Product Overview

The Catalyst 3560-CX and 2960-CX 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.

You can deploy these switches outside of the traditional wiring closet environment, such as in office workspaces, hotel rooms, slot machines, kiosks, and classrooms. The switch is suitable for deployments where there are space and power constraints (access to power outlets).

See the switch software configuration guide for deployment examples.

This chapter contains these topics:

Switch Models

Table 1: Catalyst 3560-CX and 2960-CX Switch Models and Descriptions

Switch Model	Software Image	Description
WS-3560CX-8PC-S	IP Base	8 10/100/1000 Power over Ethernet plus (PoE+) ports (PoE budget of 240 W); 2 Gigabit Ethernet and 2 small form-factor pluggable (SFP)[1] module uplink slots.
WS-3560CX-8TC-S	IP Base	8 10/100/1000 Ethernet ports; 2 Gigabit Ethernet and 2 small form-factor pluggable (SFP) module uplink slots.
WS-3560CX-12PC-S	IP Base	12 10/100/1000 PoE+ ports (PoE budget of 240 W); 2 Gigabit Ethernet and 2 SFP module uplink slots.

Switch Model	Software Image	Description
WS-3560CX-12TC-S	IP Base	12 10/100/1000 Ethernet ports; 2 Gigabit Ethernet and 2 SFP module uplink slots.
WS-3560CX-12PD-S	IP Base	12 10/100/1000 PoE+ ports (PoE budget of 240 W); 2 Gigabit Ethernet and 2 SFP+ [2] module uplink slots.
WS-3560CX-8PT-S	IP Base	8 10/100/1000 PoE+ ports (PoE budget of 146W); 2 Gigabit Ethernet uplink ports.
WS-3560CX-8XPD-S	IP Base	2 Multigigabit [3]100/1000/2500/5000/10000 PoE+ ports; 6 10/100/1000 PoE+ ports (PoE budget of 240 W); 2 SFP+ module uplink slots.
WS-C3560CPX-8PT-S	IP Base	8 Gigabit Ethernet PoE+ ports; and 2 SFP module uplink slots.
WS-C3560CX-8PD-S	IP Base	6 Gigabit Ethernet ports; 2 multi-Gigabit Ethernet PoE+ ports; and 2 SFP+ uplink slots.
WS-2960CX-8PC-L	LAN Base	8 10/100/1000 PoE+ ports (PoE budget of 124 W); 2 Gigabit Ethernet and 2 SFP module uplink slots.
WS-2960CX-8TC-L	LAN Base	8 10/100/1000 Ethernet ports; 2 Gigabit Ethernet and 2 SFP module uplink slots.

1 SFP = Gigabit uplink.
2 SFP+ = 10-Gigabit uplink.
3 Multigigabit ports support speeds of 100 Mbps, 1 Gbps, 2.5 Gbps, and 5 Gbps on Category 5e cable and up to 10 Gbps over Category 6a cabling

Note IP Base switches can be upgraded to IP Services with the RTU (right to use) software license.

Front Panel

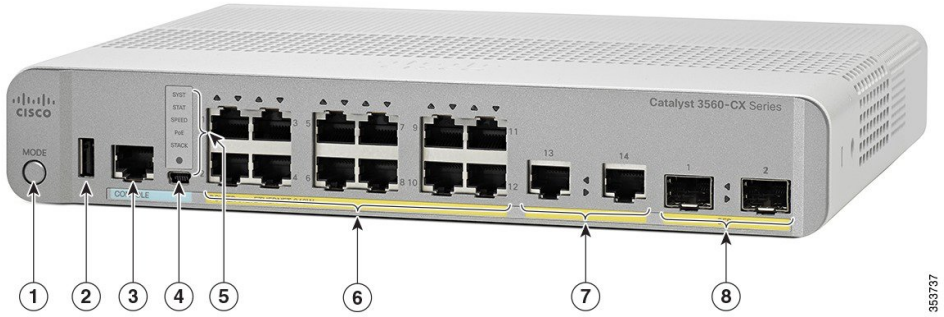
- 8 or 12 downlink Ethernet ports of one of these types:
  - 10/100/1000
  - 10/100/1000 PoE+

Note The Catalyst 3560CX-8XPD-S has 6 PoE+ ports and 2 Multigigabit PoE+ ports.

- Two 10/100/1000 uplink ports and two SFP or SFP+ module ports depending on the switch model.

