, users have to configure either call appearance identification (CAID) values (also known as CACH values) or phantom direct inward dialing (PDID) numbers for all devices that make external calls. For more information on how to configure CAID numbers, PDID numbers, and SPID numbers refer to Section 8.11, Configuring BRI Trunks (HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300) (for U.S. Only), on page 8-22.

Depending on the central office (CO) protocol selected, users need to configure some or all of the following parameters for BRI setup:

- CO protocol
- SPID administration
- CAID administration (AT&T or EWSD)
- PDID administration (DMS100)
- Feature identification number (FIN) for message waiting
- CO Features (Transfer/Conference/Drop)
- Feature identification number (FIN) for Transfer, Conference and Drop
- CACH EKTS flag (AT&T or EWSD)

CO protocol is the interface between the HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300 and the CO of the BRI provider. Select the protocol that the BRI provider uses. support the following CO protocols:

- AT&T NI1
- AT&T Custom
- Siemens NI1
- Nortel NI1

Nortel NI1 requires PDID values instead of CAID values; for more information refer to PDID administration on page 7-551.

If you are unsure of the CO protocol, consult the ISDN provider.

SPID administration allows customers to set service profile identification designator values. Each BRI line is assigned two SPID values. The HiPath 3000 systems support a maximum of eight SPID values. The SPID values can be assigned to any combination of digital stations or digital data terminals and could be required for some data terminals. SPID numbers are used by the CO to identify each terminal for features such as message waiting, call transfer, and conference. Customers must configure the numbers in sequence according to the order of the stations in the system. A primary directory number is assigned to each SPID address number.

Consult the BRI provider for specific SPID number information.

CAID administration allows customers to set call appearance identification values when the CO switch type is AT&T or EWSD. CAID values are one or two digits that are assigned by the central office to the primary and secondary system numbers. A CAID value represents a talk path from a voice station or a data terminal to a BRI channel. A station must have at least one associated CAID value programmed to place or receive an external call directly without attendant intervention. Each device in the system can have up to four CAID values.

Multiple CAID values must be assigned to a station to allow for external telephone functions, such as to answer camp-on calls and conference calls. CAID values are used to simulate multiple call handling at a single desktop station. That is, each CAID number simulates an additional extension (a call appearance), but the additional extension numbers do not actually represent outside trunk lines.

Some COs do not assign CAID values to ISDN data terminals. If you do not know the CAID numbers assigned to the system, consult the BRI provider.

PDID administration allows customers to set phantom direct inward dialing identification numbers (PDIDs). PDID numbers take the place of CAID values in the Nortel DMS100 NI1 CO only. Customers can assign PDID numbers to all voice and data terminals in the system. This allows incoming calls to be routed to the specified station or ISDN terminal without attendant intervention.

The PDID number can be from 1 to 7 digits in length, corresponding to a traditional seven-digit phone number.

PDIDs or directory numbers (DNs) are assigned by the ISDN provider.

FIN for message waiting allows users to set the feature identification number (FIN) for the BRI message waiting feature provided by the LEC. The LEC assigns FIN values to associate the feature with specific HiPath 3550, HiPath 3350, HiPath 3500 or HiPath 3300 stations; contact the LEC to obtain the FIN values for the stations.

The message waiting FIN value can only be assigned to stations with primary directory numbers.

With FIN for message waiting, customers must enter a FIN value for each station. Every station must have a FIN value assigned; however, each station can have the same number.

CO features (Transfer/Conference/Drop) allows the customer to enable the CO features Transfer, Conference, and Drop.

FIN for Transfer, Conference and Drop allows customers to set the feature identification numbers (FIN) for the BRI Transfer, Conference, and Drop features provided by the LEC in the case of NI1 (AT&T NI1, Siemens NI1, or Nortel NI1). The FIN must be the same for all the BRI interfaces; contact the LEC to obtain the FIN values for these features.

CACH EKTS flag allows customers to indicate which of the BRI interfaces are configured within the LEC as CACH EKTS.

CACH is one of the methods used to have BRI emulate an analog hunt. Although there is a CACH setting in the NT DMS, it does not react in the same manner; the CACH setting in the DMS does not allow the sharing of DNs. Administration of CACH values in the HiPath 3000 is referred to as CAID (Call Appearance IDentification) administration.

7.17 U.S. ISDN Features (for U.S. Only)

7.17.1 Multi-Device Connection

Definition

An ISDN multi-device connection enables users to connect multiple ISDN terminals (such as Internet and ISDN video devices) on an ISDN S_0 applications bus. You can use the direct inward dialing (DID) number field to assign multiple subscriber numbers (MSNs) that will uniquely identify the devices.

Related Topics

- Section 7.17.10, Multiple Subscriber Number, on page 7-562
- Section 8.13, Configuring an ISDN Multi-Device Connection With Multiple Subscriber Numbers (for U.S. Only), on page 8-37

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**
HW requirements	STMD8 or ISDN adapter	STLS4 STLS4R or ISDN adapter	STLS4 STLS4R or ISDN adapter
SW requirements	V1.0 or later		

Requirements and Conditions

Subject	Requirement or Condition
ISDN terminals	Any parallel-connected ISDN terminals must be given an MSN to ensure call assignments.
Trunk groups with PP and PMR	If you connect different basic access points (point-to-point and point-to-multipoint) to the system, they must be entered in different trunk groups, and Prime Line must be deactivated.

Configuration Options

This feature can be configured using Assistant T or HiPath 3000 Manager E.

Programming Feature Using Assistant T

Configure the feature using Assistant T as follows:

Step	Action
1.	**Configure S_0 port** *9531994
2.	20-4-1 => ISDN parameters - EU parameters - S_0 port config.
1.	**Configure station number** *9531994
2.	16-11 => Incoming calls - DID numbers

Programming Feature Using HiPath 3000 Manager E

Configure the feature using HiPath 3000 Manager E as follows:

Step	Action
1.	**Configure S_0 port** Options
2.	Lines/networking
3.	Trunks
4.	Flags
5.	ISDN flags
1.	**Configure station number** Options
2.	Set up station
3.	Station

Testing the Feature

Check the feature for error-free functioning as follows:

Step	Action
1.	Connect multiple ISDN terminals.
2.	The devices perform properly.

7.17.2 Call-By-Call Service Selection

Definition

Call-by-Call service selection (CBC) lets the user select a different type of service for each channel, such as INWATS channels and some OUTWATS channels within the same trunk group.

The following are the four main features provided through call-by-call (CBC):

- Foreign Exchange Non-ISDN Facility

  This trunk type enables users to originate or terminate calls as if there was a local CS in the foreign (remote) central exchange office. Access to the foreign exchange (FX) is possible via LCR or trunk group access codes.

- Tie Trunk Non-ISDN Facility

  This trunk type enables users to connect to a privately leased analog Tie Trunk network. Access for originating calls is possible through LCR. Terminating Tie Trunk calls are routed according to the called party number (CdPn).

- OUTWATS Facility

  This feature allows customers to place calls to certain areas at special lower rates.

- INWATS Facility

  This feature supports the 800 area code that provides callers toll-free access to the terminating party. This is a terminating only service.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**–**
HW requirements	–	–	–
SW requirements	V1.0 or later		–

Requirements/Conditions

Subject	Requirement/Condition
Simulated Facility Groups (SFG)	FX and Tie Trunk incoming and outgoing calls require an SFG access code, which is assigned by the telephone company at the time of subscription.

7.17.3 Dedicated (Pre-Provisioned) Service Selection

This feature simplifies the service ordering process by supplying ordering codes that tell the central office how to configure the HiPath 3000.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**
HW requirements	–	–	–
SW requirements	V1.0 or later		

7.17.4 Transfer

Definition

This feature allows calls to be transferred the same as non-ISDN calls.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**
HW requirements	–	–	–
SW requirements	V1.0 or later		

7.17.5 Camp-On

Definition

This feature allows calls to be camped-on until the busy line is free. Once the line is free, the user call is signaled through.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**
HW requirements	–	–	–
SW requirements	V1.0 or later		

7.17.6 Conference Call

Definition

This feature allows multiple callers to communicate simultaneously.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**
HW requirements	–	–	–
SW requirements	V1.0 or later		

7.17.7 Equal Access

Definition

This feature complies with the FCC requirement to provide equal access to alternate carriers.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**–**
HW requirements	–	–	–
SW requirements	V1.0 or later		–

7.17.8 Special Access Selection

Definition

With this feature users can select specific access codes. HiPath 3000 systems support the following four options:

- Local Exchange Carrier (LEC) Operator Access

  The system routes calls through the PRI to the network after the user dials 0 to connect to the LEC operator.

- Inter-exchange Carrier (IEC) Operator Access

  After the user dials an operator access code, a carrier identification code (CIC), and a 0, the system routes the call through the PRI and to the network, connecting the call to the IEC operator.

- Operator Assisted Credit Card Call Access

  This feature routes PRI calls to the network using an operator access code, a 0 or 01, and a called party number (CdPn), allowing operator assisted calls with a calling card.

- N11 Access

  Most commonly used for 911 access, this feature routes PRI calls to the network via an operator access code and N11, where N is any digit from 1 to 9.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**–**
HW requirements	–	–	–
SW requirements	V1.0 or later		–

7.17.9 Direct Inward Dialing

Definition

The basic electronic key telephone system (EKTS) supports the sharing of directory numbers over several ISDN lines, allowing for direct inward dialing (DID).

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**
HW requirements	STMD8	STLS 4	STLS 4
SW requirements	V1.0 or later		

Dependencies/Limitations

Subject	Dependency/Limitation
DID	The extensions in the CS must at the very least be outward restricted and direct inward dialing must be permitted.

7.17.10 Multiple Subscriber Number

Definition

Multiple subscriber numbers (MSNs) are used to identify ISDN terminals connected to an S_0 bus in the HiPath 3000 systems. MSNs are 11 digits in length. They are entered in the DID number field in system administration.

You can assign each ISDN terminal one or two MSNs, depending on the application. A device requiring 64 Kbps of bandwidth must be assigned one MSN; a device requiring 128 Kbps of bandwidth must be assigned two MSNs. The call number associated with the MSN is dialed to reach the device during an internal data or voice transaction.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	x	x	x
HW requirements	STMD8 or ISDN adapter	STLS4 STLS4R or ISDN adapter	STLS4 STLS4R or ISDN adapter
SW requirements	V1.0 or later		

Dependencies/Limitations

Subject	Dependency/Limitation
MSN	MSNs are assigned in the DID number field for each ISDN terminal. This number is used as the internal SPID for the device.
Primary Directory Number (PDN)	The PDN associated with public network BRI link must be entered in the DID field for the ISDN terminal to initiate calls to the external network.
MSN for internal use only	Enter a seven-digit number not associated with the PDN in the DID field.
External SPIDs	The public network SPIDs for the ISDN links can be assigned to any station in the system.
B channels	The number of external data calls is limited to the number of B channels installed in the system.

Subject	Dependency/Limitation
Access	B channels are dedicated to the specific ISDN terminal and should be placed in a separate trunk group to ensure access if more than one BRI trunk is installed.
MSN	If the MSN for a Setup is missing or invalid, a default MSN appropriate to the situation is used. When a station number is specified that is already in use (optiset E or optiPoint 500), the Setup is rejected. If an MSN is too long, a right-justified evaluation of the digits is performed.

7.17.11 Calling Line Identification Presentation

Definition

The calling line identification presentation (CLIP) feature transmits the caller's own station number to the interface called. The station number can be displayed on suitable telephones. Station number transmission must be supported in the public network.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**
HW requirements	optiset E or optiPoint 500 telephone with display		
SW requirements	V1.0 or later		

7.17.12 Call Forwarding

Definition

All calls for the ISDN port can be forwarded. Three different types of call forwarding (CF) are available:

- Call forwarding unconditional (CFU)

  All calls for the ISDN port are immediately forwarded to any port.

- Call forwarding busy (CFB)

  Same as CFU but only for busy trunk.

- Call forwarding no reply (CFNR)

  Same as CFU but only if the call is not answered within a specified period (15 s).

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**
HW requirements	–	–	–
SW requirements	V1.0 or later		

Dependencies/Limitations

Subject	Dependency/Limitation
CF	Forwarding is always performed for the first basic access, necessitating that the first S_0 port is present in the system.
CF	This service is activated telephony, speech, and 3.1 kHz audio only.
Internal to S_0	Only CFU is supported for internal station, otherwise, conflicts with call management would occur.

7.17.13 Call Hold

Definition

Call hold (CH) is important in conjunction with other features such as call waiting, consultation hold, toggle, and three-party conference. The ISDN port on hold receives an indication of the hold state and retrieval of the call.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**
HW requirements	–	–	–
SW requirements	V1.0 or later		

Dependencies/Limitations

Subject	Dependency/Limitation
CH	Possible at multi-device connections only. In the case of PABXs, the connection is placed on hold in the CS. The information element is transmitted to the trunk.
CH	Non-ISDN stations do not receive an advisory announcement (except that the station is placed on hold in the CS).
CH	A call can be placed on hold only in the active phase or during connection setup.

7.17.14 Three-Party Service

Definition

A three-party (3PTY) conference is possible with a multi-device connection. The conference status is indicated at the relevant ISDN port.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**
HW requirements	–	–	–
SW requirements	V1.0 or later		

Dependencies/Limitations

Subject	Dependency/Limitation
3PTY	At multi-device connections only. In the case of CSs, the conference is executed in the CS. The information element is transmitted to the trunk.
3PTY internal to S_0	The other conference participants are connected in the system; therefore, only one channel is required to the S_0 bus.

7.17.15 Call Waiting

Definition

If a station is busy and a second call is pending, the busy station receives call waiting. The call waiting (CW) status is transmitted to the trunk. The busy station has the option of answering the waiting call.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**
HW requirements	–	–	–
SW requirements	V1.0 or later		

Dependencies/Limitations

Subject	Dependency/Limitation
CW	At multi-device connections only. In the case of CSs, call waiting is executed in the CS. The information element is transmitted to the trunk.

7.17.16 Connected Line Identification Presentation and Restriction

Definition

The Connected Line Identification (COLI) Presentation and Restriction feature provides the user with a display of the number called, or it restricts the user's network-provided number from being displayed to the calling party.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**–**
HW requirements	–	–	–
SW requirements	V1.0 or later		–

7.17.17 Dialed Number Identification Service

Definition

The Dialed Number Identification Service (DNIS) feature translates an external user's CO LEC/IEC number to a customer-defined DNIS number.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**–**
HW requirements	–	–	–
SW requirements	V1.0 or later		–

7.17.18 B Channel Selection

Definition

This feature searches the low-low B channel selection algorithm for an available B channel, starting each new search at the lowest numbered B channel of the lowest numbered DS1 facility in the PRI trunk group, and it continues in ascending order. In addition, this feature searches the high-high B channel selection algorithm for an available B channel, starting each new search at the highest numbered B channel of the highest numbered DS1 facility in the PRI trunk group, and it continues in descending order.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**–**
HW requirements	–	–	–
SW requirements	V1.0 or later		–

7.17.19 Originating B Channel Selection Implementation

Definition

For originating calls, this feature specifies a preferred B channel to the CO. If the preferred B channel is not available, the CO responds with an alternate B channel.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**–**
HW requirements	–	–	–
SW requirements	V1.0 or later		–

7.17.20 Terminating B Channel Selection

Definition

For terminating calls, the CO specifies the B channel it has selected. If the HiPath 3000 determines that the requested B channel is not available and that it is not exclusive, the HiPath 3000 responds with an alternate B channel.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**–**
HW requirements	–	–	–
SW requirements	V1.0 or later		–

Requirements/Conditions

Subject	Requirement/Condition
No appropriate B-channel	If the HiPath 3000 cannot accept the call on an appropriate B channel, it rejects the call with cause value #34, *channel congestion*, or cause value #44, *requested channel not available*.

7.17.21 B Channel Cut-Through Operation Mode

Definition

North American ISDN PRI most often requires that the B channel voice path cut-through to the network before connecting. This cut-through operation is different than most other parts of the world. For this reason, the ISDN service providers often provide in-band tones or announcements that require a cut-through of the voice path.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**–**
HW requirements	–	–	–
SW requirements	V1.0 or later		–

7.17.22 Digital Keypad to DTMF Conversion on PRI

Definition

This feature converts digital keypad information to dual-tone multifrequency (DTMF) signals and sends the signals in-band over the PRI B channel.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**–**
HW requirements	–	–	–
SW requirements	V1.0 or later		–

7.17.23 En-Bloc Sending

Definition

With this feature, the HiPath 3000 sends and receives blocks of data (complete telephone numbers) to and from the public network. The numbers are stored in the system and not forwarded to the network until the user finishes dialing.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**–**
HW requirements	–	–	–
SW requirements	V1.0 or later		–

7.17.24 Data Calls

Definition

This feature transfers data over the PRI. Facility type and LEC/IEC calling service influence this service. Refer to the specific vendor for specific requirements for PRI data transmission.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**–**
HW requirements	–	–	–
SW requirements	V1.0 or later		–

7.17.25 Basic Electronic Key Telephone System

Definition

Electronic Key Telephone System (EKTS) is a National ISDN-1 standard that supports call appearances according to the directory number. This group-sharing capability associates a telephone on any interface with a particular directory number. EKTS enables sharing of telephone features like call management, caller ID, conference calling, and call forwarding.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	–	x	x
HW requirements	–	–	–
SW requirements	–	V1.0 or later	

7.17.26 Call Appearance Call Handling Electronic Key Telephone System

Definition

Call Appearance Call Handling Electronic Key Telephone System (CACH EKTS) simulates multiple call handling at a single desktop station. Users can receive multiple calls for the same directory on several ISDN lines using one of the call appearance IDs that is assigned to the directory number. With this feature, the CO can offer a call on multiple interfaces because the directory number call appearances are shared. This allows the HiPath 3000 to respond to the call with an idle interface. CACH is called call appearance identification (CAID) in the HiPath 3000.

Related Topic

Section 8.11, Configuring BRI Trunks (HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300) (for U.S. Only)

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**–**	**x**	**x**
HW requirements	–	–	–
SW requirements	–	V1.0 or later	

Requirements/Conditions

Subject	Requirement/Condition
Call appearance identification (CAID) values	In a basic EKTS system CAID values are not supported. The AT&T 5E and Siemens EWSD central offices support the CAID format. The Northern Telcom central offices use phantom DID numbers instead of CAID values.

7.17.27 Called and Calling Party Display

Definition

With called and calling party number display services like dialed number identification service (DNIS) and automatic number identification (ANI) are provided by the network. DNIS is for T1 digital trunks and ANI is for PRI trunks. The calling party number (CPN) is displayed on a suitable display telephone.

With this feature, the system performs the following functions:

1. Checks the calling number against any ANI or DNIS table entries
2. Translates the digits into an account number, customer name, or company name
3. Routes the call
4. Displays the information on the telephone display

Users can override this feature system wide.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**x**	**x**	**x**
HW requirements	–	–	–
SW requirements	V1.0 or later		

Requirements/Conditions

Subject	Requirement/Condition
T1 Trunks	T1 trunks support DTMF signaling only.
Protocols	The protocols for processing ANI and DNIS digits depends on the service and the carrier.

7.17.28 Connected Party Display

Definition

For users calling from a HiPath 3000 telephone, this feature displays the connecting party number through the BRI if the public network provides it. If the connected party number information is *restricted*, the HiPath 3000 does not forward or use the connected party number for any purpose.

Users can override this feature system wide.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**–**	**x**	**x**
HW requirements	–	–	–
SW requirements	–	V1.0 or later	

7.17.29 Message Waiting

Definition

This feature indicates that there is a message waiting through one of the following indicators:

- Displaying a message on optiset E and optiPoint 500 telephones with display
- Signaling with a flashing LED
- After lifting the handset for analog telephones

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	**–**	**x**	**x**
HW requirements	–	–	–
SW requirements	–	V1.0 or later	

7.17.30 Internal Voice Mail

Definition

When the HiPath 3000 systems forward a call arriving over the ISDN/Central Office interface to the local voice mail system, the control information specifies where the forwarded call originated. The system alerts users that they have a message waiting through the following methods:

- Displaying a message on optiset E and optiPoint 500 telephones with display
- Signaling with a flashing LED
- Picking up the handset

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300
Feature available in	–	x	x
HW requirements	–	–	–
SW requirements	–	V1.0 or later	

7.18 Host Link Interface

Definition

Communication between HiPath 3000 and the applications running on host computers (Plus Products) is facilitated by:

- the V.24 (RS-232) application programming interface (CSTA protocol, 19200 baud)
  - Customers must use a converter to support Plus Products that use ACL-H2. The converter converts all messages and message procedures based on the ACL-H2 protocol to the CSTA protocol and vice versa. The converter has been implemented as a driver that runs under Microsoft Windows 95/98.
  - Plus Products that support the CSTA protocol standardized by ECMA can be connected directly (for example, Hicom Agentline Office V1.1 CSTA).
- An S_0 interface configured as a station (ISDN/USBS)
- An optiset E ISDN adapter or optiPoint ISDN adapter (TA S_0) (ISDN/USBS)
- the LAN interface (Ethernet)
  For more information on this subject, refer to Chapter 13.
- the PSTN interface.
  For more information on this subject, refer to Chapter 13.

HiPath 3000 support CSTA Phase II and CSTA Phase III.
The connected application determines whether CSTA Phase II or Phase III will be used for connection setup.

Contact your local service center for up-to-date information about the applications supported in the different countries.

HiPath 3000 Interfaces for Applications

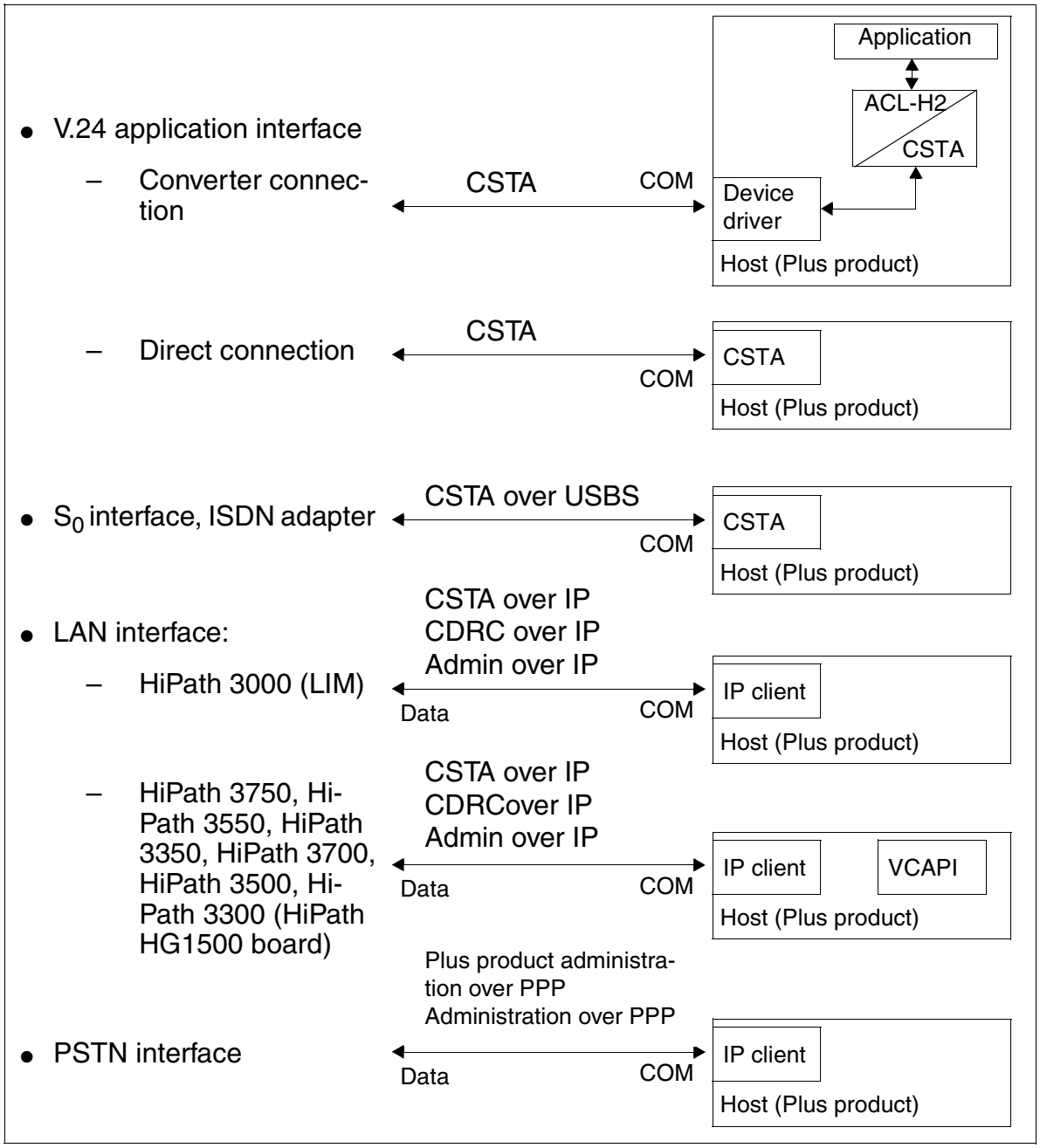


Figure 7-17 HiPath 3000 - Interfaces for Applications

8 Configuration Guidelines

Chapter Contents

This chapter discusses the following topics:

8.1 Call Detail Recording Using a Serial Printer

Introduction

The HiPath 3000 can use a dot-matrix printer as a call charge printer (serial data transmission) or as an output device for a call charge computer or manager (parallel data transmission).

Refer to the documentation that came with the printer for information on installing the printer.

Caution
Be sure to read the safety precautions and handling instructions from the printer manufacturer.

System Settings

Using Assistant T, this example demonstrates the process for configuring a serial printer.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration.	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	**22-13-1** ✓	Set baud rate.	V.24 port 1: 9600
5.	F7	Return to: V.24 configuration.	V.24 configuration
6.	2	V.24 port allocation	Port allocation
7.	1 2	Port for CDR central	V.24 port: -
8.	*1 ✓	Select port for CDR central.	V.24 port: 1
9.	F8	Return to main menu.	System administration
10.	**11-3-1** ✓	Determine print format.	Output: Compressed
11.	F2 ✓	Go to: Stn number format	Digit suppression: No
12.	F2 ✓	Go to: Incoming call	Output: No
13.	F2 ✓	Go to: Call duration	Output: Yes
14.	F2 ✓	Go to: Print MSN	Output: No

Step	Entry	Action	Display
15.	F2 ✓	Go to: ISDN unit	Trk grp 1: 12
16.	F2 ✓	Go to: Call log	Output: No
17.	F8 F7	Exit system administration.	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	System status -> Call charges -> Output -> Format
2.	System status -> Call charges -> Factors
Note: Only Assistant T can be used to set the baud rate.	

8.2 Call Detail Recording Using a P 500 Printer (Not for U.S.)

Settings in the System

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	**22-13-1 ✓**	Set baud rate	2400 or 9600 bd
5.	F7	Return to: *V.24 config*	V.24 config.
6.	2	V.24 (RS-232) port allocation	Port alloc.
7.	1	Port for CDR central	V.24 port: -
8.	*1 ✓	Select port for CDR central	V.24 port: 1
9.	F8	Return to main menu	System administration
10.	**11-3-1 ✓**	Define print format	Output: Compressed
11.	F2 ✓	Go to: Stn. number format	Suppress digits: No
12.	F2 ✓	Go to: Incoming call	Output: No
13.	F2 ✓	Go to: Call duration	Output: Yes
14.	F2 ✓	Go to: Call charge factor	Factor: 12
15.	F2 ✓	Go to: Currency	Currency: DM
16.	F2 ✓	Go to: ISDN unit	Factor: 12
17.	F2 ✓	Go to: Call log	Output: No
18.	F2 ✓	Go to: Print MSN	Output: No
19.	F8 F7	Exit system administration	Time, Date

Configuring the Feature Using HicHiPath 3000 Manager E

Step	Action
1.	Port settings for CDRC System status -> Call charges -> Output format
2.	Factors and currency System status -> Call charges -> Factors
Only Assistant T can be used to set the baud rate.	

8.3 Call Detail Recording Using a Call Charge Computer (GCM, Teledata) (Not for U.S.)

Settings in the System

Configuring the Feature Using Assistant T

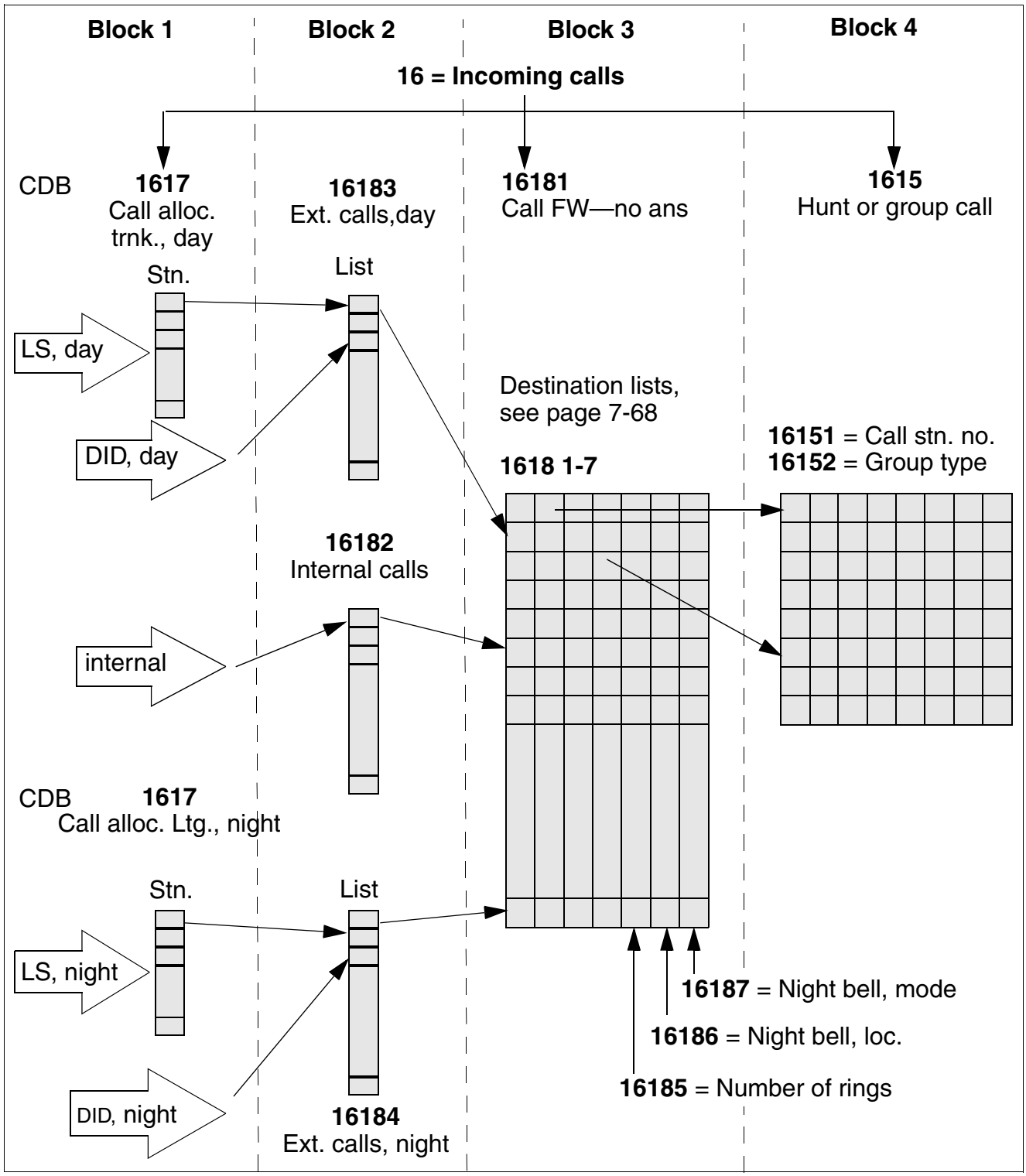
Step	Code	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	22-13-1	Set baud rate	2400, 9600 or 19200 bd
5.	22-13-2-11	Select output port	Port: 0 = None 1 = V.24 port 2 = $U_{P0/E}$ port 3 = PC AC 4 = LAN
6.	22-13-2-12	Select interface	V.24 port
7.	11-3-1	Set call data record output to *Compressed*	Output: Compressed
8.	11-3-3	Set incoming calls to *No*	Output: No
9.	11-7	Set call log to *No*	Output: No

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Port settings for CDRC System status -> Call charges -> Output format
Only the Assistant T can be used to set the baud rate.	

8.4 Displaying an Incoming Call as a Company Name

Overview of Call Management



Parameters for the Example

- A station must be available for a station name to be assigned (if possible, a station should be selected that does not exist at the hardware level).
- This station must be configured with *Answer machine* as its device type.
- Assign the station to an index in call management with an initial entry of an asterisk (*) so the station name can be forwarded. In the second entry, enter the number of the station to be called with the station name (this entry can also be a group).

Example

- DID number 250 is assigned to ABC Company.
- Station 200 is the number called, using both visual and auditory signals.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	14-11	Display *Station type* menu	Stn 200: Standard
5.	#	Initiate station selection	Stn:
6.	250	Select station 250	Stn: 250
7.	✓	Confirm selection of station 250	Stn 250: Standard
8.	*	Change station type	Stn 250:
9.	4	*Answer machine* station type	Stn 250: Answer machine
10.	✓	Confirm entry	Stn 250: Answer machine
11.	F7	Return to: Configure station	Configure station
12.	12	Station names	Stn 200: -
13.	#	Initiate station selection	Stn:
14.	250	Select station 250	Stn: 250
15.	✓	Confirm selection of station 250	Stn 250: -
16.	*	Change station name	Stn 250:

Step	Entry	Action	Display
17.	ABC Co.	Enter *ABC Co.* as station name	Stn 250: ABC Co.
18.	✓	Confirm station name	Stn 250: ABC Co.
19.	F8	Return to main menu	System administration
20.	16	Initiate selection of *Incoming calls*	Incoming calls
21.	18	Initiate selection of *Call FWD - no ans*	Call FWD - no ans
22.	1	Initiate selection of *Destination list 1*	List 1, Dest. 1: called
23.	+	Select *Next*	List 1, Dest. 2: -
24.	*	Select *Change*	List 1, Dest. 2:
25.	200	Select station 200	List 1, Dest. 2: 200
26.	✓	Confirm station 200	List 1, Dest. 2: 200
27.	F7	Return to: Call FWD - no ans	Call FWD - no ans
28.	3	Initiate selection of *Ext call, day*	List for stn 200: 30
29.	#	Initiate *Select station no.*	List for stn
30.	250	Select station 250	List for stn 250
31.	✓	Confirm station 250	List for stn 250: 30
32.	*	Select *Change*	List for stn 250:
33.	1	Select destination list 1	List for stn 250: 1
34.	✓	Confirm destination list 1	List for stn 250: 1
35.	F8 F7	Exit system administration	Time and date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Configure station type: Options -> Set up station-> Param -> Type
2.	Enter name: Options -> Set up station -> Station
3.	Enter destination: Options -> Incoming calls -> Call destination lists Options -> Incoming calls -> Assignment int./ext. calls

8.5 Busy Signal for Call Waiting Parties on the AC When B Channels Are Still Available (Call Waiting Rejection)

Introduction

You can configure the attendant console (AC) so that a waiting call receives a busy signal even if a B channel is available.

Example

Extension 100 is the attendant console.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	14-16	Activate call waiting rejection	Stn 100: Off
5.	* 1 ✓	Activate call waiting rejection	Stn 100: On
6.	F8 F7	Exit system administration	Time, date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Set up station -> Station -> Param

8.6 Configuring Voice Mail

Introduction

You can configure analog stations as voice mail connections (Memo for Hicom is available for this purpose outside the U.S.). Stations with a mailbox can forward their calls to voice mail.

For U.S. only: For information on configuring the HiPath 3000 for Octel and INTUITY systems, refer to Section B.3.

Example

- Configure analog stations 19 and 20 as voice mail stations
- Make group 31 a linear hunt group
- Assign stations 19 and 20 to this group
- Enter the name *Mail* for group 31

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	14-11	Select *Configure station, station type*	Stn 11:Standard
5.	# 19 ✓	Select *Analog station* and confirm	Stn 19:Standard
6.	* 2 ✓	Change the parameter to voice mail and confirm	Stn 19:Voice mail
7.	# 20 ✓	Select second analog station (20) and confirm	Stn 20:Standard
8.	* 2 ✓	Change the parameter and confirm	Stn 20: Voice mail
9.	F8 16-15-2	Go to *Incoming calls, Hunt/group call. S*elect *Group type* menu option If applicable, select group (# xx)	Grp 31: Group call
10.	* 1 ✓	Change group type and confirm	Grp 31:Linear hunt group

Step	Entry	Action	Display
11.	F7 1	Return to *Hunt/group call*. Select *Group* menu If applicable, select group (# xx)	Grp 31 Dest. 1:-
12.	* 19 ✓	Enter destination 1 and confirm	Grp 31 Dest. 1:19
13.	+ ✓	Go to destination 2 and confirm	Grp 31 Dest. 2:-
14.	* 20 ✓	Enter destination 2 and confirm	Grp 31 Dest. 2:20
15.	F7 3	Return to *Hunt/group call* menu. Select *Group name* menu option, select group(# xx)	Grp 31:-
16.	* Mail ✓	Enter name of group and confirm	Grp 31:Mail
17.	F8 F7	Exit system administration	Time, date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Set up station -> Station -> Param -> Type
2.	Options -> Incoming calls -> Hunt group

8.7 Configuring Toll Restriction per Station

Introduction

For each station, 15 classes of service (toll restriction) are available. The classes of service assign the stations to allowed lists or denied lists.

- 0 = No toll restriction
- 1 = Only incoming calls are permitted
- 2-7 = Only the numbers in allowed lists 1 to 6 can be dialed
- 8-13 = Numbers in denied lists 1 to 6 cannot be dialed
- 14 = Full access, no restrictions

System speed-dialing destinations can be dialed from every COS.

Allowed Number List:

- One allowed list (Allowed 1) with 100 entries
- 5 additional allowed lists (Allowed 2 to 6), each with 10 entries 25 digits long

Class of service 2 assigns Allowed list 1, class of service 3 assigns Allowed list 2. This pattern repeats itself up to COS 7 and Allowed list 6.

Denied Number List:

- One long denied list (Denied 1) with 50 entries 25 digits long
- Five additional denied lists (Denied 2 to 6), each with 10 entries 25 digits long

If users select COS 8, the system assigns Denied list 1. If users select COS 9, the system assigns Denied list 2. This pattern repeats itself up to COS 13 and Denied list 6.

Example

Assign station 250 class of service 2. During the day, this station can access only the emergency numbers (110 and 112) on trunks 1 and 2.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	15-1	Restriction, day	Stn 200, Trk 1: Full
5.	# 250 ✓	Select station 250 and confirm	Stn 250: like stn 200
6.	* 2 ✓	Select *Enter new data* and confirm	Stn 250, Trk 1:
7.	2 ✓	Select allowed list 1 for trunk group 1 and confirm	Stn 250, Trk 1: A-L 1
8.	+ * 2 ✓	Select allowed list 1 for trunk group 2 and confirm	Stn 250, Trk 1: A-L 1
9.	F7	Return to *Toll restriction*	Toll restriction
10.	3-1	Select allowed list 1	Pos 1: -
11.	* 110 ✓	Enter station number 110 and confirm	Pos 1: 110
12.	+ * 112 ✓	Enter station number 112 and confirm	Pos 2: 112
13.	F8 F7	Exit system administration	Time, date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Classes of service -> Station
2.	Options -> Classes of service -> Allowed/Denied numbers

8.8 Configuring a Fax Machine

Introduction

To attach a fax machine and program an incoming fax message, you must first configure a station type as *fax*.

Example

- Analog fax machine with station number 124
- Display fax messages on station 102 (optiset E standard) by pressing a key

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	14-11	Configure station type	Stn 100: Standard
5.	# 124 ✓	Select station number 124	Stn 124: Standard
6.	* 1 ✓	Select *Fax* as the station type	Stn 124: Fax
7.	F8 F7	Exit system administration	Time, date

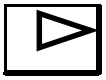
Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Set up station -> Station -> Param -> Type

Example

Configure the info key on station 102

Step	Entry	Action	Display
1.	*91	Program the key	Please select key
2.		Select the key you wish to program	Nothing saved Change key?
3.	✓	Confirm the key change	Select feature: Station No.:

Step	Entry	Action	Display
4.		Press the *Scroll* key until *Message for fax.answ.?* appears on the display	Select feature: Message for fax/answ.?
5.	✓	Confirm your selection	Message from:
6.	124 ✓	Enter the fax number	Saved End?
7.	✓	Exit key programming	Date, time

8.9 Configuring an ISDN System Interface (Not for U.S.)

Introduction

The system number must be entered **without prefix** and **without attendant code**. DID is not possible without a system station number. The system station number must be entered for each trunk group.

Example

- Country: 49
- Prefix: 02302
- System station number: 4711-0

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	20-2	Select the system number	System stn number
5.	1	Select the port number	TG 1: -
6.	* 4711 ✓	Enter the port number	TG 1: 4711
7.	F2	Go to: National number	TG 1: -
8.	* 2302 ✓	Enter the national number	TG 1: 2302
9.	F2	Go to: International number	TG 1:
10.	* 49 ✓	Enter the international number	TG 1: 49
11.	F8 F7	Exit system administration	Time, date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Lines/networking -> Routes

8.10 Configuring PRI Trunks (HiPath 3750, HiPath 3550, HiPath 3700 and HiPath 3500) (for U.S. Only)

Introduction

Configuring an ISDN PRI trunk requires that customers specify the protocol type and the type of trunk group calling service supported by the ISDN provider. The HiPath 3000 also supports call-by-call service selection as the trunk group calling service (refer to Section 7.17.2).

For a complete description on configuring PRI, refer to Section B.1, Configuring a Primary Rate Interface (PRI) ISDN

8.10.1 Ordering PRI

You should be prepared to tell the PRI provider what the customer has ordered for the following parameters:

- Type of span: superframe (SF) or extended superframe (ESF)
- Zero code suppression (ZCS). The two methods are alternate mark inversion (AMI, which is simply referred to as ZCS in the HiPath 3000) and binary eight zero substitution (B8ZS).
- Facility-associated signaling (FAS). (The HiPath 3000 does not support non-facility-associated signaling or NFAS).
- No D-channel backup (not supported by the HiPath 3000)
- Clear 64 kbps channels or restricted (56 kbps)
- Echo canceling or suppression

Data support: Customers who want PRI ISDN for voice and data should order:

- ESF
- B8ZS
- No echo canceling

Voice support: Customers who want PRI ISDN for voice only should order:

- SF
- AMI (ZCS)
- Echo canceling

Refer to Section B.1, Configuring a Primary Rate Interface (PRI) ISDN for examples of configuring a primary rate interface and refer to Section 7.16.1 for an overview of PRI parameters.

For specific ISDN parameters, you may need to contact the PRI ISDN provider.

Related Topics:

- Section 7.16, U.S. ISDN (for U.S. Only), on page 7-543
- Section B.1, Configuring a Primary Rate Interface (PRI) ISDN

8.10.2 Terms for Ordering and Provisioning PRI (for U.S. Only)

The following terms are used by customer premise equipment (CPE) vendors and exchange carriers for the ordering and provisioning of ISDN primary rate interface.

B-Channel Allocation Mode: The method the system uses to find an available B channel when needed (high-high or low-low). High-high mode begins searching at the highest-numbered B channel of the highest-numbered T1 span in the PRI trunk group and continues in descending order. Low-low begins searching at the lowest-numbered B channel of the lowest-numbered T1 span in the PRI trunk group and continues in ascending order. The mode in the system must be the opposite of that used by the CO to avoid collisions when both the CO and the HiPath 3000 are trying to seize a B channel.

Bit Error Rate Test (BERT): This is a test performed by a technician using an ISDN test set to determine line quality. The test process creates a loop to send and receive blocks of data and calculate discrepancies. With this test, the technician can isolate static and dropped calls caused by bad central office equipment and faulty outside plant cables.

Bonding: This is the process of combining B-channel bandwidths to increase data transfer capabilities; for example, bonding B1 (64kbps) with B2 (64kbps) would equal 128kbps.

Call-by-call service selection (CBC): Configuration parameter that allows the customer to assign different services to different channels within a trunk group (refer to Section 7.17.2).

CBC-pool: A group of facility provider offerings (such as INWATS or OUTWATS) that can be assigned to channels in a trunk group.

CBC-position: A channel that has access to a CBC-pool.

Data Format: Data can be transmitted using normal high-level data link control (HDLC) or inverted HDLC. The data format is determined by the emulation type.

Emulation Type: The frame protocol used between the system and the ISDN facility provider: Super Frame (SF) or Extended Super Frame (ESF). The data format for SF emulation is inverted high-level data link control (HDLC); the data format for ESF is normal HDLC.

Frame/Line/Encoding: Parameter used to select the emulation type, zero-code suppression, and data format in the HiPath 3000. Normal encoding is associated with ESF emulation and B8ZS zero code suppression; inverted encoding is associated with SF emulation and AMI (ZCS) zero code suppression.

Integrated Services Digital Network (ISDN): This is the digital replacement for analog, plain old telephone service (POTS). Integrated services means that all communication types (voice, data, and video) use the same type of subscriber line. ISDN is the key ingredient in the HiPath 3000 architecture. ISDN is popular because of its data capabilities but is also rich with telephony features never before available on analog subscriber lines. The direct inward dialing (DID) capability is a popular HiPath 3000 ISDN feature.

Inter-Exchange Carrier (IEC): Provider of communications channels between local facility providers. Long-distance companies are an example.

Local Exchange Carrier (LEC): Provider of communications channels between local destinations or between local destinations and inter-exchange carriers. Local telephone companies are an example.

National ISDN-2 (NI-2): This is an expanded U.S. ISDN standard that offers additional features over NI-1 (defined on page page 8-25). The HiPath 3000 supports NI-2 on PRI trunks.

Protocol Type: The interface between the HiPath 3000 and the PRI provider. Protocols are different for local exchange carriers (LECs) and for inter-exchange carriers (IECs). Customers can choose a different carrier and protocol for each PRI span. The HiPath 3000 systems support seven commonly used LEC protocols and seven commonly used IEC protocols. Table 7-13 and Table 7-14 list the protocols available for each slot.

Trunk Group Calling Service: Type of service that the customer orders for each trunk group, such as INWATS, OUTWATS, or 800 service. The HiPath 3000 systems support 36 types of trunk group service, including call-by-call selection.

8.11 Configuring BRI Trunks (HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300) (for U.S. Only)

Introduction

Depending on the central office (CO) protocol selected, you will need to enter some or all the following information for BRI setup:

- CO protocol
- Service profile identifier (SPID) administration
- Call appearance identification (CAID) administration (also known as CACH)
- Phantom direct inward dialing identification (PDID) administration
- Feature identification number (FIN) for message waiting

Ordering BRI

The local exchange carrier groups involved with the provisioning of ISDN BRI are sometimes referred to under the following categories:

- Marketing—takes the request orders (first point of contact)
- Service Orders—creates the ISDN order
- NAC (Network Administration Center) or Line Assignment—assigns the directory numbers
- RCMAC (Recent Change Memory Administration Center)—inputs orders into the central office switch
- Tester—provides testing and trouble shooting of BRI subscriber lines

Related Topic:

- Section 7.16, U.S. ISDN (for U.S. Only), on page 7-543

8.11.1 Terms for Ordering and Provisioning BRI (for U.S. Only)

The following terms are used by customer premise equipment (CPE) vendors and exchange carriers for the ordering and provisioning of ISDN basic rate interface.

Alternate Circuit-Switched Voice/Circuit-Switched Data (CSV/CSD): This is a basic BRI feature that determines if a B channel supports voice, data, or voice and data. Most HiPath 3000 installations will be provisioned to support both voice and data.

Electronic Key Telephone System (EKTS): A central office (CO) setting that allows ISDN device to use traditional telephony features such as multiple calls to a device, transfer, conference, call hold, and extra directory numbers (DNs).

Basic Rate Interface (BRI): An ISDN subscriber line that supports three simultaneous channels (voice/data paths). The two, 64 kbps *bearer* or *B* channels are managed by an in-band signaling path (D channel). The D channel provides communications between the central office equipment and the HiPath 3000 for setting up, routing, and tearing down each call. A BRI is also commonly referred to as 2B+D or 2B+1Q.

Bit Error Rate Test (BERT): This is a test performed by a technician using an ISDN test set to determine line quality. The test process creates a loop to send and receive blocks of data and calculate discrepancies. With this test, the technician can isolate static and dropped calls caused by bad central office equipment and faulty outside plant cables.

Bonding: This is the process of combining B-channel bandwidths to increase data transfer capabilities; for example, bonding B1(64kbps) with B2(64kbps) would equal 128kbps.

Call Appearance Call Handling (CACH) EKTS: This term is specific to Lucent 5ESS and Siemens EWSD central office switches. The CACH setting allows the sharing of DNs across multiple channels and circuits. The number of shared call appearances determines how many concurrent calls to a specific directory number can be handled. For example, if a directory number has three call appearances, shared across three channels, then that number can be called three times before getting a busy signal. Refer to Table 8-1 for an illustration of how CACH is used across each B channel in a system. CACH is one of the methods used to have BRI emulate an analog hunt. Although there is a CACH setting in the NT DMS, it does not react the same; the CACH setting in the DMS does not allow the sharing of DNs.

Capability Package or Ordering Code: This BRI feature package simplifies the ordering process and is designed to meet the requirements of CPE vendor's products. The traditional method for establishing capability packages has been established by Bellcore, but today many exchange carriers are creating their own. Three capability packages created for the HiPath 3350 9116 were H3, H4, and H5, but these packages were not widely understood by the exchange carriers and, in most cases, did not suit customer requirements.

Cause Codes: This refers to decimal and hex values that show cause and explanation for an action on an ISDN D channel. Refer to the BRI troubleshooting guide for a complete listing of these codes and definitions. Example: Cause Code 16 = Normal call clearing.

Directory Number (DN): The main difference between the DN on BRI and the DN on analog is that the DN on BRI can appear on multiple B channels unlike the DN on analog, which can only be assigned exclusively to a single subscriber line.

Integrated Services Digital Network (ISDN): This is the digital replacement for analog, plain old telephone service (POTS). Integrated services means that all communication types (voice, data, and video) use the same type of subscriber line. ISDN is the key ingredient in the HiPath 3000 architecture. ISDN is popular because of its data capabilities but is also rich with telephony features never before available on analog subscriber lines. The direct inward dialing (DID) capability is a popular HiPath 3000 ISDN feature.

ISDN Multiline Hunt Group (MLHG-I): Different DNs can be placed in a hunt group to provide management of incoming traffic.

Key Map or Key Sheet: The key map is a table of key definitions for BRI lines connected to the HiPath 3000. BRI electronic key service allows users to define up to 64 keys (buttons) on each B channel. These keys can be defined as directory numbers, call appearances, or features. The use of keys was developed to use with individual ISDN voice terminals such as the Siemens NI-1200. For an example of an AT&T 5ESS and EWSD key map refer to Table 8-1. For an example of a DMS 100 key map refer to Table 8-2.

Key Short Hunt (KSH) (DMS 100 Switch Feature): This term is specific to Nortel DMS central office switches. Extra DNs can be assigned to keys on a B channel and associated with a PDN. The PDN, which is always on key 1 in the DMS, can then hunt to the extra DNs on the other keys, creating a hunt group. Once all the DNs are shared across multiple channels, the PDN can accept multiple calls. The number of PDNs, combined with the number of channels they are shared across, determines how many concurrent calls a PDN can handle. The key short hunt is the equivalent of CACH on the 5ESS. A key short hunt can only be assigned to a PDN.

> **KSH Example:** If a PDN has two extra DNs in the KSH group and all three numbers are shared across three B channels, users can then dial the PDN three times before getting a busy signal. That is, PDN + extra DN#1 + extra DN#2 = 3 concurrent call maximum. For more information refer to Table 8-2.

Local Loop: This refers to the physical, single-copper pair connection between the local exchange carrier and the customer's premises. BRI subscriber lines cannot exceed 18,000 feet without the use of repeaters. Depending on the exchange carrier, this limit could impact the decision to order BRI. Some exchange carriers charge fees up to $1,500 per BRI for the repeater, while other exchange carriers include it, if necessary, at no additional cost.

Loop Qualification: This is the process of determining if the local exchange carrier has the proper facilities to deliver BRI. A proper BRI facility must include an 18,000-foot cable, a digital CO switch, and a test of the integrity of the copper pair.

Multiple Appearances Directory Number (MADN) (DMS 100 Switch Feature): This feature allows a directory number to appear on more than one B channel (terminal). The combination of KSH and MADN creates the functional equivalent of 5ESS CACH. The combination of KSH and MADN is a method used to have BRI emulate an analog hunt in a DMS. The HiPath 3000 require that all DNs (primary and secondary) be shared across all B channels. Therefore, all DNs are MADN numbers, and all B channels are included in the MADN group.

National ISDN-1 (NI-1): This is the standard specification for an ISDN telephone. This specification is based on technical references specified by Bellcore that began the national ISDN infrastructure. Other National ISDN standards, NI-2 and NI-3, will simplify and expand the ISDN feature set.

Network Termination 1 (NT-1): The physical interface located at the customer's premises, which connects CPE to the ISDN subscriber line. The HiPath 3000 has an NT-1 built into every BRI trunk port.

Primary Inter-Exchange Carrier (PIC): This refers to the long-distance carrier responsible for routing any call to a directory number that is proceeded by a one.

PIC Code: All inter-exchange carriers (long distance) have an associated PIC code that is assigned to a directory number, which provides long-distance service exclusively for that directory number or call appearance. Every DN and its associated call appearances needs to be assigned a PIC code on every channel.

> **PIC Code Example:** A directory number like 516-555-1212 is assigned by the CO a PIC code of 288 (AT&T).

Primary Directory Number (PDN): This is the 10-digit telephone number within the SPID that is physically assigned to each B channel of an ISDN circuit. The PDN must be assigned to devices using central office features such as voice mail message waiting indicators, CO-based telephony features, and ISDN terminals that are connected to the HiPath 3000 S_0-bus.

Recent Change Memory Administration Center (RCMAC): The RCMAC acronym is used by some local exchange carriers to describe the group that implements ISDN orders.

Repeater: A device connected to the outside plant cable span to provide ISDN service to customers beyond the 18,000 foot central office distance limit. This device cleans and regenerates the digital signal, and it ensures a signal loss of less than 42dB.

Secondary Directory Number (SDN): These numbers are additional directory numbers (DNs) ordered for an ISDN circuit. An SDN is a software only number, which is located in association to a PDN in the CO. SDN is used when assigning DID to an optiset E telephone or other analog device. HiPath 3000 ISDN terminals and CO message waiting indicators are not supported over an SDN.

Service Profile Identifier (SPID): An 8- to 12-digit number that uniquely identifies a B channel. Each BRI is assigned two SPIDS. For example, B1: 84780634710101 and B2: 84700633790101. SPID formats vary, depending on the local exchange carrier. Users should check with the local exchange carrier for the SPID format that the telephone service provider uses.

Sharing: This general term refers to a DN that appears across multiple channels. This is accomplished by CACH on 5ESS and by MADN on DMS. All PDNs and SDNs must be shared across all B channels when provisioning ISDN circuits for the HiPath 3000.

S/T Interface: Two pair interface located on the CPE side of the NT-1. It is used to connect multiple devices to a single ISDN BRI subscriber line. Terminating resistors might be required for certain installations.

SYNC: This term is used to describe when a communication link over the D channel between the CO and the NT-1 is active. In addition, it also describes a communication link between the NT-1 and the terminal equipment.

> **SYNC Example:** NT-1 has a U SYNC with the serving CO, and an S/T device has an S SYNC with the NT-1 that is providing the S/T interface.

Terminal Equipment Type 1 (TE1): This equipment type refers to any device that is ISDN ready (U interface).

Terminal Equipment Type 2 (TE2): This equipment type refers to non-ISDN ready devices that require terminal adaptors (terminal equipment type 1) to operate with ISDN (S/T devices, analog telephones, or serial ports on personal computers).

Terminal Adaptor (TA): This adaptor type connects non-ISDN ready devices to a digital network (ISDN). An NT-1 can be referred to as a TA.

Terminal Endpoint Identifier (TEI): Since up to eight devices can be connected to a single ISDN BRI subscriber line, the TEI is needed to identify in the D-channel signaling which of the eight devices is connected to the CO.

Terminal Identifier (TID): The TID is used for all National-1 ISDN services, and it is the last two digits (ranging from 00–62) following the SPID. The HiPath 3000 use a universal TID, so the CO switch accepts any user-defined TID. Because each B channel needs a unique TID, the numbers in the HiPath 3000 are varied.

> **TID Example (the TID is the last two digits):**
>
> - 847734197001-**00**

- 847734197001-**01**

Terminal Type C (5ESS Switch Feature): This is the requested terminal type for voice capability features for the HiPath 3000. There are five terminal types.

A—is used for stand-alone ISDN voice and data terminals connected directly to a BRI line, such as the Siemens NI-1200 or a PC card.

C—is used for all HiPath 3000 installations and includes voice features such as CACH.

U Interface: This refers to the one pair distributed by the CO and is the interface between the CO and the CPE (NT-1).

8.11.2 Examples for Configuring BRI Trunks (for U.S. Only)

Sample 5ESS & EWSD Key Sheet

A sample key sheet is provided to assist users in configuring their BRI parameters. The actual values must be obtained from the BRI ISDN provider. This table represents a virtual button map in the CO

Table 8-1 Sample 5ESS & EWSD Key Sheet (for U.S. Only)

	BRI 1		BRI 2		BRI 3	
Key	**B1**	**B2**	**B1**	**B2**	**B1**	**B2**
1	734-1970*	734-1970	734-1970	734-1970	734-1970	734-1970
2	734-1970	734-1970	734-1970	734-1970	734-1970	734-1970
3	734-1970	734-1970	734-1970	734-1970	734-1970	734-1970
4	734-1970	734-1970	734-1970	734-1970	734-1970	734-1970
6	734-1971**	734-1971	734-1971	734-1971	734-1971	734-1971
7	734-1971	734-1971	734-1971	734-1971	734-1971	734-1971
11	734-1972	734-1972	734-1972†	734-1972	734-1972	734-1972
12	734-1972	734-1972	734-1972	734-1972	734-1972	734-1972
16	734-1973	734-1973	734-1973†	734-1973	734-1973	734-1973
17	734-1973	734-1973	734-1973	734-1973	734-1973	734-1973
21	734-1974	734-1974	734-1974	734-1974	734-1974††	734-1974
23	734-1975	734-1975	734-1975	734-1975	734-1975††	734-1975

Table Key:

* The CAID or CACH value corresponds to the key; for example, keys 1–4 have CAID or CACH values associated with the number 734-1970. The amount of CAID or CACH values per number equals the amount of calls a number can make or receive.

** In this example, PDN 1 BRI 1 is associated with the primary directory number (PDN) 734-1970 with a corresponding SPID number of 84773419700100. PDN 2 BRI 1 corresponds to the PDN 734-1971 with a corresponding SPID number of 84773419710101.

†† In this example, PDN 1 BRI 2 is associated with the PDN 734-1973 with a corresponding SPID number of 84773419720100. PDN 2 BRI 2 corresponds to the PDN 734-1973 with a corresponding SPID number of 84773419730101.

†† In this example, PDN 1 BRI 3 is associated with the PDN 734-1974 with a corresponding SPID number of 84773419740100. PDN 2 BRI 3 corresponds with the PDN 734-1975 with a corresponding SPID number of 84773419750101.

Example: AT&T 5ESS CO protocol

Using Assistant T and referring to Table 8-1, this example illustrates how to select the CO protocol.

Step	Entry	Action	Display
1.	***95**	Start system administration.	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	20 5 1	Select *ISDN parameters*, *US parameters, and BRI parameters.*	BRI parameters
5.	11	Select CO/*protocol*.	Protocol: -
6.	* 1 ✓	Enter (change) CO protocol AT&T 5ESS and confirm.	Slot 2: AT&T 5ESS
7.	F8 F7	Exit system administration.	Time, Date

Example: SPID Administration

Using Assistant T and referring to Table 8-1, this example illustrates how to enter SPID numbers for stations 11–14.

Step	Entry	Action	Display
1.	***95**	Start system administration.	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	20 5 1	Select *ISDN parameters*, *US parameters, and BRI parameters.*	BRI parameters
5.	2	Select SPID Administration.	SPID Administration

6.	* ✓	Change SPID to 84773419700100 for station 11 and confirm.	Stn 11, Sl/Po 0401: 84773419700100
7.	# ✓	Select station 12 and confirm.	Stn 12, Sl/Po 0401:
8.	* ✓	Change SPID to 84773419710101 for station 12 and confirm.	Stn 12, Sl/Po 0401: 84773419710101
9.	# ✓	Select station 13 and confirm.	Stn 13, Sl/Po 0401:
10.	F1	Enter slot and port 0402 for station 13.	Stn 13, Sl/Po 0402:
11.	* ✓	Change SPID to 84773419720100 for station 13 and confirm.	Stn 13, Sl/Po 0402: 84773419720100
12.	# ✓	Select station 14 and confirm.	Stn 14, Sl/Po 0402:
13.	* ✓	Change SPID to 84773419730101 for station 14 and confirm.	Stn 14, Sl/Po 0402: 84773419730101
14.	# ✓	Select station 15 and confirm.	Stn 15, Sl/Po 0402:
15.	F1	Enter slot and port; for example, 0403 for station 15.	Stn 15, Sl/Po 0403:
16.	* ✓	Change SPID to 84773419740100 for station 15 and confirm.	Stn 14, Sl/Po 0403: 84773419740100
17.	# ✓	Select station 16 and confirm.	Stn 16, Sl/Po 0401:
18.	F1	Enter slot and port; for example, 0403 for station 16.	Stn 16, Sl/Po 0403:
19.	* ✓	Change SPID to 84773419750101 for station 15 and confirm.	Stn 16, Sl/Po 0403: 84773419750101
20.	F8 F7	Exit system administration.	Time, Date

Example: CAID or CACH Administration

For V1.2 and later, CACH values will be automatically retrieved from the central office if the newly defined system wide flag *Automatic BRI Configuration* is set. The automatic process begins immediately after successfully SPID negotiation. The CAID values retreived from the central office will be placed in the CAID table in ascending order. Manual assignment of the CAID values to the stations is still required before they can be used by the system. The only difference is that the CACH values are taken from the CAID table instead of from a list supplied by the central office. Note, the *Automatic BRI Configuration* flag is automatically reset after the automatic BRI process has successfully completed.

Using Assistant T and referring to Table 8-1, this example illustrates how to enter the CAID values for stations 11 and 12.

Step	Entry	Action	Display
1.	***95**	Start system administration.	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	20 5 1	Select *ISDN parameters*, *US parameters, and BRI parameters.*	BRI parameters
5.	3	Select CAID parameters	CAID parameters
6.	* 1 ✓	Change CAID number for station 11 and save. (Enter any other CAID values associated with station 11)	Stn 11, CAID 1: 1
7.	* 2 ✓	Change CAID number for station 12 and save. (Enter any other CAID values associated with station 12)	Stn 11, CAID 2: 2
8.	F8 F7	Exit system administration.	Time, Date

Sample DMSS 100 Key Sheet

Table 8-2 Sample DMSS 100 Key Sheet (for U.S. Only)

BRI 1			BRI 2		BRI 3	
Key	**B1**	**B2**	**B1**	**B2**	**B1**	**B2**
1	956-0051*	956-0214††	956-0450*	956-0453***	956-0563*	956-0590**
2	956-9740**	956-9792†††	956-9513**	956-1867†		
3	956-9790***					
4	956-9859†					
6	956-0214	956-0051	956-0453	956-0450	956-0590	956-0563
7	956-9792	956-9740	956-1867	956-9513		
8		956-9790				
9		956-9859				
11	956-0450	956-0450	956-0051	956-0051	956-0051	956-0051
12	956-9513	956-9513	956-9740	956-9740	956-9740	956-9740
13			956-9790	956-9790	956-9790	956-9790
14			956-9859	956-9859	956-9859	956-9859
16	956-0453	956-0453	956-0214	956-0214	956-0214	956-0214
17	956-1867	956-1867	956-9792	956-9792	956-9792	956-9792
21					956-0450	956-0450
22					956-9513	956-9513
BRI 1 SPIDS 84795600510100 84795602140101			BRI 2 SPIDS 84795604500100 84795604530101		BRI 3 SPIDS 84795605630100 84795605900101	

* PDN on BRI 1 B1; key 1, 2, 3, 4 = KSH
** PDID1 or DN 1 BRI 1
*** PDID 2 or DN 2 BRI 1
† PDID 3 or DN 3 BRI 1
†† PDN on BRI 2 B2; key 1, 2 = KSH
††† PDID 1 or DN 1 on BRI 1

* PDN on BRI 2 B1; key 1, 2 = KSH
** PDID 1 or DN 1 on BRI 2 B2; key 1,2 = KSH
*** PDN on BRI 2 B2
† PDID 1 on BRI 2

* PDN on BRI 3 B1
** PDN 1 on BRI 3 B2

Example: DMSS 100 Protocol

Using Assistant T and referring to the Table 8-2, this example illustrates how to select the CO protocol.

Step	Entry	Action	Display
1.	***95**	Start system administration.	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	20 5 1	Select *ISDN parameters*, *US parameters, and BRI parameters.*	BRI parameters
5.	11	Select CO/*protocol*.	Protocol: -
6.	* 1 ✓	Enter (change) CO protocol NT/NI-1 and confirm.	Slot 2: AT&T 5ESS
7.	F8 F7	Exit system administration.	Time, Date

Example: SPID Administration

Using Assistant T and referring to Table 8-2, this example illustrates how to enter SPID numbers for stations 11–14.

Step	Entry	Action	Display
1.	***95**	Start system administration.	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	20 5 1	Select *ISDN parameters*, *US parameters, and BRI parameters.*	BRI parameters
5.	2	Select SPID Administration.	SPID Administration
6.	* ✓	Change SPID to 84795600510100 for station 11 and confirm.	Stn 11, Sl/Po 0401: 84795600510100
7.	# ✓	Select station 12 and confirm.	Stn 12, Sl/Po 0401:
8.	* ✓	Change SPID to 84795602140101 for station 12 and confirm.	Stn 12, Sl/Po 0401: 84795602140101
9.	# ✓	Select station 13 and confirm.	Stn 13, Sl/Po 0401:
10.	F1	Enter slot and port 0402 for station 13.	Stn 13, Sl/Po 0402:
11.	* ✓	Change SPID to 84795604500100 for station 13 and confirm.	Stn 13, Sl/Po 0402: 84795604500100

12.	# ✓	Select station 14 and confirm.	Stn 14, Sl/Po 0402:
13.	* ✓	Change SPID to 84795604530101 for station 14 and confirm.	Stn 14, Sl/Po 0402: 84795604530101
14.	# ✓	Select station 15 and confirm.	Stn 15, Sl/Po 0402:
15.	F1	Enter slot and port; for example, 0403 for station 15.	Stn 15, Sl/Po 0403:
16.	* ✓	Change SPID to 84795605630100 for station 15 and confirm.	Stn 14, Sl/Po 0403: 84795605630100
17.	# ✓	Select station 16 and confirm.	Stn 16, Sl/Po 0401:
18.	F1	Enter slot and port; for example, 0403 for station 16.	Stn 16, Sl/Po 0403:
19.	* ✓	Change SPID to 84795605900101 for station 15 and confirm.	Stn 16, Sl/Po 0403: 84795605900101
20.	F8 F7	Exit system administration.	Time, Date

Example: PDID Administration

Using Assistant T and referring to Table 8-2, this example illustrates how to enter PDID parameters for station 11.

Step	Entry	Action	Display
1.	***95**	Start system administration.	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	20 5 1	Select *ISDN parameters*, *US parameters, and BRI parameters.*	BRI parameters
5.	4	Select PDID Administration.	PDID Administration
6.	* ✓	Change PDID 1 to 956-0051 for station 11 and confirm.	Stn 11, PDID 1: 734-1970
7.	# ✓	Select next PDID for station 11.	Stn 11, PDID 2:
8.	* ✓	Change PDID to 956-9740 and save. (Enter any other PDID values associated with station 11 by selecting the next PDID and entering the number).	Stn 11, PDID 2: 734-1991
9.	F8 F7	Exit system administration.	Time, Date

8.12 Configuring an ISDN Multi-Device Connection with MSN Assignment (Not for U.S.)

Introduction

For multi-device connections, **do not** enter a **system number**.

You must enter a **station number or MSN (without prefix)** as a **DID number** for the station.

The default numbering plan in the system is from station 100 to 749.
If one of the multiple subscriber numbers (MSNs) assigned to the customer by the telecommunications carrier begins with 100-749, there will be a conflict with 1611 *DID numbers* when you enter the MSN in the *DID numbers* table.

Example

- Station number 316475 = DID no. 316475 for stn. 200 (telephone)
- Station number 316474 = DID no. 316476 for stn. 300 (fax)
- Station number 316477 = DID no. 316477 for stn. 749 (ISDN card)

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	16-11	Select DID numbers	Dest. 200: 200
5.	# 316 ✓	Select station number 316	Dest. 316: 316
6.	* ✓	Delete DID number 316	Dest. 316: -
7.	# 200 ✓	Select DID number 200	Dest. 200: 200
8.	* 316475 ✓	Enter DID number 316475	Dest. 200: 316475
9.	# 300 ✓	Select DID number 300	Dest. 300: 300
10.	* 316476 ✓	Enter DID number 316476	Dest. 300: 316476
11.	# 749 ✓	Select DID number 749	Dest. 749: 749
12.	* 316477 ✓	Enter DID number 316477	Dest. 749: 316477
13.	F8 F7	Exit system administration	Time, date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Set up station -> Station (DID)

8.13 Configuring an ISDN Multi-Device Connection With Multiple Subscriber Numbers (for U.S. Only)

Introduction

An ISDN multi-device connection enables users to connect multiple ISDN terminals (such as Internet or ISDN video products) on a single ISDN S_0 bus.

An S_0 bus from an STLS4 or STMD8 port on the system supports a maximum of eight ISDN terminals; an S_0 bus from an optiset E ISDN adapter supports a maximum of two ISDN terminals. The devices share the two 64-Kbps B channels. You must assign each ISDN terminal a multiple subscriber number (MSN) to identify it to the system. ISDN terminals that use 128 Kbps of bandwidth must be assigned two MSNs.

The MSN must be seven digits long. You enter it in the direct inward dialing (DID) field. The ISDN terminal uses the MSN in the DID field as a service profile identifier (SPID) for setting up the communications protocol. You can assign an MSN to any port not associated with a physical station port (Type = No Port), or to the S_0 adapter port assigned by the system.

SPIDs associated with the basic rate links can be assigned to any active station device.

For calls to the public network using basic rate trunks, the primary directory number (PDN) for the associated link must be entered in the DID field as the MSN.

During call setup, the ISDN terminal sends the SPIDs to the HiPath 3000 system. The system checks the SPIDs against the MSNs in the DID field, beginning with the rightmost digit.

Call numbers must also be assigned to the ISDN terminals for internal applications. The call numbers must include the rightmost digits of the MSN. For example, if the MSN is 6531600, the internal call number can be 531600, 31600, 1600, or 600. The station numbering scheme in the HiPath 3750, HiPath 3550, HiPath 3700 and HiPath 3500 systems is from 100 to 749; the station numbering scheme in the HiPath 3350 and HiPath 3300 system is from 11 to 69.

The station numbering scheme in the HiPath 3750, HiPath 3550, HiPath 3700 and HiPath 3500 systems is from 100 to 749. If one of the MSNs assigned to the customer by the local telephone carrier begins with 100 to 749, a collision with 1611 DID numbers results when the MSN is entered in the *DID numbers* table. Refer to Section 7.15.2, Multiple Subscriber Number (MSN), on page 7-513 for other dependencies and limitations.

Example

Using HiPath 3000 Manager E, this example assumes the following conditions:

- The customer would like to connect a video conference unit requiring 128 Kbps of bandwidth to an optiset E ISDN adapter.
- The system has working BRI links for voice and data calls (CSV and CSD: circuit-switched voice and circuit-switched data).
- The SPIDs for the ISDN links are 016531600000 and 016531762001. They have already been entered in the system (refer to Section 8.11).
- The primary directory numbers (PDNs) for the links are 6531600 and 6531762.
- PDN 6531600 has call appearance ID (CAID) values 1 and 2.
- PDN 6531762 has CAID values 3 and 4.
- The MSN for PDN 6531600 is 6531600; the call number is 531600.
- The MSN for PDN 6531762 is 6531762; the call number is 531762.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Set up station -> Station -> Assign MSN 6531600 to S_0 adapter port.
2.	Options -> Set up station -> Station -> Assign MSN 6531762 to an un-assigned port (Type = No Port).
3.	Options -> Set up station -> Station -> Assign call number 531600 to the S_0 adapter port used for the MSN.
4.	Options -> Set up station -> Station -> Assign call number 531762 to the unassigned port used for the MSN.
5.	Options -> Set up station -> Station -> Assign station name to the S_0 adapter port, such as “Video Stn 531600.”
6.	Options -> Set up station -> Station -> Double-click on Parameters field -> BRI -> Assign CAID value 1 to station 531600
7.	Options -> Set up station -> Station -> Double-click on Parameters field -> BRI -> Assign CAID value 3 to station 531762
8.	Download the changes to the HiPath 3000 system.
9.	Reset the HiPath 3000 system.
10.	Program the protocol type and SPIDs (MSNs) into the video conference unit.

Step	Action
11.	Switch the video conference unit off then on to begin synchronization with the HiPath 3000 system.
12.	Place an audio call from the video conference unit to an internal station.
13.	Place an audio call from an internal station to the video conference unit by dialing 531600.
14.	Place a video call to an external location to test the connection.

Related Topics

- Section 3.3.13, Connecting ISDN Terminals to HiPath 3550 and HiPath 3350, on page 3-142
- Section 3.3.13, Connecting ISDN Terminals to HiPath 3550 and HiPath 3350, on page 3-142
- Section 7.17.10, Multiple Subscriber Number, on page 7-562

8.14 Configuring Call Management With Group Call and Call Forwarding—No Answer

Introduction

Call management allows you to configure group calls with call forwarding—no answer. For this to be possible, you must assign stations to the appropriate group. Assign this group one entry for referring to a specific index in the call forwarding—no answer table for day service, one for night answer, and one for internal traffic. You can also define the sequence for call forwarding—no answer in this table.

Example

During the day service, external calls for station number 450 are first signaled at all stations in group 350 (stations 250, 251, 252); after 4 rings, they are forwarded to station 300.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	16-15-1	Select group	Grp 350, Dest. 1: -
5.	*250 ✓	Enter station 250 and confirm	Grp 350, Dest. 1: 250
6.	+ *251 ✓	Enter station 251 and confirm	Grp 350, Dest. 2: 251
7.	+ *252 ✓	Enter station 252 and confirm	Grp 350, Dest. 3: 252
8.	F7 F7 18	Return to *Incoming calls*. Select *Call FWD - no ans*	Call FWD - no ans
9.	1	Select call *destination list*	List 1, Dest. 1: called
10.	#29 ✓	Select call destination list 29* and confirm	List 29, Dest. 1: called
11.	+ *300 ✓	Enter station 300 as second destination and confirm	List 29, Dest. 2: 300
12.	F7 18-3	Select *Ext. calls, day*	List for stn 200: 30
13.	#450 ✓	Select station number 450 and confirm	List for stn 450: 30
* = Example only			

Step	Entry	Action	Display
14.	*29 ✓	Enter list 29 for station no 450 and confirm	List for stn 450: 29
15.	F7-5	Select number of rings	for list 1: 3
16.	#29 ✓	Select list 29 and confirm	for list 29: 3
17.	*4 ✓	Enter 4 rings and confirm	for list 29: 4
18.	F8-F7	Exit system administration	Time, date
* = Example only			

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Incoming calls -> Hunt group
2.	Options -> Incoming calls -> Assignment int./ext. calls

8.15 Announcement Before Answering (at an Analog Port)

Introduction

Many customers configure an announcement before answering to reduce call traffic at the intercept station. To do so, the customer connects an announcement device that will answer an incoming call and forward it to a specific station.

You can configure this feature in call management.

The subscriber ports to which an announcement device is connected must be configured as answering machines.

Example

- An announcement device is connected to the hunt group with station number 450 (stations 224 and 225).
- Have all external incoming calls first answered by the announcement device.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	16-15-1	Select *Group*	Grp 450, Dest. 1:-
5.	* 224 ✓	Enter station 224 and confirm	Grp 450, Dest. 1: 224
6.	+ * 225 ✓	Enter station 225 and confirm	Grp 450, Dest. 2: 225
7.	F7 2	Select *Group type*	Group 450: Group call
8.	* 2 ✓	Select *Linear hunt group* and confirm	Group 450: lin. hunt
9.	F7 F7 3	Select *Group name*	Grp 450: -
10.	* Group announcement ✓	Enter the group name and confirm	Grp 450: Group announcement
11.	F7 F7 12	Select *Intercept, day*	Dest.: 200
12.	* 450 ✓	Enter station number 450 and confirm	Dest.: 450

Step	Entry	Action	Display
13.	F2 * 450 ✓	Enter station number 450 (Intercept, night) and confirm	Dest.: 450
14.	F8 14-11	Select *Station type*	Stn 200: Standard
15.	# 224 ✓	Select station 224	Stn 224: Standard
16.	* 4 ✓	Enter *Answer machine* as telephone type	Stn 224: Answer machine.
17.	+ * 4 ✓	Enter *Answer machine* as telephone type	Stn 225: Answer machine.
18.	F7 12	Select *Station name*	Stn 200: -
19.	# 224 ✓	Select station 224 and confirm	Stn 224: -
20.	* Announcement ✓	Enter station name and confirm	Stn 224: Announcement/music
21.	+ * Announcement ✓	Enter station name and confirm	Stn 225: Announcement/music
22.	F8-F7	Exit system administration	Time, date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Incoming calls -> Hunt group
2.	Options -> System parameters -> Diversion/attendant
3.	Options -> Set up station -> Station -> Param -> Type

8.16 Assigning Incoming Analog Calls

Introduction

You can assign any destination station to an analog trunk for incoming analog calls during the day or night.

Example

- Assign station 205 as the analog destination station for trunk 17 during the day
- Assign group 450 as the analog destination station during the night

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	16 16	Select *Call alloc. day*	Trk1: 200
5.	#17 ✓	Select trunk and confirm	Trk17: 200
6.	*xxx ✓	Enter station or group number	Trk17: 205
7.	16-17	*Incoming calls, Call alloc. night*	Trk17: 200
8.	*450 ✓	Change to *Group call* and confirm	Trk17: 450
9.	F8-F7	Exit system administration	Time, Date

You can define how incoming calls are handled in call management. For more information, refer to Section 8.14, Configuring Call Management With Group Call and Call Forwarding—No Answer.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Incoming calls -> Ringing assignment per line

8.17 Configuring Fixed Night Answer (Not for U.S.)

Introduction

"Fixed night answer" can be activated using a procedure from the attendant console or from authorized stations. Only calls for the intercept station are routed to a night destination.

Example

- Make station 250 the destination for fixed night answer.
- Give stations 200 and 201 night answer authorization (in the example, 1 x S_0 and 1 x analog).

When night answer is activated, calls via S_0 are routed directly to the night destination; calls via analog trunks are first signaled at the station to which calls are allocated for the day service. Calls for standard DID stations are routed to the night destination after the number of rings in the corresponding index for night answer.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	16-13	Select *Intercept, night*	Dest.: 200
5.	* 300 ✓	Enter station 300	Dest.: 300
6.	F7 17	Select *Call alloc. night*	Trk 1: 200
7.	# 817 ✓	Select trunk 817	Trk 17: 200
8.	* 300 ✓	Enter station 300	Trk 17: 300
9.	+ * 300 ✓	Enter station 300	Trk 18: 300
10.	F8-22-19-1	Select night answer authorization	Pos 1: -
11.	*200 ✓	Enter station 200	Pos 1: 200
12.	+ *200 ✓	Enter station 201	Pos 1: 201
13.	F8-F7	Exit system administration	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> System parameters -> Diversion/attendant
2.	Options -> Incoming calls -> Ringing assignment per line
3.	Options -> Classes of service -> station

8.18 Configuring Fixed Night Answer via Intercept (for U.S. Only)

Introduction

This feature assigns a default destination for all calls that are not answered or forwarded. Users can activate *Fixed night answer* from the attendant console or from authorized stations.

Calls for DID stations are first routed to the station. If they are not answered or forwarded, they are routed to the intercept position if they meet an intercept criterion such as:

- Busy
- Invalid dialing
- Incomplete dialing
- Recall no answer

Example

Using Assistant T, this example

- Assigns station 250 for fixed night answer
- Allows you to assign a night key on stations 200 and 201

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration.	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	16 13	Select *Incoming calls*, *Intercept, night*.	Dest.:
5.	* 300 ✓	Enter station 300 and confirm.	Dest.: 300
6.	F7 17	Return to Incoming calls menu. Select *Call alloc. night*.	Sl/Tr 0401: 200
7.	# 0402 ✓	Select slot/trunk 0402 and confirm.	Sl/Tr 0402: 200
8.	* 300 ✓	Enter station 300 and confirm.	Sl/Tr 0402: 300
9.	+ * 300 ✓	Change to the next trunk, enter station 300, and confirm.	Sl/Tr 0403: 300
10.	F8 22 19 1	Return to Main menu. Choose *System settings*. Select *Authorization, night answer*.	Pos 1: -

Step	Entry	Action	Display
11.	*200 ✓	Enter station 200 and confirm.	Pos 1: 200
12.	+ *200 ✓	Enter station 201 and confirm.	Pos 1: 201
13.	F8 F7	Exit system administration.	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> System parameters -> Diversion /attendant
2.	Options -> Incoming calls -> Ringing assignment per line
3.	Options -> Classes of service -> Station

8.19 Configuring an Intercept Station per Trunk

Introduction

Not for U.S.: In the case of systems with different basic accesses, it may be necessary to configure a separate intercept station for each basic access. This is performed by means of call allocation per trunk.

For U.S. only: This feature programs answering locations for incoming calls on analog trunks.

To configure more than one intercept station, you must cancel the current intercept stations (day and night). Not for U.S.: An undialed trunk cannot be switched.

