SIEMENS

Hicom 150 H
HiPath HG 1500

V 2.0

Service Manual

Information and Communications

1P A31003-K5020-S100-6-7620

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Hicom 150 H
HiPath HG 1500

V 2.0

Service Manual

A31003-K5020-S100-6-7620

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1 Introduction

This service manual refers to HiPath HG 1500 V 1.0/V 2.0 as well as Hicom Xpress @LAN V1.1 with the LAN boards HXGS and HXGM.

HiPath HG 1500 supports the standard functions of ISDN (IP/IPX) routers together with the additional functionality of a voice gateway (H.323). A virtual CAPI interface (vCAPI) and a TAPI interface (CSTA) are also provided. The system also facilitates PC-supported telephony (CTI) and HiPath HG 1500 administration via a LAN PC.

Caution

All safety instructions for service and technical personnel given in the "Important Information" section of the Hicom 150 E Office/Hicom 150 H Service Manual are also applicable to HiPath HG 1500 and must be observed.
Only authorized staff should work on the system.

Note

Note that when configuring voice applications, only S30810-Q2930/Q2940-X (HXGM/HXGM2) and S30810-Q2931/Q2939-X (HXGS/HXGS2) boards may be used.

1.1 HiPath HG 1500

Hicom Xpress @LAN and HiPath HG 1500 create a bridge between the LAN and the ISDN network via an integrated HXGS/HXGM board

Suitable for:

- Hicom 150 E Office Version 2.2 and later or Hicom 150 H V 1.0 or later, OfficePoint/OfficeCom/OfficePro model

The following implementation scenarios are possible:

- Voice gateway between LAN (H.323) and standard telephones (e.g. Netmeeting),
- Telephoning from the PC (voice over IP) with Optiset features at the PC or via the Xpress client,
- WAN connections via the ISDN network, including PPP Multilink,
- Remote access from within company LANs (provided via analog V34, GSM V110 and ISDN),
- Internet access (PPP router, NAT),

- vCAPI for client PCs including fax services and CTI,
- SNMP (e.g. statistics and error signaling),
- Routing via the xDSL network (for HXGS with 2nd LAN interface only).

Interfaces:

- 10/100BT Autosense Ethernet twisted-pair,
- 10BT Ethernet (for HXGS with 2nd LAN interface only) configurable with PPPoE,
- Up to 16 B channels,
- SLIP access (serial line interface) for initial startup, incl. cable (reference no. S30122-X5468-X3).

1.1.1 Prerequisite

For this application, TCP/IP is implemented as the transport protocol and Win95/98/NT 4.0 or Windows 2000 as the client operating system. For the routing functionality, the IP/IPX protocols are transferred transparently, independent of the operating system. Call numbers are allocated in HiPath HG 1500 via TCP/IP Address > Call Number (max. 100 call numbers for vCAPI and max. 48 stations for voice applications). The assignment of several call numbers to one TCP/IP address may be necessary if several services are to be configured (voice, fax, file transfer, etc.).

1.2 Short description

HiPath HG 1500 is an expansion card for Hicom 150 E Office/Hicom 150 H Point/Com/Pro. It is used to connect a "local" LAN to Hicom systems and to link "external" LANs via the system's ISDN interface. Telematics and CTI functions are also supported.

The connection to the "local" LAN is set up via an Ethernet twisted-pair interface (RJ45 connector); see Figure 2-1 and Figure 2-4.
In the case of OfficePoint and Com, the connection to the system is set up via a 50-pin edge connector of an expansion slot. The connection to the LAN is set up via an RJ45 connector on the HiPath HG 1500 board.
In the case of OfficePro, the board is connected to the system via the backplane. An adapter for the backplane (part number C39228-A7195-A10, US backplane: C39195-Z7404-A10) is used to connect the LAN with an RJ45 connector.

V.24 interface

For loading and administration purposes (SLIP access), each system is provided with an individual V.24 interface (cable reference no. S30122-X5468-X3). In both systems, the V.24 connector for SLIP access is located on the board.

1.3 Service information

The unique worldwide Ethernet address (MAC address) is a factory default and cannot be modified.

Card recognition is performed automatically in Hicom 150 E Office/Hicom 150 H, Point/Com/Pro. HiPath HG 1500 is installed as an individual board type in Hicom 150 E Office/Hicom 150 H, Point/Com/Pro.

The following items can be administered in Hicom:

- S0 station
- Xpress clients
- IP network lines
- numbering scheme
- associated dialing
- answer group (PC telephone)
- call forwarding (PC to fax)
- suppression of incoming 0
- CSTA interface

Details on the initial startup and on accessing the board can be found in the HiPath HG 1500 Administration Manual.
A separate tool (Assistant Xpress @LAN/HG 1500) that can also be used by the customer or the LAN administrator is provided for entering and modifying data, e.g. the IP address of the customer LAN or ISDN numbers assigned to a communication partner. The data is permanently stored in HiPath HG 1500. HiPath HG 1500 Assistant also facilitates the storage of a corresponding configuration file. This can then be retrieved if a board needs replacing. The tool also provides a facility for querying the software version. Access to HiPath HG 1500 administration is password-protected. This password can be changed; however, the Hicom password concept applies; see Table 1-1.
Note that only the user and Hicom passwords are allowed.

A simple functional test can be performed directly at the customer PC or on a service PC with a network card, vCAPI driver and a CAPI-based application.

APS transfer for the HiPath HG 1500 board is usually performed via the LAN using the Assistant or, in exceptional circumstances, via the V.24 interface using the Loader.

Cable with reference number S30122-X5468-X3 (see also Section 2.1.1.1 or Section 2.1.2.1) is used for the V.24 port of the HiPath HG 1500 board.

1.4 Hicom password concept

Table 1-1 Starting Hicom system administration (Service)

Step	Input	Explanation
1.	*95	Start system administration
2.	31994	User: 31994 (default)
3.	31994	Password: 31994 (default)
or		
1.	✓	Change user and/or password
2.		Confirm user and/or password

Further information is contained in the Hicom 150 E Office Rel. 2.0-3.0 Service Manual or Hicom 150 H V1.0.

1.5 Functional environment of HiPath HG 1500

1.5.1 Parallel operation

Hicom 150 E Office/Hicom 150 HCom/Pro systems support parallel operation of several HiPath HG 1500 boards.

System type	Number of boards
OfficePoint	1
OfficeCom	2
OfficePro	3

1.5.2 Interworking with features

1.5.2.1 Least Cost Routing (LCR)

In Hicom systems, LCR technology enables the most cost-effective connections via ISDN.

1.5.2.2 Trunk access/toll restriction

Trunk access is configured in Hicom 150 H/HiPath HG 1500Point/Com/Pro for call numbers used by Hicom 150 E Office. Hicom toll restriction for outgoing seizure is performed based on this trunk access in the same way as for outgoing calls.

1.5.3 Gatekeeper

The following functions are performed by a gatekeeper in an H.323 network:

- Registering H.323 end units,
- Managing rights and services,
- Converting station numbers to logical names or IP addresses and vice versa,
- Managing bandwidth on the network side,
- Registering gateways,
- Registering multiconference units,
- Can be linked to neighboring gatekeepers (zones).

The setup procedure for gatekeeper operations is described in Section 3.2.

