Product Overview

The Cisco Catalyst 2960-L Series switches are fixed-configuration, Gigabit Ethernet switches that provide entry-level enterprise-class Layer 2 access for branch offices, conventional workspace, and out-of-wiring closet applications.

Cisco Catalyst 2960-L Series switches provide support for the following features:

- 8 or 16 Gigabit Ethernet ports with line-rate forwarding performance

- Two Gigabit Small Form-Factor Pluggable (SFP) uplinks

- Power over Ethernet Plus (PoE+) support with up to 120W of PoE budget and Persistent PoE

- Fanless operation with operational temperature up to 45°C for deployment outside the wiring closet

- Reduced power consumption and advanced energy management

- RJ-45 and USB Mini-Type B console ports

- USB Type A port supports file system

Switch Models

Table 1: Cisco Catalyst 2960-L 8-Port and 16-Port Switch Models and Description

Switch Model	Software Image	Description
WS-C2960L-8TS-LL	Lan Lite	8 10/100/1000 Ethernet ports; 2 1-Gigabit small form-factor pluggable (SFP) module uplink slots.
WS-C2960L-8PS-LL	Lan Lite	8 10/100/1000 Power over Ethernet plus (PoE+) ports (PoE budget of 67W); 2 1-Gigabit small form-factor pluggable (SFP) module uplink slots.

Switch Model	Software Image	Description
WS-C2960L-16TS-LL	Lan Lite	16 10/100/1000 Ethernet ports; 2 1-Gigabit small form-factor pluggable (SFP) module uplink slots.
WS-C2960L-16PS-LL	Lan Lite	16 10/100/1000 Power over Ethernet plus (PoE+) ports (PoE budget of 120W); 2 1-Gigabit small form-factor pluggable (SFP) module uplink slots.

Front Panel

This section describes the front panel components of a 8-port and 16-port Cisco Catalyst 2960-L switch.

- 8 or 16 downlink Ethernet ports of one of these types:

    - 10/100/1000

    - 10/100/1000 PoE+

- 2 SFP module ports

- RJ-45 console port

- USB mini-Type B (console) port

- USB Type A port

- LEDs

Figure 1: Front Panel of an 8-Port Cisco Catalyst 2960-L PoE Switch

Note The yellow color marking around the ports indicates that the switch is a PoE switch.

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

Figure 2: Front Panel of a 16-Port Cisco Catalyst 2960-L PoE Switch

1	Mode button	5	System LEDs

2	USB Type A port	6	16 10/100/1000 PoE+ ports
3	RJ-45 Console Port	7	SFP module slots
4	USB mini-Type B (console) port		

PoE Ports

The ports provide PoE support for devices compliant with IEEE 802.3af and IEEE 802.3at and also provide PoE support for Cisco IP Phones and Cisco Aironet Access Points. The PoE switch ports are Power Source equipment (PSE) and Power Device (PD) capable and source power to PD devices connected to the downlink ports. A switch can source POE power of up to 30.8W per port.

Depending on the switch model and the number of PoE ports, the maximum switch power output varies between 91.66 W to 150.11 W. On a per-port basis, you can 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 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.

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.

Console Ports

The console 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 Module Slots

The switch has two 1G SFP module slots. The SFP modules provide copper or fiber-optic connections to other devices. These transceiver modules are field replaceable, and provide 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. The SFP slots support only SFP modules.

For Cisco 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.

