



## Cable Specifications

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This appendix provides cable requirements and pin assignments for cables used with Cisco MGX 8850 (PXM1E/PXM45), Cisco MGX 8850/B, Cisco MGX 8950, Cisco MGX 8830 and Cisco MGX 8830/B multiservice switches and the Cisco MGX 8880 Media Gateway.

This appendix contains the following sections:

- [Notes about Cables and Connectors, page B-1](#)
- [Control and Clock Cabling, page B-3](#)
- [External Alarm Cabling, page B-9](#)
- [Power Cabling, page B-11](#)
- [Redundancy Y-Cable, page B-14](#)
- [Trunk Cabling, page B-16](#)
- [Frame Relay Cabling, page B-17](#)
- [Illustrated Cable Guide, page B-25](#)



### Note

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The information in this guide does not apply to the Cisco MGX 8850 (PXM1) switch. For MGX 8850 (PXM1) cable information, refer to *Cisco MGX 8850 Edge Concentrator Installation and Configuration, Release 1.1.3* located at:

[http://www.cisco.com/univercd/cc/td/doc/product/wanbu/mgx8850/1\\_1\\_31/instconf/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/wanbu/mgx8850/1_1_31/instconf/index.htm)

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## Notes about Cables and Connectors

This section contains general explanations about Cisco MGX cables.



### Warning

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**For NEBS Level 3 compliance to GR-1089 (Second-Level Lightning Surge and Intra-building AC Power Fault Requirements), shielded cables, grounded at both ends, must be used on all metallic interfaces.**

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In all cable references, the transmit (Tx) direction is away from the system, and the receive (Rx) direction is toward the system.

## Cable and Connector Naming Conventions

The suffix to the model number indicates the length of the cable. For example, 5610-50 indicates a 50-foot cable. Sometimes the suffix indicates the cable length in inches, rather than feet. This typically occurs on Y-cables or adaptor cables.

Some entries in the cable tables include the gender of the connector and the number of pins. For example, EIA/TIA-232/M25-M25 indicates a cable terminated with a male DB-25 connector at each end.

## Cable Lengths

Cables are available in standard lengths of 10 feet (3 meters), 25 feet (7.6 meters), 50 feet (15 meters), 75 feet (22.8 meters), and 100 feet (30 meters). Lengths of 100 feet (30 meters) to 600 feet (183 meters) can be specially ordered.

## Standard Cisco MGX 8850 (PXM1E/PXM45), MGX 8850/B, and MGX 8880 Cables

The standard cables that Cisco can supply for the Cisco MGX 8850 (PXM1E/PXM45) and MGX 8850/B systems appear in [Table B-1](#).

**Table B-1** Standard Cisco MGX 8850 and MGX 8850/B Cables Available from Cisco

Model Number	Description	Usage
CAB-T3E3-PL-AD	75 ohms coax/SMB-BNC	T3 or E3 trunk interface
	ASSY CBL SMB (M) to BNC (F)	T3 or E3 trunk interface
	T3/E3 SMB to SMB Posi-Lok	Redundant usage
CAB-T3E3-PL-AD-6	Posi-Lok SMB to BNC 6 Ad	T3 or E3 trunk interface
CAB-T3E3-PL-CE-AD	T3/E3 SMB-BNC Posi-Lok A	T3 or E3 trunk interface (International)
CAB-T3E3-PL-CE-Y	T3/E3 SMB-BNC Posi-Lok Y	Redundant usage (International)
CAB-SMB-BNC-Y	Posi-lok SMB to BNC Y Ca	Redundant usage
CAB-T3E3-PL-Y-6	Posi-lok SMB to BNC 6 Y	Redundant usage
CAB-MCC-T1E1	Mini-coaxial (MCC) to BNC	E1 interface
CAB-MCC-T1E1-Y	cable	E1 interface (Redundant usage)
CAB-RBBN-16-T1E1	36-pin to 50-pin straight cable	T1 or E1 interface
CAB-RBBN-16-T1E1-Y	with RBBN connector	T1 or E1 interface (Redundant usage) <sup>1</sup>
5620	EIA/TIA-232/M25-F25	PXM-UI-S3 maintenance port to control terminal, Cisco WAN Manager, or external window device
5621	EIA/TIA-232/M25-M25 special	Control or maintenance port to modem
	Ground cable (customer-supplied)	DC power. See <a href="#">Table B-13</a> for details.

**Table B-1** Standard Cisco MGX 8850 and MGX 8850/B Cables Available from Cisco (continued)

Model Number	Description	Usage
	Molex-pigtail (customer-supplied)	DC power. See <a href="#">Table B-13</a> for details.
	Spade lug-pigtail (customer-supplied)	DC power. See <a href="#">Table B-13</a> for details.

1. Two cables required per back card, one TX and one RX.

## Standard Cisco MGX 8950 Cables

The standard cables that Cisco can supply for the Cisco MGX 8950 system appear in [Table B-2](#).

**Table B-2** Standard Cisco MGX 8950 Cables Available from Cisco

Model Number	Description	Usage
CAB-T3E3-PL-AD-6	75 $\Omega$ coax/SMB-BNC, 6 feet	T3 or E3 trunk interface
	ASSY CBL SMB(M) to BNC(F)	T3 or E3 trunk interface
	T3/E3 SMB to SMB Posi-Lok	Redundant usage
CAB-T3E3-PL-AD-6	Posi-lok SMB to BNC 6 Ad	T3 or E3 trunk interface
CAB-T3E3-PL-CE-AD	T3/E3 SMB-BNC Posi-lok A	T3 or E3 trunk interface
CAB-T3E3-PL-CE-Y	T3/E3 SMB-BNC Posi-lok Y	Redundant usage
CAB-SMB-BNC-Y	Posi-lok SMB to BNC Y Ca	Redundant usage
CAB-T3E3-PL-Y-6	Posi-lok SMB to BNC 6 Y	Redundant usage
5620	EIA/TIA-232/M25-F25	PXM-UI-S3 maintenance port to control terminal, Cisco WAN Manager, or external window device
5621	EIA/TIA-232/M25-M25 special	Control or maintenance port to modem
5601	Ground cable	DC power
5670	Molex-pigtail	DC power
5671	Spade lug-pigtail	DC power

## Control and Clock Cabling

This section describes the cables that can connect to the PXM-UI-S3 or PXM-UI-S3/B user interface back card.

## Maintenance and Control Ports

The maintenance (or modem) port and the control (or console) port connect a switch or gateway to an ASCII terminal, workstation, or modem for remote alarm reporting or system monitoring. These ports are labeled *MP* or *CP* on the user interface back card. See [Figure 2-63 on page 2-121](#) and [Figure 2-64 on page 2-122](#) for the locations of these ports. [Table B-3](#) provides cabling details.

**Note**

The PXM-UI-S3/B user interface card does not have a maintenance port.

## Procedure to Connect a Modem to the Maintenance Port

Table B-3 lists cable information for maintenance and control ports.

**Table B-3** *Cable and Connector Information for the Maintenance and Control Ports on the PXM-UI-S3 and PXM-UI-S3/B User Interface Cards*

Cable Parameter	Description
Interface	EIA/TIA-232—both are DTE ports.
Suggested cable	<p><b>MGX 8950:</b> Uses only 8 conductor</p> <p><b>MGX 8850 or MGX 8850/B:</b> 24 AWG, 25-wire. A straight-through EIA/TIA-232 cable provides a terminal or printer connection. For an interface with modems on either port, a null modem cable might be necessary.</p> <p><b>MGX 8830 or MGX 8830/B:</b> 24 AWG, 8-wire. A straight-through EIA/TIA-232 cable provides a terminal or printer connection. For an interface with modems on either port, a null modem cable might be necessary.</p>
Cable connector	<p><b>MGX 8850 and MGX 8950:</b> <b>RJ-48</b>, subminiature, male.</p> <p><b>MGX 8830:</b> <b>RJ-45</b>, subminiature, male.</p>
Maximum cable length	50 feet (15.24 m).

Use the following procedure to properly connect a modem to a maintenance port.

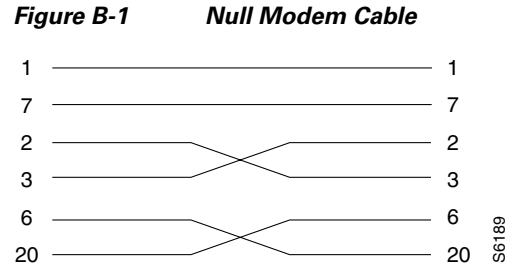
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- Step 1** Connect the suggested cable from the modem to the maintenance port.
- Step 2** Configure an IP address for the serial port (s10) and also a second unique address for the destination IP address.
- Step 3** Using 9600 baud, connect to the modem. Use a serial line interface protocol (SLIP) client package that does not enable compression and also supports a configurable EOF character. The MGX switch expects to see an EOF character of 300 in base 8.
- Step 4** Try to telnet or ping the destination IP address configured.
- If the correct SLIP client is used, you should see the login prompt when telnetting in.
  - If incorrect, you can still verify connectivity is up by checking statistics on **dspipif s10** for packets in.

If the special EOF character is not supported, then after 576 bytes, it is logged as an input error. (You should be able to connect directly from a PC or via modem as long as the correct SLIP client is used.)

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## Null Modem Cable

Figure B-1 shows a null modem cable that is used for connecting modems to the control or maintenance ports on the PXM-UI-S3 and PXM-UI-S3/B User Interface Cards.



## Pin Assignments for RJ-48 Maintenance and Control Ports

Table B-4 provides the pin assignments for the associated RJ-48 and RJ-45 connectors.

**Table B-4 Pin Assignments for the RJ-48 Maintenance and Control Ports on the PXM-UI-S3 and PXM-UI-S3/B User Interface Cards**

Pin No.	Name	Description
1	RTS out	Request to send
2	DTR out	Data terminal ready
3	TxD	Transmit data
4	GND	Chassis ground
5	GND	Chassis ground
6	RxD	Receive data
7	DSR	Data set ready
8	CTS	Clear to send

## External Clock Input Cabling

This section explains the cabling that provides the MGX switch with an external clock source.

If external equipment or a local digital central office provides synchronization to the Cisco MGX switch, the external clock source is connected to the user interface back card (PXM-UI-S3 or PXM-UI-S3/B). The user interface back card has two external clock input ports labeled *EXT CLK1* and *EXT CLK2* that can support either T1 or E1 external clock input, but not both. That is, both *EXT CLK1* and *EXT CLK2* clocks must be set the same, either T1 or E1. The clock may be 1.544 Mbps or 2.048 Mbps. Refer to [Table 2-44 on page 2-120](#) for information about which switch is compatible with which user interface back card, and see [Figure 2-63 on page 2-121](#) and [Figure 2-64 on page 2-122](#) for locations of the external clock ports.

The PXM-UI-S3 or PXM-UI-S3/B cards go into slots 7 and 8 for the following switches:

- MGX 8850 (PXM1E/PXM45) and MGX 8850/B
- MGX 8950

The PXM-UI-S3 or PXM-UI-S3/B cards go into slots 1 and 2 for the MGX 8830 and MGX 8830/B switches.

For redundancy where one user interface back card is present, connect to both ports, using *EXT CLK1* as the primary source and *EXT CLK2* as the secondary source.

For redundant PXM configurations where two user interface back cards are present, use a Y-cable to connect to the *EXT CLK1* input of Slot 7 and the *EXT CLK1* input of Slot 8. For BITS source protection, connect another Y-cable to the *EXT CLK2* input of Slot 7 and the *EXT CLK2* input of Slot 8. (For MGX 8830 switches, these cards would be in slots 1 and 2.)

## Cable Specifications for Y-Cables and Cable Adapters for Clocking

There are two types of Y-cables for clocking:

- One type has an RJ-45 plug at the single end, and RJ-45 connectors at the Y ends
- One type has a BNC coax connector at the single end, and RJ-45 connectors at the Y ends



### Note

In systems with redundant PXM cards and an external clock source, the single external clock source should be connected to both PXM-UI-S3 cards using a short Y-cable.

