



Power Supply and Fan Module Installation

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Power Supply Module Overview

The switch operates with either one or two active power supply modules or with power supplied by an expandable power supply, XPS 2200. A Catalyst 3750-X switch that is part of a StackPower stack operates with power supplied by other stack switches.

You can use two AC modules, two DC modules, one AC and one DC module, or one module and a blank cover.

All power supply modules have internal fans. All switches ship with a blank cover in the second power supply slot.

The XPS 2200 operates in two modes:

- In StackPower mode, it supplies power to the switches in the power stack (only Catalyst 3750-X switches with IP Base image).
- In expandable power supply mode, it supplies power to a switch when the switch power supply is removed or fails. When you install or replace a power supply module, the switch software polls the device. After polling, the power supply module provides power to the switch, and the XPS 2200 is available to power other devices.

[Table 3-1](#) describes the supported internal power supply modules.

Table 3-1 Power Supply Module Part Numbers and Descriptions

Part Number	Description
C3KX-PWR-1100WAC PWR-C1-1100WAC ¹	1100-W AC power supply module
C3KX-PWR-715WAC PWR-C1-715WAC ¹	715-W AC power supply module
C3KX-PWR-350WAC PWR-C1-350WAC ¹	350-W AC power supply module
C3KX-PWR-440WDC PWR-C1-440WDC ¹	440-W DC power supply module
C3KX-PS-BLANK	Blank cover

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.

For information on available PoE, see these tables:

- [Table 1-16](#) (available PoE with AC power supply)
- [Table 1-17](#) (available PoE with DC power supply)
- [Table 1-18](#) (switch power supply requirements for PoE, PoE+, and UPOE)

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 to 57 V.

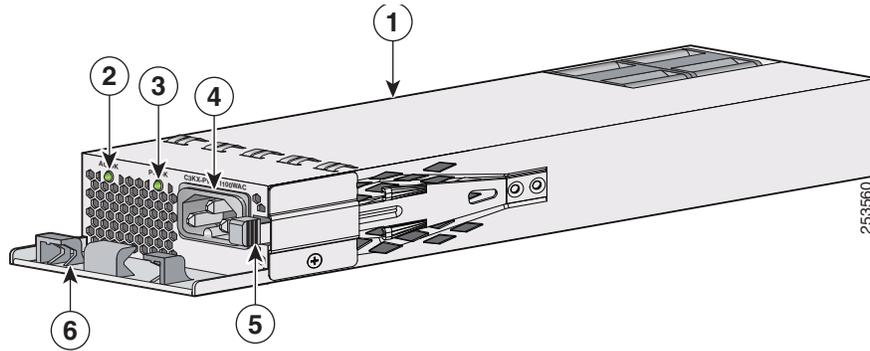
Each AC power supply module has a power cord for connection to an AC power outlet. The 1100-W and 715-W modules use a 16-AWG cord (only North America). All other modules use an 18-AWG cord. The DC power supply module must be wired to a DC power source.



Note Only the DC power module is NEBS-compliant.

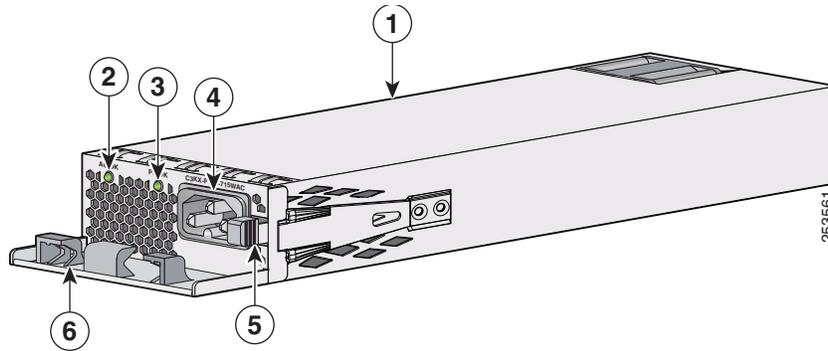
[Figure 3-1](#) to [Figure 3-4](#) show the power supply modules.

