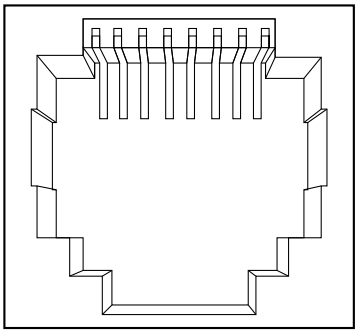
Connector and Cable Specifications

Connector Specifications

10/100/1000 Ports

The 10/100/1000 Ethernet ports on switches use RJ-45 connectors and Ethernet pinouts.

Figure B-1 10/100/1000 Port Pinouts

Pin	Label	1 2 3 4 5 6 7 8
1	TP0+	
2	TP0-	
3	TP1+	
4	TP2+	
5	TP2-	
6	TP1-	
7	TP3+	
8	TP3-	

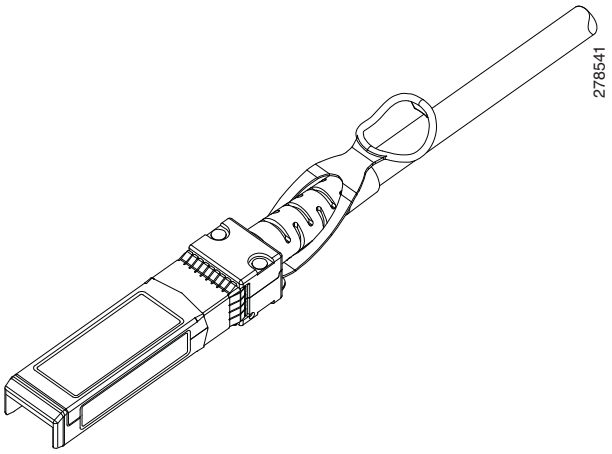
10 Gigabit Ethernet CX1 (SFP+ Copper) Connectors

The 10-Gigabit Ethernet electrical modules use CX1 copper connectors similar to the one shown in Figure B-2.

Note When ordering or using CX1 cables, ensure that the version identifier is 2 or higher.

The 10-Gigabit Ethernet optical modules use the connectors shown in Figure B-3 and Figure B-4.

Figure B-2 10-Gigabit Ethernet CX1 Copper Connector (example)



SFP and SFP+ Modules

Figure B-3, Figure B-4, and Figure B-5 show the SFP module connectors.

The Catalyst 3560-X switch supports the SFP module patch cable, a 0.5-meter, copper, passive cable with SFP module connectors at each end (Figure B-6). This cable can be used (only with 1-Gigabit Ethernet SFP ports) to connect two Catalyst 3560-X switches in a cascaded configuration.

Figure B-3 Duplex LC Cable Connector

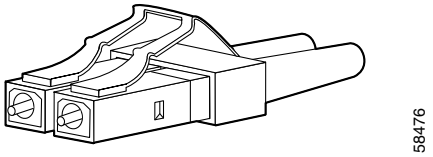


Figure B-4 Simplex LC Cable Connector

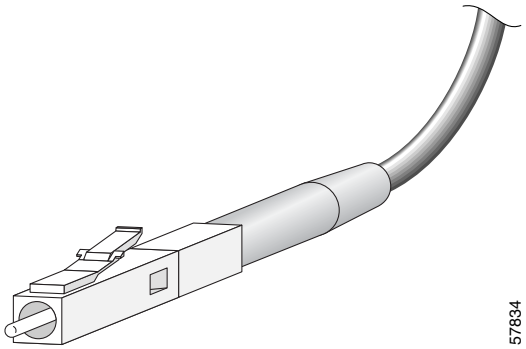


Figure B-5 Copper SFP Module RJ-45 Connector

Pin	Label	1 2 3 4 5 6 7 8
1	TP0+	
2	TP0-	
3	TP1+	
4	TP2+	
5	TP2-	
6	TP1-	
7	TP3+	
8	TP3-	

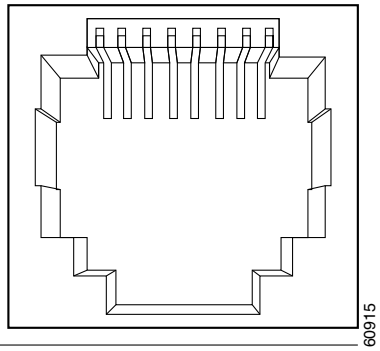
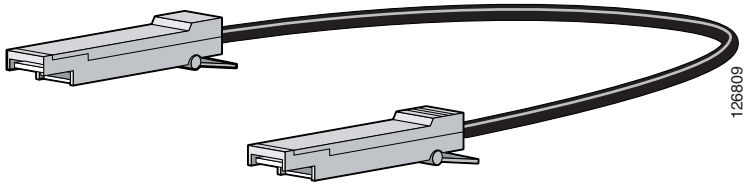


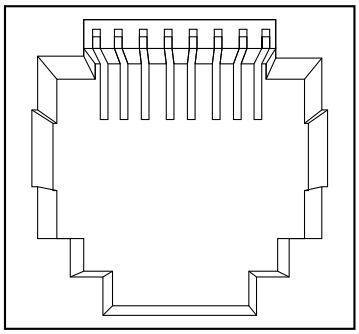
Figure B-6 SFP Module Patch Cable (Catalyst 3560-X Switches)



10/100 Ethernet Management Port

The 10/100 Ethernet management port uses RJ-45 connectors with Ethernet pinouts. Figure B-7 shows the pinouts.