A wire-wrap adapter can be used for clocking. See [“Connect the External Clock Using a Wire-Wrap Adapter” section on page B-7.](#)

A cable adaptor with an RJ-45 connector on one end and a BNC coax connector at the other end can be used for clocking.

The maximum cable length is 533 feet (162.46 m) between the MGX switch and the first repeater or channel service unit (CSU). Selection of cable length equalizers is used. Wire build-out is required.

## T1/E1 Clock Input Cable Information

The T1 RJ-48 clock port can accept either a T1 or an E1 Building Integrated Timing Supply/Synchronous Equipment Timing Source (BITS/SETS) clock input signal. The E1 RJ-45 clock port can accept twisted pair or 75-ohm coaxial cable. See [Table B-5](#) for cable and signal information for the external clock.

**Table B-5** *Cable and Signal Information for the External Clock Ports on the PXM-UI-S3 or PXM-UI-S3B Card*

Carrier	Cable Media	Signal Type (Data or Sync)
T1	22 AWG, twisted pair with shield. 100-ohm	Data
E1	22 AWG, twisted pair with shield. 120-ohm, bipolar or 75-ohm coaxial cable	Data

## Building Integrated Timing Supply (BITS) Clock Connector Pin Assignments

For MGX 8850 (PXM1E/PXM45), MGX 8850/B, MGX 8950 switches, and the MGX 8880 Media Gateway, the RJ-48 BITS clock connector has a 100-ohm termination for T1 and a 120-ohm termination for E1.

**Note**

Make sure that the 100-ohm termination is selected when you configure the clocks for T1. You need to connect only the RX Ring, the RX Tip, and the Ground (pins 4, 5, and 6).

Table B-6 shows the pin assignment for the RJ-48 BITS clock connector.

**Table B-6 Pin Assignments for the RJ-48 BITS Clock Connector**

Pin No.	Signal
1	TX ring
2	TX tip
3	Ground
4	RX ring
5	RX tip
6	Ground <sup>1</sup>
7	TTP ring
8	TTP tip

1. No connection on the MGX 8830 and MGX 8830/B

## Connect the External Clock

The section provides the following installation procedures for connecting the external clock:

- “[Connect the External Clock Using an RJ-45 Connection](#)” section on page B-7
- “[Connect the External Clock Using a Wire-Wrap Adapter](#)” section on page B-7

### Connect the External Clock Using an RJ-45 Connection

Complete the following steps to connect the external clock.

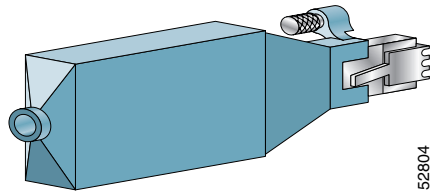
**Tip**

We recommend that you label each data cable at both ends to identify its source and destination.

- Step 1** Verify that you have a PXM-UI-S3 or PXM-UI-S3/B back card installed in slots 7 and 8 in the upper rear bay of the switch. (In an MGX 8830 and MGX 8830/B, these cards would be in slots 1 and 2.)
- Step 2** Connect the cable connector to the EXT CLK 1 port on the user interface back card.
- Step 3** Connect the other end of the cable to the clock source.
- Step 4** Repeat [Step 1](#) through [Step 3](#) as necessary for each external clock connection.

### Connect the External Clock Using a Wire-Wrap Adapter

The optional RJ-45 to wire-wrap adapter (PXM-WIREWRAP=) connects an external building integrated timing supply (BITS) clock source to the PXM-UI-S3 or PXM-UI-S3/B using a wire-wrap connection instead of an RJ-45 connection (see [Figure B-2](#)).

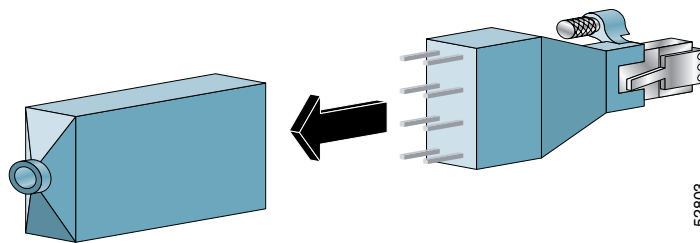
**Figure B-2** *Optional RJ-45 to Wire-wrap***Note**

The eight pins of the adapter are marked and have a one-to-one correlation to the eight lines on the RJ-45 connector.

When you install the RJ-45 to wire-wrap adapter, you do not need to remove the card from its slot or turn off the power. However, you should wire-wrap the cable conductors to the applicable pins on the adapter before you plug the adapter into the card.

Complete the following steps to connect the external clock using the wire-wrap adapter:

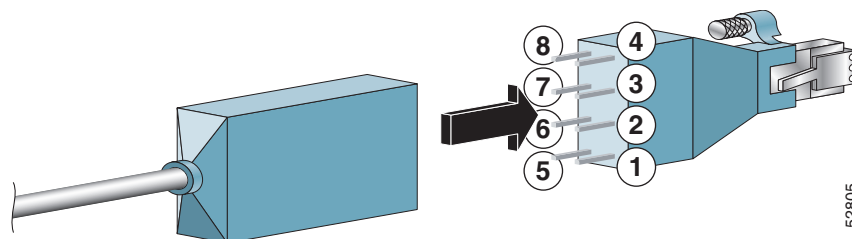
- Step 1** Remove the pin cover from the adapter (see [Figure B-3](#)). The pin cover provides ESD shielding.

**Figure B-3** *Removing the Pin Cover from the Adapter*

- Step 2** Insert the shielded clock source cable through the hole of the pin cover. See [Figure B-4](#).

**Note**

You must use a shielded clock source cable to ensure EMI containment.

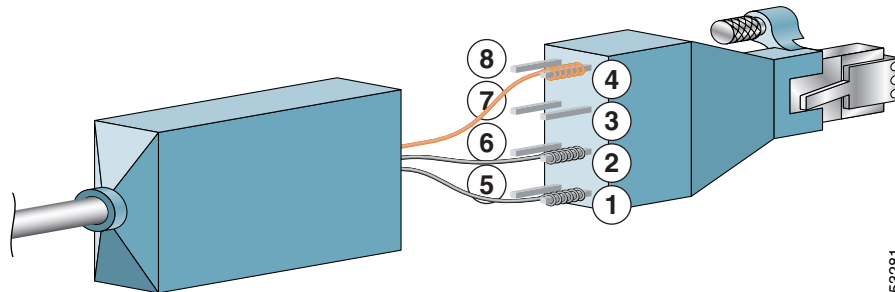
**Figure B-4** *Inserting the Cable through the Pin Cover***Note**

The length of the exposed (unshielded) wires should be 2 to 4 inches. The maximum allowable length is 4 inches.



- Step 3** Use a wire-wrapping tool to wrap the shield drain wire to the ground pin (pin 3 or 6) of the adapter. The shield drain wire is the bare wire shown in [Figure B-5](#).

**Figure B-5** Wires Wire-Wrapped to Pins



- Step 4** Use a wire-wrapping tool to wrap the two remaining wires to the pin of the adapter.
- Step 5** Slide the pin cover over the pins and onto the body of the adapter after all of the wires are connected.
- Step 6** Insert the RJ-45 connector of the adapter into the EXT CLK1 or EXT CLK2 port on the PXM-UI-S3 or PXM-UI-S3/B.
- Step 7** If the faceplate of the PXM-UI-S3 or PXM-UI-S3/B has a mating tapped hole, hand tighten the strain-relief screw to provide additional strain relief.
- Step 8** Connect the opposite end of the shielded cable to the external BITS clock source.

## External Alarm Cabling

The network alarm cable connects to the *ALARM* connector on the PXM-UI-S3 or PXM-UI-S3/B user interface card.

### Alarm Cable Information

This section describes cables, connectors, and pin assignments for network alarm cabling.

#### Alarm Cable Information for MGX Switches

[Table B-7](#) describes the Alarm cable used for the MGX 8850 (PXM1E/PXM45), MGX 8850/B, MGX 8950, MGX 8830 and MGX 8830/B switches.

**Table B-7** External Alarm Cable and Connector Information for MGX Switches

Cable Parameter	Description
Interface	Dry-contact relay closure
Wire	24 AWG, shielded, 6-pair
Connector	DB-15, subminiature, male

## Alarm Connector Pin Assignments

Table B-8 describes the Alarm connector pin assignments for the different MGX multiservice switches.

**Table B-8 Pin Assignments for the DB-15 ALARM Connector**

MGX 8850 (PXM1/PXM45), MGX 8850/B, MGX 8950 Only			MGX 8830, MGX 8830/B Only		
Pin #	Alarm	Description	Pin #	Alarm	Description
1	Audible—critical	Normally on	1	Audible—Major	Normally open
2	Visual—critical	Normally on	2		Common
3	Visual—critical	Normally off	3	Audible—Minor	Normally open
4	Audible—major	Common	4	Visual—Major	Normally open
5	Visual—major	Common	5		Common
6	Audible—minor	Normally on	6	Visual—Minor	Normally open
7	Visual—minor	Normally on	7	unused	n.c.
8	Visual—minor	Normally off	8	unused	n.c.
9	Visual—critical	Normally off	9		Normally closed
10	Visual—critical	Common	10		Normally closed
11	Audible—major	Normally on	11		Common
12	Visual—minor	Normally on	12		Normally closed
13	Visual—major	Normally off	13		Normally closed
14	Audible—minor	Common	14		Common
15	Visual—minor	Common	15	unused	n.c.

## Connector Pin Functions for Audio and Visual Alarms

Table B-9 shows the pin numbers and functions on the ALARM connector on the PXM-UI-S3 and PXM-UI-S3/B user interface back card.

- When Audio Alarm is enabled, the Audio Alarm On and Audio Alarm Common pins are closed (short circuit).
- When Audio Alarm is disabled, the Audio Alarm On and Audio Alarm Common pins are opened (open circuit).
- When Visual Alarm is enabled, the Visual Alarm On and Visual Alarm Common pins are closed, and the Visual Alarm Off pin is opened.
- When Visual Alarm is disabled, the Visual Alarm Off and Visual Alarm Common pins are closed, and the Visual Alarm On pin is opened.

**Table B-9 PXM-UI-S3 Pin Assignment on the ALARM Connector**

Pin Name	Pin No.	Audio Enable	Audio Disable	Visual Enable	Visual Disable
Critical Audio Alarm On	1	S <sup>1</sup>	O <sup>2</sup>	—	—
Critical Audio Alarm Common	9	Common	Common	—	—

**Table B-9** PXM-UI-S3 Pin Assignment on the ALARM Connector (continued)

Pin Name	Pin No.	Audio Enable	Audio Disable	Visual Enable	Visual Disable
Critical Visual Alarm On	2	—	—	S	O
Critical Visual Alarm Common	10	—	—	Common	Common
Critical Visual Alarm Off	3	—	—	O	S
Major Audio Alarm On	11	S	O	—	—
Major Audio Alarm Common	4	Common	Common	—	—
Major Visual Alarm On	12	—	—	S	O
Major Visual Alarm Common	5	—	—	Common	Common
Major Visual Alarm Off	13	—	—	O	S
Minor Audio Alarm On	6	S	O	—	—
Minor Audio Alarm Common	14	Common	Common	—	—
Minor Visual Alarm On	7	—	—	S	O
Minor Visual Alarm Common	15	—	—	Common	Common
Minor Visual Alarm Off	8	—	—	O	S

1. S = Signal is shorted with Common

2. O = Signal is opened

## Pin States for Each Alarm State

Table B-10 summarizes which pins are open (open circuit) and which pins are closed (short circuit) for each alarm state.