Figure 4: Switch LEDs

1	SYST LED (system)	
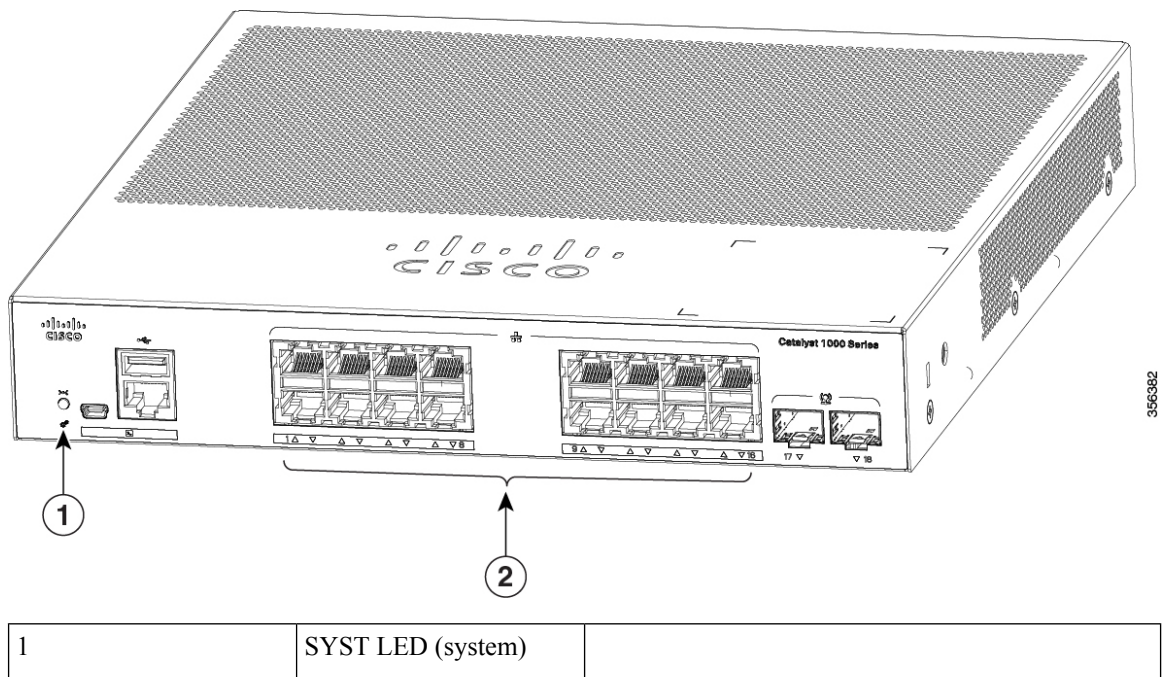
2	Port LEDs	

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.
Blinking Green	POST is in progress.

Port LEDs and Modes

The port and module slots each has a port LED. As a group or individually, the LEDs display information about the switch and about the individual ports.

Table 2: Port Mode LEDs

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.

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 3: Meanings of LED Colors in Different Modes

LED	Port Mode	Color	Description
STAT	Port status	Off	No link or port is administratively shut down.
		Green	Link is present.
		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 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.
		Blinking amber	Port is blocked by STP and is not sending data.

LED	Port Mode	Color	Description
SPEED	Port speed	Off	Port is operating at 10 Mb/s.
		Green	Port is operating at 100 Mb/s.[1]
		Blinking green	Port is operating at 1000 Mb/s.
PoE	PoE port power	Off	PoE is off. If the powered device is receiving power from an AC power source, the PoE port LED is off even if the powered device is connected to the switch port.
		Green	PoE is on. The port LED is green only when the switch port is providing power.
		Alternating green amber	PoE is denied because providing power to the powered device will exceed the switch power capacity.
		Amber	PoE for the port is disabled. By default, PoE is enabled.
		Blinking Amber	PoE is off due to a fault.

[1] Applies only to RJ-45 ports.

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 mode is not selected.
Green	PoE mode is selected. 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
USB-mini console port	Green	USB-mini console port is 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. **Note** Currently this is not supported for SFP ports.
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. **Note** Currently this is not supported for SFP ports.
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. **Note** Currently this is not supported for SFP ports.

