Polycom HDX H.320 ISDN Modules
- Primary Rate Interface (PRI)
- Basic Rate Interface (BRI)

Basic Provisioning Guide

HDX V2.02

May 8, 2008

Table of Content

Polycom HDX Series

POLYCOM ISDN PRI Module for HDX 4000, 7000, 8000 and 9000 (USA)

ISDN PRI provisioning (USA) for the Polycom HDX Video Conferencing systems

Line Settings: ESF/B8ZS (default)
Extended Super Frame B8ZS is modem standard for T1/PRI line encoding and framing

Line Termination Type: CPE (User Side)-only
This means that you need to supply the termination, which is built into the HDX systems, as well as most access switches

Switch Protocols: AT&T 4ESS/5ESS, NI-1, Siemens, Nortel DMS 100 and Nortel 250. For NI-2 service, configure the HDX for 5ESS P-T-P. (These are standard switch protocols for North America)

Number of Channels: 23 B-channels dialable @ 64 (23B+D)
Ensure that you have 64 Kbps clear channel service

Number of Network Interfaces: 1 (single PRI) per system

Line Build-out Modes: DSU+CSU (0 to -22.5dB attenuation), DSU-only (DSX 0-665 feet)
The Service Provider usually takes care of this, but you should be aware that physical distance is a factor offset by the settings in the user interface of the HDX systems

Clocking: External (derived from the external network – Telco/Carrier)

Terminal Endpoint ID (TEI): 0-63 (0 is default)
This identifies the PRI endpoint. "0" is the common default

Numbering: 1 Local Directory Number per Interface (23 channels)

D-channel Slot Number: 24.
This is only included to verify where the D channel is. This is where additional diagnostic information resides. It either doesn't matter or is so standard that it is almost a moot issue

Call-By-Call Service Codes: values 0-31 Service codes for GVPN/PN/UPN network specific services

Number of Digits out pulsed to equipment: 7 or 10 digits (default is usually 4)

B-Channel Selection: HDX goes from Low to High (The Switch should be from High to Low)

Caller ID: Request to see incoming Caller ID (Usually is enabled by default)

976/900 Block: Disable or block 976/900 number Dialing
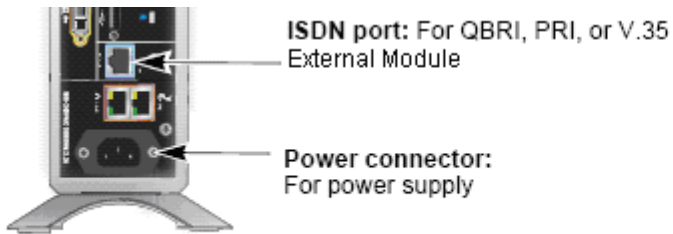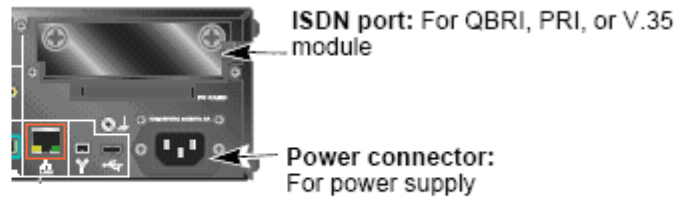
HDX PRI Module Part Numbers:

 External HDX-4000/7000/8000 ISDN PRI Module   **2215-26694-001 (USA PRI)**

 Internal HDX-9000 ISDN PRI Module   **2215-23367-001 (USA PRI)**

ISDN port: For QBRI, PRI, or V.35 External Module

Power connector: For power supply

HDX-4000/7000/8000

ISDN port: For QBRI, PRI, or V.35 module

Power connector: For power supply

HDX-9000

Polycom HDX PRI Web Configuration Screen Shots:

ISDN PRI Setup

Enable ISDN H.320:	☑
Area Code	703
PRI Video Number:	5551212
Outside Line Dialing Prefix:	
BONDING:	
Calling Endpoint Uses the Original ISDN Number:	☑
Line Signaling:	ESF/B8ZS
Switch Protocol:	AT&T 5ESS
External CSU:	☐
Line Build Out:	0
ISDN Voice Algorithm:	uLaw
Numbering Plan:	Unknown
International Dialing Prefix:	011
Call-by-Call:	0
Number of ISDN Channels to Dial in Parallel:	5

Switch Protocol dropdown:
AT&T 5ESS
AT&T 4ESS
Nortel DMS
NI-2

Line Build Out dropdown:
0
-7,5
-15
-22,5

ISDN Voice Algorithm dropdown:
uLaw
aLaw
uLaw

Numbering Plan dropdown:
Unknown
Unknown
ISDN

ISDN PRI Info

PRI Line Type:	T1
Number of Active Channels:	23
D Channel Location:	24
Network Mode:	User CPE
Clock Source:	External
Terminal Endpoint ID:	0

Call Preference

Enable

Basic Mode:	☐
H.239:	☑
IP H.323:	☑
SIP:	☐
ISDN H.320:	☑
Voice Over ISDN:	☐
Analog Phone:	☑
Transcoding:	☑
IP Gateway:	☐
ISDN Gateway:	☐

Preferred Speeds

Select the preferred speeds for placing calls.

ISDN Video Calls (H.320):	512 ▾
International ISDN Calls:	256 ▾
IP Calls (H.323):	4096 ▾

Select the maximum speeds for receiving calls.

ISDN Video Calls (H.320):	512 ▾
IP Calls (H.323):	4096 ▾

HDX User Guide Configuration Section:

Configuring the PRI Network Interface

Points to note about fractional PRI:
- Assigned channels must begin with channel 1, and the channel numbers must be consecutive.
- A D channel must be provided.
- Outbound call bandwidth must not exceed the available bandwidth.

To configure the ISDN network interface settings:

1. Go to System > Admin Settings > Network > ISDN.
2. Configure these settings:

Setting	Description
Enable ISDN H.320	Allows this system to make H.320 (ISDN) calls.
Area Code	Specifies the area code for this system's location.

Setting	Description
PRI Video Number	Specifies the ISDN number assigned to this system.
Outside Line Dialing Prefix	Specifies the ISDN dialing prefix used to call outside the network.
BONDING: Calling Endpoint Uses the Original ISDN Number	Specifies the use of a bonding standard. Incoming bonded calls will use the original number received to connect all remaining lines required for the call.

3. Select ▶ and configure these settings:

Setting	Description
Line Signaling	Specifies the framing format in use. This setting is configurable for PRI E1, read-only for PRI T1.
External CSU North America only	Specifies whether this system uses an external or internal Channel Service Unit (CSU).
Line Build Out PRI T1 only	For systems using an internal CSU, indicates the output attenuation in dB. Your service provider can provide you with these values. For systems using an external CSU, indicates the length (in feet) of the RJ-45 cable that connects the PRI network interface module to the CSU.
Switch Protocol	Specifies the Network switch protocol. The available choices are determined by the system's country settings. This setting is read-only for PRI E1, configurable for PRI T1. Your ISDN service provider can tell you which protocol your network uses. If you later change the Country setting, the PRI switch protocols available may also change, and you may be prompted to configure a different PRI switch protocol.
ISDN Voice Algorithm	Specifies which voice algorithm (aLaw or uLaw) is used for ISDN voice calls. Do not change this setting unless you experience audio issues in all ISDN voice calls.

4. Select ▶ and configure these settings:

Setting	Description
Numbering Plan	Select the appropriate numbering plan for your location, if it differs from the default.
International Dialing Prefix	Specify the dialing prefix needed for international calls.
Call-by-Call	Specifies a code that the system sends to the telephone company switch to request a special service, if such a code is required. Consult your telephone service provider to determine the proper call-by-call value.
Number of ISDN Channels to Dial in Parallel	Specifies how many channels to dial at one time. You can specify up to eight channels. If you experience network problems, decrease the number. Set this value to 1 for serial dialing. Serial dialing is not recommended unless you have trouble connecting calls using parallel dialing.
Restore Defaults	Resets all values on this screen. This does not affect other PRI settings.