Figure 3-1 1100-W AC Power Supply



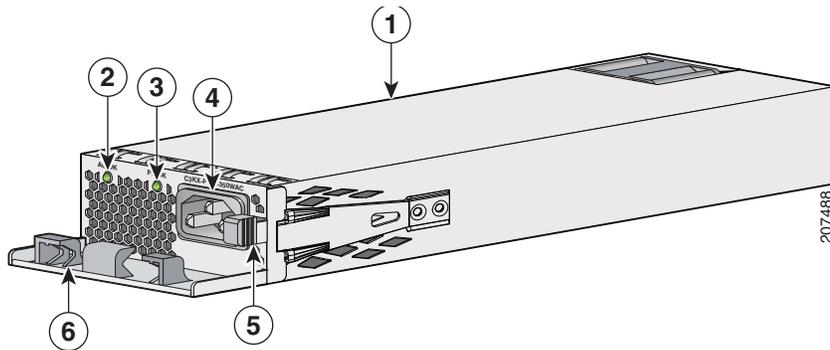
1	1100-W AC power supply module	4	AC power cord connector
2	AC OK LED	5	Release latch
3	PS OK LED	6	Power cord retainer

Figure 3-2 715-W AC Power Supply Module



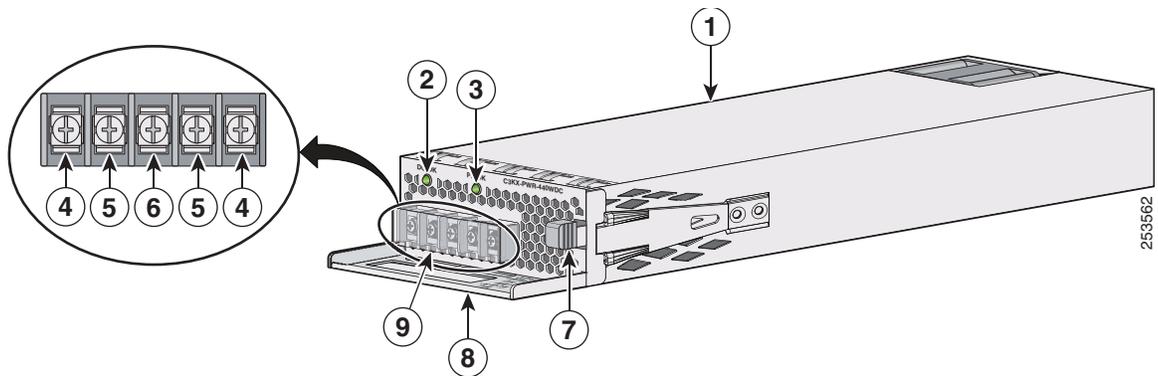
1	715-W AC power supply module	4	AC power cord connector
2	AC OK LED	5	Release latch
3	PS OK LED	6	Power cord retainer

Figure 3-3 350-W AC Power Supply Module



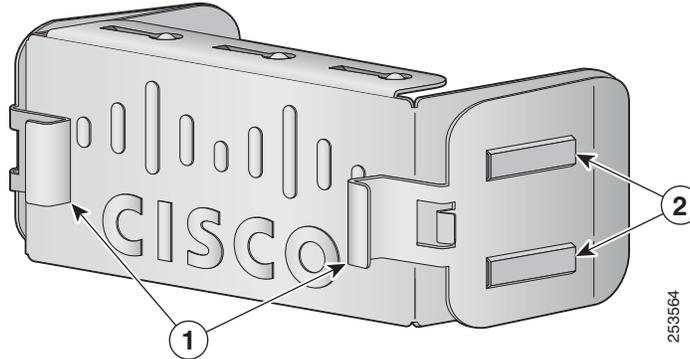
1	350-W AC power supply module	4	AC power cord connector
2	AC OK LED	5	Release latch
3	PS OK LED	6	Power cord retainer

Figure 3-4 440-W DC Power Supply Module



1	440-W DC power supply module	6	Grounding terminal
2	DC OK LED	7	Release latch
3	PS OK LED	8	Extraction handle
4	Input power terminals (positive polarity)	9	Terminal block safety cover
5	Input power terminals (negative polarity)		

If no power supply is installed in a power supply slot, install a power supply slot cover ([Figure 3-5](#)).