If no gateways or multiconference units are being used, IP telephony can also be implemented in H.323 networks without gatekeepers. Note, however, that the connection can only be set up via the IP address in this case, so no authorizations and bandwidth control are possible.

In general, the following applies: without gatekeepers, many features may be disabled or subject to severe restrictions.

2 Installation

2.1 HiPath HG 1500 boards

HG 1500 supports two function groups: the “voice functionality” with the features H.323 GW and TFA and the “data functionality” with the features VCAPI and RAS. A board variant (X100) that only supports the data functionality (Data only) is available; this board is not equipped with signal processors and the associated logic.

2.1.1 HXGS

Introduction

The HiPath HG 1500 board HXGS connects Hicom 150 E Office/Hicom 150 H OfficeCom/OfficePoint with the LAN environment. The board supports up to 16 B channels.

The following board variants are available:
HiPath HG 1500 HXGS Voice and Data (S30810-Q2931-X)
HiPath HG 1500 HXGS Data only (S30810-Q2931-X100)
HiPath HG 1500 HXGS2 Voice and Data 2nd LAN interface (S30810-Q2939-X000)
HiPath HG 1500 HXGS2 Data only 2nd LAN interface (S30810-Q2939-X100)

Board slot

Table 2-1 HXGS application option/slot

	Possible application	Boards	Slot
OfficePoint	**Hicom 150 E as of V 2.2** P30370-P722-A680-* **Hicom 150 H as of V 1.0** P30370-P802-A680-* **Hicom 150 H as of V 1.2** P30370-P822-A680-*	1	All slots
OfficeCom Old HW CBFC	Hicom 150 E as of V 2.2 P30370-P723-A680-G1	2 *	Slots 4 and 5 only
OfficeCom New HW CBPC	**Hicom 150 E as of V 2.2** P30370-P721-A680-* **Hicom 150 H as of V 1.0** P30370-P801-A680-* **Hicom 150 H as of V 1.2** P30370-P821-A680-*	2 *	All slots

Table 2-1 HXGS application option/slot

	Possible application	Boards	Slot
* = 2 boards may be operated in parallel OfficeCom, old HW, CBFC: S30810-Q2950-X OfficeCom, new HW, CBPC: S30810-Q2932-A201			

Table 2-2 HXGS hardware variants

System type	Services	DSPs	Board ID
OfficeCom/Point	Data only	0	HXGS
OfficeCom/Point	Voice/Data	4	HXGS
OfficeCom/Point	Data only (2nd LAN)	0	HXGS2
OfficeCom/Point	Voice/Data (2nd LAN)	4	HXGS2
2 simultaneous Voice over IP connections are possible for each DSP (Digital Signal Processor).			

Interfaces/connectors

The LAN port is linked at the X3/X4 connectors. For connector assignment, see Table 2-3.

The board is equipped with a 50-pin edge connector to the system, two Western sockets (8-pin, 10-pin shielded) to the LAN and a shielded MiniDin socket (6-pin) for the V.24 interface:

- X1: 50-pin to the system
- X2: 6-pin shielded MiniDin socket for V.24 interface, see Section 2.1.1.1

The following connection option is provided for connection to a LAN:

- X3: 8-pin Western socket for LAN 10/100 Base-T, RJ45 socket (twisted pair) for station
- X4: 8-pin Western socket for LAN 10 Base-T, RJ45 socket (twisted pair) for trunk connection (**for HXGS2 board with 2nd LAN interface only**)

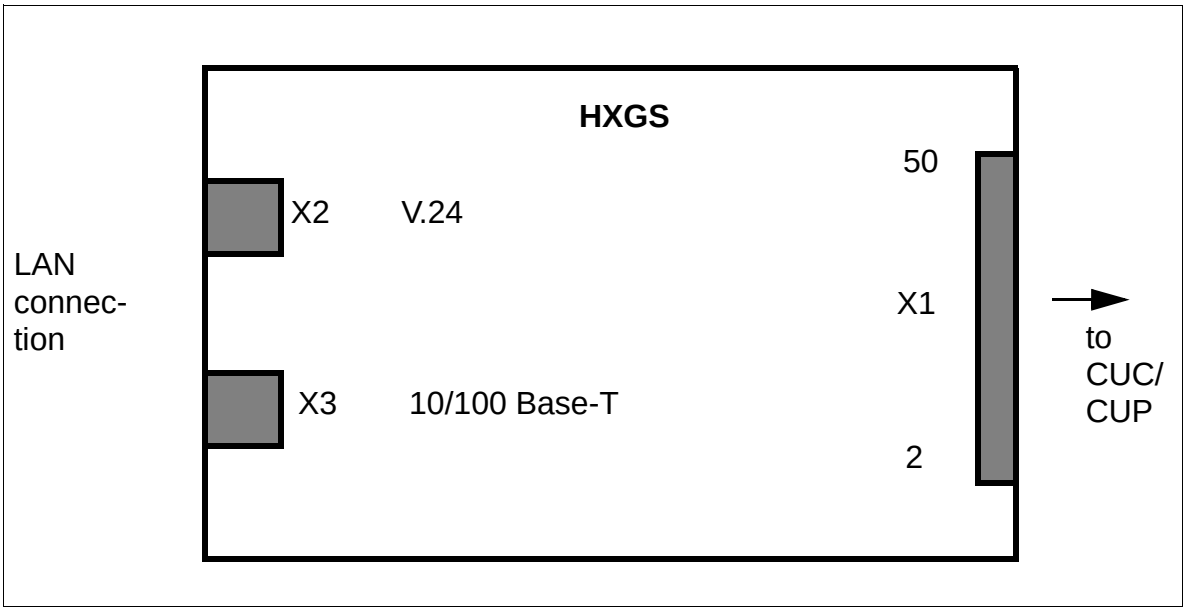


Figure 2-1 HXGS interfaces (S30810-Q2931-X/X100)

