



Product Overview

The Catalyst 3750-X and 3560-X series switches are Ethernet switches to which you can connect devices such as Cisco IP Phones, Cisco Wireless Access Points, workstations, and other network devices such as servers, routers, and other switches.

The Catalyst 3750-X switches support stacking through Cisco StackWise technology and power management through Cisco StackPower technology. The Catalyst 3560-X switches do not support switch stacking or StackPower.

Unless otherwise noted, the term *switch* refers to a standalone switch and to a switch stack.

- [Switch Models, page 1-1](#)
- [Front Panel Description, page 1-5](#)
- [Rear Panel Description, page 1-18](#)
- [Management Options, page 1-25](#)

Switch Models

Table 1-1 **Catalyst 3750-X Switch Models**

Switch Model	Cisco IOS Image	Description
Catalyst 3750-X-24T-L	LAN Base image	24 10/100/1000 Ethernet ports, StackWise Plus, 1 network module ¹ slot, 350-W power supply
Catalyst 3750-X-48T-L	LAN Base image	48 10/100/1000 Ethernet ports, StackWise Plus, one network module ¹ slot, 350-W power supply
Catalyst 3750-X-24P-L	LAN Base image	24 10/100/1000 PoE+ ² ports, StackWise Plus, 1 network module ¹ slot, 715-W power supply
Catalyst 3750-X-48P-L	LAN Base image	48 10/100/1000 PoE+ ² ports, StackWise Plus, one network module ¹ slot, 715-W power supply
Catalyst 3750-X-48PF-L	LAN Base image	48 10/100/1000 PoE+ ² ports, StackWise Plus, 1 network module ¹ slot, 1100-W power supply
Catalyst 3750-X-24U-L ³	LAN Base image	24 10/100/1000 UPOE ⁴ ports, StackWise Plus, StackPower, 1 network module ¹ slot, 1100-W power supply

Table 1-1 Catalyst 3750-X Switch Models (continued)

Switch Model	Cisco IOS Image	Description
Catalyst 3750-X-48U-L ³	LAN Base image	48 10/100/1000 UPOE ⁴ ports, StackWise Plus, StackPower, 1 network module ¹ slot, 1100-W power supply
Catalyst 3750-X-24T-S	IP Base image	24 10/100/1000 Ethernet ports, StackWise Plus, StackPower, 1 network module ¹ slot, 350-W power supply
Catalyst 3750-X-48T-S	IP Base image	48 10/100/1000 Ethernet ports, StackWise Plus, StackPower, 1 network module ¹ slot, 350-W power supply
Catalyst 3750-X-24P-S	IP Base image	24 10/100/1000 PoE+ ² ports, StackWise Plus, StackPower, 1 network module ¹ slot, 715-W power supply
Catalyst 3750-X-48P-S	IP Base image	48 10/100/1000 PoE+ ² ports, StackWise Plus, StackPower, 1 network module ¹ slot, 715-W power supply
Catalyst 3750-X-48PF-S	IP Base image	48 10/100/1000 PoE+ ² ports, StackWise Plus, StackPower, 1 network module ¹ slot, 1100-W power supply
Catalyst 3750-X-24U-S ³	IP Base image	24 10/100/1000 UPOE ⁴ ports, StackWise Plus, StackPower, 1 network module ¹ slot, 1100-W power supply
Catalyst 3750-X-48U-S ³	IP Base image	48 10/100/1000 UPOE ⁴ ports, StackWise Plus, StackPower, 1 network module ¹ slot, 1100-W power supply
Catalyst 3750-X-12S-S	IP Base image	12 SFP module slots, StackWise Plus, StackPower, 1 network module ¹ slot, 350-W power supply
Catalyst 3750-X-24S-S	IP Base image	24 SFP module slots, StackWise Plus, StackPower, 1 network module ¹ slot, 350-W power supply
Catalyst 3750-X-24T-E	IP Services image	24 10/100/1000 Ethernet ports, StackWise Plus, StackPower, 1 network module ¹ slot, 350-W power supply
Catalyst 3750-X-48T-E	IP Services image	48 10/100/1000 Ethernet ports, StackWise Plus, StackPower, 1 network module ¹ slot, 350-W power supply
Catalyst 3750-X-24P-E	IP Services image	24 10/100/1000 PoE+ ² ports, StackWise Plus, StackPower, 1 network module ¹ slot, 715-W power supply
Catalyst 3750-X-48P-E	IP Services image	48 10/100/1000 PoE+ ² ports, StackWise Plus, StackPower, 1 network module ¹ slot, 715-W power supply
Catalyst 3750-X-48PF-E	IP Services image	48 10/100/1000 PoE+ ² ports, StackWise Plus, StackPower, 1 network module ¹ slot, 1100-W power supply

Table 1-1 Catalyst 3750-X Switch Models (continued)

Switch Model	Cisco IOS Image	Description
Catalyst 3750-X-24U-E ³	IP Services image	24 10/100/1000 UPOE ⁴ ports, StackWise Plus, StackPower, 1 network module ¹ slot, 1100-W power supply
Catalyst 3750-X-48U-E ³	IP Services image	48 10/100/1000 UPOE ⁴ ports, StackWise Plus, StackPower, 1 network module ¹ slot, 1100-W power supply
Catalyst 3750-X-12S-E	IP Services image	12 SFP module slots, StackWise Plus, StackPower, 1 network module ¹ slot, 350-W power supply
Catalyst 3750-X-24S-E	IP Services image	24 SFP module slots, StackWise Plus, StackPower, 1 network module ¹ slot, 350-W power supply

1. Available network modules: 10-Gigabit Ethernet network module; 10-Gigabit Ethernet (copper) network module; 10-Gigabit Ethernet service module; 1-Gigabit Ethernet network module; blank module (see [Table 1-3 on page 1-7](#)).
2. PoE+ = Power over Ethernet plus (provides up to 30 W per port).
3. Not supported for NEBS.
4. UPOE = Universal Power over Ethernet (provides up to 60 W per port).

Table 1-2 Catalyst 3560-X Switch Models

Switch	Part Number	Description
Catalyst 3560-X-24T-L	LAN Base image	24 10/100/1000 Ethernet ports, 1 network module ¹ slot, 350-W power supply
Catalyst 3560-X-48T-L	LAN Base image	48 10/100/1000 Ethernet ports, 1 network module ¹ slot, 350-W power supply
Catalyst 3560-X-24P-L	LAN Base image	24 10/100/1000 PoE+ ² ports, 1 network module ¹ slot, 715-W power supply
Catalyst 3560-X-48P-L	LAN Base image	48 10/100/1000 PoE+ ² ports, 1 network module ¹ slot, 715-W power supply
Catalyst 3560-X-48PF-L	LAN Base image	48 10/100/1000 PoE+ ² ports, 1 network module ¹ slot, 1100-W power supply
Catalyst 3560-X-24U-L ³	LAN Base image	24 10/100/1000 UPOE ⁴ ports, 1 network module ¹ slot, 1100-W power supply
Catalyst 3560-X-48U-L ³	LAN Base image	48 10/100/1000 UPOE ⁴ ports, 1 network module ¹ slot, 1100-W power supply
Catalyst 3560-X-24T-S	IP Base image	24 10/100/1000 Ethernet ports, 1 network module ¹ slot, 350-W power supply
Catalyst 3560-X-48T-S	IP Base image	48 10/100/1000 Ethernet ports, 1 network module ¹ slot, 350-W power supply
Catalyst 3560-X-24P-S	IP Base image	24 10/100/1000 PoE+ ² ports, 1 network module ¹ slot, 715-W power supply
Catalyst 3560-X-48P-S	IP Base image	48 10/100/1000 PoE+ ² ports, 1 network module ¹ slot, 715-W power supply
Catalyst 3560-X-48PF-S	IP Base image	48 10/100/1000 PoE+ ² ports, 1 network module ¹ slot, 1100-W power supply