Figure 3-5 Power Supply Slot Cover

1	Release handles	2	Retainer clips
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The power supply modules have two status LEDs.

Table 3-2 Switch Power Supply Module LEDs

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

Installation Guidelines

Table 1-16 lists the switches and the compatible power-supply modules. Observe these guidelines when removing or installing a power supply or fan module:

- Do not force the power supply or fan module into the slot. This can damage the pins on the switch if they are not aligned with the module.
- A power supply or fan module that is only partially connected to the switch can disrupt the system operation.
- Remove power from the power-supply module before removing or installing the module.

- The power supply is hot-swappable. In some configurations, such as full PoE+ or power sharing mode, removing a power supply causes powered devices to shut down until the power budget matches the input power of a single power supply. To minimize network interruption, hot swap the power supply under these circumstances:
 - The switch is connected to an XPS 2200 and sufficient power is available.
 - The switch is in StackPower mode and sufficient power is available (Catalyst 3750-X only).
 - The switch is powered by other switches in a power stack, and no active backup is in progress.

For the switch commands for displaying the available power budget, see the *Catalyst 3750-X and 3560-X Software Configuration Guide*.

**Caution**

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

**Warning**

Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.

Statement 1029

- The switch supports hot swapping of a fan module. When replacing a fan, you should complete the replacement procedure within 5 minutes to avoid overheating the switch.
- The switch continues to operate when there is one failed chassis cooling fan. If one fan fails, the switch sends an error message. If a second fan fails, the switch sends an error message, writes a failure log to flash memory, and shuts down.
- Make sure that all power supply and fan modules are securely seated before moving the switch.

**Warning**

Do not reach into a vacant slot or chassis while you install or remove a module or a fan. Exposed circuitry could constitute an energy hazard. Statement 206

**Warning**

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

Statement 1030

**Warning**

If a Cisco external power system is not connected to the switch, install the provided connector cover on the back of the switch. Statement 386

Statement 371—Power Cable and AC Adapter

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Installing an AC Power Supply

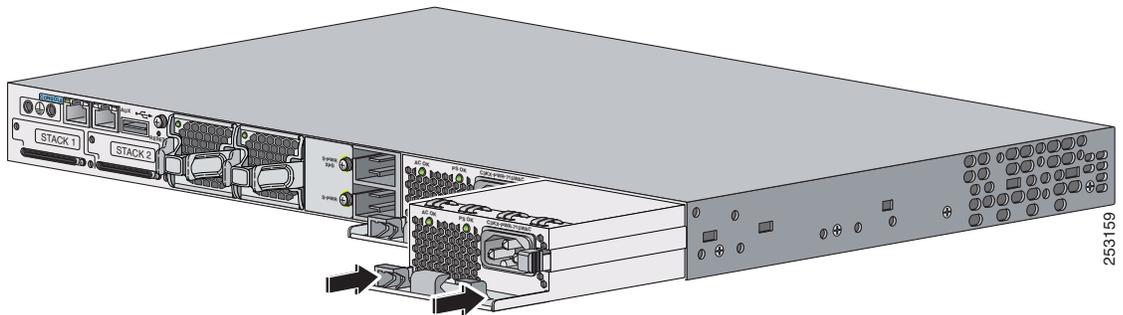
- Step 1** Turn off the power at its source.
- Step 2** Remove the power cord from the power cord retainer.
- Step 3** Remove the power cord from the power connector.
- Step 4** Press the release latch at the right side of the power supply module inward and slide the power supply out. (Figure 3-6).



Caution Do not leave the power-supply slot open for more than 90 seconds while the switch is operating.

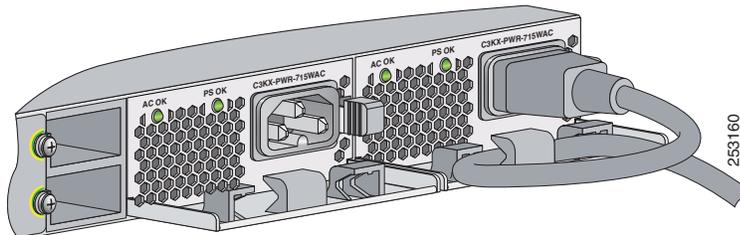
- Step 5** Insert the new power supply into the power-supply slot, and gently push it into the slot (Figure 3-6). When correctly inserted, the 350-W and 715-W power supplies (excluding the power cord retainer) are flush with the switch rear panel. The 1100-W power-supply module extends 1.5 inches from the switch rear panel.