Figure B-7 10/100 Port Pinouts

Pin	Label	1 2 3 4 5 6 7 8
1	RD+	
2	RD-	
3	TD+	
4	NC	
5	NC	
6	TD-	
7	NC	
8	NC	

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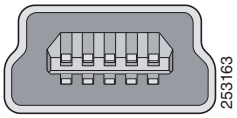
Console Port

The switch has two console ports: a USB 5-pin mini-Type B port on the front panel (see Figure B-8) and an RJ-45 console port on the rear panel.

Figure B-8 USB Mini-Type B Port



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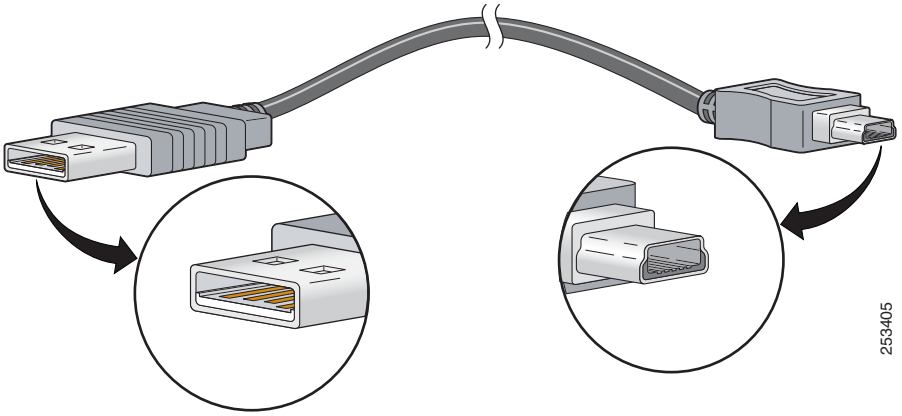
The USB console port uses a USB Type A to 5-pin mini-Type B cable, shown in Figure B-9. The USB Type A-to-USB mini-Type B cable is not supplied. You can order an accessory kit (part number 800-33434) that contains this cable.

Figure B-9 USB Type A-to-USB 5-Pin Mini-Type B Cable



253405

The RJ-45 console port uses an 8-pin RJ-45 connector (See Table B-2 and Table B-3.) The supplied RJ-45-to-DB-9 adapter cable is used to connect the console port of the switch to a console PC. You need to provide a RJ-45-to-DB-25 female DTE adapter if you want to connect the switch console port to a terminal. You can order a kit (part number ACS-DSBUASYN=) containing that adapter. For console port and adapter pinout information, see Table B-2 and Table B-3.

Cable and Adapter Specifications

SFP and SFP+ Module Cable Specifications

Each port must match the wave-length specifications on each end of the cable, and the cable must not exceed the stipulated cable length. Copper 1000BASE-T SFP module transceivers use standard four twisted-pair, Category 5 cable at lengths up to 328 feet (100 meters).

Table B-1 Fiber-Optic SFP and SFP+ Module Port Cabling Specifications

SFP Module	Wavelength (nanometers)	Cable Type	Core Size/Cladding Size (micron)	Modal Bandwidth (MHz/km)[1]	Cable Distance
100BASE-FX (GLC-GE-100FX)	1310	MMF	50/125 62.5/125	500 500	6,562 feet (2 km) 6,562 feet (2 km)
1000BASE-BX10-D (GLC-BX-D)	1490 TX 1310 RX	SMF	G.652[2]	—	32,810 feet (10 km)
1000BASE-BX10-U (GLC-BX-U)	1310 TX 1490 RX	SMF	G.652[2]	—	32,810 feet (10 km)
1000BASE-SX (GLC-SX-MM, GLC-SX-MMD)	850	MMF	62.5/125 62.5/125 50/125 50/125	160 200 400 500	722 feet (220 m) 902 feet (275 m) 1,640 feet (500 m) 1,804 feet (550 m)
1000BASE-T (GLC-T)	Standard 4 twisted-pair Category 5 cable	—	—	—	328 feet (100 m)
1000BASE-LX/LH (GLC-LH-SM, GLC-LH-SMD)	1310	MMF[3] SMF	62.5/125 50/125 50/125 G.652[2]	500 400 500 —	1,804 feet (550 m) 1,804 feet (550 m) 1,804 feet (550 m) 32,810 feet (10 km)
1000BASE-ZX (GLC-ZX-SM)	1550	SMF	G.652[2]	—	43.4 to 62 miles (70 to 100 km)[4]
CWDM-SFP-xxxx	1470, 1490, 1510, 1530, 1550, 1570, 1590, 1610	SMF	G.652[2]	—	62 miles (100 km)