5. Select ▶ and configure these settings:

Setting	Description
PRI Line Type	Displays read-only information about the system and its configuration.
Number of Active Channels	
D Channel Location	
Network Mode	
Clock Source	
Terminal Endpoint ID TEI	
Line Termination PRI E1 only	

6. Select ▶ and select a channel to activate or deactivate it. Active channels are represented by a green icon, and inactive channels are represented by a gray icon.

Make sure that channels are activated and deactivated only by a knowledgeable network professional so that the system operates properly and can dial at the desired rates.

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PRI Network Interface Status Lights

The network interface lights are located on the network interface module.

When the PRI network interface...	It means...
Indicators are off	No power to the system.
Red indicator is on or blinking	The system is not connected to the ISDN network, or there is a problem with the ISDN line.
Yellow indicator is on or blinking	There is a problem with the ISDN line.
Green indicator is on	The system is able to make and receive calls.
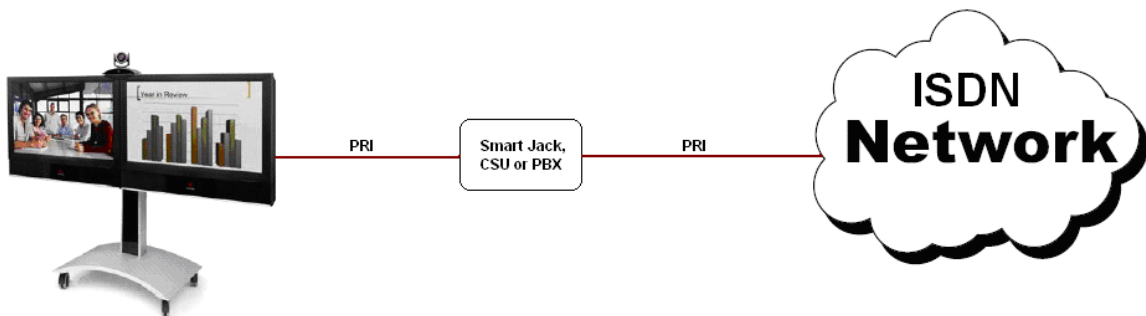
A CSU is used when the HDX is too far from the Smart Jack or PBX. The CSU is also used for local/remote troubleshooting; it has loopback capabilities, monitoring, network error statistics and SNMP Management.
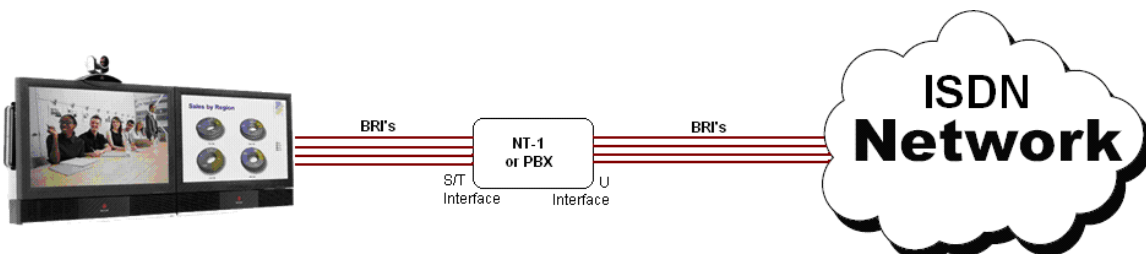
The BRI's need to be ST Interface at the HDX side, an NT-1 is required if BRI's are direct from the Telco.