Figure 3-6 Inserting the AC-Power Supply in the Switch



- Step 6** (Optional) Make a loop in the power cord and thread it through the power cord retainer (Figure 3-7).

Figure 3-7 AC-Power Supply with Power Cord Retainer



- Step 7** Connect the power cord to the power supply and to an AC power outlet. Turn on the power at the power source.
- Step 8** Confirm that the power supply *AC OK* and *PS OK* LEDs are green. See Table 1-19 for a description of the power supply module LEDs.

Installing a DC Power Supply

- [Equipment That You Need](#), page 3-8
- [Grounding the Switch](#), page 3-9
- [Installing the DC Power Supply in the Switch](#), page 3-11
- [Wiring the DC Input Power Source](#), page 3-11


Warning

An exposed wire lead from a DC-input power source can conduct harmful levels of electricity. Be sure that no exposed portion of the DC-input power source wire extends from the terminal block plug.

Statement 122


Warning

Before performing any of the following procedures, ensure that power is removed from the DC circuit.Statement 1003


Warning

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 20 A. Statement 1005


Warning

A readily accessible two-poled disconnect device must be incorporated in the fixed wiring.

Statement 1022


Warning

Hazardous voltage or energy may be present on power terminals. Always replace cover when terminals are not in service. Be sure uninsulated conductors are not accessible when cover is in place. Statement 1086


Note

The grounding architecture of this product is DC-isolated (DC-I)

Equipment That You Need

- Ratcheting torque screwdriver with a number-2 Phillips head that exerts up to 15 pound-force inches (lbf-in.) of pressure.
- Panduit crimping tool with optional controlled-cycle mechanism (model CT-720, CT-920, CT-920CH, CT-930, or CT-940CH).
- Wire-stripping tools.
- 12-gauge copper ground wire (insulated or not) for a single-ground connection.

- 8-gauge copper ground wire (insulated or not) for a dual-ground connection.
- Ground lug screw and ring lug connector. For a dual-ground connection, use a dual-ground adaptor and dual lug connector.
- Four leads of 14-gauge copper wire.
- Four fork-type terminals from the DC power supply accessory kit. The terminals must be the proper size for M3 screws in a Dinkle DT-35-B25-style terminal block.

Grounding the Switch

Follow the grounding procedures at your site and observe these warnings:



Warning

This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available. Statement 1024



Warning

When installing or replacing the unit, the ground connection must always be made first and disconnected last. Statement 1046



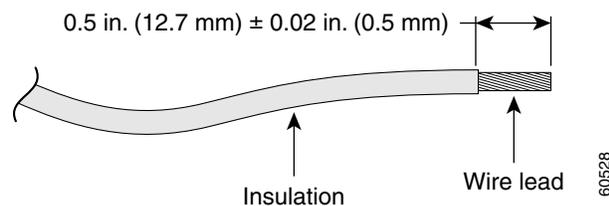
Caution

Follow the grounding procedure instructions, and use a UL-listed lug.

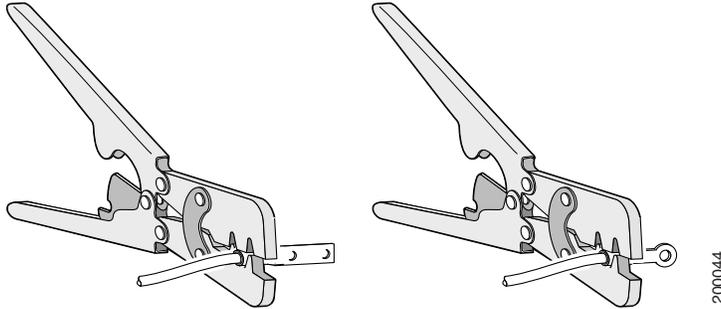
Follow these steps to install either a single-ground lug or a dual-ground lug on the switch. Make sure to follow any grounding requirements at your site.