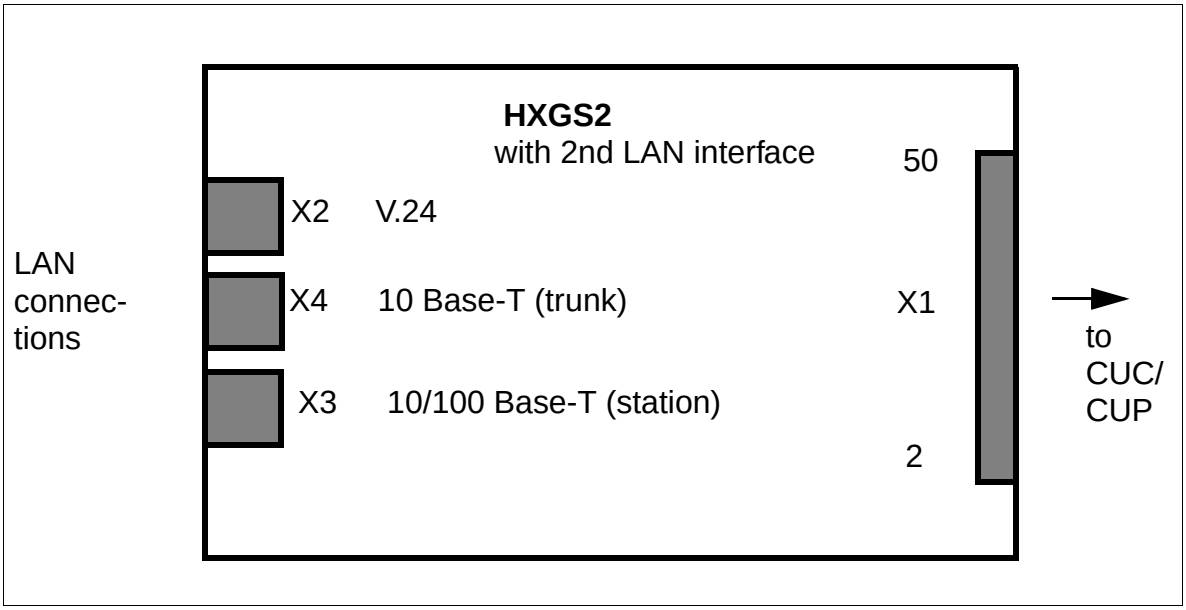


Figure 2-2 HXGS2 interfaces with 2nd LAN (S30810-Q2939-X000/X100)

A twisted-pair cable is used as the transmission medium for 10/100 Base-T and 10 Base-T.

The cable is connected to the HiPath HG 1500 HXGS/HXGS2 (OfficeCom and OfficePoint) via the 8-pin Western socket (X3) located on the MDF side of the circuit board, see Figure 2-1, or X3 and X4, see Figure 2-2.

Table 2-3 Contact assignment of the HXGS LAN interfaces

X3 10/100 Base-T	X4 10 Base-T	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

Notes

Direct Ethernet twisted-pair connection to HiPath HG 1500

The RJ45 cable must be crossed as follows:

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

A ferrite kit must be installed on the LAN 1 and LAN 2 lines on the RJ45 cable.

2.1.1.1 HXGS V.24 interface

The Serial Interface Cable (SIC, S30122-K5468-X3-*) can be connected via a 6-pin MiniDin socket on the front panel of the HXGS. The SIC performs level conversion from TTL signals (HXGS) to V.24 (9-pin Sub-D socket). Depending on the SIC, the maximum authorized transmission rate for the V.24 interface is 19.2 kBit/s. Asynchronous transmission only is supported.

The interface is used for administration purposes. It can be used for software updates or board configuration. It can also be used for software debugging.

Table 2-4 HXGS V.24 interface

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		

2.1.2 HXGM

Introduction

The HiPath HG 1500 board HXGM connects the Hicom 150 H OfficePro with the LAN environment. The board supports up to 16 B channels.

The following board variants are available:
HiPath HG 1500 HXGM Voice and Data (S30810-Q2930-X)
HiPath HG 1500 HXGM Data only (S30810-Q2930-X100)
HiPath HG 1500 HXGM2 Voice and Data 2nd LAN interface (S30810-Q2940-X000)
HiPath HG 1500 HXGM2 Data only 2nd LAN interface (S30810-Q2940-X100)

Board slot

Table 2-5 HXGM application option/slot

	Possible application	Boards	Slot
OfficePro	**Hicom 150 E as of V 2.2** P30370-P720-A680-* **Hicom 150 H as of V 1.0** P30370-P800-A680-* **Hicom 150 H as of V 1.2** P30370-P820-A680-*	3 *	All slots, except 2
* = Several boards may be operated in parallel			

Table 2-6 HXGM hardware variants

System type	Services	DSPs	Board ID
OfficePro	Data only	0	HXGM
OfficePro	Voice/Data	8	HXGM
OfficePro	Data only (2nd LAN)	0	HXGM2
OfficePro	Voice/Data (2nd LAN)	8	HXGM2
2 simultaneous Voice over IP connections are possible for each DSP (Digital Signal Processor).			

Interfaces/connectors

- X10: 6-pin shielded MiniDin socket for V.24 cable; see Section 2.1.2.1
- The board is connected to the system via the backplane. An adapter for the backplane (part number C39228-A7195-A10, US backplane: C39195-Z7404-A10) is used to connect the LAN with an RJ45 connector, see Figure 2-4.

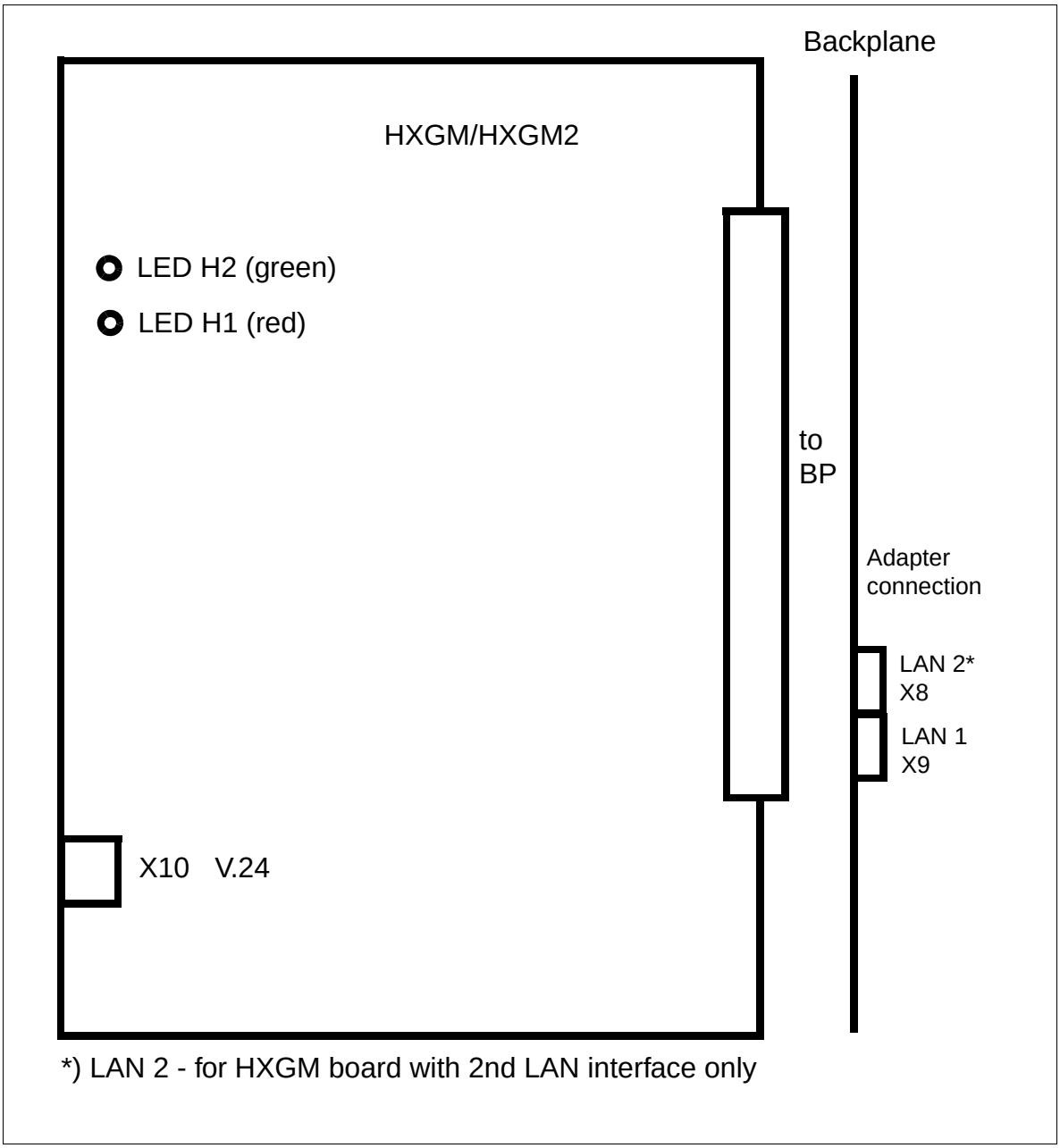


Figure 2-3 HXGM interfaces (S30810-Q2930/Q2940-X/X100)