Table 1-2 Catalyst 3560-X Switch Models (continued)

Switch	Part Number	Description
Catalyst 3560-X-24U-S ³	IP Base image	24 10/100/1000 UPOE ⁴ ports, 1 network module ¹ slot, 1100-W power supply
Catalyst 3560-X-48U-S ³	IP Base image	48 10/100/1000 UPOE ⁴ ports, 1 network module ¹ slot, 1100-W power supply
Catalyst 3560-X-24T-E	IP Services image	24 10/100/1000 Ethernet ports, 1 network module ¹ slot, 350-W power supply
Catalyst 3560-X-48T-E	IP Services image	48 10/100/1000 Ethernet ports, 1 network module ¹ slot, 350-W power supply
Catalyst 3560-X-24P-E	IP Services image	24 10/100/1000 PoE+ ² ports, 1 network module ¹ slot, 715-W power supply
Catalyst 3560-X-48P-E	IP Services image	48 10/100/1000 PoE+ ² ports, 1 network module ¹ slot, 715-W power supply
Catalyst 3560-X-48PF-E	IP Services image	48 10/100/1000 PoE+ ² ports, 1 network module ¹ slot, 1100-W power supply
Catalyst 3560-X-24U-E ³	IP Services image	24 10/100/1000 UPOE ⁴ ports, 1 network module ¹ slot, 1100-W power supply
Catalyst 3560-X-48U-E ³	IP Services image	48 10/100/1000 UPOE ⁴ ports, 1 network module ¹ slot, 1100-W power supply

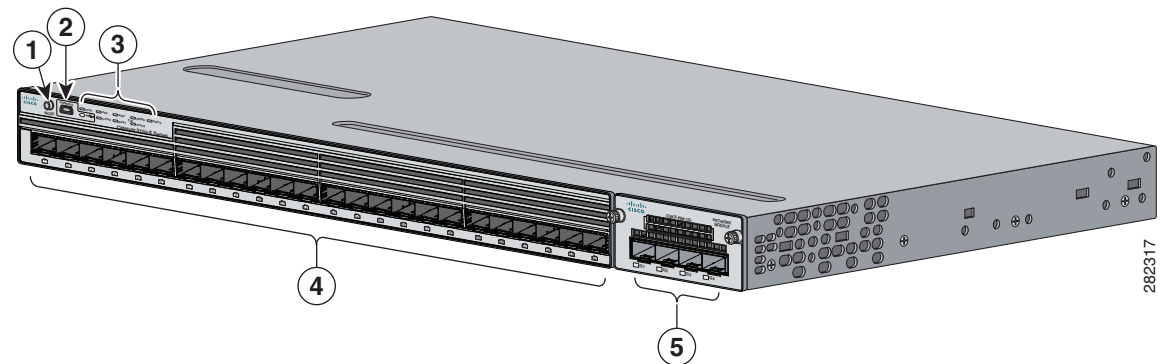
1. Available network modules: 10-Gigabit Ethernet network module; 10-Gigabit Ethernet (copper) network module; 10-Gigabit Ethernet service module; 1-Gigabit Ethernet network module; blank module (see [Table 1-3 on page 1-7](#)).
2. PoE+ = Power over Ethernet plus (provides up to 30 W per port).
3. Not supported for NEBS.
4. UPOE = Universal Power over Ethernet (provides up to 60 W per port).

Front Panel Description

The switch front panel includes the Mode button, a USB 5-pin mini-Type B console port, the downlink ports and LEDs, the network module, and the switch LEDs.

Figure 1-1 shows the Catalyst 3750-X-24S switch as an example.

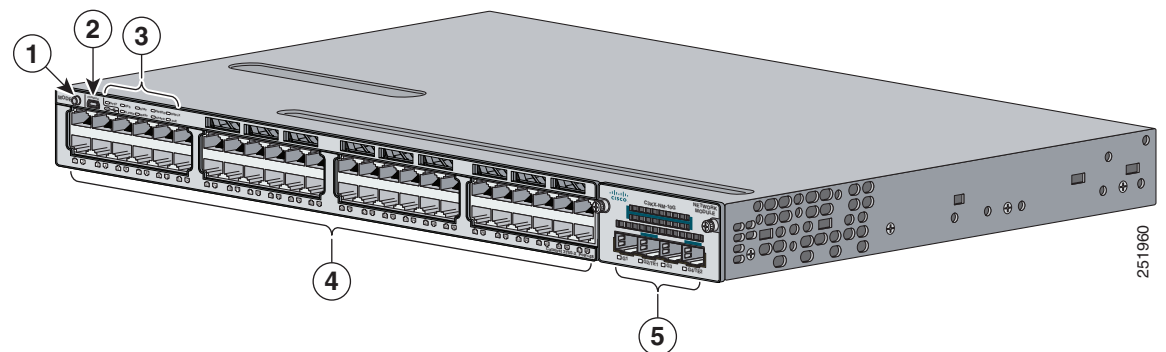
Figure 1-1 Catalyst 3750-X-24S Switch Front Panel



1	Mode button	4	SFP module slots (downlink)
2	USB Type-B console port	5	Network Module
3	Status LEDs		

Figure 1-2 shows the Catalyst 3750-X-48P switch as an example.

Figure 1-2 Catalyst 3750-X-48P Switch Front Panel



1	Mode button	4	10/100/1000 ports
2	USB Type-B console port	5	Network Module
3	Status LEDs		

SFP Module Slots

The switch (downlink) SFP module slots on the Catalyst 3750-X-12S and Catalyst 3750-X-24S switch support any combination of standard SFP modules. SFP+ modules are not supported.



Note

For information about the (uplink) SFP and SFP+ module slots on the network modules, see the [“Network Modules” section on page 1-7](#).

See [Table 1-4](#) for a list of supported SFP modules.

10/100/1000 Ethernet Ports

The 10/100/1000 Ethernet ports use RJ-45 connectors with Ethernet pinouts. The maximum cable length is 328 feet (100 meters). The 100BASE-TX and 1000BASE-T traffic requires Category 5, Category 5e, or Category 6 unshielded twisted pair (UTP) cable. The 10BASE-T traffic can use Category 3 or Category 4 UTP cable.

For information about the 10/100/1000 Ethernet port connections and specifications, see the [“10/100/1000 Ethernet Port Connections” section on page 2-27](#) and [Appendix B, “Connector and Cable Specifications.”](#)

PoE+ and UPOE Ports

The PoE+ and UPOE ports use the same connectors as described in the [“10/100/1000 Ethernet Ports” section on page 1-6](#) and provide this support.