- Step 1** Use the ground lug screw and the lug ring for a single-ground connection. Use the dual-ground adaptor and dual-hole lug for a dual-ground connection.
- Step 2** Strip the 12-gauge or 8-gauge ground wire to 0.5 inch (12.7 mm) \pm 0.02 inch (0.5 mm) (Figure 3-8). Stripping more than the recommended amount of wire can leave exposed wire from the connector. Use 12-gauge copper ground wire for the single-ground connection. Use 8-gauge copper ground wire for the dual-ground connection.

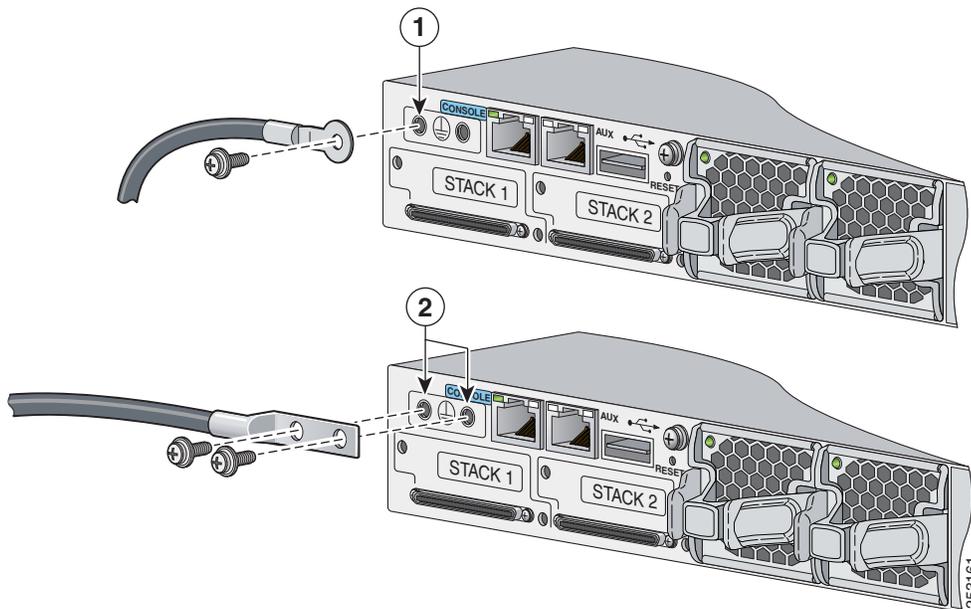
Figure 3-8 Stripping the Ground Wire



- Step 3** Slide the open end of the ground lug over the exposed area of the wire.
- Step 4** Using a Panduit crimping tool, crimp the ground lug to the wire (Figure 3-9).

Figure 3-9 Crimping the Ground Lug

- Step 5** Use the ground screw to attach the single-ground lug to the switch rear panel. Use two ground screws to attach the dual-hole lug to the switch rear panel (Figure 3-10).
- Step 6** Using a ratcheting torque screwdriver, torque the ground-lug screws to 60 lbf-in. (960 ozf-in.).
- Step 7** Connect the other end of the grounding wire to an appropriate grounding point at your site or to the rack.

Figure 3-10 Attaching the Ground Lug and Wire Assembly

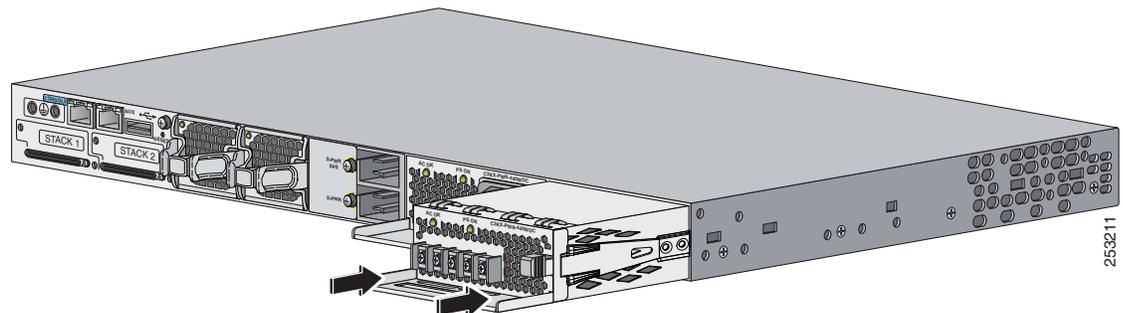
1 Single-ground screw and lug ring	2 Dual-ground adaptor and dual-hole lug
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Installing the DC Power Supply in the Switch

See the [Installation Guidelines](#), page 3-5.