**Table B-10** Pin States for Each Audio and Visual Alarm State

Alarm	Alarm State	Pin	Pin State
Audio alarm	Enabled	Audio Alarm On	Closed
		Audio Alarm Common	Closed
	Disabled	Audio Alarm On	Open
		Audio Alarm Common	Open
Visual alarm	Enabled	Visual Alarm On	Closed
		Visual Alarm Common	Closed
		Visual Alarm Off	Open
	Disabled	Visual Alarm On	Open
		Visual Alarm Common	Closed
		Visual Alarm Off	Closed

## Power Cabling

This section provides information on providing AC and DC power cabling for the MGX switch.

## AC Power Cabling—MGX 8850 (PXM1E/PXM45), MGX 8850/B and MGX 8880

We provide a 6-foot (1.8-meter) AC power cord for an AC-powered system. This AC power cord is available for the following countries:

- Argentina: Cisco Part Number CAB-ACR
- Australia: Cisco Part Number PWRCD-ANZ
- Continental Europe: Cisco Part Number PWRCD-EU
- Great Britain: Cisco Part Number PWRCD-GBI
- Ireland: Cisco Part Number PWRCD-GBI
- Italy: Cisco Part Number PWRCD-IT
- Japan: Cisco Part Number PWRCD-NA
- New Zealand: Cisco Part Number PWRCD-ANZ
- North America: Cisco Part Number PWRCD-NA (NEMA L6-20 twistlock plug)

For the number of power cords that support your MGX 8850 (PXM1E/PXM45), MGX 8850/B and MGX 8880 switches, see [Table 1-5](#).

## AC Power Cabling—MGX 8950

We provide a 10-foot (3 meter) AC power cord for an AC-powered system. This AC power cord is available for the following countries:

- Europe: Cisco Part Number PWRCD-30A-EU
- North America: Cisco Part Number PWRCD-30A-NA

[Table B-11](#) shows the power cords requirements for the MGX 8950 switch.

**Table B-11 AC Power Cable and Plug Requirements—MGX 8950**

Cable Parameter	Description
Cable	Provided with 10 feet (2.3 m) of 3-conductor wire with plug.
Plug (customer end)	30A NEMA L6-30, 3-prong plug (United States) For international use, the line cord is hard-wired with an IEC309 plug.

For the number of power cords that support your MGX 8950 switch, see [Table 3-14](#).

## AC Power Cabling—MGX 8830 and MGX 8830/B

Either Cisco or the customer can provide the AC power cord. See [Table B-12](#) for the power cords that Cisco can supply. In addition, you can special-order AC cables with other plugs or different lengths. If you want to construct the power cord, it must mate with an IEC320 (C-14) 10/15A male receptacle on the back of the AC power module.

**Table B-12 AC Power Cable and Plug Requirements—MGX 8830 and MGX 8830/B**

Cable Parameter	Description
Cable	Provided with 8 feet (2.3 meters) of 3-conductor wire with plug.
Plug (customer end)	<ul style="list-style-type: none"> <li>• 20A NEMA L6-20P, twist lock plug (United States)</li> <li>• NEMA5-15P 125V/15 A 3-prong plug, grounding type (North America)</li> <li>• 15A NEMA 5-15 (domestic U.S. and Canada)</li> <li>• 13 A 250 Vac BS1363, 3-prong fused plug (UK and Ireland)</li> <li>• CEE 7/7 (Continental Europe)</li> <li>• AS3112 (Australia and New Zealand)</li> <li>• CEI23-16/VII (Italy)</li> <li>• 125V/15A (North America)</li> </ul>

## DC Power Cabling

Table B-13 lists DC power cable and connector recommendations for each MGX switch and media gateway system. Typically, Cisco does not provide power cabling for DC-powered systems.

**Table B-13 DC Power Cabling Recommendations**

Switch Name	DC Cable Wiring	DC Cable Connection
MGX 8850 (PXM1E/PXM45) and MGX 8850/B	Three conductor, 6 AWG (10 square mm) or larger, solid or stranded copper wire with insulation rating for 140°F (60°C) minimum with wire insulation stripped back 0.25 in (6.35 mm) at the chassis connector end.	Panduit terminal lug (part number LC AS6-10-L) or equivalent to fit no. 10-32 screws.
MGX 8950	Three conductor, 6 AWG (10 square mm) recommended wire gauge, min. 60 degrees Celsius insulation rating, copper conductors only. Panduit LC AS6-10-L terminal lug or equivalent to fit no. 10-32 screws.	Panduit terminal lug (part number LC AS6-10-L) or equivalent to fit no. 10-32 screws.
MGX 8830 and MGX 8830/B	Three conductor, 10 AWG recommended wire gauge, solid or stranded copper wire with insulation rating for 140°F (60°C) minimum with wire insulation stripped back 0.25 in (6.35 mm) at the chassis connector end.	EURO Block.
MGX 8880 Media Gateway	Three conductor, 6 AWG (10 square mm) or larger, solid or stranded copper wire with insulation rating for 140°F (60°C) minimum with wire insulation stripped back 0.25 in (6.35 mm) at the chassis connector end.	Panduit terminal lug (part number LC AS6-10-L) or equivalent to fit no. 10-32 screws.

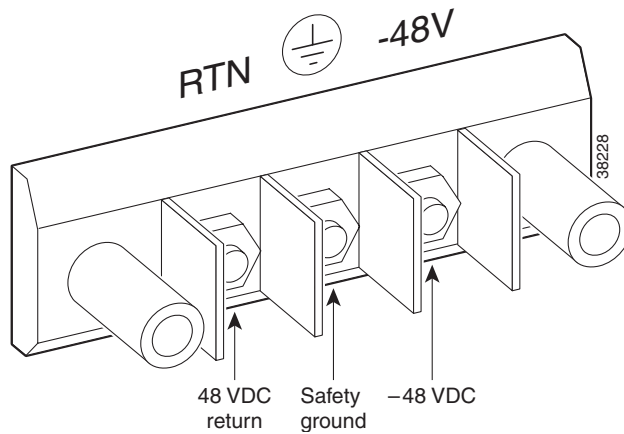
## DC Power Connections

For the MGX 8850 (PXM1E/PXM45), MGX 8850/B, MGX 8950, and MGX 8880 systems, DC power connections are made to the terminal block on the back of the DC power entry modules (PEMs), as shown in [Figure B-6](#). The DC PEMs are installed on the back of the air intake plenum.

For MGX 8830 or MGX 8830/B systems, DC power connections are made to the DC power entry modules (PEMs) at the rear of the switch.

See [Table B-13](#) for details on DC power cabling and connections.

**Figure B-6** DC Power Connections on DC PEM Terminal Block—MGX 8850 (PXM1E/PXM45), MGX 8850/B, MGX 8950, and MGX 8880



## Redundancy Y-Cable

Y-cables provide card redundancy. This section contains Y cable Cisco product numbers by switch.

### Y Cables for MGX 8850 (PXM1E/PXM45), MGX 8850/B and MGX 8880

[Table B-14](#) lists the Y-cables used with various MGX 8850 (PXM1E/PXM45), MGX 8850/B, and MGX 8880 cards.

**Table B-14** Y-Cable Product Numbers for MGX 8850 (PXM1E /PXM45), MGX 8850/B, and MGX 8880 Cards

Back Card	Connector Hardware	Type/Standard Interface	Y Cable Cisco Product Number	MGX 8850 (PXM1E/PXM45), MGX 8850/B, and MGX 8880	MGX 8950
PXM-UI-S3/B	RJ-45		CAB-SSIO-RJ45	x	
PXM-UI-S3	RJ-45	EIA/TIA-232	CAB-5686-04	x	x
PXM-UI-S3/B					
PXM-UI-S3	RJ-45	T1 BITS clock	CAB-5686-04	x	
PXM-UI-S3/B					

**Table B-14** Y-Cable Product Numbers for MGX 8850 (PXM1E /PXM45), MGX 8850/B, and MGX 8880 Cards (continued)

Back Card	Connector Hardware	Type/Standard Interface	Y Cable Cisco Product Number	MGX 8850 (PXM1E/PXM45), MGX 8850/B, and MGX 8880	MGX 8950
PXM-UI-S3 PXM-UI-S3/B	RJ-45	E1 BITS clock	CAB-5686-04	x	
PXM-UI-S3 PXM-UI-S3/B	RJ-45	E1 BITS clock	CAB-5686-04	x	
PXM-UI-S3 PXM-UI-S3/B	DB-15	Alarm output	CAB-5607-10 (10-in. Y)	x	x
PXM-HD	SC	MMF	CAB-MMF-Y-SC	x	x
BNC-3T3-M	BNC	75 ohm, coaxial	CAB-BNC-Y/B	x	
AXSM	LC	SMF	CAB-MMF-LC CAB-MMF-LC-Y	x	x
AXSM	MTRJ	MMF	CAB-MTRJ-SC-MM-3M CAB-MTRJ-SC-MM-5M	x	x
AXSM	SC	SMF	CAB-SMF-Y-SC CAB-SMF-SC (several)	x	x
AXSM PXM1E	MCC	Miniature coaxial cable, E1	CAB-MCC-BNC CAB-MCC-BNC-Y	x	
AXSM PXM1E	RBBN	T1/E1	CAB-RBBN-16-T1E1-Y CAB-RBBN-16-T1E1 <sup>1</sup>	x	
PXM-UI-S3	RJ45	EIA/TIA-232	CAB-5684-04		
PXM-UI-S3	RJ45	EIA/TIA-232	CAB-5684-04		
PXM-UI-S3	RJ45	T1 BITS Clock	CAB-5686-04		
PXM-HD	SC	SMF	CAB-SMF-Y-SC		

1. Two cables required per back card, one TX and one RX.

## Y Cables for MGX 8950

Table B-15 lists the Y-cables used with various Cisco MGX 8950 cards.

**Table B-15** Y-Cable Product Numbers for MGX 8950 Cards

MGX 8950 Card	Connector Hardware	Type/Standard Interface	Y Cable Product Number
PXM-UI-S3	RJ45	EIA/TIA-232	CAB-5684-04 (6-inch Y)
PXM-UI-S3	RJ45	EIA/TIA-232	CAB-5684-04
PXM-UI-S3	RJ45	T1 BITS Clock	CAB-5686-04 (6-inch Y)
PXM-UI-S3	DB15	Alarm Output	CAB-5607-10 (10-inch Y)

**Table B-15** Y-Cable Product Numbers for MGX 8950 Cards (continued)

MGX 8950 Card	Connector Hardware	Type/Standard Interface	Y Cable Product Number
AXSM	LC	SMF	
AXSM	MTRJ	MMF	
AXSM	SC	MMF	CAB-MMF-Y-SC

## Trunk Cabling

This section provides information about T3 and E3 trunk cabling.

### T3 Trunk Cabling

A trunk cable connects each T3 port on the SMB-8T3 back card to a T3 port on the colocated MGX 8220 node. See [Table B-16](#) for information about the T3 trunk cable wiring and connector.

**Table B-16** T3 Trunk Cable and Connector Information

Cable Parameter	Description
Type	75-ohm coaxial cable (RG-59 B/U for short runs; AT&T 734A for longer runs). Two per T3 line (transmit and receive).
Maximum length	450 feet between the Cisco MGX 8850 or MGX 8950 switch and the DSX-3. 450 feet between the Cisco MGX 8830 switch and the other equipment.
Connector	Terminated in male SMB. Rx is received from trunk; Tx is transmitted to trunk.

See [Table B-17](#) for details on SMB pin functions.

**Table B-17** T3 Connector Pin Functions

Connector	Description
Rx SMB	Receive T3 from trunk
Tx SMB	Transmit T3 to trunk

### E3 Trunk Cabling

A trunk cable connects each E3 port on the SMB-8E3 back card to an E3 port on the colocated MGX 8220 node. See [Table B-18](#) for information about the E3 trunk cable wiring and connector.