Rear Panel

- A security slot

- An AC power connector

- A loop (for the optional power cord retainer)
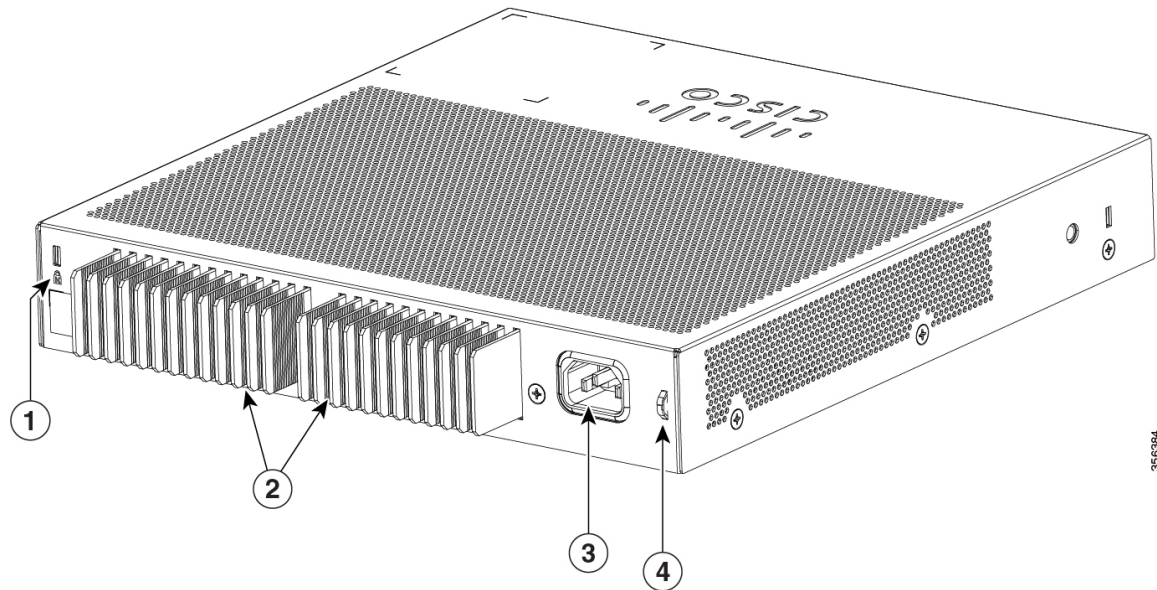
- Heat sink fins (PoE models only)

Figure 5: Rear Panel of a Non-PoE Switch
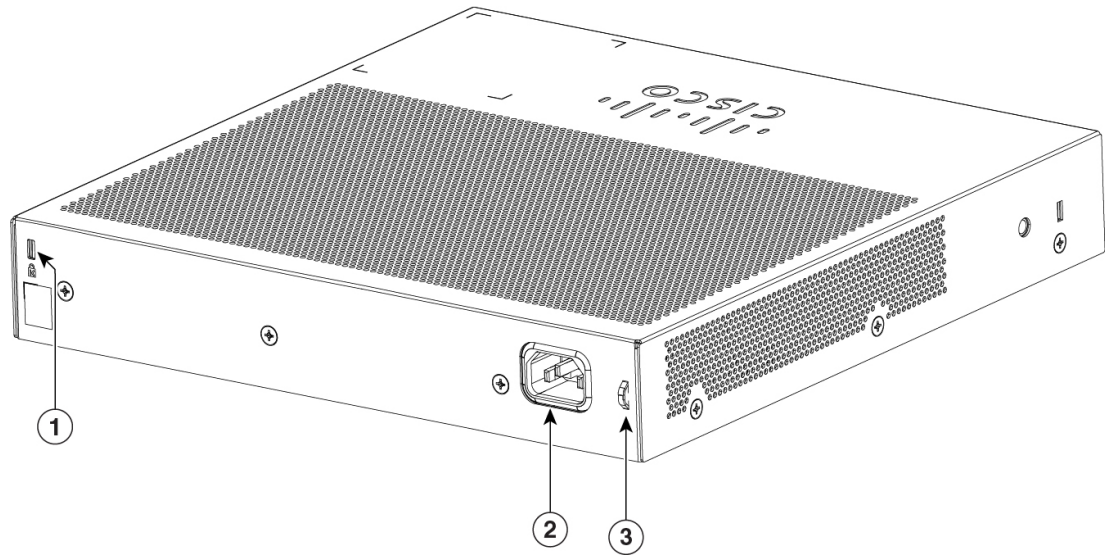
1	Security Slot	3	A loop (for the optional power cord retainer)
2	An AC power connector		