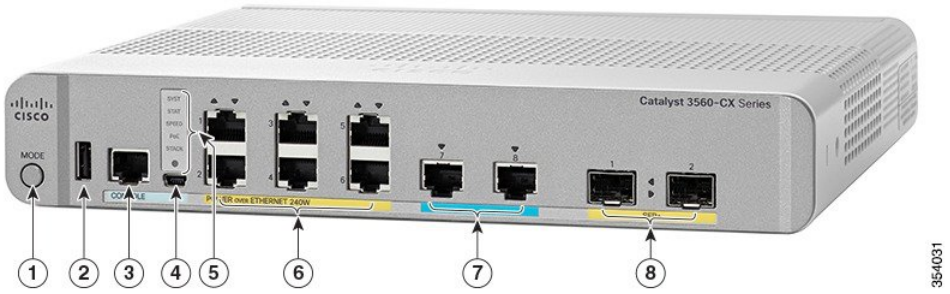
- RJ-45 console port
- USB mini-Type B (console) port
- USB Type A port
- LEDs

Figure 1: Catalyst 3560CX Front Panel View



1	Mode button	5	System LEDs
2	USB Type A port	6	10/100/1000 PoE+ ports
3	RJ-45 console port	7	10/100/1000 uplink ports
4	USB mini-Type B (console) port	8	SFP module slots

Figure 2: Catalyst 3560CX-8XPD-S Front Panel View



1	Mode button	5	System LEDs
2	USB Type A port	6	10/100/1000 PoE+ ports
3	RJ-45 console port	7	Multigigabit PoE+ ports

4	USB mini-Type B (console) port	8	SFP module slots

Note PoE+ ports 1 to 6 are Gigabit Ethernet 1/0/1 to 1/0/6. The remaining ports are 10-Gigabit Ethernet 1/0/1 and 1/0/2. However, depending on the SFP type, the rightmost ports will either be 10-Gigabit Ethernet 1/0/3 and10-Gigabit Ethernet 1/0/4 or Gigabit Ethernet 1/0/7 and Gigabit Ethernet 1/0/8.

PoE and PoE+ Ports

The ports provide PoE+ support for devices compliant with IEEE 802.3af, IEEE 802.3at, and ePoE and also provide Cisco prestandard PoE support for Cisco IP Phones and Cisco Aironet Access Points.

The maximum switch power output is either 124 W or 240 W, depending on the switch mode. Intelligent power management allows flexible power allocation across all ports.

For switches with a 124 W power budget, you can budget the PoE and PoE+:

- 15.4 W of PoE output on 8 ports
- 30 W of PoE+ output on 4 ports

For switches with a 240 W power budget, you can budget the PoE and PoE+:

- 15.4 W of PoE output on 12 ports
- 30 W of PoE+ output on 8 ports

On a per-port basis, you control whether or not a port automatically provides power when an IP phone or an access point is connected.

The PoE ports use RJ-45 connectors with Ethernet pinouts. The maximum cable length is 328 feet (100 meters). The 10BASE-T, 100BASE-TX, 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.

Cisco intelligent power management capabilities include enhanced power negotiation, power reservation, and per-port power policing. For information about configuring and monitoring PoE ports, see the switch software configuration guide on Cisco.com.

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

10/100/1000 Ports

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

Multigigabit ports

The Multigigabit ports can be configured to auto-negotiate multiple speeds on switch ports, and support 100 Mbps, 1 Gbps, 2.5 Gbps, and 5 Gbps speeds on Category5e cables, and up to 10 Gbps over Category6 and Category 6A cables.

The Multigigabit ports support PoE and PoE+ for all the supported speeds and cable types. The following table lists the cable types and speed.

Cable Type	100Mbps	1G	2.5G	5G	10G
Category5E	Yes	Yes	Yes	Yes	N/A
Category6	Yes	Yes	Yes	Yes	Yes (55meters)
Category6A	Yes	Yes	Yes	Yes	Yes

Management Ports

The management ports connect the switch to a PC running Microsoft Windows or to a terminal server.

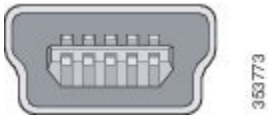
- RJ-45 console port (EIA/TIA-232). The RJ-45 console port connection uses an RJ-45-to-DB-9 female cable.
- USB mini-Type B console port (5-pin connector).