- Support for prestandard Cisco powered devices
- Support for IEEE 802.3af compliant powered devices (up to 15.4 W)
- Support for IEEE 802.3at compliant powered devices (up to 30 W)
- Support for Cisco UPOE (up to 60 W) —UPOE switches only
- Support for Cisco enhanced PoE
- Configuration for StackPower PoE+ and UPOE. When the switch internal power supply module(s) cannot support the total load, StackPower configurations allow the switch to leverage power available from other switches (only Catalyst 3750-X switches)
- Configurable support for Cisco intelligent power management, including enhanced power negotiation, power reservation, and per-port power policing

See [Table 1-18](#) for the power supply matrix that defines the available PoE, PoE+, and UPOE power per port.



Note

The output of the PoE+ and UPOE circuit has been evaluated as a Limited Power Source (LPS) per IEC 60950-1.

For information about power supply modules, PoE+ port connections, and PoE+ specifications, see the [“Power Supply Modules” section on page 1-20](#), the [“PoE+ and UPOE Port Connections” section on page 2-27](#), and [Appendix B, “Connector and Cable Specifications.”](#)

Network Modules

The switch supports one hot-swappable network module that provides uplink ports to connect to other devices. You must insert the network module during switch operation. Operating the switch without a network module is not supported. A blank module is available.

The switch generates logs when you insert or remove a network module with SFP ports.

Table 1-3 Network Modules

Network Module ¹	Description
10-Gigabit Ethernet C3KX-NM-10G	<p>This module has four slots. Two slots support only 1-Gigabit SFP modules, two slots support either 1-Gigabit SFP or 10-Gigabit SFP+ modules.</p> <p>Note The GLC-T SFP is not supported on the SFP+ slots of C3KX-NM-10G.</p> <p>The four slots are grouped as two pairs with each pair consisting of one SFP slot and one SFP+ slot. Each pair supports either two 1-Gigabit SFP modules or one 10-Gigabit SFP+ module. A 10-Gigabit SFP+ module cannot operate at the same time as the corresponding 1-Gigabit SFP module in the pair.</p> <p>Supported combinations of SFP and SFP+ modules:</p> <ul style="list-style-type: none"> • Slots 1, 2, 3, and 4 populated with 1-Gigabit SFP modules. • Slots 1 and 2 populated with 1-Gigabit SFP modules and Slot 4 populated with one 10-Gigabit SFP+ module. • Slot 2 populated with one 10-Gigabit SFP+ module and Slots 3 and 4 populated with 1-Gigabit SFP modules. • Slot 2 and Slot 4 each populated with 10-Gigabit SFP+ modules. <p>A 10-Gigabit SFP+ module takes precedence over a 1-Gigabit SFP module except when an SFP module is first inserted in Slot 1 and has link. When you insert an SFP+ module in Slot 2, the SFP in Slot 1 retains link. The SFP+ module in Slot 2 does not operate.</p> <p>When the SFP module in Slot 1 is shutdown, loses link, or is removed, the SFP+ module in Slot 2 becomes operational. At this point, the SFP module in Slot 1 will not become operational under any circumstance for as long as an SFP+ module remains in Slot 2 whether it is link up or not.</p> <p>The same precedence applies to Slots 3 and 4.</p>
10-Gigabit Ethernet C3KX-NM-10GT	This module has two autonegotiating 10-Gigabit Ethernet (copper) ports.
10-Gigabit Ethernet Service Module C3KX-SM-10G	This module has two slots that support either 1-Gigabit SFP or 10-Gigabit SFP+ modules. The service module supports Net Flow and MACSec Uplink Encryption (switch- to-switch encryption between uplinks).
1-Gigabit Ethernet C3KX-NM-1G	This module has four 1-Gigabit SFP module slots. Any combination of standard SFP modules are supported. SFP+ modules are not supported. If you insert an SFP+ module in the 1-Gigabit network module, the SFP+ module does not operate, and the switch logs an error message.
Blank C3KX-NM_BLNK	This module has no uplink ports.

1. All network modules are hot-swappable.

For information about the network modules, see the “[Installing a Network Module in the Switch](#)” section on [page 2-22](#). For cable specifications, see [Appendix B](#), “[Connector and Cable Specifications](#).”

SFP and SFP+ Modules

The SFP and SFP+ modules provide copper or fiber-optic connections to other devices. These transceiver modules are field-replaceable, providing the uplink interfaces when installed in an SFP module slot. The SFP modules have LC connectors for fiber-optic connections or RJ-45 connectors for copper connections.

Use only Cisco SFP modules on the switch.



Note

The (downlink) SFP module slots on the Catalyst 3750-X-12S and Catalyst 3750-X-24S switch front panel support any combination of standard SFP modules. SFP+ modules are not supported.

Table 1-4 **Supported Cisco SFP Modules**

Part Number	Description
GLC-GE-100FX= ^{1,2,3}	100FX SFP on GE SFP ports for LAN switches
GLC-LH-SM=	GE SFP, LC connector LX/LH transceiver
GLC-LH-SMD=	GE SFP, LC connector LX/LH transceiver, extended operating temperature range
GLC-SX-MM=	GE SFP, LC connector SX transceiver
GLC-SX-MMD=	GE SFP, LC connector SX transceiver, extended operating temperature range
GLC-T= ^{1, 3}	1000BASE-T SFP transceiver module for copper connections
GLC-ZX-SM=	1000BASE-ZX SFP module for SMF, 1550 nm
GLC-BX-D= ¹	1000BASE-BX10 SFP module for single-strand SMF, 1490-nm TX, 1310-nm RX wavelength
GLC-BX-U= ¹	1000BASE-BX10 SFP module for single-strand SMF, 1310-nm TX, 1490-nm RX wavelength

Table 1-4 Supported Cisco SFP Modules (continued)

Part Number	Description
CWDM-SFP-1470=	CWDM 1470-nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1490=	CWDM 1490-nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510-nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530-nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550-nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570-nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590-nm SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610-nm SFP Gigabit Ethernet and 1G/2G FC
SFP-GE-S=	1000BASE-SX SFP module for MMF, 850 nm (DOM) ⁴
SFP-GE-L=	1000BASE-LX/LH SFP module for SMF, 1300 nm (DOM) ⁴
DWDM-SFP-3033=	DWDM SFP 1530.33-nm SFP (100 GHz ITU grid)
DWDM-SFP-3112=	DWDM SFP 1531.12-nm SFP (100 GHz ITU grid)
DWDM-SFP-3190=	DWDM SFP 1531.90-nm SFP (100 GHz ITU grid)
DWDM-SFP-3268=	DWDM SFP 1532.68-nm SFP (100 GHz ITU grid)
DWDM-SFP-3346=	DWDM SFP 1533.47-nm SFP (100 GHz ITU grid)
DWDM-SFP-3425=	DWDM SFP 1534.25-nm SFP (100 GHz ITU grid)
DWDM-SFP-3504=	DWDM SFP 1535.04-nm SFP (100 GHz ITU grid)
DWDM-SFP-3582=	DWDM SFP 1535.82-nm SFP (100 GHz ITU grid)
DWDM-SFP-3661=	DWDM SFP 1536.61-nm SFP (100 GHz ITU grid)
DWDM-SFP-3739=	DWDM SFP 1537.40-nm SFP (100 GHz ITU grid)
DWDM-SFP-3819=	DWDM SFP 1538.19-nm SFP (100 GHz ITU grid)
DWDM-SFP-3898=	DWDM SFP 1538.98-nm SFP (100 GHz ITU grid)
DWDM-SFP-3977=	DWDM SFP 1539.77-nm SFP (100 GHz ITU grid)
DWDM-SFP-4056=	DWDM SFP 1540.56-nm SFP (100 GHz ITU grid)
DWDM-SFP-4134=	DWDM SFP 1541.35-nm SFP (100 GHz ITU grid)
DWDM-SFP-4214=	DWDM SFP 1542.14-nm SFP (100 GHz ITU grid)
DWDM-SFP-4294=	DWDM SFP 1542.94-nm SFP (100 GHz ITU grid)
DWDM-SFP-4373=	DWDM SFP 1543.73-nm SFP (100 GHz ITU grid)
DWDM-SFP-4453=	DWDM SFP 1544.53-nm SFP (100 GHz ITU grid)
DWDM-SFP-4532=	DWDM SFP 1545.32-nm SFP (100 GHz ITU grid)
DWDM-SFP-4612=	DWDM SFP 1546.12-nm SFP (100 GHz ITU grid)