Example

- Assign trunks 1 and 2 (first S_0 basic access outside of U.S.; analog in U.S.) to station 200
- Assign trunks 3 and 4 (first S_0 basic access outside of U.S.; analog in U.S.) to station 300

Configuring the Feature Using Assistant T (for All Countries)

Step	Entry	Action	Display
1.	***95**	Start system administration.	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	16 12	Select *Incoming calls*, *Intercept, day*.	Dest.: 200
5.	* ✓✓	Delete *Intercept, day* and confirm.	Dest.: -
6.	F2	Select *Intercept, night* and confirm.	Dest.: 200
7.	* ✓✓	Delete *Intercept, night* and confirm.	Dest.: -
8.	F7 16	Return to *Incoming calls*. Select *Call alloc. day*.	SI/Tr 0401: 200
9.	+ +	Use *Next* to select slot/trunk 0403.	SI/Tr 0403: 200
10.	* 300 ✓	Enter station 300 and confirm.	SI/Tr 0403: 300
11.	+ * 300 ✓	Go to the next trunk, enter station 300, and confirm.	SI/Tr 0404: 300
12.	F7 17	Return to *Incoming calls*. Select *Call alloc. night*.	SI/Tr 0401: 200

Step	Entry	Action	Display
13.	+ +	Use *Next* to select slot/trunk 0403.	Sl/Tr 0403: 200
14.	* 300 ✓	Enter station 300 and confirm.	Sl/Tr 0403: 300
15.	+ * 300 ✓	Go to the next trunk, enter station 300, and confirm.	Sl/Tr 0404: 300
16.	F8 F7	Exit system administration.	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> System parameters -> Diversion/Attendant
2.	Options ->Incoming calls -> Ringing assignment per line

8.20 CorNet-N Networking (Not for U.S.)

For a list of maximum cable lengths for CorNet-N direct networking, refer to Table 2-9 on page 2-25.

Introduction

Users can network the HiPath 3750, HiPath 3550, HiPath 3350, HiPath 3700, HiPath 3500 and HiPath 3300 via CorNet-N. You must use HiPath 3000 Manager E to completely configure CorNet-N networking; Assistant T can program some aspects. This section discusses only programming using HiPath 3000 Manager E.

This section describes the following networking setups:

- HiPath 3000 to HiPath 3000, Section 8.20.1
  - Networking two systems with one CO access each
    - Open numbering with break-out in the remote system
    - Closed numbering with break-out in the main system via LCR
    - Closed numbering without LCR and without break-out
    - Closed numbering without LCR in the satellite system with break-out
- Hicom 300 to HiPath 3000, Section 8.20.2
  - Networking with closed numbering without LCR
  - Networking with closed numbering with LCR
  - Networking with closed, unsorted numbering with LCR but without trunk group code.
- Programming for all networking types, Section 8.20.3
  - Network-wide toll restriction with allowed and denied lists
  - Network-wide toll restriction implemented via LCR authorization
  - Automatic carrier selection (call-by-call)
  - Sharing system speed dialing in the main system from the satellite system
  - Configuration of the “global country code” on satellite CSs without their own CO access

Note

If two or more HiPath 3750 or HiPath 3700 systems are networked, you must install the CMS module upgrade on the CBCPRs of all HiPath 3750 or HiPath 3700 systems in the network.

8.20.1 Networking HiPath 3000 to HiPath 3000 (Not for U.S.)

Networking Two Systems With One CO Access Each.

8.20.1.1 Open Numbering With Break-Out in the Remote System

Break-out refers to an external outgoing call placed using the CO access of the remote system.

Parameters for the example

Both systems have a numbering plan with station numbers 100 to 749.

Both systems have an ISDN trunk connection with attendant code 0 (trunk group 1 with trunk group code 0).

Both systems have a CorNet-N link to the remote system (trunk group 2 with trunk group code 80).

Programming the Main System Using HiPath 3000 Manager E

From the **Lines/networking** menu, go to the **Routes** window and select route 2. Make the following settings:

Enter the route name and set the second trunk code to 0 (0 is the first trunk group code of route 1 in the satellite system).

The trunk group code must be assigned (default 80)

Go to **Route 1** and enter a second trunk group code, such as 77 (77 must be a number that is still available in the system numbering plan. This is necessary for break-out in the satellite system).

Also enter the PABX number of the ISDN trunk.

In the **Routing parameters** window, set the route type to **PABX** for the second trunk group. Also set **Number and type, outgoing** to **PABX number** for trunk groups 1 and 2.

Assign the CorNet-N trunks of trunk group 2 in the **Trunks** window. Double-click the elipsis (...) for the trunk in the **Param** column to set the protocol to S_0 : CorNet-N main direct (H150-H118). In the **System parameters, Diversion/Attendant** window, note that the station number of the external attendant code is set to 0. Deactivate **Automatic line seizure** under **Flags.**

Go to the **Least cost routing** window and release LCR.

Make the following entries in the **Dial plan** window:

Line 1: Dialed digit 0CZ refers to route table 1 (plan for trunk calls)

Line 2: Dialed digit 80-Z refers to route table 2 (plan for CorNet-N call)

Line 3: Dialed digit 80-0CZ refers to route table 3 (plan for break-out in satellite system)

Line 4: Dialed digit 77CZ refers to route table 1 (plan for second trunk code, required for break-out from satellite system)

Make the following entries in route table 1 of the **Route table** window:
(table for trunk calls)

Line 1: Route 1, Dial rule 1, No warning

Line 2: Route 2, Dial rule 4, Warning: display and tone (if Euro-ISDN[1] fails or is busy, an external seizure takes place in the satellite system)

Make the following entries in route table 2 of the **Route table** window:
(table for CorNet-N calls)

Line 1: Route 2, Dial rule 2, No warning

Line 2: Route 1, Dial rule 5, Warning: display and tone (if CorNet-N fails or is busy, dial satellite system via the central office)

Make the following entries in route table 3 of the **Route table** window:
(table for break-out)

Line 1: Route 2, Dial rule 3, No warning

Make the following entries in the **Dial rules table** window:

Line 1: Rule name CO, Rule format A, Procedure MCL Single Stage (if primary carrier is entered here instead of MCL Single Stage, you will not be able to go to the following lines in the rule tables)

Line 2: Rule name CorNet-N, Rule format A, Procedure Corporate Network

Line 3: Rule name Break-Out, Rule format D77E3A, Procedure Corporate Network

Line 4: Rule name CO via CorNet-N, Rule format D77E2A, Procedure Corporate Network

Line 5: Rule name To satellite via trunk, Rule format D02111234E2A, Procedure primary carrier

(D02111234 is the Euro-ISDN PABX number of the satellite system)

1. Euro-ISDN is not available in the U.S.

Programming the Satellite System Using HiPath 3000 Manager E

In the **Lines/Networking** window, assign the protocol S_0: CorNet-N variant 2 satellite (direct) (not for U.S.).

Program all other settings as you did for the main system.

8.20.1.2 Closed Numbering with Break-Out in the Main System via LCR

Parameters for the Example

The main system has station numbers 100 to 499, while the satellite system has station numbers 500 to 699.

Only the main system has ISDN trunk access with attendant code 0 (for example, route 1 with code 0. In addition, you must specify a second trunk group code so that the satellite system can seize a trunk in the main system using trunk group code 0. If you do not do so, dialing 0 from the satellite system will place a call to the attendant in the main system).

Both systems have a CorNet-N link to the remote system (route 2 in the main system, route 1 in the satellite system).

Programming the Main System Using HiPath 3000 Manager E

From the **Lines/networking** menu, go to the **Routes** window and select route 2. Make the following settings:

Enter the route name and delete the trunk group code for route 2.

In the **Routing parameters** window, set the route type to **PABX**. Set **Number and type, outgoing** to **PABX number**. Enter a second trunk group code (77) for route 1 in addition to 0.

Assign the CorNet-N trunks of trunk group 2 in the **Trunks** window. Double-clicking the ellipsis (...) for the trunk in the **Param** column sets the protocol to S_0: Cornet-N Variant 2 main direct.

In the **System parameters, Diversion/Attendant** window, ensure that the station number of the external attendant code is set to 0. Also deactivate **Automatic line seizure** under **Flags**.

Go to the **Least cost routing** window and release LCR.

Make the following entries in the **Dial plan** window:

Line 1: Dialed digit 0CZ refers to route table 1 (plan for trunk calls)

Line 2: Dialed digit 5-XX refers to route table 2 (plan for CorNet-N stations 500 to 599)

Line 3: Dialed digit 6-XX refers to route table 2 (plan for CorNet-N stations 600 to 699)

Line 4: Dialed digit 77CZ refers to route table 1 (plan for trunk calls from primary system

Make the following entries in route table 1 of the **Route table** window:
(table for trunk calls)

Line 1: Route 1, Dial rule 1, No warning

Make the following entries in route table 2 of the **Route table** window:
(table for CorNet-N calls)

Line 1: Route 2, Dial rule 2, No warning

Make the following entries in the **Dialing rules table** window:

Line 1: Rule name CO, Rule format A, Procedure Primary carrier (rule for trunk calls)

Line 2: Rule name CorNet-N, Rule format E1A, Procedure Corporate Network (rule for CorNet-N calls)

Programming the Satellite System Using HiPath 3000 Manager E

From the **Lines/networking** menu, go to the **Routes** window and select route 1. Make the following settings:

Enter the route name and set the second trunk code digit to 0 (0 is the first trunk group code of route 1in the satellite system).

Delete the trunk group code for route 1.

In the **Routing parameters** window, set the route type to **PABX**. Set **Number and type, outgoing** to **PABX number**.

In the **Trunks** window, double-click the ellipsis (...) for the trunk in the **Param** column to set the protocol to S_0: Cornet-N variant 2 satellite (direct).

In the **System parameters, Diversion/Attendant** window, note that the station number of the external attendant code should be deleted. Also deactivate **Automatic line seizure** under **Flags**.

Go to the **Least cost routing** window and release LCR.

Make the following entries in the **Dial plan** window:

Line 1: Dialed digit 0CZ refers to route table 1 (plan for trunk calls)

Line 2: Dialed digit 1-XX refers to route table 2 (plan for CorNet-N stations 100 to 199)

Line 3: Dialed digit 2-XX refers to route table 2 (plan for CorNet-N stations 200 to 299)

Line 4: Dialed digit 3-XX refers to route table 2 (Plan for CorNet-N stations 300 to 399)

Line 5: Dialed digit 4-XX refers to route table 2 (plan for CorNet-N stations 400 to 499)

Make the following entries in the route table columns of the **Route table** window:

Table 1, Line 1: Route 1, Dial rule 1, No warning (table for trunk calls)

Table 2, Line 1: Route 1, Dial rule 2, No warning (table for Cornet-N calls)

Make the following entries in the **Dial rules table** window:

Line 1: Rule name CO, Rule format D77A, Procedure Corporate :Network

Line 1: Rule name main PABX, Rule format E1A, Procedure Corporate: Network

8.20.1.3 Closed Numbering Without LCR and Without Break-Out

Parameters for the Example

The main system has station numbers 100 to 499, while the satellite system has station numbers 500 to 699.

Both systems have an ISDN trunk connection with attendant code 0 (for example, route 1 with code 0).

Both systems have a CorNet-N link to the remote system (route 2 in the main system, route 1 in the satellite system).

Break-out cannot take place in the remote system.

Programming the Main System Using HiPath 3000 Manager E

From the **Lines/networking** menu, go to the **Routes** window and select route 2. Make the following settings:

Enter the route name; set the trunk group codes for route 2 to 5 and 6.

In the **Routing parameters** window, set the route type to **PABX**. Activate digit repetition and set **Number and type, outgoing** to **PABX number**.

Assign the CorNet-N trunks of trunk group 2 in the **Trunks** window. Double-clicking the ellipsis (...) for the trunk in the **Param** column sets the protocol to S_0: Cornet-N variant 2 main (direct).

In the **System parameters, Diversion/Attendant** window, ensure that the station number of the external attendant code is set to 0. Deactivate **Automatic line seizure** under **Flags**.

Programming the Satellite System Using HiPath 3000 Manager E

From the **Lines/networking** menu, go to the **Routes** window and select route 2. Make the following settings:

Enter the route name; set the trunk group codes for route 2 to 1, 2, 3, and 4.

In the **Routing parameters** window, set the route type to **PABX**. Activate digit repetition and set **Number and type, outgoing** to **PABX number**.

Assign the CorNet-N trunks of trunk group 2 in the **Trunks** window. Double-clicking the ellipsis (...) for the trunk in the **Param** column sets the protocol to S_0: Cornet-N variant 2 satellite (direct).

In the **System parameters, Diversion/Attendant** window, ensure that the station number of the external attendant code is set to 0. Deactivate **Automatic line seizure** under **Flags**.

8.20.1.4 Closed Numbering Without LCR in the Satellite System and with Break-Out

The programming steps are described in Section 8.20.1.2, Closed Numbering with Break-Out in the Main System via LCR, on page 8-54 and Section 8.20.1.3, Closed Numbering Without LCR and Without Break-Out, on page 8-56, with the following changes:

Break-out is allowed in the main system. Trunks in the main system cannot be seized from the satellite system by dialing 0 because 0 is entered in both systems as the first trunk group code and dual assignments are not possible. In addition, the external attendant code is set to 0 in each system.

Programming the Main System

Refer to programming in Section 8.20.1.2, Closed Numbering with Break-Out in the Main System via LCR, on page 8-54.

CLR must be active in the main system; otherwise transit is not possible (break-out in the main system).

Additional Programming of the Satellite System

Refer to programming in Section 8.20.1.3, Closed Numbering Without LCR and Without Break-Out, on page 8-56.

From the **Lines/networking** menu, go to the **Routes** window and make the following settings:

Enter another trunk group code for the CorNet-N trunk group, such as 77.

8.20.2 Networking Hicom 300 to HiPath 3000 (Not for U.S.)

8.20.2.1 Networking With Closed Numbering Without LCR

Parameters for the Example

Hicom 300 is the main system with CO access; HiPath 3000 is the satellite system without CO access.

The station numbers in Hicom 300 are 1000 to 3000, and those in HiPath 3000 are 4000 to 5000.

Trunks in the Hicom 300 system are seized using trunk group code 0.

Programming the Satellite System Using HiPath 3000 Manager E

From the **Lines/Networking** menu, go to the **Routes** window and select Route 1. Then make the following settings:

Enter the route name and set the second trunk code to 0. Set the trunk group codes for Route 1 to 0, 1, 2, and 3.

In the **Routing parameters** window, set the route type to PABX and activate digit repetition for Route 1. Also set **No. and type, outgoing** to **PABX number**.

Assign the CorNet-N trunks of trunk group 2 in the **Trunks** window. Double-clicking the ellipsis (...) for the trunk in the **Param** column sets the protocol to S_0: Cornet-N variant 2 satellite (direct).

In the **System parameters** window, deactivate automatic line seizure under **Flags**.

8.20.2.2 Networking With Closed Numbering With LCR

Parameters for the Example

Hicom 300 is the main system; HiPath 3000 is the satellite system.

The station numbers in Hicom 300 are 1000 to 3000, and those in HiPath 3000 are 4000 to 5000.

Trunks in the Hicom 300 system are seized using trunk group code 0.

Programming the Satellite System Using HiPath 3000 Manager E

From the **Lines/Networking** menu, go to the **Routes** window and select Route 1. Then make the following settings:

Enter the route name and set the second trunk code to 0. Delete the trunk group codes for Route 1.

In the **Routing parameters** window, set the route type to PABX and set **No. and type, outgoing** to **PABX number**.

Assign the CorNet-N trunks of trunk group 2 in the **Trunks** window. Double-clicking the ellipsis (...) for the trunk in the **Param** column sets the protocol to S_0: Cornet-N variant 2 satellite (direct).

In the **System parameters** window, deactivate automatic line seizure under **Flags**.

Go to the **Least cost routing** window and release LCR.

Make the following entries in the **Dial plan** window:

Line 1: Dialed digit 0CZ refers to route table 1 (plan for trunk calls)

Line 2: Dialed digit 1-XXX refers to route table 1 (plan for CorNet-N stations 1000 to 1999)

Line 3: Dialed digit 2-XXX refers to route table 1 (plan for CorNet-N stations 2000 to 2999)

Line 4: Dialed digit 3-XXX refers to route table 1 (plan for CorNet-N stations 3000 to 3999)

Make the following entries in Route table 1 of the **Route table** window:

Line 1: Route 1, Dial rule1, No warning

Make the following entries in the **Dialing rules table** window:

Line 1: Rule name, main, Rule format E1A, Procedure Corporate: Network

8.20.2.3 Networking With Closed, Unsorted Numbering With LCR Without Trunk Group Code

Parameters for the Example

Hicom 300 is the main system; HiPath 3000 is the satellite system.

The station numbers range from 1000 to 5000 and are randomly distributed between the main and satellite systems. The programming steps below describe the configuration for station numbers 2191 to 2195, where

- Station numbers 2191, 2193, and 2194 are connected to Hicom 300.
- Station numbers 2192 and 2195 are connected to HiPath 3000.

The trunk is seized in Hicom 300 by dialing trunk group code 0.

Programming the Satellite System Using HiPath 3000 Manager E

From the **Lines/Networking** menu, go to the **Routes** window and select Route 1. Then make the following settings:

Enter the route name and set the second trunk code to 0. Keep the trunk group code set to 0.

In the **Routing parameters** window, set the route type to PABX and set **No. and type, outgoing** to **PABX number**.

Assign the CorNet-N trunks of trunk group 2 in the **Trunks** window. Double-clicking the ellipsis (...) for the trunk in the **Param** column sets the protocol to S_0: Cornet-N variant 2 satellite (direct).

In the **System parameters** window, deactivate automatic line seizure under **Flags**.

Go to the **Least cost routing** window and release LCR.

Make the following entries in the **Dial plan** window:

Line 1: Dialed digit 0CZ refers to route table 1 (plan for trunk calls)

Line 2: Dialed digit 2191 refers to route table 1 (plan for CorNet-N station 2191)

Line 3: Dialed digit 2193 refers to route table 1 (plan for CorNet-N station 2193)

Line 4: Dialed digit 2194 refers to route table 1 (plan for CorNet-N station 2194)

Make the following entries in Route table 1 of the **Route table** window:

Line 1: Route 1, Dial rule1, No warning

Make the following entries in the **Dialing rules table** window:

Line 1: Rule name, Rule format E1A, Procedure Corporate :Network

8.20.3 Programming Steps for All Networking Types (Not for U.S.)

8.20.3.1 Network-Wide Toll Restriction with Allowed and Denied Lists

Release programming of the LCR parameter. The route type and second trunk code affect toll restriction.

Scenario 1: LCR deactivated, no second trunk code, route type CO: All digits are subjected to toll restriction in the local system

Scenario 2: LCR deactivated, no second trunk code, route type PABX: There is no toll restriction in the local system, but rather in the remote system

Scenario 3: LCR deactivated, second trunk code, route type CO: All digits are subjected to toll restriction in the local system

Scenario 4: LCR deactivated, second trunk code, route type PABX: All digits following the second trunk code are subjected to toll restriction in the local system

Scenario 5: LCR activated, no second trunk code, route type CO: All digits are subjected to toll restriction in the local system

Scenario 6: LCR activated, no second trunk code, route type PABX: There is no toll restriction in the local system but rather in the remote system

Scenario 7: LCR activated, second trunk code, route type CO: All digits are subjected to toll restriction in the local system

Scenario 8: LCR activated, second trunk code, route type PABX: All digits are subjected to toll restriction in the local system

The following classes of service are always transferred to the remote system via CorNet:

Toll restriction 0 (internal access): no access

Toll restriction 1 (outward-restricted): access only via attendant (incoming calls only)

Toll restriction 2-13 (allowed/denied lists): local public network (evaluated in the first denied list in HiPath 3000)

Toll restriction 14 (unrestricted): long distance public network (unrestricted trunk access)

Parameters for the Example

Internal access is toll restriction 0 (permanently defined) and is defined in access group 1 in HiPath 3000 Manager E.

Outward restricted trunk access is toll restriction 1 (permanently defined) and is defined in access group 2 in HiPath 3000 Manager E.

Restricted local access is toll restriction 9 (denied list 2) and is defined in access group 3 in HiPath 3000 Manager E.

Unrestricted local area access is toll restriction 2 (allowed list 1) and is defined in access group 4 in HiPath 3000 Manager E.

National trunk access is toll restriction 10 (denied list 3) and is defined in access group 5 in HiPath 3000 Manager E.

European trunk access is toll restriction 11 (denied list 4) and is defined in access group 6 in HiPath 3000 Manager E.

Unrestricted trunk access is toll restriction 14 (permanently defined) and is defined in access group 7 in HiPath 3000 Manager E.

Programming the Main System Using HiPath 3000 Manager E

It is very important to keep denied list 1 empty. This is necessary because the toll restrictions in the allowed and denied lists of the satellite system are passed on to the main system with the *local public network* class of service. *Local public network* always refers to denied list 1. However, if this denied list is empty, the toll restriction is evaluated just as it is in the satellite system.

Program the toll restrictions for the current location according to the classes listed above and assign them to the stations.

Programming the Satellite System Using HiPath 3000 Manager E

Denied list 1 can also be used in the satellite system without restriction. However, to provide uniform toll restriction on all telephone systems throughout Germany, this should be implemented only in exceptional cases.

The second trunk code and the PABX route type must be entered in the satellite system for the CorNet trunk-N group to the main system. (This is necessary because it is the only way to provide toll restriction in the satellite system using the trunk access code of the main system.)

8.20.3.2 Implementing Network-Wide Toll Restriction via LCR Class of Service (Not for U.S)

Note

If toll restriction is implemented based on the LCR class of service, the system speed-dialing numbers are also subject to these classes of service. In other words, users with outward restricted trunk access cannot dial a system speed-dialing number.

Parameters for the Example

Internal access: Intercom only access can be implemented via ITR groups (not described here).

Outward restricted trunk access is LCR class of service 2; station 150 is assigned this class of service.

Restricted local access is LCR class of service 3; station 140 is assigned this class of service (prefix 023Z can be dialed).

Unrestricted local area access is LCR class of service 4; station 130 is assigned this class of service (prefixes 02Z and 03Z can be dialed).

National trunk access is LCR class of service 5; station 120 is assigned this class of service.

European trunk access is LCR class of service 6; station 110 is assigned this class of service (prefix 004Z can be dialed).

Unrestricted trunk access is LCR class of service 15; station 100 is assigned this class of service.

Programming steps

Go to the **Least cost routing/Codes and Flags** window and release LCR.

Go to the **Least cost routing/Classes of service** window and assign the correct classes of service to stations 100 to 160.

Go to the **Least cost routing/Dial plan** window and make the following entries:

Line 1: Dialed digit: 0CZ, Route table: 1 (unrestricted trunk access)

Line 2: Dialed digit: 0C004Z, Route table: 2 (European trunk access)

Line 3: Dialed digit: 0C0Z, Route table: 3 (national trunk access)

Line 4: Dialed digit: 0C02Z, Route table: 4 (unrestricted local area access)

Line 5: Dialed digit: 0C03Z, Route table: 4 (unrestricted local area access)

Line 6: Dialed digit: 0CNZ, Route table: 5 (restricted local access)

Line 7: Dialed digit: 0C1Z, Route table: 5 (restricted local access)

Line 8: Dialed digit: NZ, Route table: 6 (outward restricted trunk access)

Line 9: Dialed digit: 1Z, Route table: 6 (outward restricted trunk access)

Go to the **Least cost routing/Route table** window and make the following entries:

Table 1, Line 1: Route: 1, Dial rule: 1, min. COS: 15

Table 2, Line 1: Route: 1, Dial rule: 1, min. COS: 6

Table 3, Line 1: Route: 1, Dial rule: 1, min. COS: 5

Table 4, Line 1: Route: 1, Dial rule: 1, min. COS: 4

Table 5, Line 1: Route: 1, Dial rule: 1, min. COS: 3

Table 6, Line 1: Route: 1, Dial rule: 1, min. COS: 2

Go to the **Least cost routing/Dialing rules table** window and make the following entries:

Line 1: rule name: XY, format: A, procedure: primary carrier

8.20.3.3 Automatic Carrier Selection (Call by Call)

Parameters for the Example:

The least expensive carrier must always be selected first, depending on the station number and time. The following carriers are available:

Telekom: Primary carrier, without network code, all local calls all day and all calls in the period from 2:00 a.m. to 4:59 a.m., as well as D1 and D2-calls from 6:00 p.m. to 8:59 a.m.

Mobilcom: Network code 01019, all calls in the period from 5:00 a.m. to 1.59 a.m., except for local calls.

TelePassport: Network code 01024, D1 and D2 calls from 9.00 a.m. to 5.59 p.m.

If the call does not reach its destination via Mobilcom or Telepassport, the system should automatically try to reach the destination via Telekom.

Actual carriers might be different, depending on the country where the system is installed.

Programming Steps:

Go to the **Least cost routing/Codes and Flags** window and release LCR.

Go to the **Least cost routing/Dial plan** window and make the following entries:

Line 1: dialed digit: 0C0171Z, route table: 1(D1 calls)

Line 2: Dialed digit: 0C0172Z, Route table: 1 (D2 calls)

Line 3: Dialed digit: 0CNZ, Route table: 2 (local calls)

Line 4: Dialed digit: 0C1Z, Route table: 2 (local calls)

Line 5: Dialed digit: 0CZ, Route table: 3 (all other calls)

Go to the **Least cost routing/Route table** window and make the following entries:

Table 1, Line 1: Route: 1, Dial rule: 1, Schedule: C, (D1/D2 calls from 9:00 a.m. to 5:59 p.m. via Telepassport)

Table 1, Line 2: Route: 1, Dial rule: 2, Schedule: C, (D1/D2 calls from 9:00 a.m. to 5:59 p.m. via Telekom if Telepassport is busy)

Table 1, Line 3: Route: 1, Dial rule: 2, Schedule: A, (D1/D2 calls via Telekom)

Table 1, Line 4: Route: 1, Dial rule: 2, Schedule: B, (D1/D2 calls via Telekom)

Table 2, Line 1: Route: 1, Dial rule: 2, (local calls via Telek., 24 hours a day, since no schedule is entered)

Table 3, Line 1: Route: 1, Dial rule: 3, Schedule: A, (all other calls via Mobilcom)

Table 3, Line 2: Route: 1, Dial rule: 2, Schedule: A, (all other calls via Telekom)

Table 3, Line 3: Route: 1, Dial rule: 2, Schedule: B, (all other calls via Telekom)

Table 3, Line 4: Route: 1, Dial rule: 3, Schedule: C, (all other calls via Mobilcom)

Table 3, Line 5: Route: 1, Dial rule: 2, Schedule: C, (all other calls via Telekom)

Go to the **Least cost routing/LCR schedule** window and make the following entries:

Day: Monday: Time limit 1: 01:59, Zone 1: A, (time from midnight to 01:59 a.m., Telekom/Mobilcom)

Day: Monday: Time limit 2: 04:59, Zone 2: B, (time from 02:00 a.m. to 04:59 a.m., Telekom)

Day: Monday: Time limit 3: 08:59, Zone 3: A, (time from 05:00 a.m. to 08:59 a.m., Telekom/Mobilcom)

Day: Monday: Time limit 4: 17:59, Zone 4: C, (time from 09:00 a.m. to 5:59 p.m., Telekom/Mobilcom/Telepassport)

Day: Monday: Time limit 5: 23:59, Zone 5: A, (time from 18:00 a.m. to 11:59 p.m., Telekom/Mobilcom)

This combination of carriers and times makes it possible to combine time limits 1, 3, and 5 into time zone A. This is possible because Telekom and Mobilcom are used in all three lime limits.

The time limits and zones must be copied to the days Tuesday through Sunday.

Go to the **Least cost routing/Dialing rules table** window and make the following entries:

Line 1: Rule name: Telepassport, Format: D01024A, Procedure: Single Stage

Line 2: Rule name: Telekom, Format: A, Procedure: Primary carrier

Line 3: Rule name: Mobilcom, Format: D01019A, Procedure: Single Stage

8.20.3.4 Using the System Speed-Dialing Numbers of the Main System From the Satellite System

Parameters for the Example:

Only the main system has trunk access.

System speed-dialing numbers can be shared with both open and closed numbering.

Users in the satellite system dial 77 and the 3-digit system speed-dialing number; users in the main system dial *7 and the 3-digit system speed-dialing number.

Programming the Main System:

The main system is programmed as described in Section 8.20.1.2, Closed Numbering with Break-Out in the Main System via LCR, on page 8-54”.

Programming the Satellite System:

The satellite system is programmed as described in Section 8.20.1.2, Closed Numbering with Break-Out in the Main System via LCR, on page 8-54, and the following additional settings must be made.

Dial plan 77-XXX must be created with a reference to a new route table. (77=free station number in the system, XXX=3-digit speed-dialing number)

Route 1 is entered in the route table with a reference to a new dial rule.

D757E2A is entered as the format in the dial rule (D=dial, 757=substitute code for *7, E2A= XXX repeated from the dial plan)

8.20.3.5 Configuration of the “global country code” on satellite CSs without their own CO access

To configure the “global country code” (country prefix), you must configure a “dummy” trunk group for satellite CSs without their own CO access; then you can indicate a country code for this trunk group.

For trunk –> CorNet transit traffic, the Calling Party Number is always changed to the international number. The use of a “global country code” in the satellite CS allows the international number to be changed back into a national number again.

The global country code is always the country code of the first trunk group. Configure it with HiPath 3000 Manager E: Settings: Lines/networking: Routing parameters: Route type.

8.21 CorNet-N Networking (for U.S. Only)

Introduction

You can connect the HiPath 3000 Communications Server to other Siemens communications systems using T1 services. The system supports a six-digit, closed-numbering plan for unique dialing schemes between systems. An open-numbering plan is also supported for networks that use a leading digit and a common system dial plan for each location.

8.21.1 Network Topographies Supported by the HiPath 3000 System

The table below lists the supported network options for the HiPath 3000 systems.

Table 8-3 Supported Network Options for the HiPath 3000 Systems

System		System		System		System	
HiPath 3000	To	HiPath 3000					Point to Point
HiPath 3000	To	HiPath 3000	To	HiPath 3000			Star configuration
HiPath 3000	To	HiPath 3000	To	HiPath 3000	To	HiPath 3000	Mesh configuration
HiPath 3000	To	Hicom 300					Point to Point
HiPath 3000	To	Hicom 300	To	HiPath 3000			Star configuration
HiPath 3000	To	Hicom 300	To	Hicom 300			Star configuration
HiPath 3000	To	9006M	To	HiPath 3000			Star configuration
HiPath 3000	To	9006M	To	9006M			Star configuration
HiPath 3000	To	9006M	To	Hicom 300			Mesh
HiPath 3000	To	HiPath 3000	To	Hicom 300			Mesh

Table notes:
- The Hicom 300 CS must be level 6.4 or 6.5.
- The 9006M system must be level 9005.6.84
- The HiPath 3000 CS should be level 727.005 or greater
- Patch information is located in Section 8.21.20 and Section 8.21.21

8.21.2 Hardware Requirements

The following is a list of equipment required for connecting a CorNet-N link to a HiPath 3000 system.

System	System Hardware	Maximum supported	External Equipment
HiPath 3750 or HiPath 3700 system	TMST-1 board	5	1 Channel Service Unit per CorNet-N link
HiPath 3550 or HiPath 3500 system	TST-1 board	1	1 Channel Service Unit per CorNet-N link

The HiPath 3750 and HiPath 3700 system supports a maximum of five T1 interfaces and may be used as a gateway, a tandem, or an end node. It is suggested that in a mixed installation of Hicom 300 systems and HiPath 3000 systems, the HiPath 3000 systems should be positioned as end node systems only.

The HiPath 3550 and HiPath 3500 system supports one T1 interface and may be used as an end-node system only.

8.21.3 Planning Considerations

The following items should be considered when designing a CorNet-N network.

- Homogenous HiPath 3000 network or mixed system network
- Network internal dialing plan
  The HiPath 3000 system uses a closed-numbering plan with a dial number from one to six digits in length.
- Network direct inward dial plan
  When setting up the DID number plan, you should match the internal dialing plan as much as possible. DID numbers can be transmitted over the CorNet-N links or via a direct public network connection.
- Answering positions locations
  - Central answer position
    - Call Center groups
      Calling Party information and DNIS information may have to be sent to the centralized group for CTI applications.
    - Auto-attendant
      The connection to the AAX is analog ports. The ports may have to be configured as Phonemail ports to activate the in-band integration transmission.

  - Central voice mail system
    The connection to the voice mail is analog ports. The ports may have to be configured as Phonemail ports to activate the in-band integration transmission.
  - Interactive voice response (IVR)
    The connection to the IVR is analog ports. The ports may have to be configured as Phonemail ports to activate the in-band integration transmission.
- Distributed answer position
  - Answer position at each location
  - Distributed phonemail network
- Night answer positions
- Data applications
  - ISDN networking over CorNet-N links
    ISDN Data applications are supported over CorNet-N links using the STLS4, STMD8, ILAN board. and S_0 optiset adapter.
  - Fractional T1 for external applications

8.21.4 Configuration Example

A Phonemail system will be shared by all sites and will be installed on the HiPath 3750 or HiPath 3700 system.

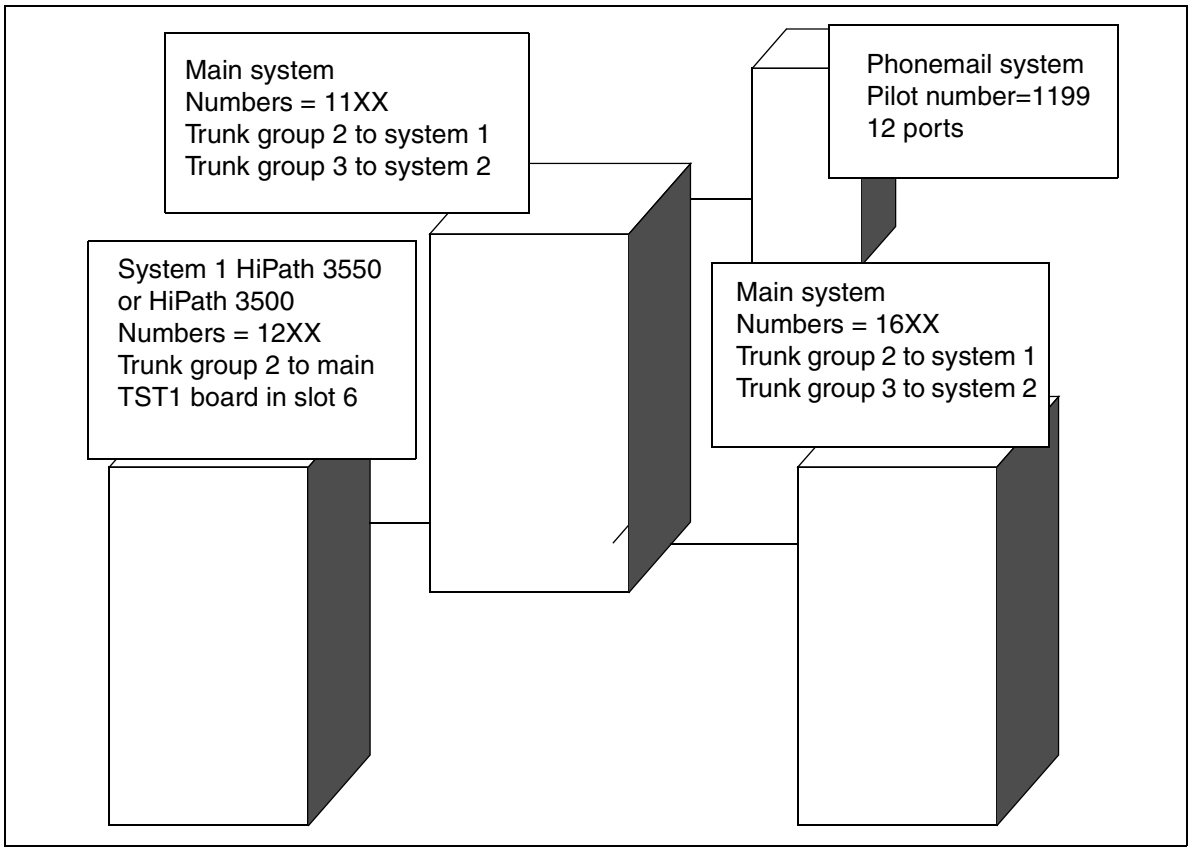


Figure 8-1 Example of a CorNet-N Configuration

CorNet-N Example Configuration Data

- Customer has three locations in the network
- Central location is a HiPath 3750 or HiPath 3700 system
- Two satellite systems are HiPath 3550 or HiPath 3500 systems
- One Digital T1 interface is connected from each of the HiPath 3550 or HiPath 3500 systems to the central HiPath 3750 or HiPath 3700 system.
- Pilot Number for the main system is 1-408-492-1000, which is a DID number
- Extension numbers on the HiPath 3750 or HiPath 3700 system are in the 11XX series.
- DID numbers for the HiPath 3750 or HiPath 3700 system are 408 492-11XX

- Extension numbers at the HiPath 3550 or HiPath 3500 system 1 are in the 12XX series
- DID numbers for the HiPath 3750 or HiPath 3700 system are 408 492-12XX
- Extension numbers at the HiPath 3550 or HiPath 3500 system 2 are in the 16XX series
- DID numbers for the HiPath 3750 or HiPath 3700 system are 408 492-16XX
- Block of DID terminating in the Main system provide service for all locations

Procedure Overview

The following sections describe the CorNet-N configuration sequence in detail.

Configuring CorNet-N	
Step	**Task**
1.	Configuring the T1 boards in the Database
2.	Defining Route Group for the CorNet-N T1 Spans
3.	Defining Available B-Channels for the CorNet-N Spans
4.	Assigning Route Characteristics
5.	Assigning Route Parameters
6.	Setting Clock Parameters
7.	Specifying LCOS Settings
8.	Defining Least Cost Routing
9.	Configuring System Parameter Flags
10.	Assigning MUSAP or General Call Keys
11.	Configuring Pseudo Numbers for Centralized Phonemail
12.	Defining Intercept Information

8.21.5 Configuring the T1 boards in the Database

Use HiPath 3000 Manager E to select and place the T1 boards in the desired card slot(s). For CorNet-N applications, you must select the TST1 Digital or TMST1 Digital card type.

The T1 board configuration should be set for TMST1 Digital

Operation Mode	ESF
	B8ZS

Assigning T1 interfaces in the HiPath 3550 or HiPath 3500 system, follows the same procedure.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	System Status ->System Wide ->Switchover to ->Hardware expansion.

8.21.6 Defining Route Group for the CorNet-N T1 Spans

To define the Route Group for the CorNet-N T1 spans you must do the following:

- Specify unique route groups for each T1 CorNet-N link
- Set CorNet-N protocol type for T1 spans originating at the HiPath 3750 or HiPath 3700 system
- Set CorNet-N protocol type for T1 spans originating in the HiPath 3550 or HiPath 3500 systems to slaves

The seizure codes for each of the CorNet-N routes are not required but can be useful for diagnostic testing. You should remove the seizure codes for the CorNet-N routes for the Call Back feature to operate properly.

Table 8-4 Route Groups for CorNet-N T1 Spans

System	Route Assignment	Seizure Code	Route Name	Parameters > ISDN Flags
HiPath 3750 or HiPath 3700 TMST1 Board 1 1…23	Route 2		System 1	S2M CorNet–N Variant Master (H150.H118)
HiPath 3750 or HiPath 3700 TMST1 Board 2 1…23	Route 3		System 2	S2M CorNet–N Variant Master (H150.H118)
HiPath 3550 or HiPath 3500 TMST1 Board 1 1…23	Route 2		CorNet	S2M CorNet–N Variant Slave (H150.H118)
HiPath 3550 or HiPath 3500 TMST1 Board 1 1…23	Route 2		CorNet	S2M CorNet–N Variant Slave (H150.H118)

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking ->Trunks
2.	Options ->Lines/networking ->Trunks ->Parameters ->ISDN Flags

8.21.7 Defining Available B-Channels for the CorNet-N Spans

This option defines the number of B-channels that are used for the CorNet-N link. If you assign channels for external data applications then you should disable the incoming and external flags for the required channels.

Table 8-5 B-Channel Assignments for CorNet-N

System	Channels	Incoming	Outgoing
HiPath 3750 or HiPath 3700 TMST1 Board 1	1…23	All channels	All channels
HiPath 3750 or HiPath 3700 TMST1 Board 2	1…23	All channels	All channels
HiPath 3550 or HiPath 3500 System 1 TST1 Board 1	1…23	All channels	All channels
HiPath 3550 or HiPath 3500 System 2 TST1 Board 1	1…23	All channels	All channels

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking ->Trunks ->Parameters ->ISDN flags -> B-channel mode

8.21.8 Assigning Route Characteristics

This procedure assigns the following route characteristics:

- Display name to the CorNet-N route
- Optional ISDN primary rate interface (PRI) number
- Optional second CO access code

Display Name

HiPath 3750 or HiPath 3700	
Route	Route Name
2	Cor-Net-N One
3	Cor-Net-N Two

HiPath 3550 1 or HiPath 3500 2	
Route	Route Name
2	Main

HiPath 3550 2 or HiPath 3500 2	
Route	Route Name
2	Main

Optional PRI Number

If the system is configured with a primary rate interface, the primary call number for each of the sites should be entered. This field identifies and filters specific digit patterns for DID and display purposes.

In the example below, the primary number for the main location is 1-408-492-1000. The DID numbers are based on the last four digits sent from the telephone company, (1XXX).

PABX Number Main Site	
Country Code	1
Local Area Code	408
PABX Local Number (Prefix)	492

This should be repeated at each of the satellite locations if a different number must be sent to the public network over ISDN services.

Optional Second CO Code

You should configure a second trunk access code if the trunk access code in the main switch is used. Each route can be assigned a second trunk access code to ensure the proper display and callback information is sent back to the main system.

If no second code is enter and RTE type is CO	All digits dialed are subject to toll restriction
If no second code is enter and RTE type is PBX	No toll restriction is applied by originating PBX
If no second code is enter and RTE type is CO	All digits dialed are subject to toll restriction
If no second code is enter and RTE type is PBX	All digits dialed are subject to toll restriction after second trunk code
Note: The above information is for reference only and is only for analog trunk environments	

Second CO Code
9

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking ->Routes ->Route name
2.	Options ->Lines/networking ->Routes ->PABX number (PRI interface only)
3.	Options ->Lines/networking ->Routes ->CO code

8.21.9 Assigning Route Parameters

Path replacement for transferred calls is only supported between HiPath 3000 systems. Path replacement for incoming calls that are forwarded from a satellite HiPath 3000 system to a HiPath 3000, Hicom 300, or Siemens 9006M system is also supported.

The following table explains some of the options available through the HiPath 3000 Manager E *Routing Parameters* dialog box.

Choose the options that apply.

Table 8-6 Description of HiPath 3000 Manager E Route Parameters Options

Option	Action	Result
Rerouting Change Route	If yes	Use of Alternate D channel for call setup to final destination is possible
Route optimize active No If route is known Always	Only one can be selected If yes If yes If yes	 On call forward from satellite to main two links are used On Call forward from satellite to main, if handshake procedure is successful and route in known in receiving system no B-channel is seized. On Call forward from satellite to main, if handshake procedure is successful and route in known in receiving system no B channel is seized. If no route is known the call is intercepted or the call is disconnected.
No and type outgoing PABX	Select this choice and enter access code in second trunk code box	Used to determine the route access code for callback and informs the system to send the extension number back to the callback location.
Route type CO PABX	Select PABX in CorNet-N environment	

Determine the portion of the number that should be sent to the public network. For CorNet-N applications PABX number should be set for the CorNet-N trunk group(s)

	No. And Type Outgoing
	Country Code
	Local Area Code
	PABX number
	Unknown

Example: The extension originating the external call is 1520.

If Country Code is selected, then	14084921520 is sent
If Local Area Code is selected, then	4084921520 is sent
If PABX number is selected, then	4921520 is sent
If Unknown is selected, then	1520 is sent

Routing Flags

Define the routing flags required for the CorNet-N network installation

- Digit repeat on

  If an outgoing route is seized and digit repeat has been activated, the routing code is automatically included as the initial portion of the call number. This feature is used in networked systems with a closed-numbering system to reach a station always using the same call number. The system used to set up the call is irrelevant.

  To use digit repeat for closed numbering, the call number plans of the other networked systems must be coordinated so that their call numbers begin with codes that are stored in the Routing codes field for the corresponding route in the initial system (refer to Section 8.21.8, Assigning Route Characteristics). Up to 10 routing codes can be defined for each route to achieve a higher level of flexibility.

  Note: This flag is typically set for networks of analog tie EM tie lines. In a CorNet-N environment, least cost routing out-dial rules are used for insertion of steering digit information.

- Evaluation of 2nd audible signal

  This evaluation is country-dependent; for example, in Belgium after 00 and in France after 16 or 19. This does not apply in the North American Market and Germany.

- Intercept per route

  You can define an intercept position for each route. If intercept is activated for a route, all calls in this route are intercepted at this intercept position if an alternate route selection is not available.

- Over. service 3.1 khz. audio

  This is an ISDN test tone.

- Add direction prefix

  This flag controls whether the seizure code is displayed during a trunk connection. For CorNet-N applications, the flag should be deactivated.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking ->Routing parameters
2.	Options ->Lines/networking ->Routes ->Routing parameters ->No. and type outgoing
3.	Options ->Lines/networking ->Routes ->Routing parameters ->Routing flags

8.21.10 Setting Clock Parameters

You must set the Master Clock reference for each of the satellite systems.

The table is divided into an allowed numbers list and a denied numbers list. The allowed numbers list defines the clock-sources sequence as referenced by the slave systems. You can define four clock sources.

The Denied Numbers list defines the spans that should not be used as reference sources. If a primary (position 1) clock source fails, the system will immediately switch to the next highest clock source.

HiPath 3750 and HiPath 3700 System

Position	Allowed Numbers List
1	
2	

Position	Denied Numbers List
1	TMST1 6 (T1 to Com)
2	TMST1 7 (T1 to Com)

HiPath 3550 and HiPath 3500 System

HiPath 3550 or HiPath 3500 1	
Position	**Allowed Numbers List**
1	TST1 6
2	

HiPath 3550 or HiPath 3500 2	
Position	**Allowed Numbers List**
1	TST1 6
2	

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking ->Clock parameters ->Clock ->Allowed list

8.21.11 Specifying LCOS Settings

This section is required to map a class of service flag associated with a specific call type in the HiPath 3000 system to a Hicom 300 or Siemens 9005 system. Refer to the Hicom 300 or 9006M configuration information for additional details. In a connection with another HiPath 3000 system, the dialed digits of the local public network access are evaluated in the denial list 1 of the target system. For connection to a Hicom 300, access is controlled via mapped network access lists.

HiPath 3000 Privileges	Hicom 300 LCOS Indexes
Internal	1 to 64
External Incoming	1 to 64
Allowed/Forbidden Lists	1 to 64
Unrestricted Trunk	1 to 64

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking ->LCOSS

8.21.12 Defining Least Cost Routing

This section defines the call routing procedure for setting up the CorNet-N dialing plan.

CorNet-N uses the DID column in each system for digit translation. The Call number column is used for Intercom calling in the local switch only.

CorNet-N Least Cost routing Example Configuration Data

- Customer has three locations in their network
- Central location is a HiPath 3750 or HiPath 3700 system
- Two satellite systems are HiPath 3550 or HiPath 3500 systems
- One Digital T1interface is connected from each of the HiPath 3550 or HiPath 3500 systems to the central HiPath 3750 or HiPath 3700 system
- Pilot Number for the main system is 1-408-492-1100, which is a DID number.
- Extension numbers on the HiPath 3750 or HiPath 3700 system are in the 11XX series.
- DID numbers for the HiPath 3750 or HiPath 3700 system are 408 492-11XX
- Extension numbers at the HiPath 3550 or HiPath 3500 system 1 are in the 12XX series
- DID numbers for the HiPath 3750 or HiPath 3700 system are 408 492-12XX
- Extension numbers at the HiPath 3550 or HiPath 3500 system 2 will be in the 16XX series
- DID numbers for the HiPath 3750 or HiPath 3700 system will be 408 492-16XX
- Block of DID terminating in the Main system provides service for all locations
- Phonemail system is shared by all sites and is installed on the HiPath 3750 or HiPath 3700 system.

Set the Station Dial Plan for Each System

Main	
Call No.	**DID**
1100	1100
1101	1101
1102	1102
1103	1103
1104	1104
……	……
1150	1150

System 1	
Call No.	**DID**
1200	1200
1201	1201
1202	1202
1203	1203
1204	1204
…..	…..
1250	1250

System 2	
Call No.	**DID**
1600	1600
1601	1601
1602	1602
1603	1603
1604	1604
…..	…..
1650	1650

Enable Least Cost Routing

This procedure activates Least Cost Routing in the systems.

Release LCR

Digit Transmission
Step by Step
En-Bloc

Define the LCR Dial Plan for Each Location

This procedure configures the basic dialing patterns supported for CorNet-N closed dialing plan. A closed dial plan means that each station in the network is configured with a unique call number. An open dial plan can also be setup using a unique leading digit plus a common station number plan for each location. For example location one could be 1200, location two could be 2200 and location three could be 3200.

Main	
Dialed Digits LCR Dlpn	Route Table
12XX	1
16XX	2

System 1	
Dialed Digits LCR Dlpn	Route Table
11XX	1
16XX	2
0Z	3

System 2	
Dialed Digits LCR Dlpn	Route Table
11XX	1
12XX	2
0Z	3

Define the Out-Dialing Rules for Each Location

This procedure instructs the system to prefix, suffix, or dial a set of dialing sequences.

- D informs the system to dial a set of digits
- A informs the system to dial all remaining digits after the LCR access code.

Refer to Chapter 7, Least Cost Routing (for U.S. Only), for additional out dial commands.

Main Location		
Rule Name	**Outdial Rule**	**Procedure**
Dial All CorNet-N	E1A or A*	Corporate Network**

System 1 Location		
Rule Name	**Outdial Rule**	**Procedure**
Dial All CorNet-N	E1A or A	Corporate Network
Dial ATC***	D1100	Corporate Network

System 1 Location		
Rule Name	**Outdial Rule**	**Procedure**
Dial All CorNet-N	E1A or A	Corporate Network
Dial ATC****	D1100	Corporate Network

* The Out-dial rule “E1A” will echo the first field (12XX and or 16XX) followed by additional digits. The Out-dial rule “A” will echo all digits entered after a timeout. Both entries are acceptable. In a network scenario where the satellite systems share public network facilities, the Out-dial rule “E1A” can be used for routing external call information as well.

** For applications requiring CorNet-N calls to be overflowed to a Public Network trunk, the Outdial procedure should be MCL single stage. This allows the CorNet-N call to progress to the next route step in the Route Table.

*** The final Out-dial rule is an option for setting up dial 0 access to the attendant at the main system. The Attendant Code 0 must be deleted or changed from the System Parameters > Intercept / Attendant screen

**** Refer to previous footnote.

Define the LCR Class of Service for Each Station in the Network

This table is defines the authorization level required to access each route group element.

The default LCR COS of 15 is assigned to all stations in this example.

Main Call Number	System 1 Call Number	System 2 Call Number	Class Of Service
1100	1200	1600	15
1101	1201	1601	15
1102	1202	1602	15
….	….	….	15

Define a Time of Day Schedule for the CorNet-N Route Availability

A time of day schedule must be defined for the CorNet-N routes.

This example uses time schedule A, which is configured to allow access to the CorNet-N links from 12:00 am to 23.59 pm, Monday through Friday.

Day	End time	Schedule*
Monday	23:59	A
Tuesday	23:59	A
Wednesday	23:59	A
Thursday	23:59	A
Friday	23:59	A
Saturday	23:59	A
Sunday	23:59	A

* The default entry for the LCR schedule tables is A. If there are no time of day routing requirements, the step is optional

Define Route Group Table Parameters

This table consolidates the LCR parameters into an association table for each route selected.

System	Route Table	Route	Out Dial Rule	Min COS	Schedule	Warning
Main	1	System 1	Dial All CorNet-N	15	A	None
Main	2	System 2	Dial All CorNet-N	15	A	None
System 1	1	CorNet-N	Dial All CorNet-N	15	A	None
System 1	2	CorNet-N	Dial All CorNet-N	15	A	
System 1	3	Dial ATC	15	A	None	Dial ATC
System 2	1	CorNet-N	Dial All CorNet-N	15	A	None
System 2	2	CorNet-N	Dial All CorNet-N	15	A	None
System 2	3	CorNet-N	Dial ATC	15	A	None

An additional route consisting of local CO service can be configured as a secondary selection if the CorNet-N channels are busy.

In some cases, the customer may request that calls between locations use the Public Network facilities to route calls when the CorNet-N links are busy. In this case, the out-dial rule procedure for the rule associated with the CorNet-N dial plan should be MCL Single Stage. An additional route element can then be added to the route group table for selecting an alternate path to the destination.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options > Set up station > Station
2.	Options > Least Cost Routing > Codes and flags
3.	Options > Least Cost Routing > Dial Plan
4.	Options > Least Cost Routing > Dialing Rules Table
5.	Options > Least Cost Routing > Classes of Service
6.	Options > Least Cost Routing > LCR-schedule
7.	Options > Least Cost Routing > Route Table

8.21.13 Configuring System Parameter Flags

For path replacement CorNet-N supports the following:

- Path replacement for calls forwarded from a satellite HiPath 3000 system to a Phonemail system connected to a main Hicom 300 or 9006M system
- Path replacement for calls transferred from a satellite HiPath 3000 system back to a station on another HiPath 3000 system.

The display option allows the trunk information to be displayed at the receiving telephone on a transferred call.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->System parameters ->Flags ->Other switches
2.	Options ->System parameters ->Flags ->Transit permission
3.	Options ->System parameters ->Flags ->Display

8.21.14 Assigning MUSAP or General Call Keys

Assigning multiple-station appearance (MUSAP) keys and general Call keys is optional; however, following this procedure provides a visual line appearance for calls received over the CorNet-N link from stations in satellite offices as well as DID calls. A second key is suggested for Rollover purposes.

General Call keys can be used for local intercom calls, CorNet-N calls, and DID calls and can be assigned to all stations. The General Call key for a specific station can not be assigned to multiple stations.

The MUSAP key can be used for DID calls and CorNet-N calls and can be assigned to all stations for this function. The MUSAP key for a station can be assigned to other stations for coverage applications. The coverage station must be programmed into the covered stations ring group for proper operation.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Set up station ->Key programming ->Key programming ->Key Code ->General Call Key
2.	Options ->Set up station ->Key programming ->Key programming -> Key code ->Assign stn. no

8.21.15 Configuring Pseudo Numbers for Centralized Phonemail

Pseudo numbers are used for identification and steering purposes. A pseudo number is a call number/ DID number that is assigned to a port not associated with a physical device.

- Pseudo numbers are assigned in the station setup screen and can be configured with a name and call management steering information.
- Pseudo numbers may not be programmed as repertory keys on the optiset stations.
- Pseudo numbers may be forwarded using the Associated Services feature code (*83) from a station with the Associated Services feature bit activated.

Define pseudo numbers for the Phonemail pilot, Forward to pilot, Direct Access, Call back and Guest access for the satellite system.

- The “Forward to” pseudo number must be forwarded to the direct access number for Phonemail at the main location
- The Phonemail, Direct, Callback and Guest access pseudo numbers must be forwarded to the respective target call numbers at the main location using the associate feature code: *83 + pseudo number + *11 + destination.

System 1						
Call No	**DID**	**Name**	**Inactive**	**Parameter**	**Type**	**Ext. Type**
1250	1250	Phonemail			No Port	Phonemail 5 D
1251	1251	Forward to			No Port	Ans. Machine
1252	1252	Direct			No Port	Ans. Machine
1253	1253	Callback (**Optional Rep key)**			No Port	Ans. Machine
1254	1254	Guest			No Port	Ans. Machine

System 2						
Call No	**DID**	**Name**	**Inactive**	**Parameter**	**Type**	**Ext. Type**
1650	1650	Phonemail MW			No Port	Phonemail 5 D
1651	1651	Forward to			No Port	Ans. Machine
1652	1652	Direct Access			No Port	Ans. Machine
1653	1653	Callback Optional Rep Key			No Port	Ans. Machine
1654	1654	Guest Access			No Port	Ans. Machine

A station at the satellite system can use the Call Forward access code *1 to forward their calls immediately to the Phonemail system.

For applications requiring the call to ring at the target station for a predetermined ring cycle, the call destination list table can be used. Target 1 would be "*" representing the originally dialed number. Target 2 would be the pseudo number representing the Forward to destination, 1251 or 1651. Associated services must be used to forward the configured pseudo ports to their respective pilot numbers in the main system.

Least Cost Routing may be used to route calls back to the main system pseudo numbers instead of assigning pseudo ports at the satellite location. A pseudo port for the PhoneMail IBMN port is still required at each of the satellite locations.

- The Phonemail entry in each of the remote systems is used as the pseudo port for lighting the Mailbox LED on the stations and as the call back target for message retrieval. The Phonemail pseudo port should be forwarded to the Call back pseudo port on the main system.
- The Forward To entry should be forwarded to the Phonemail Hunt group pilot number on the main system.
- The Direct Access entry should be forwarded to the Direct access pseudo number on the main system.
- The Guest Access entry should be forwarded to the Guest access pseudo number on the main system. Typically a DID number would be assigned for Guest access at the main system and this entry would no be required.
- The Callback function is an optional repertory key used to retrieve messages. The Call back Repertory key should be programmed to dial the Callback pseudo number on the main system.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Set up station ->station
2.	Options ->Set up station ->station ->Parameters ->Type ->Extension type

8.21.16 Defining Intercept Information

This step is required to define an intercept network position for calls that are not answered by a station destination.

In the Intercept position boxes, the default is station 100 for day and night applications. The entry needs to be updated based on the closed-number plan selected for each system. Pseudo numbers can also be entered that are forwarded to a remote system for centralized answering applications. The Associated service feature must be used to call forward the pseudo number to the target location.

The Attendant Number Call Number External field entry, default = 9 in the USA, should be deleted to eliminate conflicts with LCR dialing patterns for external and CorNet-N calls.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->System parameters ->Intercept/attendant

8.21.17 Hardware Information

Listed below are the pinouts for the T1 interface boards for the HiPath 3000 systems.

HiPath 3550 or HiPath 3500 System TST1 Board	Pins	HiPath 3750 or HiPath 3700 System TMST1 Board	Pins
Transmit	1	Transmit	18
Transmit	2	Transmit	43
Receive	4	Receive	22
Receive	5	Receive	47

8.21.18 Feature Comparisons

Listed below are the primary features supported between Siemens communications systems

The listed information is subject to change.

Feature	HiPath 3000 to HiPath 3000	HiPath 3000 to Hicom 300	HiPath 3000 to 9751
Access to central PSTN trunks	Yes	Yes	Yes
Call Back Set on Busy	Yes	Yes	No
Call back Set on No Answer	Yes	Yes	No
Call Back to sender	Yes	Yes	No
Call Forward	Yes	Yes	Yes
Call Hold	Yes	Yes	Yes
Call Recall on transfer	Yes	Yes	Yes
Call Transfer Unscreened	Yes	Yes	Yes
Call Transfer Supervised	Yes	Yes	Yes
Calling Name and Number	Yes	Yes	Yes
Camp On	Yes	Yes	TBD
Centralized DID services	Yes	Yes	Yes
Conference Call	Yes	Yes	Yes
Conservation of B channels on Call forward to hub PBX	Yes	Yes	Yes
Conservation of B channels on call transfer	Yes	No	No
ISDN Data at 128Kbps	Yes	Yes	No
ISDN Data at 64Kbps	Yes	Yes	No
Message Waiting notification	Yes	Yes	Yes
Send Text Message	Yes	NA	NA
Uniform Dialing 2 to 6 digits	Yes	Yes	Yes
Send ANI on incoming call	Yes	Yes	Yes
Send DNIS on incoming call	Yes	Yes	Yes

For HiPath 3000 to Hicom 300 or 9006M the Protocol to select is S2M: CorNet-N variant slave (H300).

8.21.19 CorNet-N Service Issues

1. In a network environment, a connection from a Hicom 300 to HiPath 3000 to Hicom 300 fails to send DTMF tones from the optiset phone on the Hicom 300 through the HiPath 3000 back to the Hicom 300 to Phonemail. A call from the HiPath 3000 to the Phonemail system on the Hicom 300 works correctly. Analog stations in all scenarios work correctly.
2. The CorNet-N application has been tested with the Hicom 300 6.4, 6.5 only. Issues concerning Phonemail integration and display information will be apparent on the Hicom 300 6.1 and 6.2 versions. All 9006 system with revisions lower than 6.4 must be upgraded to most current version of the 9006 system software levels.
3. With systems configured with analog trunks, calls transferred to Phonemail via a DID, Attendant assist or DNIS cannot be transferred across the CorNet-N link from Phonemail using a blind transfer. The Call will ring back to the Phonemail system. The same thing will happen with blind transfers from a station. An explicit transfer must be set up using the transfer function from the Optiguide keys.
4. In a CorNet-N or networked environment, where HiPath 3550 or HiPath 3500 systems are positioned as end nodes, if the HiPath 3550 or HiPath 3500 systems are installed with basic rate trunks using CACH EKTS or DMS100 Key Short Hunting, networked systems will not have access to the BRI services for outbound calls. This is due to the fact that no CACH or PDID values are reserved for the CorNet-N call. The tandem call will be intercepted to the HiPath 3550 or HiPath 3500.
5. The HiPath 3550 or HiPath 3500 system must always be used as an end-node. Connecting an HiPath 3550 or HiPath 3500 directly to another HiPath 3550 or HiPath 3500 via a T1 link is not supported at this time.
6. Transit timer problem: (**CorNet-N involved at this site**) On T1, even with both parameters for the warning tone and release set out to max values (85 total minutes) and despite fact that T1 is a digital circuit, long distance calls over T1 are disconnected in 22 minutes. 22 minutes is maximum talk time duration on the T span. Additionally, the warning tone is not handled correctly (that is, the H150 users hears silence [absence of battery] and the external party you are speaking with receives the warning tone).
7. HiPath 3000 site is **Cornet'ed** to a 9006 with centralized Phonemail. HiPath 3000 site has operator-answered groundstart trunks. If a call on these trunks is extended to a HiPath 3000 user at this site, the call will not forward up the CorNet-N to the user's Phonemail box.
8. **CorNet-N Issue:** 9006 user station forwards a call to a HiPath 3000 extension at the HiPath 3000 remote satellite site over CorNet-N. Internal calls follow forwarding and return to Phonemail if the HiPath 3000 extension rings no answer. External caller just rings to answer and will not return to Phonemail. External call through 9006 to HiPath 3000 will stop at HiPath 3000, and RNA will not be sent back up the CorNet-N to centralized Phonemail.

9. **CorNet-N Issue**: Digital optiset extension: A 9006 H300 calls extension B in HiPath 3000 which is Call Forwarded to C (Phonemail) at the 9006 H300. Extension A dials extension B; C (Phonemail) answers as expected. However, when extension A presses any digits, C (Phonemail) does not hear / acknowledge the DTMF tones. If the station A is analog, everything works fine and DTMF tones are recognized.

8.21.20 Patch Information for Hicom 300 systems as of February 1, 1999

Note that the following 9006 stand-alone patches should be installed in the 9006 system. Contact 9006 TAC for access to these patches. Only 9006 versions 6.4 and 6.5 are supported

1. The patch versions shown below ensure that the display is correct on HiPath 3000 to HiPath 3000 tandem calls through a 9006 hub.
   - PS10808 for 9006.5
2. Unresolved CorNet-N Issue.

   A new problem with 9006 and centralized PhoneMail with HiPath 3000 remote systems attached via CorNet-N is under investigation. Callers that transfer out of Phonemail call processing to an extension in a HiPath 3000. The HiPath 3000 phone RNA forwards back to PhoneMail and goes to Guest Access rather than Forward Access and the user's personal greeting.

   - HiPath 3000 site is connected to a 9006 with centralized Phonemail. HiPath 3000 site has operator-answered ground-start trunks. If a call on these trunks is extended to a 150 user at this site, the call will not forward up the CorNet-N to the user's Phonemail box.
   - **CorNet-N Issue:** 9006 user station forwards a call to a HiPath 3000 extension at the HiPath 3000 remote satellite site over CorNet-N. Internal calls follow forwarding and return to Phonemail if the HiPath 3000 extension rings no answer. External caller just rings to answer and will not return to Phonemail. External call through 9006 to HiPath 3000 will stop at HiPath 3000, and RNA will not be sent back up the CorNet-N to centralized Phonemail.
   - **CorNet-N Issue**: Digital optiset extension A in a 9006 Hicom 300 calls extension B in HiPath 3000 which is Call Forwarded to C (Phonemail) at the 9006 Hicom 300. extension A dials extension B; C (Phonemail) answers as expected. However, when extension A presses any digits, C (Phonemail) does not hear / acknowledge the DTMF tones. If the station A is analog, everything works fine and DTMF tones are recognized.
   - **CorNet-N Issue**: Two HiPath 3550 or HiPath 3500 connected via CorNet-N. HiPath 3550 or HiPath 3500 1 has BRI lines in its network. If the BRI line gets removed and HiPath 3550 or HiPath 3500 1 is shut down, HiPath 3550 or HiPath 3500 1 will not work.

8.21.21 Patch Information for the 9005 systems.

The 9005 – 9751 systems must be equipped load 9005.6.84 for proper operation. Please consult the TAC support page for information concerning upgrades to existing systems at http://tac.fld.rolm.com/9751/index.html.

8.21.22 Peripheral Equipment Installation

External Page Equipment

In cases where the customer requires access to external page systems located at remote HiPath 3000 sites the following Valcom equipment is required:

- V2001,V2003 or V2006 zone adapter.
- V9970 Centrex page adapter
- VPB-412A power supply

8.22 CorNet-N—Configuring Satellite Communications Server Operation (for U.S. Only)

Introduction

Users can configure the HiPath 3750, HiPath 3550, HiPath 3700 or HiPath 3500 to operate as a satellite communications server (CS) via CorNet-N. As a satellite CS, the HiPath 3000 can be operated both in mixed mode (ISDN trunk and CorNet-N networking) and in standard mode with a shared or separate station number block.

8.22.1 Satellite CS Without Mixed Mode

CorNet-N can be configured only using HiPath 3000 Manager E.

Sample Configuration 1

- Configure trunk group 1 as a CS (PBX) in the system.
- Assign station number 33 to the CorNet-N trunk group in the main CS.
- Operate the satellite CS with a separate station number block.
- Enter 33 as a local telephone number for trunk group 1.
- Use trunk ports 1 and 2 for satellite CS (PBX) operation.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking ->Routing parameters
2.	Options -> Lines/networking ->Routes
3.	Options ->Lines/networking ->Trunks ->Flags

Sample Configuration 2

- Configure trunk group 1 as a CS (PBX) in the system
- Assign station number 33 to the CorNet-N trunk group in the main CS
- Operate the two systems with a shared station number block
- Change the DID number for station 11 to 3311 (the DID numbers in the satellite CS must be changed.)

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking ->Routing parameters
2.	Options ->Lines/networking ->Routes
3.	Options ->Lines/networking ->Trunks ->Flags
4.	Options ->Set up station ->Station (DID)

8.22.2 Satellite CS in Mixed Mode

CorNet-N can be configured only using HiPath 3000 Manager E.

Sample Configuration

- Configure trunk group 1 as a CO and trunk group 2 as a CS (PBX).
- Assign station number 33 to the CorNet-N trunk group in the main CS.
- Operate the satellite CS with a separate station number block.
- Enter 33 as a local telephone number (must be entered for trunk group 2).
- Use trunk ports 3 and 4 for satellite CS (PBX) operation.
- Use trunk in slot 4.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking ->Routes
2.	Options -> Lines/networking ->Trunks ->Flags

8.23 CorNet-N—Networking With Closed Numbering Plan and Digit Repetition (for U.S. Only)

Introduction

A HiPath 3750, HiPath 3550, HiPath 3700 or HiPath 3500 can be networked with another communications server (CS) via CorNet-N. A station number block can be commonly used in both systems (closed numbering plan). Configuring digit repetition on tie trunks is the simplest option.

Example

- Two HiPath 3000 systems are networked via a direct T1 connection. System 1 (primary) has a station number block for 210 through 249 and system 2 (secondary) has a station number block for 250 through 299.
- In both systems, trunk group 2 is configured for networking, and trunk port 3 is used.

CorNet-N can be configured only using HiPath 3000 Manager E.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking ->Routing parameters
2.	Options ->Lines/networking ->Trunks ->Flags ->ISDN-Flags
3.	Options ->Lines/networking ->Routes

Note

If the station numbers of stations in the other system are entered as full trunk group codes (such as 210 instead of 21), the stations cannot access services such as call forwarding over the tie trunk.

8.24 Configuring the HiPath 3000 with the 9006m (for U.S. Only)

8.24.1 T1/Cornet-N

Configuring the Feature Using HiPath 3000 Manager E

Step	Activity	Action
1.	Configure the T1 for Cornet-N	Options -> Lines/Networking -> Trunks -> Param -> Protocol > S2M: CorNet-N variant slave (H300)
2.	Assign a trunk (without PABX no.) to the B channels	Options -> Lines/Networking -> Routes
3.	For routing parameters, deselect *Add direction prefix*, set *No. and type, outgoing* to *PABX number* and *Route Type* to *PABX*	Options -> Lines/Networking -> Routing Parameters See figure Figure 8-2.
4.	For System Parameters, select *External transit traffic*	Options -> System Parameters -> Flags

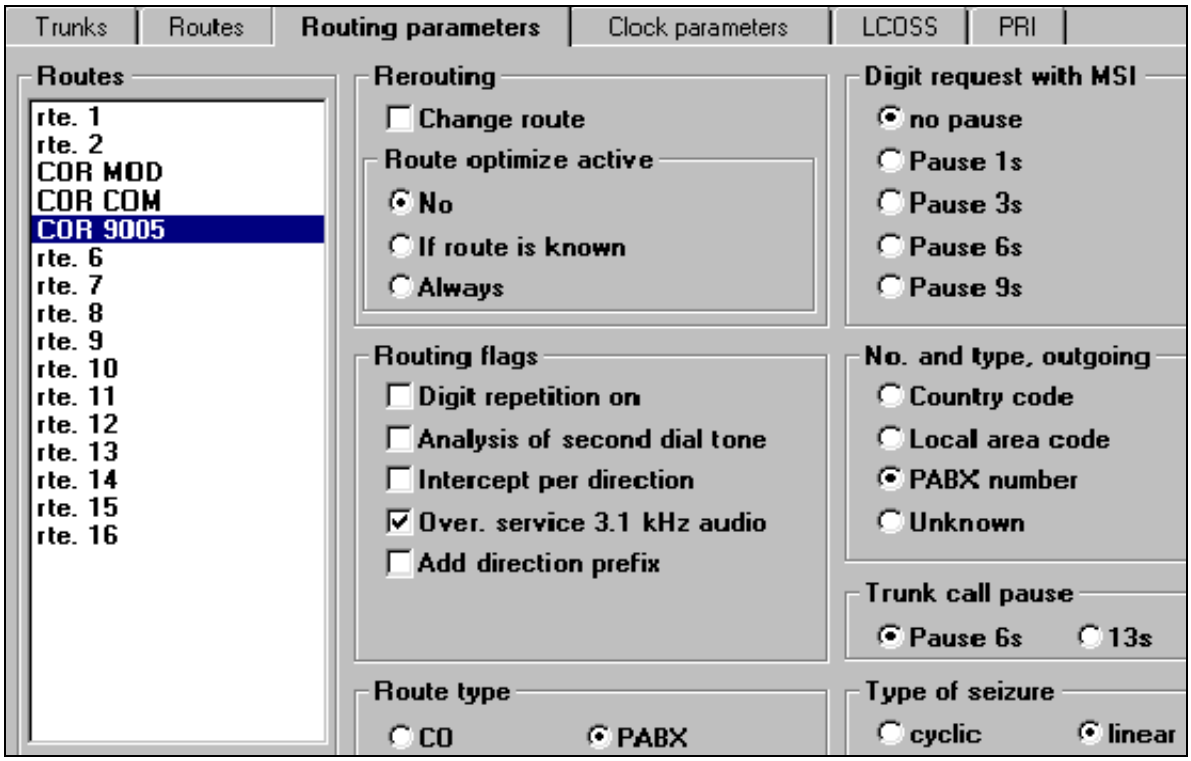


Figure 8-2 CorNet-N Routing Parameters—HiPath 3000/9006m (for U.S. Only)

8.24.2 Central Operator

You can configure a central operator with the HiPath 3000. In least cost routing (LCR), the *0* is evaluated in the dial plan and the destination is entered in the dialing rule, for example, *D65300*.

Note: First clear the *0* for System Parameters Attendant Code.

8.24.3 Central PhoneMail

For central PhoneMail in the 9006m, you must configure phantom subscribers as *Type = Answering machine* in the HiPath 3000. These are forwarded to the phonemail (PM) Access (Forward/Direct/Callback/Guest) via associated dialing. A phantom subscriber must be configured as *Type = PhoneMail,* and it must be forwarded to the Direct Access of PM for the Message Waiting LED (IBMN).

Configuring the Feature Using HiPath 3000 Manager E

Step	Activity	Action
1.	Configure phantom subscribers as Type *Answering machine*	Options -> Set up station -> Param -> Type -> Answering machine
2.	Configure phantom subscriber as Type *PhoneMail*	Options -> Set up station -> Param -> Type -> PhoneMail
3.	Configure phantom subscribers for PhoneMail	Options -> Set up station -> See Figure 8-3
4.	For Routing parameters, set *No. and type, outgoing* to *PABX number*	Options -> Lines/networking -> Routing parameters (See Figure 8-4)

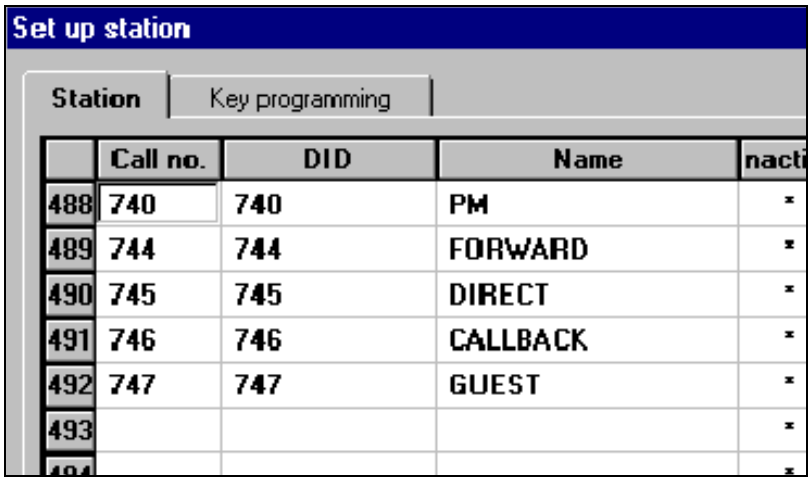


Figure 8-3 Phantom Subscribers—HiPath 3000/9006m (for U.S. Only)

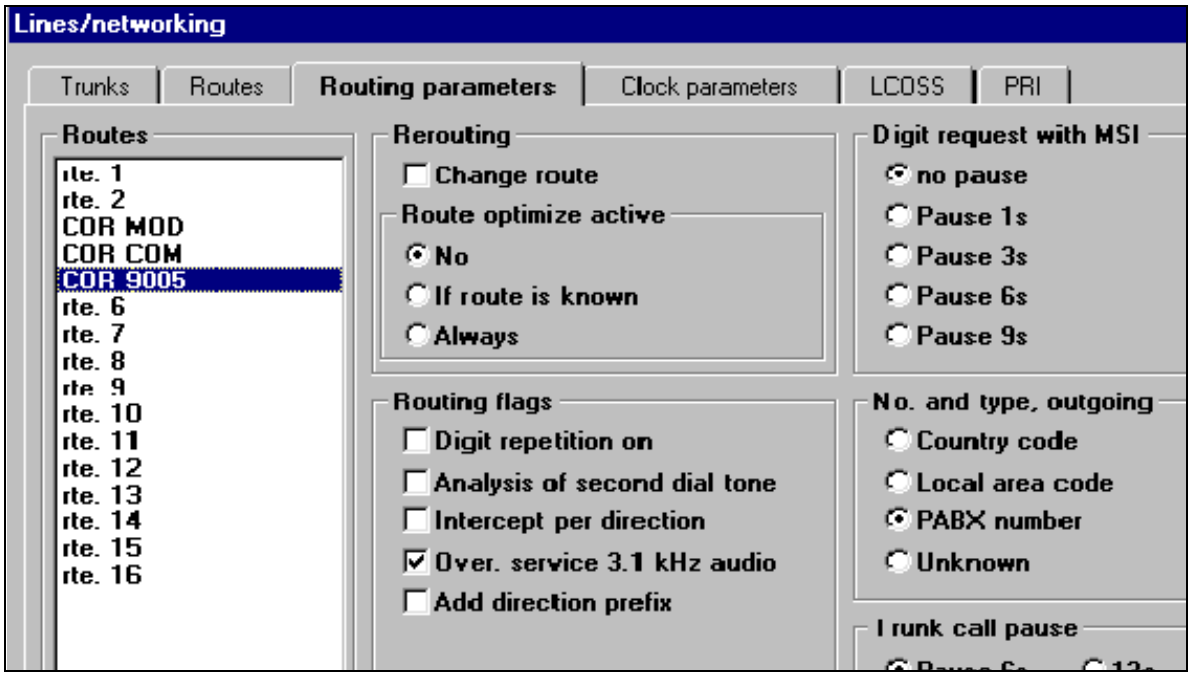


Figure 8-4 Routing Parameters—HiPath 3000/9006m (for U.S. Only)

8.24.4 Intercept Criteria

If the central intercept position is in the 9006m, the intercept follows the selected criteria if you enter a phantom subscriber for the intercept position (see Figure 8-5).

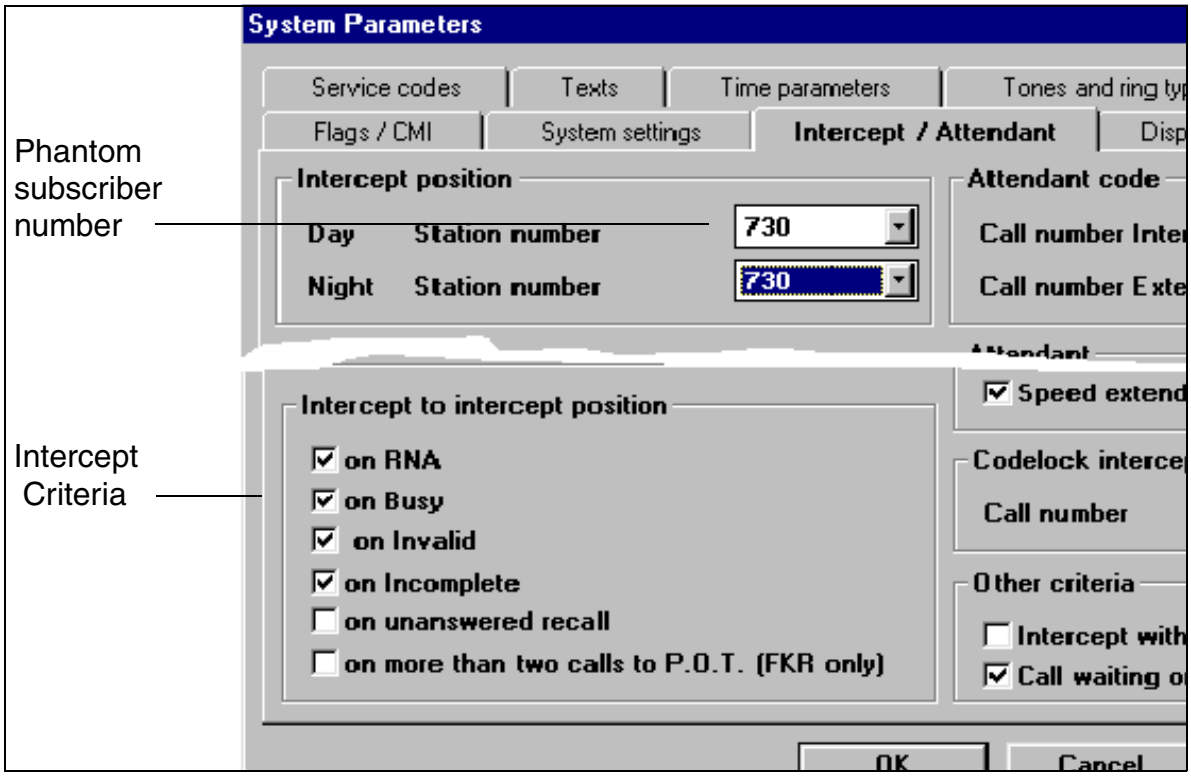


Figure 8-5 CorNet-N Intercept Position—HiPath 3000/9006m (for U.S. Only)

8.24.5 System Speed-Dialing No.

The HiPath 3000 can use the system speed-dialing numbers of the 9006m. For this purpose, the code for speed-dialing in the 9006m must be changed from #6 to a station number (*12* in Figure 8-6). That is, * or # cannot be used because these codes cannot be dialed via CorNet-N.