If you use the USB mini-Type B console port, the Cisco Windows USB device driver must be installed on any PC connected to the console port (for operation with Microsoft Windows). Mac OS X or Linux do not require special drivers.

The 4-pin mini-Type B connector resembles the 5-pin mini-Type B connectors. They are not compatible. Use only the 5-pin mini-Type B.

This illustration shows a 5-pin mini-Type B USB port.

Figure 3: USB Mini-Type B Port



With the Cisco Windows USB device driver, you can connect and disconnect the USB cable from the console port without affecting Windows HyperTerminal operations.

The console output always goes to both the RJ-45 and the USB console connectors, but the console input is active on only one of the console connectors at any one time. The USB console takes precedence over the RJ-45 console. When a cable is connected into the USB console port, the RJ-45 console port becomes inactive. Conversely, when the USB cable is disconnected from the USB console port, the RJ-45 port becomes active.

You can use the command-line interface (CLI) to configure an inactivity timeout which reactivates the RJ-45 console if the USB console has been activated and no input activity has occurred on the USB console for a specified time.

After the USB console deactivates due to inactivity, you cannot use the CLI to reactivate it. Disconnect and reconnect the USB cable to reactivate the USB console. For information on using the CLI to configure the USB console interface, see the software guide.

SFP and SFP+ Module Slots

The switch has either two 1-Gigabit SFP or 10-Gigabit SFP+ module slots. The slots marked *SFP+* support both SFP and SFP+ modules. The *SFP* slots support only the SFP modules.

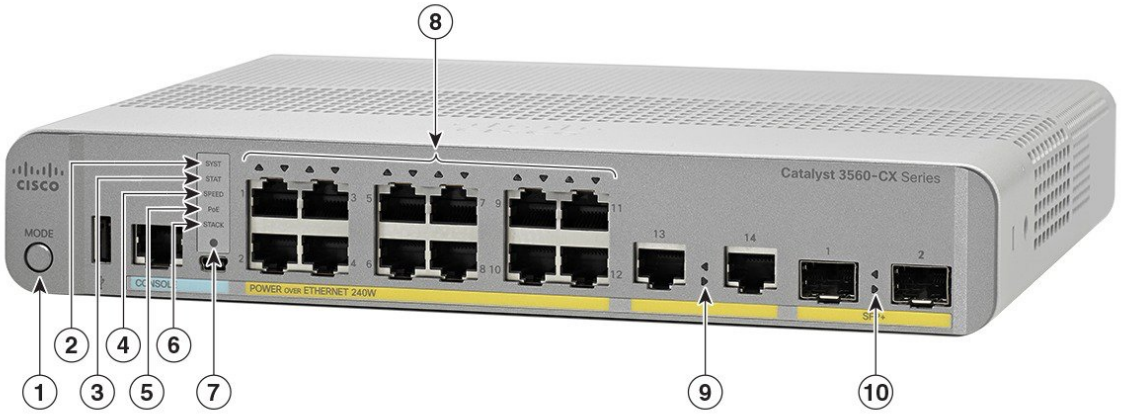
For Cisco SFP and SFP+ modules documentation, including compatibility matrixes, refer to this URL: http://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html

LEDs

You can use the switch system and port LEDs to monitor switch activity and performance.

This figure shows the switch LEDs and the Mode button that you use to select a port mode.

Figure 4: Switch LEDs and Mode Button



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1	Mode button	6	STACK LED [4]
2	SYST LED (system)	7	Console LED
3	STAT LED (status)	8	Port LEDs
4	SPEED LED	9	Uplink port LED (copper)

5	PoE LED [5]	10	Uplink port LED (SFP/SFP+)

4 Only on switch models that have stacking capability. Note that this release does not support switch stacking.
5 Only on switch models that support PoE.

System LED

Color	System Status
Off	System is not powered on.
Green	System is operating normally.
Amber	System is receiving power but is not operating properly.

Color	System Status
Off	System is not powered on.
Green	System is operating normally.
Amber	System is receiving power but is not operating properly.
Blinking Green	POST is in progress.

Modes for Port LEDs

The port LEDs, as a group or individually, display information about the switch and about the individual ports.

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.
PoE	PoE port power	The PoE status.

PoE LED

Even if the PoE mode is not selected, the LED shows PoE problems when they are detected. The PoE LED is only on the switches that support PoE.