Table 1-4 Supported Cisco SFP Modules (continued)

Part Number	Description
DWDM-SFP-4692=	DWDM SFP 1546.92-nm SFP (100 GHz ITU grid)
DWDM-SFP-4772=	DWDM SFP 1547.72-nm SFP (100 GHz ITU grid)
DWDM-SFP-4851=	DWDM SFP 1548.51-nm SFP (100 GHz ITU grid)
DWDM-SFP-4931=	DWDM SFP 1549.32-nm SFP (100 GHz ITU grid)
DWDM-SFP-5012=	DWDM SFP 1550.12-nm SFP (100 GHz ITU grid)
DWDM-SFP-5092=	DWDM SFP 1550.92-nm SFP (100 GHz ITU grid)
DWDM-SFP-5172=	DWDM SFP 1551.72-nm SFP (100 GHz ITU grid)
DWDM-SFP-5252=	DWDM SFP 1552.52-nm SFP (100 GHz ITU grid)
DWDM-SFP-5332=	DWDM SFP 1553.33-nm SFP (100 GHz ITU grid)
DWDM-SFP-5413=	DWDM SFP 1554.13-nm SFP (100 GHz ITU grid)
DWDM-SFP-5494=	DWDM SFP 1554.94-nm SFP (100 GHz ITU grid)
DWDM-SFP-5575=	DWDM SFP 1555.75-nm SFP (100 GHz ITU grid)
DWDM-SFP-5655=	DWDM SFP 1556.55-nm SFP (100 GHz ITU grid)
DWDM-SFP-5736=	DWDM SFP 1557.36-nm SFP (100 GHz ITU grid)
DWDM-SFP-5817=	DWDM SFP 1558.17-nm SFP (100 GHz ITU grid)
DWDM-SFP-5898=	DWDM SFP 1558.98-nm SFP (100 GHz ITU grid)
DWDM-SFP-5979=	DWDM SFP 1559.79-nm SFP (100 GHz ITU grid)
DWDM-SFP-6061=	DWDM SFP 1560.61-nm SFP (100 GHz ITU grid)
DWDM-SFP-6141=	DWDM SFP 1561.42-nm SFP (100 GHz ITU grid)

1. Not supported in the SFP+ slots (2 and 4) on the C3KX-NM-10G.
2. Not supported on the C3KX-SM-10G
3. Not supported for NEBS.
4. DOM = digital optical monitoring.

Table 1-5 Supported Cisco SFP+ Modules

Part Number	Description
SFP-10G-LR=	10 GBASE LR SFP+ transceiver module for SMF, 1350 nm, LC duplex connector
SFP-10G-SR=	10 GBASE SR SFP+ transceiver module for MMF, 850 nm, LC duplex connector
SFP-10G-LRM=	10 GBASE-LRM SFP+ module for MMF and SMF, 1310 nm
SFP-H10GB-CU1M=	10 GBASE-CU Twinax SFP+ cable assembly, 1 meter (Version -02)
SFP-H10GB-CU3M=	10 GBASE-CU Twinax SFP+ cable assembly, 3 meters (Version -02)
SFP-H10GB-CU5M=	10 GBASE-CU Twinax SFP+ cable assembly, 5 meters (Version -02)

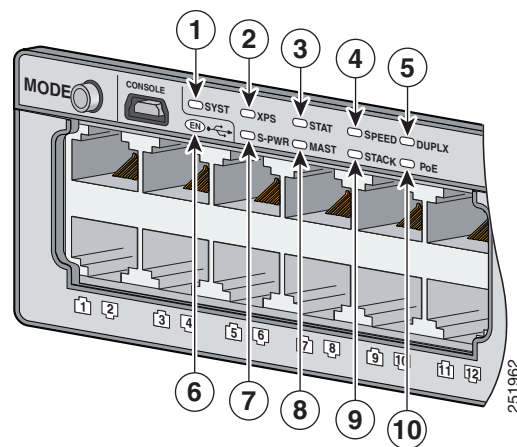
For information about SFP modules, see your SFP module documentation and the “Installing SFP and SFP+ Modules” section on page 2-24. For cable specifications, see Appendix B, “Connector and Cable Specifications.”

The Catalyst 3560-X switch supports the SFP module patch cable (CAB-SFP-50CM), a 0.5-meter, copper, passive cable with SFP module connectors at each end. This cable is only used with 1-Gigabit Ethernet SFP ports to connect two Catalyst 3560-X switches in a cascaded configuration.

LEDs

You can use the switch LEDs to monitor switch activity and its performance. Figure 1-3 shows the Catalyst 3750-X switch LEDs and the Mode button that you use to select a port mode.

Figure 1-3 Switch Front Panel LEDs



1	System LED	6	USB console port LED
2	XPS ¹ LED	7	S-PWR (StackPower) LED ²
3	Status LED	8	Master LED ²
4	Speed LED	9	Stack LED ²
5	Duplex LED	10	PoE LED ³

1. XPS = Expandable power system.

2. Only Catalyst 3750-X switches.

3. Only switches with PoE+ or UPOE ports.

System LED

Table 1-6 System LED

Color	System Status
Off	System is not powered on.
Green	System is operating normally.
Blinking Green	Switch is running power on self-test (POST).
Amber	System is receiving power but is not functioning properly.

For information on the System LED colors during power-on self-test (POST), see the [“Diagnosing Problems” section on page 4-1](#).

XPS LED

Table 1-7 XPS LED

Color	XPS Status
Off	XPS cable is not installed. Switch is in StackPower mode (Catalyst 3750-X).
Green	XPS is connected and ready to provide back-up power.
Blinking green	XPS is connected but is unavailable because it is providing power to another device (redundancy has been allocated to a neighboring device).
Amber	The XPS is in standby mode or in a fault condition. See the XPS 2200 documentation for information about the standby mode and fault conditions.
Blinking amber	The power supply in a switch has failed, and the XPS is providing power to that switch (redundancy has been allocated to this device).

For information about the XPS 2200, see the *Cisco eXpandable Power System 2200 Hardware Installation Guide* on Cisco.com.