Configuring the Feature Using HiPath 3000 Manager E

Step	Activity	Action
1.	Configure Dial plan	Options -> Least cost routing -> Dial plan (See Figure 8-6)
2.	Configure Route table by assigning the Speed-dial dialing rule	Options -> Least cost routing -> Route table -> CorNet-N trunk group (See Figure 8-7)
3.	Configure the Dialing rules table	Options -> Least cost routing -> Dialing rules table (See Figure 8-8)

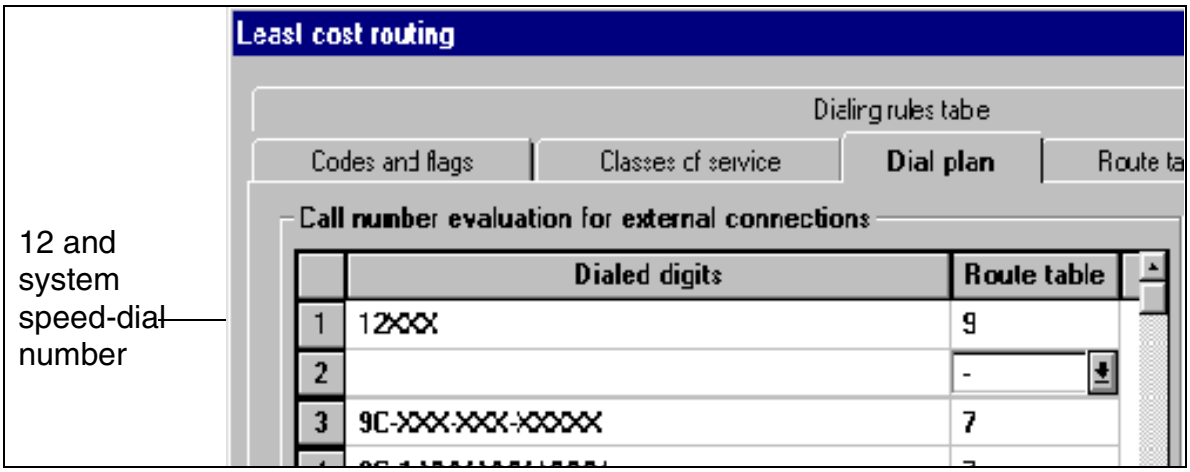


Figure 8-6 System Speed-Dialing Dial Plan—HiPath 3000/9006m (for U.S. Only)

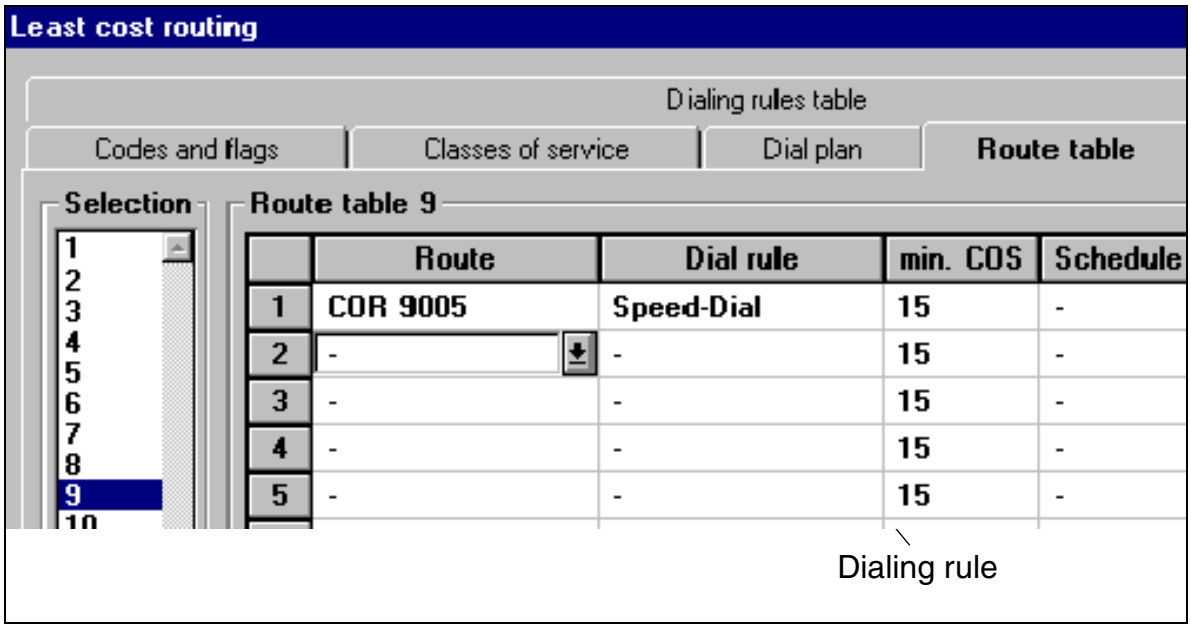


Figure 8-7 System Speed-Dialing Route Table—HiPath 3000/9006m (for U.S. Only)

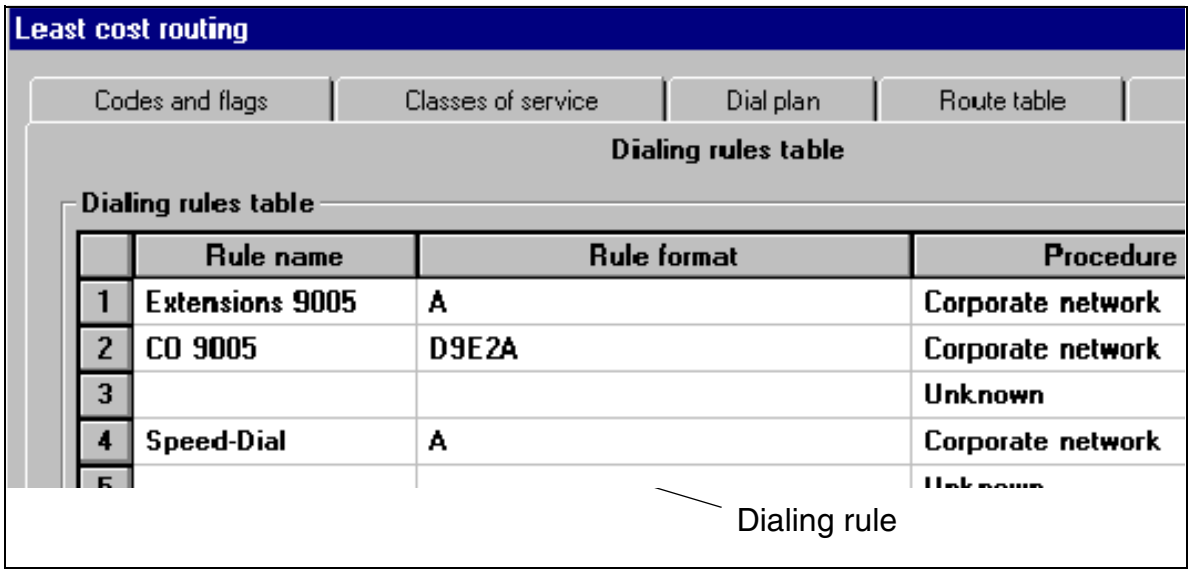


Figure 8-8 System Speed-Dialing Dialing Rules Table—HiPath 3000/9006m (for U.S. Only)

Related Topics:

- Section 7.8, Least Cost Routing (LCR) (Not for U.S.), on page 7-283
- Section 8.32, Configuring Least Cost Routing (for U.S. Only), on page 8-117
- Section 7.8.1, Carrier Types, on page 7-284
- Section 7.8.2, Routing Tables, on page 7-288
- Section 7.7.6, En-Bloc Dialing, on page 7-245

8.25 Configuring an Internal S_0 Bus with Multiple Stations (Not for U.S.)

Introduction

Each S_0 bus can support up to eight terminals or telephones. For this purpose, one or more system ports must be configured as a Euro-bus.

In the U.S., S_0 busses are internal only. Refer to Section 8.13, Configuring an ISDN Multi-Device Connection With Multiple Subscriber Numbers (for U.S. Only), on page 8-37 for configuration information.

Example

Configure port 4 as a Euro-bus.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	20 - 4 - 1	ISDN parameters, EU parameter, S_0-port config	Port 1: DSS1 trunk PP
5.	# 4 ✓	Select port 4.	Port 4: DSS1 trunk PP
6.	* 4 ✓	Configure as Euro-bus	Port 4: Euro-bus
7.	F8-F7	Exit system administration	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Lines/networking -> Trunks -> Flags

Note

Note the following when starting up an internal S_0 bus:

- A total of 64 MSNs can log onto each bus. They must be intered in the internal CDB numbering plan and should not be in used by another other telephones (such as optiset E). Sixty-three MSNs can occupy any position in the CDB. If you are starting up 64 MSNs, one must be the default MSN for this S_0 port.

S_0 Port	Default MSN
1	Internal station number of the last station position
2	Internal station number of the next-to-the-last station position.
...	...

- If you need more than 64 MSNs, add another S_0 bus.Then proceed just as you would for configuring the first S_0 bus.
- You must assign MSN numbers to each terminal or telephone on the Euro-bus.
- If you do not assign an MSN to the telephones, the default for this port will be used as the MSN for all telephones. In other words, a call placed to this default MSN will also be placed to all telephones connected to the bus.
- The MSN setting on the telephone depends on the telephone.

8.26 Configuring Call Pickup Groups

Introduction

You can configure call pickup groups. This feature allows users to answer a call from another station in the same call pickup group.

Each station can be entered in only **one** call pickup group.

Example

Enter stations 200, 202, 203, and 204 in call pickup group 1.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	14-18	Select *Configure station, Call pickup group*.	Stn 200: -
5.	*1 ✓	Enter station 200 in pickup group 1 and confirm	Stn 200: 1
6.	+ *1 ✓	Enter next station (201) in pickup group 1 and confirm	Stn 201: 1
7.	+ *1 ✓	Enter next station (202) in pickup group 1 and confirm	Stn 202: 1
8.	+ *1 ✓	Enter next station (203) in pickup group 1 and confirm	Stn 203: 1
9.	+ *1 ✓	Enter next station (204) in pickup group 1 and confirm	Stn 204: 1
10.	F8 F7	Exit system administration	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Incoming calls -> Call pickup

8.27 Configuring a Second V.24 (RS-232) Interface

Introduction

You can configure the second V.24 (RS-232) interface for connecting Plus Products.

Example

Configure the second V.24 (RS-232) interface for call detail recording central (CDRC) at a baud rate of 2400.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	22-13-1	Select *System settings, V.24 Configurations, Baud rate*.	V.24 port 1: 9600 bd
5.	+ ✓	Go to V.24 (RS-232) port 2	V.24 port 2: 9600 bd
6.	* 2400 ✓	Change the baud rate from 9600 to 2400 baud	V.24 port 2: 2400 bd
7.	F7 2 1	Return to *V.24 configurations*. Select *Port allocation, Detail rec. central*.	V.24 port: -
8.	* 2 ✓	Enter port 2 and confirm.	V.24 port: 2
9.	F8-F7	Exit system administration	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Call charges -> Output format
You cannot use HiPath 3000 Manager E to set the baud rate; use Assistant T.	

8.28 Configuring an Entrance Telephone and Entrance Telephone Ring Destination

Introduction

You can connect up to four entrance telephones to the system. The telephones are usually connected to a free analog subscriber port.

You can configure one entrance telephone ring destination for each entrance telephone connected (the entrance telephone ring destination configured can also be a group).

Example

- Configure station 250 as entrance telephone 1.
- Assign station 210 as the ring destination for entrance telephone 1.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	24-1	Select *Entrance telephone*, entrance telephone 1	Door 1: -
5.	* 250 ✓	Enter station 250 and confirm	Door 1: 250
6.	F7 2	Return to *Entrance telephone*. Select entrance telephone ring destination 1	Door 1: -
7.	* 210 ✓	Enter station 210 and confirm	Door 1: 210
8.	F8 F7	Exit system administration	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Trunk modules -> Ext. connection

8.29 Configuring a Door Busy Relay

Introduction

You can control an external door busy display by means of a relay.

Example

- Configure relay 1 as a busy display for the entrance telephone.
- Station 19 was already configured as an entrance telephone.
- Assign the name “Door busy” to relay 1.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	26-1	From the *Relays* menu, select the *Type* submenu	Relay no. 1:-
5.	* 5 ✓	Change the parameter to *Busy display* and confirm	Relay 1: Busy display
6.	F2 * 1 ✓	Enter the relay switching time in the *Switching time* submenu and confirm	Relay 1: 1
7.	F2 * 19 ✓	Enter the entrance telephone station in the *Assigned station* submenu and confirm	Relay 1: 19
8.	F2 * Door busy ✓	Assign the relay name in the *Relay name* submenu and confirm	Relay 1: Door busy
9.	F8 F7	Exit system administration	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Trunk modules -> Actuators

Note

Connect an external busy indicator to the NO contact of the relay. Refer to page 3-262 for the contact current carrying capacity for the HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300; refer to Relay Specifications on page 3-255 for the contact current carrying capacity for the HiPath 3750 and HiPath 3700.
Switching time = value entered x 100 ms

8.30 Programming a Sensor as an Alarm Dialing Device

Introduction

You can define a destination to be signaled when an external contact (sensor) closes. This destination can be an internal station, an internal group, or an external station.

Example

Specify station 12 as the destination for the signal from sensor 1.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	27-1	Select the *Relays*, *Dest. station no.* menu for sensors (you can select a sensor directly using #)	Sensor no. 1:-
5.	* 12 ✓	Define destination station number for sensor and confirm	Sensor no. 1: 12
6.	F8-F7	Exit system administration	Time, date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Trunk modules -> Sensors

8.31 Configuring Least Cost Routing (DICS) (Not for U.S.)

Introduction

You need an optiset E memory telephone to program LCR using Assistant T.

Example

- A DICS server is used.
- Place the trunks in trunk group 1.
- Route all numbers with a prefix through DICS as station numbers; route local calls through the primary carrier.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	35-8-1	Enter dialed digits	Line 1: -
5.	* 0-0Z ✓	Enter station numbers to be routed via DICS and confirm	Line 1: 0-0Z
6.	✓	Confirm scrolling	Line 2: -
7.	* 0-Z ✓	Do not route remaining numbers	Line 2: 0-Z
8.	F7	Return to *Dialing plan*	
9.	2	Assign path table	Line 1: 0
10.	* 1 ✓	Configure path table for the routed number and confirm	Line 1: 1
11.	✓	Confirm scrolling	Line 2: -
12.	* 2 ✓	Configure path table for the remaining digits and confirm	Line 2: 2
13.	F7	Return to *Dialing plan*	Dialing plan
14.	F7	Return to *LCR*	LCR
15.	7	Configure path tables	Routing tables
16.	1	Configure trunk group for routed station numbers	Table 1, Line 1: 0
17.	* 1 ✓	Enter trunk group and confirm	Table 1, Line 1: 1

Step	Entry	Action	Display
18.	✓	Confirm scrolling	Table 1, Line 2: 0
19.	* 1 ✓	Enter trunk group for rerouting and confirm	Table 1, Line 2: 1
20.	# 2 ✓	Select trunk group for digits that will not be routed and confirm	Table 2, Line 1: 0
21.	* 1 ✓	Enter trunk group and confirm	Table 2, Line 1: 1
22.	F7	Return to *Routing tables*	Routing tables
23.	2	Assign the table to an outdial rule	Table 1, Line 1: 0
24.	* 1 ✓	Assign to outdial rule 1 and confirm	Table 1, Line 1: 1
25.	✓	Confirm scrolling	Table 1, Line 2: 0
26.	* 2 ✓	Assign to outdial rule 2 and confirm	Table 1, Line 2: 2
27.	# 2 ✓	Assign table 2 to an outdial rule and confirm	Table 2, Line 1: 0
28.	* 2 ✓	Assign to outdial rule 2 and confirm	Table 2, Line 1: 2
29.	F7	Return to *Routing tables*	Routing tables
30.	5	Configure alarm for rerouting	Table 1, Line 1: none
31.	✓	Confirm scrolling	Table 1, Line 2: none
32.	* 4 ✓	Alarm: Display and tone	Table 1, Line 1: Di/To
33.	F7	Return to *Routing tables*	Routing tables
34.	F7	Return to *LCR*	LCR
35.	4	Enter authorization code for DICS	Index 1: -
36.	* 003 ✓	Enter carrier ID (specified by carrier: 003, for example) and confirm	Index 1: 003
37.	✓	Confirm scrolling	Index 2: -
38.	* 12345 ✓	Enter customer ID (specified by carrier: 12345, for example) and confirm	Index 2: 12345
39.	F7	Return to *LCR*	LCR
40.	3	Enter outdial rule	Outdial rule
41.	1	Enter name	Line 1: -
42.	* DICS ✓	Enter name and confirm	Line 1: DICS
43.	✓	Confirm scrolling	Line 2: -

Step	Entry	Action	Display
44.	* Telecom ✓	Enter name	Line 2: Telekom
45.	F7	Return to *Outdial rule*	Outdial rule
46.	2	Enter dialed digits and authorization number	Line 1: -
47.	* C089722UM1M2A ✓	Enter number for the DICS server without trunk group code: 089722, for example, and confirm	Line 1: C089722UM1M2A
48.	✓	Confirm scrolling	Line 2: -
49.	* A ✓	Enter outdial rule for unrouted digits	Line 2: A
50.	F7	Return to *Outdial rule*	Outdial rule
51.	3	Enter the carrier type	Line 1: Unknown
52.	* 5 ✓	Select *DICS* carrier and confirm	Line 1: DICS
53.	✓	Confirm scrolling	Line 2: Unknown
54.	* 1 ✓	Select *Main carrier* and confirm	Line 2: Main carrier
55.	F7	Return to *Outdial rule*	Outdial rule
56.	F7	Return to *LCR*	LCR
57.	1	Activate least cost routing	State: off
58.	* 1 ✓	Activate least cost routing and confirm	State: on
59.	F8-F7	Exit system administration	Time, date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Least cost routing -> Codes and flags
2.	Options -> Least cost routing -> Classes of service
3.	Options -> Least cost routing -> Dial plan
4.	Options -> Least cost routing -> Route table
5.	Options -> Least cost routing -> LCR schedule
6.	Options -> Least cost routing -> Dialing rules table

8.32 Configuring Least Cost Routing (for U.S. Only)

This section describes the procedures for configuring least cost routing in the U.S.

8.32.1 Configuring Least Cost Routing Using HiPath 3000 Manager E

This section describes the procedure for programming least cost routing using HiPath 3000 Manager E. Refer to Section 8.32.2 for information on configuring the feature using Assistant T.

Procedure Overview

The following sections describe this sequence in detail.

Part 1: Enabling LCR	
Step	**Task**
1.	Create route groups.
2.	Set parameters for each route-group type.
3.	Create a name for each route group.
4.	Delete seizure codes for each route group.
5.	Set characteristics for each route group.
6.	Enable least cost routing.

Part 2: Codes and Tables	
Step	**Task**
1.	Set the type of dialing function.
2.	Enter LCR authorization codes.
3.	Enter the LCR dial plan.
4.	Create the route table.
5.	Define the least cost routing class of service for each station.
6.	Define the LCR route group schedule.
7.	Define the dialing rules table.

8.32.1.1 Creating Route Groups

Place each trunk into a specific route group based on function and interface type. Place all unused trunks into a separate trunk group.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Lines-networking -> Trunks -> Routes

8.32.1.2 Setting Parameters for Each Route-Group Type

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Lines-networking -> Trunks -> Parameters

8.32.1.3 Creating a Name for Each Route Group

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Lines-networking -> Trunks -> Routes

8.32.1.4 Deleting Seizure Codes for Each Route Group

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Lines-networking -> Trunks -> Routes

8.32.1.5 Setting Characteristics for Each Route Group

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Lines-networking -> Trunks -> Routing parameters

Step	Action
2.	Route type: PBX
3.	Type of seizure: Cyclic

8.32.1.6 Enabling Least Cost Routing

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Least cost routing -> Codes and flags -> LCR - flags -> Release LCR

8.32.1.7 Setting the Type of Dialing Function

Use this procedure to select step-by-step or en-bloc dialing. The default is en-bloc. This means that all of the digits are stored, then processed as a complete number at end of dialing.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Least cost routing -> Codes and flags -> LCR - Digit transmission -> Digit by digit

8.32.1.8 Entering LCR Authorization Codes

Sixteen codes can be entered for post-digit dialing applications. Enter the codes in the out-dial rule using the letter *M* followed by the index number.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Least cost routing -> Codes and flags -> LCR - Authorization codes

8.32.1.9 Entering the LCR Dial Plan

The current table supports 514 entries. Enter all of the possible dialing combinations that will be used by the customer. Wildcards such as *N*, *A*, and *X* are supported. Each dial plan entry should have a route-table reference number.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Least cost routing -> Dial plan

8.32.1.10 Creating the Route Table

This step defines the route steps for each route table. Each route table supports 16 entries. Each route group entered requires the following:

- A dial rule
- A minimum class of service entry
- A schedule reference letter

An optional warning indicator can be assigned for overflow notification.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Least cost routing -> Route table

8.32.1.11 Defining the Least Cost Routing Class of Service for Each Station

This step assigns a Class of service level (from 1 to 15) to each station. The assigned level number must be equal to or greater than the level associated with the route group selected to allow access to the service.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Least cost routing -> Classes of service

8.32.1.12 Defining the LCR Route Group Schedule

This step defines the time ranges that a particular route group is available. The clock for each day begins at 12:00 a.m. Enter the end time for each zone in the time-limit column. The default is 23.59 in the time-limit 1 column for all days. This means that the route groups are available from 12:00 a.m. to 11:59 p.m. Each day is separated into 8 time zones. Enter the end time as required. Time bands are differentiated using the letters *A* through *H*.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Least cost routing -> LCR - schedule

8.32.1.13 Defining the Dialing Rules Table

In this step, you define the actual output to the public network. The rules are used to append or suffix digits to the input received from the dialing station. The system supports 254 outdial rules.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Least cost routing -> Dialing rules table

8.32.2 Configuring Least Cost Routing Using Assistant T

Using Assistant T, this example illustrates how to configure LCR.

Press Shift (⇑) and the appropriate letter to input letters on the optiset E memory telephone during LCR programming (for example, ⇑+C to input a C).

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration.	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	35 1 * 1 ✓	Go to least cost routing (LCR). Activate least cost routing.	Status: On
5.	F7 2 * 1 ✓	Go to previous menu. Select *dialing mode* and *en-bloc sending* and confirm.	State: En-bloc sending
6.	35 8 1	Select *LCR, Dialing Plan, Dialed digits*. Enter station numbers	Line 1: -
7.	F7 2 1 * 1 ✓	Go to previous menu and select *Assign routing tab*. Assign routing table 1 for the routed number and save.	Line 1: 1
8.	35 7 1 * 1 ✓	Return to least cost routing (LCR). Configure routing tables. Configure trunk group for routed digits. Enter trunk group 1 and save. Continue as necessary.	Table 1, Line 1: 1

Step	Entry	Action	Display
9.	35 2 * 1 ✓	Return to routing tables and assign outdial rule. Change outdial rule and save.	Table 1, Line 1: 1
10.	35 5	Return to *Routing tables* and select *Warning messages*. Change to desired warning message.	Table 1, Line 1: None
11.	35 4 * *** ✓	Return to least cost routing (LCR). Select Authorization code. Enter carrier ID and save.	Index 1: ***
12.	✓ * ***** ✓	Go to index 2 and enter customer ID.	Index 2: *****
13.	35 3 1 * Sprint ✓	Return to least cost routing (LCR) and select *Outdial rule*. Enter the name of the carrier for line 1 and save. Continue as necessary.	Line 1: Sprint
14.	35 3 2	Return to *Outdial rule* and select *Format*.	Line 1: -
15.	* ********* 1A ✓	Enter number for the carrier of line 1 in the outdial rule table (without the trunk group code) and save. Continue as necessary.	Line 1: *********
16.	35 3 3	Return to outdial rule. Enter carrier type.	Line 1: Unknown
17.	F8 F7	Terminate system administration.	Time, Date

8.33 Remote Administration via ISDN

Introduction

Remote administration via ISDN allows you to read out the customer database (CDB), modify it if necessary, and transfer it back to the system.

Three types of remote administration via ISDN are available:

1. Enable procedure (default)
2. Logon without PIN
3. Logon with PIN

Example

Enable procedure (default): Remote administration using the enable procedure is the default. Customers simply change the PIN to enable (default = 000 000).

Step	Entry	Action	Display
1.	***95 ✓**	Start system administration: User: *95 (default) Password: ✓ (default)	User: Password
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	22	Select *Remote admin password*	Old PIN:
5.	****** (old PIN, 000 000)	Enter old PIN (default = 000 000)	New PIN:
6.	*** *** (new PIN)	Enter new PIN	Repeat:
7.	*** *** (reenter new PIN)	Confirm new PIN	New PIN saved
8.	F8 F7	Exit menu.	

Example

Logon without PIN: Data can be loaded to and from the system at any time without a PIN.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	30-2	Select *Remote admin menu, ISDN access, CO*	Access: Enable proc.
5.	* 1 ✓	Enter *Logon without code* and confirm	Access: Logon w/o code
6.	F8 F7	Exit system administration	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	File -> Transfer -> Callback connection
Remote administration PINs cannot be configured using HiPath 3000 Manager E.	

Example

Logon with PIN: Data can be loaded from the system at any time by entering a 6-digit PIN (modifiable by customer) in HiPath 3000 Manager E.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	30-2	Select *Remote admin* menu, I*SDN access, CO*	Access: Enable proc.
5.	* 2 ✓	Enter *Logon with code* and confirm	Access: Logon w/code
6.	F8 F7	Exit system administration	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	File -> Transfer -> Callback connection
Remote administration PINs cannot be configured using HiPath 3000 Manager E.	

Example

Changing the PIN

Step	Entry	Action	Display
1.	***95**	Start system administration: User: *95 (default) Password: ✓(default)	User: Password
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	22	Select *Remote admin password*	Old PIN:
5.	****** (old PIN, 000 000)	Enter old PIN (default = 000 000)	New PIN:
6.	*** *** (new PIN)	Enter new PIN	Repeat:
7.	*** *** (reenter new PIN)	Confirm new PIN	New PIN saved
8.	F8 F7	Exit menu	

Example

- Changes the DID number for remote administration.
- Configures the **external** direct inward dialing (DID) number.

Step	Entry	Action	Display
1.	***95 ✓**	Start system administration: User: *95 (default) Password: ✓(default)	User: Password
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:

Step	Entry	Action	Display
4.	30-6	Select *Remote admin* menu, *DID number*.	Station number: 879
5.	* ... ✓	Enter DID number desired for external remote administration and confirm	Station number: ...
6.	F8 F7	Exit menu.	

Example

- Changes the DID number for remote administration.
- Configures the **internal** direct inward dialing (DID) number.

Step	Entry	Action	Display
1.	***95 ✓**	Start system administration: User: *95 (default) Password: ✓(default)	User: Password
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	30-5	Select *Remote admin* menu, *DID number*	Station number: 879
5.	* ... ✓	Enter DID number desired for external remote administration and confirm	Station number: ...
6.	F8- F7	Exit menu	

8.34 Remote Administration via DTMF

Introduction

Remote dual-tone multifrequency (DTMF) administration permits simple remote administration. You make entries the same way as in system administration directly on the customer system.

You can activate remote DTMF administration from any station in the source system using a code procedure. (Remote DTMF administration mode must be enabled.)

Passive remote DTMF administration mode must be enabled in the destination system. The called party can then activate remote administration for the current call by using a procedure and entering a password (6 characters, default = 000 000).

Example

Activate remote DTMF administration mode in the destination system.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	30-1	Call *Remote admin, DTMF access*	Access: None
5.	* 2✓	Configure system as satellite system	Access: Slave
6.	F8-F7	Exit system administration	Time, Date

Example

Activate remote DTMF administration mode in the source system.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	30-1	Call *Remote admin, DTMF access*	Access: None

Step	Entry	Action	Display
5.	* 1 ✓	Configure system as main system	Access: Master
6.	F8-F7	Exit system administration	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
Cannot be configured using HiPath 3000 Manager E.	

Example

Change the password for remote DTMF administration.

Step	Entry	Action	Display
1.	***95**	Start system administration: User: *95 (default) Password: ✓(default)	User: Password:
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	62	Select *Remote admin password*	Old PIN:
5.	****** (old PIN, 000 000)	Enter old PIN (default = 000 000)	New PIN:
6.	*** *** (new PIN)	Enter new PIN	Repeat:
7.	*** *** (reenter new PIN)	Confirm new PIN	New PIN saved
8.	F8-F7	Exit menu	

Remote DTMF administration can be used on analog or digital trunks. It can be started only from the first or second port of the destination system (satellite system).

8.35 Configuring HiPath cordless (Not for U.S.)

Overview

This section describes the following actions:

- Enter the HiPath Cordless System Number and Display the PIN and Station Numbers Using Assistant T
- Open the Login Window in HiPath 3000
- Log On the Mobile Telephone (for Gigaset 2000C, 2000C pocket, active)
- Log On the Mobile Telephone (for Gigaset 3000 Comfort, 3000 Micro)
- Check the Login Status of the Mobile Telephones
- Replace, Lock, and Log Off a Mobile Telephone
- Assign a New Pin Using Assistant T
- Assign a New PIN Using HiPath 3000 Manager E
- Configuring Multi-SLC and System-Wide Networking Using HiPath 3000 Manager E

Introduction

Sixteen mobile telephones are released for use by entering the HiPath cordless system number (DECT identification, 8 hexadecimal places) and inserting the SLC16 board into HiPath 3750, HiPath 3550 or HiPath 3700, after which they can be logged on (mobile telephone codes, or PINs, are assigned). Other mobile telephones must be released before they can be used.

For initial installation of the HiPath cordless, the HiPath cordless system number must be ordered together with the SLC16 board. Later shipments of replacement boards do not come with HiPath cordless system numbers.

Login Procedure

Before logging on a mobile phone, you must open the login window from a system telephone by entering the code and password. A maximum of 10 login windows can be open at a time. Then type the station numbers of the mobile telephones you want to log on.

Enter the HiPath Cordless System Number and Display the PIN and Station Numbers Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System Administration
2.	XXXXX ✓	Enter user name	User:
3.	XXXXX ✓	Enter password	Password:
4.	36	Set the HiPath cordless parameters	Cordless
5.	5	Enter the HiPath cordless system number (DECT identification)	DECT Identification:
Wait for the SLC16 board to start up			
6.	F7	Return to HiPath cordless parameters	Cordless
7.	2	Display the PIN for the first mobile telephone	Device 1: 11115678 (example)
8.	F2	Display the station number for the first mobile telephone	Device 1: 124 (example)
9.	F8-F7	Exit system administration	Set time, Set date

Open the Login Window in HiPath 3000

Entry	Action	Display
*94 2 19970707	Open the login window	Station no.:
124	Type the station number of the handset you want to log on (such as 124)	Station no:
125	Type the station number of the second handset you want to log on (such as 125)	Station no:
: :	: :	: :

The login window remains open for ten minutes per station. The handset must log on during this period (refer to Log On the Mobile Telephone (for Gigaset 3000 Comfort, 3000 Micro) on page 8-133).

Log On the Mobile Telephone (for Gigaset 2000C, 2000C pocket, active)

Example: Log mobile telephone (station number *124*) with mobile station code (PIN) *11115678* on to DECT telephone system 1.

Step	Entry or Key	Handset Display
1.	Turn on the mobile telephone by pressing the On/Off key.	The first time you log on, the message *Register?* appears on the handset screen. The second time you log on, the message *Base 1* appears.
2.	Press the Menu key to display the main menu. Press the left display key until *Reset* is highlighted and press the right display key to confirm.	▲ **Reset** **OK**
3.	Press the left display key until *Register* is highlighted and press the right display key to confirm.	▼ **Register** **OK**
4.	Confirm the display or press the display keys to select a different station*.	**Station 1** ▼ **OK**
5.	Enter the 8-digit PIN (mobile telephone code) *11115678* and confirm the number.	*Enter Base Code*:
6.	The display of the logged on handset (such as *Base 1*) is replaced by a rapidly flashing bell symbol (which can last up to 20 seconds). This confirms that the handset has logged on properly.	"Station 1" " 🔔 "

* Station = DECT telephone system

After logging on and releasing a handset, always turn on the out-of-range warning signal. For more information, refer to the operating instructions (see Related Documentation).

Log On the Mobile Telephone (for Gigaset 3000 Comfort, 3000 Micro)

Example: Log the mobile telephone (station number 125) onto the DECT telephone system, using mobile telephone PIN *11112345*.

Step	Entry or Key	Handset Display
1.	Switch on the mobile telephone by holding down the hook key for at least 1 second. You hear a confirmation tone.	The first time you log on, the message *Register?* appears on the handset display. The second time you log on, **Base 1** or a similar message is displayed.
2.	Make the following entries within one minute. Press the menu key.	**Z [**
3.	Select a station* (such as *Base 2*) and confirm.	**Z** **Base 2**
4.	Open the add-on menu.	**m**
5.	Select *Register* and confirm your choice.	**Z [** The following prompt appears: “Please enter system PIN:”
6.	Enter the eight-digit system PIN (mobile telephone code) *11112345* and confirm.	11112345
7.	Once you have logged on properly, *Base 2* or a similar message appears and the bell symbol  flashes.	**Base 2**

* Base = DECT telephone system

After logging on and releasing a handset, always turn on the out-of-range warning signal. For more information, refer to the operating instructions (see Related Documentation).

Check the Login Status of the Mobile Telephones

You can use the **Stations** object in HiPath 3000 Manager E to check the current login status of the mobile telephones. Double-click the **Param** field with the left mouse button to open the **Station Parameters** window. Select the **Type** tab to display the station data. The **CMI** field shows the login status of the individual mobile telephones.

Replace, Lock, and Log Off a Mobile Telephone

If you need to replace a handset for servicing, you must change the mobile telephone code (PIN) of the old handset before logging on the replacement telephone.

When you replace a mobile telephone, the station must be assigned a new mobile telephone code (PIN) in the HiPath 3000 system. This automatically logs off the mobile telephone.
This also prevents a person who knows the old PIN to log on an invalid mobile telephone.

Assign a New Pin Using Assistant T

Example: Log off a mobile telephone (station number *124*) with mobile telephone code (PIN) *11115678*.

Step	Entry	Action	Display
1.	***95**	Start system administration	System Administration
2.	XXXXX ✓	Enter user name	User:
3.	XXXXX ✓	Enter password	Password:
4.	36	Set HiPath cordless parameters	Cordless
5.	2	Change the PIN for first handset, logging off the current handset	Device 1: 11115678
6.	* 11112345 ✓	Enter the new PIN, logging off the old handset	Device 1: 11112345
7.	F8-F7	Exit system administration	Set time, Set date
8.	Open the login window and start the handset login procedure as described above.		

Assign a New PIN Using HiPath 3000 Manager E

Step	Action
1.	Options -> Set up station -> Station -> Param (double-click) -> Type
2.	Open the login window and start the handset login procedure as described above (not possible from HiPath 3000 Manager E).

Always use either HiPath 3000 Manager E or Assistant T to log off a mobile telephone. You cannot fully log off the mobile telephone using the mobile telephone menu.

Configuring Multi-SLC and System-Wide Networking Using HiPath 3000 Manager E

Step	Action
1.	Access the “System-wide” dialog in the “System status” menu.
2.	Property tab “Boards”, “System expansion software”: distribute SLC16 boards to the system cabinet(s)/slot(s).
3.	Switch to “Card config.”.
4.	CMI configuration • card configuration: The following card settings are displayed: – Type: SLC16 – Slot: List of the slots of all inserted SLC16 boards. – Configured PP: number of the configured mobile telephones (Portable Parts PP) of the SLC16 displayed under “Slot” (default = 16). – SLC no.: number of the SLC16 displayed under “Slot”. The SLC number is the board’s unambiguous identification number in the network. The number can be configured in the range 1...15, 17...31, 33...47, ..., ..., ...127. • Portable Parts You can add additional mobile telephones to those already configured. • Delete Portable Parts You can delete one or more mobile telephones.
5.	SLC16 table Here you can configure all boards in the system/systems (when networking) that are used for HiPath cordless. These are the SLC16 boards and the central boards that have base stations connected to their UP0/E interfaces (slot 2). • Read from CDB This list box contains the names of all the CDB files in the networked systems that are open in HiPath 3000 Manager E. The data of the CDB file that is currently displayed in the list box is in the SLC16 table. If you select the list box entry “Multi CDB”, the data in all the CDB files opened in HiPath 3000 Manager E is brought together in the SLC16 table. If a SLC16 no. has the same data line in multiple CDB files, the data lines are simply displayed. Deviating or additional data lines are specially displayed. The “Special features” column contains – the CDB names of a data line that appears only once or – the number of the data lines that are the same, if more than one but not all SLC16 no. CDB files that have the same data. “Multi CDB” is used to detect inconsistencies in the SLC16 table in several CDB files. For example, lines with the same SLC16 no. but different station number entries would be inconsistent.

Step	Action
continuation step 5	• SLC16 table – SLC16 no.: Each has an unambiguous identification number for the boards in the network used for HiPath cordless. The number can be configured in the range 1...15, 17...31, 33...47, ..., ..., ...127 (= numbers not divisible by 16). For the SLC16 board(s), it is always the number defined under step 4. – Node ID: Number of the node (system) that has the board used for HiPath cordless. For networking several cordless systems, each system (node) must be assigned an unambiguous node number. – Group ID: Is not currently used and always contains the value 1. – Number: Station number that other cordless boards (current location boards) can use to reach the boards used for HiPath cordless = home board. The default station number for SLC16 boards is entered in the station table (“Options” menu: “Set up station”): Slot–Port–Log ID = Slot–2–1 (Port = virtual port on the SLC16). – Special features: see step 5 • Selection to write to CDB This list box contains the names of all of the CDB files in the networked systems that are open in HiPath 3000 Manager E. The CDB file that is currently displayed in this list box is always the one that is written to (button “OK” or “Accept”). This makes it possible to transfer the SLC16 table data from one CDB file to another. When “Multi CDB” is selected, the displayed table data is written to all open CDB files, creating CDB files with the same contents.
6.	Configure synchronization base station SBS (only for HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300) Here you can define the SBS, that is, the reference and corresponding test BS. • SBS SLC no.: An unambiguous identification number for the central board that has base stations connected to its $U_{P0/E}$ interfaces (slot 2) used for the HiPath cordless. The number can be configured in the range 1...15, 17...31, 33...47, ..., ..., ...127. • SBS port: Central board’s port where the base station that is to be defined as the SBS is connected. • SBS mode: You can choose “Ref. BS” or “Test BS”. This selection determines which base station functions as the test or reference BS. • Partner SLC no.: Identification number of the partner system’s central board. • Partner port: Port of the partner system’s central board where the basis station that is to be defined as the partner SBS is connected.

8.36 Configuring Internal Traffic Restriction Groups

Introduction

Internal traffic restriction groups (ITR groups) regulate the connections allowed between stations and trunks. In the default configuration, all stations and trunks are in ITR group 1. Six ITR groups are available in the system.

Example

- Assign station 11 to ITR group 1 and station 12 to ITR group 2.
- Assign trunk 1 to ITR group 3.
- Allow connections from ITR group 1 to groups 1, 2, and 3.
- Allow connections from ITR group 2 to groups 1, and 2.
- Allow connections from ITR group 3 to groups 1, 2, and 3.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	18-3	Select *Traffic restriction, ITR groups*	1 Group assignment 2 Connection groups
5.	1	Select station and trunk in *Group assignment*	1 Station 2 Trunk
6.	1	Assign ITR group for station	Stn 11: 1
7.	* 1 ✓	Assign station 11 to ITR group 1 and confirm	Stn 11: 1
8.	+ ✓	Scroll to station 12 and confirm	Stn 12: 1
9.	*2 ✓	Assign station 12 to ITR group 2 and confirm	Stn.12: 2
10.	F2 *3 ✓	Continue to *Group assignment*, Trunk; assign trunk 1 to ITR group 3 and confirm	Trunk.1: 3
11.	F7 F7 2-1	Return to the *ITR group* menu. • Select connection matrix • In allowed connection, keep ITR group 1 to ITR group 1	Grp 1, to grp 1: yes

Step	Entry	Action	Display
12.	+ ✓* 1 ✓	Scroll to *Connect ITR group 1 to ITR group 2 allowed*	Grp 1, to grp 2: no
13.	* 1 ✓	Change parameter to *yes* and confirm	Grp 1, to grp 2: yes
14.	+ ✓* 1 ✓	Scroll to *Connect ITR group 1 to ITR group 3 allowed* and confirm	Grp 1, to grp 3: no
15.	* 1 ✓	Change parameter to *yes* and confirm	Grp 1, to grp 3: yes
16.	F1 2 ✓	Select ITR group 2 Define *Connect ITR group 2 to ITR group 1 allowed* and confirm	Grp 2, to grp 1: no
17.	* 1 ✓	Change parameter to *yes* and confirm	Grp 2, to grp 1: yes
18.	+ ✓	Scroll to *Connect ITR group 2 to ITR group 2 allowed* and confirm	Grp 2, to grp 2: no
19.	* 1 ✓	Change parameter to *yes* and confirm	Grp 2, to grp 2: yes
20.	+ ✓	Scroll to *Connect ITR group 1 to ITR group 3 allowed* and confirm	Grp 2, to grp 3: no
21.	F1 3 ✓ * 1✓	Select ITR group 3 Define *Connect ITR group 3 to ITR group 1 allowed* Accept the default parameter	Grp 3, to grp 1: no
22.	* 1 ✓	Change the parameter to *yes* and confirm	Grp 3, to grp 1: yes
23.	+ ✓	Scroll to *Connect ITR group 3 to ITR group 2 allowed* and confirm	Grp 3, to grp 2: no
24.	* 1 ✓	Change the parameter to *yes* and confirm	Grp 3, to grp 2: yes
25.	+ ✓	Scroll to *Connect ITR group 3 to ITR group 3 allowed* and confirm	Grp 3, to grp 3: no
26.	* 1 ✓	Change the parameter to *yes* and confirm	Grp 3, to grp 3: yes
27.	F8-F7	Exit system administration	Time, date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Classes of service -> Group assignment
2.	Options -> Classes of service ->CON matrix

8.37 Configuring Hotline Stations

Introduction

You can configure an extension so that when the user lifts the handset, the station automatically connects to a predefined internal or external destination either immediately or after a delay.

An external communications server is needed for an external hotline destination.

Example

Configure station 120 to automatically ring station 110 if the handset of station 120 is lifted for 15 seconds without dialing.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	18-2	Traffic restriction, Hotline	182 Hotline
5.	1	Hotline destination	1821 Hotline dest.
6.	*110 ✓	Specify hotline destination and confirm HiPath 3350, HiPath 3300 = 1 hotline destination HiPath 3550, HiPath 3500, HiPath 3750 and HiPath 3700 = 6 hotline destinations	1821 Hotline dest. Hotline 1: 110
7.	F7	Return to *Hotline*	182 Hotline
8.	2	Select *Hotline stn no*	1822 Hotline stn no.
9.	#120*1 ✓	Assign station 120 to hotline destination 1 and confirm. (HiPath 3350, HiPath 3300 = 1 hotline station; HiPath 3550, HiPath 3500, HiPath 3750 and HiPath 3700 = 6 hotline stations)	1822 Hotline stn no. Stn 120: 1
10.	F7	Return to *Hotline*	182 Hotline
11.	3	Select *Hotline timeout*	1823 Hotline timeout

Step	Entry	Action	Display
12.	*15 ✓	Set timeout for executing hotline (0-99 seconds) and confirm	1823 Hotline timeout Hotline 1: 15
13.	F8-F7	Exit system administration	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Set up station -> Station -> Param -> Flags
2.	Options -> System parameters -> System settings

8.38 Configuring Relocate

Introduction

In the system settings, you can enable Relocate for the entire system.

The Relocate feature allows an optiset E or optiPoint 500 station to use a procedure to change the assignment between the physical telephone port and the logical station data (user profile).

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration.	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	22-24	Call up *Stn. relocate*	Mode: -
5.	* 1 ✓	Change parameter to *Allowed* and confirm	Mode: Allowed
6.	F8-F7	Exit system administration.	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> System parameters -> Flags: Terminal Exchange Allowed

8.39 Uniform Call Distribution (UCD) (Not for U.S.)

Introduction

You can activate uniform call distribution (UCD) across the system using Assistant T or HiPath 3000 Manager E.

Note

We recommend not activating UCD until all other parameters relating to UCD have been configured.

Activating UCD After Entering All Data

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	22-16	UCD	Mode: no
5.	*1 ✓	UCD	Mode: yes
6.	F8-F7	Exit system administration	Time, date

UCD Overview

Menu	Meaning
31	UCD
31-1	Group assignment
31-2	Group parameters
31-2-1	Wait queues (here you can specify wait queues which must be defined separately under code 25.)
31-2-2	Wait times
31-2-3	Call cycles
31-2-3-1	Primary cycles
31-2-3-2	Secondary cycles
31-2-4	Automatic call acceptance
31-2-5	Waiting calls
31-3	Work time
31-4	Call priority, external
31-5	Call priority, internal

Examples of Uniform Call Distribution

Group Assignment (31 1)

- Configure UCD groups
- Assign UCD group 1 to the purchasing department with group IDs 100 and 101.
- Assign UCD group 2 to the sales department with group IDs 110 and 111.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	31-1	Select *Group assignment*	Group ID 100: -
5.	*	Change group assignment	Group ID 100: -
6.	1 ✓	Assign UCD group 1 and confirm	Group ID 100: 1

Step	Entry	Action	Display
7.	*	Change group assignment	Group ID 101: -
8.	1 ✓	Assign UCD group 1 and confirm	Group ID 101: 1
9.	#	Select another group ID	Group ID:
10.	110 ✓	Enter group ID 110 and confirm	Group ID: 110
11.	*	Change group assignment	Group ID 110: -
12.	2	Assign UCD group 2	Group ID 100: 2
13.	*	Change group assignment	Group ID 111: -
14.	2 ✓	Assign UCD group 2 and confirm	Group ID 111: 2
15.	F7	Return to main menu	31 UCD

Announcement Device (25)

- If the customer requires announcement devices for the UCD groups, define the announcement devices and announcement types here.
- To configure a greeting message, use the *announcement before answering* feature. (This is not a common practice for UCD.)

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	25	Select *Announcement device*	1 = Announcement device 2 = Announcement type 3 = Announcement before answering
2.	1	Enter no. of announcement devices HiPath 3350, HiPath 3300 = 1; HiPath 3550, HiPath 3500 = 4; HiPath 3750, HiPath 3700 = 16	Announcement device 1: -
3.	*0301 ✓	Assign slot3/port 1 and confirm	Announcement device 1: 0301
4.	✓	Go to next announcement device	Announcement device 2: -
5.	*0302	Assign slot 3/port 2	Announcement device 2: 0302

Step	Entry	Action	Display
6.	✓	Go to next announcement device	Announcement device 3: -
7.	*0304 ✓	Assign slot 3/port 4 and confirm	Announcement device 3: 0304
8.	F7	Return to Announcement device	Announcement device
9.	2	Assign an announcement type to the announcement devices	Announcement type 1: Announcement* *= Default (cannot be changed)
10.	✓	Go to next announcement device	Announcement device 2: Announcement
11.	*2 ✓	Change to internal music and confirm	Announcement device 2: Internal music
12.	✓	Go to announcement device 3	Announcement device 3: Announcement
13.	✓*2 ✓	Co to announcement device 4	Announcement device 4: Internal music
14.	F7 F7	Return to UCD	31 UCD

Group Parameters—Announcement Device (31 2 1)

This example assigns wait queues to the announcement devices configured previously.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	31-2	Select *Group parameters*	1 Wait queues 2 Wait times 3 Call cycles
2.	1	Select *Wait queues*	Grp 1, Dest. 1: Device 1
3.	*	Assign announcement device	Grp 1, Dest. 1:
4.	1	Assign announcement device 1 (first UCD group)	Grp 1, Dest. 1: Device 1
5.	✓✓	Confirm and go to second destination in first UCD group	Grp 1, Dest. 2:
6.	*	Assign announcement device	Grp 1, Dest. 2:
7.	2 ✓	Assign announcement device 2 (first UCD group) and confirm	Grp 1, Dest. 2: Device 2
8.	# 2 ✓	Select second UCD group and confirm	Grp 2, Dest. 1: -
9.	* 2 ✓	Assign announcement device 2 and confirm	Grp 2, Dest. 2: Device 1
10.	✓*2 ✓	Go to second destination (first UCD group) and assign announcement device 2	Grp 2, Dest. 2: Device 1
11.	# 2 ✓	Select second UCD group and confirm	Grp 2, Dest. 1: Device 1
12.	*3	Assign announcement device 3	Grp 2, Dest. 1: Device 3
13.	✓*4 ✓	Assign announcement device 4 and confirm	Grp 2, Dest. 2: Device 4
14.	F7	Return to Group parameters submenu	313 Group parameters

Group Parameters—Wait Times (31 2 2)

- Each queue (total of 7 per UCD group) has its own wait times (1-20).
- Default wait time entry: 1 = 30s, maximum entry 20 = 6 minutes.

Note: Do not program times for announcements.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	31-2-2	Change wait times (first UCD group)	Grp 1, Dest. 1: 1
2.	✓	Go to second destination (first UCD group)	Grp 1, Dest. 2: 1
3.	*2 ✓	Select 2 (60s) and confirm	Grp 1, Dest. 2: 2
4.	#2 ✓	Change wait times (second UCD group)	Grp 2, Dest. 1: 1
5.	✓ *3 ✓	Go to second dest. (second UCD group); select 3 (90 s) and confirm	Grp 1, Dest. 2: 3
6.	F7	Return to *Group parameters* sub-menu	313 Group parameters

Group Parameters—Call Cycles (31 2 3)

- Set the call cycles in the group parameters.
- A distinction is made between primary and secondary call cycles and the call cycle in call management.
- Change the call cycles in call management accordingly.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	31-2-3	Select UCD group and change call cycles	Call cycles
2.	1	Change to *Primary cycles*	Grp 1: 3
3.	*4 ✓	Change the primary call cycles and confirm	Grp 1: 4
4.	✓*5 ✓	Go to second UCD group and change the default value	Grp 2: 5
5.	F2	Change the secondary call cycles	Grp 2: 3
6.	#1 ✓	Select first UCD group	Grp 1: 3
7.	*5 ✓	Change the default value and confirm	Grp 1: 5
8.	*6 ✓	Change the default value of the second UCD group and confirm	Grp 2: 6
9.	F7	Return to the *Group parameters* submenu	313 Group parameters

Group Parameters—Automatic Call Acceptance (31 2 4)

- This option determines whether or not automatic call acceptance is permitted for a UCD group.
- If *automatic call acceptance* is configured, the system automatically detects whether a headset is connected to the optiset E or optiPoint 500 telephone and uses it.

If a headset is connected to the optiset E or optiPoint 500 telephone, the *disconnect* function should be programmed on a key.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	31-2-4	Automatic call acceptance	Grp 1: 0
2.	*1 ✓	Change automatic call acceptance to *yes* for the first UCD group and confirm	Grp 1: 1
3.	F7	Return to the *Group parameters* submenu	313 Group parameters

Group Parameters—Waiting Calls (31 2 5)

- This option allows you to determine the number of incoming calls that can be kept waiting if a UCD group is busy.
- After the maximum number is reached, call management handles the overflow.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	31-2-5	Waiting calls	Grp 1: 30
2.	*2 ✓	Reduce the number of waiting calls to 2 (first UCD group) and confirm	Grp 1: 2
3.	*3 ✓	Reduce the number of waiting calls to 3 (second UCD group) and confirm	Grp 2: 3
4.	F7 F7	Return to UCD	UCD

Work Time (31 3)

- You can set a work time for the entire system. This indicates that an agent needs more time to process the last call.
- There is no work time for the system in the default configuration.
- The value can be changed from 0 = no work time, 1 = 5s to 45 = 45 seconds.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	31-3	Work time	Autowork: 0
2.	*1 ✓	enter 1 = 5 seconds	Autowork: 1
3.	F7	Return to UCD	UCD

Call Priority, External (31 4)

- You can assign an answering priority for each trunk.
- The highest priority is 1 and the lowest priority is 10.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	31-4	Call priority, external	S1/Tr: 0601: 1
2.	#0603✓ *3✓	Select trunk 3, change priority, and confirm	S1/Tr: 0603: 3
3.	#0605✓ *3✓	Select trunk 5, change priority, and confirm	S1/Tr: 0605: 3
4.	F7	Return to UCD	UCD

Call Priority, Internal (31 5)

You can assign a system-wide priority level to internal calls. If the priority level is greater than the external call priority, internal calls have priority over external calls.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	31-5	Call priority, internal	Internal: 10
2.	*2 ✓	Change internal priority to 2 and confirm	Internal: 2
3.	F7	Return to UCD	UCD

This concludes the configuration of uniform call distribution. For this feature to operate correctly, trunk assignment and call allocation must be configured in call management.

8.40 Uniform Call Distribution (UCD) (for U.S. Only)

You can configure the HiPath 3750, HiPath 3550, HiPath 3350, HiPath 3700, HiPath 3500 and HiPath 3300 systems for uniform call distribution groups.

The following table shows the maximum limits for Uniform Call Distribution (UCD).

Description	Limit
Number of UCD groups per system • HiPath 3750, HiPath 3700, HiPath 3550, HiPath 3500 • HiPath 3350, HiPath 3300	 60 10
Number of Agent IDs per system	150
Number of recorded announcements • HiPath 3750, HiPath 3700 • HiPath 3550, HiPath 3500 • HiPath 3350, HiPath 3300	 16 4 1
Number of announcement steps per group	7

8.40.1 Call Flow

UCD can direct incoming trunk calls into the group using any of the following:

- The ring assignment table
- The direct inward dialing feature
- The call-management table
- An auto-attendant application
- A station transfer

UCD routes calls to the active agent position that has been idle for the longest period. If the call is not answered, that station is placed in an unavailable state and the next available station in the group is offered the call.

When all of the agents are busy, the system places UCD calls in queue for a predetermined amount of time. If the overflow queue timer expires before an agent becomes available, the call can be directed to one of the following:

- Another UCD group
- A station position
- PhoneMail
- An external destination

If the overflow target is another UCD group, the caller remains in queue in the original group while being placed in queue in the secondary group concurrently. You can configure overflow patterns using the call destination table.

You can also assign a numeric threshold value to each group. If the number of calls in queue equals the numeric threshold value, the next call follows the overflow pattern identified in the call destination table.

8.40.2 Recorded Announcements

The HiPath 3750 and HiPath 3700 Communications Server supports access for 16 unique announcements and one music on hold source. The HiPath 3550 and HiPath 3500 Communications Server supports access to four unique announcements and one music on hold source.

Each UCD group can be configured with seven announcement steps. You can define a unique announcement and the duration of the announcement for each step. The announcement script can be configured to play a single time or continue to cycle until the call is answered.

8.40.3 Agent Positions

Agent indexes are associated with each of the UCD groups programmed in the system. The user logs on to the desired UCD group by entering the logon access code and an agent ID number. The agent ID identifies the station as a member of the UCD group. The agent ID can be associated with one station at a time. Stations can only be active in a single group at a time but may log on to different groups using agent ID numbers assigned to the UCD groups. You can configure a maximum of 32 unique Agent IDs per group.

The agent position can be an optiset E or optiPoint 500 telephone or an analog telephone. Users can access features using access codes or feature keys on an optiset E telephone.

8.41 Configuring UCD (for U.S. Only)

This section outlines the procedure for setting up a basic UCD group for the HiPath 3000 Communications Server.

Procedure Overview

The following sections describe the UCD configuration sequence in detail.

Configuring UCD	
Step	**Task**
1.	Configuring the Digital Announcers
2.	Enabling UCD Flags
3.	Defining Automatic Wrap-Up Time
4.	Configuring Call Priorities
5.	Configuring Pilot Number and UCD Group Name
6.	Configuring the UCD Group Parameters
7.	Adding Agent IDs to a UCD Group
8.	Configuring the Announcement Steps
9.	Configuring the Call Destination Tables
10.	Assigning Pseudo Numbers for DNIS applications
11.	Key Assignments for optiset E Telephones
12.	Configuring a Silent Monitoring Supervisor Position
13.	Configuring the UCD Night Answer Destination

8.41.1 Configuring the Digital Announcers

This section describes the UCD group configuration procedures for the digital announcers. Analog ports can be configured as digital announcer interfaces for the HiPath 3750, HiPath 3550, HiPath 3350, HiPath 3700, HiPath 3500 and the HiPath 3300. Tie-Line E&M ports can be configured as digital announcer interfaces for the HiPath 3750 and HiPath 3700. Announcement devices are configured with a start time and listen duration time. Music on hold devices are loop-type recordings with continuous play attributes. Up to 32 parties held in queue can hear each announcement.

8.41.1.1 Analog Port Interfaces

To configure the digital announcers, you assign names to identify the analog ports, and you configure the analog ports to be used as announcement interfaces as answer machine type.

Table 8-7 Example of UCD Station Name Assignments

Call No	DID	Name	Inactive	Parms.	Type	Access
124	124	Ann. 1			POT	SLA16 3-1
125	125	Ann. 2			POT	SLA16 3-2
126	126	Ann. 3			POT	SLA16 3-3

8.41.1.2 Tie Line E&M Port Interfaces

This example shows how to assign tie-line E&M ports to unique route groups and how to assign names to the tie-line route groups.

8.41.1.3 Device Numbers for Each of the Configured Announcement Interfaces

This example shows how to assign device numbers to each of the configured announcement interfaces.

The HiPath 3750 and HiPath 3700 system can be configured with 16 device announcement channels, the HiPath 3550 and HiPath 3500 system with 4, and the HiPath 3350 and HiPath 3300 system can be configured with 1 device announcement channel.

The following procedure (refer to Table 8-8) assigns an access port and a supported announcement. The Access column defines the physical port connected to the device. The Type of Announcement column defines the characteristic of the announcement. The device address numbers are used in the call destination table for configuring announcements prior to entering a distribution group queue. For example to play an announcement prior to entering the UCD queue an announcement address (#301 to #316) can be entered in a Target cell prior to the UCD group designation.

Table 8-8 Assigning Addresses, Accesses, and Announcement Types

Announcement Device	Device Address	Access	Type of Announcement
1	#301	SLA16 slot or port or TMTEAUMUC slot or port	None or announcement or music on hold or internal music
2	#302		

Table 8-8 Assigning Addresses, Accesses, and Announcement Types

3	#303		
4	#304		
….	….		
16	#316		

8.41.1.4 Announcement Assignment to a Specific Trunk

This section explains the procedure for assigning a digital announcer defined in the announcement equipment table to a specific analog trunk in the system. The announcement will be heard during the incoming ring cycle before the call enters the UCD queue.

	Slot/Line	**Ann. Device**
1	TMGL8 4-1	None or Device 1 ~ 16
2	TMGL8 4-2	None or Device 1 ~ 16
3	TMGL8 4-3	None or Device 1 ~ 16
….	TMGL8 4-4	None or Device 1 ~ 16
	….	None or Device 1 ~ 16

Configuring the Feature Using HiPath 3000 Manager E

Step	**Action**
1.	Options ->Setup Stations ->Station
2.	Options ->Setup stations ->Station ->Parms ->Type ->Extension type
3.	Options ->Lines and networking ->Trunks ->Route
4.	Options ->Lines and networking ->Routes ->Route Name
5.	Options ->Trunk modules ->Announcement ->Announcement equipment
6.	Options ->Trunk modules ->Announcement ->Announcement prior to answer

8.41.2 Enabling UCD Flags

This section outlines the flags that enable UCD hunting and enhance the call detail reporting capabilities of the system.

UCD Flags

UCD Flag	Function
Print UCD data	Include ring duration, call abandon, and call answer on SMDR printout record. External printer or buffer is required.
Allow UCD applications	Enable call routing and queuing for UCD operation

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Incoming calls -> UCD parameters -> UCD flags

8.41.3 Defining Automatic Wrap-Up Time

This flag defines the duration of the automatic work time after the completion of each call. Each cycle is equal to five seconds.

Wrap-up Time (cycles)	Input unit from 1 to 20

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Incoming calls ->UCD parameters ->Automatic wrap-up time

8.41.4 Configuring Call Priorities

This section describes the procedure for configuring call priorities for incoming calls to the UCD group.

A priority between 1 and 10 is allocated for classifying internal calls. The system then distributes the queued calls to the UCD group depending on the priority and queue time, that is, a call with a high priority can be answered sooner than a call in the queue longer that has a lower priority.

The system divides up incoming calls in the queue for the UCD group according to the type of call, resulting in type-of-call groups. There are 10 priority levels, i.e., priorities between one and 10 can be allocated to the trunk circuits in relation to the trunk (trunk-related or by B channel).

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Incoming calls -> UCD parameters -> Priorities for internal calls
2.	Options > Incoming calls ->UCD parameters ->Priorities for external calls

8.41.5 Configuring Pilot Number and UCD Group Name

System hunt groups 91 through 150 are used by the UCD system to define a pilot call number, a DID number, and a group name to each of the configured UCD groups. Each UCD group is assigned a virtual address number from #201 through #260. This means that UCD group one (#201) can be called by dialing the default call number for Hunt group 91, which is 440.

Table 8-9 Defining a Pilot Call Number, a Did Number, and a Group Name

	Virtual Number	Call Number	DID Number	Name	Ring Type
91	#201	440	440		1,2,or 3
92	#202	441	441		
93	#203	442	442		
….	…..				
150	#260	499	499		

- The virtual call number for each group is preset and cannot be changed.
- The call number is a unique number from 1 to 6 digits long.

- The DID number is a unique number from 1 to 11 digits long.
- The UCD group name can be from 1 to 16 characters long.
- Any of three distinctive ring types can be selected for identifying incoming external calls to the group.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options > Incoming calls > Hunt group > Group

8.41.6 Configuring the UCD Group Parameters

This section defines the characteristics for each of the UCD groups configured in the system. Input will vary on each application.

Table 8-10 UCD Group Parameters

UCD Group	Primary Ring Cycles	Sec. Ring Cycles	Queued Calls	AICC	Ann. Change	Overflow Time	Ann. Delay Time
Group 1	3	6	10	Y	cyclic	NA	6
Group 2							
Group …							
Group 60							

Table Descriptions:

- **UCD Group**

  The UCD Group column lists the available groups.

- **Primary Ring Cycle**

  The primary-ring-cycles parameter controls the following time characteristics:

  – The number of ring cycles offered to the first agent for an incoming call.

    Each ring cycle is equal to 5 seconds. If the agent does not answer the call, the agent position is placed in an unavailable status and the call is offered to the next available agent.

  – The time a call remains in the UCD queue if agents are busy or unavailable before routing the call to an overflow target.

If an agent becomes available before the primary-ring-cycle timer expires, the call is offered to the agent position.

- **Secondary Ring Cycle**

  The secondary-ring-cycles parameter controls the following time characteristics.

  – How long the incoming call rings at each available agent position after it has been offered to the first agent position.

    If the call is not answered by the second agent position, the position is placed in an unavailable status and the next position in the group presented with the call. This process continues until all of the available agents have been offered the call. If no member of the UCD group answers the call, the call is routed to the target overflow destination. The Call Destination list defines the overflow route steps.

  – How long the incoming call is offered to each agent in the overflow group.

    If an agent in the first group becomes available, the call is presented to that position after all of the available agents in the second group have been tried.

Timers:
If a single agent position is available in all of the UCD groups configured in the call destination table, the call will continue to ring at the agent position until it is answered or another station becomes available.
If all of the agents are busy or unavailable in the UCD groups configured in the call destination table, the call is placed in queue for the first-available agent position in the first group. If an agent in the overflow group becomes available, the call is offered to the position after the Primary Ring Cycle setting for the first group expires.

- **Queued Calls**

  You can set the maximum number of queued calls (up to 30) in the Queued-Calls column. For the last group, the maximum number is 72.

- **AICC**

  You can use the automatic incoming UCD call connection (AICC) column to activate the incoming zip tone and the answering of an incoming call. This is typically used with a headset application.

- **Change Announcement**

  You can use this column to specify how the recorded announcements are changed. Changes can be made once or cyclically.

- **Overflow Time**

  This timer is not used in the U.S. and Canada.

- **Announcement Delay**

  This time-out parameter configures the delay (zero to 600 seconds) before a queued call is switched to the recorded announcement device.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Incoming calls ->UCD groups ->UCD groups

8.41.7 Adding Agent IDs to a UCD Group

This section covers the configuration of the agent IDs in a system group.

A UCD group contains agents that belong to a working group. A maximum of 150 UCD agents can be simultaneously active in the system. Accordingly, 150 fixed agent IDs are provided that can be allocated to any of the maximum of 60 UCD groups. There is no limit to the number of agents per group. Only valid agent IDs can be entered, and each ID can only be allocated to one group.

To assign agent IDs to groups, set up a list containing the agent ID and the allocated UCD group. A UCD agent has access to particular features in the system. The agent can log on from any $U_{P0/E}$ (digital) terminal or from an analog telephone (teleagent, that is, an agent at a remote location) using an ID. The agent is available after logon and is permanently assigned to the logging device until logoff. It is not possible to log on to another terminal at the same time. A maximum of one agent can be logged on per device. Each agent is assigned to one working group only. After logoff, the agent is no longer available for UCD.

The system checks assignment to UCD groups at logon. The port to which an agent logs on is stored in nonvolatile memory so that the assignment is retained even after the system has been reset. All optiset E telephones (with or without display) can function as UCD answering telephones, and analog telephones can support teleagents. Codes are available for telephones without display for the following UCD main functions:

- Logon
- Wrap-up
- Log off

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Incoming calls ->UCD groups ->Members

8.41.8 Configuring the Announcement Steps

You can configure an announcement pattern for each UCD group. Each announcement pattern can have a maximum of seven steps. Each announcement step represents the broadcast of a specific UCD announcement or music on hold (MOH) channel.

A play duration time, in cycles, is set for each announcement device. This represents the time the announcement will be played. Each cycle is equal to 5 seconds. The *Change Announcement* flag in the Hunt Group configuration determines if the announcement pattern will play one time or continue to cycle until the call is answered. The announcement devices and MOH sources were configured in Section 8.41.1. The announcements are heard concurrently while the call is offered to an available agent.

If a call overflows to another UCD group, the caller continues to hear the announcement pattern defined in the original group. When designing the announcement patterns, you should consider the length of the messages and the estimated amount of time callers will remain in queue.

Group Parameters

Table 8-11 UCD Group Parameters for Announcement Patterns

Destination Index	Wait Destination	Wait Time
Index 1	Device 2	Cycles =3
Index 2	Device 3	Cycles =6
Index 3	Device 1 through 16	Cycles from 1 to 9
Index 4	Device 1 through 16	Cycles from 1 to 9
Index 5	Device 1 through 16	Cycles from 1 to 9
Index 6	Device 1 through 16	Cycles from 1 to 9
Index 7	Device 1 through 16	Cycles from 1 to 9

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Incoming Calls ->UCD groups

8.41.9 Configuring the Call Destination Tables

You can use the call destination tables to configure the overflow patterns for each of the UCD groups. Three tables can be assigned to the hunt group pilot number associated with the UCD groups. The tables represent incoming call routing during day operation, night operation, and for internal calls.

Example: Call Destination Table

In the following example, all call types are directed to destination list 20.

When a call is placed to call number 440 (the default call number for hunt group 91) the call is routed to group 20. The first target in group 20 is UCD group 1. The virtual call number for the first group is 201. If an agent is available, the call will begin ringing at the position. If the call is not answered by an agent in the first group, the call will overflow to the second UCD group (202) after the secondary ring cycle timer expires. If the call is not answered by an agent position, the PhoneMail hunt group or alternate destination is called.

Call Number	Name	Day	Night	Internal
440	UCD Group 1	20	20	20

	Target 1	Target 2	Target 3	Target 4	Cycles	Target	Type
20	#201	#202	350				immediate
21							

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->Incoming Calls ->Assignment of Int./ext. calls ->Allocation of call reference to hunt lists
2.	Options ->Incoming Calls ->Call destination lists

8.41.10 Assigning Pseudo Numbers for DNIS applications

You can assign pseudo numbers for display and routing purposes, and you can assign each pseudo number the following:

- A call number
- A DID number
- A display name

Pseudo Ports

Except for the last station port in the system, which is used for HiPath 3000 Manager E, all station ports not assigned to an interface card can be used as pseudo ports. All pseudo ports must be set up as answer machine ports in the station type screen to ensure proper operation. You can use associated services or call-destination tables to forward the pseudo port to the UCD group.

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options > Setup Station > Station screen
2.	Options -> Setup stations -> Parameters > Type > Extension type

8.41.11 Key Assignments for optiset E Telephones

Below are the suggested key map layouts for an agent position using an optiset E or optiPoint 500 telephone with display.

Table 8-12 Suggested Key Map Layouts for an Agent Position Using an optiset E or optiPoint 500 Telephone with Display

4 Default Keys	8 Flexible Keys	Optional Agent Keys
Program	Log On	Account Code
Mailbox	Available	Conference
Mute	Work On Off	Call Park
Loudspeaker	Calls in Queue	Fax-Ans. Machine
	General Call Key	Call Forward
	Call Supervisor	
	Call Hold	
	Release	

Below are the suggested key map layouts for a supervisor position using an optiset E or optiPoint 500 telephone with display.

Table 8-13 Suggested Key Map Layouts for a Supervisor Position Using an optiset E or optiPoint 500 Telephone with Display

4 Default Keys	8 Flexible keys	Optional Supervisor Keys
Program	Log On	Rep Dial Agent
Mailbox	Available	Override
Mute	Work On Off	Conference
Loudspeaker	Calls in Queue	Night On-Off
	General Call Key	Page to group
	Pickup Group	Call Park
	Call Hold	Fax-Ans. Machine
	Release	

8.41.12 Configuring a Silent Monitoring Supervisor Position

The silent monitoring feature allows a station to monitor the conversation of an agent and the party to whom the agent is speaking. Only one silent monitor session is supported in a system at a time. You can assign silent monitoring to a supervisor station using Assistant T only. To monitor a station, the supervisor dials the silent monitoring code (*944) followed by the agent's intercom number.

Configuring the Feature Using Assistant T

Step	Action
1.	**Configure silent monitoring**
2.	22-19-3 => System settings - Monitoring

8.41.13 Configuring the UCD Night Answer Destination

Each UCD group can be configured with a night answer destination. You can program an access code or feature key to toggle the activation. Night answer targets can be any of the following destinations:

- Internal stations
- Hunt groups
- External destinations

8.42 Call distribution in HiPath 3000 With Hicom Agentline Office (Not for U.S.)

Introduction

This section describes how to configure HiPath 3000 to combine call distribution with Hicom Agentline Office. For details, refer to the service documentation for Hicom Agentline Office V1.1 CSTA.

Hicom Agentline Office can use station numbers and their assigned names for UCD groups. The maximum number is 60 system-wide. The last 60 station numbers in the group must be used for this purpose (for example the default station numbers 440 to 499 in HiPath 3750 and HiPath 3700).

For the priority codes, you can use any valid station number in the system which has not been assigned to a station. The station number for the priority codes must refer to the same call destination list along with the corresponding UCD group number. In this call destination list, the first call destination is the UCD group.

A call destination list containing UCD group 60 as the first call destination is defined for periods of high load. This group is used for the central queue and is also entered as the overflow destination for all other UCD groups.

This means:

- The first call destination is the UCD group.
- The second call destination is the UCD group for the central queue.

Example

A configuration that contains the two UCD groups and 3 additional priority codes is described below. Two agents work in each group.

Assign agent IDs to groups

- Assigns UCD group 1 (purchasing department) group IDs 100 and 101.
- Assigns UCD group 1 (sales department) group IDs 110 and 111.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:

Step	Entry	Action	Display
4.	31-1	Select *Group assignment*	Group ID 100: -
5.	*1 ✓	Assign UCD group 1 and confirm	Group ID 100: 1
6.	✓	Select next ID	Group ID 101: -
7.	*1 ✓	Assign UCD group 1 and confirm	Group ID 101: 1
8.	#110 ✓	Select group ID 110 and confirm	Group ID 110: -
9.	*2 ✓	Assign UCD group 2 and confirm	Group ID 110: 2
10.	✓	Select next ID	Group ID 111: -
11.	*2 ✓	Assign UCD group 2 and confirm	Group ID 111: 2
12.	F8	Return to main menu	System administration

Assign Group Names

- UCD group 1: Purchasing
- UCD group 2: Sales

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	**16-15-3**	Configure group names	Grp 350: -
2.	#440 ✓	Select the first UCD group and confirm	Grp 440: -
3.	*Purchasing ✓	Enter a name for the group and confirm	Grp 440: Purchasing
4.	✓	Select the next group	Grp 441: -
5.	*Sales ✓	Define a name for the group and confirm	Grp 441: Sales
6.	F8	Return to main menu	System administration

Configure Call Management

Defines UCD group 1, UCD group 2, and the central queue (UCD group 60) and assigns them each a call destination list.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	**16-18-1**	Define call destination list	List1, Dest1: called
2.	*	Change call destination list 1	List1, Dest1:
3.	#201 ✓	Define UCD group 1 and confirm	List1, Dest1: UCD 01
4.	#2 ✓	Select call destination list 2 and confirm	List2, Dest1: called
5.	*	Change call destination list 2	List2, Dest1:
6.	#202 ✓	Define UCD group 2 and confirm	List2, Dest1: UCD 02
7.	#3 ✓	Select call destination list 2 and confirm	List3, Dest1: called
8.	*	Change call destination list 3	List3, Dest1:
9.	#260 ✓	Define UCD group 60 and confirm	List3, Dest1: UCD 60
10.	F7	Return to main menu	Call FWD - no ans

Assign Internal and External Calls

- Assigns UCD group 1 station number 440 and station numbers 110 to 112 as priority codes.
- Assigns UCD group 2 station number 441 and station numbers 113 to 115 as priority codes.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	**2**	Select internal call assignment	List for stn 100: 16
2.	# 110✓	Select first priority code for UCD group 1	List for stn 110: 16
3.	* 1 ✓	Assign station number to call destination list 1	List for stn 110: 1
4.	# 440✓	Select station number for UCD group 1	List for stn 440: 16
5.	* 1 ✓	Assign station number to call destination list 1	List for stn 440: 1
6.	# 113✓	Select first priority code for UCD group 2	List for stn 113: 16

Step	Entry	Action	Display
7.	* 2 ✓	Assign station number to call destination list 2	List for stn 113: 1
8.	# 441 ✓	Select station number for UCD group 2	List for stn 441: 16
9.	* 2 ✓	Assign station number to call destination list 2	List for stn 441: 1
10.	F7 ✓	Return to submenu	Call FWD - no ans
11.	3	Select *External call alloc, Day*	List for stn 100: 14
12.		Repeat steps 2 through 9 (this sets all external calls for UCD)	
13.	F8	Return to main menu	System administration

Logging on Agents

- The agents must now log onto the telephones.

Step	Entry	Action	Display
1.	***401**	Enter the code on the telephone with station number 101	Agent:
2.	100	Log on by entering ID 100 in ACD group 1	Available
3.	***401**	Enter the code on the telephone with station number 102	Agent:
4.	101	Log on by entering ID 101 in ACD group 1	Available
5.	***401**	Enter the code on the telephone with station number 103	Agent:
6.	110	Log on by entering ID 110 in ACD group 2	Available
7.	***401**	Enter the code on the telephone with station number 104	Agent:
8.	111	Log on by entering ID 111 in ACD group 2	Available

8.43 Configuring DISA

Introduction

Direct Inward System Access (DISA) allows an outside caller to access the system and its outbound trunks by dialing a special number and entering a password.

Example 1

Configure DISA for station 11 via a digital trunk.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	14-15	Select *Configure station*, *enable DISA* for station	Stn 11: Denied
5.	* 1 ✓	Enable DISA for station 11 and confirm	Stn 11: Allowed
6.	F8	Return to main menu	System administration
7.	34-2	Select *DID number for DISA*	Dest.: -
8.	* 79 ✓	Enter DID no. for DISA, (such as 79)	Dest.: 79
9.	F7	Return to *DISA*	Line 1: 0
10.	3	Select *security mode*	Mode: after timeout
11.	* 1 ✓	Change security mode to # and confirm	Mode: after #
12.	F8-F7	Exit system administration	Time, date

Example 2

Configure DISA for station 11 via analog trunk.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	14-15	Select *Configure station*, *enable DISA* for station	Stn 11: Denied
5.	* 1 ✓	Enable DISA for station 11 and confirm	Stn 11: Allowed
6.	F8	Return to main menu	System administration
7.	34-2	Select *DID no. for DISA*	Dest: -
8.	* 79 ✓	Enter DID no. for DISA (such as 79) and confirm	Dest: 79
9.	F7	Return to *DISA*	Line 1: 0
10.	3	Select *Security mode*	Mode: after timeout
11.	* 1 ✓	Change security mode to #	Mode: after #
12.	34-1	Select *DISA for analog*	SI/Tr 0401: none
13.	# 501 ✓	Select analog trunk and confirm	SI/Tr 0501: none
14.	* 1 ✓	Set DIS during night service only and confirm	SI/Tr 0501: night only
15.	F8-F7	Exit system administration	Time, date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Set up station -> Station -> Param
2.	Options -> System parameters -> System settings
3.	Options -> Lines/networking -> Trunks -> Flags

8.44 Configuring the Attendant Console (Not for U.S.)

Introduction

You must configure one station or group in the system as an attendant console (intercept position).

Example

- Station 12 will be the attendant console. If fixed night answer is used, station 13 is the attendant console.
- Intercept on direct inward dialing should occur when the station does not answer, is busy or if an incorrect or incomplete number is dialed.
- It must be possible to reach the intercept position from the outside by dialing 0 (default) and internally by dialing 91.
- If more than 2 calls are waiting at the attendant console, they should be forwarded to station 13.
- *Speed transfer* and *transfer undialed trunks* will be activated for the attendant console.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	16-12	Display Intercept, day	Dest.: 11
5.	* 12 ✓	Display Intercept, day	Dest.: 12
6.	F2	Go to Intercept night display	Dest.: 11
7.	* 13 ✓	Change Intercept, night	Dest.: 13
8.	F2	Display Intercept on free	Intercept: yes
9.	F2-1	Display Intercept on busy	Mode: yes
10.	* 1 ✓	Change Intercept on busy	Mode: yes
11.	F2	Display Camp on at	On busy: Allowed
12.	* 0 ✓	Change Camp on at	On busy: Denied
13.	F2	Display Intercept on wrong number	Intercept: yes

Step	Entry	Action	Display
14.	F2	Display Intercept on incomplete number	Intercept: yes
15.	F8 23-5-2	Display internal attendant code	Dest.: 9
16.	* 91 ✓	Change internal attendant code	Dest.: 91
17.	F8 33-1	Display number of waiting calls	Length: 15
18.	* 2 ✓	Change number of waiting calls to 2	Length: 2
19.	F2	Display Speed transfer mode	Mode: Denied
20.	* 1 ✓	Enable Speed transfer mode	Mode: Allowed
21.	F2	Display transfer undialed trunk	Mode: Denied
22.	* 1 ✓	Enable transfer undialed trunk	Mode: Allowed
23.	F8 16-18-1	Display call destination lists	List 1 , Dest 1: called
24.	# 13 ✓+	Select call destination list 12, destination 2	List 13, Dest 2: -
25.	* 13 ✓	Change destination 2 to 13	List 13, Dest 2: 13
26.	F2 #12 ✓	Display assignment of internal call to call destination list	List for stn 12: 16
27.	* 13 ✓	Change to call destination list 13	List for stn 12: 13
28.	F2	Display assignment of external call (day) to call destination list	List for stn 12: 14
29.	* 13 ✓	Change to call destination list 13	List for stn 12: 13
30.	F8-F7	Exit system administration	Time, date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> System parameters -> Diversion/Attendant
2.	Options -> Incoming calls -> Call destination lists
3.	Options -> Incoming calls -> Assignment int. / ext. calls

Note

Also configure the Disconnect, Call, and Trunk group keys on the attendant console.

8.45 Configuring an Attendant Console (for U.S. Only)

Introduction

Users can configure an internal extension as the attendant console (AC) or intercept position. This attendant position is known as optiPoint Attendant. If direct inward dialing (DID) is not possible or if the user did not configure DID, the system directs all calls to the attendant position.

Users can set up any telephone as the attendant position. However, using an optiset E telephone with display is preferred because of its increased capabilities. Users can also set up a personal computer as the AC (optiClient Attendant). The computer AC can implement all of the optiPoint Attendant features and more. With optiClient Attendant, the PC monitor simulates all of the functions of an AC.

Example

This example

- Configures station 12 as the AC during the day and station 13 as the AC for fixed night answer
- Allows Intercepts for direct inward dialing when free and busy and with incorrect and incomplete dialing
- Enables the intercept position to be available from external sources via 0 (default) and internally via 91
- Changes the maximum number of waiting calls for the AC to two and forwards any additional calls to station 13
- Activates speed transfer and transfer for undialed trunks for the AC

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration.	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	16 12	Select *Incoming calls*, *Intercept day.*	Dest.: 11
5.	* 12 ✓	Change the intercept station to 12 and save.	Dest.: 12
6.	F2	Continue to *Incoming calls, Intercept, night*.	Dest.: 11

Step	Entry	Action	Display
7.	* 13 ✓	Change the intercept station to 13 and save.	Dest.: 13
8.	F2	Continue to *Intercept mode*, *On no answer*.	Intercept: Yes
9.	F2 * 1 ✓	Continue to *Intercept mode*, *On busy, Intercept*. Change mode to yes and save.	Mode: Yes
10.	F2 * 0 ✓	Continue to *Intercept mode*, *On busy, Camp on to*. Change to denied and save.	On busy: Denied
11.	F2	Continue to *Intercept mode*, *On wrong number*. Retain default setting.	Intercept: Yes
12.	F2	Continue to *Intercept mode, On incomplete*. Retain default setting.	Intercept: Yes
13.	F8 23 5 2	Return to *Main menu*. Select *Codes, Attendant code, and Attendant code int*.	Dest.: 0
14.	* 91 ✓	Change the internal attendant code and save.	Dest.: 91
15.	F8 33 1	Return to *Main menu*. Select *Attendant console, Max waiting calls*.	Length: 15
16.	* 2 ✓	Change the maximum number of waiting calls to two and save.	Length: 2
17.	F2 * 1 ✓	Continue to *Attendant console, Speed transfer*. Enable speed transfer mode and save.	Mode: Allowed
18.	F2 * 1 ✓	Continue to *Attendant console, Xfer undialed trk*. Enable undialed trunk transfer, and save.	Mode: Allowed
19.	F8 16 18 1	Return to *Main menu*. Select *Incoming calls, Call FWD - No ans, Destination list*.	List 1, Dest. 1: called
20.	# 13 ✓+	Select call destination list 13, confirm, and select the next destination (2).	List 13, Dest. 2: -
21.	* 13 ✓	Change destination for 2 to 13.	List 13, Dest. 2: 13

Step	Entry	Action	Display
22.	F2 #12 ✓	Continue to *Call FWD - No ans, Internal calls*, select station no. 12, and save.	List for stn 12: 16
23.	* 13 ✓	Change to call destination list 13 and save.	List for stn 12: 13
24.	F2 * 13 ✓	Continue to *Call FWD - No ans,* Ext. calls, day, change to call destination list 13 and save.	List for stn 12: 13
25.	F8 F7	Exit system administration.	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> System parameters -> Diversion/VPL
2.	Options -> Incoming calls -> Call destination lists
3.	Options -> Incoming calls -> Assignment int. /ext. calls

You must also set the night position (refer to Section 8.18, Configuring Fixed Night Answer via Intercept (for U.S. Only), on page 8-47) and program the keys for the major functions on the AC or station. We suggest programming keys for:

- Direct trunk appearance
- Call
- Trunk group
- Night
- Override
- Call Park
- Release

Refer to the HiPath 3000 optiset E optiPoint Attendant User Manual Release 2.0, G281-0585-00 for information on programming the keys on an optiset E telephone used as an attendant position.

8.46 Trunk Groups (Not for U.S.)

Introduction

You can combine the external trunks into trunk groups by B channels.