Color	Description
Off	PoE is not enabled.
Green	PoE is enabled. Ports are functioning correctly.
Blinking amber	• PoE mode is not selected • At least one of the 10/100 or 10/100/100 PoE ports has been denied power • At least one of the ports has a PoE fault

Console LEDs

The console LEDs show which console port is in use.

If you connect a cable to a console port, the switch automatically uses that port for console communication. If you connect two console cables, the USB-mini console port has priority.

LED	Color	Description
RJ-45 console port	Green	RJ-45 console port is active. USB-mini console port LED is not active.
	Off	Port is not active. USB-mini console port is active.
USB-mini console port	Green	USB-mini console port is active. RJ-45 console port LED is not active.
	Off	Port is not active. RJ-45 console port is active.

Port LEDs

RJ-45 ports and SFP-module slots have port LEDs. These LEDs, as a group or individually, provide information about the switch and about the individual ports.

LED Color	Description
Off	No link or port was administratively shut down.
Green	Link present but is not sending or receiving data.
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 link faults.
Amber	Port is blocked by Spanning Tree Protocol (STP) and is not forwarding data. After a port is reconfigured, the port LED is amber for up to 30 seconds as STP searches for loops.

Rear Panel

- A security slot
- An AC power connector or a power adapter connector (on Catalyst 3560CX-8PT-S only)
- A loop (for the optional power cord retainer)

- Heat sink fins (PoE models only)

Figure 5: Rear Panel of a Non-PoE Switch

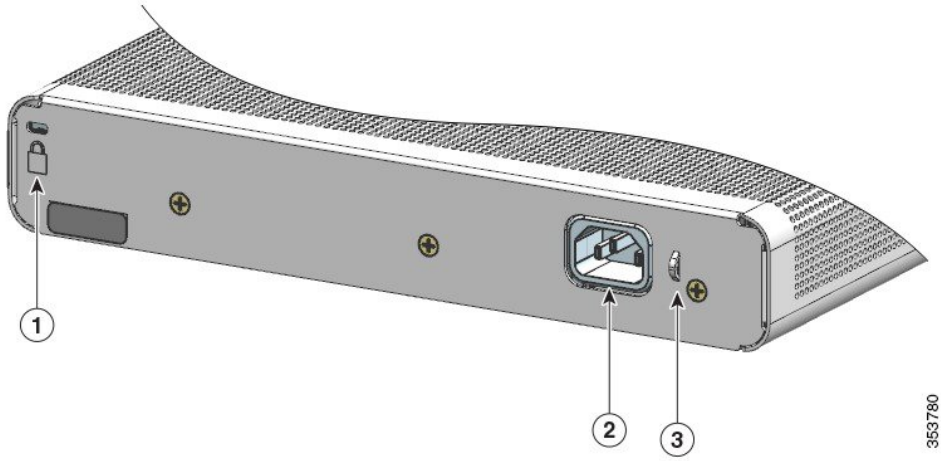
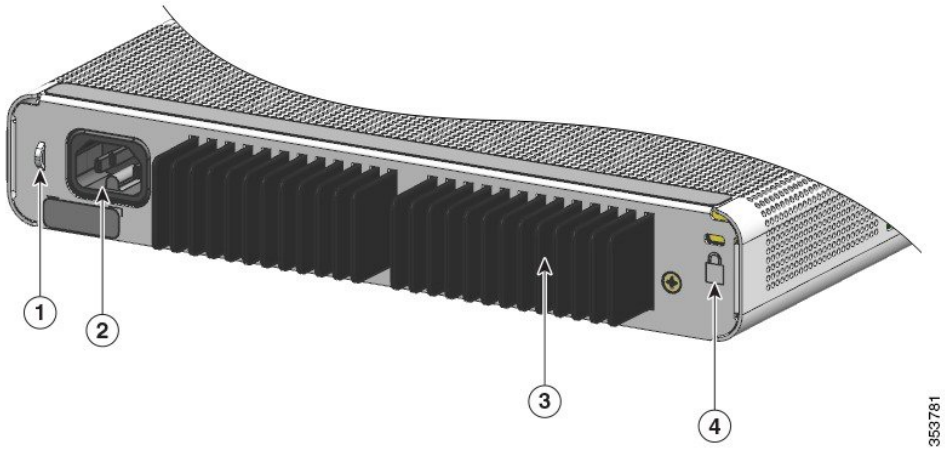


