



## Cable and Connector Specifications

This appendix provides the following pinout information:

- [100BaseT Fast Ethernet Specifications](#)
- [Console and Auxiliary Port Signals and Pinouts](#)
- [Fast Ethernet RJ-45 Connector Pinouts](#)
- [SFP Specifications](#)



Note

All pins not listed in the tables in this appendix are not connected.



Note

Cisco Systems does not provide fast ethernet (FE) port adapter cables. These cables must be ordered from outside commercial cable vendors.



Note

Cisco Systems does not provide console and auxiliary cables in the kit. Console and auxiliary cables can be ordered as spares from Cisco Systems.

## 100BaseT Fast Ethernet Specifications

Each Fast Ethernet port on the MGX-XF-UI back card has an RJ-45 connector to attach to Category 5 UTP for 100BaseTX. [Table B-1](#) lists the cabling specifications for 100-Mbps Fast Ethernet transmission over UTP cables.

**Table B-1** Specifications and Connection Limits for Fast Ethernet 100-Mbps Transmission

Parameter	RJ-45
Cable specification	Category 5 <sup>1</sup> UTP <sup>2</sup> , 22 to 24 AWG
Maximum cable length	—
Maximum segment length	328 ft (100 m) for 100BaseTX
Maximum network length	656 ft (200 m) (with 1 repeater)

1. EIA/TIA-568 or EIA-TIA-568 TSB-36 compliant.

2. Cisco Systems does not supply Category 5 UTP RJ-45 cables. They are available commercially.

## Console and Auxiliary Port Signals and Pinouts

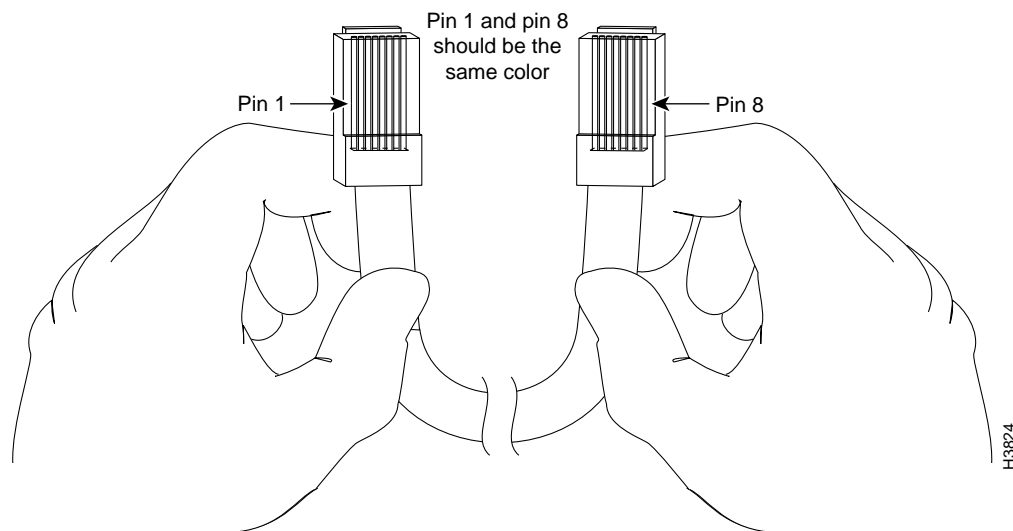
The RPM-XF requires console and auxiliary cables so you can connect a console (an ASCII terminal or PC running terminal emulation software) or modem to your RPM-XF. Cisco Systems does not provide these items. You will need the following items:

- Standard RJ-45-to-RJ-45 rollover cable (see the next section, “[Identifying a Rollover Cable](#)” for more information)
- Cable adapters
  - RJ-45-to-DB-9 female DTE adapter (labeled Terminal)
  - RJ-45-to-DB-25 female DTE adapter (labeled Terminal)

### Identifying a Rollover Cable

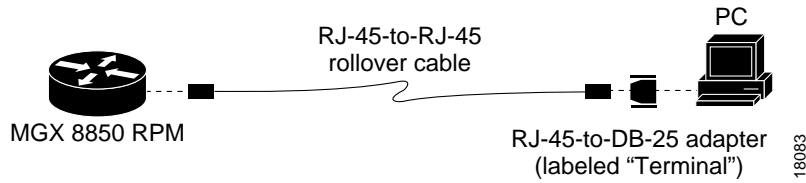
You can identify a rollover cable by comparing the two modular ends of the cable. Holding the cables side-by-side, with the tab at the back, the wire connected to the pin on the outside of the left plug should be the same color as the wire connected to the pin on the outside of the right plug (see [Figure B-1](#)). If your cable was purchased from Cisco Systems, pin 1 will be white on one connector, and pin 8 will be white on the other (a rollover cable reverses pins 1 and 8, 2 and 7, 3 and 6, and 4 and 5).