Example

- S_0 port for trunk group 1 (S1/Tr 401), analog for trunk group 2 (S1/Tr 0501) for connecting a D-cabinet.
- Code 0 is used for trunk group 1 and code 78 for trunk group 2.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	17-11	Automatic line seizure	State: on
5.	* 0 ✓	Deactivate automatic line seizure	State: off
6.	F7	Return to networking	Networking
7.	12	Assign trunk group	S1/Tr 0401: 1
8.	# 501	Change trunk group assignment for analog trunk	S1/Tr 0501: 1
9.	* 2 ✓	Change trunk group assignment for analog trunk to trunk group 2	S1/Tr 0501: 2
10.	F7	Return to networking	Networking
11.	14	CO/PBX trunk type	Trk 1: CO
12.	# 2 ✓	Select trunk group 2	Trk 2: CO
13.	* 2-1 ✓	Set trunk type to PBX	Trk 2: PBX
14.	F7	Return to networking	Networking
15.	15	Enter trunk group name	Trk 1: -
16.	* CO ✓	Enter trunk group name	Trk 1: CO
17.	✓	Confirm scrolling action	Trk 2: -
18.	* D-BOX ✓	Enter trunk group name	Trk 2: D-BOX
19.	F8	Return to system administration	System administration

Step	Entry	Action	Display
20.	23-4	Enter trunk group code	Trunk group 1, Pos 1: 0
21.	# 2 ✓	Select trunk group	Trunk group 2, Pos 1: 82
22.	* 78 ✓	Enter trunk group code	Trunk group 2, Pos 1: 78
23.	F8-F7	Exit system administration	Time, date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> System parameters -> FlagsI
2.	Options -> Lines/networking -> Trunks
3.	Options -> Lines/networking -> Routes
4.	Options -> Lines/networking -> Routing parameters

8.47 Trunk Groups (for U.S. Only)

Introduction

You can combine trunks into trunk groups by B channels.

Example:

Using Assistant T, this example configures

- Analog for trunk group 2 (SI/Tr 0501)
- The code 9 for trunk group 1
- The code 78 for trunk group 2

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration.	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	17 11	Select *Networking*, *Prime Line on.*	Status: On
5.	* 0 ✓	Deactivate Prime Line and confirm.	Status: Off
6.	F7	Return to *Networking*.	Networking
7.	12	Select *trunk group assignment*.	SI/Tr 0401: 1
8.	# 501	Select LS/GS trunk 501.	SI/Tr 0501: 1
9.	* 2 ✓	Change the trunk group assignment to group 2 and confirm.	SI/Tr 0501: 2
10.	F7 11	Return to *Networking*	Networking
11.	14	Select *Trunk type CO/PBX*.	TG 1: CO
12.	# 2 ✓	Select group 2 and confirm.	TG 2: CO
13.	* 2 1 ✓	Set trunk type to PBX and confirm.	TG 2: PBX
14.	F7 11	Return to *Networking*.	Networking
15.	15	Select *Trunk group name*.	TG 1: -
16.	* TRUNK ✓	Enter trunk group name (example: TRUNK) and confirm.	TG 1: TRUNK
17.	✓	Scroll to the next trunk.	TG 2: -

Step	Entry	Action	Display
18.	* D-CABI-NET ✓	Enter trunk group name (example: D-CABINET) and confirm.	TG 2: D-CABINET
19.	F8	Return to system administration.	System administration
20.	23 4	Enter trunk group code.	Trunk group 1, Pos 1: 0
21.	# 2 ✓	Dial trunk group and confirm.	Trunk group 2, Pos 1: 82
22.	* 78 ✓	Enter trunk group code.	Trunk group 2, Pos 1: 78
23.	F8 F7	Exit system administration.	Time, Date

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options ->System parameters -> Flags / CMI
2.	Options -> Lines / networking -> Trunks
3.	Options -> Lines / networking -> Routes
4.	Options -> Lines / networking -> Routing parameters

8.48 Tenant Services (Not for U.S.)

Parameters for the Example

Two customers (customer A and customer B) seize the trunk by dialing 0.

- Both customers (A and B) telephone each other without having to dial a number via the trunk.
- Customer A seizes the trunk of customer B (including system speed dialing and allowed/denied lists).
- Customer B cannot seize the trunk of customer A (including system speed dialing and allowed/denied lists).
- The trunk of customer A can be transferred to customer B.
- The trunk of customer B can be transferred to customer A.

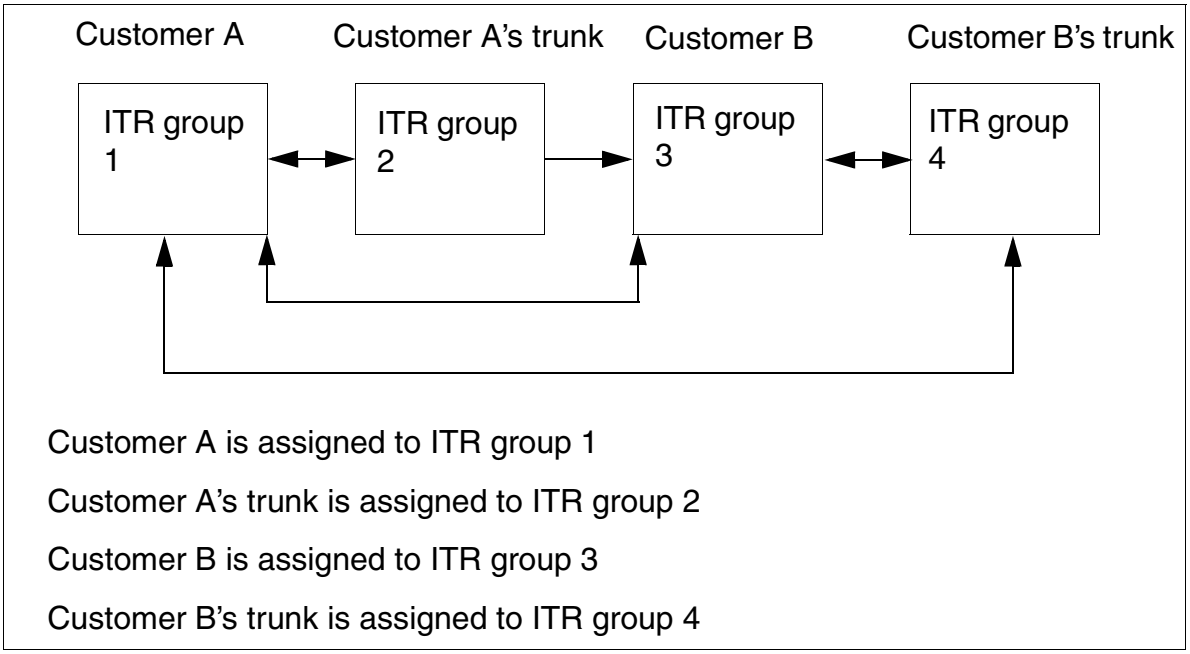
Restrictions

- Transfer of undialed trunks is not possible.
- Simplified dialing is not possible.
- Speed transfer is not possible.
- Intercept can be programmed only system-wide. If an intercept criterion is set, for example *intercept on no answer*, this feature is set for both customers.
- Up to three customers can use a system.
- Customer A and customer B cannot have the same station numbers.
- Customer A can place outgoing calls on its own trunk. Transferring an outgoing call to customer B is possible only from a conference. However, an incoming call can be transferred directly.

Example

- Customer A has telephone number 02302 12345-0, STMD port 1.
- Customer B has telephone number 02302 67890-0, STMD port 2.
- Customer A has station numbers 100-109.
- Customer A has station numbers 110-119.
- Customer A is assigned the intercept position with station number 100.
- Customer A is assigned the intercept position with station number 110.

For the purpose of clarity, it is helpful to draw a diagram of the customer's situation like the sketch shown below:



Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	20-2-1* 12345 ✓	Enter port number of customer A	TG 1: 12345
5.	+ * 67890 ✓	Enter port number of customer B	TG 2: 67890
6.	F2- *2302 ✓	National number of customer A	TG 1: 2302
7.	+ *2302 ✓	National number of customer B	TG 2: 2302
8.	F2- *49 ✓	International number of customer A	TG 1: 49
9.	+ *49 ✓	International number of customer B	TG 2: 49
10.	F2- *1 ✓	Set outgoing station number type to *Customer A* station	TG 1: Station
11.	+ *1 ✓	Set outgoing station number type to Customer B station	TG 2: Station

Step	Entry	Action	Display
12.	F8	Return to main menu	System administration
13.	18-3-1-1	Change assignment of station to ITR groups	Stn 100: 1
14.	#109 ✓ *3 ✓	Select stn. 109 and assign to ITR group 3	Stn 109: 3
15.	✓ *3 ✓	Go to stn. 110 and assign to ITR group 3	Stn 110: 3
16.	:	Stations 111 to 118	:
17.	✓ *3 ✓	Go to stn. 119 and assign to ITR group 3	Stn 119: 3
18.	F7 2 * 2 ✓	Assign customer A's trunks to ITR group 2 (slot 6/port 1)	Sl/Tr 0601: 2
19.	✓ *2 ✓	Assign customer A's trunks to ITR group 2 (slot 6/port 2)	Sl/Tr 0602: 2
20.	✓ *4 ✓	Assign trunks of customer B to ITR group 4 (slot 6/port 3)	Sl/Tr 0603: 4
21.	✓ *4 ✓	Assign customer B's trunks to ITR group 4 (slot 6/port 4)	Sl/Tr 0604: 4
Configured thus far: - In the default configuration, customer numbers of - Stations 100 to 109 (customer A) have been assigned to ITR group 1 - Stations 110 to 119 (customer B) assigned to ITR group 3 - Trunks (customer A) assigned to ITR group 2 - Trunks (customer B) assigned to ITR group 4 In The ITR matrix, define the relationships between the individual ITR groups:			
22.	F8 18-3-2-1 ✓	Keep the *yes* setting so that the stations in ITR group 1 can continue to telephone each other.	Grp 1, to grp 1: yes
23.	✓ *1 ✓	Set ITR group 1 to ITR group 2 to *yes* (customer A can now place outgoing calls on its own trunk)	Grp 1, to grp 2: yes

Step	Entry	Action	Display
24.	✓ *1 ✓	Set ITR group 1 to ITR group 3 to *yes* (customer A can now place internal calls to customer B)	Grp 1, to grp 3: yes
25.	✓	Do not change to *yes*, since this would enable customer A to place outgoing calls on customer B's trunks	Grp 1, to grp 4: yes
26.	✓ ✓ ✓ *1 ✓	Set ITR group 2 to ITR group 1 to *yes* (incoming calls on customer A's trunks are now also assigned to customer A)	Grp 2, to grp 1: yes
27.	✓ *1 ✓	Set ITR group 2 to ITR group 2 to *yes* (otherwise you will not be able to connect to an external station, for example in a consultation call)	Grp 2, to grp 2: yes
28.	✓ *1 ✓	Set ITR group 2 to ITR group 3 to *yes* (external calls can be transferred from customer A to customer B)	Grp 2, to grp 3: yes
29.	✓ *1 ✓	Set ITR group 2 to ITR group 4 to *yes* (for example, you can conduct a conference between external stations of customer A and customer B)	Grp 2, to grp 4: yes
30.	✓ ✓ ✓ *1 ✓	Set ITR group 3 to ITR group 1 to *yes* (customer B can now place internal calls to customer A)	Grp 3, to grp 1: yes
31.	✓	Do not change to *yes*, since this would enable customer B to place outgoing calls on the customer A's trunks	Grp 3 , to grp 2: yes
32.	✓ *1 ✓	Entry must be set to yes so that customer B's stations can continue to telephone each other.	Grp 3, to grp 3: yes

Step	Entry	Action	Display
33.	✓ *1 ✓	Set ITR group 3 to ITR group 4 to *yes* (customer B can now place outgoing calls on its own trunks)	Grp 3 , to grp 4: yes
34.	✓ ✓ ✓ *1 ✓	Set ITR group 4 to ITR group 1 to *yes* (incoming calls can be transferred from customer B to customer A)	Grp 4, to grp 1: yes
35.	✓ *1 ✓	Set ITR group 4 to ITR group 2 to *yes* (for example, you can conduct a conference between external stations of customer A and customer B)	Grp 4, to grp 2: yes
36.	✓ *1 ✓	Set ITR group 4 to ITR group 2 to *yes* (customer B can now place outgoing calls on its own trunks)	Grp 4, to grp 3: yes
37.	✓ *1 ✓	Set ITR group 4 to ITR group 4 to *yes* (otherwise you would not be able to connect to an external station, for example in a consultation call)	Grp 4, to grp 4: yes
38.	F8 17-12	Change to *Trunk group assignment*	Sl/Tr 0601: 1
39.	*1 ✓	Assign trunk 1 of customer A to trunk group 1 (default)	Sl/Tr 0601: 1
40.	✓ *1 ✓	Assign trunk 2 of customer A to trunk group 1 (default)	Sl/Tr 0602: 1
41.	✓ *2 ✓	Assign trunk 1 of customer B to trunk group 2	Sl/Tr 0603: 2
42.	✓ *2 ✓	Assign trunk 2 of customer B to trunk group 2	Sl/Tr 0604: 2
43.	F7 13 *2 ✓	Overflow from trunk group 1 to trunk group 2	Trunk grp 1: 2
44.	F8 16-12 * F3 ✓	Delete *Intercept, day*	Dest.: -
45.	F2 * F3 ✓	Delete *Intercept, night*	Dest: -
46.	F7 16 *100 ✓	Enter stn 100 as intercept position (trunk 1, customer A)	Sl/Tr 0601: 100

Step	Entry	Action	Display
47.	✓ *100 ✓	Enter stn 100 as intercept position (trunk 2, customer A)	Sl/Tr 0602: 100
48.	✓ *110 ✓	Enter stn 110 as intercept position (trunk 1, customer B)	Sl/Tr 0603: 110
49.	✓ *110 ✓	Enter stn 110 as intercept position (trunk 2, customer B)	Sl/Tr 0604: 110
50.	F8 F7	Exit system administration	Time, date

8.49 Tenant Services (for U.S. Only)

Requirement

Two customers (customer A and customer B) seizes the trunk using 9.

- Both customers (customer A and customer B) can telephone internally with each other without having to dial via the trunk.
- It is not possible for customer A to seize customer B's trunk (even if provided access through allowed/denied lists).
- It is not possible for customer B to seize customer A's trunk (even if provided access through allowed/denied lists).
- Incoming calls on customer A's trunk can be transferred to customer B.
- Incoming calls on customer B's trunk can be transferred to customer A.

Restrictions

- Undialed trunks cannot be transferred.
- Prime Line is not possible.
- Speed transfer is not possible.
- Intercept can only be programmed on a system-wide basis. If an intercept criterion (such as intercept no answer) is set, this feature is set for both customers.
- Three customers at the most can use a system.
- Customer A and customer B cannot have the same station numbers.

Example

- Customer A has directory number 555-1234.
- Customer B has directory number 555-2569.
- Customer A has station numbers 100 to 109.
- Customer B has station numbers 110 to 119.
- Customer A assigns the intercept position to station number 100.
- Customer B assigns the intercept position to station number 110.

Figure 8-9 provides an overview of the customer scenario.

Customer Scenario

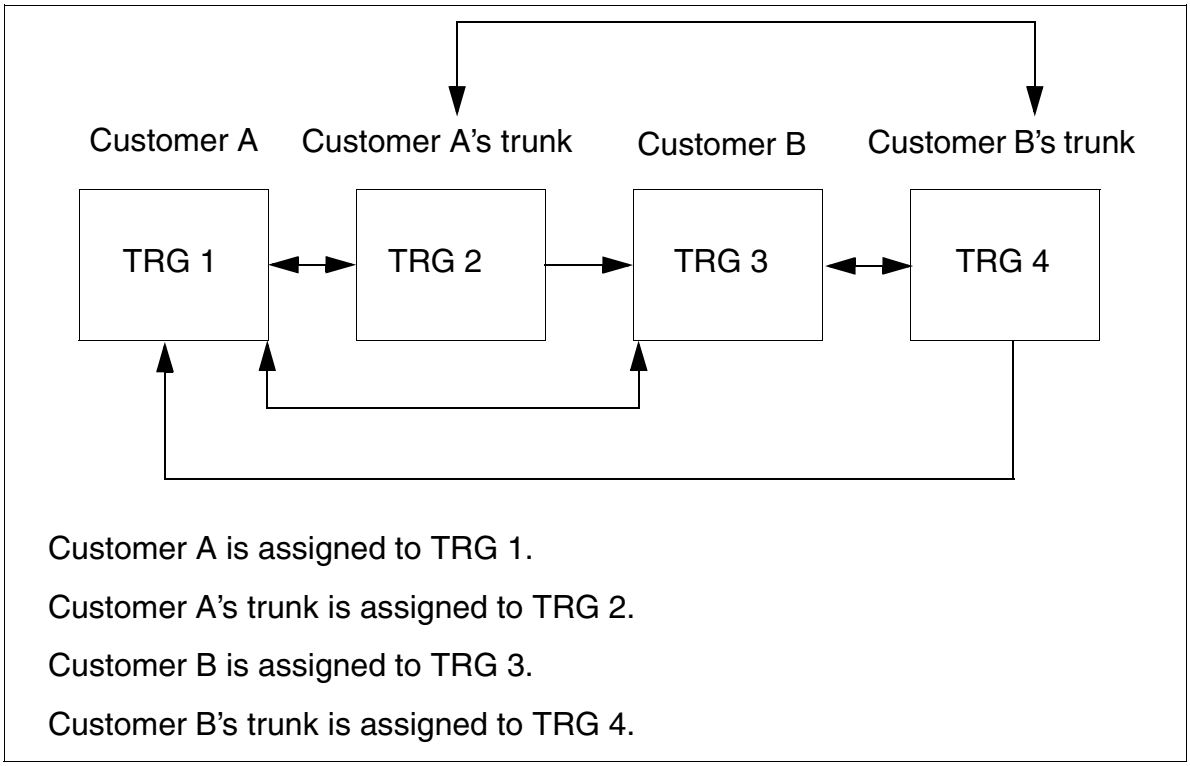


Figure 8-9 Customer Scenario for Tenant Services (for U.S. Only)

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration.	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	20-2-1* 12345 ✓	Enter port number for customer A.	TG 1: 12345
5.	+ * 67890 ✓	Enter port number for customer B.	TG 2: 67890
6.	F2- *408 ✓	Enter national number for customer A.	TG 1: 408
7.	+ *408 ✓	Enter national number for customer B.	TG 2: 408

Step	Entry	Action	Display
8.	F2- * 1 ✓	Enter international number for customer A.	TG 1: 1
9.	+ *1 ✓	Enter international number for customer B.	TG 2: 1
10.	F2- *1 ✓	Set outgoing station number type for customer A.	TG 1: Station
11.	+ *1 ✓	Set outgoing station number type for customer B.	TG 2: Station
12.	F8	Return to main menu.	System administration
13.	18-3-1-1	Change the assignment of the station to the traffic restriction groups.	Stn 100: 1
14.	#109 ✓ *3 ✓	Select station 109 and assign it to traffic restriction group (TRG) 1.	Stn 109: 1
15.	✓ *3 ✓	Go to stn. 110 and assign it to TRG 3.	Stn 110: 3
16.	:	Stations 111 to 118	:
17.	✓ *3 ✓	Go to station 119 and assign it to TRG 3.	Stn 119: 3
18.	F7 2 * 2 ✓	Assign customer A's trunks to TRG 2 (slot 6/port 1).	Sl/Tr 0601: 2
19.	✓ *2 ✓	Assign customer A's trunks to TRG 2 (slot 6/port 2).	Sl/Tr 0602: 2
20.	✓ *4 ✓	Assign customer B's trunks to TRG 4 (Slot 6/Port 3).	Sl/Tr 0603: 4
21.	✓ *4 ✓	Assign customer B's trunks to TRG 4 (slot 6/port 4).	Sl/Tr 0604: 4

Configured so far:

- Customer station numbers
- Stations 100 to 109 (customer A) have been assigned in the TRG 1 default settings.
- Stations 110 to 119 (customer B) have been assigned to TRG 3.
- Customer A's trunks have been assigned to TRG 2.
- Customer B's trunks have been assigned to TRG 4.

Next step:

- Establish the relationship of traffic restriction groups to each other in the TRG matrix:

Step	Entry	Action	Display
22.	F8 18-3-2-1 ✓	Keep the “Yes” entry so the stations in TRG 1 can still call each other.	Grp 1, to group 1: Yes
23.	✓ *1 ✓	Set TRG 1 to TRG 2 to “Yes.” (Customer A can now make outgoing calls on its own trunks)	Grp 1, to group 2: Yes
24.	✓ *1 ✓	Set TRG 1 to TRG 3 to “Yes.” (Customer A can now make internal telephone calls to customer B.)	Grp 1, to group 3: Yes
25.	✓	Do not change to “Yes” (to prevent customer A from making outgoing calls on customer B’s trunks).	Grp 1, to group 4: No
26.	✓ ✓ ✓ *1 ✓	Set TRG 2 to TRG 1 to “Yes.” (Incoming calls on customer A’s trunks are now assigned to customer A.)	Grp 2, to group 1: Yes
27.	✓ *1 ✓	Set TRG 2 to TRG 2 to “Yes.” (If this setting is not made, it is not possible to call an external station on a consultation hold.)	Grp 2, to group 2: Yes
28.	✓ *1 ✓	Set TRG 2 to TRG 3 to “Yes.” (External calls can be transferred from customer A to customer B.)	Grp 2, to group 3: Yes
29.	✓ *1 ✓	Set TRG 2 to TRG 4 to “Yes.” (This setting allows conferences between external stations of customer A and customer B.)	Grp 2, to group 4: Yes
30.	✓ ✓ ✓ *1 ✓	Set TRG 3 to TRG 1 to “Yes.” (Customer B can now make internal telephone calls to customer A.)	Grp 3, to group 1: Yes
31.	✓	Do not change to “Yes” (to prevent customer B from making outgoing calls on customer A’s trunks).	Grp 3, to group 2: No
32.	✓ *1 ✓	Enter “Yes” so that customer B’s stations can still call each other.	Grp 3, to group 3: Yes
33.	✓ *1 ✓	Set TRG 3 to TRG 4 to “Yes.” (Customer B can now make outgoing telephone calls on proprietary trunks.)	Grp 3, to group 4: Yes

Step	Entry	Action	Display
34.	✓ ✓ ✓ *1 ✓	Set TRG 4 to TRG 1 to “Yes.” (Incoming calls can be switched from customer B to customer A.)	Grp 4, to group 1: Yes
35.	✓ *1 ✓	Set TRG 4 to TRG 2 to “Yes.” (This setting allows conferences between external stations of customer B and customer A.)	Grp 4, to group 2: Yes
36.	✓ *1 ✓	Set TRG 4 to TRG 2 to “Yes.” (Customer B can now make outgoing telephone calls on proprietary trunks.)	Grp 4, to group 3: Yes
37.	✓ *1 ✓	Set TRG 4 to TRG 4 to “Yes.” (If this setting is not made, it is not possible to call an external station on a consultation hold.)	Grp 4, to group 4: Yes
38.	F8 17-12	Switch to trunk group assignment.	Sl/Tr 0601: 1
39.	*1 ✓	Assign customer A’s trunk 1 to trunk group 1 (default).	Sl/Tr 0601: 1
40.	✓ *1 ✓	Assign customer A’s trunk 2 to trunk group 1 (default).	Sl/Tr 0602: 1
41.	✓ *2 ✓	Assign customer B’s trunk 1 to trunk group 2.	Sl/Tr 0603: 2
42.	✓ *2 ✓	Assign customer B’s trunk 2 to trunk group 2.	Sl/Tr 0604: 2
43.	F7 13 *2 ✓	Set overflow routing from trunk group 1 to trunk group 2.	from trk grp 1: 2
44.	F8 16-12 * F3 ✓	Delete “day” intercept position.	Dest.: -
45.	F2 * F3 ✓	Delete “night” intercept position.	Dest.: -
46.	F7 16 *100 ✓	Enter station 100 as intercept position (trunk 1, customer A).	Sl/Tr 0601: 100
47.	✓ *100 ✓	Enter station 100 as intercept position (trunk 2, customer A).	Sl/Tr 0602: 100
48.	✓ *110 ✓	Enter station 110 as intercept position (trunk 1, customer B).	Sl/Tr 0603: 110
49.	✓ *110 ✓	Enter station 110 as intercept position (trunk 2, customer B).	Sl/Tr 0604: 110
50.	F8 F7	Exit system administration.	Time, Date

8.50 Class-of-Service Changeover After Timeout

Introduction

You can use least cost routing (LCR) to change the toll restriction for each station after a timeout.

Example

- Set unrestricted trunk access on trunk group 1 for all stations on Monday from midnight to 4:00 p.m.
- From 4:00 p.m. onward, only station 100 should have unrestricted trunk access on trunk group 1; all other stations should have outward restricted trunk access.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	35-1	Select *LCR*	LCR on/off
5.	*1 ✓	Activate LCR and confirm	State: on
6.	F7 3-1	Assign name for outdial rule	Name - Line 1:
7.	*BUM ✓	Enter name and confirm	Line 1: BUM
8.	F2 * A ✓	Enter format for outdial rule and confirm	Line 1: A
9.	F2 * 2 ✓	Set outdial rule type to *1layer mode* and confirm	Line 1: 1layer mode
10.	F7 F7 5-1 * 1600 ✓	Set time limit1 for *Day index* 1 (Monday) to 16:00 (4:00 p.m.) and confirm	Day index 1, Pos 1: 1600
11.	F2 *1 ✓	Assign time zone 1 (Zone A in HiPath 3000 Manager E) to time limit 1. and confirm	Day index 1 Pos 1: 1
12.	ok * 2 ✓	Assign time zone 2 (Zone B in HiPath 3000 Manager E) to time limit 2. and confirm	Day index 1 Pos 2: 2
13.	F7 F7 6 + *14 ✓	Assign class of service 14 to station 101 and class of service 15 to all other stations, and confirm	Stn 101: 14

Step	Entry	Action	Display
14.	F7 7-1 *1 ✓	Assign trunk group 1 to path table 1 and confirm	Table 1, Line 1: 1
15.	F2 * 1 ✓	Assign outdial rule 1 to path table 1 and confirm	Table 1, Line 1: 1
16.	F2 * 14 ✓	Assign class of service 14 to path table 1 and confirm	Table 1, Line 1: 14
17.	F2 * 1 ✓	Assign time zone 1 to path table 1 and confirm	Table 1, Line 1: 1
18.	F7 1 + * 1 ✓	Assign trunk group 1 to path table 1	and confirm Table 1, Line 2: 1
19.	F2 * 1 ✓	Assign outdial rule 1 to path table 1 and confirm	Table 1, Line 2: 1
20.	F2 F2 * 2 ✓	Assign time zone 2 to path table 1 and confirm	Table 1, Line 2: 1
21.	F7 F7 8-1 * 0CZ ✓	Set dial plan 1 to 0CZ and confirm 0=trunk group code for trunk grp 1, C=activates a dial tone, Z=all digits can be dialed	Line 1: 0CZ
22.	F2 * 1 ✓	Assign path table 1 to dial plan 1 and confirm	Line 1: 1
23.	F8-F7	Exit system administration	Time, date

8.51 Analog Tie Traffic via TIEL Board

Introduction

You can use the TIEL board to support analog tie traffic.

Example

Two HiPath 3750 or HiPath 3700 systems are networked via the TIEL board.

- The board configuration of both systems is as follows:
  Slot 2 = SLMO 24
  Slot 3 = SLMO 24
  Slot 4 = SLA16
  Slot 5 = Free
  Slot 6 = STMD8
  Slot 7 = TIEL
- Both systems have a system port.
- STMD port 1 is assigned to trunk group 1.
- TIEL port 1 is assigned to trunk group 2.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	16-20 * 1 ✓	Enable DTMF DID for TIEL port 1 and confirm	Sl/Tr 0701: Allowed
5.	F8 17-12 # 0701 ✓ * 2 ✓	Assign TIEL port 1 to trunk group 2 and confirm	Sl/Tr 0701: 2
6.	F8 20-2-1 * 98462 ✓	Assign a port number to STMD port 1 and confirm	Trk 1: 98462
7.	F2 * 2302 ✓	Assign a national station number to STMD port 1 and confirm	Trk 1: 2302
8.	F2 * 49 ✓	Assign an international station number to STMD port 1 and confirm	Trk 1: 49
9.	F2 * 1 ✓	Assign an outgoing station number to STMD port 1 and confirm	Trk 1: Station

Step	Entry	Action	Display
Assign trunk group names if necessary:			
10.	F8 17-15 * ISDN ✓	Trunk group STMD port 1, trunk group 1 Name -> ISDN and confirm	Trk 1: ISDN
11.	✓ * Tie ✓	Trunk group TIEL port 1, trunk group 2, Name -> Tie and confirm	Trk 2: Tie
Assign the line type PBX to TIEL port 1 if necessary:			
12.	F7 14 ✓* 1 ✓	Set TIEL port 1 to PBX and confirm	Trk 2: PBX
13.	F8-F7	Exit system administration	Time, date
If you need to customize the signaling protocol, use HiPath 3000 Manager E.			

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Options -> Lines/networking
Customize the signaling protocol:	
2.	Options -> Lines/network -> for TIEL port 1, double-click -> MSI Flags/ Maintype

Note

Diagrams for connecting the TIEL board via a 2-wire or 4-wire connection are provided in Section 3.3.16 (not for U.S.).

8.52 Mozart CD Announcement Device With Start and Stop Contact on TIEL Board (Not for U.S.)

Example

Connect Mozart CD (approval number A107674D) as an announcement device with a start and stop contact on the TIEL board.

- Configuration example with a single-cabinet system:
  Slot 2 = SLMO24
  Slot 3 = SLA 16
  Slot 4 = TML8W
  Slot 5 = TIEL
  Slot 6 = STMD8
- The customer has two PP trunk connections with different station numbers:
  PP connection 1 has station number 12345 on STMD8 port 1
  PP connection 2 has station number 67890 on STMD8 port 2.
- Station number 12345 is a hotline number. Each time a number is dialed, the announcement device must send an announcement to the calling station.
- Requirement: System status after a reload. The system station numbers are entered in *ISDN parameters*.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	25-1 * 0501 ✓	Assign announcement device: Slot 5/port 1 TIEL	Announcement dev. 1: 0501
5.	F7 3 * 1 ✓	STMD port 1: Assign trunk 1 to announcement	Sl/Tr 0601: 1
6.	✓ *1 ✓	STMD port 1: Assign trunk 2 to announcement	Sl/Tr 0602: 2
7.	F8-F7	Exit system administration	Time, date

Note

The positions of the DIP FIX switches on the TIEL board are described in Section 3.3.16.

Mozart CD connection

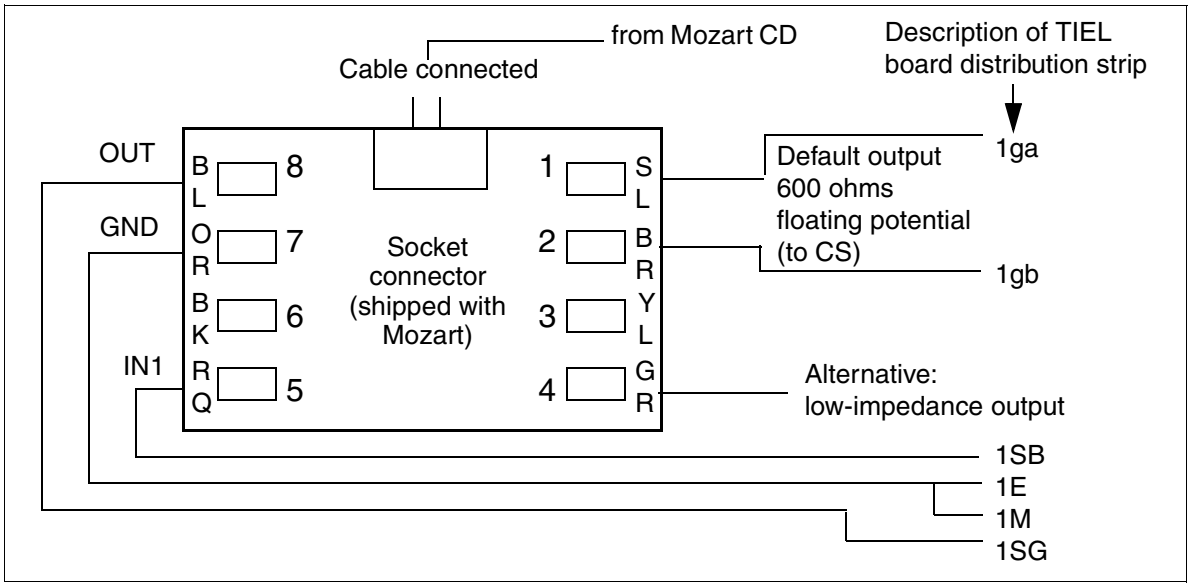


Figure 8-10 Mozart CD Connection to TIEL (Not for U.S.)

8.53 Mozart CD/Genius Announcement Device on SLA Board (Not for U.S.)

Introduction

When connecting the Mozart CD/Genius announcement device, you must also integrate two relays.

Relay 1 operates the announcement device control input.

Relay 2 switches the 600-ohm loop permanently connected to the device.

Mozart CD Connection

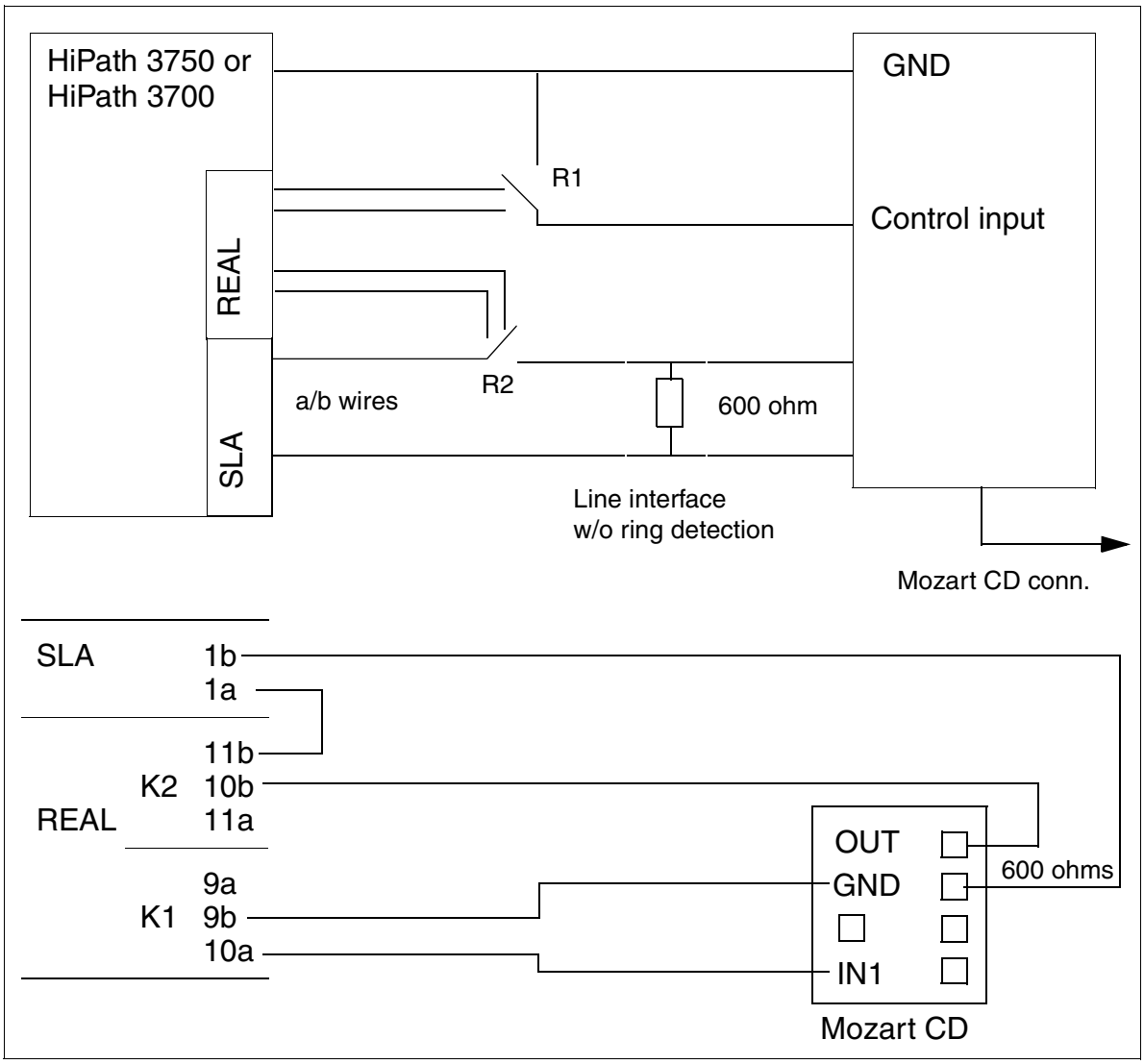


Figure 8-11 Mozart CD Connection—SLA and REAL (Not for U.S.)

- MOH mode
  Announcement type: Music on hold
  Relay 1: Type: announcement - time: 0 x 100 ms - station: analog station no.
  Relay 2: Type: after timeout - time: 0 x 100 ms - station: analog station no.
- Announcement mode
  Announcement type: Announcement
  Relay 1: Type: announcement - time: 5 x 100ms - station: analog station no.
  Relay 2: Type: after timeout - time: n x 100ms - station: analog station no.
  (n x 100 ms = length of announcement)

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	26-1	Select type	Relay no. 1: -
5.	* 20 ✓	Type: Announcement/music	Relay no. 1: Announcement/music
6.	+	Next relay	Relay no. 2: -
7.	* 12 ✓	Type: Timeout	Relay no. 2: Timeout
8.	F7	Return to Relays	
9.	2	Select switching time	Relay no. 1: 255
10.	* 5 ✓	Relay 1 switching time (5 = 5ms)	Relay no. 1: 5
11.	+	Next relay	Relay no. 2: 255
12.	* 200 ✓	Relay 2 switching time (200 = 20s)	Relay no. 2: 200
13.	F7	Return to Relays	
14.	3	Enter the station number of the announcement port under Assigned station	Relay no. 1: -
15.	* 124 ✓	Station no. of announcement port for relay 1	Relay no. 1: 124
16.	+	Next relay	Relay no. 2: -
17.	* 124 ✓	Station no. of announcement port for relay 2	Relay no. 2: 124
18.	F7 / F8		
19.	14-11	Enter Standard as the station type	Stn 11: Standard

Step	Entry	Action	Display
20.	# 124 ✓	Enter station	Stn 124: Standard
21.	F8-F7	Exit system administration	Time, date

8.54 Connecting MUSIPHONE multimax S to TIEL Board (Not for U.S.)

Applications

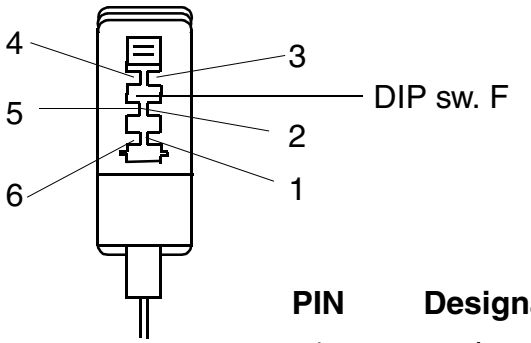
- Announcements for each channel connected to the TIEL board
- Music/message in the queue
- Answering machine function after business hours (announcement only after the night function has been activated)
- Hotline mode
- Overflow announcements

Description

To implemented via the announcement before answering feature, the **MUSIPHONE multimax S** must be equipped with one or more external start inputs.

- Start and stop mode via TIEL board
- External MOH via MOH/VA interface
- Plug-in cards make it easy to quickly exchange studio-ready music on hold prompts
- Professionally recorded announcements from the **MUSIPHONE Sound Studio** or recorded by the user
- The system has no parts subject to wear, which completely eliminates the need for maintenance
- A 64 Kbps transfer rate and a special digitalization method guarantee high-quality and uniformly clear playback of music, voice, or both

Connecting Cord



PIN	Designation
1	a-wire
2	b-wire
3	Control input (negative), for TIEL only
4	Control output, for TIEL only
5	Control output, for TIEL only
6	Control input (positive), for TIEL only

Figure 8-12 Six-Pin TAE-F Connector for 6-Wire Connecting Cord (Not for U.S.)

Control Input

The beginning of the announcement is activated by a floating contact (pins 4 and 5). When the control input closes, the control output is closed for approximately 250 ms, and the message is output approximately 750 ms later.

Six-pin right-angle TAE connector, R1 type, according to DIN 4175, Part 3 (connecting function → automatic locking, target function → automatic release).

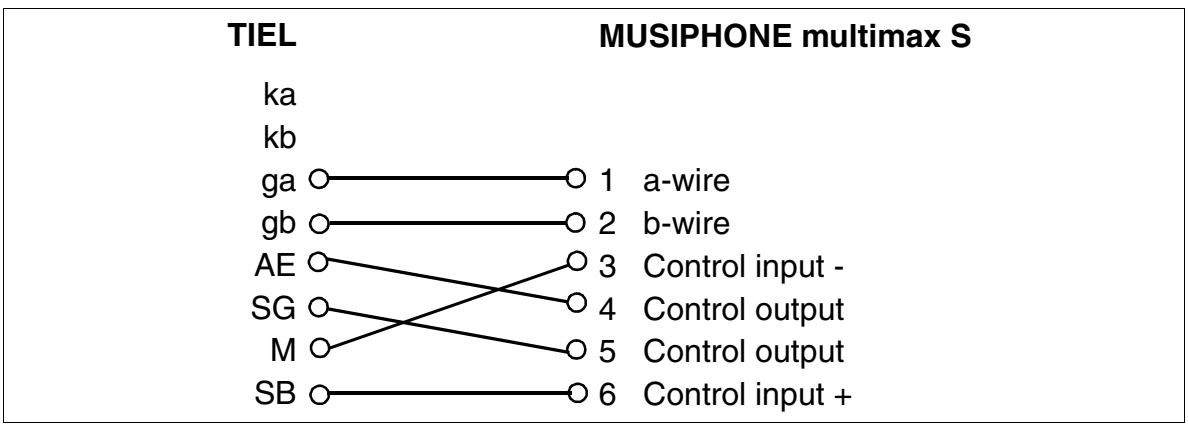


Figure 8-13 MUSIPHONE multimax S Pins (Not for U.S.)

8.55 Connecting Enhanced Radio Paging Equipment (Multitone) to the TMOM Board (Not for U.S.)

Introduction

The Multitone Access 3000 radio paging device with the ESPA 4.4.3 protocol and a pocket receiver with a 5-digit display can be used.

Example

- Assign the pocket receiver to station 100.
- Assign pager number 000 to the pocket receiver.
- The TMOM is installed in slot 06.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	32-1	Select radio paging equipment port	SI/Tr: -
5.	* 0601 ✓	Enter port	SI/Tr: 0601
6.	F2	Enter radio paging equipment type	Type: -
7.	* 2 ✓	Change radio paging equipment type to *Enhanced*	Type: Enhanced
8.	F2	Enter protocol	Type: ESPA 4.4.5
9.	* 2 ✓	Enter protocol ESPA 4.4.3	Type: ESPA 4.4.3
10.	F2	Set mode	Code: -
11.	* 6 ✓	Ring type for urgent calls (depending on radio paging equipment)	Code: 6
12.	F2 * 6 ✓	Ring type for normal calls (depending on radio paging equipment)	Code: 6
13.	F2 * 1 ✓	Ring type for data calls (depending on radio paging equipment)	Code: 1
14.	F2 * 5 ✓	Enter number of digits for station number (depending on radio paging equipment)	Length: 5

Step	Entry	Action	Display
15.	F2 * 2 ✓	Enter fill characters for station number (depending on radio paging equipment)	Filler: Right
16.	F2 * # ✓	Enter fill characters for station number (depending on radio paging equipment)	Filler: #
17.	F2 * 7 ✓	Enter number of characters for message (depending on radio paging equipment)	Length: 7
18.	F2 * 2 ✓	Enter fill characters for message (depending on radio paging equipment)	Filler: Right
19.	F2 * # ✓	Enter fill characters for message (depending on radio paging equipment)	Filler: #
20.	F2 * 1 ✓	Enter radio paging equipment data (transfer sequence) (depending on radio paging equipment)	Sequence 1: Betr.Art
21.	+ * 2 ✓	Enter radio paging equipment data (transfer sequence) (depending on radio paging equipment)	Sequence 2: Repdial key
22.	+ * 3 ✓	Enter radio paging equipment data (transfer sequence) (depending on radio paging equipment)	Sequence 2: Message sent
23.	F2 * 1 ✓	Enter radio paging equipment number assignment (index)	Stn 100: 1
24.	F2 * 000 ✓	Enter number of the pocket receiver	Index 1: 000
25.	F8-F7	Exit system administration	Time, date

8.56 Assigning Speed-Dialing Numbers to ITR Groups

Introduction

This feature assigns individual speed-dialing numbers to specific stations and trunks.

Example

- Station 100 should be able to dial speed-dialing numbers 000 to 499 only.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	18-3-1	Assign speed-dialing groups	Group assignment
5.	3-1	Set minimum speed-dialing group	Speed-dial., minimum
6.	*0 ✓	Enter minimum group	Grp1:000
7.	F2	Return to group assignment	Group assignment
8.	2	Set maximum speed-dialing group	Speed-dial., maximum
9.	*499	Enter maximum group	Grp1:499
10.	F2F2	Return to group assignment	Group assignment
11.	1	Assign station to group	Station
12.	*1	Enter speed-dialing group for station	Stn100:1

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Classes of service -> ITR group assignment -> Speed-dial groups = Group 1 from 0 to 499/Station 100 = Group 1

8.57 V.24 (RS-232) Range Extension for Call Data

Introduction

This features lets users output call charge data using an optiset E control adapter.

Example

- Call data is output to the printer using the optiset E control adapter connected to extension 135.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	22-13	Configure the V.24 (RS-232) interface	V.24 configuration
5.	2-1	CDRC function	Port alloc.
6.	1-*-2	Assign $U_{P0/E}$ port	Output port: $U_{P0/E}$ port
7.	F7	Return to CDRC	CDRC
8.	3-*-(135)	Assign station number	$U_{P0/E}$ port, stn:135

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	Call charges -> Output format -> Port assignment -> Output format = $U_{P0/E}$ port $U_{P0/E}$ port = 135

8.58 Configuring a Denied List for Undialed Trunks

Introduction

This feature sets up toll restriction for a trunk assigned by the attendant console.

Example

- Users should not be able to dial station number 0190 on trunks assigned by the attendant console.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	33-4	Enable feature for AC	Xfer undialed trk
5.	*1	Set trunk feature to *allowed*	Mode: Allowed
6.	F8	Return to main menu	System administration
7.	15-4	Select denied list 1	Denied 1, long
8.	*0190	Enter 0190	Pos1: 0190
9.	F8	Return to main menu	System administration
10.	15-8	Enter reference station	Trunk COS same as stn:
11.	*100	Enter station 100	Trunk COS same as stn.: 100
12.	F8	Return to main menu	System administration
13.	15-1	Select toll restriction, day for reference station 100	Restriction, day
14.	*2-8	Assign denied list 1	Restriction, day Stn100, TG1:D-L1
15.	F7	Return to toll restriction	Toll restriction
16.	2	Select toll restriction, night for reference station 100	Restriction, night
17.	*2-8	Assign denied list 1	Restriction, night Stn100, TG1:D-L1

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	System parameters -> Intercept/AC -> Transfer undialed trunk, AC
2.	Classes of service -> Station -> Undialed trunk COS (100)
3.	Classes of service -> Station -> Assign station to COS groups -> Stn. number 100, day & night 8
4.	Classes of service -> Day -> COS groups (8)
5.	Classes of service -> Night -> COS groups (8)
6.	Classes of service -> Permitted/prohibited numbers -> Denied list 1-> Enter 0190

8.59 Displaying Caller ID After Release (Police) (Not for U.S.)

Introduction

This feature places the calling party's number in caller list 0 after the call is released.

Configuring the Feature Using Assistant T

Step	Entry	Action	Display
1.	***95**	Start system administration	System administration
2.	XXXXX	Enter user name	User:
3.	XXXXX	Enter password	Password:
4.	22	Go to ->	System settings
5.	15	Go to ->	Caller list, mode
6.	3	Select ->	Ext. ring/call

Configuring the Feature Using HiPath 3000 Manager E

Step	Action
1.	System parameters -> Display
2.	Caller list-> Mode -> External rings and calls

9 Workpoint Clients

9.1 Overview

Chapter Contents

This chapter discusses the following topics:

9.2 optiPoint 500 (V3.0 SMR-3 and later)

The optiPoint 500 telephones described in this section are compatible with the optiset E telephones. It is possible to operate both telephone families on one $U_{P0/E}$ board. You can also use telephones from the two families in mixed host-client configurations (earlier called the master-slave or primary-secondary configuration). You can find information on optiset E telephones, adapters, and add-on device in the Hicom 150 H V1.0 and Hicom 150 E Office Rel.2.0-3.0 Service Manual (refer to the list of related documents).

Introduction

optiPoint 500 telephones handle the digital communication of voice and data (voice communication only for optiPoint 500 entry and optiPoint 500 economy). The three dialog keys and the display guarantee convenient and interactive operation. Furthermore, the key lamp principle visualizes the activated functions.

With the exception of optiPoint 500 entry and optiPoint 500 economy, the optiPoint 500 telephones have a USB 1.1 interface. This allows for PC-supported telephoning and Internet access over the USB interface of a PC.

The add-on devices optiPoint key module and optiPoint BLF allow you to increase the number of available function keys.

The different optiPoint 500 adapters provide a flexible extension to the telephone workstation. Additional devices (such as personal computers, fax equipment, telephones, headsets) can be connected quickly because it is easy to build them on to the bottom of the telephones (not optiPoint 500 entry and optiPoint 500 economy) and because the adapters are “plug’n’play”.

You can find information not contained in this chapter in the optiPoint 500 Service Manual.

The market introduction of the optiPoint 500 telephones, adapters and add-on devices takes place in two steps:

- Step 1, release 12/01: Contains all optiPoint 500 telephones, adapters and add-on devices, described in this chapter and not included in step 2.
- Step 2, release probably 03/02: Contains optiPoint 500 entry, optiPoint 500 economy, optiPoint acoustic adapter, optiPoint ISDN adapter, optiPoint recorder adapter and optiPoint BLF.

Key Programming

Double key assignments
The programmable function keys of the optiPoint 500 telephones and the optiPoint key modules can have double assignments. First define any key as the “Shift” key. **Only external phone numbers** for outgoing dialing can be saved on the second level that this provides.
LED signaling applies to the first key level only.
When the Shift function is pressed, the LED lights the Shift key. This signals that the phone numbers on the second key level are available. The Shift function is deactivated after 5 s or after you press a phone number or if the you press the Shift key again.
The optiPoint BLF function keys cannot have double assignments.

HiPath 3000 < V3.0 does not automatically detect optiPoint 500 telephones; it treats them as if they were optiset E telephones:

optiPoint 500 telephones		**Generation/detection by HiPath 3000 and HiPath 3000 Manager E**
optiPoint 500 entry	–>	optiset E basic
optiPoint 500 economy	–>	optiset E advance plus/comfort
optiPoint 500 basic	–>	optiset E advance plus/comfort
optiPoint 500 standard	–>	optiset E advance plus/comfort
optiPoint 500 advance	–>	optiset E advance plus/comfort + optiset E key module

Because optiPoint 500 advance has more function keys (4 + 15) than any optiset E telephones (max. 4 + 8), the system generates an optiset E advance plus/comfort with optiset E key module for the optiPoint 500 advance. HiPath 3000 Manager E also recognizes this combination.
Use the 4 + 8 function keys of the optiset E advance plus/comfort and the first 7 keys of the optiset E key module to program the 4 + 15 function keys of the optiPoint 500 advance.

You can label the keys in one of the following ways:

- Handwritten label sheets are included with each telephone.
- Using a PC:
  – with the “Key Labeling Tool“ (requires MS Word©) that is on the CD “Electronic Operating Instructions“ (refer to the list of related documents).
  – with the “Online Key Labeling Tool“ that can be downloaded from http://w4.siemens.de/networks/hipath/en/download/index.htm.

9.2.1 optiPoint 500 Telephones

9.2.1.1 optiPoint 500 entry

- probably available from 03/02 on -

Main Features

- 8 function keys (can be modified with HiPath 3000 Manager E) with LEDs (see page 9-4)
- Open listening
- 2 settings keys (plus/minus) for ringer volume, ringer pitch, alerting tone, open listening
- Suitable for wall mounting
- No modularity (no connecting capability for adapters or add-on devices), no display

Standard Key Assignments (Default) for optiPoint 500 entry

Consultation hold
Redial
Message
Callback
Speed dialing
Microphone on/off
Speaker
Release

Figure 9-1 optiPoint 500 entry - Standard Key Assignments (Default)

Refer to Section 9.2.1.6 for connection requirements.

9.2.1.2 optiPoint 500 economy (not for U.S.)

- probably available from 03/02 on -

Main Features

- 12 function keys (4 can be changed using HiPath 3000 Manager E, 8 freely programmable) with LEDs (see page 9-4)
- Alphanumeric LCD display (swivel) with 2 lines, 24 characters each
- 3 dialog keys for interactive user prompts: “Yes”, “Back“ and “Next“
- Open listening
- 2 settings keys (plus/minus) for ringer volume, ringer pitch, alerting tone, open listening
- Suitable for wall mounting
- No modularity (no connecting capability for adapters or add-on devices)

Standard Key Assignments (Default) for optiPoint 500 economy

Service	Programmable
Redial	Programmable
Microphone on/off	Programmable
Speaker	Programmable
	Programmable
	Programmable
	Programmable
	Release

Figure 9-2 optiPoint 500 economy - Standard Key Assignments (Default)

Refer to Section 9.2.1.6 for connection requirements.

9.2.1.3 optiPoint 500 basic

Main Features

- 12 function keys (4 can be changed using HiPath 3000 Manager E, 8 freely programmable) with LEDs (see page 9-4)
- Alphanumeric LCD display (swivel) with 2 lines, 24 characters each
- 3 dialog keys for interactive user prompts: “Yes”, “Back“ and “Next“
- Open listening
- 2 settings keys (plus/minus) for ringer volume, ringer pitch, alerting tone, open listening
- Interfaces and slots:
  - 1 USB 1.1 interface
  - 1 option bay
  - 1 interface for max. 2 add-on devices
- Suitable for wall mounting

Standard Key Assignments (Default) for optiPoint 500 basic

Service	Programmable
Redial	Programmable
Microphone on/off	Programmable
Speaker	Programmable
	Programmable
	Programmable
	Programmable
	Release

Figure 9-3 optiPoint 500 basic - Standard Key Assignments (Default)

Refer to Section 9.2.1.6 for connection requirements.

9.2.1.4 optiPoint 500 standard / optiPoint 500 standard SL (for U.S. only)

Remark: optiPoint 500 standard and standard SL (for U.S. only) function exactly the same on the HiPath 3000 systems.

Main Features

- 12 function keys (4 can be changed using HiPath 3000 Manager E, 8 freely programmable) with LEDs (see page 9-4)
- Alphanumeric LCD display (swivel) with 2 lines, 24 characters each
- 3 dialog keys for interactive user prompts: “Yes”, “Back”, and “Next”
- Full duplex speakerphone mode with echo suppression for adapting to the room
- 2 settings keys (plus/minus) for ringer volume, ringer pitch, alerting tone, speaker quality
- Interfaces and slots:
  – 1 integrated USB 1.1 interface
  – 1 option bay
  – 1 interface for max. 2 add-on devices
- Suitable for wall mounting

Standard Key Assignments (Default) for optiPoint 500 standard

Service	Programmable
Redial	Programmable
Microphone on/off	Programmable
Speaker	Programmable
	Programmable
	Programmable
	Programmable
	Release

Figure 9-4 optiPoint 500 standard - Standard Key Assignments (Default)

Refer to Section 9.2.1.6 for connection requirements.

9.2.1.5 optiPoint 500 advance

Main Features

- 19 function keys (4 can be changed using HiPath 3000 Manager E, 15 freely programmable) with LEDs (see page 9-4)
- Alphanumeric LCD display (swivel) with 2 lines, 24 characters each. Background lighting that stays lit for approximately 5 s
- 3 dialog keys for interactive user prompts: “Yes“, “Back“, and “Next“
- Full duplex speakerphone mode with echo suppression for adapting to the room
- 2 settings keys (plus/minus) for ringer volume, ringer pitch, alerting tone, speaker quality
- Interfaces and slots:
  - 1 integrated USB 1.1 interface
  - 2 option bays
  - 1 interface for max. 2 add-on devices
  - 1 headset connection (121 TR9-5)
- Suitable for wall mounting

Standard Key Assignments (Default) for optiPoint 500 advance

Service	Programmable
Redial	Programmable
Microphone on/off	Programmable
Speaker	Programmable
	Programmable
	Programmable
	Programmable
	Programmable
	Programmable
	Programmable
	Programmable
	Programmable
	Programmable
	Programmable
	Release

Figure 9-5 optiPoint 500 advance - Standard Key Assignments (Default)

Refer to Section 9.2.1.6 for connection requirements.

9.2.1.6 Connection Requirements

Hardware Requirements

System	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Hardware requirements	free $U_{P0/E}$ port on SLMO8 (not for U.S.) or SLMO24	free $U_{P0/E}$ port on CBCC CBRC SLU8 SLU8R SLMO24	free $U_{P0/E}$ port on CBCC CBRC SLU8 SLU8R	free $U_{P0/E}$ port on SBSCO	free $U_{P0/E}$ port on SBSCS

Refer to Section 6.1 for information on upgrading peripheral boards for HiPath 3750 and HiPath 3700.

Connecting as a Client Telephone

It can also be connected to an existing optiPoint 500 telephone (except for optiPoint 500 entry and optiPoint 500 economy) as a client telephone (using an optiPoint phone adapter).

9.2.1.7 Connecting the Equipment

Procedure: Connecting an optiPoint 500 Telephone

Step	Activity
1.	Locate a free interface on the main distribution frame.
2.	Connect the cable from the main distribution frame to the wall outlet.

The maximum range for a standalone or host telephone without additional local power supply is approximately 1000 m (3280 feet) (for J-Y (ST) 2x2x0.6, ∅ 0.6 mm). Perform the telephone test in Section 12.5.7 to determine whether a local power supply is needed for additional power (for example, in host-client configurations or for larger ranges).

3.	Label the keys in one of the following ways: • Handwritten; label sheets come with each telephone. • Over a PC: – With the “Key Labeling Tool” (requires MS Word©) that is on the “Electronic Operating Instructions” CD. – With the “Online Key Labeling Tool” that can be downloaded from http://w4.siemens.de/networks/hipath/en/download/index.htm.
4.	Prepare the telephone for connection: • Connect the handset cord to the telephone (marked with symbol) and to the handset. • Do you plan to connect an add-on device? Then refer to Section 9.2.2 on Page 9-15. • Do you plan to connect optiPoint adapters? Then refer to Section 9.2.3 on Page 9-19.
5.	Connect the line cord (marked on the telephone by a symbol). optiPoint 500 telephones are shipped with a 6 m (20 ft.) line cord and an MW6 (RJ11) plug for connection to a modular telephone jack.

The first time the telephone is switched on,

- All LEDs illuminate briefly
- All LEDs on the add-on devices (AODs), if connected, light up briefly (AOD LEDs do not necessarily flash at the same time as the LEDs on the telephone.)
- All pixels on the display activate briefly

These indications show that the telephone is starting up and performing a self-test. Downloading has finished and the telephone is ready for operation when you see the date and time on the display.

9.2.1.8 Connections on the Bottom of the Telephone

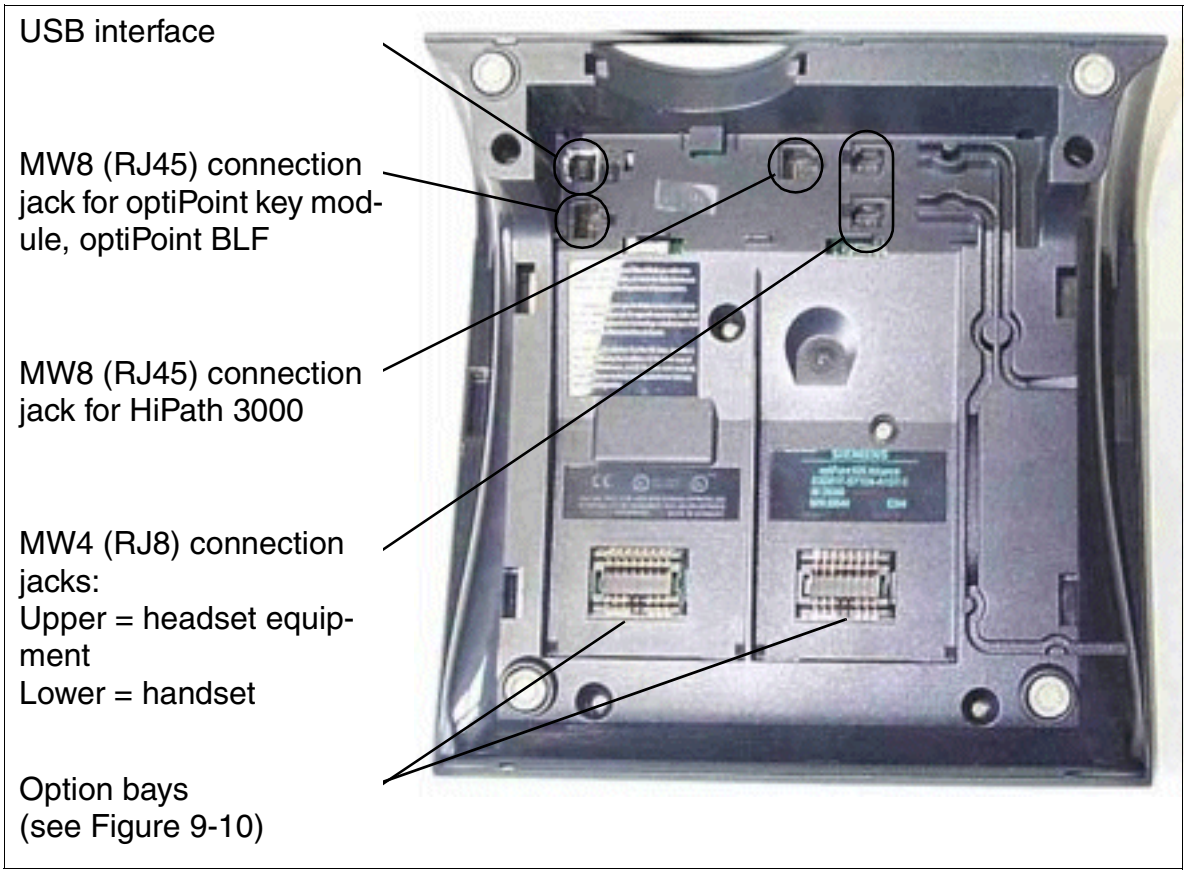


Figure 9-6 optiPoint 500 Connecting Capabilities

9.2.1.9 USB 1.1 Interface

Except for optiPoint 500 entry and optiPoint 500 economy, the optiPoint 500 telephones have one USB 1.1 interface. This forms the basis for:

- PC-supported telephoning (TAPI)
- Data transmission over CAPI (for example, direct Internet access, fax capability, or e-mail). If the CAPI software is installed, PCs have direct Internet access over the USB interface without any additional adapter. There is a charge for this software.

TAPI and CAPI can be used simultaneously (for example, receiving a large e-mail or download while calls are being set up over a CTI application).

optiClient Attendant - The professional PC attendant console is connected over the USB 1.1 interface of the optiPoint 500 basic, optiPoint 500 standard or optiPoint 500 advance.

9.2.2 optiPoint 500 Add-On Devices

The add-on devices optiPoint key module and optiPoint BLF increase the number of available function keys.

The user usually installs the add-on devices. The installation instructions are on the “Electronic Operating Instructions” CD.

Warning
Always disconnect the line cord before connecting add-on devices to the telephone.

Refer to Section 7.10.2 for model-dependent data for the optiPoint key module and the optiPoint BLF.

9.2.2.1 optiPoint Key Module

The optiPoint key module is an add-on device that should be mounted on the side of the telephone; it provides an additional 16 keys, LEDs and labelling areas for all purposes. Figure 9-9 shows the possible configurations.

It is possible to perform double assignment for the keys. **Only external numbers** for outgoing dialing can be saved on the second key level that is then available (see page 9-4).

Figure 9-7 optiPoint Key Module

9.2.2.2 optiPoint BLF

- probably available from 03/02 on -

This is an add-on device that provides 90 additional keys, LEDs and labeling areas for all purposes.

The connection to the telephone or to an optiPoint key module is made over an interface cable with the following connectors: input MW6 (RJ11), output MW8 (RJ45). Figure 9-9 shows the possible configurations.
An local power supply (C39280-Z4-C58, C39280-Z4-C70 = USA, C39280-Z4-C66 = UK) is inserted for the power; it can supply a maximum of two optiPoint BLFs.

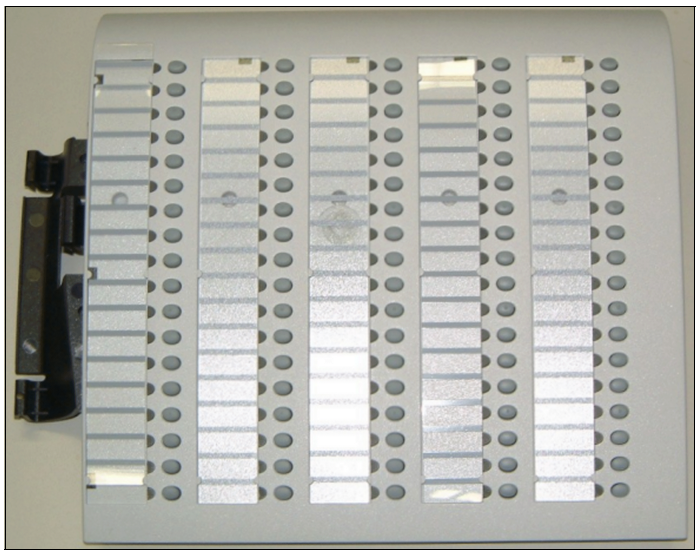


Figure 9-8 optiPoint BLF

9.2.2.3 Programming Add-On Devices

An inserted add-on device automatically registers with the system and is then ready for operation. You can program keys with HiPath 3000 Manager E or Assistant T. If you replace the device, the information programmed under the keys is maintained (stored in the customer database).

If a configuration other than the one shown in Figure 9-9 is used, the LEDs and keys may not function correctly. You must update the database with HiPath 3000 Manager E.

Example: You replace configuration E by configuration C. You must use HiPath 3000 Manager E to remove the optiPoint key module 2 from the database so that the LEDs and keys function correctly.
You can also use Assistant T to delete optiPoint BLFs and optiPoint key modules.

The first optiPoint BLF that is initially connected to HiPath 3750, HiPath 3550, HiPath 3700, or HiPath 3500 automatically receives standard key assignments (default) for the first 90 system ports. No standard assignment is made if you already configured an optiPoint BLF with HiPath 3000 Manager E or if other optiPoint BLFs are connected.

Replacing an optiPoint key module with an optiPoint BLF

Procedure:

Step	Action
1.	Unplug the connecting cable between the optiPoint key module and the telephone (or other optiPoint key module). Remove optiPoint key module.
2.	Remove optiPoint key module from the database, using HiPath 3000 Manager E.
3.	Plug in the optiPoint BLF. HiPath 3000 Manager E automatically detects the BLF and enters it in the database.

9.2.2.4 Possible Configurations for the Add-On Devices

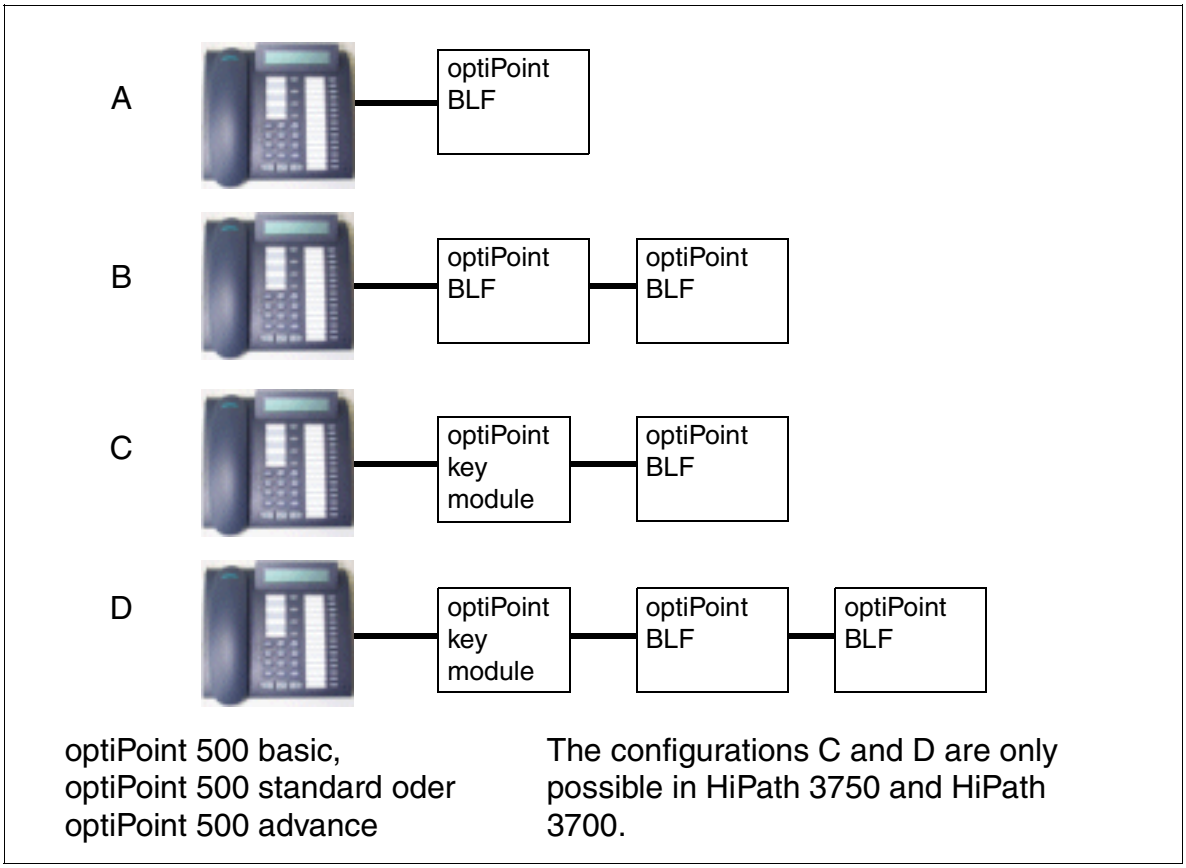


Figure 9-9 optiPoint 500 - Possible Configurations for Add-On Devices

9.2.3 optiPoint 500 Adapter

The different optiPoint 500 adapters (not optiPoint 500 entry and optiPoint 500 economy) allow flexible expansion of the telephone workstation by providing additional device connections (such as PC, fax equipment, telephones, headsets).

The adapters, which are to be mounted on the bottom of the telephone, are “plug’n’play”. When a new telephone-adapter configuration is plugged in, it generates a reset; a setup message notifies the system of the new configuration.

The user usually installs the adapter. The installation instructions are on the CD “Electronic Operating Instructions“.

Warning
Always disconnect the line cord before connecting adapters to the telephone or removing them from the telephone.

Option bays

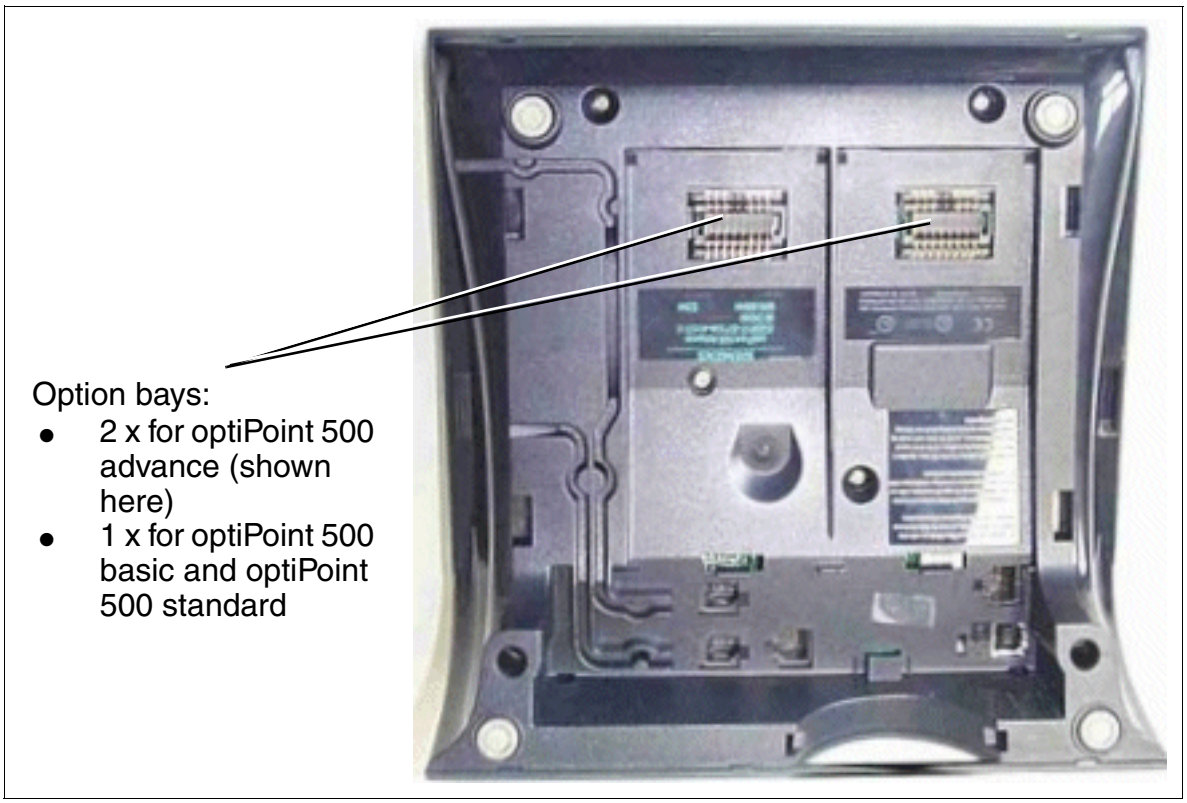


Figure 9-10 optiPoint 500 Option Bays

9.2.3.1 optiPoint analog adapter

The optiPoint analog adapter allows an analog device (such as telephone (DTMF only), group 3 fax, modem, cordless telephone) to be connected to the optiPoint 500 telephone.

The connected analog device can send and receive calls on the $U_{P0/E}$ interface to the system regardless of the connection status of the optiPoint 500 telephone, as long as a B channel is available.

The adapter must always have a local power supply for operating the connected analog device.

MW6 (RJ11) socket assignments:

Pin	Signal
1	free
2	free
3	T (Tip)
4	R (Ring)
5	free
6	free

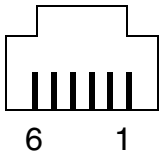


Figure 9-11 optiPoint analog adapter

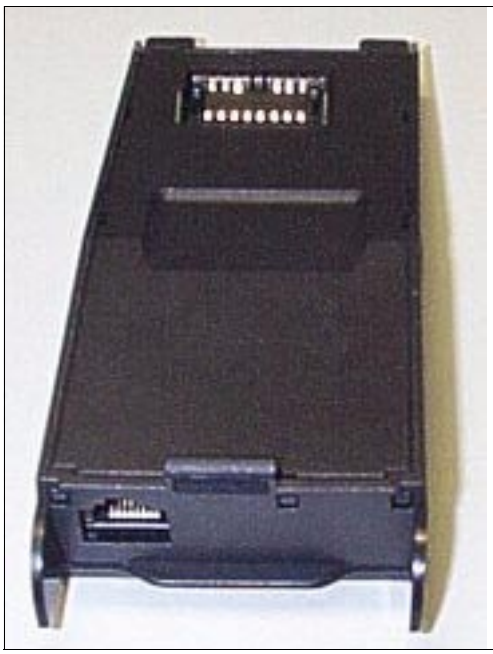
T/R interface properties

- Supply current: 30 mA
- Busy signal when both B channels are busy
- Ring sequence: 2.2
- Supports only DTMF with Flash
- No ground signaling allowed
- Does not support: VoiceMail server with T/R interface, message waiting lamp, dictating equipment, speaker, announcement device (such as start/stop).

9.2.3.2 optiPoint ISDN adapter

The optiPoint ISDN adapter provides the basic ISDN access for S_0 devices (max. 2), such as S_0-PC card, group 4 fax equipment, or video communication devices (such as videoset or videokit).

S_0 telephones must have their own power supply for connection.



MW8 (RJ45) socket assignments:

Pin	Signal
1	free
2	free
3	SR1
4	SX1
5	SX2
6	SR2
7	free
8	free

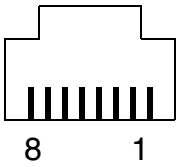


Figure 9-12 optiPoint ISDN adapter

S_0 interface properties

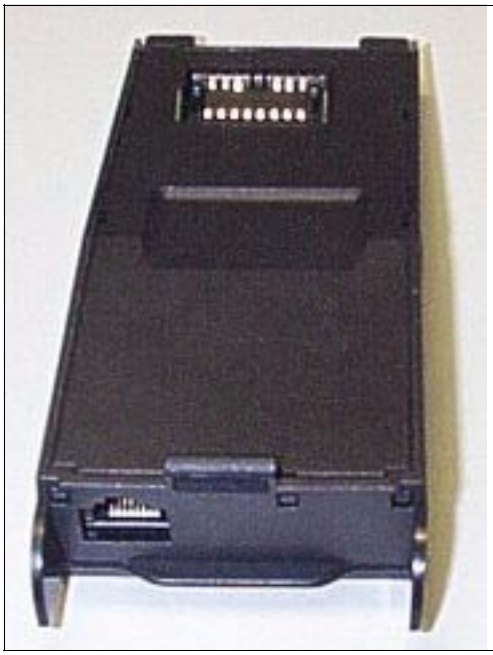
- Supports point-to-point and passive bus connections
- Wired for short passive bus configurations
- Cable lengths
  - Maximum 100 m (328 feet) with a cable impedance of 75 ohms
  - Maximum 200 m (656 feet) with a cable impedance of 150 ohms (complies with CCITT recommendation I.430)
- The NT terminating resistors are integrated into the ISDN adapter. Additional terminating resistors are included in the accessory pack.

9.2.3.3 optiPoint phone adapter

The optiPoint phone adapter is used for connecting a second optiPoint 500 telephone (client telephone) with its own power supply.

The system treats the client telephone as an independent telephone with a separate phone number and its own B channel. The client telephone can send and receive calls regardless of the connection status of the host telephone.

The maximum range between the host and client telephones is approximately 100 m (328 feet) (for J-Y (ST) 2x2x0.6, ∅ 0.6 mm).



MW6 (RJ11) socket connections:

Pin	Signal
1	free
2	AUX –
3	$U_{P0/E}$ –
4	$U_{P0/E}$ +
5	AUX +
6	free

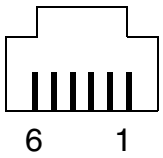


Figure 9-13 optiPoint phone adapter

Example of a host-client configuration

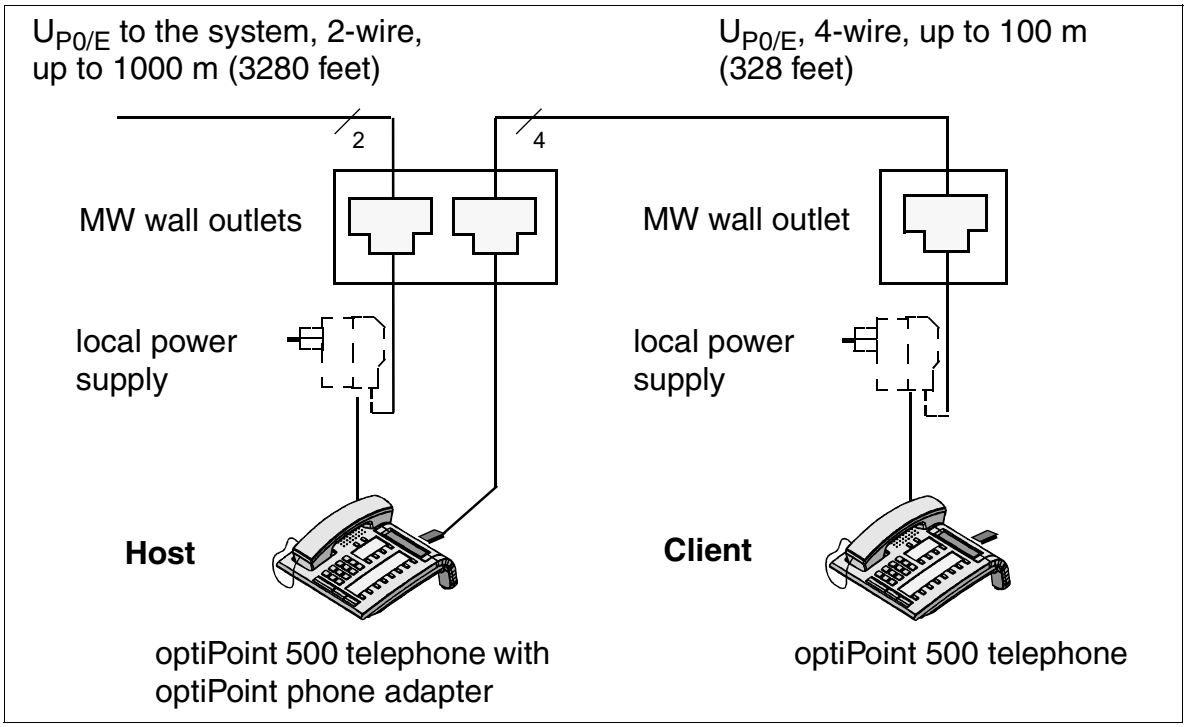


Figure 9-14 Example of a Host-Client Configuration

9.2.3.4 optiPoint acoustic adapter

- probably available from 03/02 on -

The optiPoint acoustic adapter is used for connecting

- Active Speakerbox
- Desk microphone
- Headset, see Table 9-4 on page 9-28
- Busy indication/door opener
- Secondary bell/visual paging (with separate power supply over floating contact)

9.2.3.5 optiPoint recorder adapter

- probably available from 03/02 on -

The optiPoint recorder adapter allows an external recorder or second headset to be connected. Attention: The other party to the conversation must be informed that the the conversation is being recorded.

9.2.3.6 Possible optiPoint 500 Adapter Configurations

Adapter Categories

Each $U_{P0/E}$ port in the system provides two B channels. This means that you can connect two telephones, each with a separate phone number, to one $U_{P0/E}$ port.