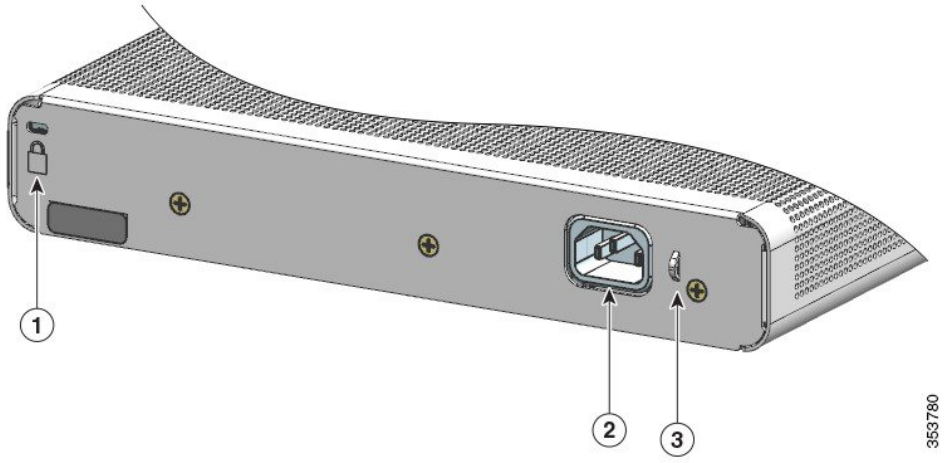
Figure 6: Rear Panel of a PoE Switch



- A security slot
- An AC power connector
- A loop (for the optional power cord retainer)

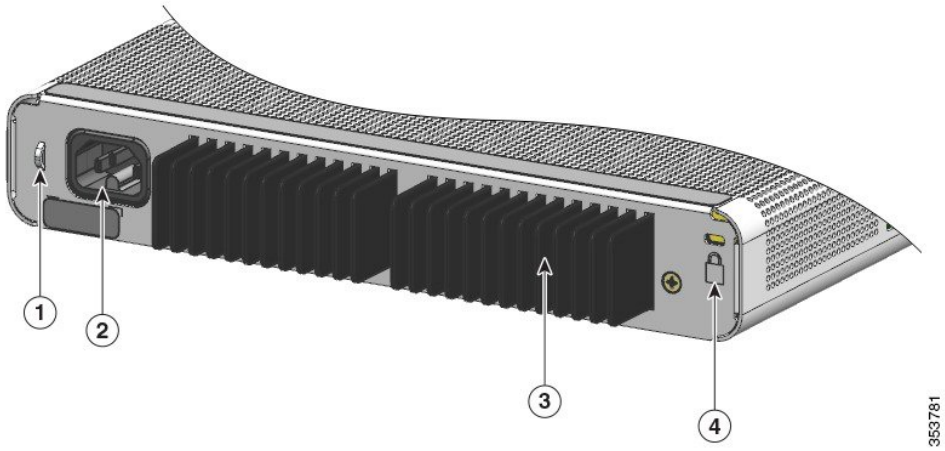
- Heat sink fins (PoE models only)

Figure 7: Rear Panel of a Non-PoE Switch



1	Security Slot	3	A loop (for the optional power cord retainer)
2	An AC power connector		

Figure 8: Rear Panel of a PoE Switch



1	Security Slot	3	A loop (for the optional power cord retainer)
2	An AC power connector	4	Heat sink fins

Internal Power Supply

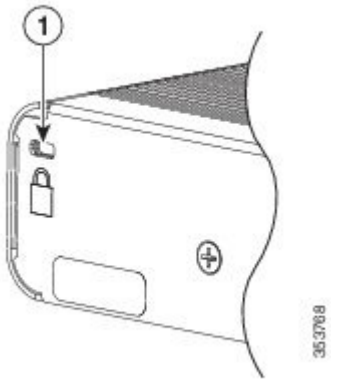
All the switches except Catalyst 3560CX-8PT-S are powered through their internal power supplies. The internal power supply is an autoranging unit that supports input voltages between 100 and 240 VAC. Plug the AC power cord into the AC power connector and into an AC power outlet.

All the switches are powered through their internal power supplies. The internal power supply is an autoranging unit that supports input voltages between 100 and 240 VAC (max of 90V to 264V). The AC frequency range of the power supply is 50Hz~60Hz. Plug the AC power cord into the AC power connector and into an AC power outlet.