**Figure B-1** Identifying a Rollover Cable



### Console Port Signals and Pinouts

Use the thin, flat RJ-45-to-RJ-45 rollover cable and RJ-45-to-DB-9 female DTE adapter (labeled Terminal) to connect the console port to a PC running terminal emulation software. [Figure B-2](#) shows how to connect the console port to a PC. [Table B-2](#) lists the pinouts for the asynchronous serial console port, the RJ-45-to-RJ-45 rollover cable, and the RJ-45-to-DB-9 female DTE adapter (labeled Terminal).

**Figure B-2** Connecting the Console Port to a PC**Table B-2** Console Port Signaling and Cabling Using a DB-9 Adapter

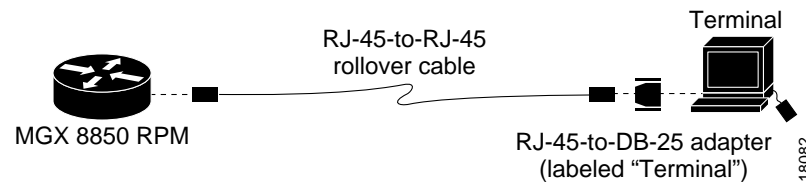
MGX-XF-UI Console Port (DTE)	RJ-45-to-RJ-45 Rollover Cable		RJ-45-to-DB-9 Terminal Adapter	Console Device
Signal	RJ-45 Pin	RJ-45 Pin	DB-9 Pin	Signal
RTS	1 <sup>1</sup>	8	8	CTS
DTR	2	7	6	DSR
TxD	3	6	2	RxD
GND	4	5	5	GND
GND	5	4	5	GND
RxD	6	3	3	TxD
DSR	7	2	4	DTR
CTS	8	1	7	RTS

1. Pin 1 is connected internally to pin 8.

**Note**

This cabling configuration can also be used to connect a PC with the auxiliary port.

Use the thin, flat RJ-45-to-RJ-45 rollover cable and RJ-45-to-DB-25 female DTE adapter (labeled Terminal) to connect the console port to a terminal. [Figure B-3](#) shows how to connect the console port to a terminal. [Table B-3](#) lists the pinouts for the asynchronous serial console port, the RJ-45-to-RJ-45 rollover cable, and the RJ-45-to-DB-25 female DTE adapter (labeled Terminal).

**Figure B-3** Connecting the Console Port to a Terminal

**Table B-3 Console Port Signaling and Cabling Using a DB-25 Adapter**

MGX-XF-UI Console Port (DTE)	RJ-45-to-RJ-45 Rollover Cable		RJ-45-to-DB-25 Terminal Adapter	Console Device
	RJ-45 Pin	RJ-45 Pin	DB-25 Pin	Signal
RTS	1 <sup>1</sup>	8	5	CTS
DTR	2	7	6	DSR
TxD	3	6	3	RxD
GND	4	5	7	GND
GND	5	4	7	GND
RxD	6	3	2	TxD
DSR	7	2	20	DTR
CTS	8	1	4	RTS

1. Pin 1 is connected internally to pin 8.

**Note**

This cabling configuration can also be used to connect a terminal with the auxiliary port.

## Auxiliary Port Signals and Pinouts

Use the thin, flat RJ-45-to-RJ-45 rollover cable and RJ-45-to-DB-9 female DTE adapter (labeled Terminal) to connect the auxiliary port to a PC running terminal emulation software. [Figure B-2](#) shows how to connect the auxiliary port to a PC. [Table B-2](#) lists the pinouts for the asynchronous serial auxiliary port, the RJ-45-to-RJ-45 rollover cable, and the RJ-45-to-DB-9 female DTE adapter (labeled Terminal).

**Note**

Connecting to the auxiliary port through a modem is not supported.

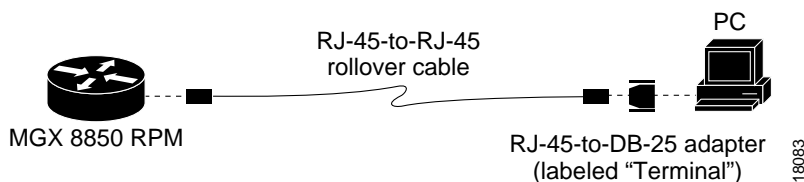
**Figure B-4 Connecting the Auxiliary Port to a PC**

Table B-4 Auxiliary Port Signaling and Cabling Using a DB-9 Adapter

MGX-XF-UI Console Port (DTE)	RJ-45-to-RJ-45 Rollover Cable		RJ-45-to-DB-9 Terminal Adapter	Console Device
	RJ-45 Pin	RJ-45 Pin	DB-9 Pin	Signal
RTS	1	8	8	CTS
DTR	2	7	6	DSR
TxD	3	6	2	RxD
GND	4	5	5	GND
GND	5	4	5	GND
RxD	6	3	3	TxD
DSR	7	2	4	DTR
CTS	8	1	7	RTS