**Table B-18** E3 Trunk Cable and Connector Information

Cable Parameter	Description
Type	75-ohm coaxial cable (RG-59 B/U for short runs, AT&T 734A for longer runs). Two per E3 line (transmit and receive).
Maximum length	100 feet between the Cisco MGX 8850 switch and the CS/DSU. 450 feet maximum between the Cisco MGX 8950 switch and the DSX-3.
Connector	Terminated in male SMB. Rx is received from trunk; Tx is transmitted to trunk.

See [Table B-19](#) for details on SMB pin functions.

**Table B-19** E3 Connector Pin Functions

Connector	Description
Rx SMB	Receive E3 from trunk
Tx SMB	Transmit E3 to trunk

## Frame Relay Cabling

This section describes the cabling and connector pin assignments for the Frame Relay cards.



### Note

The Frame Relay Cabling section does not apply to the MGX 8950 switch or MGX 8880 gateway.

## T1 Cabling

T1 trunk cables connect the customer DSX-1 cross-connect point or T1 channel service unit (CSU) to the Cisco MGX 8850 or MGX 8830 switch at the T1 back card.

See [Table B-20](#) for T1 trunk cable and connector information.

**Table B-20** T1 Trunk/Circuit Line Cable and Connector Specifications

Cable Parameter	Description
Cable type	Western Electric 22 AWG, ABAM individually shielded twisted pair (100 ohm balanced). Two pair per T1 line (one transmit and one receive).
Cable connector	RJ-48C male. ( <a href="#">Figure B-7</a> illustrates the RJ-48 connector schematic.)
Maximum cable length	655 feet (199.64 meters) maximum between the Cisco MGX 8850 or MGX 8830 switch and the first repeater or CSU. A selection of cable length equalizers is available.

See [Table B-21](#) for pin assignments for the RJ-48C T1 and E1 connector.

**Table B-21 RJ-48C T1 and E1 Connector Pin Assignments**

Pin No.	Description
1	Transmit Ring
2	Transmit Tip
3	Transmit Shield
4	Receive Tip
5	Receive Ring
6	Receive Shield

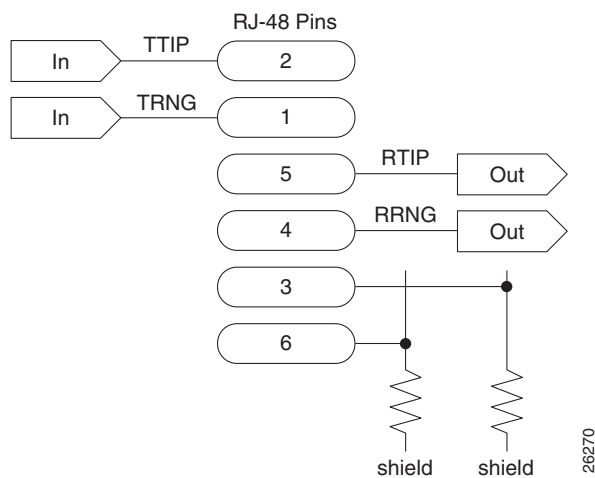


**Note**

Transmit direction is toward the T1 trunk.

See [Figure B-7](#) for an RJ-48 connector schematic.

**Figure B-7 RJ-48 Connector Schematic**



## E1 Cabling

E1 trunk cables connect the customer DSX-1 cross-connect point or E1 CSU to the MGX switch at the FRSM E1 back card (SMB-8E1).

See [Table B-22](#) for E1 trunk cable and connector information.

**Table B-22** *E1 Trunk/Circuit Line Cable and Connector Specification*

Cable Parameter	Description
Cable type (BNC-8E1)	75-ohm coax cable for unbalanced connection. Two cables or pairs (one transmit and one receive) per E1 line.
Cable connector	16 female SMB for unbalanced connection.
Maximum cable length	Approximately 100 meters (328 feet) maximum between the Cisco MGX 8850 or Cisco MGX 8830 switch and the first repeater or CSU. A selection of cable length equalizers is available.

See [Table B-21](#) for pin assignments for the RJ-48C T1 and E1 connector.

See [Table B-23](#) for pin assignments for the RJ-48C E1 connector—unbalanced.

**Table B-23** *RJ-48C E1 Connector Pin Assignments—Unbalanced*

Connector	Description
Rx BNC	Receive E1 from trunk
Tx BNC	Transmit E1 to trunk

## MGX-12IN1-S8 Back Card Cables

The back card for the MGX-FRSM-HS2/B is the MGX-12IN1-S8. Each port on the back card connects through a DTE version or DCE version of the Cisco 12IN1 cable. The signal on the back card depends on whether the back card connector is DTE or DCE and whether the back card has been set as X.21 or V.35 as shown in [Table B-24](#).

For the signals on the back card, see [Table B-25](#) and [Table B-26](#). The tables show the signal acronym, signal name, and signal source.

**Table B-24** *12IN1-S8 and 12IN1-S4 Back Card Cable Types*

Cable Type	X.21	V.35
DCE	X.21 DCE	V.35 DCE
DTE	X.21 DTE	V.35 DTE

**Table B-25 V.35 Signals**

<b>Acronym</b>	<b>Signal Name</b>	<b>Signal Source</b>
RTS	Request to Send	DTE
DTR	Data Terminal Ready	DTE
CTS	Clear To Send	DCE
DSR	Data Set Ready	DCE
DCD	Data Carrier Detect	DCE
GND	Ground	both
B_LL	Local Loopback	DTE
GND	Ground	both
TxD+	Transmit Data	DTE
TxD-	Transmit Data	DTE
RxD+	Receive Data	DCE
RxD-	Receive Data	DCE
TXCE	Secondary Clear to Send	DTE
TXCE	Secondary Clear to Send	DTE
RxC+	Receive Clock	DCE
RxC-	Receive Clock	DCE
TxC+	Transmit Clock	DCE
TxC-	Transmit Clock	DCE

**Table B-26 X.21 Signals**

<b>Signal</b>	<b>Name</b>
Mode_2	Local connections
Mode_DCE	Local connections
Ground	Shield Ground
O_TXD/RSC+	Transmit +
OTXD/RXD-	Transmit -
O_RTS/CTS+	Control +
O_RTS/CTS-	Control -
I_RDX/TXD+	Receive +
I_RXD/TXD-	Receive -
ICTS/RTS+	Indication +
I_CTS/RTS-	Indication -
I_RXC/TXCE+	Timing +

**Table B-26** X.21 Signals (continued)

Signal	Name
I_RXC/TXCE-	Timing -
GND	CCT Ground

Each cable can have a male or female connector at the far end. Also, the available clock sources depend on the mode:

- In DTE mode, the clock source is either *line* or *ST* (ST is a wire in the cable).
- In DCE mode, the clock source is the front card.

See [Table B-27](#) for the relationship between cabling and modes.

For part numbers of the standard and non-standard 12IN1 cables, see [Table B-28](#).

**Note**

The cable type and part number are printed on a plastic band located near the smaller connector.

**Table B-27** Cabling and Clock Sources for the MGX-FRSM-HS2/B

Mode	Type of Cable	Clock Source	Mode of Far End
DTE	DTE	Line	DCE (male or female connector at far end)
DCE	DCE	Internal (front card)	DTE (male or female connector at far end)
DTE_ST	DTE	ST line	DCE (male or female connector at far end)

**Table B-28** Cabling Types and Part Numbers for X.21 and V.35 Protocols for MGX-FRSM-xxxx Cards

Type of Cable	Far End Connector	Part Number
X.21 DTE	Male (standard)	72-1440-01
X.21 DCE	Female (standard)	72-1427-01
V.35 DTE	Male (standard)	72-1428-01
V.35 DTE	Female (non-standard)	72-1436-01
V.35 DCE	Female (standard)	72-1429-01
V.35 DCE	Male (non-standard)	72-1437-01
V.35 DTE-DCE	—	72-1441-01
Straight-through	—	72-1478-01
Loopback plug	—	72-1479-01

## MGX-SCSI2-2HSSI/B Port Connectors

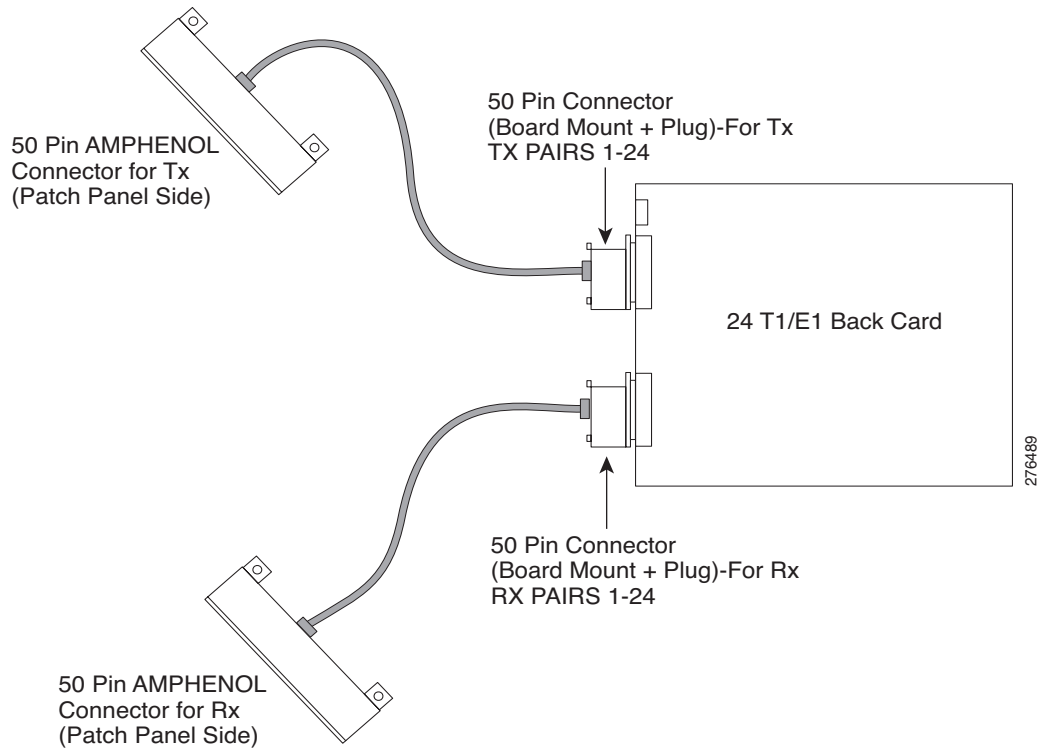
The High-Speed Serial Interface (HSSI) port connects through a female SCSI-II connector. This connector complies with specifications in ANSI/TIA/EIA-613. See [Table B-29](#) for the SCSI-II connector pin assignments.

**Table B-29** Pin Assignments for the SCSI-II Connector

Pin No.	Name	Signal Function	Polarity	Signal Source
11	SD	Send Data	Positive	DTE
36			Negative	
4	RD	Receive Data	Positive	DCE
29			Negative	
6	ST	Send Timing	Positive	
31			Negative	
2	RT	Receive Timing	Positive	
27			Negative	
6	TT	Terminal Timing	Positive	DCE
13			Negative	
3	CA	DCE Available	Positive	DCE
28			Negative	
8	TA	DTE Available	Positive	DTE
33			Negative	
10	LA	Loop Ckt A	Positive	DTE
35			Negative	
12	LB	Loop Ckt B	Positive	DTE
37			Negative	
5	LC	Loop Ckt C	Positive	DCE
30			Negative	
	SG	Signal Ground		

## VXSM-24-T1-E1-BC Connectors

There are two 50 pin AMP connectors on VXSM-24-T1-E1 back cards. One is used for the 24 transmit pair (Tip/Ring) and the other is used for the 24 receive pair (Tip/Ring). Each connector connects to the patch panel independently through a cable assembly.

**Figure B-8 24 T1/E1 Back Card Cable Diagram**

The signal description for 50 pin champ connector for transmit interface is shown in [Table B-30](#).