Table B-1 Fiber-Optic SFP and SFP+ Module Port Cabling Specifications (continued)

SFP Module	Wavelength (nanometers)	Cable Type	Core Size/Cladding Size (micron)	Modal Bandwidth (MHz/km)[1]	Cable Distance
DWDM-SFP-xxxx	1560.61, 1561.42, 1559.79, 1558.98, 1558.17, 1557.36, 1556.55, 1555.75, 1554.94, 1554.13, 1552.52, 1553.33, 1551.72, 1550.92, 1550.12, 1549.32, 1548.51, 1547.72, 1546.92, 1546.12, 1545.32, 1544.53, 1543.73, 1542.94, 1542.14, 1541.35, 1540.56, 1539.77, 1538.98, 1538.19, 1537.40, 1536.61, 1535.82, 1535.04, 1534.25, 1533.47, 1532.68, 1531.90, 1531.12, 1530.33	SMF	G.652[2]	—	62 miles (100 km)
10GBASE-LR (SFP-10G-LR)	1310	SMF	G.652[2]		6.21 miles (10 km)
10GBASE-SR (SFP-10G-SR)	850	MMF	62.5/125 62.5/125 50/125 50/125 50/125	160 200 400 500 2000	85 feet (26 m) 108 feet (33 m) 216 feet (66 m) 269 feet (82 m) 6,561 feet (2000 m)
10GBASE-LRM (SFP-10G-LRM)	1310	MMF SMF	62.5/125 50/125 50/125 G.652[2]	500 400 500 —	722 feet (220 m) 328 feet (100 m) 722 feet (220 m) 984 feet (300 m)
10GBASE-CX1	—		—	—	
(SFP-H10GB-CU1M)		Twinax cable, 30-AWG cable assembly			3 feet (1 m)
(SFP-H10GB-CU3M)		Twinax cable, 30-AWG cable assembly			9 feet (3 m)
(SFP-H10GB-CU5M)		Twinax cable, 24-AWG cable assembly			16 feet (5 m)

1. Modal bandwidth applies only to multimode fiber.
2. A mode-field diameter/cladding diameter = 9 micrometers/125 micrometers.
3. A mode-conditioning patch cord is required. Using an ordinary patch cord with MMF or 1000BASE-LX/LH SFP modules and a short link distance can cause transceiver saturation and an elevated bit error rate (BER). When using the LX/LH SFP module with 62.5-micron diameter MMF, you must also install a mode-conditioning patch cord between the SFP module and the MMF cable on both the sending and receiving ends of the link. The mode-conditioning patch cord is required for link distances greater than 984 feet (300 m).

4. 1000BASE-ZX SFP modules can send data up to 62 miles (100 km) by using dispersion-shifted SMF or low-attenuation SMF; the distance depends on the fiber quality, the number of splices, and the connectors.

Four Twisted-Pair Cable Pinouts

Figure B-10 Four Twisted-Pair Straight-Through Cable Schematic

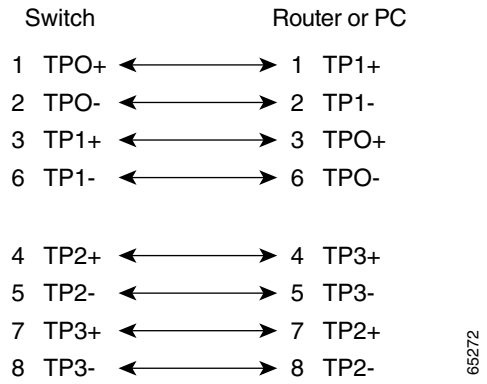
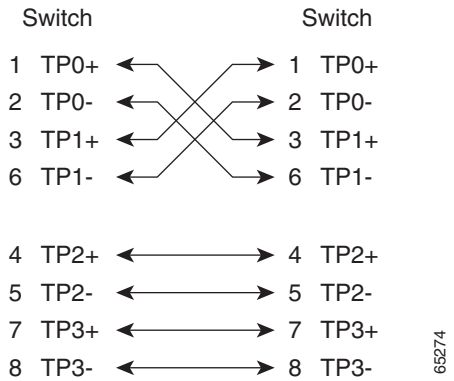