Category 1 optiPoint 500 adapters
Each of the following adapters needs both B channels and can therefore only be used once on a host telephone.

- optiPoint analog adapter
- optiPoint ISDN adapter
- optiPoint phone adapter

If one of these adapters is used in the optiPoint 500 advance, only a category 2 adapter can be operated in the second slot.

Category 2 optiPoint 500 adapters
The following adapters can be used on the host and client telephones. This is also true if a category 1 optiPoint 500 adapter is already connected.

- optiPoint acoustic adapter
- optiPoint recorder adapter

Configurations Restrictions

The voltage feed test can be used to check whether a local power supply is also necessary for an adapter configuration. To avoid any doubts, the test should always be implemented when installing large configurations.

Number of Usable Adapters and Add-On Devices

Table 9-1 HiPath 3000 - Maximum Number of optiPoint adapters and Add-On Devices

optiPoint	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
optiPoint key modules	100	100	30	16	8
optiPoint BLFs	12*	6	–	–	
Sum of the optiPoint analog adapters and optiPoint phone adapters	125	48	16	4	–
optiPoint ISDN adapters	50	50	8	4	–
privacy modules	no limit				

* Connection to a maximum of 6 optiPoint 500 telephones

Table 2-6 shows the maximum number of telephones that can be connected to HiPath 3000. The limits also include the client telephones connected over optiPoint phone adapters and the analog telephones connected over optiPoint analog adapters.

9.2.3.7 Comparison of optiset E adapters and optiPoint 500 adapters

Table 9-2 Comparison of optiset E and optiPoint 500 adapters

optiset E		optiPoint 500
analog adapter	→	analog adapter
phone adapter	→	phone adapter
data adapter	→	integrated USB interface
control adapter	→	
ISDN adapter	→	ISDN adapter
acoustic adapter	→	acoustic adapter
contact adapter	→	
headset adapter	→	
headset plus adapter	→	recorder adapter

9.2.4 Accessories and Part Numbers

9.2.4.1 Local Power Supplies

You may need a local power supply if you are using large configurations or if you need to extend the range.

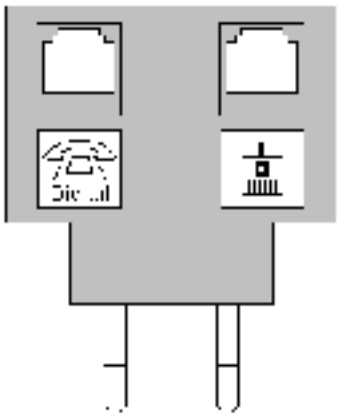
You can connect the local power supply to the line cords of a host or client telephone using two MW6 jacks and the connecting cable supplied (see Figure 9-15).

Data for local power supply AUL:06D1284:

- Line voltage: 220 (230) Vac (U.S.: 120 Vac)
- AC line frequency: 47 to 53 Hz
- Output voltage: Max. 50 V, min. 30 V
- Output current: Max. 250 mA

Table 9-3 Pin Assignments of the Local Power Supply AUL:06D1284

Pin	Assignment
1	not used
2	–
3	a-wire (tip)
4	b-wire (ring)
5	+
6	not used



Connection Example for a local power supply

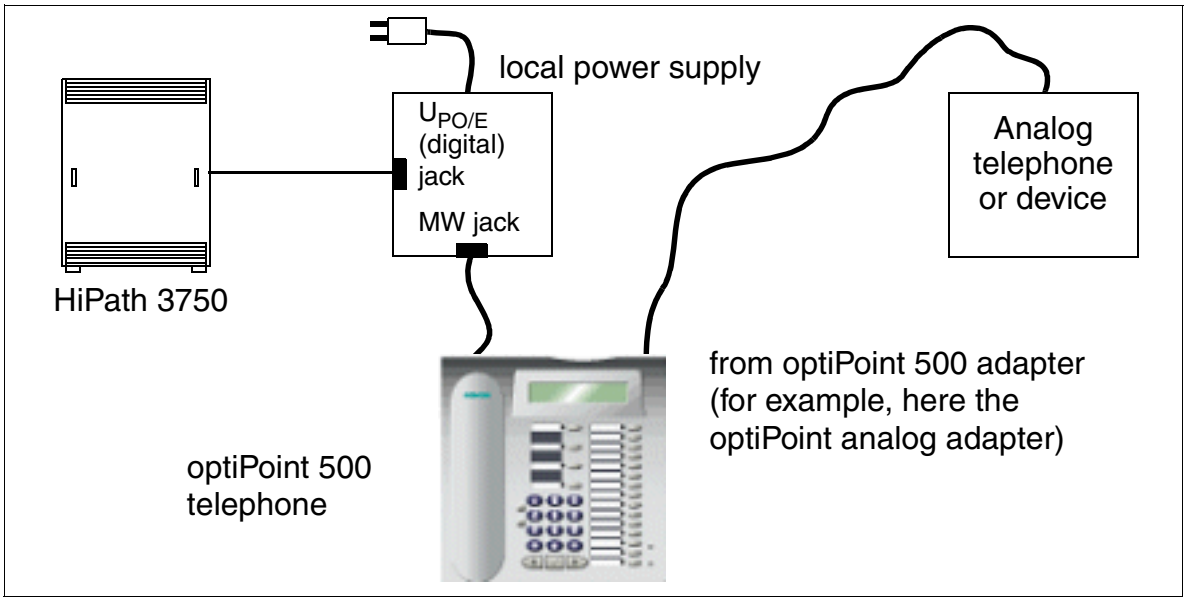


Figure 9-15 Connection Example for a local power supply

9.2.4.2 Headsets

A headset replaces the telephone handset, which means that the user's hands are free when telephoning.

You can use the headsets listed in Table 9-4 on the optiPoint 500 advance or over an optiPoint acoustic adapter.

Figure 9-16 Headset

9.2.4.3 Part Numbers

Refer to the optiPoint 500 Service Manual for additional accessories.

Table 9-4 Part Numbers for Telephones and Accessories

Telephone / Accessories	Color	Part Number
optiPoint 500 entry	arctic	S30817-S7101-A101-*
	manganese	S30817-S7101-A107-*
optiPoint 500 economy	arctic	S30817-S7108-A101-*
	manganese	S30817-S7108-A107-*
optiPoint 500 basic	arctic	S30817-S7102-A101-*
	manganese	S30817-S7102-A107-*
optiPoint 500 standard	arctic	S30817-S7103-A101-*
	manganese	S30817-S7103-A107-*
optiPoint 500 advance	arctic	S30817-S7104-A101-*
	manganese	S30817-S7104-A107-*
optiPoint key module	arctic	S30817-S7105-A101-*
	manganese	S30817-S7105-A107-*
optiPoint BLF	arctic	S30817-S7107-A101-*
	manganese	S30817-S7107-A107-*
optiPoint phone adapter	arsenic	S30817-K7110-B108-*
optiPoint analog adapter	arsenic	S30817-K7110-B208-*
optiPoint ISDN adapter	arsenic	S30817-K7110-B308-*
optiPoint acoustic adapter	arsenic	S30817-K7110-B408-*
optiPoint recorder adapter	arsenic	S30817-K7110-B508-*
optiPoint 500 entry wall bracket	arsenic	C39363-A328-C338
optiPoint 500 basic wall bracket	arsenic	C39363-A329-C338
Local power supply		AUL:06D1284
Local power supply, UK		AUL:06D1287
Local power supply, 110 V USA		AUL:51A4827
Headset Encore monaural		L30460-X1282-X1
Headset Encore binaural		L30460-X1282-X2
Headset Tristar		L30460-X1282-X3
Headset Supra		L30460-X1282-X4
Headset DuoSet		L30460-X1282-X5
Headset Profile monaural		L30460-X1283-X1
Headset Profile binaural		L30460-X1283-X2

9.3 optiLog 4me

optiLog 4me is a digital, single-channel speech recording device designed for operation with the HiPath 3000. Its design matches that of the optiPoint 500 and it can record up to 2900 hours of telephone calls.

Figure 9-17 optiLog 4me

You can set the optiLog 4me to the following modes in both digital and analog telephones:

- Start Recorder
  Recording begins when you press the Start key.
- Trader Recorder
  Records and stores all calls.
- Malicious Call Recorder
  Stores calls in their entirety when you press any button during the call.
- Third Party Monitoring (not currently available with HiPath 3000)
  optiLog 4me should be installed at the central station of the system. Recording starts when you press the Monitor key on the telephone.

Furthermore, you can use the recorder to record conference calls using an external microphone.

The optiLog 4me can be connected between the optiPoint 500 telephone and the handset. The local power supply is included in the delivery.

For additional information on this, please refer to the installation and administration instructions included with the adapter.

9.4 optiset E privacy module

The optiset E privacy module prevents unauthorized interception of calls in which each party has a privacy module. The privacy module connects between telephone and handset; connection is a simple matter of plugging in the handset cord. The privacy module is supplied complete with a local power supply.

The optiset E privacy module may be subject to import and export regulations.

9.5 IP Telephony (Voice over IP (VoIP))

9.5.1 optiClient 130

Definition

The optiClient 130 is a computer-compatible approximation of the functionality of the optiPoint 500 telephone. When the client is used in combination with HiPath 3000, the use of VoIP with the support of the H.323 standard provides the customer with all essential CorNet-TS features directly at the PC. The HiPath HG1500 gateway, which is integrated into the HiPath 3000, allows communication with all connected voice telephones. The client is a pure software solution. Figure 9-18 shows two possible applications for the optiClient 130

- Use of the optiClient 130 on the HiPath 3000 LAN
- Use of the optiClient 130 as a home workstation over remote access

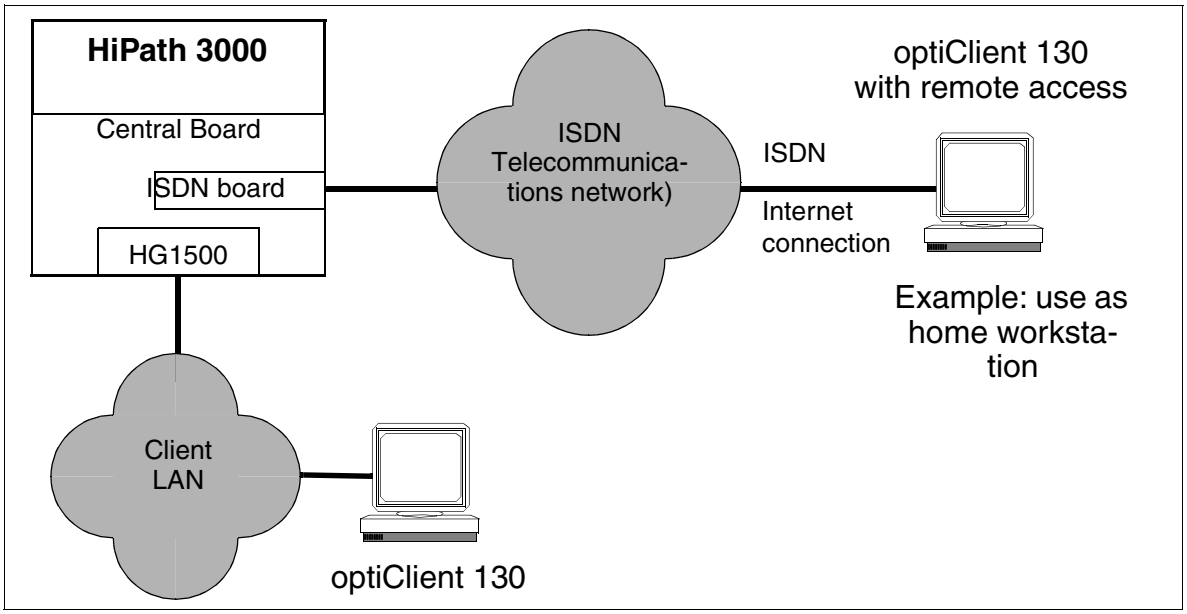


Figure 9-18 Possible Uses of the optiClient 130

Features

optiClient 130, in combination with HiPath 3000, uses optiPoint 500 functionalities. The client is also equipped with ACD functions.

Main Features

- Support of all essential features in compliance with CorNet-TS
- Audio compression: G.711, G.723.1 (software codec)
- Standard LAN protocols (Ethernet, IP, UDP, TCP, RTP, etc.)
- H.323 protocol
- Interoperability with Microsoft NetMeeting via T 120
- H.323 client with H.323/H.320 gateway support
- Usable transmission bandwidth for voice connections max. 64 Kbps

Minimum PC Requirements

- Pentium II 233 MHz
- 128 MB RAM
- 200 MB available hard disk space

Configuration

Refer to Section 9.5.4 on Page 9-37 for information on configuring a workpoint client with HiPath 3000 Manager E.

9.5.2 optiPoint 400 CorNet-IP-TS

The IP telephone optiPoint 400 CorNet-IP-TS allows the user to carry out telephone calls in the same old simple way over a data network.

All HiPath 3000 features that are offered in the display dialog, in the service menu, and on function keys are available (except for Relocate).

Standard Key Assignments (Default) for optiPoint 400 CorNet-IP-TS

Service	Programmable
Redial	Programmable
Microphone on/off	Programmable
Speaker	Programmable
	Programmable
	Programmable
	Programmable
	Release

Figure 9-19 optiPoint 400 CorNet-IP-TS - Standard Key Assignments (Default)

Advantages of the IP Telephone

- Quick and error-free dialing directly from the address book of a PC application (for example, MS Outlook) using CTI (TAPI).
- Simple and convenient administration because it uses the standard protocols DHCP, SNMP, HTTP.
- Software updates and upgrades of the features possible using FTP.
- The use of the H.323 standard allows the telephone to communicate with other H.323-compatible systems.
- The two switching Ethernet interfaces and Internet protocol (IP) allow the user to telephone on both the company's internal Intranet and the public Internet.

Main Features

- 12 function keys with LEDs
- Alphanumeric LCD display (swivel) with 2 lines, 24 characters each
- 3 dialog keys for interactive user prompts: “Yes”, “Back”, and “Next”
- Full duplex speakerphone mode with echo suppression for adapting to the room
- 2 settings keys (plus/minus) for ringer volume, ringer pitch, alerting tone, speaker quality
- Interfaces:
  - 10/100 Mbps Ethernet port (self-configuring) for LAN connection
  - 10/100 Mbps Ethernet port (self-configuring) for PC connection

Caution
You must connect optiPoint 400 CorNet-IP-TS to the LAN first. Only then should you connect to the power supply.

- Suitable for wall mounting

Connection and Configuration

Information

- Refer to the installation and startup instructions (http://www.hipath.com, Downloads) for information on connecting the optiPoint 400 CorNet-IP-TS.
- Refer to Section 9.5.4 on Page 9-37 for information on configuring a workpoint client with HiPath 3000 Manager E.

9.5.3 optiPoint IPadapter (supported up to and including V1.2)

The optiPoint IPadapter uses a LAN (Ethernet, 10BaseT) to facilitate voice communication between an optiset E or optiPoint 500 telephone and the HiPath 3000. It supports all optiset E and optiPoint 500 telephones.

The adapter is cased in an external housing unit with two jacks:

- RJ11, $U_{P0/E}$ jack for one optiset E or optiPoint 500 telephone (including power supply)
- RJ45, LAN jack

Figure 9-20 Jacks for the optiPoint IPadapter

Power is supplied via a local power supply.

Figure 9-21 illustrates the main connections for the optiPoint IPadapter.

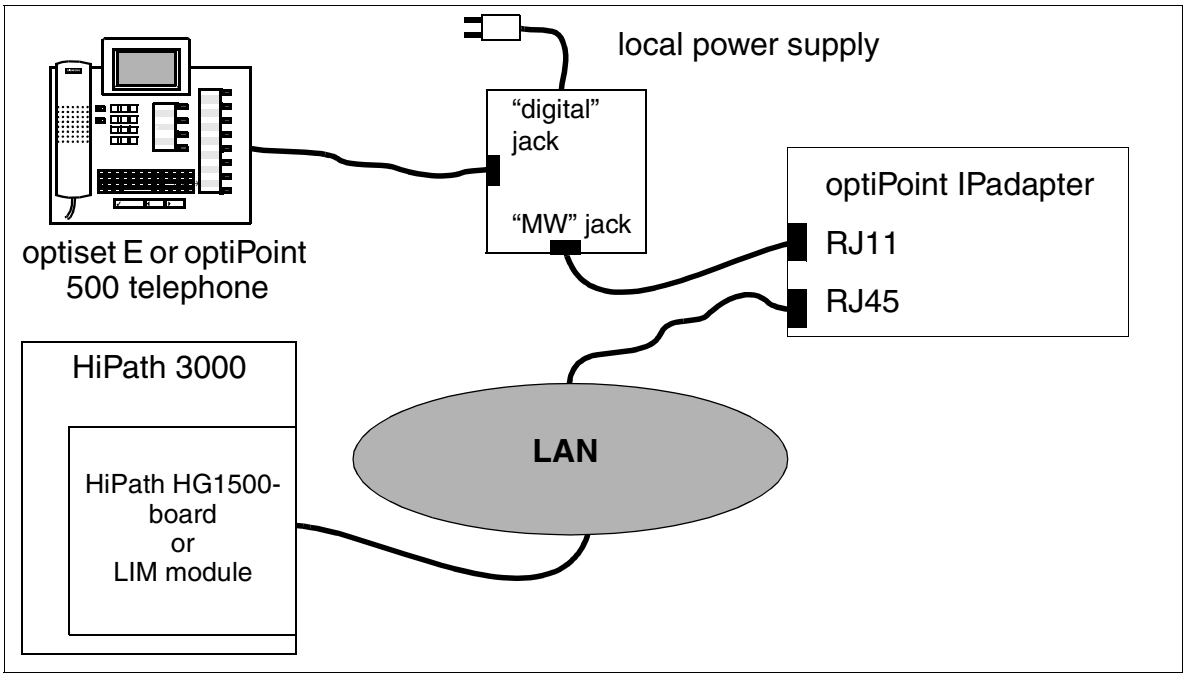


Figure 9-21 Main connections for the optiPoint IPadapter

A LAN cable (3 m) with RJ45 plug is also included as part of the delivery. When connecting the optiPoint IPadapter to a LAN, do not use a cable longer that 100 m.

You can operate the optiPoint IPadapter using the optiset E or optiPoint 500 telephone with display (only for basic settings) that is connected to the $U_{P0/E}$ port. Or, you can also use a LAN with a PC (HTTP client = web server, use any setting).

For more information on this, please refer to the installation and administration instructions included with the adapter.

9.5.4 Configuring IP Workpoint Clients with HiPath 3000 Manager E

Step	Action
1.	Download and backup the existing HiPath 3000 CDB using HiPath 3000 Manager E.
2.	If necessary, convert CDB to Version 1.2 or 3.0.
3.	Start “System-wide...” dialog in the “System status” menu.
4.	Open “Cards” tab. • Switch to “SW expansion”: add HiPath HG1500 card(s) (if necessary). • Switch to “Card config.” and select tab “HXGM configuration” (for HiPath 3750 and HiPath 3700) or “HXGS configuration” (for HiPath 3550, HiPath 3500, HiPath 3350, and HiPath 3300): – Selection: If the system has more than one HXGM or HXGS card, you can select the board to configure here. – Station: Select (mark) the station(s) to configure. – Selected station, TFA Client: All marked station ports are configured as TFA clients. Select this setting for otiClient 130 and optiPoint 400 CorNet-IP-TS. – Selected station, S_0 station: All marked station ports are configured as S_0 stations. Select this setting for H.323 stations such as Netmeeting. – Selected station, delete: This deconfigures all selected stations that were mistakenly configured.
5.	Start the “Set up station” dialog in the ”Settings” menu.
6.	Open “Station” tab and double-click the parameter of the station to be configured. Open tab “Workpoint Client”: • optiClient parameters (for the TFA clients configured in): – Status Message: for turning the transmission of status messages (such as display messages and LED information) on or off. This parameter should be “off” for remote clients because other no short hold is possible for this connection. – Authentication active: defines whether the client has to identify itself at the HiPath HG1500 before the communication starts. This is especially advantageous for workpoint clients that are not in a separate LAN but dial in from outside. – Password (The parameter is active only when Authentification was set to “Yes”.): input a password of up to 20 characters for authentification of the workpoint client. You must confirm the password in the second line. • H.323 client parameters (for the S_0 stations configured in): – IP address: enter the H.323 client IP address.
7.	Backup CDB and send to HiPath 3000.

9.5.5 IP Payload Switching

Introduction

IP payload switching optimizes communication between LAN-based IP workpoint clients.

In the past, two B-channels (with two DSP resources) in the HiPath HG 1500 **and** HiPath 3000-internal switching network were seized for internal network calls.

In HiPath 3000 V3.0 and later, VoIP voice data (payload) is transferred directly between two IP workpoint clients in the network. When this happens, both IP workpoint clients have full access to all system features.

Payload switching is also implemented for IP networking (PBX routing).

By ceasing to use B-channels, we have managed to preserve HiPath HG 1500 resources and facilitate a higher volume of network-internal call traffic.

A B-channel is still required on the HiPath HG 1500 for connections to the following stations and lines:

- $U_{P0/E}$ stations (optiset E, optiPoint 500)
- Analog stations
- ISDN stations
- Trunks and tie lines (MSI, S_0, S_{2M})

Example: a consultation call to an optiPoint 500 telephone is set up during an existing connection between two IP workpoint clients. A HiPath HG 1500 B-channel is necessary for this consultation call.

In the case of conferences, the number of B-channels seized corresponds to the number of stations and IP workpoint clients involved.

A HiPath HG 1500 DSP resource (no B-channel) is permanently reserved for playing music-on-hold.

Example: a license was acquired for two B-channels and six clients. Six optiPoint 400 CorNet-IP-TSs are logged on. The following scenario is possible in this case: two stations can conduct an external call, while two stations are listening to MoH and two stations are talking to each other.

Prerequisites

The following components are necessary for using payload switching:

- IP workpoint clients
  - optiClient 130 V2.0
  - optiPoint 400 CorNet-IP-TS V3.0 (CorNet-IP-TS protocol variant)

  optiPoint 300 advance and the optiPoint IPadapter (supported up to and including V1.2) are not supported.
- HiPath HG 1500 boards with Digital Signal Processor DSP (voice and data).

Payload switching can be configured using HiPath 3000 Manager E.

9.5.6 Determining the number HiPath HG 1500 boards necessary

The following table shows the number of HiPath HG 1500 boards (B-channels) necessary based on the existing IP workpoint clients.

A prerequisite for value calculation is that a station must spend 10% of its working time in call status. Provisions should be made for more B-channels (HiPath HG 1500 boards) in high traffic volume environment (e.g. call centers).

Table 9-5 Number of required B-channels (HiPath HG 1500 boards)

IP Workpoint Clients in the system	Required number of B-channels
0 – 3	2
4 – 12	4
13 – 16	6
17 – 38	8
39 – 54	10
55 – 70	12
71 – 86	14
87 – 96	16
Recommendation for over 100 IP workpoint clients: an additional two B-channels must be provided for every 15 IP workpoint clients.	

The HiPath HG 1500 boards HXGM and HXGM2 each feature max. 16 B-channels. HXGS , HXGS2, HXGSR (not for U.S.), HXGSR2 boards each feature max. 8 B-channels per board. Within this context, B-channels stand for DSP resources, one of which is reserved for music-on-hold.

9.6 Attendant Console Versions

9.6.1 optiPoint Attendant

A specially equipped optiPoint 500 basic, optiPoint 500 standard or optiPoint 500 advance can perform the switching service for HiPath 3000. This optiPoint Attendant simultaneously serves as the intercept position. It is the destination for all incoming non-DID calls and calls which the call-allocation algorithms are unable to route to users (intercept calls). The attendant routes these calls to the correct destination

Standard Key Assignments (Default) for optiPoint Attendant

Service	Night answer
Redial	Telephone directory
Microphone on/off	Call waiting
Speaker	Intrusion
	Hold
	External 1
	External 2
	Release

Figure 9-22 optiPoint 500 standard - Standard Key Assignments (Default) for optiPoint Attendant

Refer to the optiPoint Attendant for HiPath 3000 Operating Manual which is on the “Electronic Operating Instructions” CD (refer to the list of related documents).

9.6.2 optiClient Attendant

Introduction

optiClient Attendant is an attendant PC (PC AC) for the HiPath 3000 communications server. All the functions of an attendant PC are simulated on the PC monitor. The most important functions include:

- Visual display of the AC operator's tasks
- Multitasking with other Windows applications
- Ability to display station names or numbers on the busy lamp field
- Busy indication for ISDN stations on the S_0 bus
- Busy indication for internal and external calls
- MULAP feature (possible with optiClient Attendant Release 3.26 and later)
- Electronic directory
- Additional functions for optiClient Attendant, Version 5.0 and later
  - Expanded busy lamp field
  - Quick search with function key F12
  - Connection of an optiPoint 500 telephone over the USB interface
  - Connection as IP client

Requirements

- PC for optiClient Attendant (for U.S. only: UL Listed)
  - Without additional applications: Pentium 133 MHz with 16 MB RAM
  - With call detail applications or other applications: Pentium III 300 MHz with 32 MB RAM
- 64 MB RAM
- Minimum screen resolution of 1024 x 768 pixels
- Sound card with loudspeakers for signaling incoming calls
- Microsoft-compatible mouse
- CD-ROM drive or DVD drive
- HiPath 3000

- Operating system Windows®95, Windows®98, Windows®ME, Windows®NT, Windows®2000 or Windows®XP
  The operating system used depends on the type of installation (e. g. USB not possible with Windows®95).
- Other Requirements for Installation with
  - optiClient 130 V2.0
    an operational installation of optiClient 130 V2.0 software
  - USB
    optiPoint 500 basic, optiPoint 500 standard or optiPoint 500 advance
    an operational USB connection, i.e.: a USB cable connected to a PC USB port with a virtual COM port driver installed
  - optiset E control/data adapter
    a free V.24-(RS-232) interface (COM port 1 – 4)
  - $U_{P0/E}$ PCI card
    3.5“disk drive
    a free long PCI slot for $U_{P0/E}$ PCI card
- For U.S. only: optiClient Attendant consists of three parts:
  - $U_{P0/E}$ PC card (Siemens Part Number S30807-Q5474-X100)
  - Handset (Siemens Part Number C39363-A7007-B10-3-ZSYS)
  - Handset cradle (Siemens Part Number C39363-A7007-A4)

WARNING (for U.S. Only)
optiClient Attendant is a UL Listed I.T.E. Accessory (2Z02) for use only in UL Listed computers.

Configuration

The optiClient Attendant configuration is described in detail in the optiClient Attendant for HiPath 3000 operating and installation instructions that are on the CD “Electronic Operating Instructions” (refer to the list of related documents).

9.7 Cordless Telephones

HiPath cordless supports the mobile telephones described below. For more information, refer to the operating instructions for the specific telephones or the service manual for HiPath cordless.

9.7.1 Gigaset 2000C Feature Handset (Not for U.S.)

Main Features

- 12-button alphanumeric keypad (0-9,*,#)
- 3 function keys:
  - 1 menu key for menu selection
  - 2 dual-mode keys for up to four soft key functions
- Seizure key (on-hook)
- Release key (off-hook)
- Hookswitch (register recall)
- On/Off/Protect key
- Illuminated graphical display (up to 4 lines and 16 columns)
- Enhanced user prompting with on-screen messages (multilingual)
- Handset phone book for around 100 entries. Redial of the last five numbers.
- Connection for a headset (Gigaset 2000H)
- Weight, including battery: around 165 g
- Dimensions: 160 x 55 x 25 mm (L x W x D)

A Tango version of the Gigaset 2000C feature handset is also available.

Figure 9-23 Gigaset 2000C Feature Handset

9.7.2 Gigaset 2000C pocket Feature Handset (Not for U.S.)

Main Features

- 12-button alphanumeric keypad (0-9,*,#)
- 3 function keys:
  - 1 menu key for menu selection
  - 2 dual-mode keys for up to four soft key functions
- Seizure key (on-hook)
- Release key (off-hook)
- Hookswitch (register recall)
- On/Off/Protect key
- Illuminated graphical display (up to 4 lines and 16 columns)

Differences over the Gigaset 2000C feature handset:

- External antenna
- S 10-like illuminated keypad
- No headset interface

- Weight including battery: around 125 g
- Dimensions: 137 x 43 x 20 mm (L x W x D)

A Tango version of the Gigaset 2000C pocket feature handset is not available.

Figure 9-24 Gigaset 2000C pocket Feature Handset

9.7.3 Gigaset active Handset (Not for U.S.)

Main Features

The Gigaset active industrial handset was specially designed to withstand the rigors of an industrial environment. A special EX-protected version is available for areas subject to explosion. A Tango version is not available.

The Gigaset active has the same controls, indicators, and features as the Gigaset 2000C.

- Vibration- and crack-resistant, dustproof housing
- Spray-resistant according to EN 60529 Cl .IP 64
- Connection for a headset
- Call acoustics adapted to industrial environment (including increased volume)
- EX version meets explosion protection standards according to EN 50014/ 50020 with classification (EEx ib IICT4)
- Weight including battery: around 160 g

- Dimensions: 160 x 55 x 25 mm (L x W x D)

Figure 9-25 Gigaset active Handset

9.7.4 Gigaset 3000 Comfort Feature Handset (Not for U.S.)

Main Features

- 12-button alphanumeric keypad (0-9,*,#)
- 3 function keys:
  - 1 menu key for menu selection
  - 2 dual-mode keys for up to four soft key functions
- Seizure key (on-hook)
- Release key (off-hook)
- Hookswitch (register recall)
- Speakerphone
- Illuminated graphical display (up to 4 lines and 16 columns)
- Enhanced user prompting with on-screen messages (multilingual)
- Handset phone book for around 100 entries. Redial of the last five numbers.
- Weight, including battery: around 165 g

- Dimensions: 60 x 50 x 28 mm (L x W x D)

Figure 9-26 Gigaset 3000 Comfort Feature Handset

9.7.5 Gigaset 3000 Micro Feature Handset (Not for U.S.)

Main Features

- 12-button alphanumeric keypad (0-9,*,#)
- 3 function keys:
  - 1 menu key for menu selection
  - 2 dual-mode keys for up to 4 soft key functions
- Seizure key (on-hook)
- Release key (off-hook)
- Hookswitch (register recall)
- Illuminated graphic display (up to 4 lines and 16 columns)
- Enhanced user prompting with on-screen messages (multilingual)
- Handset phone book for approximately 100 entries. Redial of last five numbers.
- Weight, including battery: Approx. 98 g
- Dimensions: Approx. 122 x 43 x 18 mm (L x W x H)

Figure 9-27 Gigaset 3000 Micro Feature Handset

9.7.6 optiset E Liberator (for U.S. Only)

The optiset E Liberator 900 MHz, cordless business telephone has the following main features:

- 4 function keys
- 3 guidance keys (for scrolling through function menus and confirming functions)
- 2-line display
- Audible handset locator
- Security and lock-mode selection (65,000 codes programmed into the handset and the base for increased security)
- Base station and charging stand

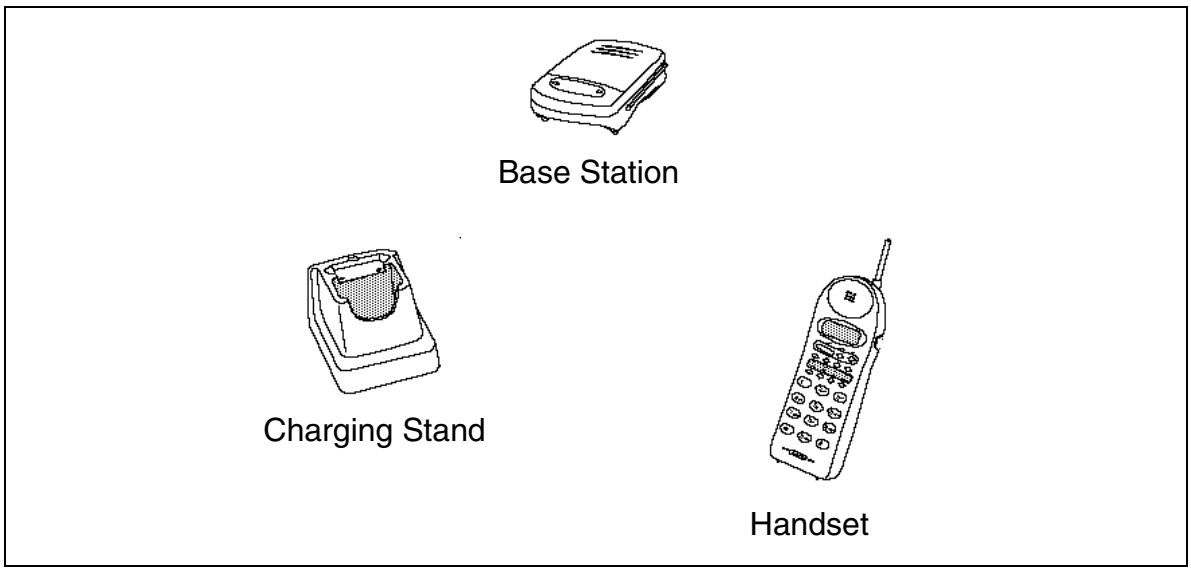


Figure 9-28 optiset E Liberator and Components

9.8 Analog Telephones

You can connect dial pulsing (DP) and DTMF telephones (such as Group 3 fax machines and modems, answering machines, or entrance telephones) to the analog ports in the HiPath 3000.

optiPoint 500 is treated like an analog telephone (except for the mailbox key). Mobile telephones (HiPath cordless) are treated much like analog telephones. Mobile phones also have the same user interfaces as optiPoint 500 telephones.

Boards for Connecting Analog Telephones (Not for U.S.)

System	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Hardware requirements	Free port on SLA16 SLA8N/ 16N/24N SLMO8/24	Free analog port on CBCC CBRC 4/8/16SLA 8SLAR SLA8N/ 16N/24N SLU8 SLU8R SLMO24	Free analog port on CBCC CBRC 4/8SLA 8SLAR SLU8 SLU8R	Free analog port on SBSCO	Free analog port on SBSCS

Boards for Connecting Analog Telephones (for U.S. Only)

System	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**
Hardware requirements	Free port on SLA16N/ 24N SLMO24	Free analog port on CBCC CBRC 8SLA 8SLAR SLA16N/ 24N SLU8 SLU8R SLMO24	Free analog port on CBCC CBRC 8SLA 8SLAR SLU8 SLU8R

Refer to Section 6.1 for information on upgrading peripheral boards in HiPath 3750 and HiPath 3700.

Connecting Equipment using an optiPoint analog adapter

It is also possible to connect an analog telephone to an existing optiPoint 500 telephone with the optiPoint analog adapter (except for optiPoint 500 entry and optiPoint 500 economy).

9.9 ISDN Terminals

An S_0 bus in the HiPath 3000 system family can support up to eight ISDN terminals. Each terminal can be dialed selectively under its multiple subscriber number or station number.

The features that can be activated depend on the type of terminal used. In Germany, analog station users can activate system features by means of code procedures. The telephones support only those system features which can be activated in the idle state.

Boards for Connecting ISDN Terminals

System	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Hardware requirements	Free S_0 port on STMD8	Free S_0 port on CBCC CBRC STLS2/4 STLS4R	Free S_0 port on CBCC CBRC STLS2/4 STLS4R	Free S_0 port on SBSCO	Free S_0 port on SBSCS

Refer to Section 6.1 for information on upgrading peripheral boards in HiPath 3750 and HiPath 3700.

Connecting With an optiPoint ISDN adapter

It is also possible to connect an ISDN device to an existing optiPoint 500 telephone using an optiPoint ISDN adapter (except for optiPoint 500 entry and optiPoint 500 economy).

9.9.1 General S_0 Wiring (for U.S. Only)

S_0 wiring in the user premises is considered to be one continuous cable run with jacks for the terminating equipment (ISDN terminals) attached directly to the cable or using stubs less than 3 feet (0.91 m) in length. The jacks are located at point I interfaces in Figure 9-29. One point I interface is adjacent to each terminal. The wiring between each jack and its ISDN terminal can not exceed 30 feet (9.14 m).

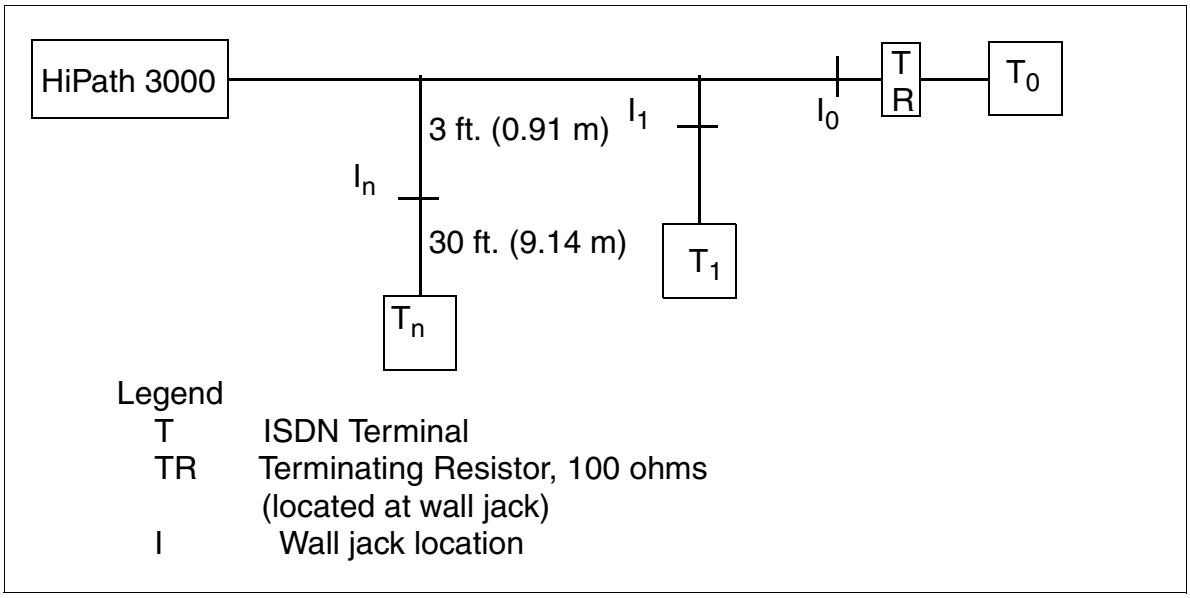


Figure 9-29 Reference Wiring Configuration in the User Premises Location

9.9.1.1 Specific S_0 Wiring Configurations

This section describes wiring arrangements for three major S_0 configurations:

- Point-to-point
- Point-to-multipoint—short passive bus
- Point-to-multipoint—extended passive bus

Several other wiring configurations are possible; however, the wiring is guaranteed to work only if the configuration meets the electrical specifications described in ANSI T1.605-1991.

Point-to-Point

In a point-to-point configuration, only one terminal device is connected to each S_0 port on the system; therefore, the connection is a direct connection.

Configuration Restrictions

The following maximums apply to point-to-point S_0 wiring:

- Maximum distance between the system and the device is 3000 feet (914.40 m), as shown in Figure 9-30
- Maximum line-to-jack distance is 3 feet (0.91 m)
- Maximum jack-to-device distance is 30 feet (9.14 m)

A 100-ohm termination is required at the ISDN terminal. If the terminal does not have a built-in termination, you must install a separate 100-ohm ISDN terminating resistor module (Model Number 256503) anywhere between the terminal and its wall jack.

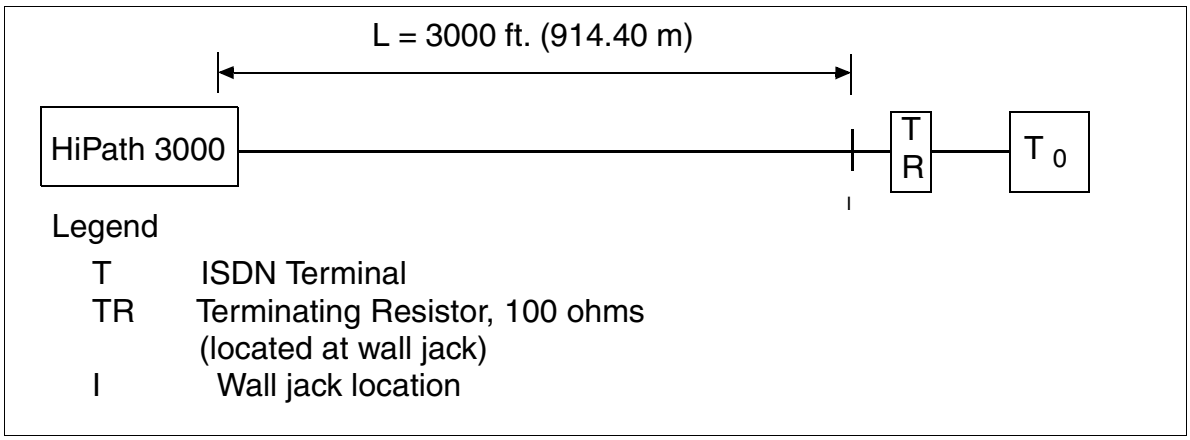


Figure 9-30 S_0 Point-to-Point Wiring

Point-to-Multipoint—Short Passive Bus

A short passive bus configuration is one in which the ISDN terminals are connected at random points along the full length of the cable.

Configuration Restrictions

The following maximums apply to point-to-multipoint—short passive bus configurations:

- Maximum cable distance between the system and the last terminal on the line is 405 feet (123.44 m), as shown in Figure 9-31
- Supports maximum of four terminals
- Maximum cable length is 30 feet (9.14 m) between each terminal and the wall jack
- Maximum line-to-jack distance is 3 feet (0.91 m)

The terminating resistor (Model Number 256503) must be located anywhere between the last terminal and its wall jack.

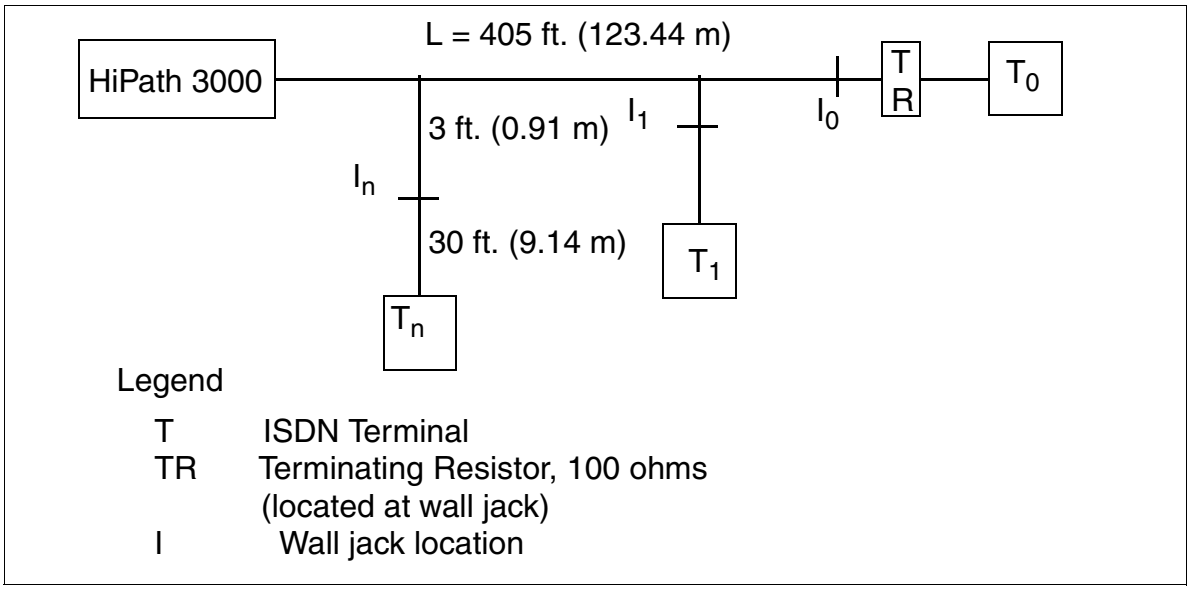


Figure 9-31 Short Passive Bus Configuration

Point-to-Multipoint—Extended Passive Bus

An extended passive bus configuration is one in which the ISDN terminals are grouped at the far end of the line.

Configuration Restrictions

The following maximums apply to point-to-multipoint—short passive bus configurations:

- Maximum cable distance between the system and the last device in the group is 1500 feet (457.20 m)
- Maximum distance between the first ISDN terminal and the last ISDN terminal is 75 feet (22.86 m), as shown in Figure 9-32
- Maximum line-to-jack distance is 3 feet (0.91 m)
- Maximum jack-to-device distance is 30 feet (9.14 m)
- Supports maximum of four ISDN terminals

The terminating resistor (Model Number 256503) must be located anywhere between the last terminal and its wall jack.

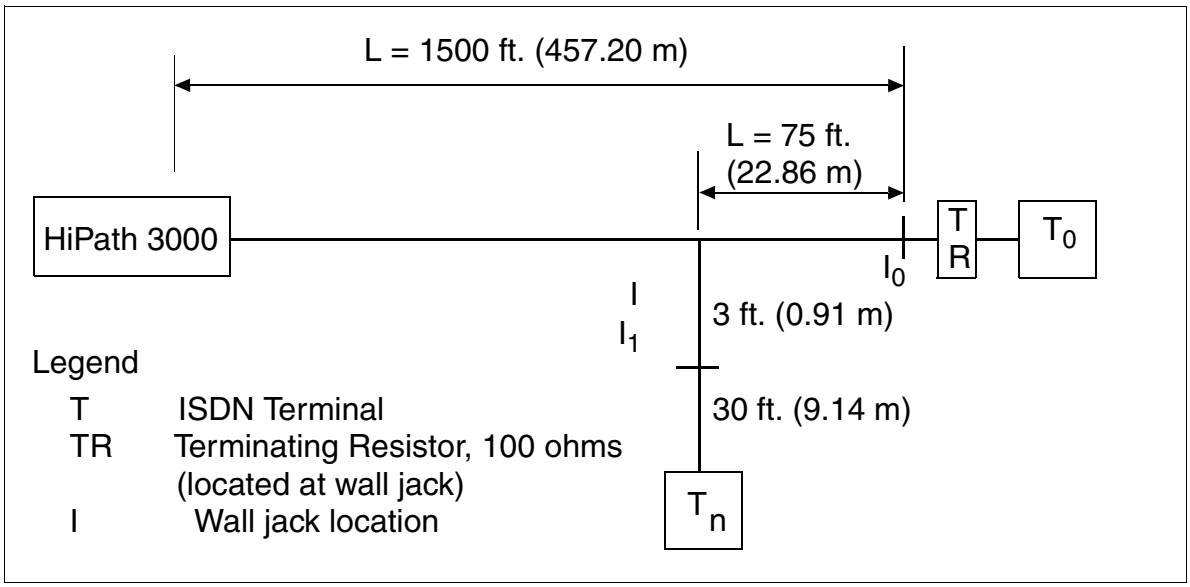


Figure 9-32 Extended Passive Bus Configuration

10 Special Equipment

Chapter Contents

This chapter discusses the following topics:

10.1 Answering Machines

Introduction

You can connect answering machines to the system via an analog port. In addition, you can configure a message waiting key (info key) to inform them that they have a message. This feature illuminates an LED if the answering machine has answered a call and the message has not been retrieved.

For more information on installing answering machines, refer to the manufacturer's instructions. Figure 10-1 on page 10-3 shows the wiring for an answering machine.

Requirements

To install an external answering machine users must

- Follow all installation procedures supplied by the manufacturer
- Configure the station group as *answer machine*

Example

Using Assistant T, this example configures station 19 to *Answer machine*.

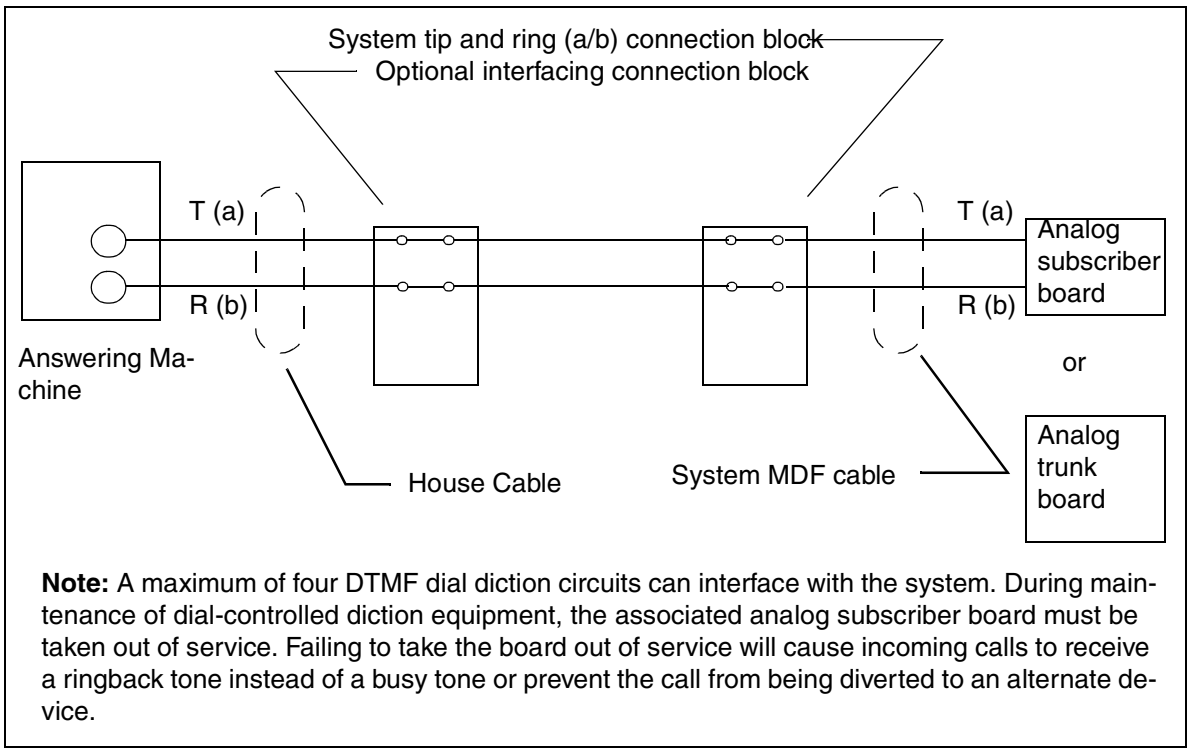
Step	Entry	Action	Display
1.	***95**	Start system administration.	System administration
2.	14 11	Select *Configure station, station type*.	Stn 11: Standard
3.	# 19 ✓	Select station 19 and confirm.	Stn 19: Standard
4.	* 4 ✓	Change station type to *answer machine* and confirm.	Stn 19: Answer machine
5.	F8 F7	Exit system administration.	Time, Date

Example

Using Assistant T, this example configures a programmable key for *Message waiting*.

Step	Entry	Action	Display
1.	*** 91**	Start Program feature key.	Please select key
2.	Any key	Press key to be programmed.	11 [name] Change key?
3.	✓ ... ✓	Scroll to *Select feature*.	Select feature
4.	✓ ... ✓	Scroll to Call waiting.	Call waiting
5.	✓✓	Save and exit.	Time, Date

10.1.1 Wiring for an Answering Machine



Note: A maximum of four DTMF dial diction circuits can interface with the system. During maintenance of dial-controlled diction equipment, the associated analog subscriber board must be taken out of service. Failing to take the board out of service will cause incoming calls to receive a ringback tone instead of a busy tone or prevent the call from being diverted to an alternate device.

Figure 10-1 Attaching an Answering Machine

10.2 Recorded Announcements

The HiPath 3750, HiPath 3550, HiPath 3700 and HiPath 3500 have 64 recorded announcements available for customer-provided announcement devices. Recorded announcements comprise these categories:

- Intercept announcements inform incoming trunk callers that the number dialed is invalid.
- Hold announcements inform callers that they are on hold.
- Music after first announcement plays music for callers on hold.

The recorded announcement operation modes are:

- Barge-in mode immediately connects callers to a continuously playing announcement.
- Sequential mode connects callers simultaneously to a continuously playing announcement when a start signal is detected.
- Sequential on-demand mode connects callers at the start of an announcement, and it simultaneously connects callers in queue for the start of the next announcement.
- Start on-ring mode connects a caller to an announcement when the announcement device detects rings.

Hardware Requirements

	Barge-in Mode	**Sequential mode**	**Sequential on-demand mode**	**Start on-ring mode**
HW requirements	Free port on analog subscriber board	Free Port on TIEL	Free Port on TIEL	Free port on analog subscriber board

10.3 Voice Mail

You can connect only one voice mail system to HiPath 3000.

VMIE (Voice Mail Interface Enhanced) Protocol

Analog voice mail connections require the VMIE protocol. Messages to the voice mail system take the form of DTMF signals and include the following four elements:

- Type of call (TOC)
  Mandatory element
  Fixed length = 4 characters.
  Format = “***n” (n = code from the following table).

Code	Type of Call	Code	Type of Call
1	Internal call to voice mail	2	External call to voice mail
3	All calls forwarded to voice mail	4	Call forwarding - no answer
5	Express mailbox	6	Group mailbox
7	Call forwarding busy	8	Recall - no answer
9	Recall when busy	0	Forward call if called party is unavailable

- Calling party
  Mandatory element
  Maximum length depends on the type of station dialed: ““voice mail with 5-digit station no." or "voice mail with 6-digit station no.".
  Station number value range = 0-9.
  The system has a record of the internal station numbers of internal calling parties. It encodes the numbers of external calling parties, using a fixed string (02) followed by additional 2’s up to the maximum length.

- Called party
  Mandatory element for call types 3, 4, 7, 8, and 9. The element remains blank for all other types of calls.
  Variable length.

- Additional information about the calling party)
  Optional element
  Fixed length = 2 DTMF signals
  Format = “*i” (i = code from the following table).

Code	Information
1	Calling party is a “normal” internal party.
2	Calling party is an attendant console (AC).
3	Calling party is an external user on an analog trunk.
4	Calling party is an external user on an ISDN trunk.

Examples of Digit Strings

Type of Call	Calling Party	Called Party	Information
Internal call to voice mail: Station 74 calls voice mail system.			
***1	***74	blank	*1
External call to voice mail: Party on an analog trunk calls voice mail system.			
***2	02222	blank	*3
Internal CF - no answer to voice mail: Station 74 calls station 13, which has set CF - no answer to voice mail.			
***4	***74	13	*1
CF to voice mail: External party on an ISDN trunk calls station 13, which has set CF to voice mail.			
***3	02222	13	*4

10.3.1 Memo for Hicom (Not for U.S.)

Requirements

Two analog ports must be available.

General Description

Connect Memo for Hicom to HiPath 3000 via two analog subscriber ports. Entering the *Voice mail* station type adapts the behavior of the analog port to Memo.

After Memo answers a call, HiPath 3000 then transmits a DTMF sequence containing the extension from which the call was made and whether the call has been redirected or forwarded. Memo then informs the stations that a message has been received by transmitting the DTMF signal *68 <extension number>. When you enter the password “# 5 9 5” (wrench or spanner icon) in the technician menu for Memo, the DTMF signals are also logged in the upper left-hand corner..

Configuring Memo for Hicom

1. Under “Station type” (14 11), enter the ports as *Voice mail* (2).
2. Set up a linear hunt group for the two ports (16 15 1/2).
3. Assign a name to the hunt group (16 15 3).
4. Assign a name to each subscriber port (14 12).
5. Enter the hunt group as destination 1 in a free call destination list (16 18 1).
6. In each call forwarding—no answer list (internal/day/night), change the reference for the two voice mail ports to this new call destination list (16 18 2 to 4).

Sample Configurations

Example 1: Voice mail will be connected to analog ports 25 and 26.

Step	Input	Action	Display
1.	***95**	Start system administration.	System administration
2.	14 11	Station type	Stn 25: 2 Stn 26: 2
3.	16 15 1	Hunt group, group 1	Dest. 1: 25 Dest. 2: 26
4.	16 15 2	Call type (linear hunt group)	Grp 1: 2
5.	16 15 3	Group names	Grp 1: Memo for Hicom
6.	14 12	Station names	Stn 25: Memo for Hicom 1 Stn 26: Memo for Hicom 2
7.	16 18 1	Call destination lists (List 13)	Dest. 1: Grp 1
8.	16 18 2	Internal calls (List for station 25) Internal calls (List for station 26)	13 13
9.	F8 F7	Exit system administration.	Time, Date

The result of this programming is that call forwarding—no answer is performed even when the voice mail port is dialed directly. A callback is always executed via the initiator's port after a display message is received (a voice mail port, not the group. Memo for Hicom can only be configured by the stations (call internal group 1 and follow the voice prompting).

After receiving a display message, a callback is always placed to the first voice mail port.

In the case of call forwarding to internal group 1, the box is activated when the user leaves the workstation. Call forwarding when busy or free can be configured for individual stations or all stations in call management.

Example 2: During day service, the exchange and extensions 13 and14 are to be forwarded to Memo after 4 rings; during night service, call forwarding—no answer is to be performed immediately.

Step	Input	Action	Display
1.	***95**	Start system administration.	System administration
2.	16 18 1	Call destination lists (List 12)	Dest. 1: Called Dest. 2: Grp 1
3.	16 18 5	Number of rings (List 12)	Call cycles: 4
4.	16 18 3	Ext. calls, day (List for stn 11) Ext. calls, day (List for stn 13) Ext. calls, day (List for stn 14)	Dest. 11: 12 Dest. 13: 12 Dest. 14: 12
5.	16 18 1	Call destination lists (List 11)	Dest. 1: Called Dest. 2: Grp 1
6.	16 18 5	Number of rings (List 11)	Call cycles: 1
7.	16 18 4	Ext. calls, night (List for stn 11) Ext. calls, night (List for stn 13) Ext. calls, night (List for stn 14)	Dest. 11: 11 Dest. 13: 11 Dest. 14: 11
8.	F8 F7	Exit system administration.	Time, Date

Remarks

Call forwarding—no answer must always be directed to Memo. For example, if call destination list 11 (option 16) refers immediately to the voice mail group, the box answers as in the case of a direct station call (display box).

Memo programming is described in the manual provided with “Memo for Hicom”.

Password list for Memo for Hicom:

Customer password (VOICEMAIL/EXCHANGE)	**1 2 3 4**
Technician password (wrench icon)	**5 9 9 1**
DTMF tracer (initiated via technician menu)	**# 5 9 5**

A recall to a voice mail port results in a call to the intercept position.

10.4 Entrance Telephones (Not for U.S.)

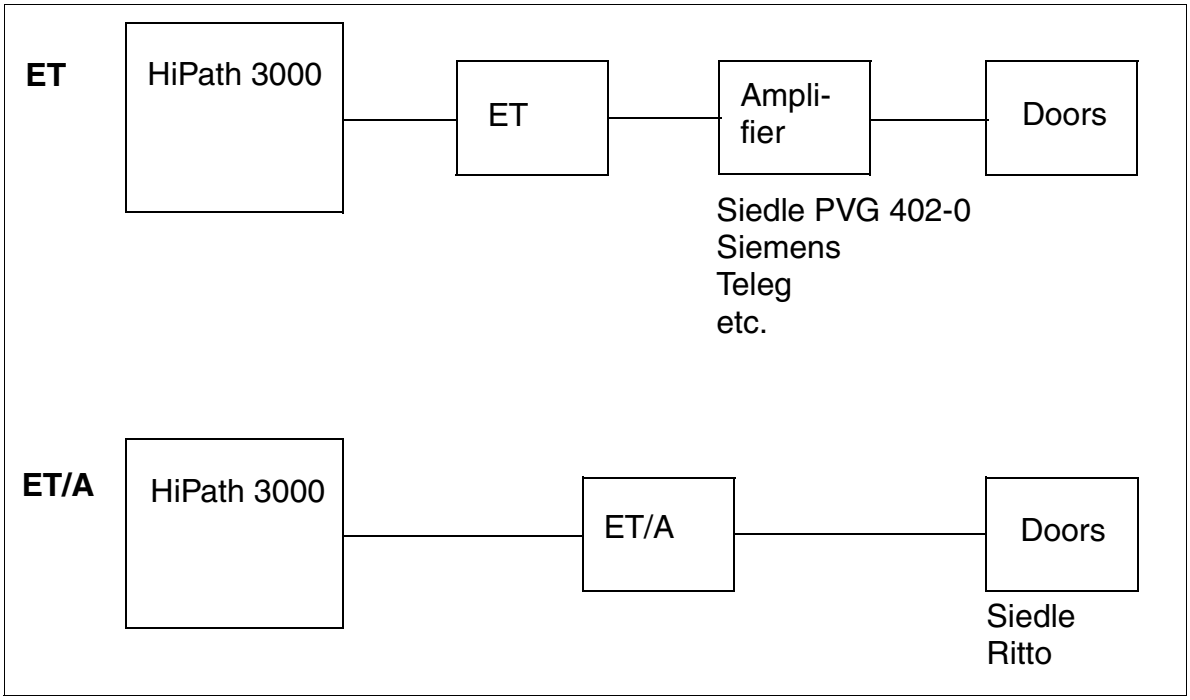


Figure 10-2 Connection Diagram of the ET and ET/A (Not for U.S.)

10.4.1 Direct Connection Without ET (Not for U.S.)

If desired, you can connect an entrance telephone directly.

- A voice connection to the entrance telephone is possible from any telephone (without opener and signaling functions).

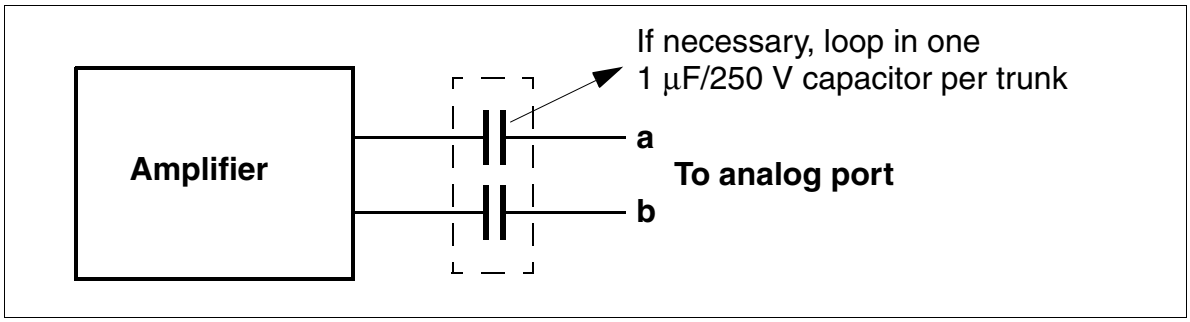


Figure 10-3 Entrance Telephone, direct ET Connection (Not for U.S.)

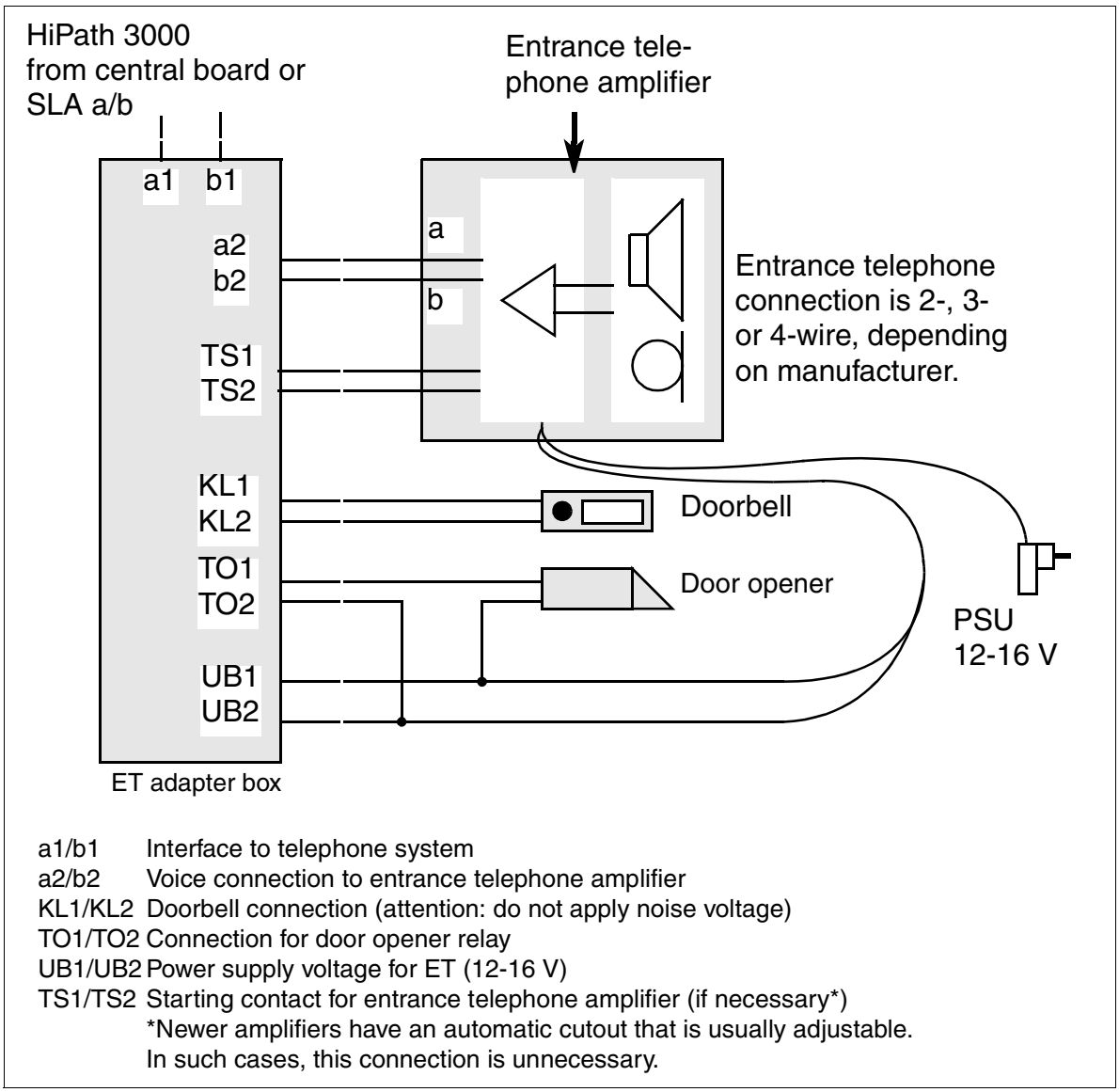
Amplifier	S30356-U5216-X
Door opener relay	V23040-A002-B201
Capacitor	B32231-A3105-K

10.4.2 Connection via ET Adapter Box (Not for U.S.)

Depending on the functions desired, an entrance telephone can be connected via an entrance telephone (ET) adapter box (S30817-Q930-A200/300, with starting contact).

A voice connection to the entrance telephone is possible from any telephone.

- Door opener function possible from any station.
- Doorbell signaling depends on call allocation.



a1/b1	Interface to telephone system
a2/b2	Voice connection to entrance telephone amplifier
KL1/KL2	Doorbell connection (attention: do not apply noise voltage)
TO1/TO2	Connection for door opener relay
UB1/UB2	Power supply voltage for ET (12-16 V)
TS1/TS2	Starting contact for entrance telephone amplifier (if necessary*) *Newer amplifiers have an automatic cutout that is usually adjustable. In such cases, this connection is unnecessary.

Figure 10-4 ET Adapter Connections (Not for U.S.)

10.4.2.1 Connection Examples (Not for U.S.)

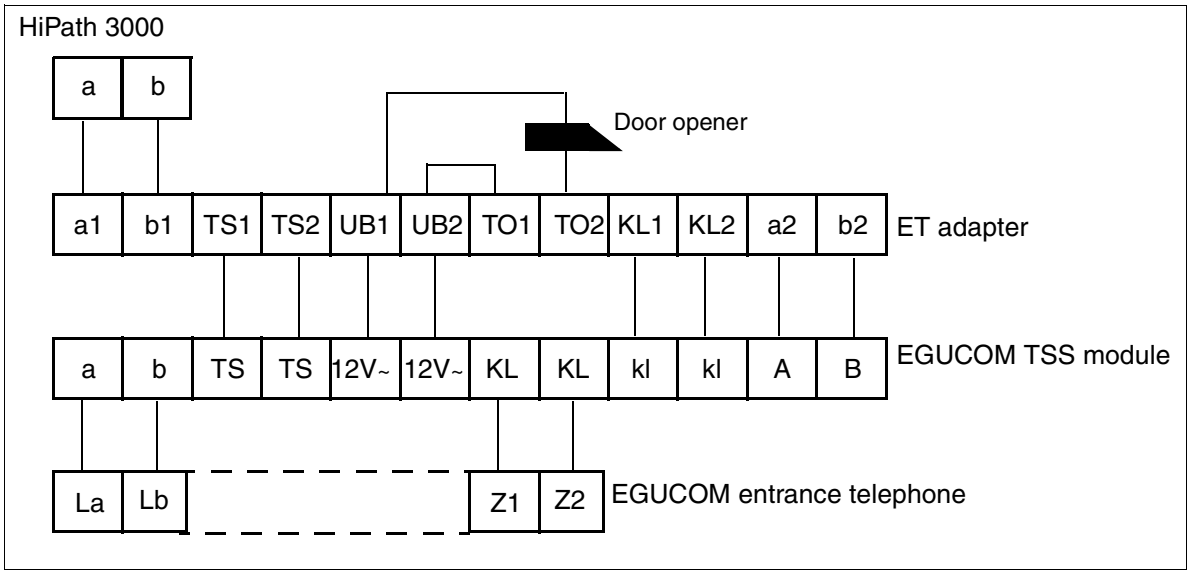


Figure 10-5 EGUCOM Entrance Telephone From Ackermann (Emmerich) (Not for U.S.)

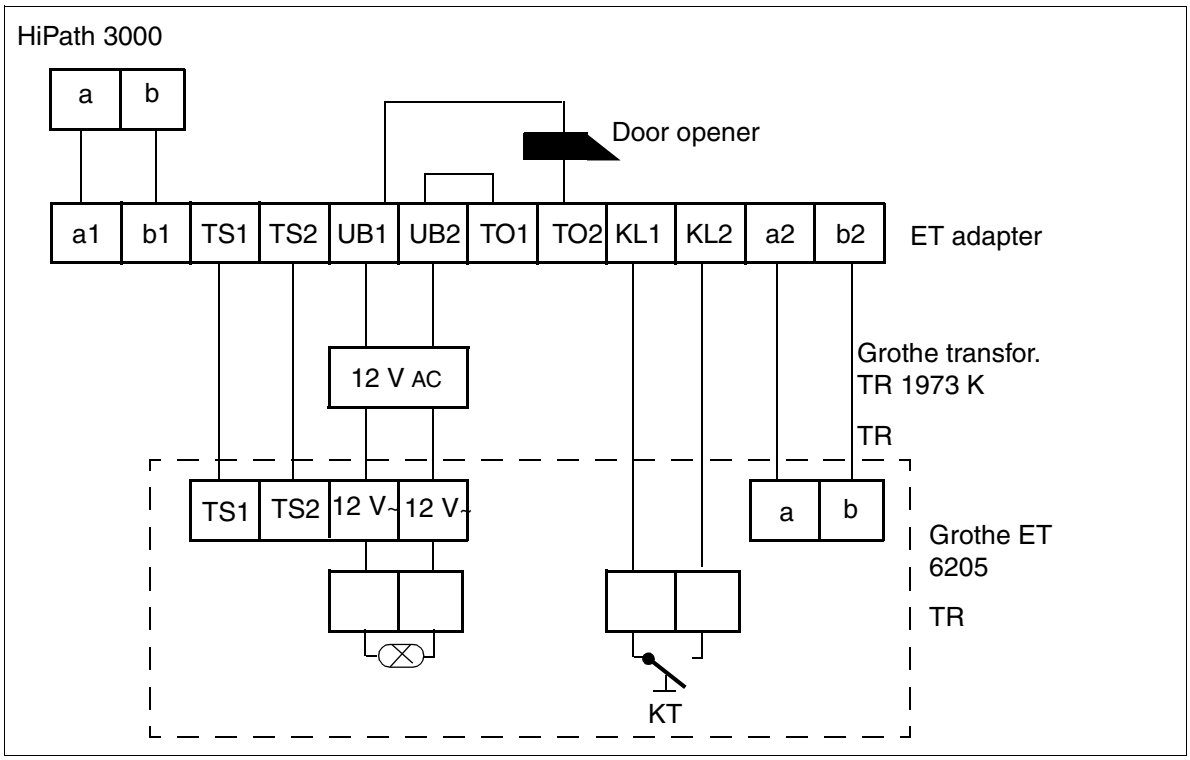


Figure 10-6 Grothe Entrance Telephone (Not for U.S.)

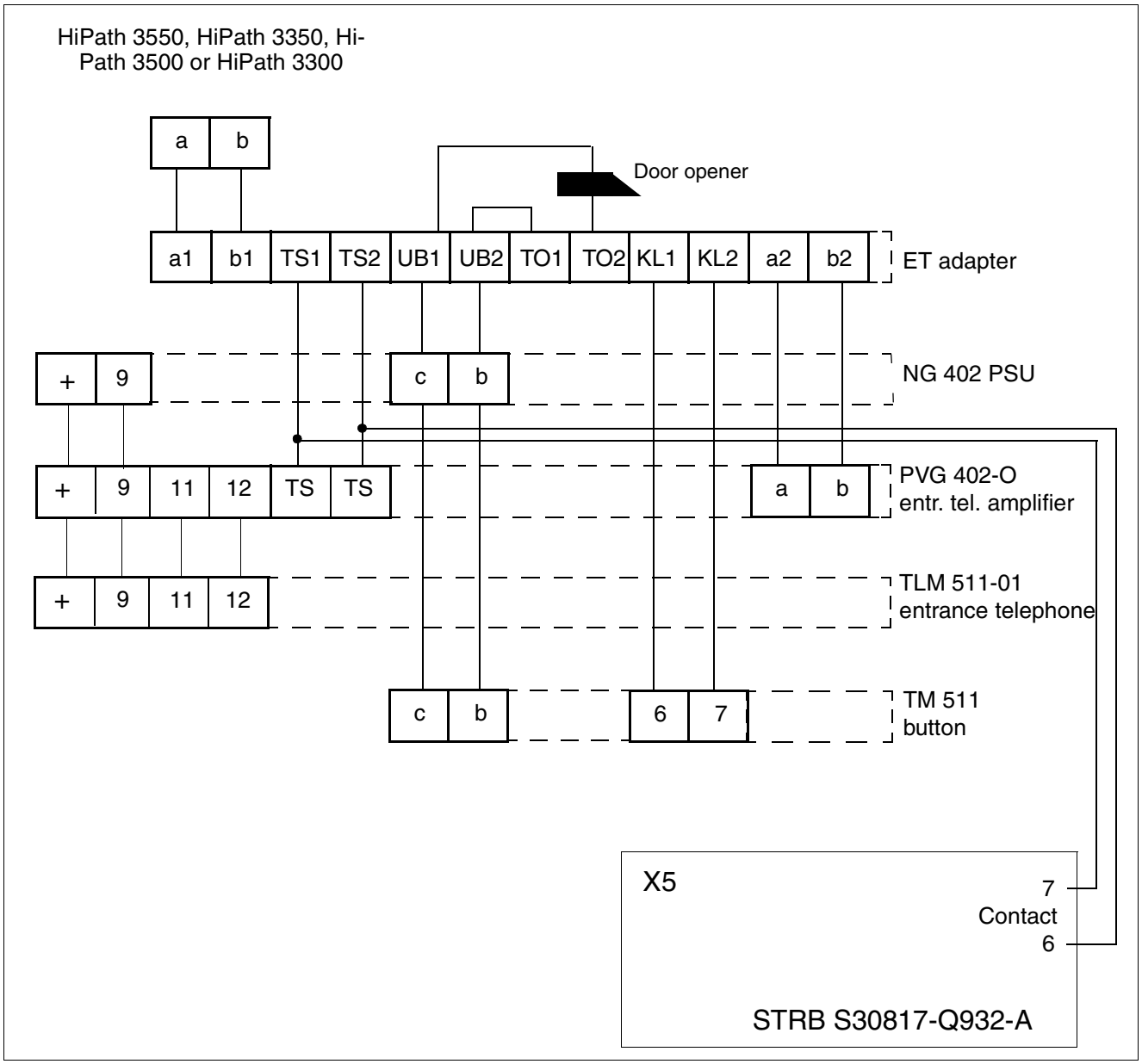


Figure 10-7 HiPath 3550, HiPath 3350, HiPath 3500 or HiPath 3300 with Siedle Entrance Telephone (Not for U.S.)

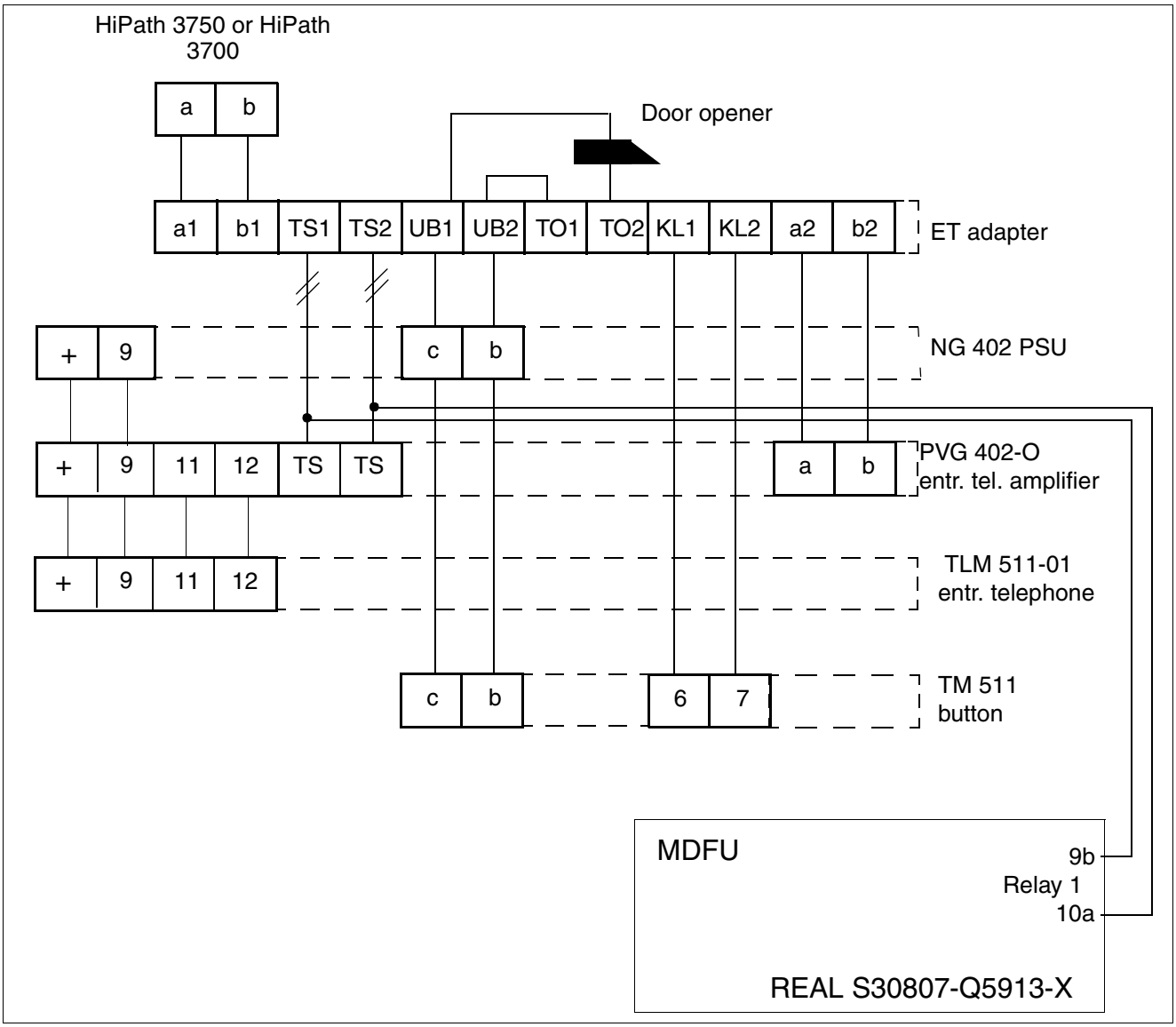


Figure 10-8 HiPath 3750 or HiPath 3700 with Siedle Entrance Telephone (Not for U.S.)

Note

Use a REAL board for the amplifier switch-on contact if difficulties arise (such as poor audio quality at entrance telephone).

Programming

Actuator: Loudspeaker amplifier
Switching time: --
Assigned user: Analog port of entrance telephone

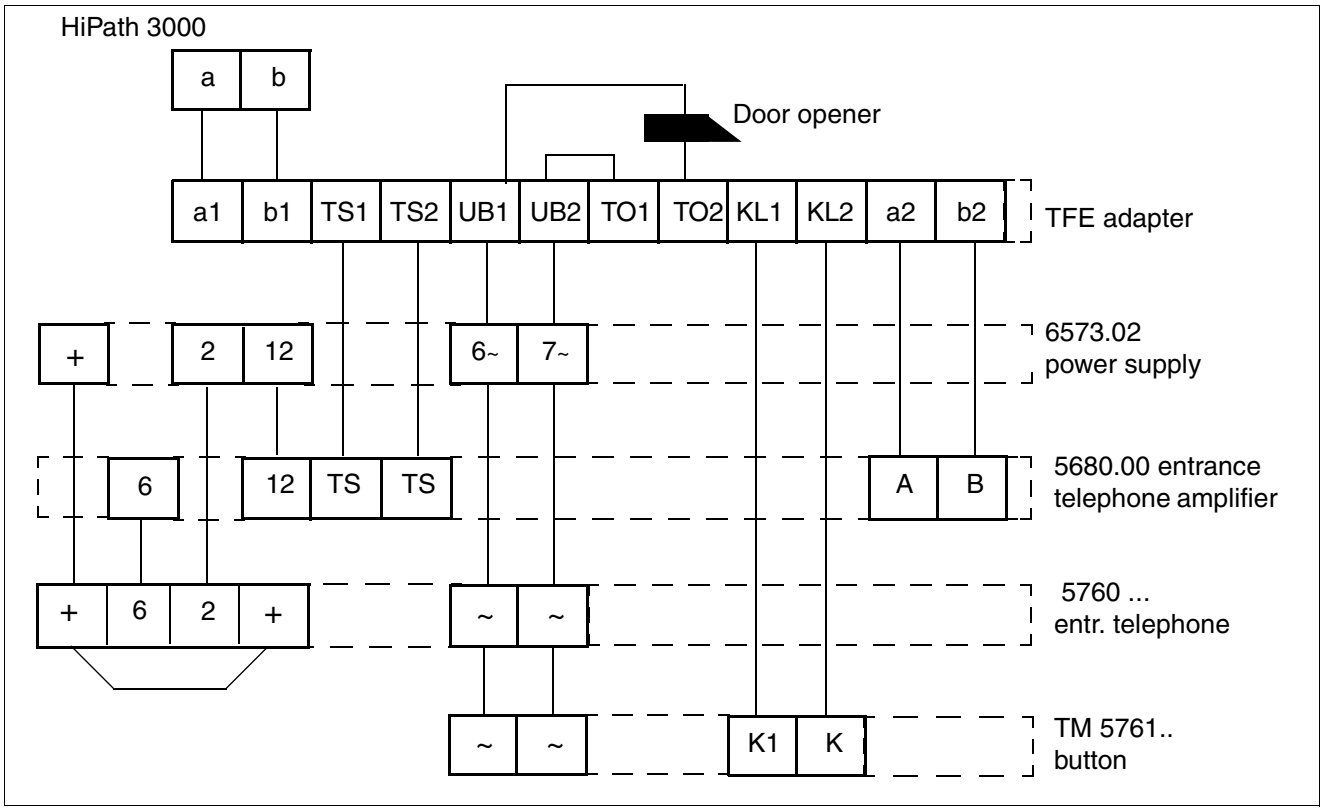


Figure 10-9 Entrance Telephone Ritto (Not for U.S.)