**Table B-30 Tx 50 Pin Connector Signals**

Pin	Signal name	Signal name	Pin
1	TXRING1	TXTIP1	26
2	TXRING2	TXTIP2	27
3	TXRING3	TXTIP3	28
4	TXRING4	TXTIP4	29
5	TXRING5	TXTIP5	30
6	TXRING6	TXTIP6	31
7	TXRING7	TXTIP7	32
8	TXRING8	TXTIP8	33
9	TXRING9	TXTIP9	34
10	TXRING10	TXTIP10	35
11	TXRING11	TXTIP11	36
12	TXRING12	TXTIP12	37
13	TXRING13	TXTIP13	38
14	TXRING14	TXTIP14	39
15	TXRING15	TXTIP15	40
16	TXRING16	TXTIP16	41

**Table B-30 Tx 50 Pin Connector Signals**

Pin	Signal name	Signal name	Pin
17	TXRING17	TXTIP17	42
18	TXRING18	TXTIP18	43
19	TXRING19	TXTIP19	44
20	TXRING20	TXTIP20	45
21	TXRING21	TXTIP21	46
22	TXRING22	TXTIP22	47
23	TXRING23	TXTIP23	48
24	TXRING24	TXTIP24	49
25			50

The signal description for 50 pin champ connector for receive interface is shown in [Table B-31](#)

**Table B-31 Rx 50 Pin Connector Signals**

Pin	Signal name	Signal name	Pin
1	RXRING1	TXTIP1	26
2	RXRING2	TXTIP2	27
3	RXRING3	TXTIP3	28
4	RXRING4	TXTIP4	29
5	RXRING5	TXTIP5	30
6	RXRING6	RXTIP6	31
7	RXRING7	RXTIP7	32
8	RXRING8	RXTIP8	33
9	RXRING9	RXTIP9	34
10	RXRING10	RXTIP10	35
11	RXRING11	RXTIP11	36
12	RXRING12	RXTIP12	37
13	RXRING13	RXTIP13	38
14	RXRING14	RXTIP14	39
15	RXRING15	RXTIP15	40
16	RXRING16	RXTIP16	41
17	RXRING17	RXTIP17	42
18	RXRING18	RXTIP18	43
19	RXRING19	RXTIP19	44
20	RXRING20	RXTIP20	45
21	RXRING21	RXTIP21	46
22	RXRING22	RXTIP22	47



**Table B-31 Rx 50 Pin Connector Signals**

Pin	Signal name	Signal name	Pin
23	RXRING23	RXTIP23	48
24	RXRING24	RXTIP24	49
25			50

## Illustrated Cable Guide

This section shows which cables are used for Cisco MGX 8850 (PXM1E/PXM45), MGX 8850/B, MGX 8950, MGX 8830, MGX 8830/B and MGX 8880 chassis and cards. Cables in this section are listed alphabetically.

## List of Cables by Front and Back Card Type

[Table B-32](#) lists cables by front and back card types. The table includes Y-cables, 1:1 cables, adaptor cables, and special cables.

**Table B-32 List of Cables by Front and Back Card Types**

Front Card Type	Back Card Types	APS or SFP Optics	Cable Description	Y-Cables	1:1 Cables	Adaptor Cables
PXM1E-8-155	PXM-UI-S3/B		DB15(M) to DB15(F) Y cable 10' RJ48(M) to RJ48(F) Y cable 4" RJ48(M) to RJ48(F) Y cable 6" SS(M) to 3xRJ48(F) Y cable 6" Balun for 120ohm to 75ohm conversion	CAB-5607-10 CAB-5686-04 CAB-5686-06		CAB-SSIO=RJ45
	MCC-8-155	MGX-APS-CON MGX-8850-APS-CON	MCC(M) to BNC(F) simplex MCC(M) to BNC(F) Y-cable simplex	CAB-MCC-BNC-Y		CAB-MCC-BNC
	SFP-8-155	MGX-APS-CON MGX-8850-APS-CON SMFIR-1-155-SFP SMFLR-1-155-SFP MMF-1-155-SFP	SMFIR LC to LC cable simplex 10' SMFIR LC to LC Y cable simplex 6' SMFLR LC to LC cable simplex 10' SMFLR LC to LC Y cable simplex 6' MMF LC to LC cable simplex 10' MMF LC to LC Y cable simplex 6'	CAB-SMFIR-LC-Y CAB-SMFLR-LC-Y CAB-MMF-LC-Y	CAB-SMFIR-LC CAB-SMFLR-LC CAB-MMF-LC	



Table B-32 List of Cables by Front and Back Card Types (continued)

Front Card Type	Back Card Types	APS or SFP Optics	Cable Description	Y-Cables	1:1 Cables	Adaptor Cables
PXM1E-T3E3-155	PXM-UI-S3/B		DB15(M) to DB15(F) Y cable 10' RJ48(M) to RJ48(F) Y cable 4" RJ48(M) to RJ48(F) Y cable 6" SS(M) to 3xRJ48(F) Y cable 6" Balun for 120ohm to 75ohm conversion	CAB-5607-10 CAB-5686-04 CAB-5686-06		CAB-SSIO=RJ45
	MGX-T3E3-155 (OC3/STM1 ports)	APS not required SMFIR-1-155-SFP SMFLR-1-155-SFP MMF-1-155-SFP	SMFIR LC to LC cable simplex SMFIR LC to LC Y cable simplex SMFLR LC to LC cable simplex SMFLR LC to LC Y cable simplex MMF LC to LC cable simplex MMF LC to LC Y cable simplex	CAB-SMFIR-LC-Y CAB-SMFLR-LC-Y CAB-MMF-LC-Y	CAB-SMFIR-LC CAB-SMFLR-LC CAB-MMF-LC	
	(T3E3 ports)		MCC(M) to BNC(F) simplex MCC(M) to BNC(F) Y-cable simplex	CAB-MCC-BNC-Y		CAB-MCC-BNC
PXM1E-16-T1E1	PXM-UI-S3/B		DB15(M) to DB15(F) Y cable 10' RJ48(M) to RJ48(F) Y cable 4" RJ48(M) to RJ48(F) Y cable 6" SS(M) to 3xRJ48(F) Y cable 6" Balun for 120ohm to 75ohm conversion	CAB-5607-10 CAB-5686-04 CAB-5686-06		CAB-SSIO=RJ45
	MCC-16-E1		MCC(M) to BNC(F) simplex MCC(M) to BNC(F) Y-cable simplex	CAB-MCC-BNC-Y		CAB-MCC-BNC
	RBBN-16-T1E1		RBBN 36p(M) to RBBN36p(F) Y-cable simplex 2xRBBN 36p(M) to 1xRBBN50p(F)	CAB-RBBN-T1E1-Y <sup>1</sup>		
PXM45	PXM-HD		Connectors on this card are not used.			
	PXM-UI-S3		DB15(M) to DB15(F) Y cable 10' RJ48(M) to RJ48(F) Y cable 4" RJ48(M) to RJ48(F) Y cable 6" Balun for 120ohm to 75ohm conversion	CAB-5607-10 CAB-5686-04 CAB-5686-06		
PXM45/B <sup>2</sup>	PXM-HD		Connectors on this card are not used.			
	PXM-UI-S3		DB15(M) to DB15(F) Y cable 10' RJ48(M) to RJ48(F) Y cable 4" RJ48(M) to RJ48(F) Y cable 6" Balun for 120ohm to 75ohm conversion	CAB-5607-10 CAB-5686-04 CAB-5686-06		
PXM45/C <sup>2</sup>	PXM-HD		Connectors on this card are not used.			
	PXM-UI-S3/B		DB15(M) to DB15(F) Y cable 10' RJ48(M) to RJ48(F) Y cable 4" RJ48(M) to RJ48(F) Y cable 6" SS(M) to 3xRJ48(F) Y cable 6" Balun for 120ohm to 75ohm conversion	CAB-5607-10 CAB-5686-04 CAB-5686-06		CAB-SSIO=RJ45

Table B-32 List of Cables by Front and Back Card Types (continued)

Front Card Type	Back Card Types	APS or SFP Optics	Cable Description	Y-Cables	1:1 Cables	Adaptor Cables
AXSM-1-2488	SMFSR-1-2488					
	SMFLR-1-2488					
	SMFXLR-1-2488					
AXSM-1-2488/B	SMFSR-1-2488/B	MGX-APS-CON MGX-8850-APS-CON				
	SMFLR-1-2488/B	MGX-APS-CON MGX-8850-APS-CON				
	SMFXLR-1-2488/B	MGX-APS-CON MGX-8850-APS-CON				
AXSM-2-622-E	SMFIR-1-622/C	MGX-APS-CON MGX-8850-APS-CON				
	SMFLR-1-622/C	MGX-APS-CON MGX-8850-APS-CON				
AXSM-4-622	SMFIR-2-622					
	SMFLR-2-622					
AXSM-4-622/B	SMFIR-2-622/B	MGX-APS-CON MGX-8850-APS-CON				
	SMFLR-2-622/B	MGX-APS-CON MGX-8850-APS-CON				
AXSM-8-155-E	SMB-4-155	MGX-APS-CON MGX-8850-APS-CON	SMB(M) to BNC(F) Y cable simplex 6"	CAB-5681-06	CAB-5698-6	CAB-5682-06  CAB-T3E3-PL-AD CAB-T3E3-PL-AD-6 CAB-T3E3-PL-AD-12  CAB-T3E3-PL-AD-16  CAB-T3E3-PL-AD-24     CAB-T3E3-PL-CE-AD
			SMB(M) to BNC(F) simplex 6"			
			SMB(M) to SMB(M) simplex 6"			
			SMB(M) to BNC(F) simplex 6"			
Bundle of 6x CAB-T3E3-PL-AD	CAB-SMB-BNC-Y					
Bundle of 12x CAB-T3E3-PL-AD						
Bundle of 16x CAB-T3E3-PL-AD						
Bundle of 24x CAB-T3E3-PL-AD						
SMB(M) to BNC(F) Y cable simplex 6"	CAB-T3E3-PL-Y-6 CAB-T3E3-PL-Y-12 CAB-T3E3-PL-Y-16 CAB-T3E3-PL-Y-24					
Bundle of 6x CAB-T3E3-PL-Y						
Bundle of 12x CAB-T3E3-PL-Y						
Bundle of 16x CAB-T3E3-PL-Y						
Bundle of 24x CAB-T3E3-PL-Y	CAB-T3E3-PL-CE-Y					
SMB(M) to BNC(F) simplex 6" CE Europe						
SMB(M) to BNC(F) Y cable simplex 6" CE Europe						
	MMF-4-155/C	MGX-APS-CON MGX-8850-APS-CON	SC to SC MMF Y cable simplex	CAB-MMF-Y-SC		
	SMFIR-4-155/C	MGX-APS-CON MGX-8850-APS-CON	SC to SC SMF Y-cable simplex	CAB-SMF-Y-SC		
	SMFLR-4-155/C	MGX-APS-CON MGX-8850-APS-CON	SC to SC SMF Y-cable simplex	CAB-SMF-Y-SC		

Table B-32 List of Cables by Front and Back Card Types (continued)