Port LEDs and Modes

Each Ethernet port, 1-Gigabit Ethernet module slot, and 10-Gigabit Ethernet module slot has a port LED. These port LEDs, as a group or individually, display information about the switch and about the individual ports. The port mode determines the type of information shown by the port LEDs. [Table 1-8](#) lists the mode LEDs and their associated port modes and meanings.

To select or change a mode, press the Mode button until the desired mode is highlighted. When you change port modes, the meanings of the port LED colors also change. [Table 1-9](#) explains how to interpret the port LED colors in different port modes.

When you press the Mode button on any switch in the Catalyst 3750-X switch stack, all the stack switches change to show the same selected mode. For example, if you press the Mode button on the stack master to show the SPEED LED, all the other switches in the stack also show the SPEED LED.

Table 1-8 Port Mode LEDs

Mode LED	Port Mode	Description
STAT	Port status	The port status. This is the default mode.
SPEED	Port speed	The port operating speed: 10, 100, or 1000 Mb/s.
DUPLX	Port duplex mode	The port duplex mode: full duplex or half duplex.
MAST ¹	Master	The stack master status.

Table 1-8 Port Mode LEDs (continued)

Mode LED	Port Mode	Description
STACK ¹	Stack member status	The stack member status.
	StackWise port status	The StackWise port status. See the “ Stack LED (Catalyst 3750-X) ” section on page 1-15.
PoE ²	PoE+ or UPOE port power	The PoE+ or UPOE port status.


1. Only Catalyst 3750-X switches.

2. Only switches with PoE+ or UPOE ports.

Table 1-9 Meaning of Switch LED Colors in Different Modes

Port Mode	Port LED Color	Meaning
STAT (port status)	Off	No link, or port was administratively shut down.
	Green	Link present, no activity.
	Blinking green	Activity. Port is sending or receiving data.
	Alternating green-amber	Link fault. Error frames can affect connectivity, and errors such as excessive collisions, CRC errors, and alignment and jabber errors are monitored for a link-fault indication.
	Amber	Port is blocked by Spanning Tree Protocol (STP) and is not forwarding data. After a port is reconfigured, the port LED can be amber for up to 30 seconds as STP checks the switch for possible loops.
SPEED	10/100/1000/SFP ports	
	Off	Port is operating at 10 Mb/s.
	Green	Port is operating at 100 Mb/s.
	Single green flash (on for 100 ms, off for 1900 ms)	Port is operating at 1000 Mb/s.
	Network module slots	
	Off	Port is not operating.
	Blinking green	Port is operating at up to 10 Gb/s.
DUPLX (duplex)	Off	Port is operating in half duplex.
	Green	Port is operating in full duplex.
MAST ¹ (data stack master)	Off	The switch is not the stack master. Note For a standalone switch, this LED is off.
	Green	The switch is the stack master.
	Amber	Error during stack master election.

Table 1-9 *Meaning of Switch LED Colors in Different Modes (continued)*

Port Mode	Port LED Color	Meaning
STACK ¹ (stack member)	Off	No stack member corresponding to that member number.
	Blinking green	Stack member number.
	Green	Member numbers of other stack member switches.
PoE ²	Off	PoE+ or UPOE is off. If the powered device is receiving power from an AC power source, the port LED is off even if the device is connected to the switch port.
	Green	PoE+ or UPOE is on. The port LED is green when the switch port is providing power.
	Alternating green and amber	PoE+ or UPOE is denied because providing power to the powered device will exceed the switch power capacity.
	Blinking amber	PoE+ or UPOE is off due to a fault or because it has exceeded a limit set in the switch software. <div>  Caution PoE+ and or UPOE faults are caused when noncompliant cabling or powered devices are connected to a PoE+ or UPOE port. Use only standard-compliant cabling to connect Cisco prestandard IP Phones and wireless access points or IEEE 802.3af-compliant devices to PoE+ or UPOE ports. You must remove from the network any cable or device that causes a PoE+ or UPOE fault. </div>
	Amber	PoE+ or UPOE for the port has been disabled. Note PoE+ or UPOE is enabled by default.

1. Only Catalyst 3750-X switches.

2. Only switches with PoE+ or UPOE ports.

USB Console LED

The USB console LED shows whether there is an active USB connection to the port.

Table 1-10 *USB Console Port LED*

Color	Description
Off	USB console is disabled.
Green	USB console is enabled.

S-PWR LED (Catalyst 3750-X)

Table 1-11 **S-PWR LED**

Color	Description
Off	StackPower cable is not connected, or the switch is in standalone mode.
Green	An XPS cable is connected to the XPS 2200. Each StackPower port is connected to another switch or to an XPS 2200 (Catalyst 3750-X switches).
Blinking Green	This appears on the switch in a StackPower ring configuration that detects an open ring or has only one StackPower cable connected, and no connection to an XPS 2200.
Amber	There is a fault: load shedding is occurring, a StackPower cable is defective, or administrative action is required. See the switch software configuration guide for information about configuring StackPower.
Blinking Amber	The StackPower budget is not sufficient to meet current power demands.

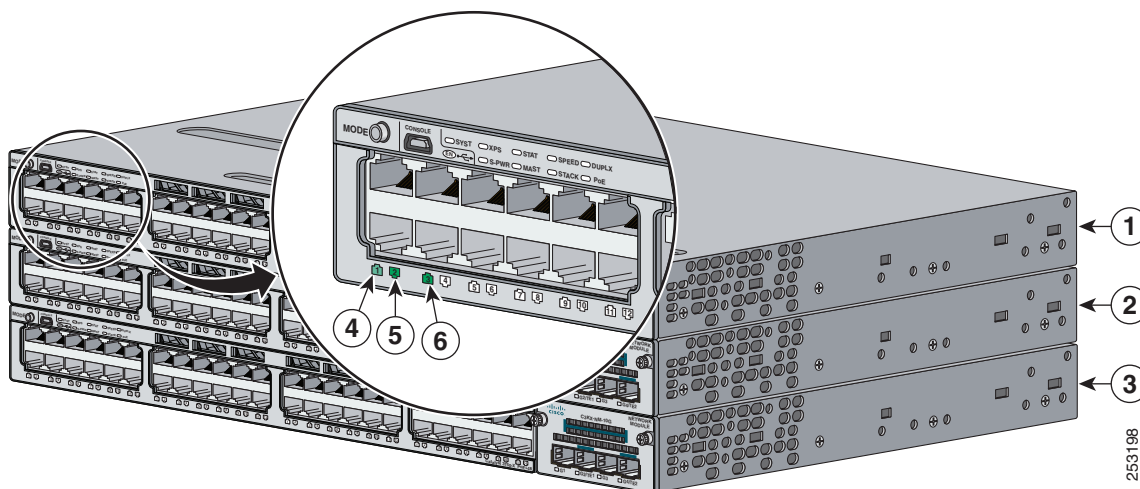
Master LED (Catalyst 3750-X)

Table 1-12 **Master LED**

Color	Description
Off	Switch is not the stack master.
Green	Switch is the stack master or a standalone switch.
Amber	An error occurred when the switch was selecting the stack master switch, or another type of stack error occurred.