POLYCOM ISDN BRI Module for HDX 4000, 7000, 8000 and 9000 (USA)

ISDN PRI provisioning (USA) for the Polycom HDX Video Conferencing systems

Enable ISDN H.320: (Enable)

Number of ISDN Channels to dial in parallel: 5
Depends on your switch, 1 channel 1 is the set-up channel followed by the remaining channels

Outside Line Dialing Prefix: Sometimes used when your BRI's are going to your PBX or CPE ISDN Switch

Numbering Plan: Unknown

ISDN Voice Algorithm: uLaw

Switch Protocols: AT&T 4ESS/5ESS, NI-1, Nortel DMS 100, Standard ETSI Euro-ISDN, TS-031, NTT INS-64

Country: United States

Country Code: 1

Line: 1, 2, 3, 4

Area Code: 3 Digit Area Code

Directory Numbers: 7 Digit Numbers

SPIDS: Typically 10 digit Numbers (SPIDS depends on switch type) ATT 5ESS Pt-to-Pt does not use SPIDS
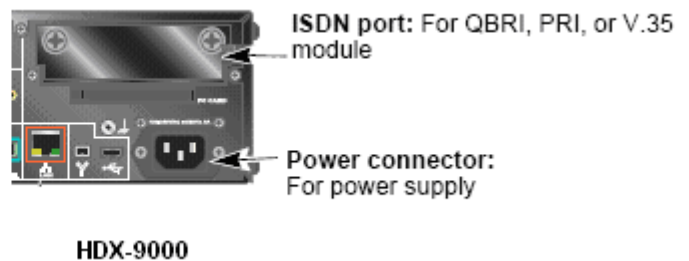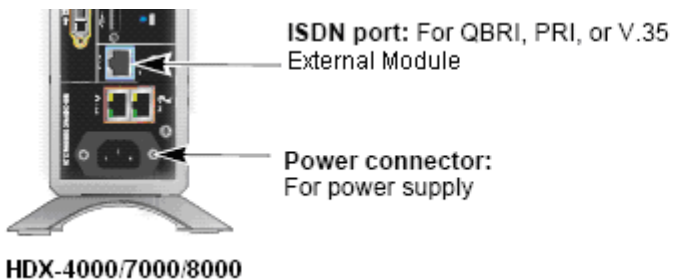
HDX BRI Module Part Numbers:

 External HDX-4000/7000/8000 ISDN BRI Module   **2215-26690-001 (USA BRI)**

 Internal HDX-9000 ISDN BRI Module   **2215-23365-001 (USA BRI)**

Polycom HDX BRI Web Configuration Screen Shots:

ISDN BRI Protocol

Enable ISDN H.320:	☑	
Number of ISDN Channels to Dial in Parallel:	5	
Outside Line Dialing Prefix:		
Numbering Plan:	Unknown ▾	Unknown ▾ / Unknown / ISDN
ISDN Voice Algorithm:	uLaw ▾	aLaw / uLaw
ISDN Switch Protocols:	AT&T 5ESS Pt-to-Pt ▾	
Country:	United States	AT&T 5ESS Pt-to-Pt ▾
Country Code:	1	AT&T 5ESS Pt-to-Pt / AT&T 5ESS Multipoint / NI-1 / Nortel DMS-100 / Standard ETSI Euro-ISDN / TS-031 / NTT INS-64

Line	Area Code	Directory Numbers		Enable
Line 1:	212	B1	5551212	☑
		B2	5551212	
Line 2:		B1	5551213	☑
		B2	5551213	
Line 3:		B1	5551214	☑
		B2	5551214	
Line 4:		B1	5551215	☑
		B2	5551215	

ISDN NI-1 Example:

ISDN Switch Protocols:	NI-1 ▾
Country:	United States
Country Code:	1

Line	Area Code	Directory Numbers		SPIDs	Enable
Line 1:	212	B1	5551212	21255512120101	☑
		B2	5551213	21255512130101	
Line 2:		B1	5551214	21255512140101	☑
		B2	5551215	21255512150101	
Line 3:		B1	5551216	21255512160101	☑
		B2	5551217	21255512170101	
Line 4:		B1	5551218	21255512180101	☑
		B2	5551219	21255512190101	

Call Preference

Enable

Basic Mode:	☐
H.239:	☑
IP H.323:	☑
SIP:	☐
ISDN H.320:	☑
Voice Over ISDN:	☐
Analog Phone:	☑
Transcoding:	☑
IP Gateway:	☐
ISDN Gateway:	☐

Preferred Speeds

Select the preferred speeds for placing calls.