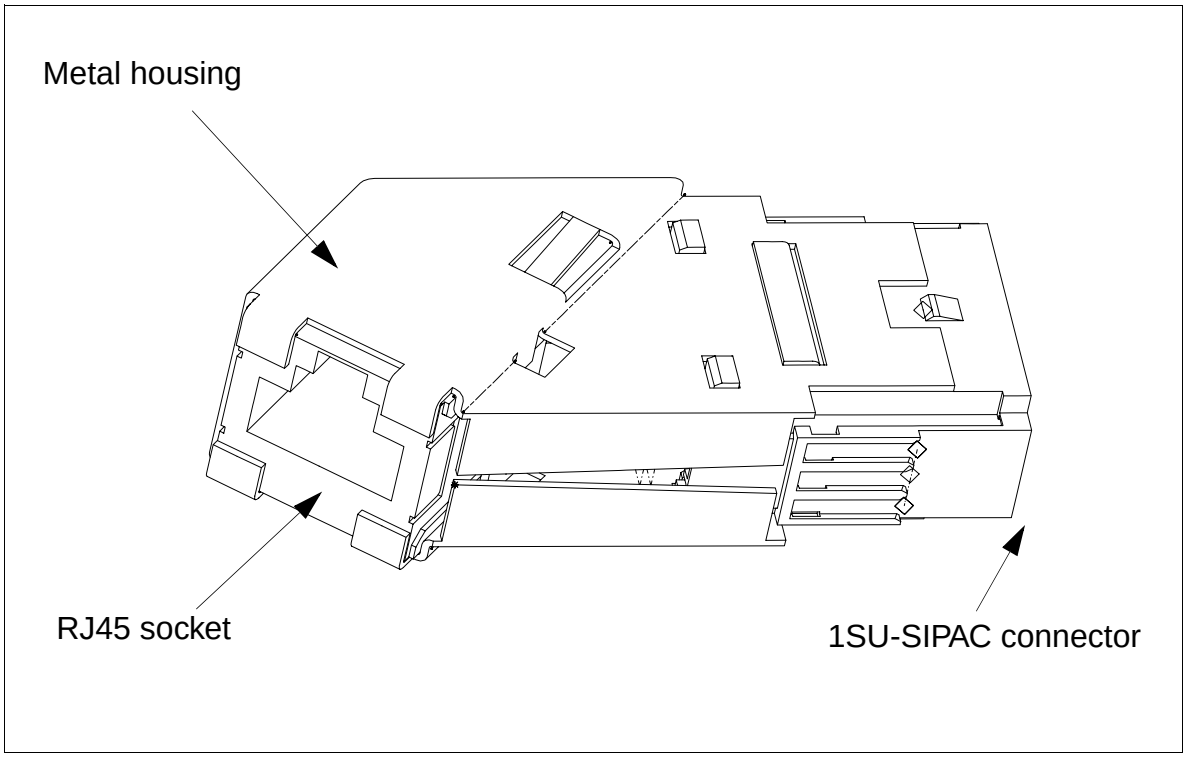


Figure 2-4 Adapter for HXGM backplane

Table 2-7 RJ45 socket assignment (HXGM)

Pin	Signal	I/O	Function
1	TDP	O	Transmit Data +
2	TDN	O	Transmit Data -
3	RDP	I	Receive Data +
4	(TT1)	I	Transmit Termination 1
5	(TT2)	I	Transmit Termination 2
6	RDN	I	Receive Data -
7	(RT1)	I	Receive Termination 1
8	(RT2)	I	Receive Termination 2

The TT1/2 and RT1/2 signals are not necessary for data transmission. They represent a signal termination of 100 ohms (known as a Bob Smith Termination) for the two unused wire pairs in a four-pair twisted-pair cable.

Table 2-8 Assignment of the SIPAC-RJ45 LAN adapter

SIPAC connector	RJ45 socket	Signal
B1	1	TDP
C2	2	TDN
B3	4	TT1
C4	5	TT2
B5	3	RDP
C6	6	RDN
B7	7	RT1
C8	8	RT2

LAN adapter cable (U.S. only)

Contact is established between the LAN and RJ45 via a CHAMP adapter cable. The adapter is connected to the CHAMP socket on the rear of the backplane which is assigned to the HG 1500 slot. Both the adapter cable and the connector are shielded.

Table 2-9 Assignment of the CHAMP-RJ45 LAN adapter cable

CHAMP connector	RJ45 socket	Signal	Ethernet
34	1	TDP	LAN #2
35	2	TDN	
36	4	TT1	
37	5	TT2	
38	3	RDP	
39	6	RDN	
40	7	RT1	
41	8	RT2	

Table 2-9 Assignment of the CHAMP-RJ45 LAN adapter cable

CHAMP connector	RJ45 socket	Signal	Ethernet
42	1	TDP	LAN #1
43	2	TDN	
44	4	TT1	
45	5	TT2	
46	3	RDP	
47	6	RDN	
48	7	RT1	
49	8	RT2	
25, 50	Housing	Shield	

Table 2-10 HXGM LED concept

H1 - red	H2 - green	Meaning
Flashing	Off	Board is included in Firmware, no valid SW on board, therefore V.24 charge mode
On	Off	Board is included in Firmware, e.g. following reset, reboot
On -> Off	Off	Board at SW start, reboot
Off	Off -> On	Board in idle status following reboot (call number of logon router)
Off	On	At least one B channel occupied
On	On	Approx. 20 s long: Board ready to activate reset (e.g. following APS transfer or a FATAL error), waiting for Hicom reset

Table 2-11 Contact assignment of the HXGM LAN interfaces

X9 (LAN1) 10/100 Base-T	X8 (LAN 2) 10 Base-T	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 Ethernet twisted-pair connection to HiPath HG 1500

The RJ45 cable must be crossed as follows:

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

2.1.2.1 HXGM V.24 interface

The Serial Interface Cable (SIC, S30122-K5468-X3-*) can be connected via a 6-pin MiniDin socket on the front panel of the HXGM. The SIC performs level conversion from TTL signals (HXGM2) to V.24 (9-pin Sub-D socket). Depending on the SIC, the maximum authorized transmission rate for the V.24 interface is 19.2 kBit/s. Asynchronous transmission only is supported.

The interface is used for administration purposes. It can be used for software updates or board configuration. It can also be used for software debugging.