Stack LED (Catalyst 3750-X)

The stack LED shows the sequence of member switches in a stack. Up to nine switches can be members of a stack. The first nine port LEDs show the member number of a switch in a stack. [Figure 1-4](#) shows the LEDs on the first switch, which is stack member number 1. For example, if you press the Mode button and select Stack, the LED for port 1 blinks green. The LEDs for ports 2 and 3 are solid green, as these represent the member numbers of other switches in the stack. The other port LEDs are off because there are no more members in the stack.

Figure 1-4 Stack LED

1	Stack member 1	4	LED blinks green to show that this is switch 1 in the stack.
2	Stack member 2	5	LED is solid green to show that switch 2 is a stack member.
3	Stack member 3	6	LED is solid green to show that switch 3 is a stack member.

When you select the Stack LED mode, the representative Stack LEDs are green when the StackWise ports are up, and the representative Stack LEDs are amber when the ports are down.

PoE LED

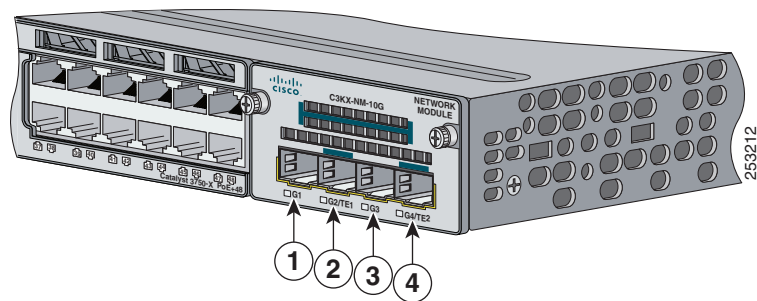
If the PoE LED mode is not selected on a switch with PoE+ or UPOE ports, the PoE LED still shows detected PoE+ or UPOE problems.

Table 1-13 PoE Mode LED

Color	PoE+/UPOE Status
Off	PoE+ or UPOE mode is not selected. None of the 10/100/1000 ports have been denied power or are in a fault condition.
Green	PoE+ or UPOE mode is selected, and the port LEDs show the PoE+ or UPOE status.
Blinking amber	PoE+ or UPOE mode is not selected. At least one of the 10/100/1000 ports has been denied power, or at least one of the 10/100/1000 ports has a PoE+ or UPOE fault.


Network Module LEDs

Figure 1-5 Network Module LEDs (10-Gigabit Network Module Shown)



1	G1 LED	3	G3 LED
2	G2/TE1 LED	4	G4/TE2 LED

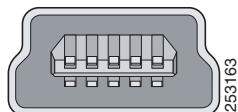
Table 1-14 Network Module LEDs

Color	Network Module Link Status
Off	Link is off.
Green	Link is on, no activity.
Blinking green	Activity on a link, no faults.
Blinking amber	Link is off due to a fault or because it has exceeded a limit set in the switch software. <div><div></div><div>Caution Link faults are caused when noncompliant cabling is connected to an SFP or SFP+ port. Use only standard-compliant cabling to connect to Cisco SFP and SFP+ ports. You must remove from the network any cable or device that causes a link fault.</div></div>
Amber	Link for the SFP or SFP+ has been disabled.

USB Mini-Type B Port

A USB 5-pin mini-Type B connector on the front panel is available for switch management ([Figure 1-6](#)).

Figure 1-6 *USB Mini-Type B Console Port*

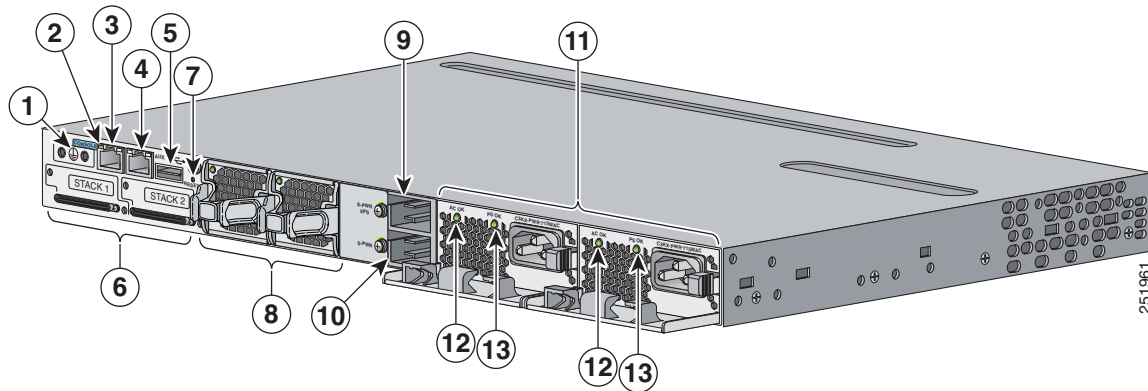


See the “[Management Ports](#)” section on [page 1-24](#) for details.

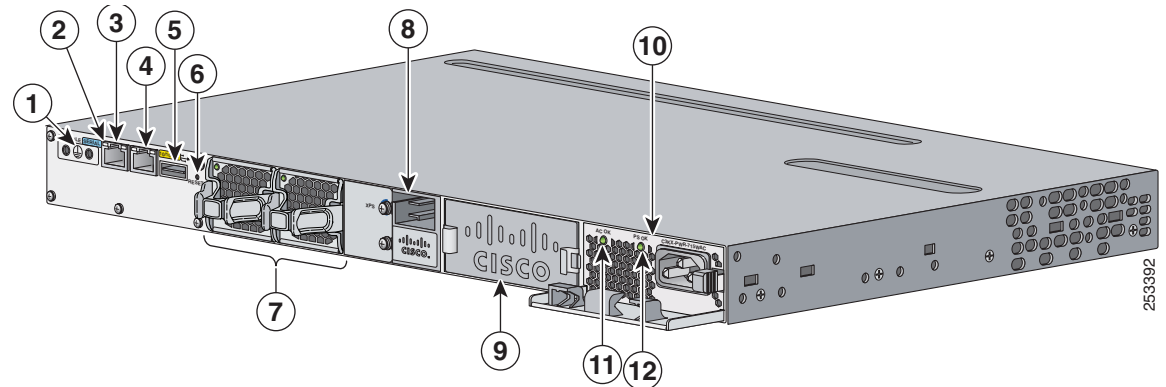
Rear Panel Description

The switch rear panel has a ground connector, an RJ-45 console port, an RJ-45 10/100 management port, a USB Type A connector, two StackWise connectors (only Catalyst 3750-X switches), two fan modules, an XPS 2200 connector, a StackPower connector (only Catalyst 3750-X switches), and two power supply module slots. See [Figure 1-7](#), and the descriptions on the following pages. [Figure 1-7](#) shows the Catalyst 3750-X-48 PoE+ switch, which has one connector for either a StackPower or an XPS connection, and one connector only for StackPower. [Figure 1-8](#) shows the Catalyst 3560-X switch rear panel, which has one connector for XPS and no StackPower connector.