Front Card Type	Back Card Types	APS or SFP Optics	Cable Description	Y-Cables	1:1 Cables	Adaptor Cables
AXSM-16-155	MMF-8-155-MT	MGX-APS-CON MGX-8850-APS-CON	MTRJ to SC MM duplex cable 3m MTRJ to SC MM duplex cable 5m			CAB-MTRJ-SC-MM-3 M CAB-MTRJ-SC-MM-5 M
	SMFIR-8-155-LC	MGX-APS-CON MGX-8850-APS-CON	LC to LC SMFIR simplex 10' LC to LC SMFIR Y cable simplex 2m	CAB-SMFIR-LC-Y	CAB-SMFIR-LC	
	SMFLR-8-155-LC	MGX-APS-CON MGX-8850-APS-CON	LC to LC SMFLR simplex 10' LC to LC SMFLR Y cable simplex 2m	CAB-SMFLR-LC-Y	CAB-SMFLR-LC	
AXSM-16-155/B	SMB-4-155	MGX-APS-CON MGX-8850-APS-CON	SMB(M) to BNC(F) Y cable simplex 6" SMB(M) to BNC(F) simplex 6" SMB(M) to SMB(M) simplex 6" SMB(M) to BNC(F) simplex 6" Bundle of 6x CAB-T3E3-PL-AD Bundle of 12x CAB-T3E3-PL-AD Bundle of 16x CAB-T3E3-PL-AD Bundle of 24x CAB-T3E3-PL-AD SMB(M) to BNC(F) Y cable simplex 6" Bundle of 6x CAB-T3E3-PL-Y Bundle of 12x CAB-T3E3-PL-Y Bundle of 16x CAB-T3E3-PL-Y Bundle of 24x CAB-T3E3-PL-Y SMB(M) to BNC(F) simplex 6" CE Europe SMB(M) to BNC(F) Y cable simplex 6" CE Europe	CAB-5681-06	CAB-5698-6	CAB-5682-06  CAB-T3E3-PL-AD CAB-T3E3-PL-AD-6 CAB-T3E3-PL-AD-12  CAB-T3E3-PL-AD-16  CAB-T3E3-PL-AD-24   CAB-T3E3-PL-CE-AD
				CAB-SMB-BNC-Y		
				CAB-T3E3-PL-Y-6 CAB-T3E3-PL-Y-12 CAB-T3E3-PL-Y-16 CAB-T3E3-PL-Y-24		
				CAB-T3E3-PL-CE-Y		
	MMF-8-155-MT/B	MGX-APS-CON MGX-8850-APS-CON	MTRJ to SC MM duplex cable 3m MTRJ to SC MM duplex cable 5m			CAB-MTRJ-SC-MM-3 M CAB-MTRJ-SC-MM-5 M
	SMFIR-8-144-LC/B	MGX-APS-CON MGX-8850-APS-CON	LC to LC SMFIR simplex 10' LC to LC SMFIR Y cable simplex 2m	CAB-SMFIR-LC-Y	CAB-SMFIR-LC	
	SMFIR-8-155-LC/B	MGX-APS-CON MGX-8850-APS-CON	LC to LC SMFLR simplex 10' LC to LC SMFLR Y cable simplex 2m	CAB-SMFLR-LC-Y	CAB-SMFLR-LC	

Table B-32 List of Cables by Front and Back Card Types (continued)

Front Card Type	Back Card Types	APS or SFP Optics	Cable Description	Y-Cables	1:1 Cables	Adaptor Cables
AXSM-16-T3E3	SMB-8-T3		SMB(M) to BNC(F) Y cable simplex 6" SMB(M) to BNC(F) simplex 6" SMB(M) to SMB(M) simplex 6' SMB(M) to BNC(F) simplex 6" Bundle of 6x CAB-T3E3-PL-AD Bundle of 12x CAB-T3E3-PL-AD Bundle of 16x CAB-T3E3-PL-AD Bundle of 24x CAB-T3E3-PL-AD SMB(M) to BNC(F) Y cable simplex 6" Bundle of 6x CAB-T3E3-PL-Y Bundle of 12x CAB-T3E3-PL-Y Bundle of 16x CAB-T3E3-PL-Y Bundle of 24x CAB-T3E3-PL-Y SMB(M) to BNC(F) simplex 6" CE Europe SMB(M) to BNC(F) Y cable simplex 6" CE Europe	CAB-5681-06          CAB-SMB-BNC-Y  CAB-T3E3-PL-Y-6 CAB-T3E3-PL-Y-12 CAB-T3E3-PL-Y-16 CAB-T3E3-PL-Y-24  CAB-T3E3-PL-CE-Y	CAB-5698-6	CAB-5682-06  CAB-T3E3-PL-AD CAB-T3E3-PL-AD-6 CAB-T3E3-PL-AD-12  CAB-T3E3-PL-AD-16  CAB-T3E3-PL-AD-24   CAB-T3E3-PL-CE-AD
	SMB-8-E3		SMB(M) to BNC(F) Y cable simplex 6" SMB(M) to BNC(F) simplex 6" SMB(M) to SMB(M) simplex 6' SMB(M) to BNC(F) simplex 6" Bundle of 6x CAB-T3E3-PL-AD Bundle of 12x CAB-T3E3-PL-AD Bundle of 16x CAB-T3E3-PL-AD Bundle of 24x CAB-T3E3-PL-AD SMB(M) to BNC(F) Y cable simplex 6" Bundle of 6x CAB-T3E3-PL-Y Bundle of 12x CAB-T3E3-PL-Y Bundle of 16x CAB-T3E3-PL-Y Bundle of 24x CAB-T3E3-PL-Y SMB(M) to BNC(F) simplex 6" CE Europe SMB(M) to BNC(F) Y cable simplex 6" CE Europe	CAB-5681-06          CAB-SMB-BNC-Y  CAB-T3E3-PL-Y-6 CAB-T3E3-PL-Y-12 CAB-T3E3-PL-Y-16 CAB-T3E3-PL-Y-24  CAB-T3E3-PL-CE-Y	CAB-5698-6	CAB-5682-06  CAB-T3E3-PL-AD CAB-T3E3-PL-AD-6 CAB-T3E3-PL-AD-12  CAB-T3E3-PL-AD-16  CAB-T3E3-PL-AD-24   CAB-T3E3-PL-CE-AD

Table B-32 List of Cables by Front and Back Card Types (continued)

Front Card Type	Back Card Types	APS or SFP Optics	Cable Description	Y-Cables	1:1 Cables	Adaptor Cables
AXSM-16-T3E3/B	SMB-8-T3		SMB(M) to BNC(F) Y cable simplex 6" SMB(M) to BNC(F) simplex 6" SMB(M) to SMB(M) simplex 6" SMB(M) to BNC(F) simplex 6" Bundle of 6x CAB-T3E3-PL-AD Bundle of 12x CAB-T3E3-PL-AD Bundle of 16x CAB-T3E3-PL-AD Bundle of 24x CAB-T3E3-PL-AD SMB(M) to BNC(F) Y cable simplex 6" Bundle of 6x CAB-T3E3-PL-Y Bundle of 12x CAB-T3E3-PL-Y Bundle of 16x CAB-T3E3-PL-Y Bundle of 24x CAB-T3E3-PL-Y SMB(M) to BNC(F) simplex 6" CE Europe SMB(M) to BNC(F) Y cable simplex 6" CE Europe	CAB-5681-06           CAB-SMB-BNC-Y  CAB-T3E3-PL-Y-6 CAB-T3E3-PL-Y-12 CAB-T3E3-PL-Y-16 CAB-T3E3-PL-Y-24  CAB-T3E3-PL-CE-Y	CAB-5698-6	CAB-5682-06  CAB-T3E3-PL-AD CAB-T3E3-PL-AD-6 CAB-T3E3-PL-AD-12  CAB-T3E3-PL-AD-16  CAB-T3E3-PL-AD-24   CAB-T3E3-PL-CE-AD
	SMB-8-E3		SMB(M) to BNC(F) Y cable simplex 6" SMB(M) to BNC(F) simplex 6" SMB(M) to SMB(M) simplex 6" SMB(M) to BNC(F) simplex 6" Bundle of 6x CAB-T3E3-PL-AD Bundle of 12x CAB-T3E3-PL-AD Bundle of 16x CAB-T3E3-PL-AD Bundle of 24x CAB-T3E3-PL-AD SMB(M) to BNC(F) Y cable simplex 6" Bundle of 6x CAB-T3E3-PL-Y Bundle of 12x CAB-T3E3-PL-Y Bundle of 16x CAB-T3E3-PL-Y Bundle of 24x CAB-T3E3-PL-Y SMB(M) to BNC(F) simplex 6" CE Europe SMB(M) to BNC(F) Y cable simplex 6" CE Europe	CAB-5681-06           CAB-SMB-BNC-Y  CAB-T3E3-PL-Y-6 CAB-T3E3-PL-Y-12 CAB-T3E3-PL-Y-16 CAB-T3E3-PL-Y-24  CAB-T3E3-PL-CE-Y	CAB-5698-6	CAB-5682-06  CAB-T3E3-PL-AD CAB-T3E3-PL-AD-6 CAB-T3E3-PL-AD-12  CAB-T3E3-PL-AD-16  CAB-T3E3-PL-AD-24   CAB-T3E3-PL-CE-AD

Table B-32 List of Cables by Front and Back Card Types (continued)

Front Card Type	Back Card Types	APS or SFP Optics	Cable Description	Y-Cables	1:1 Cables	Adaptor Cables
AXSM-16-T3E3-E	SMB-8-T3		SMB(M) to BNC(F) Y cable simplex 6" SMB(M) to BNC(F) simplex 6" SMB(M) to SMB(M) simplex 6' SMB(M) to BNC(F) simplex 6" Bundle of 6x CAB-T3E3-PL-AD Bundle of 12x CAB-T3E3-PL-AD Bundle of 16x CAB-T3E3-PL-AD Bundle of 24x CAB-T3E3-PL-AD SMB(M) to BNC(F) Y cable simplex 6" Bundle of 6x CAB-T3E3-PL-Y Bundle of 12x CAB-T3E3-PL-Y Bundle of 16x CAB-T3E3-PL-Y Bundle of 24x CAB-T3E3-PL-Y SMB(M) to BNC(F) simplex 6" CE Europe SMB(M) to BNC(F) Y cable simplex 6" CE Europe	CAB-5681-06          CAB-SMB-BNC-Y  CAB-T3E3-PL-Y-6 CAB-T3E3-PL-Y-12 CAB-T3E3-PL-Y-16 CAB-T3E3-PL-Y-24  CAB-T3E3-PL-CE-Y	CAB-5698-6	CAB-5682-06  CAB-T3E3-PL-AD CAB-T3E3-PL-AD-6 CAB-T3E3-PL-AD-12  CAB-T3E3-PL-AD-16  CAB-T3E3-PL-AD-24   CAB-T3E3-PL-CE-AD
	SMB-8-E3		SMB(M) to BNC(F) Y cable simplex 6" SMB(M) to BNC(F) simplex 6" SMB(M) to SMB(M) simplex 6' SMB(M) to BNC(F) simplex 6" Bundle of 6x CAB-T3E3-PL-AD Bundle of 12x CAB-T3E3-PL-AD Bundle of 16x CAB-T3E3-PL-AD Bundle of 24x CAB-T3E3-PL-AD SMB(M) to BNC(F) Y cable simplex 6" Bundle of 6x CAB-T3E3-PL-Y Bundle of 12x CAB-T3E3-PL-Y Bundle of 16x CAB-T3E3-PL-Y Bundle of 24x CAB-T3E3-PL-Y SMB(M) to BNC(F) simplex 6" CE Europe SMB(M) to BNC(F) Y cable simplex 6" CE Europe	CAB-5681-06          CAB-SMB-BNC-Y  CAB-T3E3-PL-Y-6 CAB-T3E3-PL-Y-12 CAB-T3E3-PL-Y-16 CAB-T3E3-PL-Y-24  CAB-T3E3-PL-CE-Y	CAB-5698-6	CAB-5682-06  CAB-T3E3-PL-AD CAB-T3E3-PL-AD-6 CAB-T3E3-PL-AD-12  CAB-T3E3-PL-AD-16  CAB-T3E3-PL-AD-24   CAB-T3E3-PL-CE-AD
AXSM-32-T1E1-E <sup>3</sup>	MCC-16-E1		MCC(M) to BNC(F) simplex MCC(M) to BNC(F) Y-cable simplex	CAB-MCC-BNC-Y		CAB-MCC-BNC
	RBBN-16-T1E1		RBBN 36p(M) to RBBN 36p(F) Y-cable simplex 2xRBBN 36p(M) to 1xRBBN 50p(F)	CAB-RBBN-T1E1-Y <sup>1</sup>		