Table 2-12 V.24 socket assignment (HXGM2)

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		

Table 2-12 V.24 socket assignment (HXGM2)

Pin	Signal	I/O	Function
(7)	GND		

Note

A SLIP connection is required for Assistant administration of Xpress @LAN/HG 1500. However, a SLIP connection is not possible for the Loader.

2.1.3 Interfaces to the LAN

The physical configuration of the LAN interface is predefined by the IEEE 802 standard. The interface conforms to international standards for electrical safety and electromagnetic compatibility (EMC). The electrically isolated coupling of the board at the LAN is performed by the send and receive transmitter. The maximum transmission speed of this "baseband" transmission technology is 100 MBit/s; the "Manchester" signaling code is used.
The HiPath HG 1500 boards HXGS and HXGM are provided with a 10/100MB Autosense LAN port.
The HiPath HG 1500 boards HXGS2 and HXGM2 with a 2nd LAN interface are also provided with a 10 BT LAN port, for example for routing via DSL.

2.2 Part numbers

ID	Part number		
	OfficePoint	**OfficeCom**	**OfficePro**
HXGM Data only	--	--	S30810-Q2930-X100
HXGM Voice and Data	--	--	S30810-Q2930-X
HXGM2 Data only	--	--	S30810-Q2940-X100
HXGM2 Voice and Data	--	--	S30810-Q2940-X000
HXGS Data only	S30810-Q2931-X100	S30810-Q2931-X100	--
HXGS Voice and Data	S30810-Q2931-X	S30810-Q2931-X	--
HXGS2 Data only with 2nd LAN	S30810-Q2939-X100	S30810-Q2939-X100	--
HXGS2 Voice and Data with 2nd LAN	S30810-Q2939-X000	S30810-Q2939-X000	--
Assistant Xpress @LAN HG 1500	P30300-P1562-A1	P30300-P1562-A1	P30300-P1562-A1
Loader	P30300-P1509-*	P30300-P1509-*	P30300-P1509-*
CSTA converter	P30300-P1530-A1	P30300-P1530-A1	P30300-P1530-A1
vCAPI (SW)	P30300-P1561-A1	P30300-P1561-A1	P30300-P1561-A1
CTI TAPI 1P (4 clients)	P30152-P1091-A1	P30152-P1091-A1	P30152-P1091-A1
CTI TAPI 3P V2 (30 users)	F50035-E302-X11	F50035-E302-X11	F50035-E302-X11
CTI TAPI 3P V2 (80 users)	F50035-E302-X12	F50035-E302-X12	F50035-E302-X12
CTI TAPI 3P V2 (250 users)	F50035-E302-X13	F50035-E302-X13	F50035-E302-X13
Hicom client (kit for 4 clients)	F50035-E4-X5	F50035-E4-X5	F50035-E4-X5
Telematic Fritz SW (4 clients)	P30152-B6-A1	P30152-B6-A1	P30152-B6-A1
Smartset 2000 for ISDN (SW)	P30152-B1-A10	P30152-B1-A10	P30152-B1-A10
Adapter (international) Adapter (USA)	-- --	-- --	C39228-A7195-A10 C39195-Z7404-A10
Ferrite (kit)	L30460-X1358-X	--	--
V.24 cable	S30122-X5468-X3	S30122-X5468-X3	S30122-X5468-X3

2.3 HiPath HG 1500 installation

2.3.1 Installation requirements

- Free slot for boards
- Hicom 150 E Office as of SW Version 2.2/Hicom 150 HV 1.0
- ISDN trunk connection
- LAN connection
- See also Table 2-1 and Table 2-5
- A DSL port is necessary for the HXGS/HXGM board with 2nd LAN

2.3.2 Slot

Special country variants are not provided for. Examples of maximum system configurations:

System	Slot	Configuration	Trunk	Station
OfficePoint	2	SLA 4/8/16 SLU8 STLS 2/4 TLA 2/4/8 HiPath HG 1500	16 ports ISDN So MSI lines	8 Upo/E + 16 from
OfficeCom	6	SLA 4/8/16 SLU8 STLS 2/4 TLA 2/4/8 TS 2 HiPath HG 1500	30 ports ISDN S2m ISDN So MSI lines	24 Upo/E + 48 from

Table 2-13 Slots

Maximum system configurations for Hicom 150 E OfficePro are contained in the Hicom 150 E Office/Hicom 150 H Service Manual.

2.3.3 Installation procedure

Step	Task
1.	Remove the power plug.
2.	Insert the board.
3.	Insert the power plug.

Table 2-14 Installation procedure in the case of OfficePoint/Com

This sequence must be observed in order to guarantee successful LAN board login.

Note

In the case of Hicom 150 E/H OfficePro, the board can be plugged and unplugged without disconnecting the power supply.

3 Startup

3.1 Initial startup of HiPath HG 1500

Note

Windows 3.11 is no longer supported.

3.1.1 Initial startup: Remote via modem

Prerequisites

The feature is only available as of Hicom Rel. 3 SMR-E with Assistant Office P30300-P1584-A1-02 and SMR-11 HG1500. Hicom must be configured for remote administration and HiPath HG 1500 must be in the default state (default customer database).

Step	Task
1.	Using Assistant E, read out the contents of the board using the Restart/Reload option "Maintenance". Then enter an **existing** call number as an extension in the numbering plan. (Recommendation: Pro -748, Com -686, Point -69)
2.	Transfer the changes into Hicom using "Transfer data"
3.	The following changes will automatically be made in the customer database for HiPath HG 1500: - the ISDN peer "remote default" will be set with the following parameters: IP address: 10.186.237.64 CHAP user ID: 31994 (Host = On) CHAP password: 31994 V.34 peer: Yes - the ISDN2 interface is assigned the IP address 10.186.237.63 - the IP address 10.186.237.64 is assigned administration rights
4.	A new dial-up networking connection with the following data is generated on the PC (here W98): Connect via: Standard 19200 bps modem (dependent on the modem in use) Type of Dial-Up Server> PPP Windows 95, Windows NT 3.5 Logon to the network: No Activate software compression: No Request encrypted password: No NetBEUI: No IPX/SPX: No Define IP address: 10.186.237.64 Use IP header compression: No Use the standard GW in the remote network: No

Step	Task
5.	HiPath HG 1500 can now be administered remotely with Assistant Xpress @LAN/HG 1500.

Note

The CHAP user ID and password are identical to the **first** user name and password of the Hicom user group system administration (generally 31994/31994).

3.1.2 Startup via ARP

HiPath HG 1500 can be assigned an IP address using a static entry in the ARP table of the Administration PC.

Prerequisites

The network card with the TCP/IP protocol must function correctly. The Xpress @LAN assistant must be installed on the PC.

Step	Task
1.	In the MS-DOS command window, enter the command **arp -s ipadresse macadresse** (Format example: arp -s 192.168.100.245 08-00-06-0f-ec-04) The board MAC address is indicated on the adhesive label on the board.
2.	From the MS-DOS command window ping HiPath HG 1500 using the new IP address. If the ping has been answered successfully by HiPath HG 1500, administration of this PC can proceed.

Note

These settings are temporary and are only stored permanently on the board on entry to the customer database. The HiPath HG 1500 default IP address (10.144.233.63) is reserved for startup and cannot be used as a permanent IP address in the network.