Figure 1-7 *Catalyst 3750-X Switch Rear Panel*



1	Ground connector	8	Fan modules
2	RJ-45 console port LED	9	StackPower or XPS 2200 connector
3	RJ-45 console port	10	StackPower connector
4	RJ-45 10/100 management port	11	Power supply modules (AC power supply modules shown)
5	USB Type A connector	12	AC power (input) status LED
6	Stack cable connectors	13	Power supply (output) status LED
7	Reset button		

Figure 1-8 Catalyst 3560-X Switch Rear Panel

1	Ground connector	7	Fan modules
2	RJ-45 console port LED	8	XPS 2200 connector
3	RJ-45 console port	9	Power supply module slot (blank module shown)
4	RJ-45 10/100 management port	10	Power supply module (AC power supply module shown)
5	USB Type A connector	11	AC power (input) status LED
6	Reset button	12	Power supply (output) status LED

RJ-45 Console Port LED

Table 1-15 RJ-45 Console Port LED

Color	RJ-45 Console Port Status
Off	RS-232 console is disabled.
Green	RS-232 console is enabled.

USB Type A Interface

The USB Type A interface provides access to external USB FLASH devices (also known as thumb drives or USB keys).

The interface supports Cisco USB flash drives with capacities from 64 MB to 1 GB.

Cisco IOS software provides standard file system access to the flash device: read, write, erase, and copy, as well as formatting of the flash device with a FAT file system. You can boot the switch from a USB drive.

For information about the switch management ports, see the switch software configuration guide and the command reference on Cisco.com and the [“Connector and Cable Specifications” section on page B-1](#).

StackWise Ports

The Catalyst 3750-X switch ships with a 0.5-meter StackWise cable (CAB-STACK-50CM) that you can use to connect the StackWise ports.



Caution

Use only approved cables (CAB-STACK-50CM, CAB-STACK-1M, CAB-STACK-3M, CAB-STACK-50CM-NH, CAB-STACK-1M-NH, or CAB-STACK-3M-NH), and connect only to similar Cisco equipment. Equipment might be damaged if connected to nonapproved Cisco cables or equipment.

You can order these StackWise cables from your Cisco sales representative:

- CAB-STACK-50CM (0.5-meter cable)
- CAB-STACK-1M= (1-meter cable)
- CAB-STACK-3M= (3-meter cable)
- CAB-STACK-50CM-NH= (0.5-meter cable, nonhalogen)
- CAB-STACK-1M-NH= (1-meter cable, nonhalogen)
- CAB-STACK-3M-NH= (3-meter cable, nonhalogen)

Power Supply Modules

The switch is powered through one or two internal power supply modules.

Supported power supply modules:

Description	Model
350 W AC	PWR-C1-350WAC ¹ C3KX-PWR-350WAC
715 W AC	PWR-C1-715WAC ¹ C3KX-PWR-715WAC
1100 W AC	PWR-C1-1100WAC ¹ C3KX-PWR-1100WAC
440 W DC	PWR-C1-440WDC ¹ C3KX-PWR-440WDC

1. These power supplies have an extended tab at the connector end that is designed to protect the system and the power supply from damage if the power supply is installed incorrectly. Otherwise, these power supplies are functionally compatible with the C3KX-PWR power supplies.

The switch has two internal power supply module slots. You can use two AC modules, two DC modules, a mixed configuration of one AC and one DC power supply module, or one power supply module and a blank module.

The switch can operate with either one or two active power supply modules or with power supplied by an XPS 2200. A Catalyst 3750-X switch that is in a StackPower stack can operate with power supplied by other switches in the stack.

[Table 1-1](#) and [Table 1-2](#) show the power supply modules that ship with each switch model. All power supply modules (except the blank modules) have internal fans. All switches ship with a blank power supply module in the second power supply slot.

**Caution**

Do not operate the switch with one power supply module slot empty. For proper chassis cooling, both power supply module slots must be populated or with either a power supply or a blank module.

The 350-W and 715-W AC power supply modules are autoranging units that support input voltages between 100 and 240 VAC. The 1100-W power supply module is an autoranging unit that supports input voltages between 115 and 240 VAC. The 440-W DC power supply module has dual input feeds (A and B) and supports input voltages between 36 and 72 VDC. The output voltage range is 51–57 V.

Each AC power supply module has a power cord for connection to an AC power outlet. The 1100-W and 715-W modules use a 16-AWG cord (only North America). All other modules use an 18-AWG cord. The DC-power supply module must be wired to a DC-power source.

The XPS 2200 powers connected switches when the power supply is removed or fails. When a new switch power supply is installed, the switch software polls the device. The switch power supply again provides power, and the XPS 2200 is available to power other devices.

[Table 1-16](#) and [Table 1-17](#) show the power supply modules available for Catalyst 3750-X and 3560-X switches and power supply configurations based on switch models.

Table 1-16 Available PoE with AC Power Supply

Switch Models	Default Power Supply	Available PoE Power
12- and 24-port data (SFP)	PWR-C1-350WAC C3KX-PWR-350WAC	—
24-port data		
48-port data		
24-port PoE+	PWR-C1-715WAC C3KX-PWR-715WAC	495
48-port PoE+		462
48-port full PoE+	PWR-C1-1100WAC ¹ C3KX-PWR-1100WAC ¹	847
24-port UPOE		870
48-port UPOE		840

1. **Japan only:** To satisfy regulatory requirements, you must use the CAB-3KX-250VAC-JP power cord with the 1100-W power supply module.

Table 1-17 Available PoE with DC Power Supply

Switch Models	Power Supply	Available PoE Power
24-port PoE+	1	220 W
	2	660 W
48-port PoE+	1	187 W
	2	627 W
24-port UPOE	1	210 W
	2	650 W
48-port UPOE	1	180 W
	2	620 W

Table 1-18 Switch Power Supply Requirements for PoE, PoE+, and UPOE

PoE Option	24-Port Switch	48-Port Switch
PoE (up to 15.4 W per port)	(1) 715-W power supply (2) 440-W DC power supplies	(1) 1100-W power supply
PoE+ (up to 30 W per port)	(1) 1100-W power supply	(1) 1100-W power supply plus (1) 715-W power supply or (2) 1100-W power supplies
UPOE (up to 60 W per port)	(1) 1100-W power supply plus (1) 715-W power supply or (2) 1100-W power supplies	(2) 1100-W power supplies (maximum of 30 ports)

**Note**

A 48-port switch with one 715-W power supply provides up to 8.7 W of PoE to all ports.

The power supply modules have two status LEDs.

Table 1-19 Switch Power Supply Module LEDs

AC-Power Supply Module LEDs			
AC OK	Description	PS OK	Description
Off	No AC input power.	Off	Output is disabled, or input is outside operating range (AC LED is off).
Green	AC input power present.	Green	Power output to switch active.
		Red	Output has failed.
DC-Power Supply Module LEDs			
DC OK	Description	PS OK	Description
Off	No DC input power.	Off	Output is disabled, or input is outside operating range (DC LED is off).
Green	DC input power present.	Green	Power output to switch active.
		Red	Output has failed.