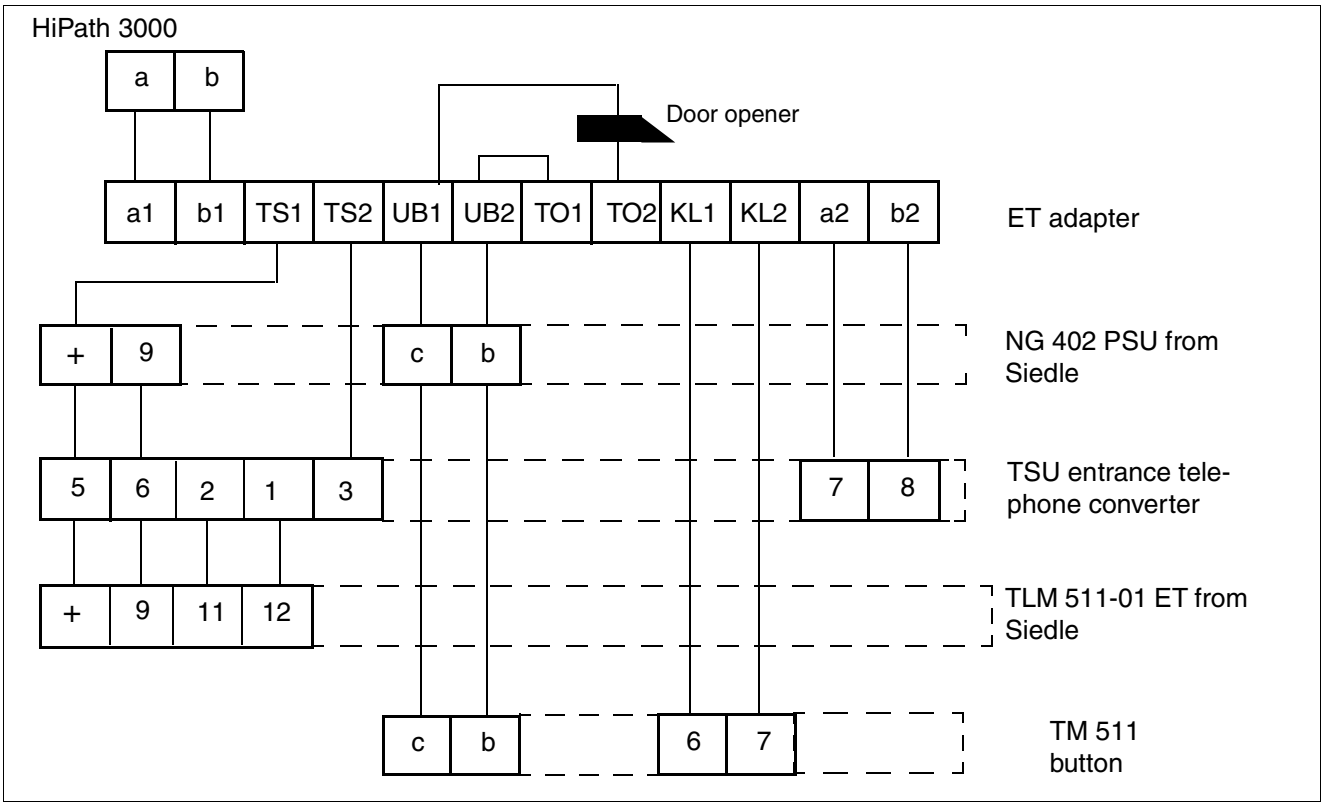


Figure 10-10 Entrance Telephone With Telegärtner Amplifier and Siedle Entrance Station (Not for U.S.)

10.4.3 ET/A Adapter (S30817-Q936-A313) (Not for U.S.)

This adapter connects an analog interface from the system to an entrance telephone and a door opener or bell function. Control is via the system. The adapter permits connection to commercially available passive entrance telephones. Each ET/A adapter requires a power supply unit.

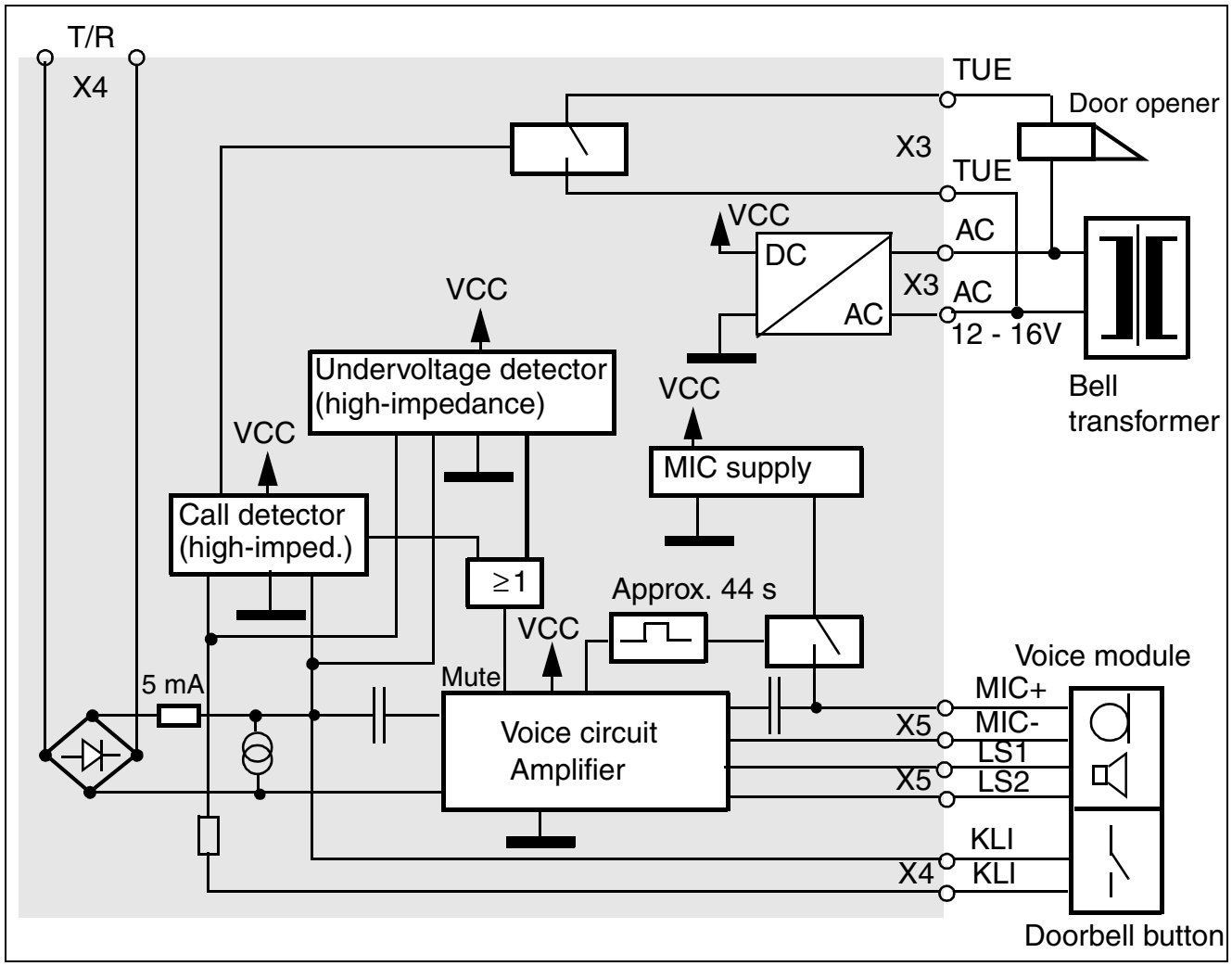


Figure 10-11 ET/A Adapter Interfaces (Not for U.S.)

Caution
On analog interfaces, the a-wire must always be negative and the b-wire must always be positive.

Table 10-1 ET/A Contact Assignments (Not for U.S.)

Pin no.	Port X3	Port X4	Port X5
1	AC	(a-wire) **-**	Speaker (LS1)
2	AC	(b-wire) **+**	Speaker (LS2)
3	Door opener contact (TUE)	Bell contact (KLI)	Microphone port (MIC+)
4	Door opener contact (TUE)	Bell contact (KLI)	Microphone port (MIC-)

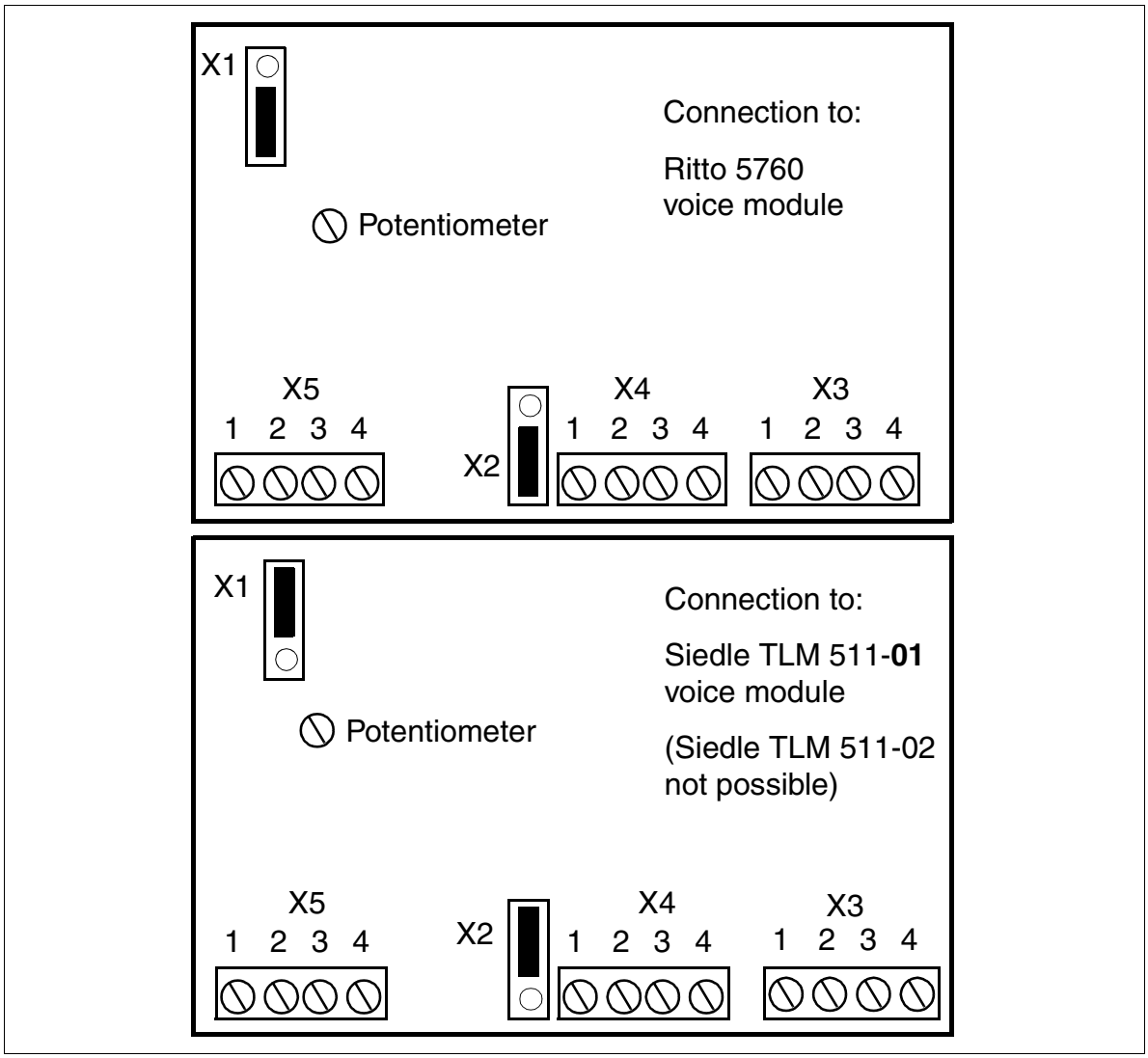


Figure 10-12 Contact Assignment for Available Voice Modules (Not for U.S.)

10.4.4 Connection via ET/A Adapter Box (Not for U.S.)

Depending on the functions desired, the entrance telephone can be connected via an entrance telephone adapter box with amplifier (ET/A adapter box) (S30817-Q936-A313 with starting contact).

Note:

On analog interfaces, the a-wire must always be negative and the b-wire must always be positive.

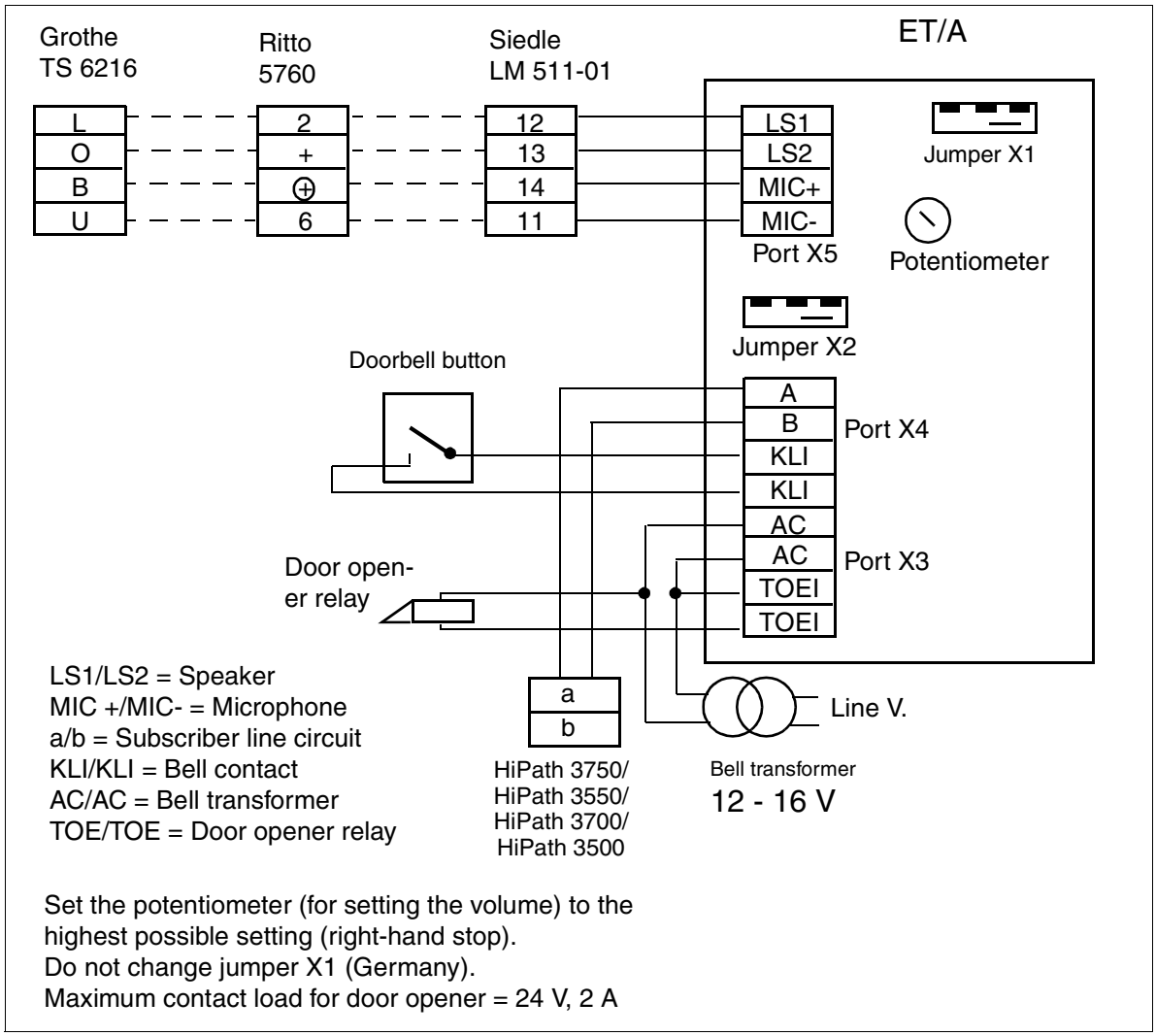


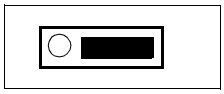
Figure 10-13 Connection to Siedle TLM 511-01, Ritto 5760 or Grothe TS 6216 Entrance Station (Not for U.S.)

Special Features

Siedle: The following changes must be made to the Siedle TLM 511 entrance station:

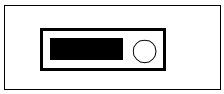
1. Open Siedle entrance station
2. Open jumpers 1, 3, and 4
3. Move speaker wire from pin *bl* to pin *12*
4. Close Siedle entrance station

Jumper X2



Ritto: In the Ritto 5760 entrance station, set the potentiometer to the maximum volume.

Jumper X2

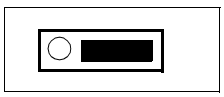


Note:

If a jumper is inserted between + and + (at the entrance station), it must be removed; otherwise the ET/A adapter will be severely damaged.

Grothe: In the Grothe TS 6216 entrance station, move the yellow jumper from *B* to *0*.

Jumper X2



Jumper X1 remains at the factory default

10.4.5 Information on Third-Party Entrance Telephones

10.4.5.1 DoorCom Analog

General information

The plus product DoorCom® Analog is a universal entrance telephone adapter box for the entrance telephones from the Siedle Company (such as the Vario TLM 612). It is released for use with all HiPath 3000 systems, V1.2 and later.

It is connected to an analog port in the system. DoorCom Analog behaves like an analog telephone (DTMF tone dialing, detection, and control). It can be controlled with DTMF signals.

DoorCom Analog can function only in combination with the following components:

- DoorCom Analog DCA 612-0
- Siedle-Vario TLM 612 entrance telephone
- Switching remote control interface DCSF 600
  For the voice connection of an internal user to the entrance telephone: without this module, it is not possible to call back to the entrance telephone, for example, if a call from the entrance telephone is unintentionally released.)
- Power supply NG 602-0

Connecting

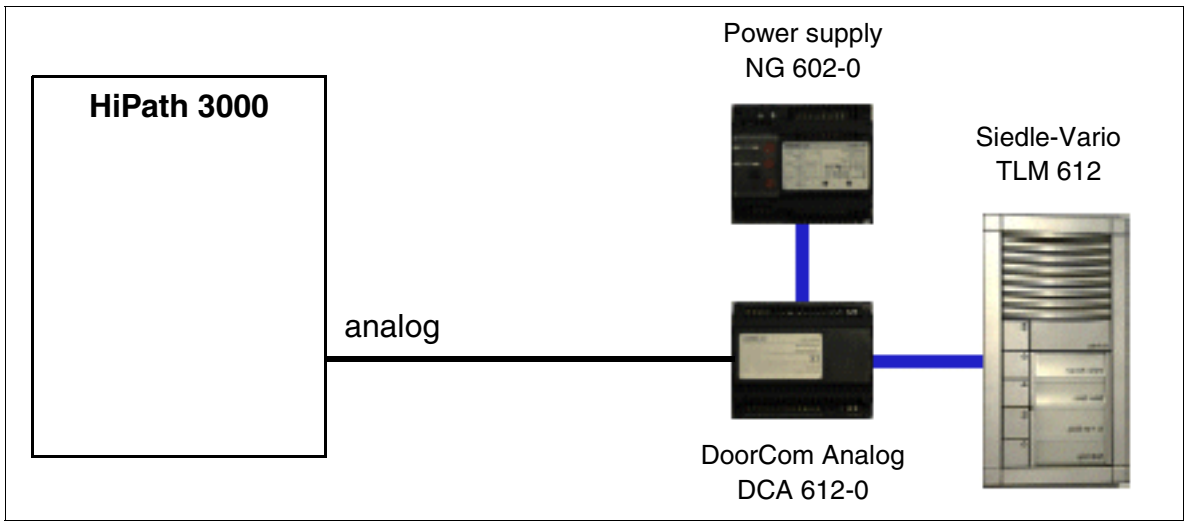


Figure 10-14 Connecting DoorCom Analog to HiPath 3000 (Not for U.S.)

Configuration Notes for HiPath 3000 Manager E

DoorCom Analog
Configure station: Station: Parameters: Type = Standard Flags = Call waiting rejection on
System parameters: Flags = DTMF automatic
Remote station (telephone)
Configure station: Station: Parameter: Flags = Call waiting rejection off Flags = Missed calls list

It is not possible to program the functions of the device (open doors, dial entrance telephone , etc.) on keys because the functions need DTMF signaling and HiPath 3000 cannot store DTMF character strings in system telephones.

10.5 Speakers (Not for U.S.)

Two options are available for connecting speakers:

- Connection to an analog station port via an ET adapter;
- Connection to an analog trunk port.

10.5.1 Connecting Speakers to an Analog Station Port

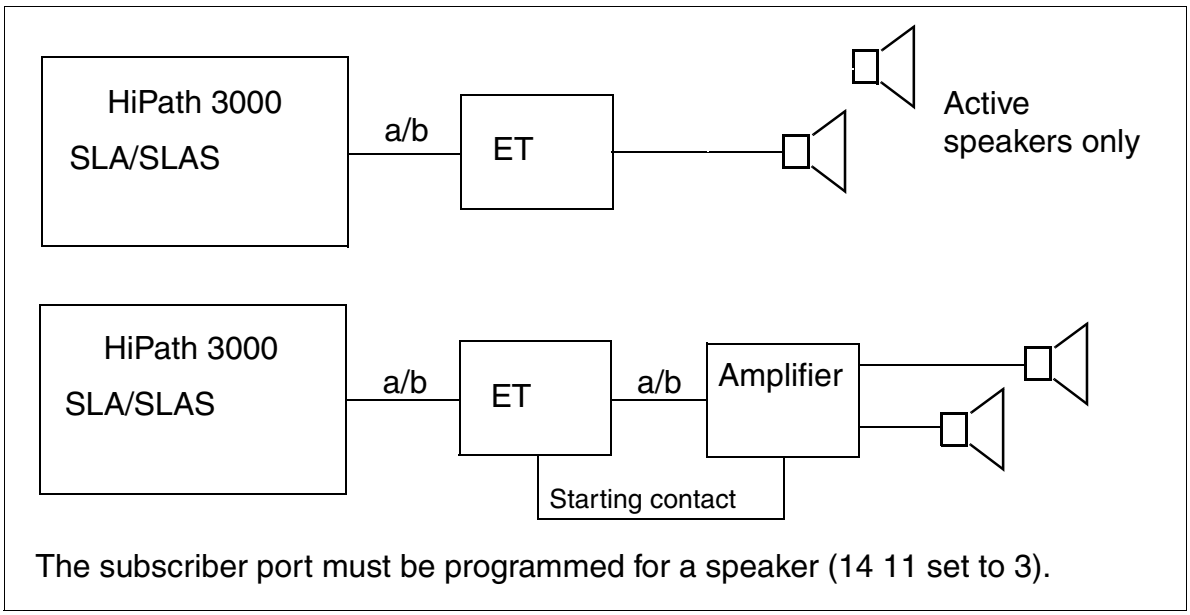
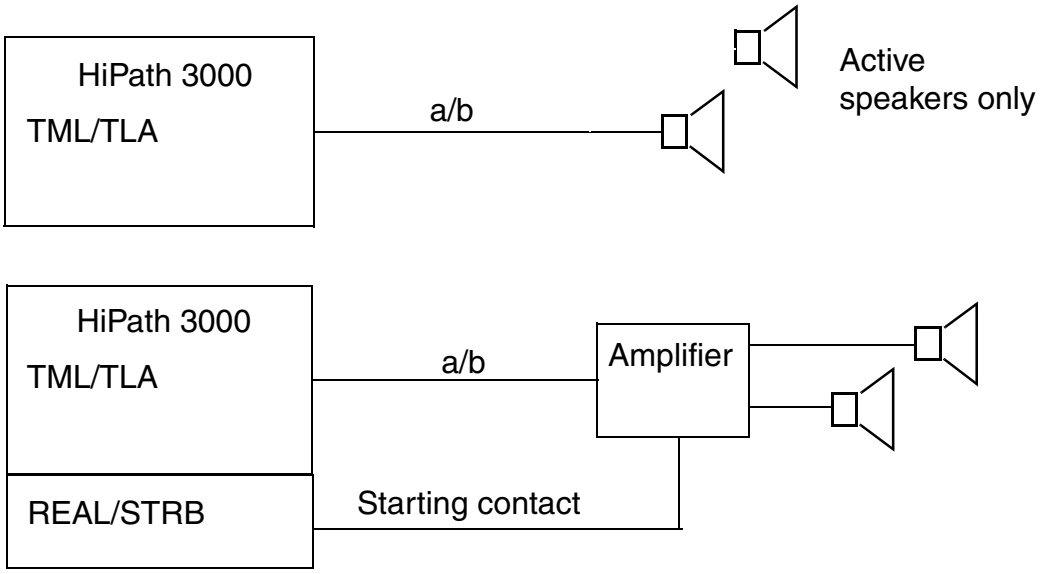


Figure 10-15 Connecting Speakers to an Analog Station Port (Not for U.S.)

10.5.2 Connecting Speakers to an Analog Trunk Port (Not for U.S.)



The analog trunk port must be programmed with the pause before setting dialing to 1 s or 3 s (14 11). Place the trunk in a separate trunk group without direct trunk access.

Figure 10-16 Connecting Speakers to an Analog Trunk Port (Not for U.S.)

10.6 Connecting Data Equipment (Not for U.S.)

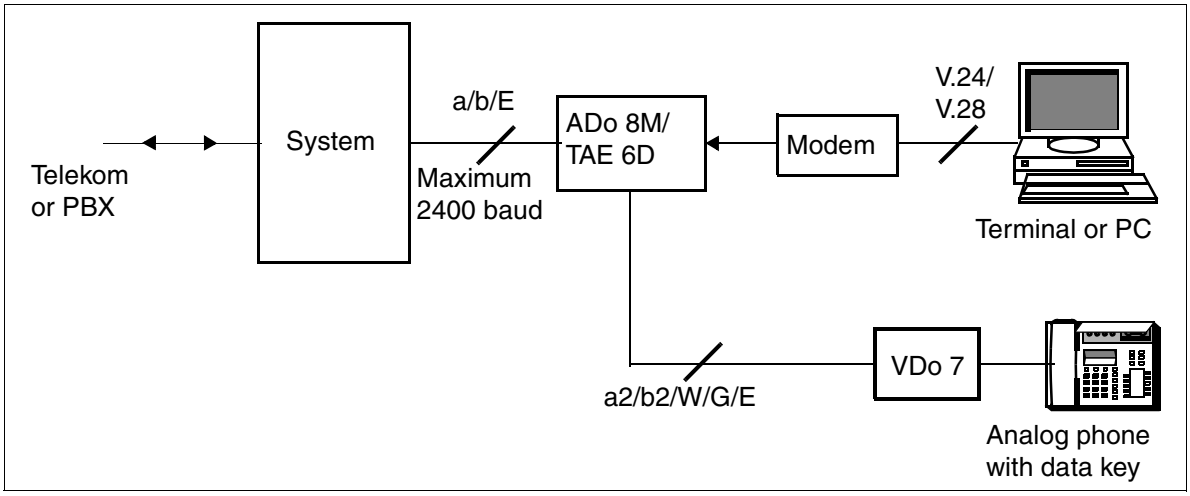


Figure 10-17 Overview of Modem Operation With an Analog Telephone (Not for U.S.)

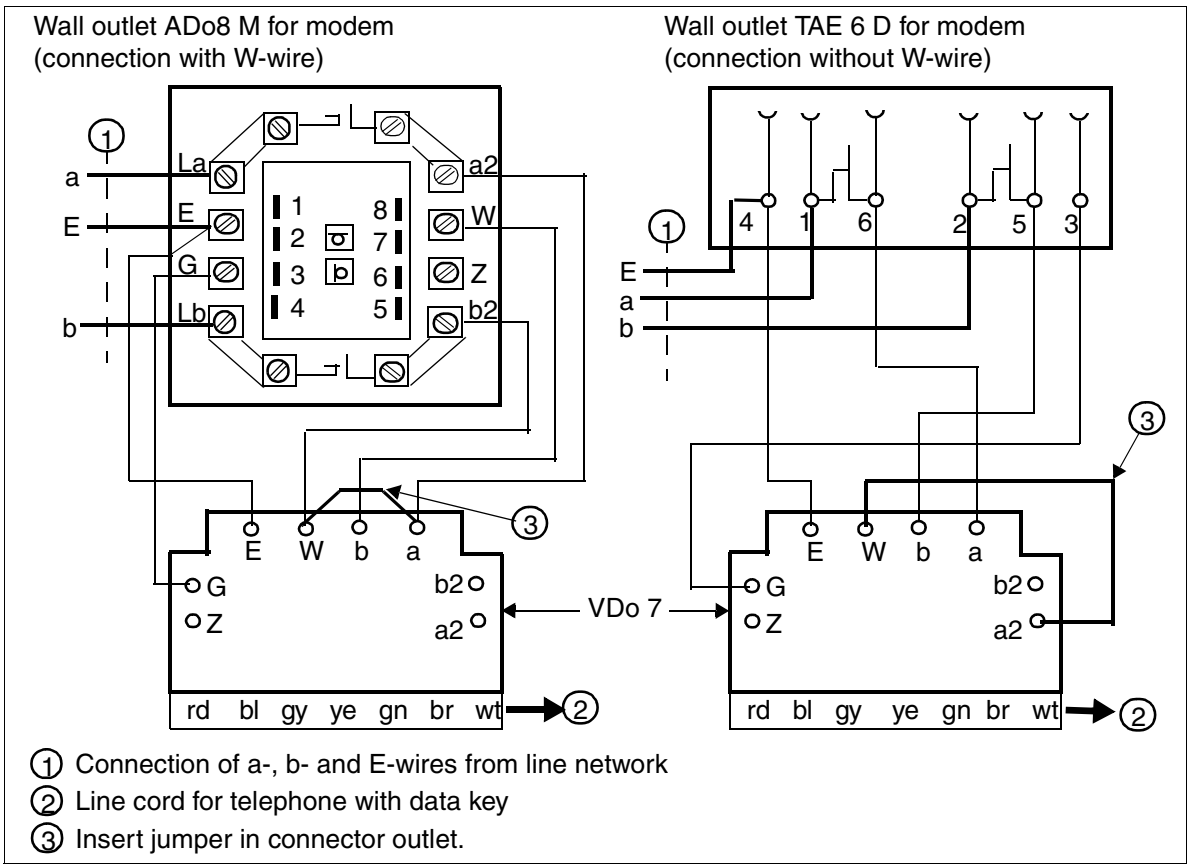


Figure 10-18 Connecting a Modem to an Analog Telephone (Not for U.S.)

11 HiPath cordless

This chapter contains basic information concerning the new capabilities available for Version 1.2 and later of the HiPath 3000 system families for the operation of the HiPath cordless. For more detailed information, please refer to the HiPath cordless service manual.

11.1 Introduction

For Version 1.2 and later of HiPath 3000, HiPath cordless can be used on all systems in the product line.

The newly developed BS3/1 (S30807-H5482-X) base station can be

- directly connected to the $U_{P0/E}$ interfaces in the central control boards for HiPath 3550, HiPath 3350, HiPath 3250, HiPath 3500 and HiPath 3300.
- directly connected to the $U_{P0/E}$ interfaces in the SLC16 board for HiPath 3750, HiPath 3550 and HiPath 3700.

To ensure the operation of a maximum of one base station on the central control board's $U_{P0/E}$ interfaces of the HiPath 3550, HiPath 3350, HiPath 3250, HiPath 3150, HiPath 3500, and HiPath 3300, a BS3/S (X30807-X5482-X100) single-cell base station can be used. In this case, it is not possible to expand with additional base stations.

A mix of both the BS2/2 (S30807-H5471-X200), BS3/1 (S30807-H5482-X), and BS3/3 (S30807-H5485-X) base stations may be used on one SLC16 board.

However, the BS3/1 base station cannot be simultaneously connected to the SLC16 board and the CBCC within one HiPath 3550 system.

Up to four SLC16 boards can be used within HiPath 3750 and HiPath 3700. These boards provide complete cordless functionality (roaming and seamless connection handover) (refer to Section 11.5).

The new air synchronization (DECT node synchronization DNS) feature is now available in all HiPath 3550 and HiPath 3350 systems that have CBCC and in all HiPath 3500 and HiPath 3300 systems that have CBRC. This feature connects networked systems to one another using so-called synchronization base stations or SBS. This enables system-wide handover. Air synchronization does not require additional hardware.

11.2 System Configuration

The following table indicates the maximum possible system configuration parameters for the HiPath cordless. It also shows when

- CMA or CMS is necessary.
- an analog trunk access is possible.

Table 11-1 HiPath cordless - System Configuration

System	SLC16	CMA / CMS	Base stations			Simultaneous calls per BS				Maxi-mum-number of MTs	Aznalog trunk access
			BS3/1	BS3/S	BS2/2 BS3/3	BS3/1	BS3/S	BS2/2	BS3/3		
HiPath 3150	–	CMS	–	max. 1	–	–	2	–	–	8	no
HiPath 3250	–	CMS	max. 3	–	–	2	–	–	–	8	no
	–	CMS	–	max. 1	–	–	2	–	–	8	no
HiPath 3350 HiPath 3300	–	CMS	–	max. 1	–	–	2	–	–	8	no
	–	CMA	–	max. 1	–	–	4	–	–	8	yes
	–	CMA	max. 3	–	–	4	–	–	–	16	yes
HiPath 3550 HiPath 3500	–	CMS	–	max. 1	–	–	2	–	–	8	no
	–	CMA	–	max. 1	–	–	4	–	–	8	yes
	–	CMA	max. 7	–	–	4	–	–	–	32	yes
HiPath 3550	max. 1	CMS	max. 16	–	max. 8	4	–	8	12	64	yes
HiPath 3750 HiPath 3700	max. 4	CMS	max. 64	–	max. 32	4	–	8	12	250 (with 4 SLC16)	yes

Comments:

- BS3/1 (S30807-H5482-X) is a new base station (Figure 11-1) that supports a maximum of 4 calls simultaneously.
- BS2/2 (S30807-H5471-X200)is a base station that facilitates up to 8 simultaneous calls.
- BS3/3 (S30807-H5485-X) is a new base station that can only be operated using the SLC16 board. Connection via at least two $U_{P0/E}$ interfaces is essential. It supports a maximum of 12 calls when connected using three $U_{P0/E}$ interfaces.
- BS3/S (X30807-X5482-X100): The BS3/S single-cell base station guarantees the operation of a maximum of one base station on the $U_{P0/E}$ interfaces of the central board. It is not possible to operate additional base stations.
- HiPath 3550, HiPath 3350, HiPath 3500, HiPath 3300: It is possible to operate the BS3/1 base station on the $U_{P0/E}$ interfaces of the central board only in connection with the CMA clock module.

11.3 Technical Data for Base Stations

Table 11-2 Technical Data for Various Base Stations

Parameter	BS3/1 and BS3/S	BS3/3	Outdoor cover
Power supply voltage range	42 to 54 V	42 to 54 V	–
Power consumption	max. 1.70 W	max. 3.20 W	–
Housing dimensions (W x D x H in mm)	181 x 139 x 69	202 x 172 x 43	296 x 256 x 90
Weight	approx. 0.3 kg	approx. 0.5 kg	approx. 1.0 kg
Temperature range	for indoor use: – 5 to + 50 °C		for outdoor use: – 20 to + 45 °C
Relative humidity	–	–	up to 95 %

BS3/1 Base Station

Figure 11-1 BS3/1 S30807-H5482-X Base Station

Outdoor Cover

A base station must be installed in a weatherproof outdoor cover to guarantee radio coverage outdoors, for example on factory premises. The outdoor cover is suitable for mounting on walls of buildings, roofs, and masts.

The outdoor cover S30122-X7469-X already available for BS2/2 is also used for the new base stations, BS3/1 (BS3/S) and BS3/3. The only difference is that you do not need a heater for BS3/1 (BS3/S) and BS3/3.

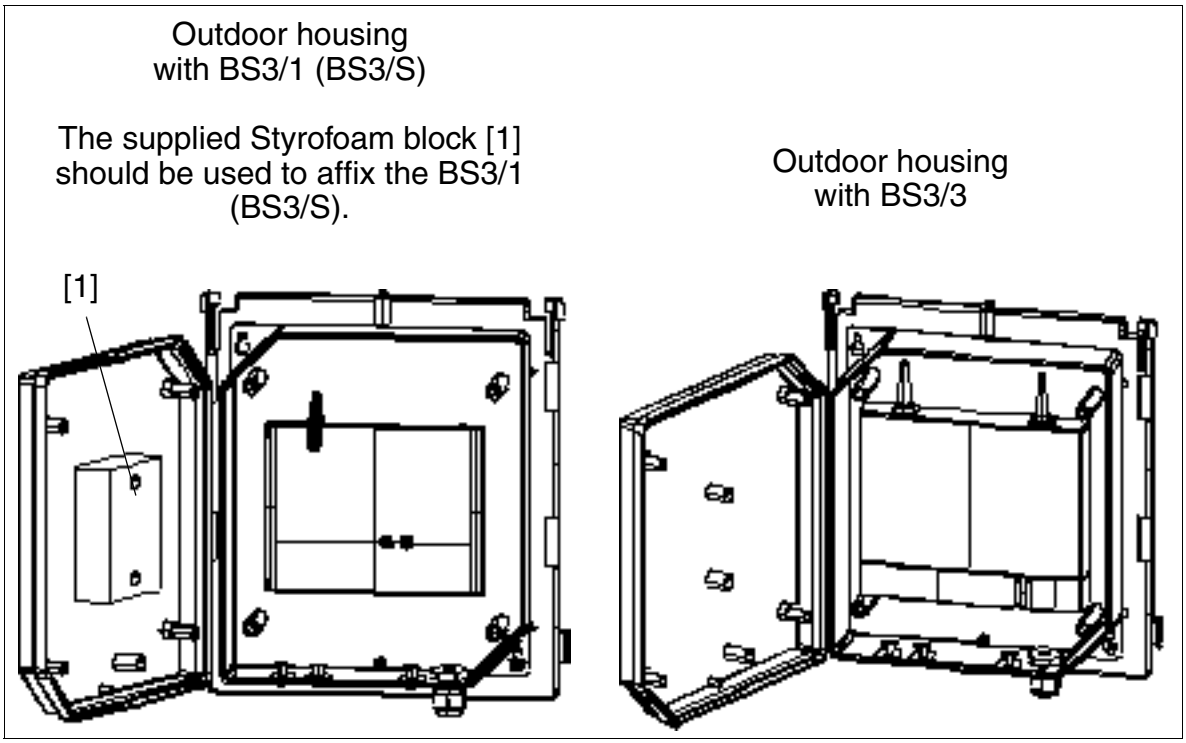


Figure 11-2 BS3/1 (BS3/S) and BS3/3 in the Outdoor Cover S30122-X7469-X

For information on the various outdoor cover mounting options, refer to the Hipath cordless Service Manual .

11.4 Power-Related Capacity Limits

The number of base stations, their distance from the system, and the overall telephone configuration determine whether or not the output from the internal system power supply units is sufficient or whether an additional supply is necessary.

- HiPath 3750 and HiPath 3700
  The internal system power supply unit provides sufficient power to the system configuration specified in Table 11-1.
- HiPath 3550 and HiPath 3500
  The following list of tables indicates the telephone configurations that can operate without additional power and when additional power (via EPSU2 or EPSU2-R) is necessary:
  - Table 11-3, depending on the number of BS3/1base stations connected to the central CBCC/CBRC control.
  - Table 11-4, depending on the number of BS3/1base stations connected to SLC16.
  - Table 11-5, depending on the number of BS2/2 base stations connected to SLC16.
  - Table 11-6, depending on the number of BS3/3 connected to SLC16.

Table 11-3 HiPath 3550 and HiPath 3500 - Maximum number of corded telephones depending on the number of BS3/1 base stations connected to CBCC/CBRC

Number of BS3/1 base stations connected to CBCC/CBRC	**Maximum number of corded telephones**					
	analog telephones					
	0	1-10	11-20	21-30	31-40	41-50
	optiset E and optiPoint 500 telephones					
1	66	61	57	53	48	44
2	63	59	54	50	46	41
3	60	56	52	47	43	39
4	58	53	49	45	40	36
5	55	51	47	42	38	33
6	53	48	44	40	35	31
7	50	46	41	37	33	28

Table 11-4 HiPath 3550 - Maximum number of corded telephones depending on the number of BS3/1 base stations connected to SLC16

Number of BS3/1 base stations connected to SLC16	Maximum number of corded telephones					
	analog telephones					
	0	1-10	11-20	21-30	31-40	41-50
	optiset E and optiPoint 500 telephones					
1	66	61	57	53	48	44
2	63	59	54	50	46	41
3	60	56	52	47	43	39
4	58	53	49	45	40	36
5	55	51	47	42	38	33
6	53	48	44	40	35	31
7	50	46	41	37	33	28
8	47	43	39	34	30	26
9	45	40	36	32	27	23
10	42	38	33	29	25	20
11	40	35	31	27	22	18
12	37	33	28	24	20	15
13	34	30	26	21	17	13
14	32	27	23	19	14	10
13	29	25	20	16	12	7
16	27	22	18	13	9	5

Table 11-5 HiPath 3550 - Maximum number of corded telephones depending on the number of BS2/2 connected to SLC16

Number of BS2/2 base stations connected to SLC16	Maximum number of corded telephones					
	analog telephones					
	0	1-10	11-20	21-30	31-40	41-50
	optiset E and optiPoint 500 telephones					
1	63	59	54	50	46	41
2	58	53	49	45	40	36
3	53	48	44	40	35	31
4	47	43	39	34	30	26
5	42	38	33	29	25	20
6	37	33	28	24	20	15
7	32	27	23	19	14	10
8	27	22	18	13	9	5

Table 11-6 HiPath 3550 - Maximum number of corded telephones depending on the number of BS3/3 base stations connected to SLC16

Number of BS3/3 base stations connected to SLC16	**Maximum number of corded telephones**					
	analog telephones					
	0	1-10	11-20	21-30	31-40	41-50
	optiset E and optiPoint 500 telephones					
1	64	60	56	51	47	42
2	60	56	52	47	43	39
3	57	52	48	43	39	35
4	53	48	44	40	35	31
5	49	44	40	36	31	27
6	45	40	36	32	27	23
7	41	37	32	28	23	19
8	37	33	28	24	20	15

When using an additional power supply (such as EPSU2 / EPSU2-R), HiPath 3550 and HiPath 3500 can be expanded up to the maximum possible capacity limit specified in Table 2-6.

Base Station Power Supply

The internal power supply unit in the respective system is the main power source for the base stations. For more information on the various power supply options, please refer to page 3-121.

11.5 Multi-SLC and System-Wide Networking

Multi-SLC (HiPath 3750, HiPath 3700) and System-Wide Networking (HiPath 3750, HiPath 3550, HiPath 3350, HiPath 3700, HiPath 3500, HiPath 3300)

Up to four SLC16 (Multi-SLC) boards can be used in HiPath 3750 and HiPath 3700 for V1.2 and later (see “SLC16 Board Distribution in HiPath 3750 and HiPath 3700 Cabinets” on page 3-120). For the total mobility of the cordless station (roaming and seamless connection handover) within the system, the radio fields of these SLC16 boards are synchronized.

The system views each mobile telephone (mobile station) as a corded telephone. During the administration, a fixed port on the system’s “Home SLC16 board” is assigned to the MT; this is used for addressing the MT.

As soon as an MT is in the area of a different radio switching location (“Current location SLC16 board”), an extension connection is switched using a DSS1 connection initiated by the SLC16. The home and current location SLC16 exchange networking protocol (User-to-User Signaling UUS) over this extension connection to support full mobility (see Figure 11-3).

This function can be used not only within one system, but also among systems (among nodes) because the CorNet-N used for networking supports the UUS protocol (note: for the system-wide extension connections, you may have to take additional B channels into consideration for the permanent connection paths (CorNet-N)). That means full mobility across the radio fields of the different cordless systems. All features (such as callback, group functions, voicemail) of the mobile telephone are retained.

Air Synchronization Feature (HiPath 3550 without SLC16, HiPath 3350, HiPath 3500, HiPath 3300)

To guarantee error-fee system-wide connection handover, the clock and data must be synchronized among all base stations (BS3/1 exclusively) in the systems. The principle is that a test BS in one system derives synchronization parameters from a reference BS in another system and then signals its own system (node). Test and reference BS are also described as synchronization base stations SBSs. Both must be installed physically very close to one another (minimum RSSI value = not available yet).

One SBS determines the difference between the systems with regard to its partner SBS and announces the result to its own system. Then all base stations are informed whether or not corrections need to made, until the DECT frame and DECT frame timing are identical with regard to the partner SBS. The synchronization base stations constantly monitor if differences crop up and signal this for correction.

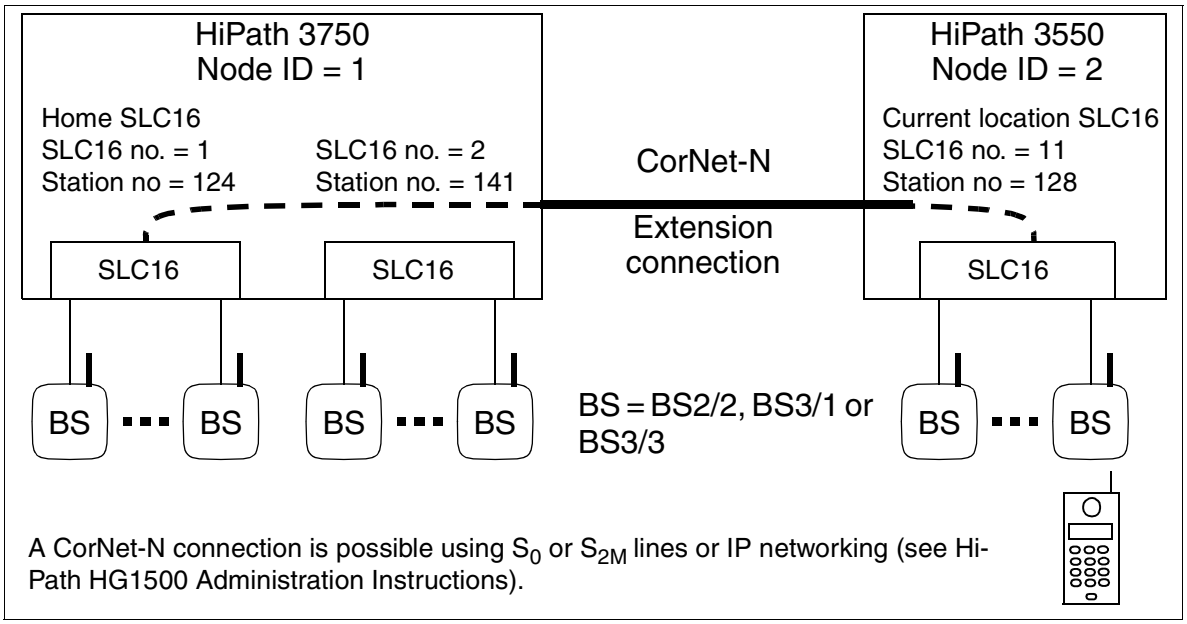


Figure 11-3 Example of a SLC16 Extension Connection in Networked Systems

Model-Specific Data

Feature	HiPath 3750 HiPath 3700	HiPath 3550 with SLC16	HiPath 3550 without SLC16 HiPath 3500	HiPath 3350 HiPath 3300
• max. 16 networked systems • accessible using a common station number (roaming among the systems/nodes) • call interruption when changing between systems/nodes	X	X	X	X
• max. 4 networked systems • accessible using a common station number (roaming among the systems/nodes) • no call interruption when changing between the systems/nodes (seamless connection handover)			X	X

12 Service

12.1 Overview

Introduction

This chapter contains information on the options available to service technicians and customers for

- performing service and maintenance work.
- recognizing and correcting errors.

Such work can be performed on site or using remote service.

Chapter Contents

This chapter discusses the following topics.

12.2 Customer Database Backup (CDB Backup)

Definition

CDB backup means that a backup copy of the customer database (CDB) is saved on the Multimedia Card MMC. The Run LED signals that a CDB backup, which takes about 30 s, is in progress on the MMC by repeatedly switching off for a short time.

12.2.1 Automatic Customer Data Backup

The HiPath 3000 provide a dual-level system that guarantees complete customer data backup. A complete CDB backup version can be found on the MMC at any time. Deltas to this backup are stored in an SRAM area (with battery backup) in the central control board. If the SRAM area is full, the customer data is automatically backed up. This means that the entire CDB, including SRAM content, is copied from the SDRAM in the central control board to the MCC. The current CDB is simultaneously stored on the MMC along with the “old” CDB, which is not deleted until the current CDB is completely stored on the MMC.

In case of a power outage, the SDRAM content that has no battery backup is completely lost. However, by reaccessing the CDB backup on the MMC, the system’s database can be restored to the state it was in prior to the power outage.

Regardless of the volume of changes to the database, HiPath 3000 always perform an automatic complete CDB backup at midnight, system-time.

12.2.2 Manual Customer Data Backup

You can perform a manual CDB backup using Assistant T or HiPath 3000 Manager E (in online mode).

However, be aware that it is not possible to deliberately abort a manual backup that is initiated using Assistant T. Once the CDB backup process starts, it should be ended because the backup continues to run in the background.

The CDB, including the call detail data, can also be restored from the MMC manually.

Procedure: Manual CDB Backup, System Restoral Using Assistant T

Step	Activity
Manual customer database backup on the MMC	
1.	Assistant T: Start system administration
2.	Menu 28 -> Edit CDB
3.	Menu 28-2 -> Back up CDB data
4.	Menu 28-2-1 -> CDB on MMC
Loading the saved customer data from the MMC into the system	
1.	Assistant T: Start system administration
2.	Menu 28 -> Edit CDB
3.	Menu 28-2 -> Back up CDB data
4.	Menu 28-2-2 -> CDB from MMC **Caution:** When performing this action, the system performs a hard reset.

12.2.3 Handling the CDB When Replacing Central Hardware

When replacing a central control board, due to a hardware defect, for example, the following options are available for handling the CDB:

- **Procedure: After replacing board, load “current” CDB into the system**

Step	Activity
1.	Copy the current CDB and save it on the MMC.
2.	Disconnect the system from the power supply.
3.	Remove the MMC.
4.	Replace the central control board.
5.	Insert the MMC.
6.	Restart the system by plugging in the power plug.
7.	Reload

Step	Activity
8.	Reload the previous CDB backup copy into the system without the Delta mode, but with activated “hardware and CDR switch.” The customer system is now configured: • The CMI mobile telephones are logged on. • The V.24 baud rate is set up. • The ACD login port is configured. • All telephone options, such as volume and display, are determined per station.

- **Procedure: After replacing board, load “old” CDB from the customer disk into the system**

Step	Activity
1.	Disconnect the system from the power supply.
2.	Remove the MMC.
3.	Replace the central control board.
4.	Insert the MMC.
5.	Restart the system by plugging in the power plug.
6.	Reload.
7.	If an “older” CDB update is imported, reload the CDB into the system without the Delta mode. The “hardware and CDR switch” remain inactive.
8.	Reset. The customer system is now configured. All you have to do now is • log on the CMI mobile telephones again, • reset the V.24 baud rate, • reconfigure the ACD login port, • redefine all telephone configurations, such as volume and display, per station.

12.3 Relocate/Transfer Application Processor Software (APS)

Two memory areas for the application processor software are reserved on the MMC. To be able to store two complete APS and to keep the transfer time as low as possible, part of an APS is stored in a compressed format. The APS is decompressed after it has been transferred from the MMC into the SDRAM area of the central control board.

12.3.1 Transferring an APS by Replacing the MMC

APS replacement is only possible within a version and if a logical, compatible CDB is available.

Procedure:

Step	Action
1.	Create a backup of the current CDB and save on a customer disk for security reasons.
2.	Remove MMC with “old” APS. The flashing Run-LED (0.1 s on/0.1 s off) indicates that the MMC is missing. The system remains active for call processing.
3.	Install new MMC with “new” APS. The system creates an automatic CDB backup and thus saves the current customer database (CDB) to the new MMC.
4.	An automatic reset is then performed (hard restart for entire system with the current CDB).
5.	The activation of the new APS can be verified with “APS Stamp”. The relevant query can be made with HiPath 3000 Manager E or Assistant T (menu item 29-1-2).

12.3.2 APS Transfer

Options

The APS Transfer feature is available with the HiPath 3000 Manager E. It facilitates

- an **on-site APS transfer** by connecting directly using
  - the V.24 interface
    To achieve short transfer times (approximately 30 minutes), you have to configure the system and HiPath 3000 Manager E to a baud rate of 19200 Bd (menu item 22-13-1-3 or menu options: Program settings, Communication tab).
  - an optiPoint ISDN adapter or optiset E ISDN adapter (neither supported by HiPath 3150) or an S_0 subscriber port. Transfer times with this option are about 25 minutes.
- an **APS transfer using remote service** from a central service center using
  - the integrated analog or digital modem or
  - a LAN (see Chapter 13).

Function

This feature transfers the new APS in its entirety and stores it in the available area of the MMC. After the transfer has been completed, the system analyzes the checksum and subsequently reports whether or not

- an error was found.
  If so, you have to delete the transferred APS.
- the APS transfer was successful.
  You can then activate the APS immediately or at a later time.

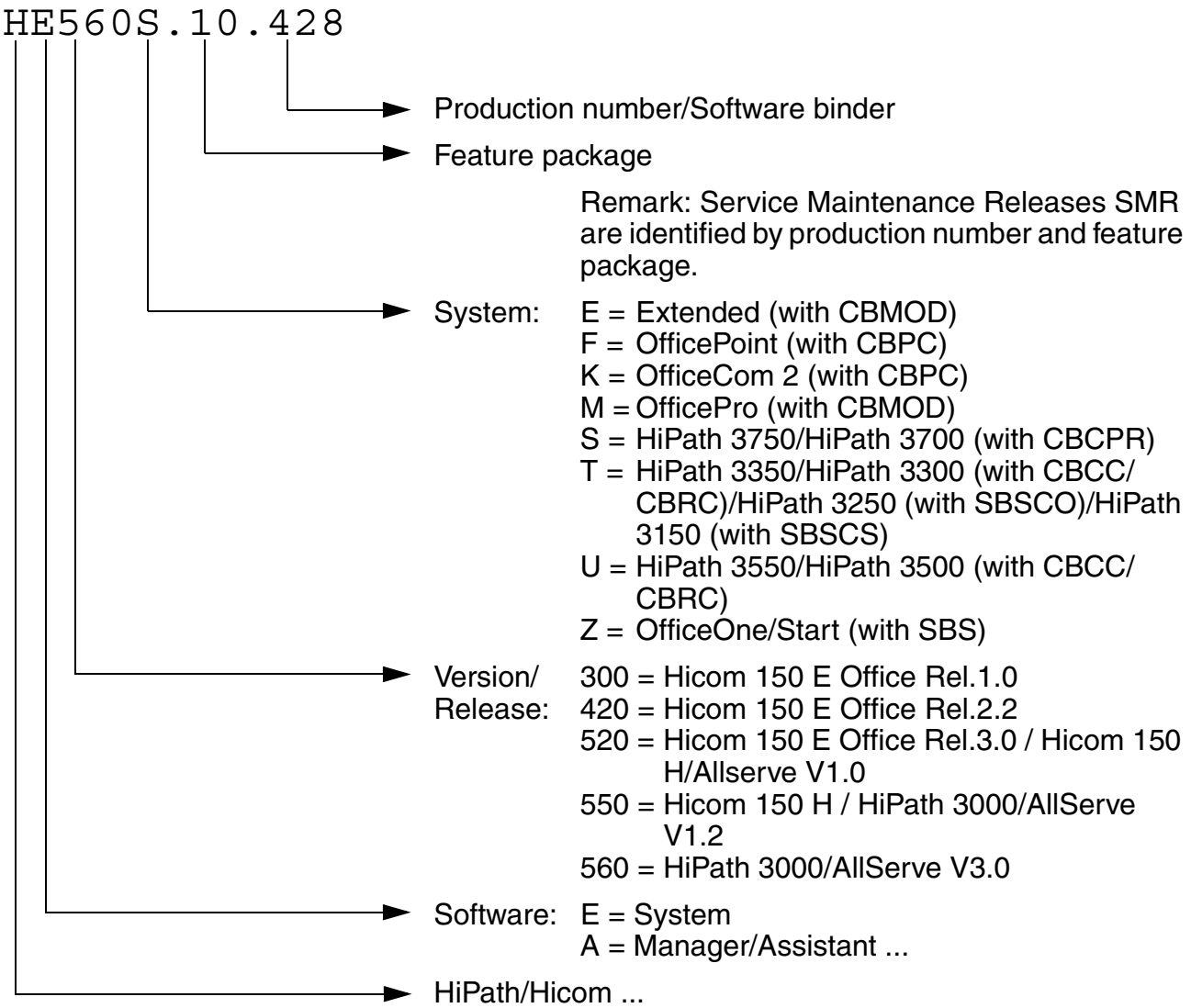
Resetting the system initiates the changeover from the old APS to the new APS. If problems occur during this process, the old APS is reactivated. Once the changeover is successful, the old APS is deleted from the MMC.

In case of power outage, the SDRAM content that has no battery backup is completely lost. By reaccessing the current APS on the MMC, the system can be restored to the state it was in prior to the power outage.

Procedure

1.	Save the existing customer data (for example: "customer1.cdb").
2.	Select "Open CDB " from the HiPath 3000 Manager E file menu and highlight "APS files (*.fst)." Open the fst file using the new system software. **Note:** The fls file is exclusively designed for company-wide programming and may not be transferred.
3.	Double-click on the "Transfer" icon: Select the appropriate access and enter the PIN code.
4.	Highlight "APS Transfer." A new window appears in the top right of the screen. You can use this window to select whether • to change directly to the APS after the transfer is completed. • to change to the APS at a pre-determined time. **Note:** If the “APS Transfer” field has a gray background, then the fst file was not opened correctly.
5.	Start the APS transfer. Transfer time lasts approximately 25 to 30 minutes.
6.	Once the APS transfer is completed, the HiPath 3000 Manager E reports that the “APS transfer was successful”. At this point, the system resets and reboots immediately with the new version default or according to the time entered.
7.	Use the “APS stamp” to verify that the new APS has been activated. Use HiPath 3000 Manager E or Assistant T (menu item 29-1-2) to make the necessary query.
8.	Determine the system password using an authorized telephone.
9.	Finally, load the customer data and configure the hardware. You may have to convert all versions beforehand.

APS Stamp: Explanation Using Example



Notes on the APS Transfer Sequence

- If the connection is interrupted during the transfer (line failure, for example), use HiPath 3000 Manager E to restart manually, then perform the complete APS transfer again. However, you have to wait approximately 10 minutes before repeating the transfer because the incomplete APS must be deleted from the memory beforehand.
- Since the software is written onto the MMC in a compressed format during APS transfer, you have to unpack it after the transfer is complete (it takes about 5 minutes).
- After the APS transfer, the checksum is analyzed. If the checksum finds errors, delete the transferred APS. You then have to repeat the complete APS transfer.
- Once the APS has been successfully transferred, the message “APS transfer was successful” appears. You can then finish the session.
- The system software uses a special system reset (none of the other resets initiates a changeover) to change over to the new APS. You cannot use the telephone while the system resets and boots up.
- After a successful changeover to the new APS, an entry in the error memory is also made and the old APS on the MMC is deleted. This takes approximately 10 minutes and does not impede switching traffic. The deleted area is now available for a new APS transfer. The positive or negative entry in the error memory is sent to the service center.

12.4 Effects of Hardware Changes on Customer Data

Any changes to the hardware must be made before creating a copy of the customer database using HiPath 3000 Manager E. This ensures that the hardware configuration on the MMC is current.

Hardware changes include:

- Removing or inserting boards.
- Removing or inserting telephones.
- Removing or inserting add-on devices or adapters.

12.4.1 Inserting and Removing Boards

Caution
When using HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300, disconnect the system from the power supply before removing or inserting boards.
Only HiPath 3750 and HiPath 3700 peripheral boards can be removed or inserted during operation.

Startup Rules for Inserting and Removing Boards

Table 12-1 Startup Rules for Inserting and Removing Boards

If	Then
Inserting new board in free slot	Board is integrated into the system according to the rules for initial startup (page 4-72). • System with default numbering plan The station numbers from the new board are appended (consecutively and in ascending order) to the numbers already assigned. • System with modified numbering plan The station numbers on the new board can be in any order. Using HiPath 3000 Manager E or Assistant T, you can assign a specific station to a port. If the number is already assigned to a different object, you can switch both numbers.
Replace board with underequipped board of same type	The system activates the board and retains the surplus ports in the database.

Table 12-1 Startup Rules for Inserting and Removing Boards

If	Then
Replacing board with overequipped board of same type	The system activates the board with the same number of ports as on the old board. After removing the old board, you can reinitialize the slot using HiPath 3000 Manager E or Assistant T. After the new board is inserted, the system activates it as if it had been inserted into a free slot. However, the CDB (customer database) area used by the old board is left as a gap. In the case of subscriber lines modules, you can use HiPath 3000 Manager E to retain the old station data by copying it to the new board, or you can delete it (reset to the default state). Copying is not possible for trunk boards.
Replacing board with different board	The system does not automatically activate the board. After removing the old board, you can initialize the slot using HiPath 3000 Manager E or Assistant T. After you have inserted the new board, the system activates it as if it had been inserted into a free slot. However, the CDB area used by the old board is left as a gap. In the case of subscriber line modules, you can use HiPath 3000 Manager E to retain the old station data by copying it to the new board, or you can delete it (reset to the default state). Copying is not possible for trunk boards.

If you initiate a system reload on a system updated as described above, you have to reset the system, however, do not reset it until the customer database (CDB) has been adapted to the hardware changes and loaded into the system. The reset synchronizes the port placement sequence in the system with that of the CDB.

Procedure: Exchanging Boards (not with HiPath 3250 and HiPath 3150)

Step	Action
1.	Disconnect the system from the power supply.
2.	Remove the board(s).
3.	Restart the system by plugging in the power plug.
4.	Delete board slot using BOF (29-4).
5.	Reconnect system to power supply.
6.	Insert new board(s).
7.	Restart system by plugging in power plug.

Step	Action
8.	Load customer data from the system. Adapt customer data to new hardware configuration. Configure new board(s) (stations, for example).
9.	Load new customer data into the system.

12.4.2 Exchanging Telephones

You can add or remove telephones while the system is in operation. The data in the removed telephones is retained.

In case of various optiPoint 500 or optiset E telephone models, meaning ones that have a different number of programmable keys, the keypad layout of the previous model is retained. key modules that are not plugged in retain their technical features. With the HiPath 3000 Manager E, you can delete the key modules that are not plugged in and remove the keys that are no longer available.

12.5 Diagnosis Options

12.5.1 Recording Board Status

12.5.1.1 Central Control Boards

Run LED

A Run LED that displays the system's operating capacity is located on all central control boards of the HiPath 3000 product line.

Table 12-2 Run LED - Meaning of the LED Status

Run LED	Meaning
off	Power outage
on	Reset key quickly pressed
off	Reset key pressed longer than 5 s (LED disappears as verification for initiating a reload.)
on	System boot
off for 0.1 s	Loading operation: APS in SDRAM / Loadware / Card data
blinking 0.5 s on/0.5 s off	Normal operating condition (zero load)[1]
blinking 0.1 s on/0.1 s off	MMC removed or defective

1 The blinking rhythm depends on the load. The higher the load, the slower the blinking rhythm.

Options Avaliable?

You can call up the following options using the HiPath 3000 Manager E:

- CMA
- CMS
- LIM
- IMODC
- MPPI, AM (only with HiPath 3250, HiPath 3150), UAM (only with HiPath 3550, HiPath 3350) or UAMR (only with HiPath 3500, HiPath 3300)
  The presence of one of these announcement and music modules is displayed as Option 5". The ALUM4 module cannot be displayed.

12.5.1.2 Power Supplies

Table 12-3 Power Supply Status Displays

Board	Status Display
HiPath 3750, HiPath 3700	
UPSM	The LED displays the operating status (on or off)
HiPath 3550, HiPath 3350, HiPath 3500, HiPath 3300	
PSUC, PSUCR	The LED displays the 5 V output voltage.
PSUP, PSUPR	The LED displays the 5 V output voltage.
UPSC-D, UPSC-DR	• A green LED displays the 5 V output voltage. • A yellow LED displays the additional power of –48 V output voltage provided by an external power supply unit (EPSU2 or EPSU2R).
HiPath 3250, HiPath 3150	
PSU One	The LED displays the operating status (on or off).

12.5.1.3 Peripheral Boards

View Status of Peripheral Boards

You can use HiPath 3000 Manager E or Assistant T to view the statuses of all peripheral boards. Display is limited to the following statuses per board:

- Board not inserted
- Board defective (not loaded)
- Board disabled
- Board enabled (active)
- Board busy (at least one station or line from this board is disconnected, is being called, or is busy).

For ISDN boards, the status of the reference clock is displayed:

- No reference clock
- Reference clock for clock generator is created.

When viewing the status of the board using the HiPath 3000 Manager E, all peripheral boards integrated into the system are presented in a table. The status display is updated every 3 seconds.

With the Assistant T, you can only view the status of one board at a time. You can also update the status display by pressing a key.

You cannot perform additional activities with the HiPath 3000 Manager E and Assistant T while viewing the status of a board.

Table 12-4 HiPath 3000 Manager E - Example of Status Display of Peripheral Boards

Slot	Board	Not inserted	Defective	Locked out	Idle	Busy	Clock source
1	STLS2			X		X	X
2	SLU8		X				
3	SLA4			X	X		
4	TLA8		X				
5							
6							
7	TS2			X	X		
8	SLA16	X					
9							
10	SLMO24				X		

HiPath 3750 and HiPath 3700: LEDs on Peripheral Boards

All peripheral boards are equipped with LEDs for displaying the status of a board or port. Information on the meaning of the individual LED statuses can be found in the descriptions of individual boards in Chapter 3.

Locking out and Releasing Boards and Ports

Using the HiPath 3000 Manager E and Assistant T, you can lock out a complete station or trunk module. Lockout prevents the connection from being seized again after the current connection has ended. Lockout or release settings are also retained after a reset.

You cannot lock out the first SLMO/SLU board because administration through the Assistant T uses its first two ports.

If you try to lock out the last active trunk, you will be notified that remote service through the service center is no longer possible.

12.5.2 Recording Trunk Status

HiPath 3000 record the current status of each individual trunk in a table. If the status changes, the new status along with the time stamp is entered. You can use HiPath 3000 Manager E to view the trunk status, in which case the following information is provided.

Data	Content
Date	Date of the event (as stored in system)
Time	Time of the event (as stored in system)
Trunk number	Number of the trunk
Slot/Port	Slot and port number
Status	• Trunk status: – Inactive – Incoming call – Outgoing call – Trunk-to-trunk connection – Trunk disabled (using lockout switch or HiPath 3000 Manager E) – Trunk failure • Number of the connected station

12.5.3 Recording Station Status

HiPath 3000 record the current status of each individual station in a table. You can use HiPath 3000 Manager E to view the station status, in which case the following information is provided.

Data	Content
Station name	Name of the selected station
Slot / Port	For example: 7-1
Telephone model	For example: optiPoint 500 advance
Telephone status	Active / inactive
DID number	External number of the selected station
Language	Menu language of selected station
Connection status	• Inactive: The telephone is idle. • Busy: The telephone is off the hook, but not yet dialed. • Waiting: The telephone call is in the queue. • Connected: The telephone is connected to a second telephone with a trunk or a hunt group member. • Holding: The telephone is on hold. • Error: The connection cannot be established due to an error (invalid telephone number). • Call: The telephone is called.
Connected to	The number of the connected station or trunk
Forwarding status	• Off: No call forwarding activated. • Internal: Call forwarding activated only for internal calls. • External: Call forwarding activated only for external calls. • All: Call forwarding activated for all calls.
Destination	Number of call forwarding destination

Data	Content
Activated features	Status of activated features (on or off): • Do not disturb • Call forwarding (device status) • Advisory text • Room monitor • Code lock • Station number suppression • Group ringing • Ringer connection • Hunt group • Silent call waiting • Handsfree answerback • Call waiting release • Transfer of ringing (only for MULAP) • Call forwarding MULAP (only for MULAP)
Connected station	List of the connected stations

12.5.4 Recording the Status of the V.24 Interface

You can use HiPath 3000 Manager E to view the current status of the V.24 interface, in which case the following information is provided.

- Status of the trunks (1 = active trunk, 0 = inactive trunk)
  The individual trunks are assigned as follows:
  DTR = HiPath 3000
  DSR = Telephone
  RTS = HiPath 3000
  CTS = Telephone

  Viewing the status of the V.24 interface enables falsely connected or damaged cables to be recorded (For more information on this, refer to Help in the HiPath 3000 Manager E.).

- V.24 Monitoring
  The number of sent or received bytes within a time period to be selected can be recorded and then displayed or saved using a text editor (default = MS WordPad®).

The failure and restart of a V.24 interface generates an entry in the error history and releases a remote error signal (V.24 failure = “Check printer” error message, V.24 re-start = Withdrawal of error message). The interface is not supported by the optiset E control adapters (see Section 7.14.10, Printer Pipe Mode (V.24 [RS-232] Range Extension for Call Data), on page 7-506).

12.5.5 Trace Options

Tracing ISDN Activities

This feature enables ISDN telephones and ISDN trunks to be traced in real-time. ISDN activities are routed to HiPath 3000 Manager E and saved in a trace file. Only the ISDN sequences are displayed on the monitor, not the content of the ISDN messages.

For recording errors, the Tracestop can be

- coupled to a certain error number.
- acitvated using remote access.
- activated manually from a telephone (if the customer discovers an error such as double connections).

If the trace session is over, you can start the **ISDN Message Decoder** (ISDN Tracer) and use it to convert the trace file into a readable format (only English). You can also read out the trace data using remote service.

The ISDN Message Decoder is a 32 bit application which converts the ISDN layer 3 messages and information elements into a readable format. Since you cannot find out from the trace file whether it deals with an information element from a Euro ISDN or a QSig configuration, you have to select the protocol. You may select the following settings from the main menu:

- Raw (default setting)
- Euro ISDN
- QSig V1

With the “Raw” setting, the Hex values are only decoded, not interpreted. With the other two settings, the Hex values are decoded and interpreted per feature (CC, AOC, ...).

Tracing Call-related Activities

You can trace all activities from any telephone, trunk, etc., that is released by a call. These include consultation calls, conference calls, hunt groups, for example.

12.5.6 Error History

HiPath 3000 provides an error history where accrued errors are classified according to error class and error number. It also includes the date and time the error occurred. You can use HiPath 3000 Manager E to read out the error memory.

Section 12.6 provides information on error classification.

12.5.7 Testing Telephones

After startup and country adaptation, you can activate the telephone test on any optiPoint 500 or optiset E telephone using a code or the service menu. This test checks the display (your number is displayed), LEDs, and calls. The tests ends automatically after a period of time.

During the test, you can satisfy yourself that the visual and audio components function properly.

Test Procedure on the System Telephone

Table 12-5 Telephone Test

Step	Entry	Explanation
1.	*940	Code for telephone test
2.	–	For approximately five seconds, all LEDs blink quickly (except for the Service menu LED), all display pixels are activated, and you can hear a tone.

If the test does not react as described, an additional power supply (plug-in power supply unit) for the relevant system telephone may be necessary.

If the time and date do not appear in the display after startup, either the system telephone or the cable path is defective. Either exchange the system telephone or check the cable path.

12.5.8 Analyzing System-wide Use of Feature

HiPath 3000 has counters that record the system-wide use of features, such as caller list, call forwarding, busy override. You can view the counter statuses using HiPath 3000 Manager E.

12.6 Error Messages

Classification

Accrued errors are classified according to error class and error number. The three different error classes are described below:

- **Error Class A** = Customer-related error
  HiPath 3000 Manager E fails to issue a signal or message. Class A errors are indicated on the optiPoint Attendant display. The customer can correct them without service support.
  The only error messages currently included are: “Printer alarm” (caused by empty paper tray), “Fan failure” (caused by the fan breaking down in the 19” HiPath 3500 and HiPath 3300 housing) and “Revisor alarm” (caused by an overflow in the MMC log area).

  For U.S. only: INVALID SPID (HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300) signals that the service profile identifier (SPID) for BRI ISDN is incorrect. Refer to Section 8.11.2, Examples for Configuring BRI Trunks (for U.S. Only), on page 8-28 for information on entering the SPID.

- **Error Class B** = Service-related errors
  The HiPath 3000 Manager E signals Class B errors, which can be automatically forward to a service center.
  Errors of this class are caused by failure of the boards, individual ports, or trunks. You can generally correct these errors by replacing the hardware, reconfiguring the customer database, or by working together with the carrier. Table 12-6 lists all Class B errors.

- **Error Class C** = Development-related errors
  HiPath 3000 Manager E fails to issue a signal/message.
  Class C errors require diagnosis and problem analysis by specialists.

Class B Error Messages

The actions for correcting errors specified in the below table are described as follows:

- Recovery Action
  are actions for correcting errors that are automatically triggered by the system software (board reload, for example).

- Technician Action
  are actions that have to be performed by a service technician if the error is not corrected automatically. This may be the case with hardware malfunctions or configuration errors.

Table 12-6 Class B Error Messages

No.	Meaning	Recovery Action	Technician Action
Error Class B-01 - HiPath 3000 Manager E			
3	Hard restart	Hard restart	–
10	Hard restart using SNMP	Hard restart	–
14	Changes to the database “on-site”	–	–
15	Changes to the database “remote” (remote service)”	–	–
16	Message to APS Transfer	–	–
17	No authorization to access IP address on HiPath 3000 (IP Adr in Data[1...4])	–	Unauthorized access attempt. If necessary, configure SNMP community/ application firewall.
18	Overflow in the MMC log area (Logfile)	–	Read out Logfile
19	Sensor alarm: Fan failure (19” housing for HiPath 3000)	–	Check to see if the fan has broken down and/or if the ventilation openings in the housing are unblocked.
20	Overflow in the CDR buffer (CDR information)	–	Check interfaces (V.24, LAN)
21	Error when identifying (Name) and authenticating (Password): from HiPath 3000 Manager E –> Data[0] = 0, Data[1..9] = SNMP station number-> Data[0] = 1, Data[1..4] = IP Address	–	Unauthorized access attempt. If necessary, configure SNMP community.
22	Flash area deleted	–	APS transfer possible again
23	SNMP process stopped	–	Perform hard restart
24	No access authorization for IP application (IP add in Data[1...4])	–	Unauthorized access attempt. If necessary, configure application firewall (IP address / application flag).
Error Class B-09 - Hardware			
0	Microprocessor: Error	Reload board	Replace board

Table 12-6 Class B Error Messages

No.	Meaning	Recovery Action	Technician Action
1	Microprocessor: Error corrected	–	–
2	Loadware RAM: Error	Reload board	Replace board
3	Loadware RAM: Error corrected	–	–
29	Line interruption	–	Check line
30	Short circuit	–	Check line
31	Low voltage	–	Check voltage
32	Thermal overload	–	–
34	Frame loss S_0: Error	–	Check line
35	Frame loss S_0: Error corrected	–	–
36	Data slip S_0: Error	–	Check line
37	Data slip S_0: Error corrected	–	–
38	Alarm display S_{2M}: Error	–	Check line
39	Alarm display S_{2M}: Error corrected	–	–
42	No signal S_{2M}: Error	–	Check line
43	No signal S_{2M}: Error corrected	–	–
44	Receiver remote alarm S_{2M}: Error	–	Check line
45	Receiver remote alarm S_{2M}: Error corrected	–	–
48	Bit rate error S_{2M}: Error	–	Check line
49	Bit rate error S_{2M}: Error corrected	–	–
50	Loss of synchronization S_{2M}: Error	–	Check line
51	Loss of synchronization S_{2M}: Error corrected	–	–
58	Board self-test $U_{P0/E}$: Error	–	Replace board
59	Board self-test $U_{P0/E}$: Error corrected	–	–
61	Overcurrent $U_{P0/E}$: Error	–	Replace board
62	Overcurrent $U_{P0/E}$: Error corrected	–	–
65	Out of buffers $U_{P0/E}$/CMI: Error	–	–
66	Out of buffers $U_{P0/E}$/CMI: Error corrected	–	–

Table 12-6 Class B Error Messages

No.	Meaning	Recovery Action	Technician Action
Error Class B-11 - General Errors			
58	Too many layer 1 errors	–	Check line, possibly replace board
Error Class B-12 - Processor Exception			
0	Reset initial stack pointer	Hard restart	Notify appropriate service support
1	Reset initial program counter	Hard restart	
2	Interrupt access error	Hard restart	
3	Interrupt address error	Hard restart	
4	Interrupt, command not permitted	Hard restart	
5	Interrupt, division by zero	Hard restart	
6	Invalid opcode exception	Hard restart	
7	TRAP C or TRAP V instruction	Hard restart	
8	Security violation	Hard restart	
9	Trace	Hard restart	
10	Line 1010 emulator	Hard restart	
11	Line 1111 emulator	Hard restart	
12	Hardware breakpoint (CBFC: possibly EXTEB error)	Hard restart	
13	Co-processor, security violation	Hard restart	
14	Formatting error, unwanted interrupt	Hard restart	
15	Formatting error, unwanted interrupt	Hard restart	
Error Class B-15 - APS Transfer			
0	APS transfer successful	APS transfer	–
1	APS transfer successful, CDB OK	–	–
2	APS transfer successful, default CDB loaded	–	–
3	Error in CRC checksum	–	Check transferred APS version and retransfer APS. If error is still present, replace MMC module.
4	Return to old APS, default CDB loaded	–	
5	Return to old APS, old CDB loaded	–	
6	APS transfer interrupted	–	Transfer APS again

Table 12-6 Class B Error Messages

No.	Meaning	Recovery Action	Technician Action
7	Country data successfully transferred	–	–
8	Error occurred while deleting old APS on MMC	–	Transfer APS again. If the error is still present, replace the MMC module.
9	Block length error during APS transfer	–	Transfer APS again
10	Remaining length error during APS transfer	–	Transfer APS again
Error Class B-16 - General Errors			
1	Error in pool administration (rel_pool_ele)	Hard restart	Notify appropriate service support
2	Error in pool administration (get_trans_store)	Hard restart	
3	Error in pool administration (get_trans_store)	Hard restart	
4	Error during COSMOS send call	Hard restart	
5	Error during COSMOS timer call	Hard restart	
6	Error during COSMOS receive call	Hard restart	
7	COSMOS records error (recovery)	Hard restart	
8	Error while handling real-time clock	–	
9	Watchdog error	Hard restart	
10	Manual hard restart	–	–
11	Manual reload	–	–
12	System had no voltage	–	Notify appropriate service support
13	Automatic customer data backup (CDB backup) not performed	–	
14	Unidentified hard restart	–	–
15	Error while generating logfile	–	Notify appropriate service support
16	Pool error	–	
17	CTXT acceptance error	–	
20	Required data length exceeds permitted range	Hard restart	
21	Allocation fails	Hard restart	

Table 12-6 Class B Error Messages

No.	Meaning	Recovery Action	Technician Action
Error Class B-20 - Call Processing			
0	Error in pointer administration	Hard restart	Notify appropriate service support
1	Maximum number of stations achieved	–	Reduce stations
2	RS232: Interface not present (DSR)	–	Check interface
11	RS232: Interface ready (DSR)	–	–
13	All routes allocated	Hard restart	Notify appropriate service support
Error Class B-21 - Device Handler			
0	No dial tone detected	–	Use headset to check dial tone. If there is no dial tone, replace board.
1	Dial tone detected	–	–
7	Reference clock on	–	–
8	Reference clock off	–	–
11	Fan alarm (19” housing for HiPath 3500 or HiPath 3300): Error	–	Check to see if the fan has broken down and/or if the ventilation openings in the housing are unblocked.
12	Fan alarm (19” housing for HiPath 3500 or HiPath 3300): Error corrected	–	–
13	No response from temperature sensor in the 19” housing for HiPath 3500 or HiPath 3300	–	Replace CBRC/CBRP
14	Overload Code Receiver CR	–	Check if these errors occur repeatedly or only sporadically. If the errors occur repeatedly, • an additional CR8N board can be used for HiPath 3750 and HiPath 3700. • an upgrade to the next highest system may be necessary for all other systems.
15	Overload Code Sender CS	–	

Table 12-6 Class B Error Messages

No.	Meaning	Recovery Action	Technician Action
Error Class B-23 - Network			
60	System hold no buffer available	Hard restart	Notify appropriate service support
Error Class B-26 - Presence			
0	Unknown board model	–	Replace board
1	Board out of order	Reload board	–
2	Maximum number of peripheral boards exceeded	–	Reduce peripheral boards to maximum number
3	Board type not compatible, slot is already pre-assigned with a different board model	–	Replace board
4	Board is activated	–	–
Error Class B-28 - Recovery			
0	COSMOS- error: Data transmission not possible	Hard restart	Notify appropriate service support
Error Class B-29 - IOP			
0	COSMOS error	Hard restart	Notify appropriate service support
20	Port table queue is empty	Hard restart	
24	Board malfunction	Reload board	–
25	Board reset was detected	Reload board	–
35	No ELIC interrupts	Hard restart	Notify appropriate service support
36	SDRAM: Access to protected area	Hard restart	
37	SDRAM: Write error, wrong address	Hard restart	
38	SDRAM: Read error, wrong address	–	
Error Class B-30 - Firmware/Loadware			
6	HDLC Controller-Error on board	Reload board	Replace board
Error Class B-40 - MMC			
0	MMC defective	Hard restart	Replace MMC

Table 12-6 Class B Error Messages

No.	Meaning	Recovery Action	Technician Action
Error Class B-41 - LAN			
4	Send: Ethernet driver not ready	–	For errors that appear sporadically, no action is necessary. For errors that appear regularly, replace the LIM module. If this does not correct the error, check the LAN configuration.
8	Send: More than 15 futile attempts	–	
9	Send: Delayed collision detection	–	
10	Send: Carrier loss	–	
11	Receive: Frame error	–	
12	Receive: FIFO error	–	
13	Receive: Checksum error	–	
14	Receive: Defective receiving buffer	–	
15	Receive: Frame too short	–	
16	Receive: Frame too long	–	
17	Receive: Delayed collision recognition	–	
18	Receive: Partial deletion of data due to the existing write protection.	–	

12.7 Correcting Errors

12.7.1 Automatic Error Correction

One of the below recovery actions is assigned to each error in the error memory. These recovery actions are programmed to automatically correct errors that occur.