Security note

As long as a customer database has not been transferred to the board, the process described above can be used by every PC in the LAN.

3.1.3 Initial startup via the serial interface

Note

The serial interface should only be used for initial startup if this is not possible via a LAN port.

Prerequisite

The SLIP connection in the dial-up network must be installed separately from the operating system.

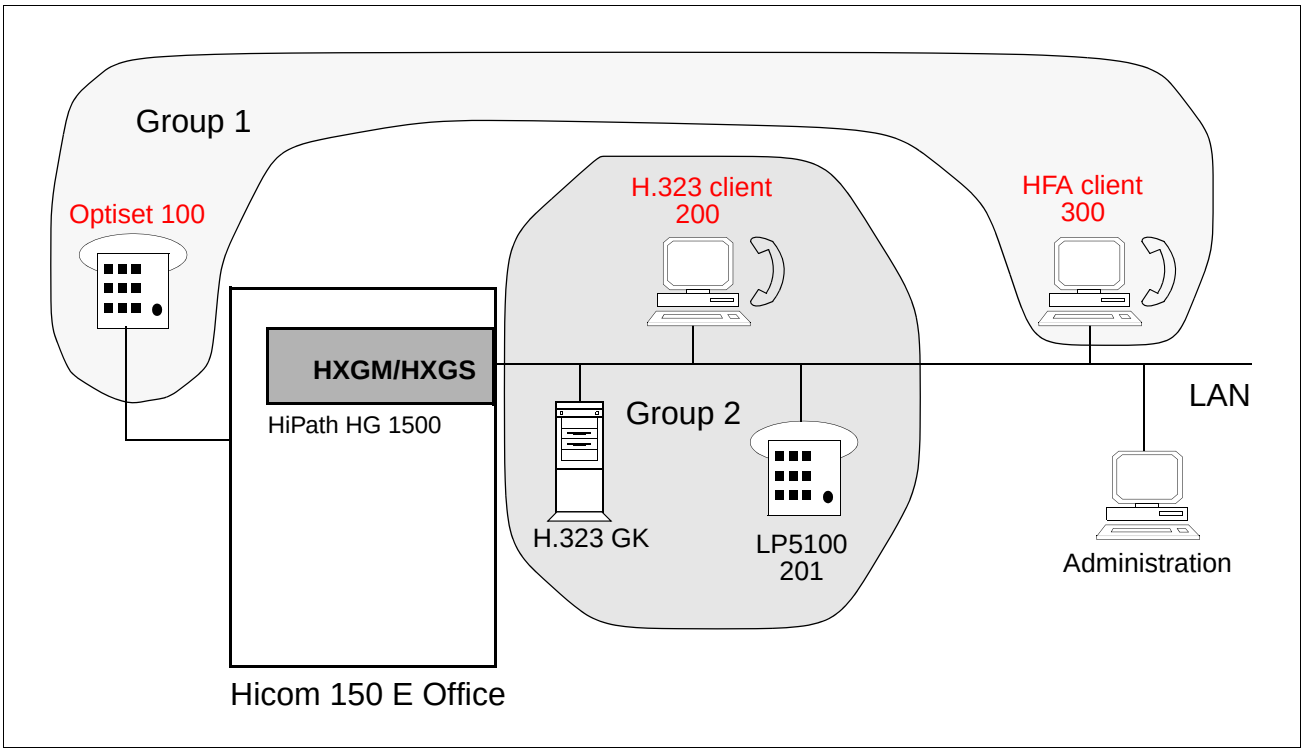
Step	Task
1.	Connect the serial interface cable (S30122-X5468-X3).
2.	Install Assistant Xpress @LAN/HG 1500.
3.	Configure the IP address (1.0.0.2) of the PC (SLIP)
4.	From the DOS command window, ping HiPath HG 1500 (IP 1.0.0.1).
5.	Generate an empty customer database and load to HiPath HG 1500.
6.	Save and administer customer data.

Note

The SLIP configuration on the PC is described in detail in the Administration Documents Hicom 150 E Office for HiPath HG 1500.

3.2 Configuration for gatekeeper mode

Figure 3-1 Installation for gatekeeper mode



The following stations must be differentiated from the user's viewpoint:

Group 1: stations directly connected to the Hicom (Optisets, POT, CMI, ...), stations registered at HiPath HG 1500 (C55 Opti clients, vCAPI clients) and all trunk accesses.

Group 2: stations registered at the gatekeeper (H.323 standard clients such as Netmeeting 3.01, HiNet LP5100, HiNet TA1100, etc.).

Note

In order to reach a port (station/line) of group 1, all stations of group 2 must dial an additional code. This code is deleted in the direction to the Hicom by HiPath HG 1500 and inserted for traffic in the reverse direction, i.e., stations of group 1 do not dial the code.

The code must be set up in the RADVision Gatekeeper NGK100 as a service and in HiPath HG 1500 as a gateway prefix.

3.2.1 Configuration HiPath HG 1500

Step	Task
1.	Under **Voice Clients -> Gatekeeper**: Enter the IP address of the PC with the gatekeeper, enable gatekeeper support and configure the prefix.
2.	Under **Voice Clients -> H.323 Clients**: Configure the clients with a gatekeeper connection using IP address "255.255.255.255". Clients without a gatekeeper connection must be configured with the fixed IP addresses of the corresponding PCs.
3.	Under **Voice Clients -> Xpress Clients**: There are no additional aspects to be noted here.

3.2.2 Configuring the NGK 100 gatekeeper

Relevant options under "Settings"

Step	Task
1.	Capacity Characteristics: Set the **IRQ interval** to **0** if the registered endpoints do not need to be cyclically polled, e.g. when using RAS connections for teleworking.
2.	Call and Registration Policy: **Accept Call** must be enabled. Set **All Endpoints** or **Predefined endpoints**.
3.	Routing Mode: Set **Gatekeeper Routed** or **Direct Routed**.

Configuring Services

Step	Task
1.	Press the **Services** button and then click **Add**.
2.	Under **Description**, enter a description for the service, e.g. "Hicom 150 E".
3.	Under **Prefix**, enter the correct code, which must match the HiPath HG 1500 gateway prefix set up in the HLB0, e.g. "0" (only digits, possibly multiple).
4.	Enable **Allow as default for online endpoints** if the service is to be assigned to all endpoints registered at the gateway (otherwise, the service will need to be individually assigned to each endpoint that may use it).
5.	Enable **Allow for public endpoints from other zones** if endpoints from other H.323 zones may use the service.

Configuring neighbors

Step	Task
1.	Press the **Neighbors** button and then click **Add**.
2.	Under **Description**, enter a description for the other zone, e.g. "Department XYZ".
3.	Under **IP address**, enter the IP address of the gatekeeper for the other zone.

Note

Detailed configuration examples can be found in the Administration Manual for HiPath HG 1500 (A31003-K5020-B811-*-7619).

4 Administration

Information on status diagnostics for HiPath HG 1500 such as DSS, PPP, Firewall, HFA client, H.323, vCAPI, etc. is contained in the HiPath HG 1500 Administrator Manual under Customer trace.

4.1 Tracing with development trace

Development trace must be deactivated when HiPath HG 1500 is in operation.

You must contact Development if you have problems or queries relating to development trace.