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IP Calls (H.323):	4096 ▾

Select the maximum speeds for receiving calls.

ISDN Video Calls (H.320):	512 ▾
IP Calls (H.323):	4096 ▾

HDX User Guide Configuration Section:

Connecting Polycom HDX Systems to ISDN or Other Networks

The following network interface modules are available:

- BRI — Allows you to connect to an ISDN network using up to four BRI lines.
- PRI — Allows you to connect to an ISDN network using a PRI line.
- V.35/RS-449/RS-530 — Allows you to connect to third-party network equipment, including encryption equipment and RS-366 dialers.

If you received a network interface module with your system, you may find it convenient to install it before positioning the system. Refer to the setup sheet that you received with the network interface module. Make sure that the system is powered off before you connect devices to it.

You will need the following network hardware.

If your network is...	You will need
BRI	• NT-1 device, if the system will be connected to a network that provides a U interface. Do not use an NT-1 device if your PBX network provides an S/T interface. • Up to 4 BRI lines that will not be shared with other equipment. If you connect fewer than four BRI ports on the system's network interface module, connect them in ascending order, starting with port 1.

If your network is...	You will need
PRI (North America and Japan)	• PBX crossover cable, if required for your PBX. • Channel Service Unit (CSU) — not required if you connect the system to a PBX network. • PRI line.
PRI (outside North America and Japan)	• 75 W coaxial adapter, if the network connection is via a 75 W coaxial cable. • PBX crossover cable, if required for your PBX. • PRI line.
Serial **V.35/RS-449/ RS-530**	• Third-party network equipment and cables. Contact your network equipment vendor to obtain the appropriate cables for the equipment you connect to this interface. If you use only one cable, connect it to port 1 of the network interface module and to the lowest-numbered port of the data communications equipment.

The diagram below shows a general view of how network interface modules are connected in Polycom HDX 9000 series systems.
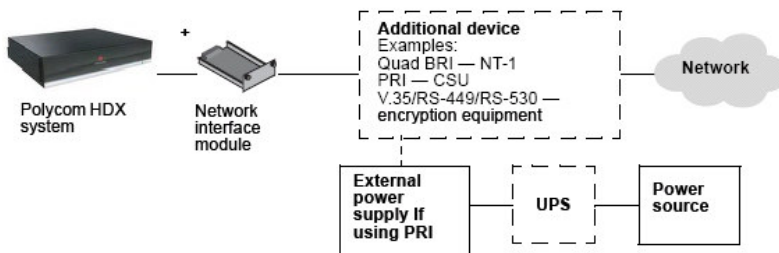
The diagram below shows a general view of how network interface modules are connected with Polycom HDX 4000 series and Polycom HDX 8000 HD systems.
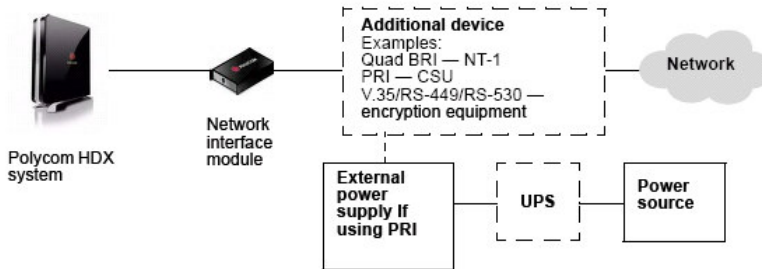
Quad BRI Network Interface Status Lights

The network interface lights are located on the network interface module.

When the BRI network interface...	It means...
Indicators are off	• No power to the system, or • The system is not connected to the network, or • The system is not receiving a clock signal from the network, or • The system is restarting.
Green indicator is on	The system is receiving a clock signal from the network.
Yellow indicator is on	The system is able to make a call.
Green and yellow indicators are on	• The system is receiving a software update, or • The system is operating normally.

For additional information please visit www.polycom.com