Table B-32 List of Cables by Front and Back Card Types (continued)

Front Card Type	Back Card Types	APS or SFP Optics	Cable Description	Y-Cables	1:1 Cables	Adaptor Cables
FRSM-12-T3E3	SMB-6-T3E3		SMB(M) to BNC(F) Y cable simplex 6" SMB(M) to BNC(F) simplex 6" SMB(M) to SMB(M) simplex 6" SMB(M) to BNC(F) simplex 6" Bundle of 6x CAB-T3E3-PL-AD Bundle of 12x CAB-T3E3-PL-AD Bundle of 16x CAB-T3E3-PL-AD Bundle of 24x CAB-T3E3-PL-AD SMB(M) to BNC(F) Y cable simplex 6" Bundle of 6x CAB-T3E3-PL-Y Bundle of 12x CAB-T3E3-PL-Y Bundle of 16x CAB-T3E3-PL-Y Bundle of 24x CAB-T3E3-PL-Y SMB(M) to BNC(F) simplex 6" CE Europe SMB(M) to BNC(F) Y cable simplex 6" CE Europe	CAB-5681-06          CAB-SMB-BNC-Y  CAB-T3E3-PL-Y-6 CAB-T3E3-PL-Y-12 CAB-T3E3-PL-Y-16 CAB-T3E3-PL-Y-24  CAB-T3E3-PL-CE-Y	CAB-5698-6	CAB-5682-06  CAB-T3E3-PL-AD CAB-T3E3-PL-AD-6 CAB-T3E3-PL-AD-12  CAB-T3E3-PL-AD-16  CAB-T3E3-PL-AD-24   CAB-T3E3-PL-CE-AD
MGX-VISM-PR-8T1	AX-RJ48-8T1		RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18" RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18"		-	CAB-5688-06 CAB-5688-18 CAB-5689-06 CAB-5689-18
	AX-R-RJ48-8T1					
MGX-VISM-PR-8E1	AX-SMB-8E1		SMB(M) to BNC(F) simplex 6" SMB(M) to SMB(M) simplex 6" SMB(M) to BNC(F) simplex 6" Bundle of 6x CAB-T3E3-PL-AD Bundle of 12x CAB-T3E3-PL-AD Bundle of 16x CAB-T3E3-PL-AD Bundle of 24x CAB-T3E3-PL-AD SMB(M) to BNC(F) simplex 6" CE Europe		CAB-5698-6	CAB-5682-06  CAB-T3E3-PL-AD CAB-T3E3-PL-AD-6 CAB-T3E3-PL-AD-12 CAB-T3E3-PL-AD-16 CAB-T3E3-PL-AD-24 CAB-T3E3-PL-CE-AD
	AX-R-SMB-8E1					
	AX-RJ48-8E1		RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18" RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18"		-	CAB-5688-06 CAB-5688-18 CAB-5689-06 CAB-5689-18
	AX-R-RJ48-8E1					
	MGX-RJ48-8E1		RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18" RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18"		-	CAB-5688-06 CAB-5688-18 CAB-5689-06 CAB-5689-18

Table B-32 List of Cables by Front and Back Card Types (continued)

Front Card Type	Back Card Types	APS or SFP Optics	Cable Description	Y-Cables	1:1 Cables	Adaptor Cables
MGX-SRME	MGX-SMFIR-1-155	MGX-8850-APS-CON	SMF SC to SMF SC Y cable simplex	CAB-SMF-Y-SC		
	MGX-STM1-EL-1	MGX-APS-CON MGX-8850-APS-CON	SMB(M) to BNC(F) Y cable simplex 6" SMB(M) to BNC(F) simplex 6" SMB(M) to SMB(M) simplex 6" SMB(M) to BNC(F) simplex 6" Bundle of 6x CAB-T3E3-PL-AD Bundle of 12x CAB-T3E3-PL-AD Bundle of 16x CAB-T3E3-PL-AD Bundle of 24x CAB-T3E3-PL-AD SMB(M) to BNC(F) Y cable simplex 6" Bundle of 6x CAB-T3E3-PL-Y Bundle of 12x CAB-T3E3-PL-Y Bundle of 16x CAB-T3E3-PL-Y Bundle of 24x CAB-T3E3-PL-Y SMB(M) to BNC(F) simplex 6" CE Europe SMB(M) to BNC(F) Y cable simplex 6" CE Europe	CAB-5681-06           CAB-SMB-BNC-Y  CAB-T3E3-PL-Y-6 CAB-T3E3-PL-Y-12 CAB-T3E3-PL-Y-16 CAB-T3E3-PL-Y-24  CAB-T3E3-PL-CE-Y	CAB-5698-6	CAB-5682-06  CAB-T3E3-PL-AD CAB-T3E3-PL-AD-6 CAB-T3E3-PL-AD-12  CAB-T3E3-PL-AD-16  CAB-T3E3-PL-AD-24   CAB-T3E3-PL-CE-AD
MGX-SRM-3T3/C	MGX-BNC-3T3-M		BNC(M) to BNC-(F) Y cable simplex 6"	CAB-BNC-Y CAB-BNC-Y/B		
MGX-RPM-PR-256	MGX-MMF-FE					
	MGX-RJ45-4E/B					
	MGX-RJ45-FE					
	MGX-RPM-1FE-CP					
	MGX-RJ45-5-ETH					
MGX-RPM-PR-512	MGX-MMF-FE					
	MGX-RJ45-4E/B					
	MGX-RJ45-FE					
	MGX-RPM-1FE-CP					
	MGX-RJ45-5-ETH					
MGX-RPM-XF-512	MGX-XF-UI					
	MGX-1GE					
	MGX-2-GE					
	MGX-10C12 POS-IR	GLC-LH-SM GLC-SX-MM GLC-ZX-SM				
	MGX-20C-12 POS-IR	GLC-LH-SM GLC-SX-MM GLC-ZX-SM				
AX-CESM-8T1	AX-RJ48-8T1		RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18" RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18"		-	CAB-5688-06 CAB-5688-18 CAB-5689-06 CAB-5689-18
	AX-R-RJ48-8T1					
AX-CESM-8T1/B	AX-RJ48-8T1		RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18" RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18"		-	CAB-5688-06 CAB-5688-18 CAB-5689-06 CAB-5689-18
	AX-R-RJ48-8T1					

Table B-32 List of Cables by Front and Back Card Types (continued)

Front Card Type	Back Card Types	APS or SFP Optics	Cable Description	Y-Cables	1:1 Cables	Adaptor Cables
AX-CESM-8E1	AX-SMB-8E1		SMB(M) to BNC(F) simplex 6" SMB(M) to SMB(M) simplex 6" SMB(M) to BNC(F) simplex 6" Bundle of 6x CAB-T3E3-PL-AD Bundle of 12x CAB-T3E3-PL-AD Bundle of 16x CAB-T3E3-PL-AD Bundle of 24x CAB-T3E3-PL-AD SMB(M) to BNC(F) simplex 6" CE Europe		CAB-5698-6	CAB-5682-06  CAB-T3E3-PL-AD CAB-T3E3-PL-AD-6 CAB-T3E3-PL-AD-12 CAB-T3E3-PL-AD-16 CAB-T3E3-PL-AD-24 CAB-T3E3-PL-CE-AD
	AX-R-SMB-8E1					
	AX-RJ48-8E1		RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18" RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18"		-	CAB-5688-06 CAB-5688-18 CAB-5689-06 CAB-5689-18
	AX-R-RJ48-8E1					
	MGX-RJ48-8E1		RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18" RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18"		-	CAB-5688-06 CAB-5688-18 CAB-5689-06 CAB-5689-18
AX-FRSM-8E1	AX-SMB-8E1		SMB(M) to BNC(F) simplex 6" SMB(M) to SMB(M) simplex 6" SMB(M) to BNC(F) simplex 6" Bundle of 6x CAB-T3E3-PL-AD Bundle of 12x CAB-T3E3-PL-AD Bundle of 16x CAB-T3E3-PL-AD Bundle of 24x CAB-T3E3-PL-AD SMB(M) to BNC(F) simplex 6" CE Europe		CAB-5698-6	CAB-5682-06  CAB-T3E3-PL-AD CAB-T3E3-PL-AD-6 CAB-T3E3-PL-AD-12 CAB-T3E3-PL-AD-16 CAB-T3E3-PL-AD-24 CAB-T3E3-PL-CE-AD
	AX-R-SMB-8E1					
	AX-RJ48-8E1		RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18" RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18"		-	CAB-5688-06 CAB-5688-18 CAB-5689-06 CAB-5689-18
	AX-R-RJ48-8E1					
	MGX-RJ48-8E1		RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18" RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18"		-	CAB-5688-06 CAB-5688-18 CAB-5689-06 CAB-5689-18

Table B-32 List of Cables by Front and Back Card Types (continued)

Front Card Type	Back Card Types	APS or SFP Optics	Cable Description	Y-Cables	1:1 Cables	Adaptor Cables
AX-FRSM-8E1-C	AX-SMB-8E1		SMB(M) to BNC(F) simplex 6" SMB(M) to SMB(M) simplex 6" SMB(M) to BNC(F) simplex 6" Bundle of 6x CAB-T3E3-PL-AD Bundle of 12x CAB-T3E3-PL-AD Bundle of 16x CAB-T3E3-PL-AD Bundle of 24x CAB-T3E3-PL-AD SMB(M) to BNC(F) simplex 6" CE Europe		CAB-5698-6	CAB-5682-06  CAB-T3E3-PL-AD CAB-T3E3-PL-AD-6 CAB-T3E3-PL-AD-12 CAB-T3E3-PL-AD-16 CAB-T3E3-PL-AD-24 CAB-T3E3-PL-CE-AD
	AX-R-SMB-8E1					
	AX-RJ48-8E1		RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18" RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18"		-	CAB-5688-06 CAB-5688-18 CAB-5689-06 CAB-5689-18
	AX-R-RJ48-8E1					
	MGX-RJ48-8E1		RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18" RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18"		-	CAB-5688-06 CAB-5688-18 CAB-5689-06 CAB-5689-18
AX-FRSM-8T1	AX-RJ48-8T1		RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18" RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18"		-	CAB-5688-06 CAB-5688-18 CAB-5689-06 CAB-5689-18
	AX-R-RJ48-8T1					
AX-FRSM-8T1-C	AX-RJ48-8T1		RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18" RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18"		-	CAB-5688-06 CAB-5688-18 CAB-5689-06 CAB-5689-18
	AX-R-RJ48-8T1					
MGX-FRSM-2CT3	MGX-BNC-2T3		BNC(M) to BNC-(F) Y cable simplex 6"	CAB-BNC-Y	CAB-BNC-Y/B	
MGX-FRSM-2T3E3	MGX-BNC-2T3		BNC(M) to BNC-(F) Y cable simplex 6"	CAB-BNC-Y	CAB-BNC-Y/B	
	MGX-BNC-2E3		BNC(M) to BNC-(F) Y cable simplex 6"	CAB-BNC-Y	CAB-BNC-Y/B	
	MGX-BNC-2E3A		BNC(M) to BNC-(F) Y cable simplex 6"	CAB-BNC-Y	CAB-BNC-Y/B	
MGX-FRSM-HS2/B <sup>4</sup>	SCSI2-2HSSI/B		SCSI2(M) to SCSI2(F) Y cable 15"	CAB-SCSI2-Y		
	MGX-12IN1-8S		SS(M) to V.35(M) DTE 10' SS(M) to V.35(F) DTE 10' (uncommon) SS(M) to V.35(F) DCE 10' SS(M) to V.35(M) DCE 10' (uncommon) SS(M) to X.21(F) DCE 10' SS(M) to X.21(M) DTE 10' SS(M) Loopback tester (no product ID)			CAB-SS-V35MT CAB-SS-V35FT CAB-SS-V35FC CAB-SS-V35MC CAB-SS-X21FC CAB-SS-X21MT