Note that all three traces for the board must be saved in the event of errors, i.e., the:

- development trace,
- customer trace and
- error memory.

If system crashes have occurred in connection with the board, make sure that you also produce a "stack dump" and submit it together with the traces to the responsible Development department.

The traces and the stack dump can withstand a reset, but are lost in the event of a power failure.

4.2 Determining the firmware version of the board

The firmware version of the board can be determined by dumping a memory area (possible in the Developer level of Assistant Xpress @LAN/HG 1500).

Step	Task
1.	Switch to the developer mode of Assistant Xpress @LAN/HG 1500.
2.	Create a dump of the KDS (switches the menu items to developer mode).
3.	Call up the "Service" menu and select "Receive and save a memory area".
4.	Hex address FE000000 and size: Enter 20.
5.	Enter a file name: e.g., FW.txt The file will now contain the version number of the firmware.

5 Additional information

5.1 Integrating various network topologies

HiPath HG 1500 is equipped with a 10/100 MB Autosense twisted-pair port.

5.1.1 Star topology with hub (10/100 BaseT)

In the case of this network topology, a hub or switch is used as a central element. Each data terminal is connected to this via a separate twisted-pair cable (e.g. 10/100 BaseT-Ethernet). A standard hub emulates a bus internally. If a cable malfunctions, only one terminal is affected. The integrated HiPath HG 1500 can be connected directly.

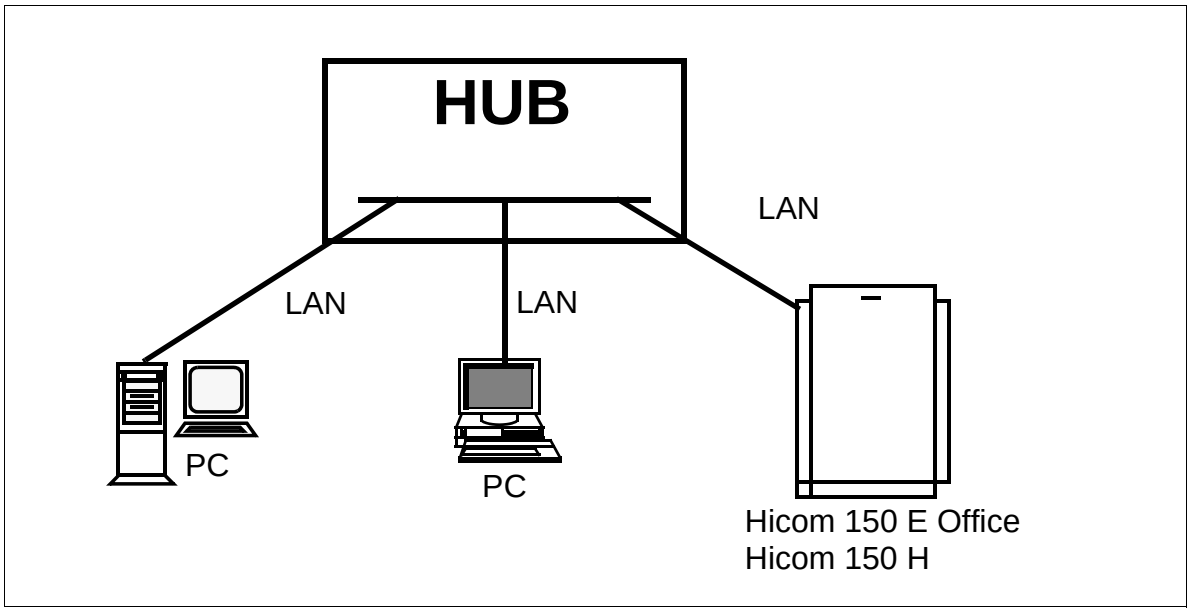


Figure 5-1 10/100 BaseT cabling

Notes

- 10/100 MBit/s Autosense
- Max. total length from HUB/switch to PC = 100 m incl. PATCH cable.

5.1.2 Bus topology (10 Base2)

The traditional, but now redundant cabling method for Ethernet LANs. Coaxial cable is used to connect each data terminal via a T distributor to the main line. In a bus environment, the data terminals are only connected via the cable - no additional hardware is required. However, because of the risk associated with failures and the limited

load-bearing capacity of the network, structured (star) cabling is becoming increasingly popular. The integrated HiPath HG 1500 can only be connected via a hub or switch.

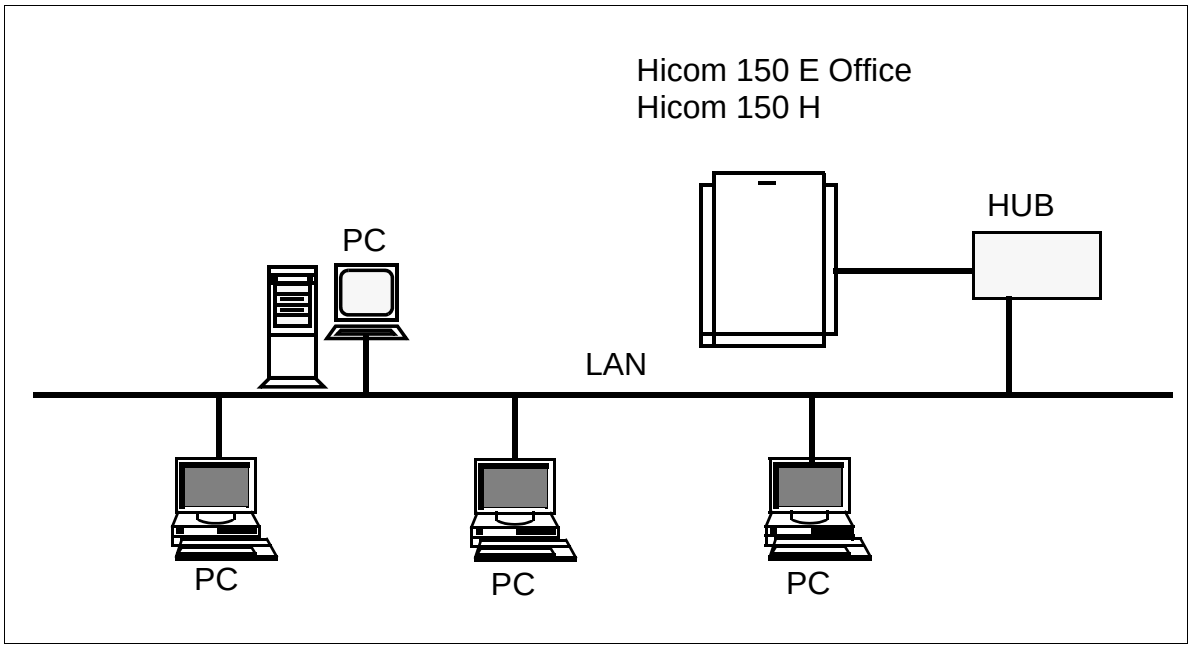


Figure 5-2 10 Base2 cabling

Note

- The coaxial cable must have terminating resistors at both ends.
- No spur lines are permitted in the coaxial cable.
- The T units must be positioned directly on the terminals.
- Max. length of the LAN is 185 m.