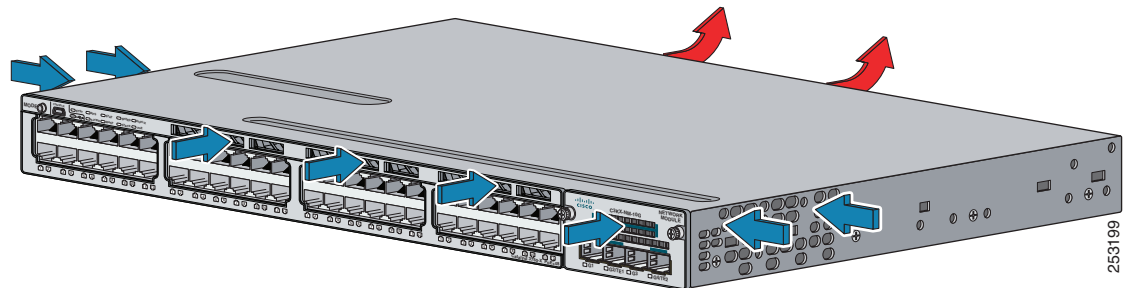
For information about replacing a power supply module, wiring a DC power supply module, and module specifications, see [Chapter 3, “Power Supply and Fan Module Installation,”](#) and [Appendix A, “Technical Specifications.”](#)

Fan Modules

The switch has two internal hot-swappable 12-V fan modules, each with two fans. The air circulation system consists of the fan modules and the power supply modules. The airflow patterns vary depending on the power supply configuration.

Figure 1-9 shows the airflow patterns for the 12-, 24-, and 48-port switches. The blue arrow shows cool air flow, and the red arrow shows warm air flow. When the fan modules are operating properly, a green LED is on at the top left corner of the fan assembly (viewed from the rear). If the fan fails, the LED turns to amber.

Figure 1-9 24- and 48-Port Switch Airflow Patterns



For information about installing a fan module and the module specifications, see [Chapter 3, “Power Supply and Fan Module Installation,”](#) and [Appendix A, “Technical Specifications.”](#)

XPS Connector



Warning

Attach only the following Cisco external power system to the switch: XPS 2200. Statement 387

The Cisco XPS 2200 is an expandable power system that can support nine network switches and provides power to one or two failed switches at a time. It senses when the power supply of a connected switch fails and provides power to the failed switch.

Use the XPS 2200 only with approved Cisco XPS cables. You can order these XPS cables for connecting your switch to the XPS 2200 from your Cisco sales representative:

- CAB-XPS-58CM (0.58-meter cable)
- CAB-XPS-150CM (1.5-meter cable)

The Cisco XPS 2200 has a nominal output level of –56 V. The total maximum output power depends on the installed power supply modules.

The nine ports on the XPS 2200 provide the power and management signals to the Catalyst 3750-X and 3560-X switches. Other switch models do not support this management communication. The XPS 2200 communicates with each switch through the 12-pin cable. All connected switches can simultaneously communicate with the XPS 2200. You can configure these XPS 2200 features through the switch software:

- Enable XPS active or standby mode for each connected switch
- Configure switch priority for XPS support
- List the connected switches and power supply module sizes

- Report when a switch is powered by the XPS
- Report the XPS power supply module status
- Read and monitor backup, failure, and exception history

For information about the XPS 2200, see the *Cisco eXpandable Power System 2200 Hardware Installation Guide* on Cisco.com:

http://www.cisco.com/go/xps2200_hw

See the switch software configuration guide on Cisco.com:

http://www.cisco.com/en/US/products/ps10745/products_installation_and_configuration_guides_list.html

StackPower Connector (Catalyst 3750-X Switches)

The Catalyst 3750-X switches have a StackPower connector for use with Cisco StackPower cables to configure a switch power stack that includes up to four switches. By adding an XPS 2200 expandable power system, you can configure a power stack that comprises up to nine switches. A switch power stack can be configured in redundant or power-sharing mode.

You can order these StackPower cables from your Cisco sales representative:

- CAB-SPWR-30CM (0.3-meter cable)
- CAB-SPWR-150CM (1.5-meter cable)

For details about connecting StackPower cables and StackPower guidelines, see the “[Planning a StackPower Stack \(Catalyst 3750-X Switches\)](#)” section on page 2-9.

Management Ports

Ethernet Management Port

You can connect the switch to a host such as a Windows workstation or a terminal server through the 10/100 Ethernet management port or one of the console ports (see [Figure 1-6](#) and [Figure 1-7](#)). The 10/100 Ethernet management port connection uses a RJ-45 crossover or straight-through cable. The RJ-45 console port connection uses the supplied RJ-45-to-DB-9 female cable. The USB console port uses a USB type-A-to-USB 5-pin mini-Type B cable.

[Table 1-20](#) shows the Ethernet management port LED colors and their meanings.

Table 1-20 RJ-45 Console Port LED

Color	Description
Green	Active link to PC
Off	Inactive link
Amber	POST failure

USB Mini-Type B Port

The switch provides a USB mini-Type B console connection on the front panel, and the RJ-45 console port on the switch rear panel. Console output is always active on both connectors, but console input is active on only one connector at a time, with the USB connector taking precedence over the RJ-45 connector.

Use a USB type-A-to-USB 5-pin mini-Type B cable to connect a PC or other device to the switch. The required USB cable is included in the optional accessory kit, (part number 800-33434).

The connected device must include a terminal emulation application.

Windows PCs need a driver for the USB port. See the “[Installing the Cisco Microsoft Windows USB Device Driver](#)” section on page C-3 for installation instructions.

When the switch detects a valid USB connection to a powered device, input from the Ethernet connection is immediately disabled, and input from the USB console is enabled. Removing the USB connection immediately reenables input from the Ethernet connection. An LED on the switch front panel (see Figure 1-3) is green when the USB console connection is enabled.

The switch provides a configurable inactivity timeout that reactivates the RJ-45 console if no input activity has occurred on the USB console for a specified time period. After the USB console has been deactivated due to a timeout, you can restore its operation by disconnecting and reconnecting the USB cable. You can disable USB console operation by using Cisco IOS commands. See the switch software configuration guide for details.

Management Options

- Cisco Network Assistant

Cisco Network Assistant is a PC-based network management GUI application for LANs. You can use the GUI to configure and manage switch clusters or standalone switches. Cisco Network Assistant is available at no cost and can be downloaded from this URL:

<http://www.cisco.com/cisco/software/navigator.html?mdfid=279230132&i=rp>

For information on starting the Network Assistant application, see the *Getting Started with Cisco Network Assistant* guide on Cisco.com.

- Device manager

You can use the device manager in the switch memory to manage individual and standalone switches. This web browser interface offers quick configuration and monitoring from anywhere in your network. For information, see the switch getting started guide and the device manager online help.

- Cisco IOS CLI

You can configure and monitor the switch and switch cluster members from the CLI. You can access the CLI by connecting your management station directly to the switch console port or by using Telnet from a remote management station. See the switch command reference on Cisco.com for more information.

- CiscoWorks application

The CiscoWorks LAN Management Solution (LMS) is a suite of management tools that simplify the configuration, administration, monitoring, and troubleshooting of Cisco networks. See the LMS documentation for more information.

- SNMP network management

You can manage switches from a Simple Network Management Protocol (SNMP)-compatible management station that is running platforms such as HP OpenView or SunNet Manager. The switch supports a comprehensive set of Management Information Base (MIB) extensions and four Remote Monitoring (RMON) groups. See the switch software configuration guide on Cisco.com and the documentation that came with your SNMP application for more information.

Network Configurations

See the switch software configuration guide on Cisco.com for network configuration concepts and examples of using the switch to create dedicated network segments and interconnecting the segments through Gigabit Ethernet connections.