Figure 6: 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

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 7: Switch Rear Panel
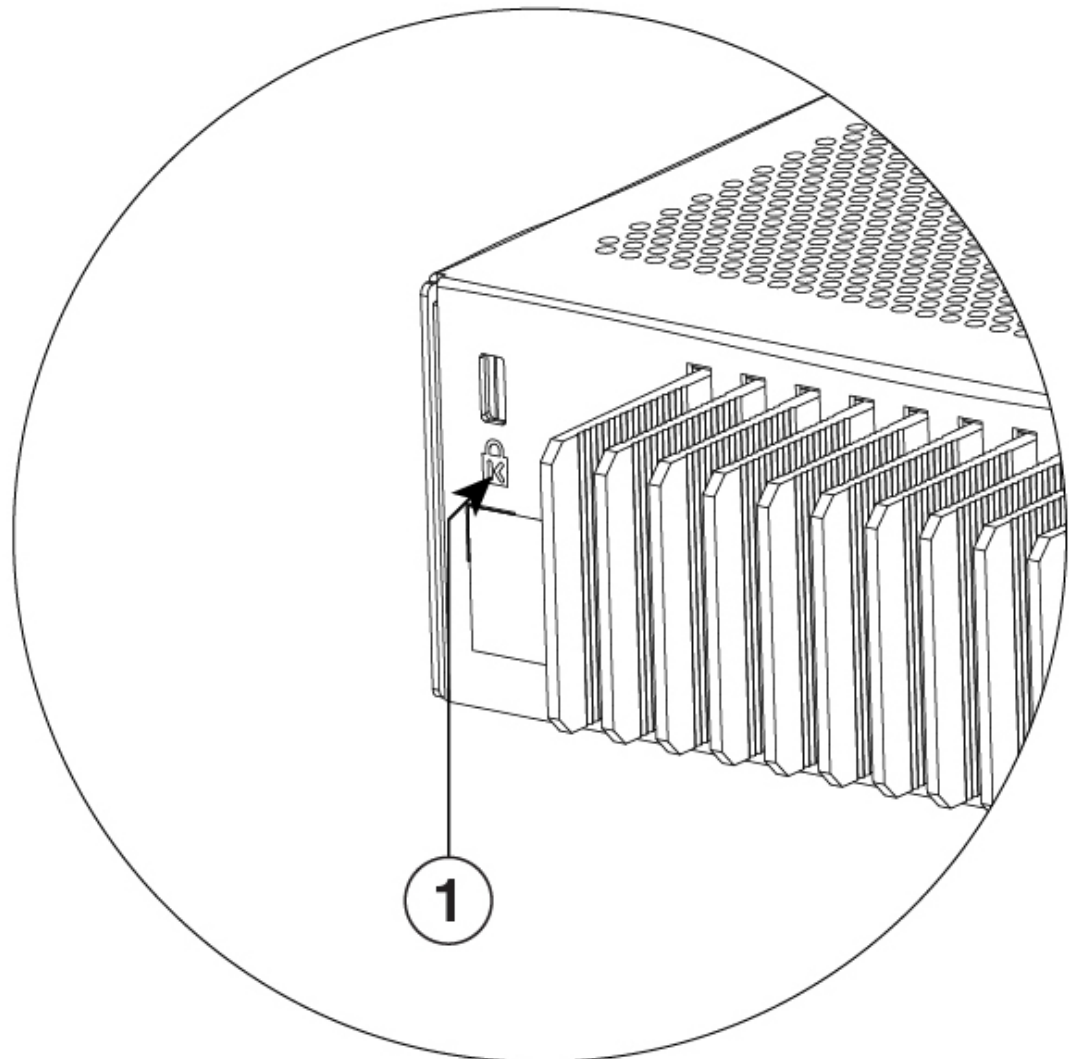
Network Configurations

See the switch software configuration guide 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.