5.2 SW upgrade

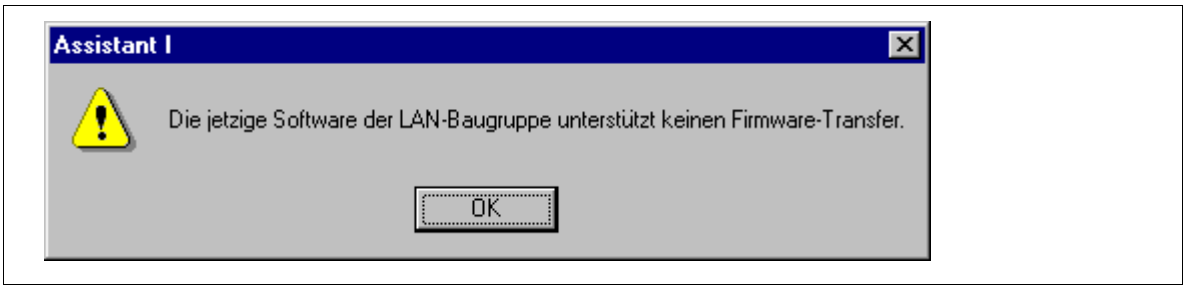
Upgrading from HiPath HG 1500 is performed via APS transfer.

5.3 Firmware Download

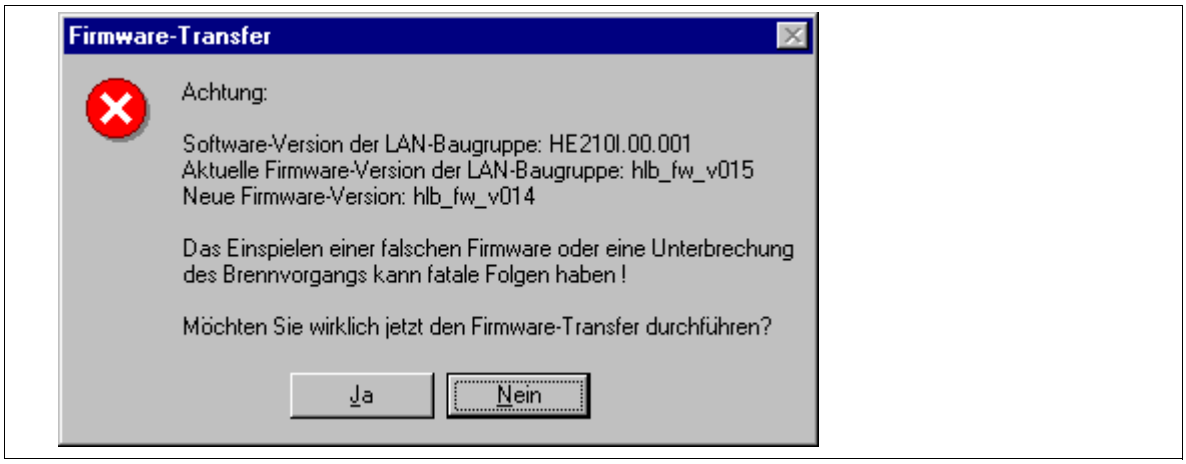
Firmware Download is only available at the developer level of the Assistant. This feature is used to upgrade the firmware of a board to a new version. Such a firmware upgrade should only be performed if there are valid reasons (since the operation is comparable to a BIOS update on the PC)

- Select the APS file with the firmware to be transferred (File Open dialog)

- Assistant I checks as to whether the software of the selected HiPath HG 1500 system supports a firmware transfer. If this is not the case, the following error message will be displayed:

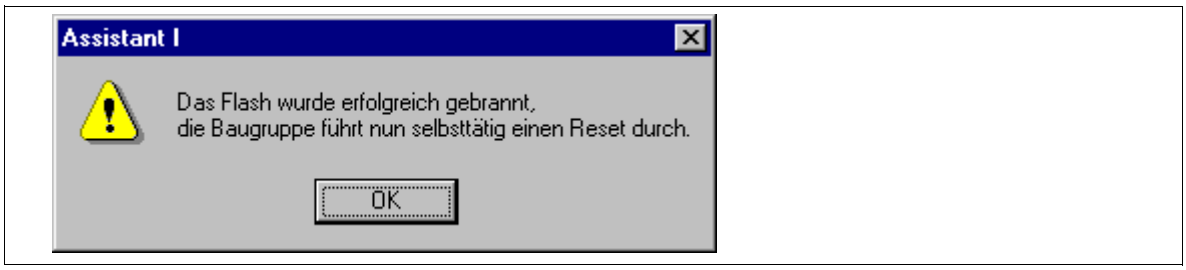


- If a firmware transfer is supported, Assistant I indicates the software version of HiPath HG 1500 as well as the firmware versions which are currently available in the HiPath HG 1500 system and are contained in the APS file. This is followed by a warning message. If the user decides to continue with the transfer,



- the firmware will be transferred.
- Once the transfer has been completed successfully, the user is prompted to confirm the changeover to the new firmware. Another warning message appears.

- Assistant I prompts HiPath HG 1500 to perform changeover and HiPath HG 1500 reports whether the changeover has succeeded or failed.



- Once changeover has been completed successfully, HiPath HG 1500 performs a RESET.

Abbreviations

This list contains the abbreviations used in this manual.

Abbreviation	Definition
APS	Application Programming System
ARP	Address Resolution Protocol
CAPI	Common ISDN Application Programming Interface
CHAP	Challenge Handshake Authentication Protocol
CMI	Cordless Multicell Integration
CSTA	Computer Supported Telecommunications Applications
CTI	Computer Telephony Integration
DFÜ	German abbreviation for Dial-Up Networking
DSP	Digital Signal Processor
DSS1	Digital Subscriber Signaling System One (D-channel protocol)
EMC	Electromagnetic Compatibility
FW	Firmware
GSM	Global System for Mobile Communication
GK	Gatekeeper
H.323	ITU standard for voice over LAN
HFA	Hicom Feature Access
MDF	Main Distribution Frame
HXGM	Hicom Xpress Gateway Medium
HXGO	Hicom Xpress Gateway One
HXGS	Hicom Xpress Gateway Small
IEEE	Institute of Electrical and Electronics Engineers
IP	Internet Protocol
ITU	International Telecommunication Union
KDS	Customer database
LAN	Local Area Network
LCR	Least Cost Routing

MAC	Media Access Control
MODEM	Modulator/Demodulator
MSN	Multiple Subscriber Number
NAT	Network Address Translation
POT	a/b telephone (analog telephone)
PAP	Password Authentication Protocol
PING	Packet Internet Groper
PPP	Point-to-Point Protocol
RARP	Reverse Address Resolution Protocol
RAS	Remote Access Service
SIC	Serial Interface Cable
SLA	Subscriber Line Analog (Hicom board)
SLIP	Serial Line Interface Protocol
SLU	Subscriber Line UP0/E (Hicom board)
SMR	Service Maintenance Release
SNMP	Simple Network Management Protocol
STLS	Subscriber Trunk Line S0 (Hicom board)
CTRL	Control
TAPI	Telephony Application Programming Interface
TCP	Transmission Control Protocol
TLA	Trunk Line Analog (Hicom board)
TS2	Trunk module S2M (Hicom board)
vCAPI	Virtual CAPI
WAN	Wide Area Network

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