Figure B-11 Four Twisted-Pair Crossover Cable Schematic



Two Twisted-Pair Cable Pinouts

Figure B-12 Two Twisted-Pair Straight-Through Cable Schematic

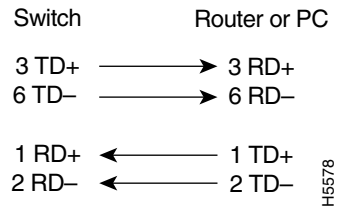
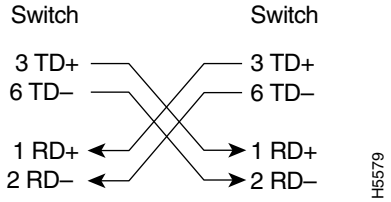


Figure B-13 Two Twisted-Pair Crossover Cable Schematic



Identifying a Crossover Cable

TYou can identify a crossover cable by comparing the two modular ends of the cable. Hold the cables side-by-side with the tab at the back. The first (far left) colored wire (pin 1) at one end of the cable is the third colored wire (pin 3) at the other end of the cable. The second colored wire (pin 2) at one end of the cable is the sixth colored wire (pin 6) at the other end of the cable. See Figure B-14.

Figure B-14 Crossover Cable

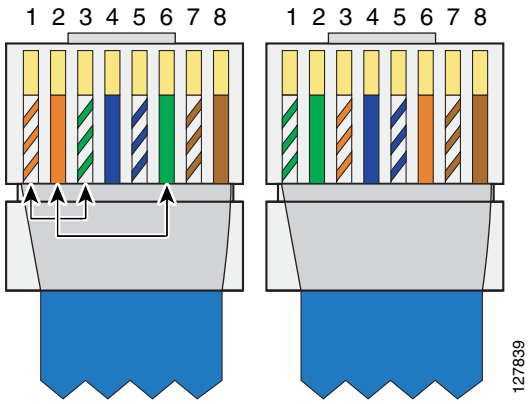
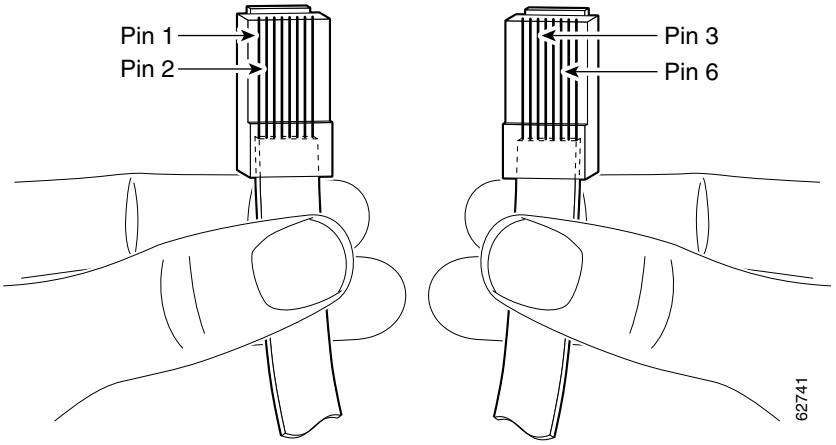


Figure B-15 RJ-45 Crossover Cable Identification



Console Port Adapter Pinouts

The console port uses an 8-pin RJ-45 connector, which is described in Table B-2 and Table B-3. If you did not order a console cable, you need to provide an RJ-45-to-DB-9 adapter cable to connect the switch console port to a PC console port. You need to provide an RF-45-to-DB-25 female DTE adapter if you want to connect the switch console port to a terminal. You can order a kit with an adapter (part number ACS-DSBUASYN=). For console port and adapter pinout information, see Table B-2 and Table B-3.

Table B-2 lists the pinouts for the console port, the RF-45-to-DB-9 adapter cable, and the console device.

Table B-2 Console Port Signaling Using a DB-9 Adapter

Switch Console Port (DTE)	RJ-45-to-DB-9 Terminal Adapter	Console Device
Signal	**DB-9 Pin**	**Signal**
RTS	8	CTS
No connection	6	DSR
TxD	2	RxD
GND	5	GND
GND	5	GND
RxD	3	TxD
No connection	4	DTR
CTS	7	RTS

Table B-3 lists the pinouts for the console port, RJ-45-to-DB-25 female DTE adapter, and the console device.

Note The RJ-45-to-DB-25 female DTE adapter is not supplied with the switch. You can order a kit with the adapter (part number ACS-DSBUASYN=) from Cisco.

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

Switch Console Port (DTE)	RJ-45-to-DB-25 Terminal Adapter	Console Device
Signal	**DB-25 Pin**	**Signal**
RTS	5	CTS
No connection	6	DSR
TxD	3	RxD
GND	7	GND
GND	7	GND
RxD	2	TxD
No connection	20	DTR
CTS	4	RTS