- Hard restart
- Reload board
- Reload CDB backup
- Port lockout
- Power failure transfer (loop start)
- None

A watchdog activates continuous loops.

If no recovery measure is assigned or if the one that is assigned fails, a service technician has to correct the error manually.

12.7.2 Manual Error Correction Without HiPath 3000 Manager E

Manually Activating Restart (Reset)/Reload

Pressing the reset button on the central control board

- initiates a **Reset** (Hard restart of the entire system with the current CDB) if the button is pressed for less than 5 seconds. The Run LED lights up when the Reset button is pressed.
- initiates a **Reload** if the button is pressed longer than 5 seconds. The Run LED disappears after approximately 5 seconds as verification that the reload has been initiated. The entire content of the customer database is replaced by its default version. All country and customer-specific settings are lost.

Locking out and Releasing Boards and Ports

You can lock out and release ports using the lockout switch located on the board. Lockout prevents renewed seizure after the current connection has finished. It creates

- a port lockout in an outgoing direction on analog trunk boards.
- a port lockout in outgoing and incoming directions on trunk boards.
- a lockout of the entire board for subscriber line modules.

12.7.3 Manual Error Correction With HiPath 3000 Manager E

Initiating Restart (Reset)

This initiates an immediate hard restart of the entire system with the current CDB.

Initiating Reload Card

This the single board (loading Loadware) to reload.

Locking out and Releasing Boards and Ports

HiPath 3000 Manager E enables you to lock out an entire subscriber line module or line circuit module and individual ports. The lockout prevents renewed seizure after the current connection has finished. Release or lockout settings are retained after a reset.

However, you cannot lock out the first SLMO/SLU board because administration through Assistant T runs on its first two ports.

When attempting to lock out the last active trunk, you are subsequently notified that remote service through the service center is no longer possible.

You cannot use HiPath 3000 Manager E to release boards and ports locked out with the lockout switch.

Power Failure Transfer

You cannot initiate a power failure transfer to analog telephones using HiPath 3000 Manager E.

12.8 Remote Service

Definition

Remote service is described as communication between the service center and HiPath 3000 using public telecommunications networks to fulfill service tasks. These tasks are

- remote system administration,
- remote administration of Plus products via the system,
- remote correction of system software (APS transfer),
- automatic signaling of error messages.

Remote service facilitates the administration and maintenance of various communication systems from a central location. An integrated digital modem (B channel) or an integrated analog modem ((IMODC) can be used to connect to the system.

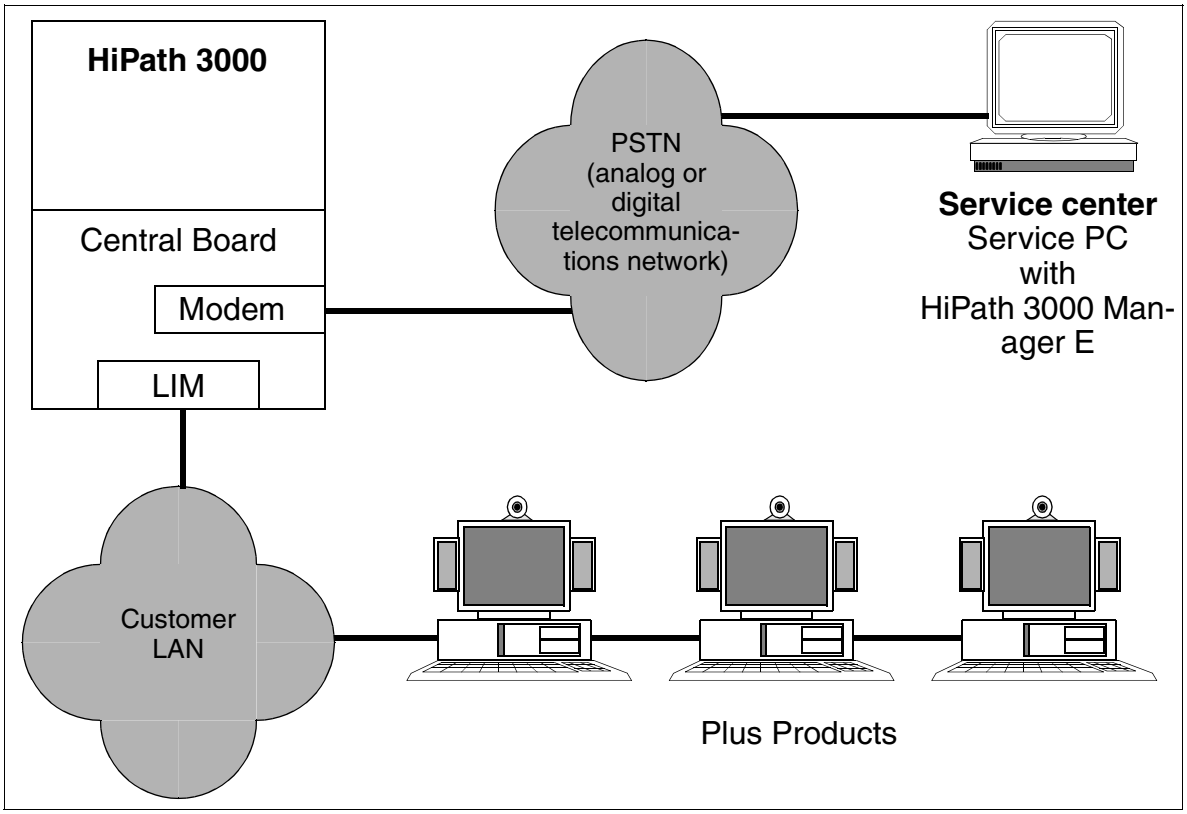


Figure 12-1 Example of Remote Service

Integrated Analog Modem (IMODC)

This modem enables remote access to all systems (not HiPath 3250 and HiPath 3150) in the HiPath 3000 product line. Access is achieved using any trunks, tie trunks, and all subscriber lines. The IMODC is designed as a plug-in card.

Caution
Be sure to disconnect the system from the power supply before removing or inserting integrated analog modems (IMODC).

The IMODC is treated as a pseudo port. It receives a number in the system that can be reached internally through direct internal dialing (DID). You can cancel the DID number manually to prevent external access.

The following codes and parameters apply when the analog modem is in operation:

- Transmission to V.22bis (2400 Bd), V.32 (9600 Bd), V.32bis (14400 Bd)
- Error correction to V.42, MNP 2-4
- Data compression to V.42bis, MNP 5

Integrated digital Modem (B Channel)

An integrated B channel modem is available with all systems in the HiPath 3000 product line. This type of modem facilitates remote access using both digital trunks, tie trunks, as well as S_0 subscriber lines. Data transmission is supported according to Protocol X.75.

The digital modem is treated as a pseudo port. It receives a number in the system that can be reached internally and through direct internal dialing. You can cancel the DID number manually to prevent external access.

Access to the analog/digital modem

The customer must enable the access to both modems by entering a 6-digit PIN code. If the service center is to make a connection to the HiPath 3000 over a modem, it may be necessary to enter this individual code. It depends on which trunk type is used for the modem access. The following applies to the system default:

- Access over ISDN trunk = enable procedure: customer must enter PIN code.
- Access over another trunk = login without code: PIN code is not necessary.

If necessary, the system administration (only by using Assistant T) can reset the PIN code back to the default value.

12.8.1 Remote System Administration

12.8.1.1 Remote Administration with HiPath 3000 Manager E

To establish a remote connection between HiPath 3000 and the service center (HiPath 3000 Manager E), the following options are available:

- Callback
- Service call using a code
- Automatic error signaling

Any one of these options establishes a connection using the integrated digital modem (B channel) or the integrated analog modem (IMODC).

Callback

HiPath 3000 can manage up to 6 different callback indeces (callback passwords and their relevant callback numbers), in which case the first callback connection is also the destination of the automatic error signaling. For each callback connection, you can select either the digital modem (B channel) or the analog modem (IMODC).

If you have chosen your settings and selected the connection setup option “Callback activated”, the HiPath 3000 Manager E can dial in to the system. HiPath 3000 register the callback destination and saves the callback index. After 10 s, the HiPath 3000 initiates the actual callback with the number which is linked using the callback index. As soon as the connection is established, you can use HiPath 3000 Manager E to manage the system.

If no connection is established, HiPath 3000 will make a total of 20 attempts in intervals of 10 s after which the callback attempt ends. You then have to start it up again with HiPath 3000 Manager E.

Service Call Using a Code

You can use any telephone to initiate a HiPath 3000 service call to the service center by selecting the connection setup option “Service call using a code” and activating the feature “Remote access immediately after installation”. In contrast to the usual callback procedure, this callback (service call) is not activated by HiPath 3000 Manager E itself, but by any telephone you choose. Callback initiatization is essentially skipped.

The service call destinations are the six callback indeces that also apply to callback. You are not required to enter the relevant passwords.

The service center wait time for one service call is limited to 15 minutes, though you can end it manually at any time.

Procedure: Activate the feature “Remote access immediately after installation”.

Step	Entry	Explanation
1.	*994	Enter code for “Remote access immediately after installation”
2.	X	Select callback index (0 ... 6 possible)
3.	XXXXXXX	Possibly select a suffix number (max. 11 digits) The suffix selects the remote PC in the service center.
4.	✓ or #	Press “OK” or the “#” button.

Automatic Error Correction

Error Class B errors can be transferred to a service center automatically. For more information on this, see Section 12.8.3.

12.8.1.2 DTMF Remote Administration

This feature facilitates remote system administration by transmitting DTMF signals. The user interface (menu prompt) is the same as that of the Assistant T for system administration on site.

DTMF remote administration can be performed using either the analog or digital trunks.

12.8.2 Remote Correction of System Software (APS)

The service center performs the APS transfer (see Section 12.3.2).

12.8.3 Remote Error Signaling

Error Class B errors can be automatically transferred to a service center. To do this, the “Error signaling” flag has to be activated and a number entered under the callback index 1.

To register an error message, the HiPath 3000 Manager E that is dialed at the service center must be in Receive mode. If an error message is received, the HiPath 3000 Manager E automatically creates a file in which the error is entered. If another error occurs, it is entered in the same file behind the previous entry.

The error report consists of one header and the error information that is transmitted in binary form. The header contains a unique identifier that recognizes the customer system that sent the error reports.

12.8.4 Controlled Release of a Remote Connection

With Version 1.2 and later, you can initiate the controlled release of a remote connection (with analog or digital modem) between the HiPath 3000 and HiPath 3000 Manager E as follows:

- Disconnect according to action (Default setting)
  After completing an action (CDB backup or APS transfer, for example), the remote connection is automatically disconnected.
- Disconnect according to release time
  After completing an action (CDB backup or APS transfer, for example) and the adjustable release time sequence (60 ... 9999 s), the remote connection is disconnected.
- “Hang up” button
  By pressing this button, you can disconnect the remote connection manually.

Use HiPath 3000 Manager E to select any one of these options.

12.8.5 Remote Administration and Access Using PPP

You can establish a connection between the system/Plus product and the service center using either the integrated digital modem (B channel) or the integrated analog modem (IMODC). Data is exchanged in both cases using Point-to-Point-Protocols (PPP).

For more detailed information on the possible functions, see Chapter 13, “HiPath 3000 on a LAN”.

12.8.5.1 Remote System Administration

You can also operate HiPath 3000 Manager E in conjunction with the relevant infrastructure (RDT network,router) using PPP.

For more information on this, see Section 13.9.

12.8.5.2 Remote Administration of Plus Products

You can manage Plus products from a central location using HiPath 3000. However, HiPath 3000 only provide the means of transmission. Actual administration of the Plus product is done using special software programs like pcANYWHERE.

For more information on this, see Section 13.10.

12.8.5.3 Remote Error Signaling Using SNMP

Plus products and the HiPath 3000 can transmit error messages (SNMP traps) to the service center.

For more information on this, see Section 13.3.

12.9 Access Security

12.9.1 Logon With User Name and Password

Security

To ensure that authorized users have access to the HiPath 3000 and to prevent unauthorized accesses, users must be identified by a user name and authorized by a password. This applies to all local and remote administration and maintenance procedures using HiPath 3000 Manager E, Assistant T, HiPath 3000 Manager C, Assistant TC, and AMHOST.

After the first system startup and during country initialization, you can select between the following security options:

- variable password (default)
- fixed password

Example of first-time login with Assistant T

Step	Entry	Explanation
1.	*95	Start system administration
2.	31994	Default user name
3.	31994	Default password

For optiset E memory telephones, only alphanumeric characters can be used. Therefore, when changing the user name or password with the Assistant T/Assistant TC, you may enter additional characters as long as you never use the optiset E memory.

Step	Entry	Explanation
4.	XXXXX	A new password is requested (max. 15 digits).
5.	XXXXX	Confirmation of the password entered in Step 4 is requested.
6.	29-5	Country initialization
7.	X	Selection of password type is requested: 1 = Variable password 2 = Fixed password

Step	Entry	Explanation
8.	XX	Country code is requested (see page A-30). The system subsequently boots up with the country-specific default information.
Notes: • On Step 4 and Step 5: If a new password is issued, both steps are omitted when calling the system again. • On Step 6: No country adjustment is necessary for Germany because the system starts up with German codes. • On Step 7: When selecting the fixed password, the default password (31994) overwrites the new password entered under Step 4.		

Variable Password

Up to 16 users can be assigned their own user ID with individual name, password, and a user group consisting of six pre-determined user groups (in Table 12-7). Only the data authorized for the relevant user group can be read and administered.

During the first login, the system requests the identity of the user and asks for a new password (max. 15 characters from the optiPoint 500 or optiset E character set). This then overwrites the default user name (31994) and default password (31994). This first user is then automatically assigned to the user group “System Maintenance”. The system informs the user that no user is configured in the system and that the user has been assigned with “System Maintenance” authorization. Using HiPath 3000 Manager E or Assistant T, additional users and their passwords can be configured in the user administration.

If a user forgets a password, it has to be deleted and reconfigured by a different authorized user. If all authorized users forget their passwords, the system must be regenerated.

Fixed Password

When using the fixed password, only fixed user groups with unchangeable default user names and default passwords are used. Also, new users cannot be configured in the user administration.

Changing Password Types

Only with Assistant T can you change from a variable password to a fixed password type and vice versa. To do this, you have to re-initialize the country settings. This switches the entire content of the customer database (including user names and passwords) to a default state.

If you perform country initialization in a system with a variable password, the previously created user names and passwords remain intact as long as you do not subsequently change the password type.

If a CDB is read from a system in which the default user names and passwords were changed, this CDB cannot be loaded into a HiPath 3000 system that was changed to a fixed password type. Before reading this CDB, you have to set up a user (user name and password) in the system that matches a user group with a fixed password. Once this user has been set up, the CDB can be read from the HiPath 3000. With this user name and ID, you can now load the CDB into the system switched to the fixed password type.

12.9.2 Pre-determined User Groups and Their Access Rights

User Groups With a Variable Password

The following table shows the six pre-determined user groups and their access rights.

Table 12-7 Variable Password: Pre-determined User Groups and Their Access Rights

No.	User rights / User groups	User admin.	Audit	System maint. (Service)	Customer admin. (Customer)	Accounting	Development
1.	• Setting up/deleting users • Assigning users to user groups	X		X[1]			
2.	• Assessing and archiving backup-related log files • Reader rights to system data (for example, error memory), not including confidential customer information		X	X[2]			
3.	• Access rights to all system data (not including development access rights) as long as no users are assigned to other user groups.			X			
4.	• Access rights to confidential customer information • Executing customer actions (for example, printing certain lists)			X[3]	X		
5.	• Access rigths to non-confidential customer information			X	X		
6.	• Access rights to parameters and call detail recording actions (not including interface parameters for output device)			X[3, 4]	X[4]	X	
7.	• Access rights of the “System Maintenance” user group • Setting and reading certain parameters to which no other user group has access.						X

1 As long as no user is assigned to the “User Administration” user group.
2 As long as no user is assigned to the “Audit” user group.
3 As long as no user is assigned to the “Customer administration” user group.
4 As long as no user is assigned to the “Accounting” user group.

User Groups With a Fixed Password

The following table shows the unchangeable user groups and their rights.

Table 12-8 Fixed Password: Fixed User Groups and Their Access Rights

No.	User groups User rights	System maint. (Service) Name/Password= 31994/31994	Customer admin. (Cust.) Name/Password: – Assistant TC=*95/(Password not necessary) – Assistant C=office/office	Development
1.	● Assessing and archiving backup-related log files ● Reader rights to system data (for example, error memory), not including confidential customer data	X		X
2.	● Access rights to all system data (not including development access rights)	X		X
3.	● Access rights to confidential customer information ● Executing customer actions (for example, printing out certain lists)	X	X	X
4.	● Access rights to non-confidential customer information	X	X	X
5.	● Access rights to parameters and call detail recording actions (not including interface parameters for the output device)		X	
6.	● Setting up and reading certain parameters to which no other user group has access.			X

12.9.3 System Access Options

The user's access rights, meaning the data that the user may read or manage, always depend on the user group to which the user is assigned.

Service Tools

- Assistant T and Assistant TC
  Log in by entering your user name and password (regardless of code lock)
  The system can only be accessed using the first two $U_{P0/E}$ connections from the first SLMO/SLU board in the system.
- HiPath 3000 Manager E and HiPath 3000 Manager C (local)
  Log in by entering your user name and password.
- HiPath 3000 Manager E (remote), direct connection
  Log in by entering your user name and password.
  The system can be accessed directly using the integrated digital modem (B channel) or the integrated analog modem. However, the user is required to establish a 5 digit access code beforehand.
- HiPath 3000 Manager E (remote), callback connection
  Log in by entering your user name and password.
  The system can be accessed using the integrated digital modem (B channel) or the integrated analog modem. However, you have to set up a callback index beforehand.

AMHOST

The AMHOST (Administration and Maintenance via HOST) feature allows Plus products to read certain system information and to change it, if necessary. To enable Plus products to access the system, you have to set up a user without a user group in the HiPath 3000 default user administration. Enter "AMHOST" as the user name and "77777" as the default user password.

You can only change this password if the system is configured using a variable password. In this case, delete the "AMHOST" user and reconfigure the system with the same user name and a new password.

Chip Card Reader (only for Deutsche Telekom AG)

You cannot switch to a fixed password if using a system from Deutsche Telekom AG .

This feature allows for additional security measures due to an identification and authentication procedure that ensures proper access to Deutsche Telekom AG communication systems and prevents unauthorized access.

You can activate this feature by using a chip card. The service PCs at Deutsche Telekom AG are equipped with chip card readers that allow the PCs to boot only if the chip card recognizes the technician's individual chip card ID and if the password is entered correctly. The chip card is also configured to recognize whether or not access to the Octopus E system family exists.

To permit access to both user groups as well as individual technicians, you can decide, when logging on, whether you want to log on using the group ID in the chip card or your individual ID. In both cases, the logon information is entered in a log file to ensure that you, the chip card, user can be directly retraced.

Each Octopus system is provided with a default name and default password. When you first log in, if

- no chip card is recognized, you have to access the service PC using the default name and password.
- a chip card is recognized, the user administration starts up immediately.

In both cases, when logging on for the first time, you are required to enter the following in the user administration:

- User name
- User group (User Administration, Audit, System Maintenance, Administration, Accounting, Development)
- Password

These entries overwrite the default name and default password.

You can enter additional chip card users in the user administration manually or using the chip card.

12.9.4 Customer Data Security

When saving a customer database on the hard disk, a user table (part of the user administration) with user name and encrypted passwords are also saved. This guarantees access security when the customer database is opened offline later on.

When opening the customer database offline, you are requested to enter your user name and password. The data that you enter is compared to the data in the user table. In this case, the user group verified during this process also determines the access rights.

When loading an offline customer database into HiPath 3000, the user table that goes with it should not be loaded into the system. Otherwise, the system-specific user administration would be distorted.

When you generate a default customer database offline, a default user table is also set up. If you generate a customer database like this, you can only load it into a default system.

12.10 Automatic Logging of Administration Procedures

Definition

All accesses to customer-related data in the HiPath 3000 are automatically logged in an area of the MMC (LOG area) reserved for this purpose. The information recorded includes who the user is, the data manipulated by the user, and the time. An authorized user (member of the “Audit” user group) can transfer the system data to a PC and assess it.

12.10.1 Logging

A log entry contains the following information:

- Date and time
- User name and user group
- Type of activity (format identification) and activity (command entry)

12.10.1.1 Format Identification and Command Entry

The following format information is logged:

- Assistant T (1)
  All activities are logged, regardless of system access. The respective code with the most important parameters is recorded as the command entry (for example, station, number).
- Assistant TC (2)
  Same as Assistant T (1)
- Session Information (3)
  The system access is logged, regardless whether it is logged using Assistant T, HiPath 3000 Manager E, or other systems. Possible command entries are:
  A0-1 = Login procedure
  A0-2 = Logout procedure
  A0-3 = Unauthorized login attempt
- HiPath 3000 Manager E Database (4)
  Access to the database is logged using HiPath 3000 Manager E. Possible command entries are:
  A1-1 = Database read
  A1-2 = Regeneration of CDB (Load CDB into the system)
  A1-3 = Write database
- Program Systems (5)
  APS transfers and system boots (for example, first bootup) are recorded. Possible command entries are:

– A2-1 = APSXF started
– A2-2 = APSXF ended
– A2-3 = APS boot (APS stamp also included)

- HiPath 3000 Manager E Maintenance (6)
  Maintenance activities which can be assigned with the following command entries are logged:
  – B1-1 = Read error memory
  – B1-2 = Delete error memory
  – B2-1 = Out of service
  – B3-1 = Read Direct Memory Access
  – B3-2 = Write Direct Memory Access
  – B4-1 = Delete base station status overload
  – B4-2 = Delete base station restart
  – B5-1 = Digital loopback change
  – B6-1 = Trunk rolling change
  – B7-1 = Read trunk status
  – B8-1 = Delete trunk error counter

- Simulated or pseudo Assistant T format (7)
  The HiPath 3000 Manager E records the offline changes of a CDB as a “simulated” Assistant T command. For data areas subject to change by HiPath 3000 Manager E, pseudo areas are generated. When loading an offline CDB into the system, the following simulated commands are logged as command entries:
  C1 = Pseudo area “System parameter”
  – C1-1 System fags/CMI
  – C1-2 System intercept/AC
  – C1-3 Tones and calls
  – C1-4 Direction flag special (Variable direction#)
  – C1-5 System settings
  – C1-6 Host Link Interface
  – C1-7 Relocate activation
  C2 = Pseudo area “System timer”
  – C2-1 System timer
  C3 = Pseudo area “S_0 configuration”
  – C3-1 Station bus
  – C3-2 Line supervision
  – C3-3 Mode
  C4 = Pseudo area “Lines”
  – C4-1 Loop start parameter (Variable Slot/Line#)
  C5 = Pseudo area “Digit analysis”
  – C5-1 Internal number (Variable Stn#, Grp#)
  – C5-2 Service codes
  C6 = Pseudo area “Summer time”
  – C6-1 Summer time
  C7 = Pseudo area “Directions”
  – C7-1 Direction flags (Variable direction#)
  C8 = Pseudo area “Door setup”

– C8-1 Door setup (Variable door#)
C9 = Pseudo area “UCD Flags”
– C9-1 UCD Flags
C10 = Pseud area “Delete system counter”
– C10-1 Delete system counter

- HiPath 3000 Manager E online (8)
  Archives from the log file and the user administration are logged. Possible command entries are:
  – D1-1 = Archive
  – D2-1 = New user
  – D2-2 = Delete user
  – D3-1 = Change password

Logging External Accesses (Solutions, Applications)
Plus products used with “AMHOST” can only make limited changes. Because these changes “automatically” run simultaneously (for example Check In and Check Out for hotel solutions), these are not logged. Only the session information (user name is “amhost”) with the command entries “Login procedure” and “Logout procedure” are logged.

12.10.2 Issuing and Saving Log Data

Data is automatically logged in an area (LOG area) on the MCC reserved for this purpose. It cannot be switched off.

If approximately 80 % of the MMC log area capacity is exceeded, a Class A error is issued. This error is dealt with like all Class A errors and is displayed on the optiPoint Attendant as “Revisor Alarm.”

The log should now be read out and archived, meaning it should be saved in an archive file (file extension = arc). If an archive is not created, the oldest datablock is overwritten if there is a danger of overflow.

You can only issue log entries using HiPath 3000 Manager E. You cannot retrieve the log entries from the system until you have logged on as a user with “Revisor” rights.

Archive

If you request an archive (storage), the system checks whether or not there is already an archive file (file extension = arc). If it is a file with log data from a previous archive, the file must match the current customer. In case of a positive result, the system log entries are retrieved and attached to the existing data in the archive file. At the same time, the data in the system is deleted.
If malfunctions occur during this procedure (for example, line interruption), the entire procedure ends and the archive has to be restarted.

If no archive is requested, the revisor can retrieve, view, and print the log entries. However, log entries remain in the system.

You do not have to log in to the system to use the HiPath 3000 Manager E to check archive files on the PC monitor. In this case, a password is not required.

Multimedia Card

When replacing the multimedia card, the following applies:

- If the memory area for logging data is empty, logging restarts.
- If the memory area for logging data is not empty, logging continues.

Example of a Log Printout

The following assumption applies as an example: The first system boot up has taken place and customer-specific programming was completed.

1050	00-11-25 15:57:10	rev(R)	(6)D1-1	Archive
1051	00-11-25 15:58:22	rev(R)	(3)A0-2	Logout procedure
1052	00-11-26 09:20:15	serv(S)	(3)A0-1	Login procedure
1053	00-11-26 09:21:35	serv(S)	(4)A1-1	Database read
1054	00-11-26 09:21:52	serv(S)	(7)14-12-*(20)	Station name
1055	00-11-26 09:22:45	serv(S)	(4)A1-3	Write database
1056	00-11-26 09:23:25	serv(S)	(3)A0-2	Logout procedure
1057	00-11-26 10:10:15	pnkm(A)	(3)A0-1	Login procedure
1058	00-11-26 10:11:15	pnkm(A)	(2)14-12-”30”	Station name
1059	00-11-26 10:11:35	pnkm(A)	(2)14-12-”31”	Station name
1060	00-11-26 10:12:15	pnkm(A)	(3)A0-2	Logout procedure
1061	00-11-27 11:20:30	rev(R)	(3)A0-1	Login procedure

The sample printout (without consideration of headers and footers) refers to the following information concerning administration procedures:

- The Revisor (“rev” user in “R” (Revision) user group) has generated an initial archive.
- The Service (“serv” user in “S” (system maintenance) user group) has read out the system database, changed 20 station names, and written them again to the system.
- The Customer (“pnkm” user in “A” (Administration) user group) has changed two additional station names.
- The Revisor has retrieved the most recent log entries and printed them out.

13 HiPath 3000 on a LAN

13.1 Overview

Chapter Contents

This chapter discusses the topics listed in the table.

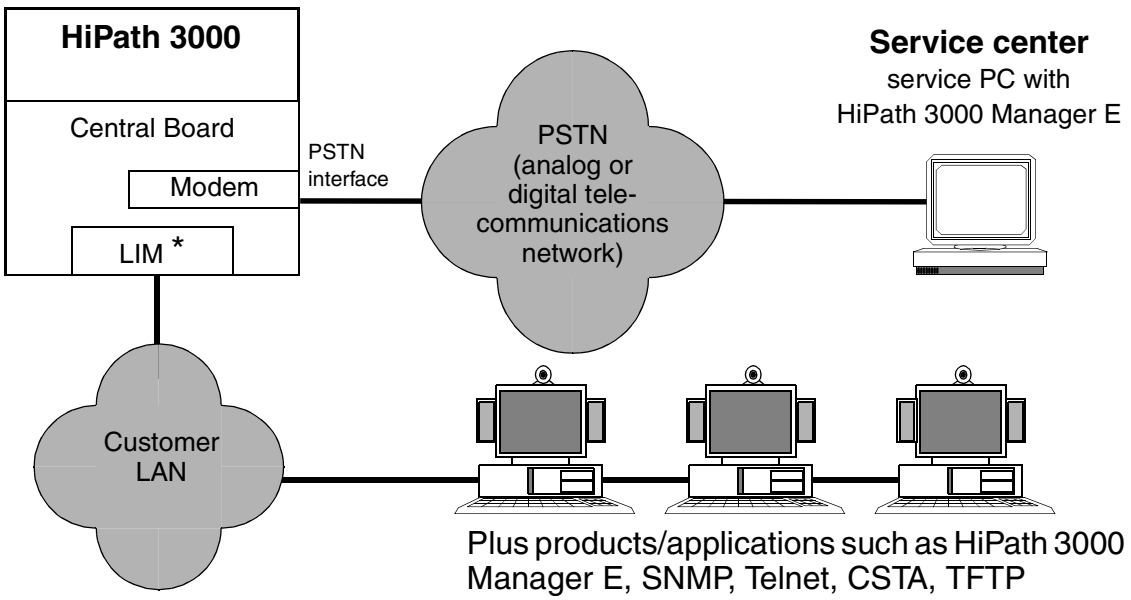
13.2 Introduction

HiPath 3000 V1.2 offer the following **LAN functionalities** (TCP/IP protocol family):

- SNMP (UDP)
- HiPath 3000 Manager E (TCP)
- CDRC (TFTP server mode, TFTP client mode and TCP/IP client mode)
- TAPI 3rd-party applications supported (CSTA over LAN)
- APS transfer (TFTP/UDP)
- Telnet (TCP)

Monitoring and control of the LAN components are provided by the Simple Network Management Protocol SNMP.

The main purpose of this chapter is to describe the options available by connecting the LAN interface module LIM to HiPath 3000's central board.
Please refer to the product's administration instructions and service manual for details relating HiPath HG 1500.



* A HiPath HG 1500 board can be used instead of the LIM board: HXGM, HXGM2 for HiPath 3750 and HiPath 3700, HXGS, HXGS2 for HiPath 3550 and HiPath 3350 or HXGSR, HXGSR2 for HiPath 3500 and HiPath 3300.

Figure 13-1 HiPath 3000 V1.2 - Functionalities via LAN

13.3 SNMP Functionality

13.3.1 Introduction

As part of the TCP/IP protocol family, the Simple Network Management Protocol (SNMP) is an easy-to-use platform for performing management tasks in the HiPath 3000 system software. SNMP is used as a kind of management agent in HiPath 3000, making it possible to monitor and administer LAN components (including HiPath 3000 itself) from a central location. This involves

- addressing HiPath 3000 via the TCP/IP protocol family.
- allowing external management applications, such as HP Open View and IBM Tivoli, to access data in HiPath 3000 (using SNMP messages, such as GET, SET, TRAP)
- implementing remote maintenance tasks (online port status, enabling and disabling ports, determining free ports)
- transmitting service-related class B errors
- visualizing the operating status of HiPath 3000 systems

13.3.2 Overview of SNMP Functions

Management Information Bases (MIBs)

MIBs define the volume of data that can be administered via SNMP. They are data models that describe the network elements to be administered in a very specific form.

HiPath 3000 supports

- standard MIB II (according to the RFC1213 Internet standard), which provides Internet and router functions;
- parts of the RMON 1/2 standard MIBs (RFC 1757, RFC 2021), which support
  - Error history
  - Trap configuration
  - TFTP configuration
  - General system information

- a user-specific MIB that processes HiPath-specific statistic data (feature counters) and internal error messages (error history), covering the following areas:
  - ControlGroup – status variables, general configuration, supplementary TFTP configuration data
  - SystemInfoGroup – system configuration and status
  - StatisticsGroup – statistic data on features
  - ErrorHistoryGroup – Error history in HiPath format
    Error messages are forwarded in the form of SNMP traps via the LAN to a specific external management application. The SNMP traps form the error history data structure (time stamp, error class, error description).

These components use the IP protocol according to OSI layer 3 and the UDP protocol according to layer 4. The SNMP protocol stack uses port numbers. The system supports the SNMP protocol version 1.0.

SNMP Messages

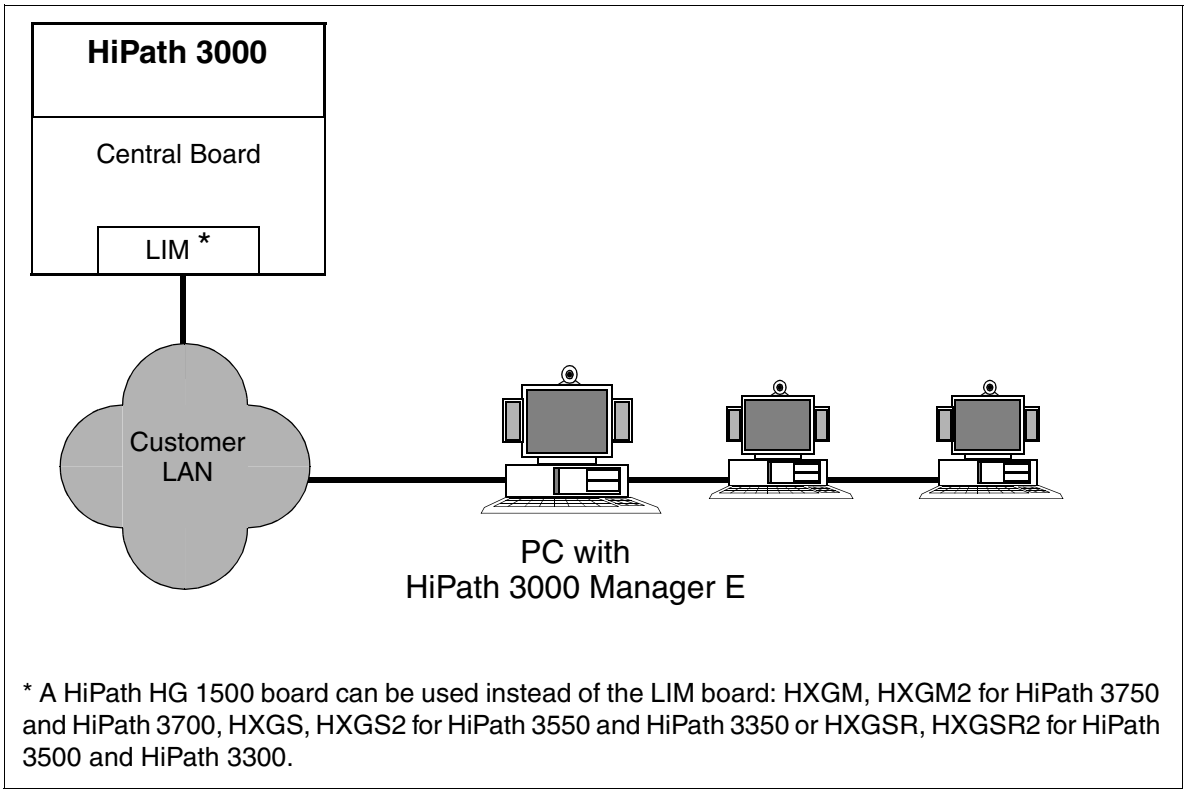
The following commands control SNMP messages for communication between the SNMP management agent (HiPath 3000) and external applications:

- GET – retrieve data from agent
- GET NEXT – read out data sequentially
- SET – write data
- TRAP – alarm messages issued by the SNMP agent

There is an integrated mechanism for generating SNMP traps in the event of class B errors. The SNMP management agent evaluates the error messages. In the case of defined errors, it generates specific traps and transmits them in the form of IP data records to a configurable IP address (a total of five SNMP V1.0-compatible applications are supported, including HP Open View Network Node Manager).

13.4 Administering HiPath 3000 via the LAN Interface

You can administer HiPath 3000 via a computer connected to the LAN.



* A HiPath HG 1500 board can be used instead of the LIM board: HXGM, HXGM2 for HiPath 3750 and HiPath 3700, HXGS, HXGS2 for HiPath 3550 and HiPath 3350 or HXGSR, HXGSR2 for HiPath 3500 and HiPath 3300.

Figure 13-2 HiPath 3000 - Administration via the LAN Interface

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	LIM or HiPath HG 1500 board			LIM	LIM
SW requirements	V1.2 or later				

Configuring the Feature Using HiPath 3000 Manager E

The settings necessary for this feature are described in Section 13.11.

13.5 Administering HiPath 3000 via Telnet

You can use Telnet to administer HiPath 3000 via the IP port (LIM board).

Procedure

Step	Action
1.	Start the Telnet program with the IP address of the HiPath 3000 system.
2.	A mask appears where you can maximize the Telnet window (size of a telephone display with 24 lines and 8 characters per line). Press any key.
3.	After initialization is complete, a telephone user interface appears with an eight-line display.
4.	Enter *95 to start the administration function just like you would under Assistant T . Notes: If your Tenet program does not support function keys, you can use the “!”, “$”, “%” and “?” instead: • F2 –> ! • F7 –> $ • F8 –> % • Speaker –> ? The font set in the Telnet program determines whether you can display German umlauts. Use a font that displays the characters you need. Configure Telnet as follows: • Character mode (if programmable) • VT100 arrows (under **Terminal, Settings** in MS Windows NT Telnet) • VT100/ANSI emulation The arrow keys on the keypad have the following functions: • *Next* –> Arrow Up/Right (use “>” key as an alternative) • *Back* –> Arrow Down/Left (use “<“ key as an alternative) If your program does not support arrow keys, use the “<“ and “>” keys to scroll up and down.

13.6 TFTP Read and Write Access

All data transmitted must be in binary format.

Table 13-1 TFTP Read and Write Access

File	TFTP-GET	TFTP-PUT	Explanation
hicom.kds	X		CDB file
hicom.fli		X	APS file
log.arc	X		LOG file
get.txt	X		Call detail recording at station
gel.txt	X		Call detail recording per trunk
gez.txt	X		Call detail recording central
ascii.txt	X		Configuration in ASCII format

13.7 CSTA via IP

HiPath 3000 use the Transmission Control Protocol (TCP) for CSTA via IP, detecting and automatically correcting lost data packets over a permanent connection.

A total of three CSTA clients or applications can connect to HiPath 3000 simultaneously via the LAN, and thus can use CSTA via IP simultaneously. Restrictions may apply to applications that use certain services. For example, only one application at a time can start the message registration function.

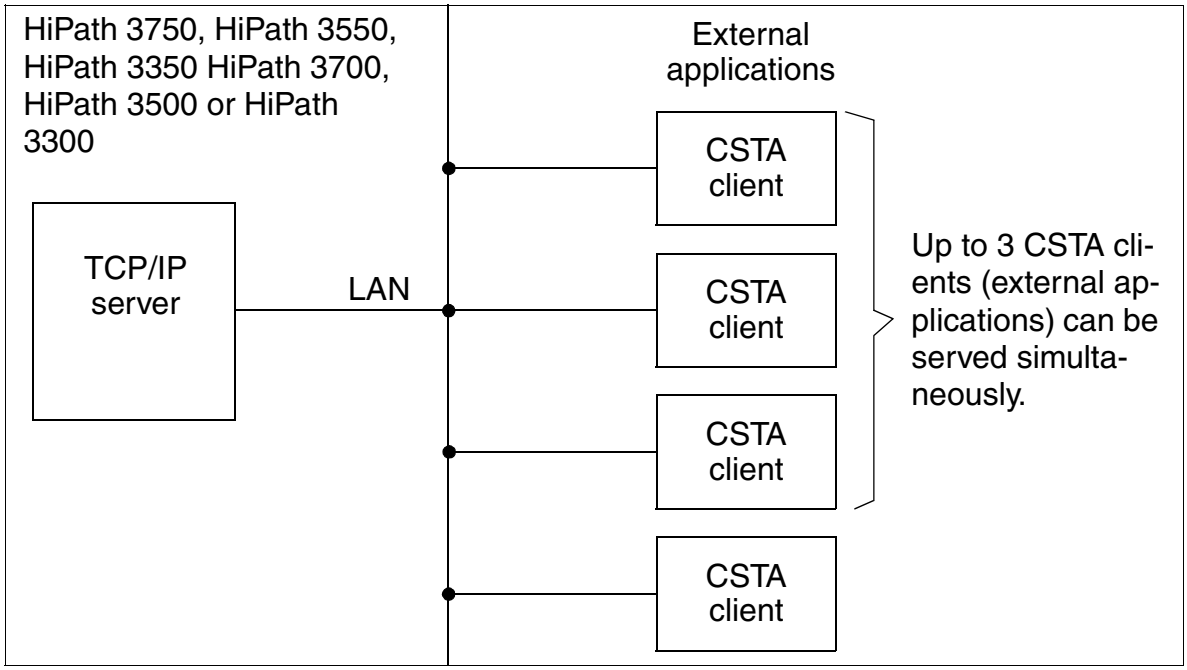


Figure 13-3 HiPath 3000 - CSTA via IP

For an external application to address HiPath 3000, it must know the TCP port (7001) of the TCP/IP server implemented in HiPath 3000 as well as the IP address.

Data packets sent from an application to HiPath 3000 -- that is, packets containing the HiPath IP address, TCP port 7001, and protocol type TCP -- are accepted for further processing.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	**x**	**x**	**x**	**–**	**–**
HW requirements	LIM or HiPath HG 1500 board			–	–
SW requirements	V1.2 or later			–	–

Configuring the Feature Using HiPath 3000 Manager E

The settings necessary for this are described in Section 13.11.

13.8 Call Detail Recording Central (CDRC) via IP

In HiPath 3000, you can start up the central call data output function only once, which means that it is available to only one application at a time. Three different modes exist to support the various requirements of the different applications.

Model-Specific Data

Subject	HiPath 3750 HiPath 3700	HiPath 3550 HiPath 3500	HiPath 3350 HiPath 3300	HiPath 3250 (not for U.S.)	HiPath 3150 (not for U.S.)
Feature available in	x	x	x	x	x
HW requirements	LIM or HiPath HG 1500 board			LIM	LIM
SW requirements	V1.2 or later				

13.8.1 TFTP Client in HiPath 3000

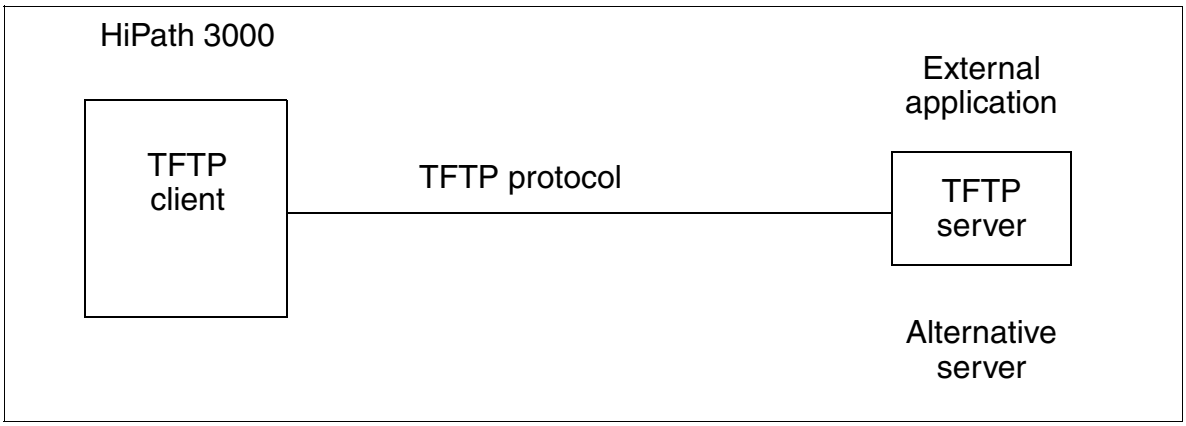


Figure 13-4 CDRC via IP - TFTP Client in HiPath 3000

Controlled by a programmable timer and a fixed threshold value determining the call data buffer capacity (around 80 percent of the call data buffer full), the TFTP client (HiPath 3000) sends call data to the TFTP server (external application). If the system cannot set up a connection to the TFTP server, it addresses an alternative server. If this server is also unavailable, it outputs an SNMP trap or error message (“Unable to output data”). The system tries to set up another connection every 60 seconds. A call data buffer overflow causes an error message to be entered in the error history file.

Use HiPath 3000 Manager E to configure the TFTP server and timer IP addresses.

13.8.2 TCP Client in HiPath 3000

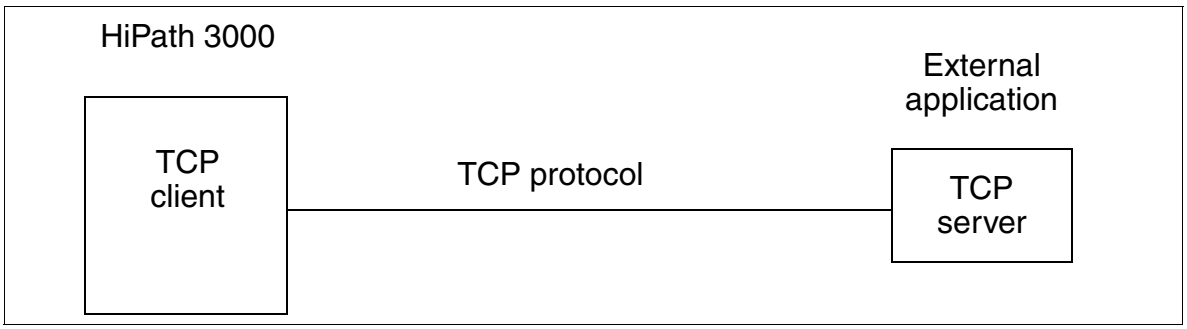


Figure 13-5 CDRC via IP - TCP Client in HiPath 3000

When call data records accumulate, the TCP client (HiPath 3000) sets up a TCP/IP connection to an external TCP server (external application) and transmits the data. The connection remains active continuously so that the system can send any further accumulated data, transmitting each data record separately.

Use HiPath 3000 Manager E to configure the server's TCP/IP address (TCP port and IP address).

13.8.3 TFTP Server in HiPath 3000

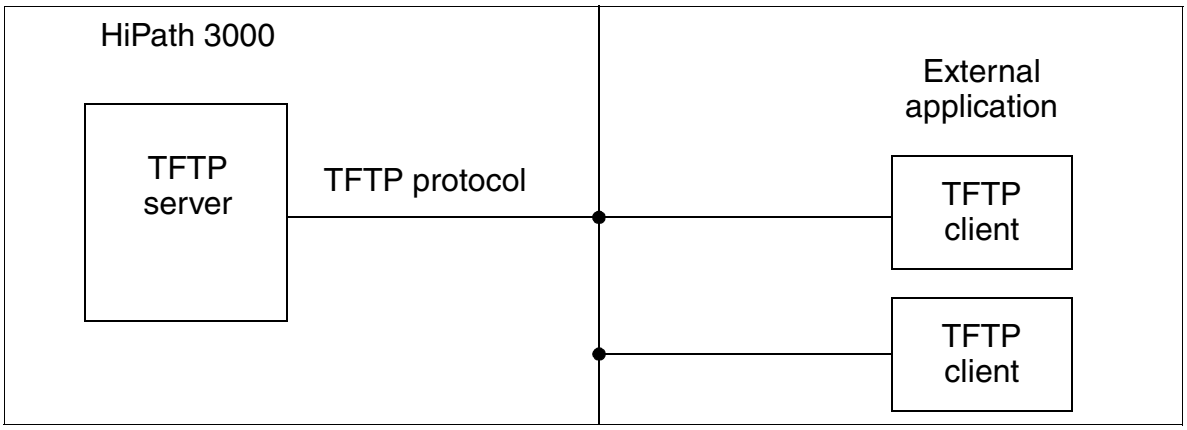


Figure 13-6 CDRC via IP - TFTP Client in HiPath 3000

The external application (TFTP client) requests output of the call data records. To do this, the application must set up a connection and indicate the service (GET gez.txt), after which it receives all accumulated call data records. It releases the connection after the transfer.
Note: The IP address of the TFTP client must be entered in the firewall and the "call charges" application flag set.

The application's request for call data can be controlled automatically or using an SNMP trap (see Section 13.3). HiPath 3000 sends the SNMP trap ("data available") to the external application, generating the trap using a programmable threshold value determining the call data buffer capacity (0 to 80 percent of the call data buffer full). Use HiPath 3000 Manager E to configure the threshold value.

Configuring the Feature Using HiPath 3000 Manager E

The settings necessary for this feature are described in Section 13.11.

You cannot use Assistant T to configure this feature.
If *CDRC over IP (LAN)* is set, you can use Assistant T only to switch to V.24 port, $U_{P0/E}$ port, optiClient Attendant (PC AC) or "no output".

13.9 Remote Administration of HiPath 3000 via PPP

You can administer multiple HiPath 3000 systems from a central service center via PPP (point-to-point protocol). Each HiPath 3000 is addressed via its PSTN (public switching telephone network) interface.

You must enter a router call number (DID number) for every PSTN interface in the service center for external access to HiPath 3000. This number is not the station number previously used for administration via an integrated digital modem (B channel) or integrated analog modem (IMODC).

You can establish a connection between the service center and HiPath 3000 via the integrated digital modem (B channel) or the integrated analog modem (IMODC). The point-to-point protocol (PPP) is used in both cases for data exchange.

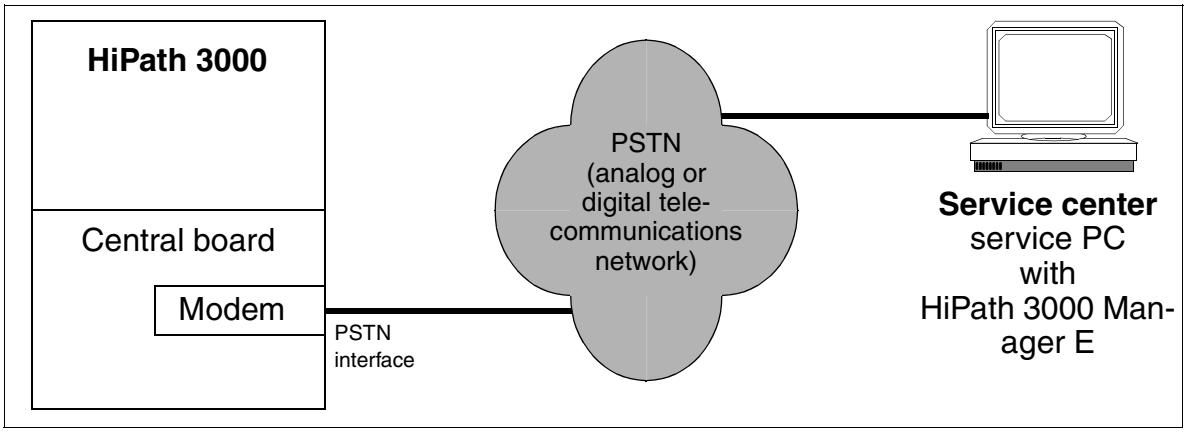


Figure 13-7 Remote Administration of HiPath 3000 via PPP

If the connection is established via callback, HiPath 3000 first of all denies a connection request from the service center (HiPath 3000 Manager E). A callback is then set up to the service center's calling party number transferred via the PSTN connection's D channel.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	CBCPR	CBCC or CBRC	CBCC or CBRC	SBSCO	SBSCS
SW requirements	V1.2 or later				

Configuring the Feature Using HiPath 3000 Manager E

The settings necessary for this feature are described in Section 13.11.

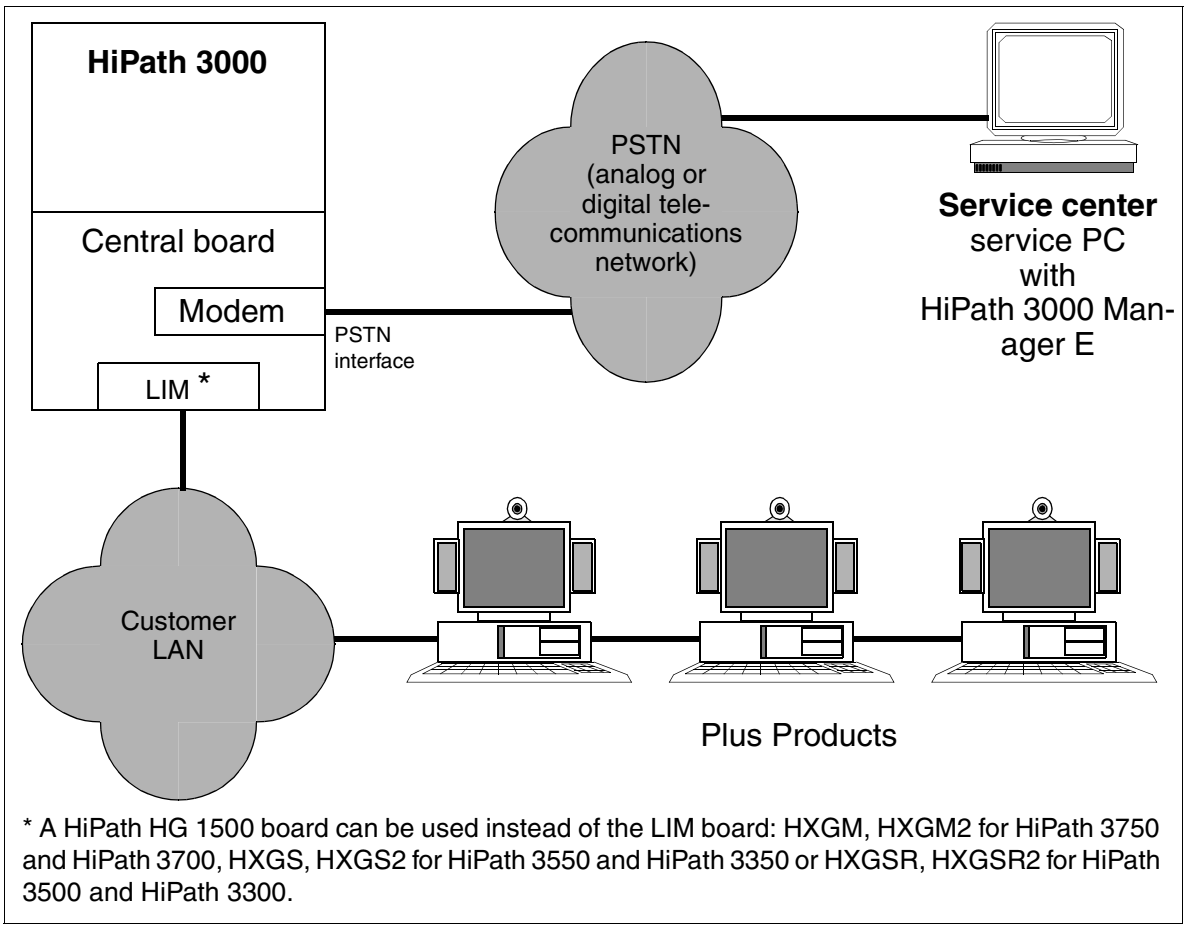
13.10 Remote Administration of Plus Products via PPP

You can use HiPath 3000 to administer Plus Products from a central service center. HiPath 3000 only provide the transmission medium for this. The actual Plus Product administration is performed via special software programs, such as pcANYWHERE.

HiPath 3000 is addressed from the service center via its PSTN (public switching telephone network) interface. The Plus Products connected to a LAN can be reached via the HiPath 3000's LAN interface (LIM). In this case, HiPath 3000 acts like a router.

You must enter a router call number (DID number) for every PSTN interface in the service center for external access to HiPath 3000.

You can establish a connection between the Plus Product and the service center via the integrated digital modem (B channel) or the integrated analog modem (IMODC). The point-to-point protocol (PPP) is used in both cases for data exchange.



* A HiPath HG 1500 board can be used instead of the LIM board: HXGM, HXGM2 for HiPath 3750 and HiPath 3700, HXGS, HXGS2 for HiPath 3550 and HiPath 3350 or HXGSR, HXGSR2 for HiPath 3500 and HiPath 3300.

Figure 13-8 Remote Administration of Plus Products via PPP

If a Plus Product supports SNMP traps, these can be transferred from the HiPath 3000 to the service center.

Access Mechanism

A list of up to twenty remote structures controls access from the service center to the customer LAN and vice versa. Each remote structure contains the following information:

- The IP address of the service center (= PSTN partner in the service center) for setting up connections from the customer LAN to the service center and for the automatic transmission of error messages (SNMP traps).
- The DID number (part of the numbering plans) for direct identification of this remote structure.
- Up to five PSTN remote numbers marked as incoming (for identifying the remote structure - when dialing the router call number) and/or outgoing (for use as callback address).
- Short hold mode yes/no
  - If “Short hold = yes” is selected, an inactive PSTN connection is cleared down after a set time (short hold timeout). If there are new data packets to be transmitted, the connection is set up once again (transparent for the user). This mechanism is also known as a background connection setup or cleardown. Costs are only incurred when the line is actually used.
  - If “Short hold = no” is selected, a PSTN connection remains permanently active until the end criterion is received.
- Short hold (sec.)
  This parameter describes the length of time in seconds after which an inactive PSTN connection is cleared down.
- Callbk yes/no
  - If “Callbk = yes” is selected, a connection request is first of all denied. Then the first station number marked as outgoing in the remote structure found is called back. Three attempts are made to set up the connection, then the next outgoing station number is used. The system stops trying to set up the callback after three unsuccessful attempts.
  - If “Callbk = no” is selected, the connection is set up immediately.
- Remote analog modem
  If you select “yes”, the V.34 protocol in the B channel is used for an outgoing connection via the ISDN line.

- IP mapping yes/no
  If a number of different customers have the same IP address, you can use address mapping to achieve unique IP address assignment in the various customer LANs.
  - If “IP mapping = yes” is selected, you can map an IP address which is assigned to multiple customers to a unique “virtual” IP address. You can perform IP mapping for up to twenty address entries.

    Examples:
    IP data transfer from the customer LAN to the service center via the PSTN interface: IP customer LAN is transformed by HiPath 3000 into an IP virtual LAN.
    IP data transfer from the service center to the customer LAN via the PSTN interface: IP virtual LAN is transformed by HiPath 3000 into an IP customer LAN.
  - If “IP mapping = no” is selected, IP address mapping is not available.
- Security mechanisms for connection setup
  Use the PAP (PPP authentication protocol) and/or CHAP (challenge-handshake authentication protocol) to determine whether
  - the Plus Product (client) must be authenticated at HiPath 3000 (host) or
  - the HiPath 3000 (host) must be authenticated at the Plus Product (client).

  Authentication is based on the user ID and the password.

Model-Specific Data

Subject	**HiPath 3750** **HiPath 3700**	**HiPath 3550** **HiPath 3500**	**HiPath 3350** **HiPath 3300**	**HiPath 3250** (not for U.S.)	**HiPath 3150** (not for U.S.)
Feature available in	**x**	**x**	**x**	**x**	**x**
HW requirements	LIM or HiPath HG 1500 board			LIM	LIM
SW requirements	V1.2 or later				

Configuring the Feature Using HiPath 3000 Manager E

The settings necessary for this feature are described in Section 13.11.

13.11 Settings for the LAN/IP Connection

If you are upgrading or installing a HiPath 3000 system with an LIM board or with HiPath HG 1500 for the first time, you must communicate a number of settings to the LAN.

You need to add the LAN connection information to the customer database (CDB), if one already exists in the system. If necessary, update the CDB to Version 1.2.

The following table contains the HiPath 3000 Manager E settings necessary for using the features/applications of the HiPath 3000's LAN/IP connection:

- SNMP Functionality (SNMP in the LAN and SNMP traps for the service center)
- Call Detail Recording Central (CDRC) via IP (CDRC via IP)
- Administering HiPath 3000 via the LAN Interface (SysAdmin via LAN) (also includes settings for TFTP access, CSTA via IP, Telnet)
- Remote Administration of HiPath 3000 via PPP (SysAdmin via PPP)
- Remote Administration of Plus Products via PPP (PPAdmin)

#	Activity (HiPath 3000 Manager E)	Necessary for				
		SNMP	CDRC via IP	SysAdmin via LAN	SysAdmin via PPP	PPAdmin
1.	Activate the "Network" dialog box in the "Settings" menu and open the "Basic settings" tab.	✓	✓	✓	✓	✓
	• IP access – LIM: The LIM board is used for IP/LAN access to HiPath 3000. – HIP Forwarding: The HiPath HG 1500 board (HXGM, HXGS, or HXGSR) is used for IP/LAN access. This board works in bridging mode, which means that the HiPath HG 1500 board and the HiPath 3000 controller have separate IP addresses that share a physical LAN interface. Refer to the HiPath HG 1500 administration instructions for more information.	✓	✓	✓	✓	✓

#	Activity (HiPath 3000 Manager E)	Necessary for				
		SNMP	CDRC via IP	SysAdmin via LAN	SysAdmin via PPP	PPAdmin
	• LAN interface – IP address: HiPath 3000's IP interface address to the LAN (LIM board). – Subnet mask: Use the network mask for setting subnetworks in a corporate structure with only one official IP address. You can use a subnet mask to split the official IP address into "different IP networks" to provide a separate IP network for each branch office. This new structure, however, is only valid in the internal corporate network. – MTU: Maximum packet length in bytes for the IP protocol (value range = 500 to 1500). Do not change the default value.	✓	✓	✓	✓	✓
	• PSTN interface – IP address: HiPath 3000's IP interface address to the analog/digital telecommunications network. – Subnet mask: See LAN interface. – MTU: See LAN interface.	✓			✓	✓
	• Router call no. – Router call no.: ISDN DID number used for contacting the HiPath 3000 from outside the network. – Call no. test: If active, calls are only answered if a calling party number is also transferred. – Check DID: Checks for duplicated station numbers in the system.	✓			✓	✓
	• Connection control – Number redials: Number of redials. – Pause (sec.): Interval in seconds between redial attempts.	✓			✓	✓
	• TFTP server (entries for APS transfer via the IP/LAN) – IP address: This is the IP address of the TFTP server providing the APS for HiPath 3000. – Path: Enter the complete path where the APS is located. – Switch time: Enter the date and time at which you want HiPath 3000 to change over to the transferred APS. An immediate or scheduled switchover after the TFTP transfer must be SNMP-initiated.			✓	✓	

#	Activity (HiPath 3000 Manager E)	Necessary for				
		SNMP	CDRC via IP	SysAdmin via LAN	SysAdmin via PPP	PPAdmin
2.	Open the “SNMP data” tab and make the following settings.	✓				
	• System identification (entries for the standard MIB “RFC 1213” (MIB-2)) – Contactperson: Name of the technical support person responsible for HiPath 3000. – System name: Name of the HiPath 3000 system. The SNMP environment requires the domain name. – Location: Information about the HiPath 3000 location.	✓				
	• Multiple Trap: Number of trap repetitions.	✓				
	• SNMP Flags – Enable SNMP: This option activates the SNMP in the HiPath 3000. – CDR Notification Traps: This option activates traps for call detail recording. – Port Status Notification Traps: This option activates traps for interface status.	✓				
	• Trap Flags – Class column: For each error type that can be signaled by an SNMP error message (trap), you must specify whether you want the system to only create an entry to be made in the error history file or also initiate a trap. – Error no. column: Numbers of the class B errors. – Meaning column: Plain-text description of the error event. – Value column: log = enter in error history only; log + trap = enter in error history and also initiate a trap; log + multiple trap = enter in error history and also send a trap multiple times (SNMP error message).	✓				

#	Activity (HiPath 3000 Manager E)	Necessary for				
		SNMP	CDRC via IP	SysAdmin via LAN	SysAdmin via PPP	PPAdmin
3.	Open the “SNMP partner” tab and make the following settings.	✓				
	• SNMP Community table (configure the communication partners, which are authorized to administer the HiPath 3000 system via SNMP.) – SNMP Transport Label column: Enter a specific IP address or a wildcard (everybody, nobody). – SNMP Community Name column: Serves the purpose of an access password in SNMP Version 1. The management station user must specify the community name in the case of HiPath 3000 access via SNMP. – SNMP Access column: Possible settings are “read” (the IP address has read access only), “read/write” (the IP address has read and write access), and “none” (the IP address has no access authorization. This option enables you to temporarily deactivate entries without having the delete them).	✓				
	• SNMP Trap Community table (configures the destinations for SNMP error messages/traps) – SNMP Community Name column: Identifies the community to which the trap is assigned. – SNMP Transport Label column: IP address of the trap destination. You cannot enter wildcards for traps. – Target owner column: Plain-text description of the trap destination (optional). – Target status column: This allows you to activate and deactivate configured trap destinations.	✓				

#	Activity (HiPath 3000 Manager E)	Necessary for				
		SNMP	CDRC via IP	SysAdmin via LAN	SysAdmin via PPP	PPAdmin
4.	Open “PSTN partner” tab and make the following settings (double-click the table).	✓			✓	✓
	• PSTN partner data: – Name: Unique name for this partner structure (e.g. Service 1). – IP address: IP address of the service center for setting up connections from the customer LAN to the service center and for the automatic transfer of error message (SNMP traps). – Short hold (sec.): length of time in seconds after which an inactive PSTN connection is cleared down. – DID: DID number for the direct identification of this remote structure. – Check DID: Checks for duplicated station numbers in the system. – Short hold mode: see page 13-16. – Callbk: see page 13-16. – Remote analog modem: If you select “yes”, the V.34 protocol in the B channel is used for an outgoing connection via the ISDN line. – IP mapping: page 13-17.	✓			✓	✓
	• Security: – User ID: User name for PAP and CHAP. – PAP and CHAP: The follow is determined here: Whether the PAP and/or CHAP safety mechanism is activated in the PPP protocol (activated yes/no). Whether the remote station (the Plus Product) or HiPath 3000 should start with authentication (host yes/no). Host flag activated –> the calling party must be authenticated at HiPath 3000. Host flag deactivated –> HiPath 3000 must be authenticated at the called party. The relevant password for PAP and CHAP.	✓			✓	✓

#	Activity (HiPath 3000 Manager E)	Necessary for				
		SNMP	CDRC via IP	SysAdmin via LAN	SysAdmin via PPP	PPAdmin
	• PSTN partner – Call no.column: Enter up to five PSTN remote station numbers. – Call direc. column: Every PSTN remote station number entered can be marked as “Blocked” (station number is not used), “In” (to identify the remote structure - when dialing the router call number), “Out” (for administration as call-back address) or “In+Out”.	✓			✓	✓
5.	Open the “Firewall” tab and make the following settings (double-click the tables).	✓	✓	✓	✓	✓
	• IP firewall (to determine whether an IP computer is authorized to send data via HiPath 3000 to another network, or whether an external computer or external network can access the local LAN or HiPath 3000. Routing to the PSTN, for example, is enabled or disabled via these settings.) – Activate: Activate/deactivate the IP firewalls. – Source IP addr.: Use this option to specify the IP network or the client at which a connection can be set up. – Dest. IP addr.: Use this setting to specify the IP network or the server to which a connection may be set up. If you enter 0.0.0.0, you can set up a connection to any IP address. – IP protocol: Use this option to define which protocol must have an IP data packet in order to pass the firewall. The possible protocols are TCP, UDP, ICMP or All IP protocols. – IP port: Use this option to define the HiPath 3000 ports to be used for data transfer. Depending on the feature and the protocol, this is: - Telnet: TCP, port 23 - HiPath 3000 Manager E: TCP, port 7000 - CSTA: TCP, port 7001 - Log: UDP, port 69 (TFTP) - APS: UDP, port 69 (TFTP) - Call det. record.: UDP, port 69 (TFTP) - CDB: UDP, port 69 (TFTP) - ASCII: UDP, port 69 (TFTP) – ICMP type: Specifies which ICMP types are permitted. – ICMP code: Specifies which ICMP codes are permitted.	✓	✓	✓	✓	✓

#	Activity (HiPath 3000 Manager E)	Necessary for				
		SNMP	CDRC via IP	SysAdmin via LAN	SysAdmin via PPP	PPAdmin
	• Application firewall (specifies which IP addresses (clients) can access HiPath 3000 functions.) – Activate: Activate/deactivate the application firewall. – Source IP addr.: Specifies the computer which can accesses HiPath 3000 functions. – Applications: You can select: Telnet, HiPath 3000 Manager E, CSTA, Log, APS, Call det. record., CDB, ASCII. If you want to perform administration via HiPath 3000 Manager E, for example, this application must also be set here. – CLASS A/B/C networks can be enabled. By specifying a network IP address, access is enabled for all IP addresses in the specified network (application-selective). – Wildcard everybody: All IP addresses are enabled for the specified application.		✓	✓	✓	
6.	Open the “IP routing” tab and make the following settings (double-click the table). If the IP computer with the Plus Product is not in the LAN directly connected to HiPath 3000, you can specify the gateway through which the IP computer is reached.	(✓)	(✓)	(✓)	(✓)	(✓)
	• IP routing – IP address: IP address of the computer (Plus Product). – Net mask: Use the network mask for setting subnetworks in a corporate structure with only one official IP address. You can use a subnet mask to split the official IP address into “different IP networks” to provide a separate IP network for each branch office. – Gateway: IP address of the gateway server.	(✓)	(✓)	(✓)	(✓)	(✓)

#	Activity (HiPath 3000 Manager E)	Necessary for				
		SNMP	CDRC via IP	SysAdmin via LAN	SysAdmin via PPP	PPAdmin
7.	Open the “IP mapping” tab and make the following settings (double-click the table). If a number of customers have the same IP address, you can perform address mapping to uniquely assign the IP addresses in the various customer LANs. In the case of IP traffic, you can map a customer IP address to a unique “virtual” IP address via HiPath 3000’s PSTN interface. You can perform IP mapping for up to twenty address entries. Examples: IP data transfer from the customer LAN to the service center via the PSTN interface: IP customer LAN is transformed by HiPath 3000 into an IP virtual LAN. IP data transfer from the service center to the customer LAN via the PSTN interface: IP virtual LAN is transformed by HiPath 3000 into an IP customer LAN.	(✓)			(✓)	(✓)
	• IP mapping – IP cust. LAN: IP address or IP network address in the customer LAN. – IP virtual LAN: Specific associated IP address or IP network address at the PSTN. – Mapping mask: Defines the part of the IP address to be mapped.	(✓)			(✓)	(✓)

Note:
Additional settings must be made in the “AllServe parameter” tab for systems in a HiPath AllServe 150 network.

- Server
  IP address: Enter the IP address of the AllServe server.
- Node
  Node ID: A random 32-bit number which represents a unique node in an AllServe system is generated during system startup.
- AllServe access authorization
  – Card: Enter the HiPath HG 1500 board (HXGM, HXGS or HXGSR) and the slot location of this board.
  – AllServe access: An access flag exists for every HiPath HG 1500 board inserted (default: no access).

#	Activity (HiPath 3000 Manager E)	Necessary for				
		SNMP	CDRC via IP	SysAdmin via LAN	SysAdmin via PPP	PPAdmin
8.	Activate the “Call charges” dialog box in the “System status” menu.		✓			
	Open the “Output format” tab and make the following settings.		✓			
	• Port assignment: CDR system, Output format: The options are LAN-TFTP-Client, LAN-TCP-Client or LAN-TFTP-Server.		✓			
	• LAN-Settings – TFTP-Client - IP-Addr. Server 1 - IP-Addr. Server 2 (alternative server) - Cycle: Interval at which HiPath 3000 sends call charge data to the external application. – TCP-Client IP-Addr. and TCP port of the external server – TFTP-Server Threshold as a percentage – Output format: - File format: UNIX (LF) or DOS (CR/LF) - Separator: “;” (semicolon), “|“ (pipe) or “ “ (space)		✓			

13.12 Testing the IP Address of HiPath 3000

After copying the updated CDB back to the system, you should run some tests to determine whether the connection data is correct. The Ping and Telnet programs, which come with the PC operating system, are available for these tests.

Procedure for Testing the IP Address

Prerequisite: You must be working at a PC on the LAN or have set up a local network between the service PC (HiPath 3000 Manager E) and the IP port (LIM board) of the HiPath 3000 using a crossover patch cable.

Step	Action
1.	Open an MS-DOS box.
2.	Enter the command *PING <IP ADDRESS>* (Example: C:\WINDOWS\PING 192.168.100.11). You already defined the IP address of the HiPath 3000 under “LAN Interface”.
3.	The following should appear in response: Pinging 192.168.100.11 with 32bytes of data: Reply from 192.168.100.11: bytes = 32 time=80ms TTL=251 Reply from 192.168.100.11: bytes = 32 time=80ms TTL=251 Reply from 192.168.100.11: bytes = 32 time=80ms TTL=251 Reply from 192.168.100.11: bytes = 32 time=80ms TTL=251
4.	If you do not receive a reply to the command: • The IP address of the HiPath 3000 may be incorrect. • HiPath 3000 may not be ready. • If you issued the ping command from outside the gateway, the gateway IP address may be incorrect. Check the remote network segment to ensure that the gateway IP address is correct.

Final Tests

Run the following additional tests:

- IP functions in HiPath 3000 Manager E
  HiPath 3000 should now be able to perform all read and write operations via the LAN.
- SNMP functions
  If configured correctly, reply packets, such as error classes and numbers, should be visible.

A System Programming Codes

A.1 Passwords

Authorized users can access HiPath 3000 system administration by means of user names and passwords, which also determine which data they are allowed to read and administer.

For information on the HiPath 3000 security concept (fixed or variable password concept) and on the associated options, refer to Section 12.9.1.

For a description of how to start system administration via Assistant T, refer to page 12-37.

A.2 Feature Access Codes

Table A-1 lists the features that can be activated (*) and deactivated (#) by entering codes on the telephones.

Table A-1 Feature Access Codes

Feature	Activate	Deactivate	Telephone
Accept call waiting (camp-on)	* 55		A
Account code ACCT (11 digits max.)	*60 +ACCT		A
Advisory message	* 69	# 69	D
Appointment (automatic wake-up system)	* 46 +Time +Type	# 46	D, E, N, C
Associated dialing for $U_{P0/E}$ station	*67 +Stn. +Stn. no.		A
Associated services	*83 +Stn. +Stn. no.		A
Busy override	* 62		D, E, N, C
Callback, initiate/view, cancel	* 58	# 58	A
Call charge display for own station (GET) (not for U.S.)	* 65		D
A = All telephones D = optiset E and optiPoint 500 telephones with display E = optiset E and optiPoint 500 telephones without display		N = Analog telephones, analog TA, TA RS232 S = ISDN (S0) terminals, TA S0 C = Cordless	

Table A-1 Feature Access Codes

Feature	Activate	Deactivate	Telephone
Call forwarding, external (not for U.S.)	* 64 +Stn. no.	# 64	A
Call forwarding for: All internal and external calls Only external calls Only internal calls	*1 +Type +Stn. no. Types: 1=All calls 2=Ext. calls only 3=Int. calls only	# 1	A
Call forwarding on lines (for MU-LAP)	* 501	# 501	A
Call pickup, directed	* 59 +Stn. no.		A
Call pickup in pickup group	* 57		A
Change telephone lock access code	* 93 +Old code +New code +New code		A
Conference (up to 5 stations)	* 3	# 3	D, E, N, C
Consultation hold, exit (return to held call)	* 0		A
Dial system speed-dialing (SSD)/ station speed-dialing (ISD)	* 7 +ISD no. (000-999) (000-299 for Hi-Path 3350, Hi-Path 3250, Hi-Path 3150, HiPath 3300)		A
Do not disturb	* 97	# 97	A
Door opener, DTMF	* 89 +Stn. no.. +Code	# 89 +Stn. no. +Code	A
Door opener via adapter cabinet	* 61 +Stn. no.		A

A = All telephones
D = optiset E and optiPoint 500 telephones with display
E = optiset E and optiPoint 500 telephones without display
N = Analog telephones, analog TA, TA RS232
S = ISDN (S0) terminals, TA S0
C = Cordless

Table A-1 Feature Access Codes

Feature	Activate	Deactivate	Telephone
DTMF transmission	* 53		D, E, N, C
Flex call (mobile PIN)	* 508		A
Group ringing	* 81 +Stn. no.	# 81	A
Handsfree answerback	* 96	# 96	D
Hunt group, all on/off Group call, all on/off	* 85 *	# 85 #	A
Hunt group on/off Group call on/off	* 85 + Grp no.	# 85 + Grp no.	A
Internal DISA (direct inward system access) (can be activated only within a Hi-Path AllServe 150 V1.0 network)	* 47 + DISA stn. no + DISA stn. + Service + Suffix dialing		D, E, N
Key programming	* 91		D
Logon mode (for handset) (not for U.S.)	* 942 +Code (+ Stn. no.)		D
Malicious call ID (not for U.S.)	* 84		A
Microphone	* 52	# 52	D, E
Night answer	*44 +Stn. no. or *44*	# 44	A
Park	* 56 +Park slot (0-9)	# 56 +Park slot (0-9)	A
Radio paging equipment (not for U.S.)	* 45 +Stn. no.	# 45 +Stn. no.	A
Release external trunk	* 43 +Trunk		A
Relocate	* 9419	# 9419	D, E
Reset all services for own stations		# 0	A

A = All telephones
D = optiset E and optiPoint 500 telephones with display
E = optiset E and optiPoint 500 telephones without display
N = Analog telephones, analog TA, TA RS232
S = ISDN (S0) terminals, TA S0
C = Cordless

Table A-1 Feature Access Codes

Feature	Activate	Deactivate	Telephone
Retrieval of external call placed on hold using “hold key”	* 63 +Trunk		A
Ring transfer executive/secretary	* 502	# 502	A
Room monitor	* 88		D, E, N
Send/cancel message (message waiting)		# 68	A
Send/display message (message waiting)	* 68 +Stn. no. +Text no.		A
Silent call/Ringer cutoff	* 98	# 98	D
Silent call waiting (camp-on)	* 87	# 87	D
Silent monitoring	*944 +Stn. no.		D, E, N, C
Speaker calls	* 80 +Stn. no.		A
Station number, assign for MUSAP	* 41 +DID no.		A
Station number suppression	* 86	# 86	A
Station speed-dialing number, save/change	* 92 +ISD no. (*0 - *9)		D, E, N, C
Switch selected relay	* 90 +Relay no.	# 90 +Relay no.	A
System administration	* 95		D
System administration Remote DTMF administration and maintenance, enable (customer system)	* 992 +Code		D
System administration Remote DTMF remote administration and maintenance, activate (service system)	* 991		D

A = All telephones
D = optiset E and optiPoint 500 telephones with display
E = optiset E and optiPoint 500 telephones without display
N = Analog telephones, analog TA, TA RS232
S = ISDN (S0) terminals, TA S0
C = Cordless

Table A-1 Feature Access Codes

Feature	Activate	Deactivate	Telephone
System administration via HOST (also remote), enable	* 993		D
System telephone lock	* 943 +Stn +*	* 943 +Stn +#	A
System telephone lock/reset code	# 943 +Stn		A
Telephone data service (TDS)	* 42 (0-9 or #0-#9)		A
Telephone lock, individual	* 66 +Code	# 66+Code	A
Telephone test	* 940		D, E
Toggle	* 2		D, E, N, C
Trace Stop	* 509		
Trunk flash on analog trunk	* 51		D, E, N, C
UCD (uniform call distribution), logon	* 401 +ID	# 401	D, E, N
UCD, available	* 402	# 402	D, E, N
UCD, night destination	* 404 +Stn. no.	# 404	D, E, N
UCD, queue	* 405		D
UCD, work	* 403	# 403	D, E, N
Write to/display caller list, save number	* 82	# 82	D
Substitute code for #	76		A
Substitute code for *	75		A

A = All telephones
D = optiset E and optiPoint 500 telephones with display
E = optiset E and optiPoint 500 telephones without display

N = Analog telephones, analog TA, TA RS232
S = ISDN (S0) terminals, TA S0
C = Cordless

A.3 Expert Mode Codes

Introduction

You can administer HiPath 3000 systems from an optiset E memory telephone using expert mode (also known as Assistant T) at either of the first two stations ($U_{PO/E}$). You can initiate expert mode by entering a sequence of consecutive digits that branch you to the desired option.

Error Message Displays

You must acknowledge error messages. When the system reports an error as a result of entering a previously used code, the expert mode code appears at the beginning of the second line of the display. You can use the expert mode code to go directly to the desired menu segment.

Menu Selection Using Codes

Depending on the menu you enter either single-digit or multi-digit codes. You can use * on the numeric keypad to change the item and # to call the configuration option.

Accessing System Administration

Users can access system administration by entering a user name (ID) and password (authentication). Depending on the active password concept (refer to Section 12.9.1 for more details), the procedure is as follows:

Table A-2 Starting System Administration (Service)

Step	Input	Explanation
1.	*95	Start system administration
2.	XXXXX	Enter user name: • Fixed password concept: User name = 31994 • Variable password concept: Individual user name
3.	XXXXX	Enter password: • Fixed password concept: Password = 31994 • Variable password concept: Individual password

For an example of the first time system administration is called via Assistant T after the system is booted, refer to page 12-37.