Use the thin, flat RJ-45-to-RJ-45 rollover cable and RJ-45-to-DB-25 female DTE adapter (labeled Terminal) to connect the auxiliary port to a terminal. Figure B-3 shows how to connect the auxiliary port to a terminal. Table B-3 lists the pinouts for the asynchronous serial auxiliary port, the RJ-45-to-RJ-45 rollover cable, and the RJ-45-to-DB-25 female DTE adapter (labeled Terminal).

Figure B-5 Connecting the Auxiliary Port to a Terminal

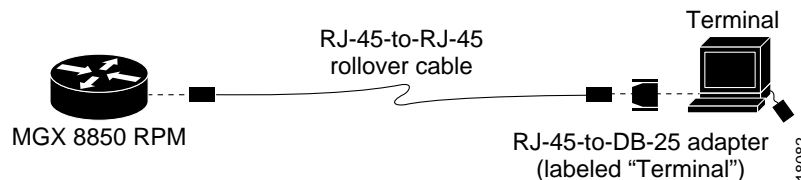


Table B-5 Auxiliary Port Signaling and Cabling Using a DB-25 Adapter

MGX-XF-UI Console Port (DTE)	RJ-45-to-RJ-45 Rollover Cable		RJ-45-to-DB-25 Terminal Adapter	Console Device
	RJ-45 Pin	RJ-45 Pin	DB-25 Pin	Signal
RTS	1	8	5	CTS
DTR	2	7	6	DSR
TxD	3	6	3	RxD
GND	4	5	7	GND
GND	5	4	7	GND
RxD	6	3	2	TxD
DSR	7	2	20	DTR
CTS	8	1	4	RTS

# Fast Ethernet RJ-45 Connector Pinouts

Table B-6 provides pinouts for the FE RJ-45 connectors.



Note

Cisco Systems does not provide FE port adapter cables. These cables must be ordered from commercial cable vendors.

**Table B-6** FE RJ-45 Connector Pinout

Pin	Description
1	Receive Data + (RxD+)
2	RxD-
3	Transmit Data + (TxD+)
6	TxD-

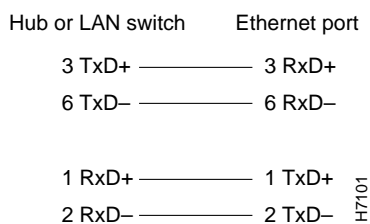


Note

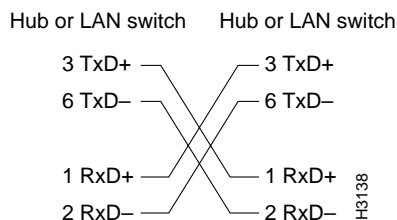
Referring to the RJ-45 pinout in Table B-6, proper common-mode line terminations should be used for the unused Category 5, UTP cable pairs 4/5 and 7/8. Common-mode termination reduces the contributions to electromagnetic interference (EMI) and susceptibility to common-mode sources. Wire pairs 4/5 and 7/8 are actively terminated in the RJ-45 port circuitry in the 100BaseTX port circuitry in the FE-TX port adapter.

Depending on your RJ-45 interface cabling requirements, use the pinouts in Figure B-6 and Figure B-7.

**Figure B-6** Straight-Through Cable Pinout for FE-TX RJ-45 Connection to a Hub or Repeater



**Figure B-7** Crossover Cable Pinout for FE-TX RJ-45 Connections Between Hubs and Repeaters



# SFP Specifications

Table B-7 lists the Small-Form-Factor Pluggable (SFP) module cable specifications that are used with the MGX-1GE Gigabit Ethernet back card. The table lists the SFPs and their respective cable types and lengths.

The MGX-1GE back card provides a trunk uplink that supports 1 Gbps throughput using multimode or single-mode fiber, depending on the connector type. (See Table B-7.)

**Table B-7 MGX-1GE Cable Specifications**

SFP	62.5/125 um Multimode 850 nm Cable	50/125 um Multimode 850 nm Cable	62.5/125 um Multimode 1310 nm Cable	50/125 um Multimode 1310 nm Cable	9/125 um Singlemode 1310 nm Cable
1000Base SX	220 M @ 160 MHz-km 275 M @ 200 MHz-km	500 M @ 400 MHz-km 550 M @ 500 MHz-km	—	—	—
1000Base LH/LX	—	—	550 M @ 500 MHz-km	550 M @ 400 MHz-km	10 km
1000Base ZX	—	—	—	—	70 km