**Table B-32** List of Cables by Front and Back Card Types (continued)

Front Card Type	Back Card Types	APS or SFP Optics	Cable Description	Y-Cables	1:1 Cables	Adaptor Cables
MPSM-8-T1E1	AX-RJ48-8T1		RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18" RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18"		-	CAB-5688-06 CAB-5688-18 CAB-5689-06 CAB-5689-18
	AX-R-RJ48-8T1					
	AX-RJ48-8E1		RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18" RJ48(M) to DB9(F) 6" RJ48(M) to DB9(F) 18"		-	CAB-5688-06 CAB-5688-18 CAB-5689-06 CAB-5689-18
	AX-R-RJ48-8E1					
	AX-SMB-8E1		SMB to BNC Y-Cable	CAB-SMB-BNC-Y		
	AX-R-SMB-8E1					
MPSM-16-T1E1	RBBN-16-T1E1-1N		RBBN 36p(M) to RBBN36p(F) RBBN Y-cable	CAB-RBBN-T1E1-Y <sup>1</sup>		CAB-RBBN-T1E1 <sup>1</sup>
	MCC-16-E1-1N		MCC(M) to BNC(F) simplex MCC(M) to BNC(F) Y-cable simplex	CAB-MCC-BNC-Y		CAB-MCC-BNC
	RED-16-T1E1					
	MCC-16-E1		MCC(M) to BNC(F) simplex MCC(M) to BNC(F) Y-cable simplex	CAB-MCC-BNC-Y		CAB-MCC-BNC
	RBBN-16-T1E1		RBBN 36p(M) to RBBN36p(F) RBBN Y-cable	CAB-RBBN-T1E1-Y <sup>1</sup>		CAB-RBBN-T1E1 <sup>1</sup>
MPSM-T3E3-155	SFP-2-155		Single-mode Fiber Y-cable with LC connector, IR or LR Multi-mode fiber Y-cable with LC connector	CAB-SMF-LC-Y CAB-MMF-LC-Y		
	BNC-3-T3E3		BNC(M) to BNC-(F) Y cable simplex 6"	CAB-BNC-Y	CAB-BNC-Y/B	
	SMB-2-155-EL		SMB(M) to BNC(F) Y cable sim- plex 6"	CAB-SMB-BNC-Y		
MGX-VXSM-T1E1	VXSM-BC-24-T1E1		VXSM 24 T1/E1 Y cable VXSM 24 T1/E1 interface cable VXSM 24 T1/E1 loopback cable	CAB-RBBN-24-T1E 1-Y		

1. Two cables required per back card, one TX and one RX
2. Special cable CAB-ADPT-75-120
3. Special cable CAB-RBBN-T1E1
4. Special cable 72-1479-01

## List of Cables Illustrated in this Appendix

Table B-33 lists the cables that are illustrated in the remainder of this appendix. Cables appear in alphabetical order. The number of cables illustrated in this cable guide will increase with each release of this hardware installation guide.

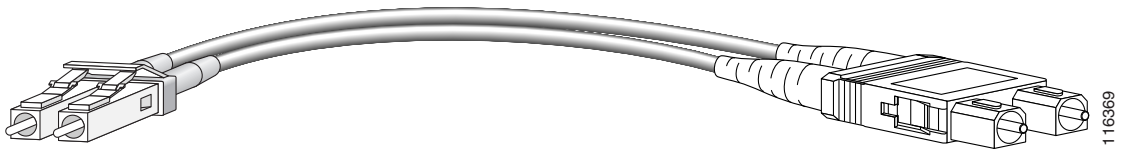
**Table B-33** Location of Cable Illustrations in This Appendix

Cable Name	Cable Location in this Appendix
CAB-MMF-LC	Figure B-8 on page B-38
CAB-MMF-LC-Y	Figure B-9 on page B-38

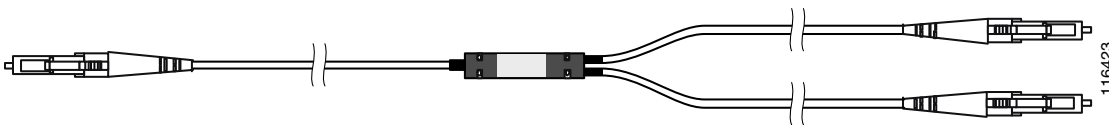
**Table B-33** Location of Cable Illustrations in This Appendix (continued)

Cable Name	Cable Location in this Appendix
CAB-RBBN-16-T1E1	Figure B-10 on page B-38
CAB-RBBN-16T1E1-Y	Figure B-11 on page B-39
CAB-SMFIR-LC	Figure B-12 on page B-40
CAB-SMFIR-LC-Y	Figure B-13 on page B-41
CAB-SMFLR-LC	Not shown. See Figure B-12 on page B-40
CAB-SMFLR-LC-Y	Not shown. See Figure B-13 on page B-41

## CAB-MMF-LC

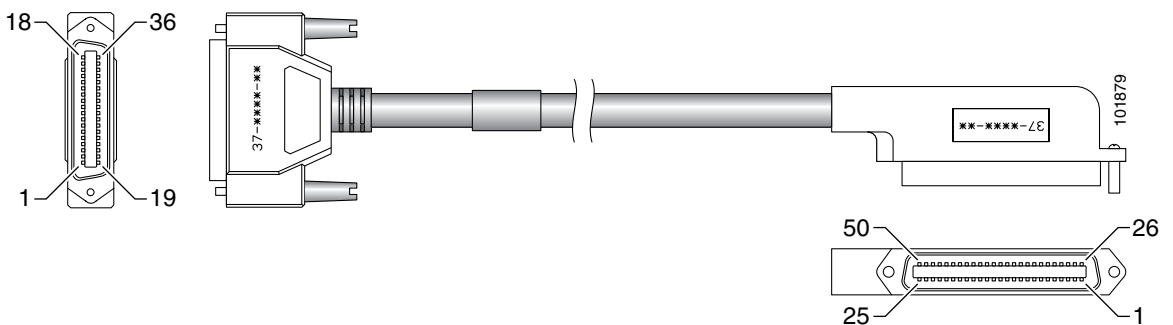
**Figure B-9** CAB-MMF-LC (Multimode LC Cable) (72-3742-01)

## CAB-MMF-LC-Y

**Figure B-10** CAB-MMF-LC-Y (72-3811-01) Cable

## CAB-RBBN-16-T1E1

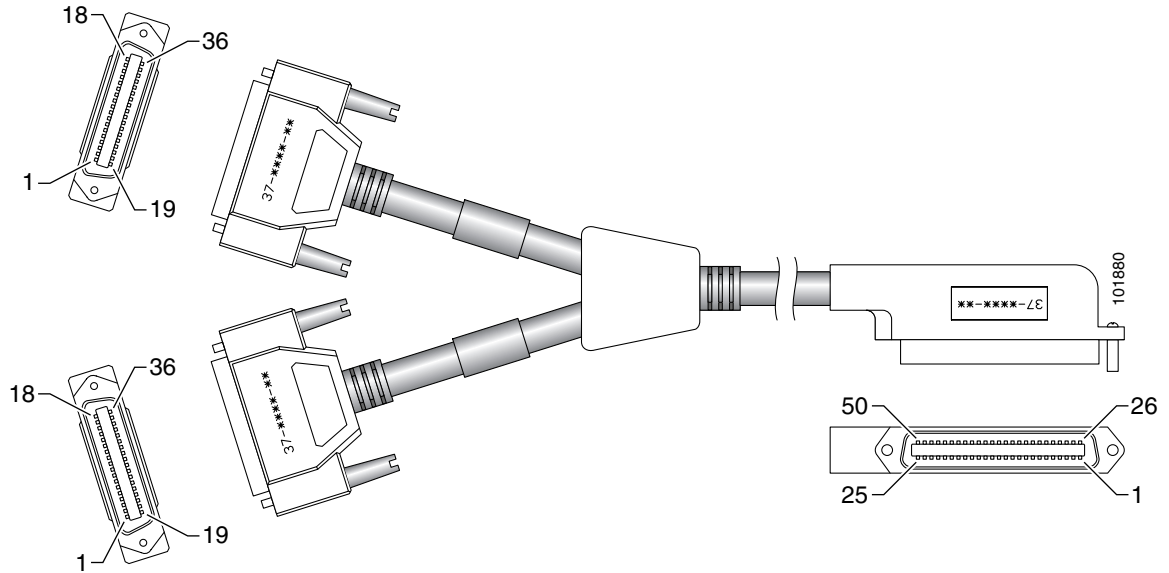
The CAB-RBBN-16-T1E1 cable is used on the RBBN-16-T1E1 back card. You need two cables per back card, one TX and one RX.

**Figure B-11** CAB-RBBN-16-T1E1 Cable

## CAB-RBBN-16T1E1-Y

The CAB-RBBN-16T1E1-Y cable is used on the RBBN-16-T1E1 back card. You need two cables per back card, one TX and one RX.

**Figure B-12** CAB-RBBN-16T1E1-Y Cable



### CAB-RBBN-16T1E1 Cable Connector Pin Assignments

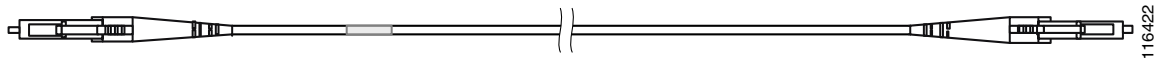
The CAB-RBBN-16T1E and CAB-RBBN-16T1E1-Y cable connectors pin assignments are shown in [Table B-34](#). In the RBBN card, Tx and Rx are separated into two connectors, and the cable is identical for both connectors. That is why the table lists only tip and ring instead of TTIP/TRING and RTIP/RRING.

**Table B-34** CAB-RBBN-16T1E1 Cable Connector Pin Assignments

Signal name	36-Pin Plug	50-Pin Plug
Line 1 – tip	18	26
ring	36	1
Line 2 – tip	17	27
ring	35	2
Line 3 – tip	16	28
ring	34	3
Line 4 – tip	15	29
ring	33	4
Line 5 – tip	14	30
ring	32	5
Line 6 – tip	13	31
ring	31	6

**Table B-34** CAB-RBBN-16T1E1 Cable Connector Pin Assignments (continued)

Signal name	36-Pin Plug	50-Pin Plug
Line 7 – tip	12	32
ring	30	7
Line 8 – tip	11	33
ring	29	8
Line 9 – tip	8	34
ring	26	9
Line 10 – tip	7	35
ring	25	10
Line 11 – tip	6	36
ring	24	11
Line 12 – tip	5	37
ring	23	12
Line 13 – tip	4	38
ring	22	13
Line 14 – tip	3	39
ring	21	14
Line 15 – tip	2	40
ring	20	15
Line 16 – tip	1	41
ring	19	16
Unused pins	9, 10, 27, and 28	17 to 25 42 to 50

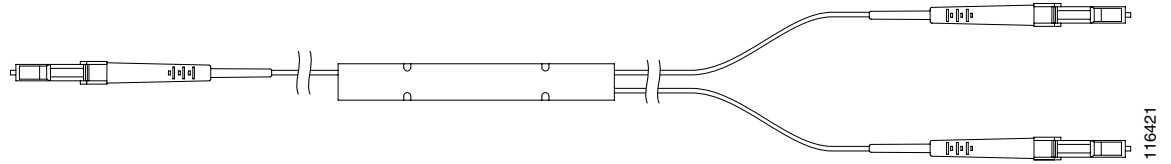
**CAB-SMFIR-LC****Figure B-13** CAB-SMFIR-LC (72-1932-01) Cable

116422



## CAB-SMFIR-LC-Y

*Figure B-14 CAB-SMFIR-LC-Y (72-1931-01) Cable*



## CAB-SMFLR-LC

See [Figure B-13](#) on page B-40.

## CAB-SMFLR-LC-Y

See [Figure B-14](#) on page B-41.