Table A-3 Expert Mode Code Groups (First-Level Menus)

Code Group	Function
System maintenance expert mode (previously Assistant T)	
11	Call detail recording
12	System speed dial
13	Account Code
14	Configure station
15	Toll restriction
16	Incoming calls
17	Networking
18	Traffic restriction
19	Displays
20	ISDN parameters
21	Analog CO interface
22	System settings
23	Codes
24	Entrance phone
25	Announcement/Music
26	Relays
27	Sensors (HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300 only)
28	Edit CDB
29	System details
30	Remote administration
31	UCD (not HiPath 3250 and HiPath 3150)
32	Radio paging equipment (not for U.S.)
33	Attendant console
34	DISA
35	Least cost routing (LCR)
36	HiPath cordless (not for U.S.)
37	Security
51-63	Customer administration (previously Assistant TC)

Table A-4 Expert Mode Codes

Code				Function
11				**Call detail recording**
11	1			CDR/station (call detail recording at station)
11	1	1		View CDR/station; enter station number (11-74)
11	1	2		Print CDR/station
11	2			CDR per trunk (call detail recording per trunk)
11	2	1		View CDR per trunk; select slot/trunk
11	2	2		Print CDR per trunk
11	3			CDR central (call detail recording central)
11	3	1		Print format: 0 = Compressed, 1 = Long
11	3	2		Station number format, Suppress digits; 0 = No, 1 = Yes
11	3	3		Incoming calls: 0 = No, 1 = Yes
11	3	4		Call duration: 0 = No, 1 = Yes
11	3	5		Print MSN: 0 = No, 1 = Yes
11	3	6		Call charge display, 1 = Amount / 2 = Pulses
11	3	7		Outgoing without connection, 0 = no / 1 = yes
11	4			Call charge factor (not for U.S.): Enter 0 % to 10000 %
11	5			ISDN units (not for U.S.): Enter 0 % to 10000 %
11	6			Currency, alphanumeric entry of max. 3 characters (not for U.S.)
11	7			Call log: 0 = No, 1 = Yes
11	8			CDRA (call detail recording, attendant), pay phone, station.
11	9			Calculation accuracy (0 to 3)
11	9	1		Calculation accuracy, fractional digits
12				**System speed dial**
12	1			Speed dial numbers, external station numbers 000 to 999 (HiPath 3750, HiPath 3550, HiPath 3700, HiPath 3500); 000 to 299 (HiPath 3350, HiPath 3250, HiPath 3150, HiPath 3300)

Table A-4 Expert Mode Codes

Code				Function
12	2			Speed dial names, alphanumeric entries of up to 16 positions (optiset E memory only), only if speed-dialing numbers have been entered
13				**Account Code (ACCT)**
13	1			Code entries, list 0 to 999
13	2			Verification mode: 0 = Non-verified, 1 = Code entries, 2 = Code length
13	3			Trunk group mode: 0 = Non-verified, 1 = Forced
13	4			Code length (1 to 11)
14				**Configure station**
14	10			Copy station data
14	11			Station type
14	11	0		Default
14	11	1		Fax
14	11	2		Voice mail 5
14	11	3		Speaker
14	11	4		Answering machine
14	11	5		External music on hold (MOH)
14	11	6		Analog telephone MW
14	11	7		Voice mail 6
14	11	8		Door, pulse
14	11	9		Memo
14	12			Station name, alphanumeric entry of up to 16 characters (optiset E memory only)
14	13			Busy override: 0 = Denied, 1 = Allowed
14	14			Associated dialing: 0 = Denied, 1 = Allowed
14	15			DISA: 0 = Denied, 1 = Allowed
14	16			Call waiting rejection: 0 = Off, 1 = On
14	17			Headset: 0 = Off, 1 = On

Table A-4 Expert Mode Codes

Code				Function
14	18			Call pickup group: HiPath 3750, HiPath 3700: Groups 1 to 32, max. 32 stations HiPath 3550, HiPath 3500: Groups 1 to 16, max. 32 stations HiPath 3350, HiPath 3250, HiPath 3150, HiPath 3300: Groups 1 to 8, max. 8 stations
14	19			Reset station PIN: 0 = Reset to 00000
14	20			Override do not disturb: 0 = No, 1 = Yes
14	21			Caller list: 0 = No, 1 = Yes
14	22			Trace call: 0 = Denied, 1 = Allowed (not for U.S.)
14	23			Call forwarding external: 0 = Denied, 1 = Allowed
14	24			Reserved
14	25			Data compression: 0 = No, 1 = Yes
14	26			Select language: 11 = German 12 = US English 13 = French 14 = Spanish 15 = English 16 = Italian 17 = Dutch 18 = Portuguese 19 = Finnish 20 = Czech 21 = Danish 22 = Swedish 23 = Norwegian 24 = Turkish 25 = Telekom, German 26 = Polish 27 = Hungarian 28 = Russian 29 = Greek 30 = Slovenian 31 = Serbo-Croatian 32 = Estonian 33 = Latvian 34 = Lithuanian 35 = Chinese 36 = Slovakian 37 = Catalonian

Table A-4 Expert Mode Codes

Code				Function
14	27			Stop voice calling, 0 = off / 1 = on
14	28			Phone lock intercept: 0 = No, 1 = Yes
14	29			Signaling method: 1 = DTMF, 2 = Dial pulses
14	30			Busy lamp field (BLF; not for U.S): Display: No BLF, one BLF, two BLFs
14	31			Collect call barring per station
14	32			Set up station in telephone directory, 0 = no / 1 = yes
14	33			Editing the telephone number, 0 = no / 1 = yes
14	34			Monitoring, 0 = not authorized, 1 = authorized
14	35			Keypad dialing, 0 = not authorized, 1 = authorized
15				**Toll restriction**
15	1			Restriction, day; specify reference station Enter new data: 0 = No access except by system speed-dialing 1 = Incoming only 2-7 = Allowed list / Allowed lists 1-6 8-13 = Denied list / Denied lists 1-6 14 = Full access
15	2			Restriction, night; specify reference station Enter new data: 0 = No access except by system speed-dialing 1 = Incoming only 2-7 = Allowed list / Allowed list 1-6 8-13 = Denied list / Denied list 1-6 14 = Full access
15	3			Allowed lists
15	3	1		Allowed list 1, 100 entries
15	3	2		Allowed 2, 10 entries
15	3	3		Allowed 3, 10 entries
15	3	4		Allowed 4, 10 entries
15	3	5		Allowed 5, 10 entries
15	3	6		Allowed 6, 10 entries
15	4			Denied lists
15	4	1		Denied list 1, 50 entries

Table A-4 Expert Mode Codes

Code				Function
15	4	2		Denied 2, 10 entries
15	4	3		Denied 3, 10 entries
15	4	4		Denied 4, 10 entries
15	4	5		Denied 5, 10 entries
15	4	6		Denied 6, 10 entries
15	5			Number of authorized stations (for verification purposes only)
15	6			Telephone lock 0 = No access except by system speed-dialing 1 = Incoming only 2 - 7 = Allowed lists 1-6 (AL 1 to AL 6) 8 - 13 = Denied lists 1-6 (DL 1 to DL 6) 14 = Full access (full)
15	7			Toll restriction, 0 = Per digit, 1= En-bloc
15	8			COS of transferred trunks
15	9			Toll restriction, private
16				**Incoming calls**
16	10			Internal station numbers
16	10	1		Station
16	10	1	1	Change station number, position -> station number
16	10	1	2	Find station number, position -> slot/port
16	10	2		Groups
16	11			DID numbers; (internal) station number is displayed; enter (new) station number
16	12			Intercept, day; enter new destination, group or Stn. no., max. 6 digits
16	13			Intercept, night; enter new destination, group or Stn. no., max. 6 digits
16	14			Intercept mode
16	14	1		On no answer: 0 = No, 1 = Yes
16	14	2		On busy
16	14	2	1	Intercept: 0 = No, 1 = Yes
16	14	2	2	On busy: 0 = No, 1 = Yes
16	14	3		On misdialed number: 0 = No, 1 = Yes

Table A-4 Expert Mode Codes

Code				Function
16	14	4		On incomplete number: 0 = No, 1 = Yes
16	14	5		On recall: 0 = No, 1 = Yes
16	15			Hunt/group call
16	15	1		Called station no.; select group and assign destination
16	15	2		Group type; select group and type: 1 = Circular hunt group 2 = Linear hunt group 3 = Group call 4 = Group call, no answer 5 = Basic MULAP 6 = Executive MULAP
16	15	3		Group name; select group and enter name (optiset E memory only)
16	15	4		Select host (primary)/executive, group, and station (only stations that are not the host (primary) telephone in another group)
16	16			Call allocation, day; select slot/trunk and assign station no.
16	17			Call allocation, night; select slot/trunk and assign station no.
16	18			Call forwarding—no answer
16	18	1		Select call destination list and destination index (1 – 4). Call destination lists: • up to and including V1.2 = 70 • V3.0 and later = – 500 for HiPath 3750, HiPath 3700 – 376 for HiPath 3550, HiPath 3500 – 70 for all other systems Select destination (1 – 4), possible entries: • targeted call number of a station or a group • * = identical to called station • #9 = system search of all stations except for the executive-extensions • #201 – #260 = uniform call distribution group 01 to group 60 • #301 ', – #316 = announcement device 1 to 16 • an external destination, i.e., call numbers in satellites and in the central office

Table A-4 Expert Mode Codes

Code				Function
16	18	2		Internal calls; select station/group: • up to and including V1.2 = 1 – 70 • V3.0 and later = – 1 – 500 for HiPath 3750, HiPath 3700 – 1 – 376 for HiPath 3550, HiPath 3500 – 1 – 70 for all other systems
16	18	3		External calls, day; select station/group: • up to and including V1.2 = 1 – 70 • V3.0 and later = – 1 – 500 for HiPath 3750, HiPath 3700 – 1 – 376 for HiPath 3550, HiPath 3500 – 1 – 70 for all other systems
16	18	4		External calls, night; select station/group: • up to and including V1.2 = 1 – 70 • V3.0 and later = – 1 – 500 for HiPath 3750, HiPath 3700 – 1 – 376 for HiPath 3550, HiPath 3500 – 1 – 70 for all other systems
16	18	5		Number of rings (1 to 15) for station/group
16	18	6		Night bell, location for station/group
16	18	7		Night bell, mode: 1 = Immediate connect, 2 = After timeout
16	18	8		Call forwarding (CF) on busy, 0 = Do not forward call, 1 = Forward call
16	19			Ring cadence, 0 = Type 1, 1 = Type 2, 2 = Type 3
16	20			DID DTMF, 0 = Denied / 1 = Allowed
16	21			Collect call barring (Brazil), 0 = off / 1 = on
17				**Networking**
17	11			Prime Line: 0 = Off, 1 = On
17	12			Assign trunk group; select slot/trunk and assign trunk group Trunk group 1-8 (HiPath 3350, HiPath 3300) Trunk group 1-16 (HiPath 3750, HiPath 3550, HiPath 3700, HiPath 3500)
17	13			Overflow trunk group; select trunk group and assign overflow trunk group
17	14			Trunk type CO/CS; select trunk type: 0 = CO, 1 = CS

Table A-4 Expert Mode Codes

Code				Function
17	15			Trunk group name; select trunk group and enter name (optiset E memory only)
17	16			Trunk group hunt mode; select trunk group: 0 = Circular, 1= Linear
17	17			Rerouting (optimized B channel utilization)
17	17	1		Rerouting active: 0 = No, 1 = Only if known, 2 = Always
17	17	2		Change trunk groups: 0 = Denied, 1 = Allowed
17	18			Central intercept
17	19			Call data routing
17	19	1		Destination system
17	19	2		System number, 1-255
17	19	3		Group number, 1-40
17	19	4		Node number
17	20			Digit repetition; select trunk group: 0 = Off, 1 = On
17	21			Path optimization: 0 = No, 1 = Yes
17	22			QSig: Voice mail
17	22	1		Callback access number
17	22	2		Callback access name
17	23			QSig: Busy signaling
17	23	1		Station, 0 = no / 1 = yes
17	23	2		Station number, destination system
17	23	3		System number, destination system
18				**Traffic restriction**
18	1			Configure exec./sec. groups; select group, enter: 1 = Exec. 1 / 2 = Exec. 2 / 3 = Sec. 1 / 4 = Sec. 2 HiPath 3750, HiPath 3700: Group 1-16 HiPath 3550, HiPath 3500: Group 1-10 HiPath 3350, HiPath 3300: Group 1-4
18	2			Hotline
18	2	1		Hotline destinations HiPath 3750, HiPath 3550, HiPath 3700, HiPath 3500: Destination 1-6 HiPath 3350, HiPath 3300: Destination 1

Table A-4 Expert Mode Codes

Code				Function
18	2	2		Hotline station number
18	2	2	1	Hotline mode: 0 = Off, 1 = Hotline, 2 = Hotline after timeout
18	2	2	2	Hotline assignment HiPath 3750, HiPath 3550, HiPath 3700, HiPath 3500: 1-6 HiPath 3350, HiPath 3300: 1
18	2	3		Hotline timeout, 1-99 x s
18	3			ITR groups (internal traffic restriction groups)
18	3	1		Group assignment
18	3	1	1	Station (Group 1-6)
18	3	1	2	Trunks; select slot and trunk (Group 1-6)
18	3	1	3	Speed-dialing number assignment
18	3	1	3-1	Minimum speed-dialing group, Select group, 0 to 999
18	3	1	3-2	Maximum speed-dialing group, Select group, 0 to 999
18	3	2		Connection groups
18	3	2	1	Connection group: select group, 0 = No, 1 = Yes
19				**Displays**
19	11			Text messages: select message no. 0 to 9 and enter alphanumeric text (up to 24 characters) (optiset E memory only)
19	12			Advisory messages: select message no. 0 to 9 and enter alphanumeric text (up to 24 characters) (optiset E memory only)
19	13			Enter 4-digit time in the format HHMM (hour minute)
19	14			Enter 6-digit date in the format DDMMYY (day month year)
19	15			Call duration: 0 = Off, 1 = On
19	16			Names and station numbers: 0 = Station number, 1 = Name, 2 = Names and station numbers
19	17			Recall: 1 = Initial caller, 2 = Recalling station
19	18			Unscreened transfer: 1 = Transfer from, 2 = Transferred party
20				**ISDN parameters**
20	1			Caller ID suppression: 0 = Off, 1 = On
20	2			System station number - incoming

Table A-4 Expert Mode Codes

Code				Function
20	2	1		Station number; select trunk group
20	2	2		National number; select trunk group
20	2	3		International number; select trunk group
20	2	4		Type, outgoing; select trunk group: 0 = Unknown, 1 = Station, 2 = National, 3 = International
20	2	5		National prefix (U.S. = 1)
20	2	6		International prefix (U.S. = 011)
20	3			Reference clock
20	3	1		Priority list; select position (slot and port)
20	3	2		Denied list; select position (slot and port)
20	4			EU parameters (not for U.S.)
20	4	1		S_0 port configuration; select slot/port and determine connection type (not for U.S.): 1 = Automatic 2 = DSS1 trunk PP 3 = DSS1 trunk PMP 4 = Euro-bus 5 = CorNet 1 6 = CorNet 2 7 = ECMA-QSIG 8 = ISO-QSIG
20	4	2		S2M port configuration; select slot/port and determine connection type (not for U.S.): 1 = DSS1 trunk PP 2 = CorNet 1 3 = CorNet 2 4 = ECMA-QSIG (not for U.S.) 5 = ISO-QSIG (not for U.S.)
20	4	3		S_0 bus MSN (for verification purposes only) (not for U.S.)
20	4	4		Call forwarding PMP (not for U.S.)
20	4	4	1	Multiple subscriber numbers, select index, 1 to 10 (not for U.S.)
20	4	4	2	MSN trunks, select index, 1 to 10 (not for U.S.)
20	5			US parameters (for U.S. only)
20	5	1	x	CACH EKTS (U.S. only): 0=disabled, 1=enabled
20	5	1		BRI parameter

Table A-4 Expert Mode Codes

Code				Function
20	5	1	1	CO/protocol: 1 = AT&T/NI 1 2 = AT&T/Custom 3 = Siemens/NI 1 4 = NT/NI 1
20	5	1	2	SPID admin, select station, select slot/port
20	5	1	3	CAID admin, stn., select CAID
20	5	1	4	PDID admin, stn., select PDID
20	5	1	5	FIN - for message waiting
20	5	1	6	CACH EKTS, select slot/port, 0 = Off / 1 = On
20	5	2		PRI parameters
20	5	2	3	Emulation type
20	5	2	4	Frame/line/encod
20	5	2	5	B-chn alloc. mode
20	5	2	6	Remote payload
20	5	2	7	No. of B-chn
20	5	2	8	B-chn identifier
20	5	2	9	Trk grp service
20	5	2	10	Facility

Table A-4 Expert Mode Codes

Code				Function
20	5	2	11	Protocol type: 11 = AT&T/Custom 12 = AT&T/NI2 13 = AT&T/NI2 OSA 14 = AT&T/4ESS 15 = Siemens/Custom 16 = Siemens/Custom OSA 17 = Siemens/NI2 18 = Siemens/NI2 OSA 19 = MCI/DEX600 20 = MCI/DMS250 21 = BELL/DMS100 22 = BELL DMS100 TNS 23 = Nortel/DMS100 24 = Nortel DMS100 TNS 25 = SPRINT/DMS250 26 = Westinghouse 27 = FTS/DMS250 28 = FTS/5ESS 29 = GENERIC/NI2 30 = GENERIC/NI2 OSA 31 = QSIG 32 = IDA-P
20	5	2	12	Frame/line/encod, select slot 0 = ESF/B8ZS/Normal 1 = SF/ZCS/Inverted
20	5	2	13	Inwats parameter
20	5	2	13-1	Trunk group
20	5	2	13-2	DNIS
20	5	2	13-3	Entrance telephone ring destination

Table A-4 Expert Mode Codes

Code				Function
20	5	2	14	Calling service, select trunk group 11 = NONE 12 = AT&TSDN-GSDN 13 = AT&TSDDN 14 = MCI-VN-VS 15 = SPRINT-VPN 16 = WICN-PV 17 = MEG800-TFM 18 = MCI 800 19 = ULTRA-800 20 = WICN-INWATS 21 = MEG 22 = MCI-PRISIM-WATS 23 = SPR-ULTRA-WATS 24 = WICN-OUTWATS 25 = ACCU-SDS 26 = LDS-WC-TSAA 27 = INTER-800 28 = MULTIQUEST 29 = MCI-900 30 = SDS56 31 = SDS64C 32 = SDS64R 33 = DMS100-PV 34 = DMS100-INWATS 35 = DMS100-OUTWATS 36 = DMS100-FX 37 = 5ESS-INWATS 38 = WATS-MSB 39 = DMS100-TIE 40 = NI2-INWATS 41 = NI2-OUTWATS 42 = NI2-FX 43 = NI2-TIE 44 = NI2-HOTEL 45 = NI2-SCOCS 46 = CALL-BY-CALL 1 47 = CALL-BY-CALL 2 48 = CALL-BY-CALL 3 49 = CALL-BY-CALL 4 50 = WATS-BANDED

Table A-4 Expert Mode Codes

Code				Function
20	5	2	15	CBC pool: 11 = AT&TSDN-GSDN 12 = AT&TSDDN 13 = MCI-VN-VS 14 = SPRINT-VPN 15 = WICN-PV 16 = MEG800-TFM 17 = MCI 800 18 = ULTRA-800 19 = WICN-INWATS 20 = MEG 21 = MCI-PRISIM-WATS 22 = SPR-ULTRA-WATS 23 = WICN-OUTWATS 24 = ACCU-SDS 25 = LDS-WC-TSAA 26 = INTER-800 27 = MULTIQUEST 28 = MCI-900 29 = SDS56 30 = SDS64C 31 = SDS64R 32 = DMS100-PV 33 = DMS100-INWATS 34 = DMS100-OUTWATS 35 = DMS100-FX 36 = 5ESS-INWATS 37 = WATS-MSB 38 = DMS100-TIE 39 = NI2-INWATS 40 = NI2-OUTWATS 41 = NI2-FX 42 = NI2-TIE 43 = NI2-HOTEL 44 = NI2-SCOCS
20	5	2	16	CBC access code
20	5	3		S_0 bus MSN, select slot/port
20	5	4		QSIG: S0 parameter
20	6			QSIG parameter
20	6	1		System number
20	6	2		Group number

Table A-4 Expert Mode Codes

Code				Function
20	7			Keypad dialing, 0 = not allowed / 1 = allowed
20	8			System station number - outgoing
20	8	1		Port number
20	8	2		National number
20	8	3		International number
20	8	4		Suppress station number
21				**Analog CO interface**
21	1			Signaling method; select slot/trunk: 0 = Automatic, 1 = DTMF, 2 = Dial pulses 3 = MFC-R2, 4 = MFC-R2 with OAD
21	1	3		MFC-R2
21	1	4		MFC-R2 with OAD
21	2			Delayed dialing; select trunk group: 0 = No pause, 1 = 1 s, 2 = 3 s, 3 = 6 s, 4 = 9 s
21	3			Incoming CO delay; select trunk group: 1 = 6 s, 2 = 13 s
21	4			Distance from CO; select slot and trunk: 0 = Short 1 = Long
21	5			Call charging module, select slot/trunk: 0 = off / 1 = on
21	6			Silent reversal: 0 = No, 1 = Yes (not for U.S.)
21	7			Port status: 0 = on, 1 = Off (SW), 2 = Off (HW), 3 = Off (HW, SW)
22				**System settings**
22	11			Music on hold (MOH): 0 = Off, 1 = No ring tone, 2 = Ring tone, 3 = Announcement device 1
22	12			Directory: 0 = Off, 1 = On
22	13			V.24 (RS-232) configuration
22	13	1		CB baud rate, select V.24 port, 1 = 9600 baud 2 = 2400 baud 3 = 19200 baud
22	13	2		Port assignment

Table A-4 Expert Mode Codes

Code				Function
22	13	2	1	Port for CSTA/CDRC (call detail recording central) Output, 0 = None / 1 = V.24 port / 2 = $U_{P0/E}$ port / 3 = PC AC/ 4 = LAN
22	13	2	2	Port for CDRS (call detail recording at station) Output, 0 = None / 1 = V.24 port / 2 = $U_{P0/E}$ port
22	13	2	3	Port for CDRT (call detail recording per trunk) Output, 0 = None / 1 = V.24 port / 2 = $U_{P0/E}$ port
22	13	2	4	Port for CDB printout
22	13	2	5	Port for CDR printout
22	13	2	6	Port for CDRA (call detail recording, attendant); if a pay phone is configured, also see code 11 8 Output, 0 = None / 1 = V.24 port / 2 = $U_{P0/E}$ port
22	14			Call FWD, external
22	14	1		Connect call: 0 = On answer, 1 = Immediately
22	14	2		Call FWD, no answer: 0 = Deactivate, 1 = Activate
22	15			Caller list mode, 1 = External only 2 = External and internal 3 = Ext. ring/call
22	16			Applications
22	16	1		UCD: 0 = No, 1 = Yes
22	17			Tones
22	17	1		Conference, alert tone: 0 = Off, 1 = On
22	17	2		Call pickup, alert tone: 0 = Off, 1 = On
22	18			Transfer key (Retrieve), 1 = Press once, 2 = Press twice
22	19			Class of service
22	19	1		Night answer, Pos. 1-5; enter station
22	19	2		Central telephone lock
22	20			DTMF automatic: 0 = No, 1 = Yes
22	21			Key click: 0 = Off, Volume level 1 to 4
22	22			DTMF mark to space ratio: 1 = 70/70 ms, 2 = 80/80 ms, 3 = 80/250 ms, 4 = 200/200 ms
22	23			Phone lock destination

Table A-4 Expert Mode Codes

Code				Function
22	24			Stn. relocate: 0 = Denied, 1 = Allowed
22	25			Trunk reservation: 0 = Off, 1 = On
22	26			Speaking volume, 0 = Default / 1 = High
22	27			CO features (Transfer/Conference/Drop): 0 = disabled, 1 = enabled
22	28			Feature Identification Number (FIN) for Transfer (U.S. only)
22	29			Feature Identification Number (FIN) for Conference (U.S. only)
22	30			Feature Identification Number (FIN) for Drop (U.S. only)
22	31			Default MSN (for U.S. only): 0 = Off, 1 = On
22	32			DTMF hidden, 0 = Off/1 = On
22	33			Announcement with connection, 0 = Not allowed/1 = Allowed
22	34			MFC-R2 parameters
22	34	1		Collect call barring
22	34	2		DID digits
22	35			Common hold
22	35	1		By hanging up
22	35	2		Without hanging up
22	36			Switch line, DSS; 0 = no / 1 = yes (Status 1: USA; Status 0: ROW-rest of world)
22	37			Advisory call, 0 = off / 1 = on
22	38			Trace stop facility
22	38	1		Stop trace
22	38	1	01	Assistant, 0 = inactive / 1 = active
22	38	1	09	HW, 0 = inactive / 1 = active
22	38	1	12	Processor, 0 = inactive / 1 = active
22	38	1	15	APSXF, 0 = inactive / 1 = active
22	38	1	16	General, 0 = inactive / 1 = active (error 19 cannot be set to inactive)
22	38	1	20	CP, 0 = inactive / 1 = active
22	38	1	21	DH, 0 = inactive / 1 = active
22	38	1	23	Network, 0 = inactive / 1 = active

Table A-4 Expert Mode Codes

Code				Function
22	38	1	26	Presence, 0 = inactive / 1 = active
22	38	1	28	Recovery, 0 = inactive / 1 = active
22	38	1	29	IO process, 0 = inactive / 1 = active
22	38	1	30	LW, 0 = inactive / 1 = active (0 to n)
22	38	1	11	LW date, 0 = inactive / 1 = active (41 to n)
22	38	2		Reset, 1 = Delete all/ 2 = System default
22	39			IP access
22	39	1		IP interface, mode: 0 = Inactive 1 = HIP Forwarding 2 = LIM 3 = SLIP Routing
22	39	2		IP address, data (7 ... 15): x.x.x.x (x = 0 ... 255) Use either “*” or “.” as a separator.
23				**Codes**
23	1			Substitute code *, code 75
23	2			Substitute code #, code 76
23	3			Trunk access code; select slot and trunk and enter new code
23	4			Trunk group code; select trunk group followed by position 1-10 for code and enter new code Trunk group 1-8 (HiPath 3350, HiPath 3250, HiPath 3150, HiPath 3300) Trunk group 1-16 (HiPath 3750, HiPath 3550, HiPath 3700, HiPath 3500)
23	5			Attendant code
23	5	1		Attendant code DID
23	5	2		Attendant code internal
23	6			Second trunk access code
23	7			Reset telephone lock code
24				**Entrance phone**
24	1			Entrance phone; select door, max. 6 digits, door 1-4
24	2			Destination; select door, max. 6 digits, door 1-4
24	3			Door opener; select door: 0 = Not available, 1 = Available, 2= Available with DTMF, door 1-4

Table A-4 Expert Mode Codes

Code				Function
24	4			Call forwarding, door, external; select door: 0 = Deactivate, 1 = Activate
24	5			Door opener, DTMF; select station: 0 = Denied, 1 = Allowed
25				**Announcement/Music**
25	1			Announcement devices; select announcement device: 1 for HiPath 3350, HiPath 3300 1 to 4 for HiPath 3550, HiPath 3500 1 to 16 for HiPath 3750, HiPath 3700
25	2			Announcement type; select announcement device: 1 = Announcement/music, 2 = Music on hold, 3 = Internal music
25	3			Announcement before answer; select slot and trunk
25	4			External MOH (Only enter analog line module stations.)
26				**Relays**
26	1			Type; select relay 1 to 4 and assign function: 11 = Manual on and off 12 = Off after timeout 13 = Door opener 14 = Speaker amplifier (starting contact for amplifier) 15 = Busy display 16 = Music on hold 17 = Call charge pulse (not for U.S.) 18 = Second bell 19 = Station active 20 = Announcement or music
26	2			Switching time Select relay 1 through 4 and enter up to 3 digits (0 to 255)
26	3			Assigned station Select relay 1 through 4 and enter stations or groups (up to 5 digits)
26	4			Relay name; select relay 1 through 4, enter alphanumeric name of max. 16 characters (optiset E memory only)

Table A-4 Expert Mode Codes

Code				Function
27				**Sensors (HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300 only)**
27	1			Type: 0 = Alarm, 1 = UCD call distribution
27	2			Destination station no.; select sensor 1 - 4 External station with seizure code (trunk/direction) Internal station with station prefix (if programmed)
27	3			Station no. for announ.; select sensor 1 - 4 and enter station or group number (max. 6 digits)
27	4			Announcement control; select sensor 1 - 4 and enter control characters 0 - 9, *, #, max. 24 digits
27	5			Ring duration; select sensor 1 through 4 and enter 1 to 255
27	6			Ring interval; select sensor 1 through 4 and enter 0 to 255
27	7			Number of rings; select sensor 1 through 4 and enter 1 to 255
27	8			Blocking time; select sensor 1 through 4 and enter 0 to 255
27	9			Sensor text; select sensor 1 to 4, enter alphanumeric text of up 16 characters (optiset E memory only)
28				**Edit CDB**
28	1			Print CDB data
28	2			Save CDB data
28	2	1		CDB to MMC
28	2	2		CDB from MMC
29				**System details**
29	1			System
29	1	1		System type (for verification purposes only)
29	1	2		Software version (for verification purposes only)
29	1	3		Load APS via V.24 (HiPath 3250 only) Acknowledged by turning system on/off.
29	2			Status display
29	2	1		Call forwarding, external, 0 = Off, 1 = On (for verification purposes only)
29	2	2		Night answer, 0 = Off, 1 = On (for verification purposes only)
29	2	3		Trunk, 0 = Inactive, 1 = Active (for verification purposes only)

Table A-4 Expert Mode Codes

Code				Function
29	3			Options (HiPath 3550, HiPath 3350, HiPath 3500 and HiPath 3300 only)
29	3	1		Type per option (for review only) 1 = Relays 2 = Call detail recording 3 = Fax/DID 4 = ANI 5 = Announcement (Beyer)
29	3	2		Software version for each option (1 to 16) (for verification purposes only)
29	3	3		Reset options
29	4			Boards
29	4	1		Board type, select slot: 11 = TMS2 12 = TMST1 - digital 13 = TIEL 14 = TMDID 15 = TML8W 16 = TMOM 17 = TMGL8 18 = TLA2 19 = TLA4 20 = TLA8 21 = TMS2 22 = TMGL2 23 = TMGL4 24 = TMQ2 25 = TMQ4 26 = TST1 - digital 27 = STMD 28 = STLS2 29 = STLS4 30 = SLA16 31 = SLMO8 32 = SLMO24 33 = SLMC8 (CMI V1) 34 = 4SLA 35 = 8SLA

Table A-4 Expert Mode Codes

Code				Function
29	4	1		Board type, select slot: 36 = 16SLA 37 = SLU8 38 = ILAN 39 = SLC16 (CMI V2.2M) 42 = SLMO8K 43 = SLMO24K 44 = SLA8N 45 = SLA16N 46 = SLA24N 47 = TMAMF 48 = CR8 49 = SLU4 (Octopus E 10) 50 = SLU2 (Octopus E 10) 51 = HXGM (HiPath 3750, HiPath 3700) 52 = HXGS (HiPath 3550, HiPath 3350, HiPath 3500, HiPath 3300) 53 = IVMS8 54 = IVML8 55 = IVML24 56 = SLAS16B 57 = TMCAS 58 = SLUC8 ($U_{P0/E}$ interfaces on CBCC, CBRC, CBCP, CBRP) 59 = SLUC4 ($U_{P0/E}$ interfaces on SBSCO) 60 = SLUC2 ($U_{P0/E}$ interfaces on SBSCS)
29	4	2	xx	Reset board (for BG no., see 29-4-1)
29	4	3	0-9	Board status
29	4	4		Disable / Enable board

Table A-4 Expert Mode Codes

Code				Function
29	5			Initialize country: select country code (00 to 99) 11 = Germany 12 = Netherlands 13 = France 14 = Finland 15 = United Kingdom 16 = Italy 17 = Spain 18 = Portugal 19 = Switzerland 20 = Austria 21 = International 22 = Ireland 23 = Belgium 24 = Brazil 25 = South Africa 26 = China 28 = India 29 = Czech Republic 30 = Denmark 31 = Australia 32 = Argentina 33 = Philippines 36 = Singapore 37 = Hungary 38 = Malaysia 40 = Indonesia 41 = Russia 42 = Thailand 46 = Poland 47 = Greece 49 = Sweden 50 = Norway 51 = Turkey 52 = U.S.A. and Canada 53 = Pakistan 54 = Hong Kong 55 = New Zealand

Table A-4 Expert Mode Codes

Code				Function
30				**Remote administration**
30	1			DTMF access: 0 = No access, 1 = Access as host (primary), 2 = Access as client (secondary), 3 = Host and client (primary and secondary)
30	2			ISDN trunk access, 0 = Enable procedure/1 = Logon (DID) without PIN/ 2 = Logon (DID) with PIN / 3 = Callback
30	3			IMOD access: 0 = Enable procedure, 1 = Logon without code, 2 = Logon (DID) with code, 3 = Callback
30	4			Reset password
30	5			Integrated modem
30	5	1		Station number, up to 6 digits
30	5	2		DID number
30	5	3		CAID admin (for U.S. only)
30	6			Digital modem
30	6	1		Station number, max. 6 digits
30	6	2		DID number
30	6	3		CAID admin
30	7			Callback call
30	7	1		Destination; select position (1-6)
30	7	2		Password; select position (1-6)
30	7	3		X.75 protocol: 0 = No, 1 = Yes
30	8			Auto CDB printout, state 0 = No / 1 = Yes
30	9			USBS D-channel access (not for U.S.)
30	9	1		Station number
30	9	2		DID number
31				**UCD (not HiPath 3250, HiPath 3150)**
31	1			Group assignment; select group ID
31	2			Group parameters
31	2	1		Announcement device; select group HiPath 3750, HiPath 3700: Announcement device 1-16 HiPath 3550, HiPath 3350, HiPath 3500, HiPath 3300: Announcement device 1-4

Table A-4 Expert Mode Codes

Code				Function
31	2	2		Wait times; select group, time: 1-9 x 30 s
31	2	3		Call cycles
31	2	3	1	Primary cycles; select group
31	2	3	2	Secondary cycles; select group
31	2	4		AICC connection; select group, 0 = Off / 1 = On
31	2	5		Max. waiting calls; select group
31	3			Work time, 0 = No autowork / 1-20 = Work time x 30 s
31	4			Call priority external; select slot/trunk
31	5			Call priority internal
32				**Radio paging equipment (not for U.S.)**
32	1			Radio paging port (slot and trunk) (not for U.S.)
32	2			Radio paging type (HiPath 3750, HiPath 3700 only): 1 = Standard, 2 = Enhanced (not for U.S.)
32	3			Protocol, 1 = ESPA 4.4.5, 2 = ESPA 4.4.3 (not for U.S.)
32	4			Operation mode (not for U.S.)
32	4	1		Mode urgent (not for U.S.)
32	4	2		Mode normal (not for U.S.)
32	4	3		Mode text (not for U.S.)
32	5			Display (not for U.S.)
32	5	1		Dial number (not for U.S.)
32	5	1	1	Code length (not for U.S.)
32	5	1	2	Display, filler: 0 = None, 1 = Left, 2 = Right (not for U.S.)
32	5	1	3	Filler (not for U.S.)
32	5	2		Text (not for U.S.)
32	5	2	1	Code length (not for U.S.)
32	5	2	2	Display, filler: 0 = None, 1 = Left, 2 = Right (not for U.S.)
32	5	2	3	Filler (not for U.S.)
32	6			PSE data transfer; select sequence: 1 = Operation mode, 2 = Dial number, 3 = Text (not for U.S.)
32	7			PSE dial assignment; select station (not for U.S.)
32	8			PSE dial numbers; select index (not for U.S.)

Table A-4 Expert Mode Codes

Code				Function
33				**Attendant console**
33	1			Maximum waiting calls
33	2			Reserved
33	3			Speed transfer, 0 = Denied / 1 = Allowed
33	4			Transfer undialed trunk: 0 = Denied, 1 = Allowed
34				**DISA**
34	1			Day, night; select slot and trunk: 0 = None, 1 = Night only, 2 = Day only, 3 = Day and night
34	2			DID number
34	3			Security mode: 0 = After timeout, 1 = After #
34	4			CAID admin (for U.S. only)
35				**Least cost routing (LCR) optiset E memory only**
35	1			LCR on or off: 0 = Off, 1 = On
35	2			Dialing mode: 0 = Overlap sending, 1 = En-bloc sending
35	3			Outdial rule
35	3	1		Name; select line
35	3	2		Format; select line
35	3	3		Type; select line 0 = Unknown 1 = Main carrier 2 = 1-layer mode 3 = 2-layer mode 4 = CN 5 = DICS 6 = PRI
35	4			Authorization code; select index (1-16)
35	5			LCR schedule
35	5	1		Length of time; select day index (1 = Monday to 7 = Sunday) and time format (hhmm)
35	5	2		Time period; select day index (1 = Monday to 7 = Sunday) and time period 1-8
35	6			Access (1 to 15); select station
35	7			Routing tables

Table A-4 Expert Mode Codes

Code				Function
35	7	1		Trunk group; select table/line
35	7	2		Assign outdial rule; select table/line
35	7	3		Min. authorization; select table/line
35	7	4		Assign time period; select table/line
35	7	5		Warning, Select table/line, 1 = None / 2 = Display / 3 = Tone / 4 = Display and tone
35	8			Dialing plan
35	8	1		Dialed digits; select line
35	8	2		Assign routing table; select line
35	8	3		Account codes, 0 = No, 1 = Yes
35	8	4		Toll restriction, personal calls: 0 = No / 1 = Yes
36				**HiPath cordless (not for U.S.)**
36	1			Log on CMI unit; select device, 1 = Inactive (not for U.S.)
36	2			CMI code; select device (not for U.S.)
36	3			CMI number; select device, changes not possible (not for U.S.)
36	4			Reset cordless code (not for U.S.)
36	5			DECT identification, data (not for U.S.): 1. E/ARC 2. EIC 3. FPN 4. FPS
37				**Security**
37	1			Change password

Table A-4 Expert Mode Codes

Code				Function
Customer administration (previously Assistant TC)				
51				System speed dialing
51	1			Speed-dialing numbers
51	2			Speed-dialing names
52				Time, hour/minute
53				Date, mmddyy
54				Call detail recording (does not appear if another station has call detail recording authorization)
54	1			CDR at station
54	1	1		Edit CDRS
54	1	2		Print CDRS
54	2			CDR per trunk
54	2	1		Edit CDRT
54	2	2		Print CDRT
54	4			Call charge factor
54	5			ISDN factor
54	**6**			**Currency designation**
54	7			Call log
54	8			CDRA pay phone
55				**Station names**
56				**Text messages**
57				**Advisory messages**
58				Language selection
59				**Group names**
60				Account codes
60	1			Account code list
60	2			Testing, 0 = Not checked, 1 = ACCT list, 2 = Number of digits
60	3			Input operation, 0 = Optional, 1 = Mandatory
60	4			Number of digits
61				Hotline

Table A-4 Expert Mode Codes

Code				Function
61	1			Hotline destinations
61	2			Hotline station
61	2	1		Hotline mode, 0 = Off, 1 = Hotline, 2 = Code blue
61	2	2		Hotline assignment
61	3			Hotline timeout
62				Codes, remote administration
63				Codes, Cordless
99				Access
The bolded messages appear in optiset E memory telephones only.				

B U.S.-Specific Aspects

Contents

This appendix discusses the following U.S.-specific topics:

B.1 Configuring a Primary Rate Interface (PRI) ISDN

B.1.1 Introduction

This section discusses background information and planning issues for primary rate interface (PRI) ISDN.

Supported Protocols

The primary rate interface must be configured to communicate with the protocol supported by the public network service provider. Table B-1 lists the PRI protocols supported by the HiPath 3000 systems.

Besides the US market the T1-PRI protocol is also used for the country HONGKONG. In Hongkong the PRI protocol has always to be set to “IDA-P” - HKTA-Protocol.

Table B-1 Supported Protocols

Protocol
• ATT 4ESS CO
• ATT FTS2000 5ESS
• ATT FTS2000 DMS250 CO
• ATT Bell Canada DMS100 CO
• ATT Westinghouse DMS250 CO
• ATT 5ESS CO
• MCI DEX600 CO
• Northern Telcom DMS100 CO
• Sprint DMS100 CO
• Siemens EWSD CO
• Generic NI-2 CO
• Siemens NI-2 CO
• ATT NI-2 5ESS CO
• Siemens EWSD CO OSA
• Generic NI-2 OSA
• Siemens NI-2 OSA
• ATT 5 ESS NI-2 CO OSA

Planning Steps

Consider the following items when designing a primary rate interface.

- Determine network provider and feature requirements
- Contact the local service provider to determine the central office type, the national ISDN standard used, and the voice and data services supported
- Define your customer's needs and the services they will require
- Work with the network provider and the customer to determine any optional requirements for incoming and outgoing voice and data services

Table B-2 outlines the voice and data services provided by inter-exchange carriers (IECs) in the North American market.

Table B-2 Inter-Exchange Carrier (IEC) Protocol Calling Services

IEC SERVICES	AT&T 4ESS	MCI DMS-250/MCI DEX-600	SPRINT DMS250	WH DMS250	FTS 2000 DMS and FTS 2000 5ESS
INWATS (800)	MEG800-TFM	MCI 800	ULTRA-800	WICN-IN-WATS	N/A
OUTWATS	MEG	MCI-PRISM-WATS	SPR-UL-TRA-WATS	WICN-OUT-WATS	N/A
INWATS (900)	MULTI-QUEST	MCI/900	N/A	N/A	N/A
Intl IN-WATS (800)	INTER-800	MCI 800	N/A	N/A	N/A
PVN	AT&T SDDN	MCI-VN-VS	SPRINT-VPN	WICN-PV	N/A
Intl VPN	AT&T SDN-GSDN	N/A	SPRINT-VPN	N/A	N/A
SDS-56	ACCU-SDS	None	ACCU-SDS	ACCU-SDS	N/A
SDS 64-c/r	ACCU-SDS	None	ACCU-SDS	ACCU-SDS	N/A

Table B-3 outlines the voice and data services provided by local exchange carriers (LECs) in the North American market.

Table B-3 Local Exchange Carrier (LEC) Protocol Calling Services

LEC SERVICES	AT&T 5ESS or SIEMENS EWSD	NT DMS-100 or BC DMS-100	GENERIC NI2 or SIEMENS NI2 or AT&T 5ESS NI2
INWATS (800)	MEG	DMS100 INWATS	NI2-INWATS
OUTWATS	MEG	DMS100 OUTWATS	NI2-OUTWATS
INWATS (900)	N/A	N/A	N/A
Intl INWATS (800)	N/A	N/A	N/A
PVN	N/A	DMS100-PV	N/A
Multiband OUTWATS	MEG	DMS100 OUT-WATS	NI2-OUTWATS
Access to LEC Operator	None	None	None
Access to Default IEC Operator	None	None	None
Equal Access to IEC Long Distance Services	MEG	DMS100 OUTWATS	NI2-OUTWATS
Basic CO Access	None	None	None
Access to IEC Operator	None	None	None
SDS-56	None	None	None
SDS 64-c/r	None	None	None

B.1.2 PRI Configuration Using HiPath 3000 Manager E

The following sections describe the PRI configuration sequence in detail.

Required Steps

Step	Task
1.	Configuring theT1 Boards
2.	Configure the Board Data for the PRI Span
3.	Configuring a Route Group for the PRI Span
4.	Defining the Protocol for Each Primary Rate Span
5.	Defining the PRI Route Parameters
6.	Setting Additional Route Parameters
7.	Defining the Clock Reference for the PRI Span

Optional Steps

Step	Task
1.	Configuring the INWATS Service (Optional)
2.	Configuring Call By Call Groups (Optional)

B.1.2.1 Configuring theT1 Boards

The boards (cards) must be configured in the database before they are recognized by the systems.

Configure the boards and upload the information back into the HiPath 3000 communications server. Reset the system to initialize the boards.

Programming Using HiPath 3000 Manager E

Step	Action
1.	System status ->System wide ->Switchover to ->Hardware expansion

Use the HiPath 3000 Manager E dialog box to select and place the T1 cards in the desired card slots. For Primary Rate applications, you must select the TST1 Digital or TMST1 Digital card type. The card data should be set for TMST1 Digital, which is the default.

B.1.2.2 Configure the Board Data for the PRI Span

Programming Using HiPath 3000 Manager E

Step	Action
1.	System status ->System wide ->Switchover to -> Hardware expansion ->Card configuration ->Card data

The T1 Module data is preset for a digital T1 interface and will operate in most situations. Card data information can be revised and saved as a template if required. Table B-4 lists the default configuration for the T1 digital interface.

Table B-4 HiPath 3000 Default T1 Digital Interface Configuration

	Operation Mode Layer 1		Operation Mode Layer 2
X	SF/ESF		In/Out Priority
X	AMI/B8ZS	X	Layer 2 active
X	Bipolar Violation detection		Not supported
X	Contact closure		Optical fiber
	Yellow Alarm with FS bit =1	X	CRC 6 - check
	ISDN with CAS Mode 2		TEI verify
	CAS Mode 4/16		EOC

B.1.2.3 Configuring a Route Group for the PRI Span

You should place the T1 digital card in a unique route group for easy identification. Typically, the entire T1 span is placed in a single trunk group; however, depending on the application, the primary rate channels can be separated into discrete route groups. This may be required for applications where a portion of the channels can be separated out for non-system data applications.

Programming Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking ->Trunks ->Route

Table B-5 shows a sample configuration.

Table B-5 Sample Route Group Configuration for a PRI Span

Slot/Trunk	Code	Route	Route Name
TMST1 6-1-1	7801	rte. 1	PRI 4ESS
TMST1 6-1-2	7802	rte. 1	PRI 4ESS
TMST1 6-1-3	7803	rte. 1	PRI 4ESS
TMST1 6-1-4	7804	rte. 1	PRI 4ESS
.	.	.	.
.	.	.	.
.	.	.	.
TMST1 6-1-23	7823	rte. 2	PRI 4ESS
.		.	.
TMST1 7-1-1	7824	rte. 2	PRI 5ESS
TMST1 7-1-2	7825	rte. 2	PRI 5ESS
TMST1 7-1-3	7826	rte. 2	PRI 5ESS
.			.
TMST1 7-1-23	7846	rte. 2	PRI 5ESS

B.1.2.4 Defining the Protocol for Each Primary Rate Span

This step defines the protocols used for each of the Primary Rate circuits in the system. Select the required protocol for the PRI span(s) connected to the system.

Programming Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking -> Trunks ->Parameters (double-click) ->ISDN flags

B.1.2.5 Defining the PRI Route Parameters

Define the selected PRI route characteristics using the Routes screen. The Routes screen is used to assign a name, Listed directory number, optional Overflow route and Calling service for the PRI interface.

The PRI span can be partitioned into separate route groups, and calling services can be assigned to each defined group.

Call by Call services are optional and should be reviewed with the customer and the public network provider.

Programming Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking ->Trunks ->Routes

Name

Enter a display name for the PRI interface. The entry can be up to 10 characters in length.

PABX Number

Typically the operating company assigns an 11-digit directory number to the PRI interface for incoming direct-inward-dialing and dialed-number Identification services. Depending on the length of the DID-DNIS number being sent from the central office, you should complete the following table entries.

For example, if the directory number received is 1-408-492-2000 and there are no DID-DNIS numbers required, the fields should be filled in as follows:

- Country Code: 1
- Local Area Number: 408
- PABX Number: 4922000

If the directory number received is 1-408-492-2000 and the direct-inward-dialing and dialed-number Identification services (DID-DNIS) numbers programmed are four digits, the fields should be filled in as follows. In this case, the table is used to strip the first nine digits from the incoming DID number. The entry will vary depending on the number of digits in the DID number (one to 11 digits).

- Country Code: 1
- Local Area Number: 408
- PABX Number: 492

Overflow Route

An optional route can be selected for handling outbound calls if the PRI interface channels are busy.

Calling Service

None: If None is selected, no optional voice or data services are required. The circuit will be used for basic voice applications.

Call by Call Group: One of four call-by-call groups can be selected in the HiPath 3750 and HiPath 3700. One call-by-call group can be selected in the HiPath 3550 and HiPath 3500. A call-by-call group can be assigned to the entire PRI span or to a specific route group associated with group of channels within a PRI span. Access codes for the specific calling services are assigned on the PRI screen.

Specific Calling Service for Route Group: A specific calling service can be assigned to the entire PRI span or to specific channels in a configured route group. If a service is assigned to a group of channels on a span, the seizure code for the route group is used to access the outbound service.

B.1.2.6 Setting Additional Route Parameters

The Route type should be set to CO and the number and type outgoing should be set to Local area code,

Programming Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking -> Routing parameters

Route Type:

- Route type: PABX

Number. and Type Outgoing:

- Country code: If selected, 14084922000 is sent to the network for our example.
- Local area code: If selected, 4084922000 is sent to the network for our example.
- PABX number: If selected, 4922000 is sent to the network for our example.
- Unknown: For future use

B.1.2.7 Defining the Clock Reference for the PRI Span

You must select a span or spans as the reference interface for the central office. A hierarchical table is provided for assigning four clock-reference points. If the primary clock source fails, the next clock source specified is used as the reference. When the primary clock source returns, the system automatically resynchronizes to it. In this example the TST1 span in slot 6 is used for referencing the clock from the Central Office. The TST1 in slot 7 is used as the secondary reference for backup support. A maximum of four reference clocks can be defined per system.

Programming Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking ->Trunks ->Clock parameters

Example:

Position	Allowed Numbers List
1	TMST1 6
2	TMST1 7
3	4

B.1.2.8 Configuring the INWATS Service (Optional)

Depending on the trunk group, an INWATS dialed number identification service (DNIS) port is assigned to a direct inward dialing (DID) port. This DID port should be configured as a pseudo-port, meaning that it is locked for basic DID. The entries in the call management tables are valid for the INWATS DNIS ports.

Programming Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking ->Trunks ->PRI

Example: INWATS DNIS

You can configure INWATS calling service for Trunk Group 2 and Trunk Group 3, depending on the carrier specification. The dialed number identification service (DNIS) 800-777-7222 on Trunk Group 2 leads to direct-inward-dialing (DID) Port 700 (dedicated service and CBC service). The empty DNIS field (response to no DNIS) on Trunk Group 3 leads to DID Port 701. This is for dedicated service only.

Position 1-40	Route 1-16	DID 1 to 7 Digits	Call Number
1	2	8007777222	700
2	3	–	701
3			
4			
.			
.			
40			

B.1.2.9 Configuring Call By Call Groups (Optional)

The HiPath 3750 and HiPath 3700 communications server support 4 call by call groups. HiPath 3550 and HiPath 3500 support one call by call group. Each call by call group supports from one to eight call services, which are accessed using a configurable code. Based on the parameters selected on the Trunks and Routes screen, an entire PRI span can be associated with a CBC pool or selected channels can be configured for specific ISDN calling services.

Call by Call groups can be used to access public network services on specific PRI channels provided by the central office. CBC trunk group 1 represents the #4ESS span and CBC trunk group 2 represents the #5ESS span. The direct access codes are placed in this dialog form.

A CBC Pool has been configured with the AT&T Megacom offering and the ACCUNET Data offering. The CBC trunk group codes are used to access the services identified in the CBC pool for each of the Primary Interface spans configured in the system.

Programming Using HiPath 3000 Manager E

Step	Action
1.	Options ->Lines/networking ->Trunks ->PRI

B.1.2.10 Configuring Least Cost Routing the Primary Rate Interface

Requirements

You must enable the release LCR flag for processing an outbound call over a primary rate interface.

En-bloc dialing should be configured so that the dialing information is sent completely with the SETUP. If you do not configure en-bloc dialing, the parameter Z cannot be used in the Dialing Plan.

The following parameters are optional. They are commonly used for time-dependent access to different carriers:

- Authorization code
- LCR schedule
- Extension access
- Warnings

To use calling services, you must configure several trunk groups. One trunk group can be used for a basic call, a dedicated service, or a CBC pool. Prime Line should always be off.

PABX Number

Incoming Calls

The system interprets the type of number for Incoming calls via the PABX number field on the Routes dialog table.

- DID number: 25162
- Station number: 49
- National number (area code): 408
- International number: 1
- Type of number: international

For incoming calls, the right destination (address) is examined based on the received type of number and the digit Information.

Outgoing Calls

For outgoing calls the calling address is built from the DID plus the configured station number information.

The type of number of the called address depend on the protocol and the dialed number (refer to the different numbering plans of the carrier specifications). To override this behavior and send a leading 1 in front of a 10-digit code, for example, you must configure the dialing rule as follows:

- Before: A after: D1A(for national calls)
- Before: A after: D01A(for international calls)
- Before: A after: D011A (for international calls)

Note: In these cases, set the *Type of Number* to *Unknown* in the HiPath 3000 Manager E routing parameters: *Options ->Lines/networking ->Routing parameters*.

LCR Access Code

The first field of the dialing plan is also known as the LCR access code. After a reload of the system, the trunk group access codes (80, 81, 82, 84, 851, 852,) can be used for LCR access. Other LCR access codes can be configured using HiPath 3000 Manager E.

Basic Call

Example: LCR Routing Tables Dialing Plan

After dialing LCR access code 80, the user first hears the simulation of the dial tone. The subsequent dialed digits are saved until the end of dialing (# or timeout). The LCR digit interpretation finds that Line 1 of the dialing plan is valid and selects the assigned routing table (Routing Table 1).

Routing Table: The first entry of the Routing Table 1 leads to Trunk Group 1 using Outdial Rule 1 if the extension has the minimum authorization. Time schedule and warnings are not configured.

1. Outdial Rule: All digits are echoed except the first field (LCR access code).

   User dials 80 4234567

   System dials: 4234567 on Trunk Group 1

2. Outdial Rule: D1A. Dial 1 in front of all echoed digits.

   User dials 80 4234567

   System dials: 1 4234567 on Trunk Group 1

All other types of basic calls (such as N11, LEC operator and IEC operator access) can be tested with this basic configuration. For all other configurations, the dialing plan is the central configuration table, which leads through the access code to the different routing tables.

Dedicated Service

Example: Dedicated Services

Dialing Plan: After dialing LCR access code 80, 81, or 82, the user first hears the simulation of the dialing tone. The subsequent dialed digits are saved until the end of dialing (# or timeout). LCR digit interpretation determines whether the following digits match the entries in the dialing plan. If so, the dialing plan leads to one of the routing tables (1 to 3).

Routing Table: The first entry of Routing Table 1 leads to Trunk Group 1 using Outdial Rule 1 if the extension has the minimum authorization. Time Schedule and Warnings are not configured. The first entry in Routing Table 2 leads to Trunk Group 2 using Outdial Rule 2 if the extension has the minimum authorization. Time schedule and warnings are not configured. The first entry in Routing Table 3 leads to Trunk Group 3 using Outdial Rule 3 if the extension has the minimum authorization. Time schedule and warnings are not configured.

Outdial Rule:

- Rule 1 After CIC 222 is used, all digits are echoed except the first field.
- Rule 2 means that after Band Number 1 is used for OUTWATS, all digits are echoed except the first field.
- Rule 3 means that after Band Number 2 is used for OUTWATS, all digits are echoed except the first field.

Example: Using LCR Access Code 80

User dials	80-423-4567
System dials	423-4567 for CIC 222 in Trunk Group 1

Example: Using LCR Access Code 81

User dials	81-1-415-423-4567
System dials	415-423-4567 for OUTWATS Band 1 in Trunk Group 2

Example: Using LCR Access Code 82

User dials	82-1-707-423-4567
System dials	707-423-4567 for OUTWATS Band 2 in Trunk Group 3

CBC Pool

Example: Dedicated Services

Dialing Plan: After dialing the LCR Access Code 80, 81, or 82, the user first hears the simulation of the dialing tone. The subsequent dialed digits are saved until the end of dialing (# or timeout). LCR Digit Interpretation determines whether the subsequent digits match the entries in the Dialing Plan. If so, the Dialing Plan leads to one of the Routing Tables (1 to 3).

Routing Table: The first entry in Routing Table 1 leads to Trunk Group 1 using Outdial Rule 1 if the extension has the minimum authorization. Time schedule and warnings are not configured. The first entry in Routing Table 2 leads to Trunk Group 2 using Outdial Rule 2 if the extension has the minimum authorization. Time schedule and warnings are not configured. The first entry in Routing Table 3 leads to Trunk Group 2 using Outdial Rule 3 if the extension has the minimum authorization. Time schedule and warnings are not configured.

Outdial Rule:

- Rule1 means that after CIC 222 is used, all digits are echoed except the first field.
- Rule 2 means that after SFG 404 is used for NI-2 OUTWATS, all digits are echoed except the first field.
- Rule 3 means that all digits are echoed except the first field.

Example: Using LCR Access Code 80

User dials	80-423-4567
System dials	423-4567 for CIC 222 on Trunk Group 1

Example: Using LCR Access Code 80

User dials	81-1-415-423-4567
System dials	415-423-4567 for OUTWATS on Trunk Group 2

Example: Using LCR Access Code 80

User dials	82-423-4567
System dials	423-4567 for FX on Trunk Group 2

Cut Through Method

Example: Cut Trough Method

In the case of the cut-through method, the switch may have to wait for a PROGRESS containing PI #1 or PI #8. After it receives the PROGRESS, the switch sends the dialing information as DTMF digits.

Dialing Plan: After dialing the LCR access code 80, the user first hears the simulation of the dial tone. The subsequent dialed digits are saved until the end of dialing (# or timeout). The subsequent digits lead to Routing Table 1.

Routing Table: The first entry in Routing Table 1 leads to Trunk Group 1 using Outdial Rule 1 if the extension has the minimum authorization. Time schedule and warnings are not configured.

Outdial Rule: Rule1 means that after the Cut Through Method is used for the installed calling service NI-2 TIE with the SFG 404, the remaining digits are sent as DTMF if PROGRESS with PI #1 or PI #8 is received.

Example: Using LCR Access Code 80

User dials	80-1-415-423-4567
System dials	IE Trunk with SFG 404 in Trunk Group 1, waits for PROGRESS with PI #1 or PI #8, and sends the remaining digits as DTMF: 1-415-423-4567.

INWATS Service

Depending on the trunk group, an INWATS dialed number identification service (DNIS) port is assigned to a DID port. This DID port should be configured as a pseudo-port, meaning that it is locked for basic DID. The entries in the call management destination tables are valid for the INWATS DNIS ports.

Example: INWATS DNIS

INWATS calling service can be configured for Trunk Group 2 and Trunk Group 3 (depending on the carrier specification). The DNIS 800-777-7222 on Trunk Group 2 leads to DID Port 700 (for dedicated service and CBC service). The empty DNIS (response for no DNIS) on Trunk Group 3 leads to DID Port 701. This is for dedicated service only.

IE_OSA Information Element

Information element IE_OSA is created if the protocol type of the PRI span supports IE_OSA and the corresponding digits (such as 0 or 00) have to be dialed (only for LECs that support IE_OSA).

IE_TNS Information Element

Information element IE_TNS is created if dialing rule parameter C is used and the protocol supports IE_TNS (only for LEC).

Note: If the NI-2 LEC protocol does not support IE_OSA, no IE_TNS is created.

IE_NSF Information Element

Information element IE_NSF is created if there is a calling service configured for the trunk group. The dialing rule parameter N is used for the SFG or band number of the IE_NSF. IE_NSF also contains a CIC if dialing rule parameter C is used.

B.2 Inband Integration Specifications

B.2.1 Introduction

This document describes the voice-mail interface as it is implemented in HiPath 3000 and discusses the enhanced voice-mail integration (VMIE) interface.

The integration interface to the voice mail or server equipment is an analog station port. You must configure the analog port as a PhoneMail-type port. This allows the analog port to generate a series of DTMF tones to identify the following:

- Calling station information
- Called station information
- Call forward status type
- Internal-external call-type information

The information is transmitted to the voice mail register when the call is answered by the voice mail system.

B.2.2 Function and Use

The Inband information is required to allow station information to be passed to voice mail and call processing servers.

B.2.2.1 Definitions

- A message stored in the voice-mail system is called a voice message.
- Messages stored in the system (message waiting) are called messages.*
- An analog port may be configured as a voice-mail port.
- Analog ports support the VMIE protocol.
- Several voice-mail ports can be grouped in a hunt group and can be accessed by dialing a hunt-group access code.
- For the message waiting callback feature to operate, the first PhoneMail Port (numeric logical port) must be routed to the PhoneMail hunt group using the Call Management. A separate Pseudo port may also be configured and called using a repertory-dialing key for callback purposes as well.
- Suffix dialing with DTMF tones from an analog DTMF phone during a connection to a voice mail port results in end to end signaling (DTMF tones generated by the DTMF code sender). Rotary dial telephones cannot send suffix-dialed digits.
- Digital phones use their own DTMF sender if applicable; otherwise the DTMF sender of the HiPath 3000 is used.
- Call forwarding, night services, or overflow to a PhoneMail port or a line hunt group containing PhoneMail ports are possible.

B.2.2.2 Information Sent to the Voice-Mail System

The following type-of-call information is sent to the voice-mail system from the HiPath 3000 Communications Server

- DIRECT IN: Voice mail direct internal access
- DIRECT EX: Voice mail direct external access
- DEV ALL: Call diversion all calls.
- DEV NA: Call deviated no answer. Voice mail is accessed after the calling party has at least one ring-back situation.
- EXPRES: Express box (not for U.S.)
- COMMON: Common box (not for U.S.)
- DEV BY: All deviated busy

- RECALL NA: Voice mail is recalled because subscriber extended to does not answer.
- RECALL BY: Voice mail is recalled because subscriber extended to remains busy.
- DEV NR: deviated not reachable (intercept)
- Calling party
- Extension number of calling party
- Called party
- Extension number of party initially called
- Additional info of calling party
- Type of calling party

Example: General Flow for Storing and Reading a Voice Message

Station B activates call forwarding to the voice-mail system.

A calls B and is forwarded to the voice-mail system. The following information is sent to the voice-mail system:

- Type of call: DEV ALL
- Calling party: extension number of A
- Called party: extension number of B
- Additional info: normal subscriber

At the end of the voice message received from the incoming caller, the system sends the message-waiting code to station B. When reading a message sent from a voice mail system (by display message on $U_{P0/E}$ phones or by tone by analog phones), the user can call the voice-mail system back.

The following information is sent for a direct call to the PhoneMail system

- Type of call: DIRECT INT
- Calling party: Extension of A party

Additional Information: Normal Subscriber

After the user reads a message, the system establishes a connection with the voice-mail system. The message-waiting element may not be cancelled. This is done by the voice-mail system.

B.2.3 Specifications and Standards (Enhanced Voice Mail Integration)

B.2.3.1 General

The interface described is based on an analog subscriber-line interface.

B.2.3.2 Outgoing Traffic

- Ringing seizes the voice-mail system.
- The voice-mail system answers by closing the loop (OFF-HOOK emulation).
- Upon detection of answering, the HiPath 3000 sends a message to the voice-mail system. The message is transferred as DTMF codes. The message consists of four elements (described in Section B.2.3.3).
- After the message is sent, the speech path is through-connected.

Release by HiPath 3000 is transferred to the voice-mail system by the following:

- Opening the loop for nominally 1 second
- Connecting busy tone
- Disconnecting the speech path

The voice-mail system can release by opening the loop for nominally 1 second (in the U.S.) or 200 ms (in Germany).

B.2.3.3 Message Elements Sent to the Voice-Mail System

This section describes the message elements that make up the DTMF inband packet of information:

- Type of Call (TOC)
- Calling party
- Called party
- Info

Type of Call

- Mandatory element
- Fixed length: 4 DTMF characters
- Format: n = Code C from Table B-7

Table B-6 shows the types of call defined in the protocol.

Table B-6 Types of Call in Enhanced Voice-Mail Integration (VMIE)

C	Abbreviation	Type of Call (TOC)
1	DIRECT_INT	Voice mail directly accessed from internal subscriber (directly, in consultation, or after call transfer).
2	DIRECT_EXT	Voice mail directly accessed from external device (also used when the attendant receives an external call and transfers it to voice mail using the speed extend feature).
3	DEV_ALL	Call diversion all calls. The calling party is always deviated to voice mail
4	DEV_NA	Call diversion on no answer. Voice mail is accessed after the calling party has at least one ringback situation
5	EXPRESS	Expressbox (not for U.S.)
6	COMMON	Sammelbox (not for U.S.)
7	DEV_BY	Call deviated busy. Voice mail is accessed after the calling party was deviated because of call forwarding busy
8	RECALL_NA	Voice mail is recalled because subscriber extended to does not answer.
9	RECALL_BY	Voice mail is recalled because subscriber extended to remains busy.
0	DEV_NR	Diversion not obtainable (intercept). Voice mail is accessed after a non existing number was dialed

Calling Party

Contains the source of the call.

- Internal: Internal station number. The fill character is used if the number is shorter than the fixed length.
- External: Fixed String followed by a string of X's up to the fixed length. (VMX_SOURCE_SIZE).

Mandatory Elements

- Maximum length: VMX_SOURCE_SIZE (sub.h).
- Phase 1 USA: Not configurable
- Phase 2 USA: You can use HiPath 3000 Manager E to define an analog voice-mail port with one of the following extension types:
  - PhoneMail (5-digit call number)
  - PhoneMail (6-digit call number)

    This option allows calling party information 6 digits long to be sent to the voice-mail port.

Number of Digits Analyzed by the PhoneMail system

PhoneMail can analyze up to 18 digits.

In a network environment with an open numbering plan, the length of calling party may be greater than VMX_SOURCE_SIZE. In this case, the calls are marked as external calls.

Called Party

The following types of calls are reported by the inband DTMF information:

DEV_ALL: Call is forwarded to PhoneMail due to a call forward all state.

DEV_NA: Call is forwarded to PhoneMail due to a call forward-no answer state.

DEV_BY: Call is forwarded to PhoneMail due to a call forward busy state.

RECALL_NA: Call is returned to PhoneMail due to a recall no answer state.

RECALL_BY: Call is returned to PhoneMail due to a recall busy state.

The last two entries assume that PhoneMail is set up in a port-monitor format for supervision of the transferred calls. In most cases the PhoneMail system should be set up to perform a blind transfer without supervision of the transferred calls.

Length is variable length up to VMX_DESTINATION_SIZE (sub.h).

Info: Additional Information Elements

The VMIE format supports an optional field for additional calling party information.

- Fixed length: 2 DTMF characters
- Format: = Code C from Table B-7

Table B-7 explains the codes found in the Info field.

Table B-7 Info Field

C	Meaning
1	Calling Party is a normal internal subscriber.
2	Calling Party is an attendant.
3	Calling Party is an analog trunk.
4	Calling Party is an ISDN trunk.

B.2.3.4 Examples of VMIE Information

Table B-8 shows examples of enhanced voice-mail integration information for typical calls.

Table B-8 Examples of VMIE Information

Type of Call (TOC)	Calling Party	Called Party	Info
Internal Call to Voice Mail: Extension 74 Calls Voice Mail			
***1	***74	Empty	*1
External Call to Voice Mail: External Party Calls Over Analog Trunk.			
***2	02222	Empty	*3
Internal CF—No Answer to Voice Mail: Extension 74 Calls Extension 13 (13 CFWD to VM).			
***4	***74	13	*1
CF Always to VM: External Party Calls Extension 13 Over ISDN (13 CFWD Always to VM).			
***3	02222	13	*4

B.2.3.5 Incoming Traffic

Incoming traffic is used to set or clear a message-waiting indication.

The HiPath 3000 is seized after the voice-mail system closes the loop and returns dial tone if digit reception is possible.

DTMF codes can be sent to HiPath 3000 to set or clear the message-waiting indication. The Message activate and deactivate codes are customer-dependent. The default code to activate the Mailbox LED is *63 followed by the station call number. The deactivate code is #63 followed by the extension number. The extension number is suffixed to the activation or deactivation code by the voice-mail processor.

The call can be released at any time by opening the loop for nominally 1 second.

B.2.3.6 Notes

- Access codes and extension numbers can be customized to meet the customer's dial-plan requirements.
- The IBMN port must be an analog port with a member number less than the voice-mail ports in the hunt group for proper operation.
- The number originally dialed or received from a DID-type call is designated as called party regardless of the number of call-forwarding steps or call-management destinations.

B.3 Configuring the HiPath 3000 for the Octel Overture 250/350, Octel Overture 200/300, and Audix INTUITY Systems

Introduction

You can configure the HiPath 3000 Communications Server for connection to the Lucent Octel® and Audix® INTUITY™ systems.

Requirements

Free analog port (SLA16, SLA16N, SLA24N, or 8SLA board)

Procedure Overview

The following sections describe this sequence in detail.

Step	Task
1.	Configure the IBMN message-waiting control port.
2.	Configure the analog ports for Inband notification.
3.	Create a voice mail hunt group and add the voice-mail ports.
4.	Configure mailbox and callback keys on the stations.
5.	Configure the call forwarding—no answer parameters for the system stations.
6.	Assign pseudo-numbers as required.

B.3.1 Configuring the IBMN Message-Waiting Control Port

This port will be used to activate and deactivate the mailbox key on the optiset E telephone. You may need to modify the call numbers based on the system-specific dial plan.

Default Numbering Plans

- HiPath 3350 and HiPath 3300: 11 to 70
- HiPath 3750, HiPath 3550, HiPath 3700 and HiPath 3500: 100 to 700

Programming Using HiPath 3000 Manager E

Step	Action
1.	Options -> Setup stations -> Stations -> Call number
2.	Options > Setup stations > Parameters -> Type -> Extension Type -> PhoneMail (use a five-digit call number)

B.3.2 Configuring the Analog Ports for Inband Notification

The ports will communicate with the Octel system for voice mail and ECP (enhanced call processing) applications. You may add a name to the voice-mail ports for identification.

Programming Using HiPath 3000 Manager E

Step	Action
1.	Options -> Setup stations -> Name
2.	Options -> Setup stations -> Parameters -> Type -> Extension type -> PhoneMail (use a five-digit call number)

B.3.3 Creating a Voice-Mail Hunt Group to Include the Voice-Mail Ports

Programming Using HiPath 3000 Manager E

Step	Action
1.	Options -> Incoming calls -> Hunt group -> Group a) Define a display name for the group. b) Select linear or cyclic as the group type. c) Add the voice-mail ports to the voice-mail hunt group.

If desired, you can define a pilot number or DID pilot number for the group.

B.3.4 Configuring Mailbox and Callback Keys on the Stations

Configure one key on the phone as a Mailbox key and configure one key as a repdial key. The target for the repdial key should be the pilot number for the voice mail hunt group.

Programming Using HiPath 3000 Manager E

Step	Action
1.	Options -> Setup stations -> Key programming

B.3.5 Configuring the Call Forwarding—No Answer Parameters for the System Stations

To define a routing pattern for external day calls, external night calls, and internal calls, assign call destination tables to stations for each type of call and assign call-routing targets for the destination tables selected.

Programming Using HiPath 3000 Manager E

Step	Action
1.	Options -> Incoming calls -> Assignment internal – external calls
2.	Options -> Incoming calls -> Call destination lists

B.3.6 Assigning Pseudo-Numbers

Pseudo-numbers may be used for soft DID numbers, DNIS numbers, and primary-rate DID numbers.

Programming Using HiPath 3000 Manager E

Step	Action
1.	Options -> Setup stations -> Stations -> Call number
2.	Options -> Setup stations -> Stations -> DID
3.	Options -> Setup stations -> Stations -> Name
4.	Options -> Setup stations -> Parameters -> Type > Extension type -> Answer machine

Assign call-destination tables to pseudo-stations for external day, external night, and internal calls.

Programming Using HiPath 3000 Manager E

Step	Action
1.	Options -> Incoming calls -> Assignment internal – external calls

Assign call-route targets for the destination tables selected.

Programming Using HiPath 3000 Manager E

Step	Action
1.	Options -> Incoming calls -> Call destination lists (For pseudo-station-ports, make target 1 blank and make target 2 the pilot number for the voice-mail hunt group.)

B.4 Installing and Configuring the TraqNet 2002 Product

Introduction

This section outlines the configuration steps for setting up the HiPath 3000 system to operate with the TraqNet™ 2002 security product.

Hardware Requirements

This section identifies the hardware tested by the development team in Santa Clara. We suggest that the configuration follow the requirements listed.

- HiPath 3750, HiPath 3550, HiPath 3350, HiPath 3700, HiPath 3500 or HiPath 3300 with IMOD Modem and TMGL4 or TMGL8 Module for loop-start (LS) analog CO access
- LeeMah DataCom TraqNet (T2002) with InfoKey™
- PC (Windows 95) for WinTraq™ (for T2002 programming)
- PC (Windows 95) for HiPath 3000 Manager E
- Modem for remote access from the administration PC
- Two-wire dedicated loop-start trunk from the central office

Software Requirements

- HiPath 3000 Software Load 125.002 or later.
- HiPath 3000 Manager E Load 23F or later.
- WinTraq 3.1. (Confirm the current load with the manufacturer.)

Reference Documentation

- TraqNet Operating Manual
- WinTraq Operation Manual
- Quick Installation Pocket Guide for T2002-SR

B.4.1 Hardware Installation

Step	Action
1.	Connect a port on the TMGL4 or TMGL8 Module to the modem port on the TraqNet unit.
2.	Connect the CO loop-start trunk to the line port of the TraqNet unit.

Figure B-1 shows a completed TraqNet connection.

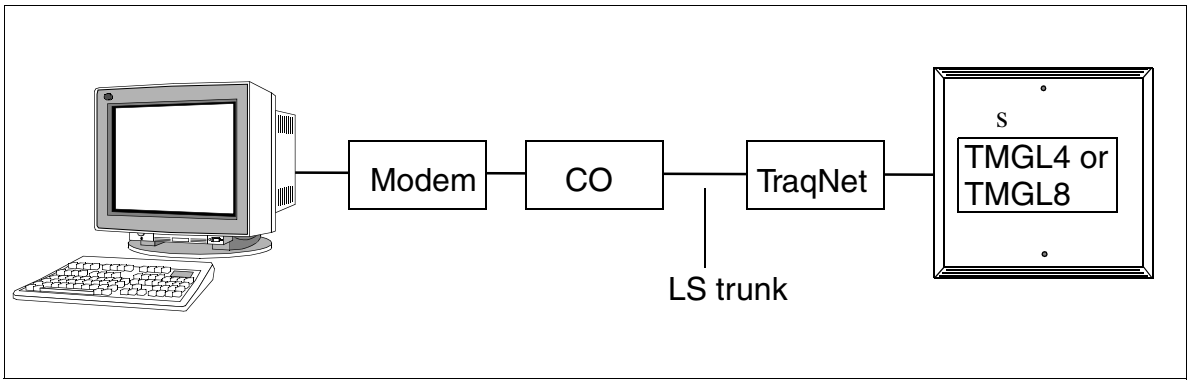


Figure B-1 Completed TraqNet Connection

B.4.2 Configuration on the HiPath 3000

Procedure Overview

The following sections describe this sequence in detail using HiPath 3000 Manager E. All parameters with the exception of selecting ground start or loop start can be done using Assistant T as well.

Step	Task
1.	Assign the central-office trunk to a trunk group.
2.	Assign parameters to the trunk.

Assigning the Central-Office Trunk to a Trunk Group

Place the trunk for TraqNet in a separate trunk group (from 1 to 16).

Using HiPath 3000 Manager E for Programming

Step	Action
1.	Options -> Lines and networking -> Trunks -> Route

Assigning Parameters to the Trunk

Assign a name (such as TraqNet) to the new route.

Using HiPath 3000 Manager E for Programming

Step	Action
1.	File -> Options -> Lines and networking -> Routes -> Route name

Configure the trunk as a loop-start trunk and enable the DTMF DID flag. This will allow the trunk to answer the call and allocate a register to analyze the DTMF tones from TraqNet and the remote modem.

Using HiPath 3000 Manager E for Programming

Step	Action
1.	File -> Options -> Lines and networking -> Trunks -> Parameters -> MSI flags

B.4.3 Communication Setup Examples

This section describes the modes of operation that were tested with the TraqNet system and the HiPath 3000 Communications Server.

Numbers Assigned

- Loop-start trunk telephone number: 771-0004
- TraqNet 2002 access code: 12345678
- HiPath 3000 IMOD modem number: 890

Commas in the dial string represent fixed timer pauses.

Example: Embedded Access Code in Setup String

In this example the access code for the TraqNet is embedded in the dial string. The pauses may have to be adjusted depending on the answer time.

Procedure

Step	Action
1.	Assign pass-through access code in the WinTraq WIZARD directory (12345678).
2.	Enter the CO telephone number, the access code, and the HiPath 3000 modem number (7710004,,12345678,,890).
3.	Select the Read/Write KDS and the Hicom-->PC button and make sure that the modem call is in progress to read data from the HiPath 3000.

Result

The modem call is set up and the popup window for transferring data between the HiPath 3000 and the remote PC appears.

Example: InfoKey Access

This example uses an InfoKey access code.

Procedure

Step	Action
1.	Assign an InfoKey access code in the WinTraq WIZARD directory.
2.	Enter the CO telephone number and the modem number (such as 7710004,,,,,,,,,890) from the remote PC using HiPath 3000 Manager E (at 771-0006).
3.	Select Read/Write KDS and the Hicom-->PC button and make sure that the modem call is in progress to read data from the HiPath 3000.

Result

The modem call is set up and the popup window for transferring data between the HiPath 3000 and the remote PC appears.

Example: Pass Through Access Code

This example assigns a pass-through access code in the TraqNet system.

Procedure

Step	Action
1.	Assign a pass-through access code in the WinTraq WIZARD directory.
2.	Enter the CO telephone number, access code, and modem number (such as 4960622,,,12345678,,890) from the remote PC using HiPath 3000 Manager E (at 496-0649).
3.	Select Read/Write KDS and the Hicom-->PC button and make sure that the modem call is in progress to read data from the HiPath 3000.

Result

The modem call is set up and the popup window for transferring data between the HiPath 3000 and the remote PC appears.

B.4.4 Disconnect or Power Off During Modem Call

During a remote administration session, the TraqNet device resets and is available for a new call if the connection is lost due to any of the following:

- Timeout
- Public network disconnect
- Modem power off
- Completion of the session

B.4.5 Using an External Telephone to Place the Call for the Modem

You can connect a 2500-type analog telephone to an external modem to perform the dial-up setup from the PC with HiPath 3000 Manager E to the HiPath 3000.

Abbreviations

This list contains the abbreviations used in this manual.

A	
ACL-H2	Application Connectivity Link, Hicom 200
ALUM	Power Failure Transfer
AMHOST	Administration and Maintenance via HOST
ANI	Automatic Number Identification
AP	Exposed
APS	Application Program Software
B	
BC	Basic Cabinet (HiPath 3750/HiPath 3700)
BFSK	Binary Frequency Shift Keying
BSG	Upright Battery Housing
C	
CABLU	Cabling Unit
CAS	Centralized Attendant Service
CAS	Channel Associated Signaling,
CBCC	Central Board with Coldfire Com
CBCP	Central Board with Coldfire Point
CBCPR	Central Board with Coldfire Pro
CBRC	Central Board Rack Com
CBRP	Central Board Rack Point
CDB	Customer Database
CDRC	Call Detail Recording Central
CHAP	Challenge-Handshake Authentication Protocol
CLIP	Calling Line Identification Presentation (number indication in ISDN)
CMA	Clock Module ADPCM
CMS	Clock Module Small
CR	Code Receiver
CSTA	Computer-Supported Telecommunications Applications

CUC	Connection Unit Com
CUCR	Connection Unit Com Rack
CUP	Connection Unit Point
CUPR	Connection Unit Point Rack
D	
DSP	Digital Signal Processor
E	
EC1	First Expansion Cabinet (HiPath 3750/HiPath 3700)
EC2	Second Expansion Cabinet (HiPath 3750/HiPath 3700)
ECG	Euro-ISDN–CAS-Gateway,
ECGM	Euro-ISDN-CAS-Gateway Maintenance
ECMA	European Computer Manufacture Association
ECR	Expansion Cabinet (19") Rack
EPSU	External Power Supply Unit
ESD	Electrostatically Sensitive Devices
ESM	Electronic Service Manual
ETS	European Telecommunication Standard
ETSI	European Telecommunications Standards Institute
G	
GCM	Call Charge Computer/Manager (CCM)
GEE	Call Metering Receiving Equipment
I	
ICMP	Internet Control Message Protocol
IMOD	Integrated Modem Card Columbus
IP	Internet Protocol
ISO	International Standards Organization
IVML	Integrated Voice Mail Large
IVMP	Integrated Voice Mail Point
IVMPR	Integrated Voice Mail Point Rack
IVMS	Integrated Voice Mail Small
IVMSR	Integrated Voice Mail Small Rack

L

LAN Bridge	Local Area Network connection
LIM	LAN Interface Module

M

MDFU	Main Distribution Frame Universal
MDFU-E	Main Distribution Frame Universal, Enhanced
MFC-R2	Multifrequency Code Signaling System R2
MIB	Management Information Base
MMC	Multimedia Card
MOH	Music on Hold
MULAP	Multiple Line Appearance
MW	Mini Western

N

NT	Network Termination

O

OPAL	Option Adapter Long
OPALR	Option Adapter Long Rack

P

PAP	PPP Authentication Protocol
PCM	Pulse Code Modulation
PFT	Power Failure Transfer
PMP	Point-To-Multipoint Connection
PP	Point-To-Point Connection
PPP	Point-to-Point Protocol
PSE	Radio Paging Equipment
PSTN	Public Switching Telephone Network
PSUC	Power Supply Unit Com
PSUCR	Power Supply Unit Com Rack
PSUP	Power Supply Unit Point
PSUPR	Power Supply Unit Point Rack

R

RDT	Remote Data Transfer

REAL	Relay Failure Transfer
RJ	Registered Jack

S

SBSC	Single Board System with Coldfire
SELV	Safety Extra-Low Voltage circuit
SLA	Subscriber Line Analog
SLA	Subscriber Line Module Analog
SLAS	Subscriber Line Module Analog Single Slic
SLC	Subscriber Line Module Cordless
SLMO	Subscriber Line Module Cost Optimized UP0/E
SLU	Subscriber Line UP0/E
SLUR	Subscriber Line UP0/E Rack
SMR	Service Maintenance Release
SNMP	Simple Network Management Protocol
STLS	Subscriber Trunk Line S0
STLSR	Subscriber And Trunk Line S0 Rack
STMD	Subscriber and Trunk Module Digital S0
STRB	Control Relay Board
STRBR	Control Relay Board Rack

T

TC	Telecommunication
TCP	Transmission Control Protocol
TIEL	Tie Line Ear & Mouth
TLA	Trunk Line Analog
TLAR	Trunk Line Analog Rack
TMAMF	Trunk Module Analog for Multifrequency Code Signaling
TMCAS	Trunk Module Channel Associated Signaling
TMGL4	Central Office Trunk Module
TMGL4R	Central Office Trunk Module Rack
TMGL8	Trunk Module Ground Start/Loop Start
TML8W	Trunk Module Loop Start World
TMOM	Trunk Module Outgoing Multipurpose

TMS2	Trunk Module S2M
TMST1	Trunk Module S1/T1
TS2	Trunk Module S2M
TS2R	Trunk Module S2M Rack
TW	Twin-Wire

U

UAE	Universal wall socket
UCD	Uniform Call Distribution
UDP	User Datagram Protocol
UP	Concealed
UPSC-D	Uninterruptible Power Supply Com-DECT
UPSC-DR	Uninterruptible Power Supply Com-DECT Rack
UPSM	Uninterruptible Power Suppy Modular
UPSMres	Uninterruptible Power Supply Modular Reset-Signal
ÜSAG	Surge protector
USBS	User to User Signalling Bearer Service

V

VMIE	Voice Mail Interface Enhanced Protocol

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Q