Security Slot

The switches have security slots on the rear panel. You can install an optional cable lock, such as the type that is used to secure a laptop computer, to secure the switch.

Figure 9: Switch Rear Panel



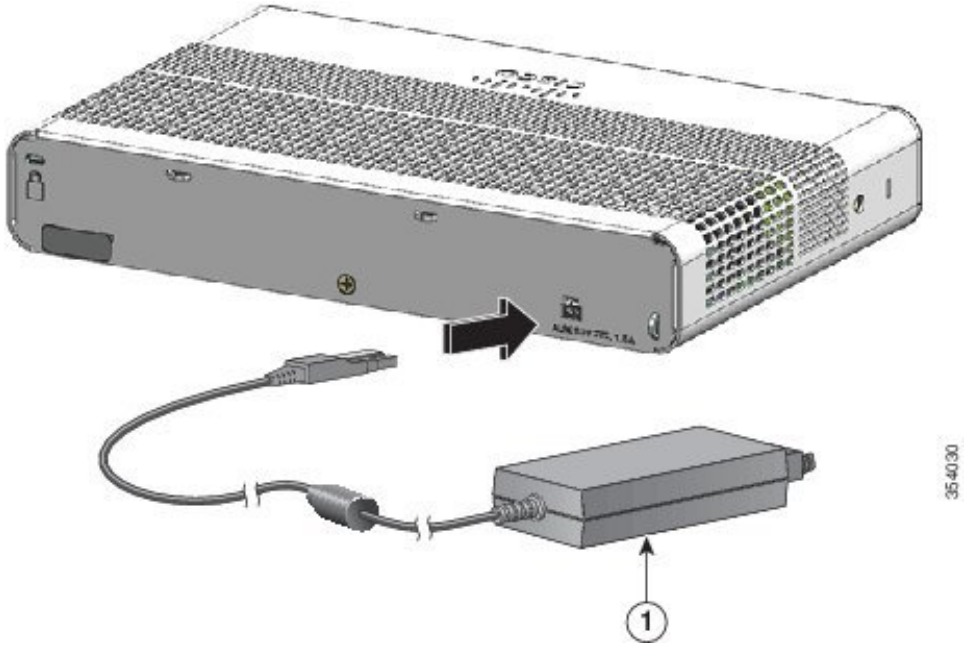
Note For PoE models, the security slot is on the right side of the rear panel.

Auxiliary Power Adapter

Catalyst 3560CX-8PT-S switches can be powered either through the 10/100/1000 uplink ports receiving power from a PoE, PoE+ or UPOE switch or through an auxiliary AC-DC or DC-DC power adapter. You can order

either the AC-DC power adapter (PWR-ADPT) or the DC-DC power adapter (PWR-ADPT-DC) with the switch, or you can order it later from your Cisco representative.

Figure 10: Connecting Through an External Auxiliary Power Adapter



1	Power adapter

Management Options

- Cisco Network Assistant

  Cisco Network Assistant is a PC-based network management GUI application for LANs of small and medium-sized businesses. 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/en/US/products/ps5931/index.html

  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 Device Manager in the switch memory to manage individual and standalone switches. This web interface provides 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. Access the CLI by connecting your management station to the switch console port or by using Telnet from a remote management station. See the switch command reference on Cisco.com for information.

- Cisco Prime Infrastructure

  Cisco Prime Infrastructure combines the wireless functionality of Cisco Prime Network Control System (NCS) and the wired functionality of Cisco Prime LAN Management Solution (LMS), with application performance monitoring and troubleshooting capabilities of Cisco Prime Assurance Manager. For more information, see the Cisco Prime Infrastructure documentation on Cisco.com.

- Catalyst Smart Operations

  The Smart Install feature provides a single point of management (director) in a network. You can use it to provide a zero touch image and configuration upgrade of newly deployed switches and image and configuration downloads for any client switches. For information, see the *Cisco Smart Install Configuration Guide* on Cisco.com.

  Auto Smartports macros dynamically configure ports based on the device type detected on the port. When the switch detects a new device, it applies the appropriate Auto Smartports macro on the port. For information about configuring Auto Smartports, see the switch software configuration guide on Cisco.com.

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 Fast Ethernet and Gigabit Ethernet connections.