- Step 1** Turn off DC power. To ensure that power is off, change the circuit breakers to the OFF position, and tape the circuit-breaker switches in the OFF position.
- Step 2** Remove the plastic safety cover from the power supply terminal blocks ([Figure 3-4](#)). If you are not replacing a DC power supply, go to [Step 5](#).
- Step 3** Use a number-2 Phillips screwdriver to remove the DC-input power wires from the power terminals.
- Step 4** Press the release latch at the right side of the power supply module inward, and pull the power supply out.
- Step 5** Insert the power supply in the power-supply slot, and gently push it into the slot ([Figure 3-11](#)). When correctly installed, the DC power supply (excluding the extraction handle) is flush with the switch rear panel.

Figure 3-11 Inserting the DC Power Supply in the Switch



- Step 6** Connect the input power as described in the “[Wiring the DC Input Power Source](#)” section.

Wiring the DC Input Power Source

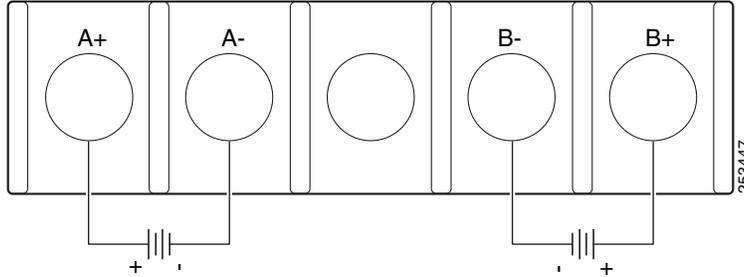
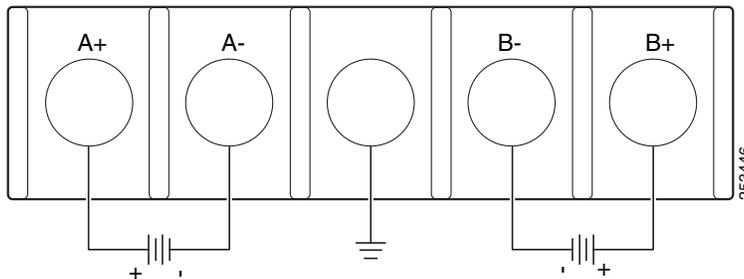
- Step 1** Using a wire-stripping tool, strip each of the four wires from the DC-input power source to the appropriate length for the terminals.



Warning

Use copper conductors only. Statement 1025

- Step 2** Using a Panduit crimping tool, crimp the fork-type terminals to the copper conductor, 90C, 14-AWG DC power input wires.
- Step 3** Connect the DC-input power terminals to the terminal blocks. See [Figure 3-12](#) or [Figure 3-13](#). Make sure to match the polarity (negative to negative, positive to positive) when connecting the wires to the terminal blocks. Connect the ground wire to a grounded metal rack or to earth ground if the switch is not in a grounded rack.

Figure 3-12 DC Source A Isolated From Source B with No Common Ground**Figure 3-13** DC Source A and Source B Connections with Common Ground

- Step 4** Torque all terminal block screws to 11 lbf-in.
- Step 5** Replace the terminal block safety cover.
- Step 6** Move the DC power source circuit-breakers to the ON position.
- Step 7** Confirm that the power-supply *DC OK* and *PS OK* LEDs are green. See [Table 3-2](#) for a description of the module LEDs.

Finding the Power Supply Module Serial Number

If you contact Cisco Technical Assistance regarding a power supply module, you need to know the serial number. See [Figure 3-14](#) to [Figure 3-16](#) to find the serial number.

Figure 3-14 1100-W AC Power Supply Serial Number

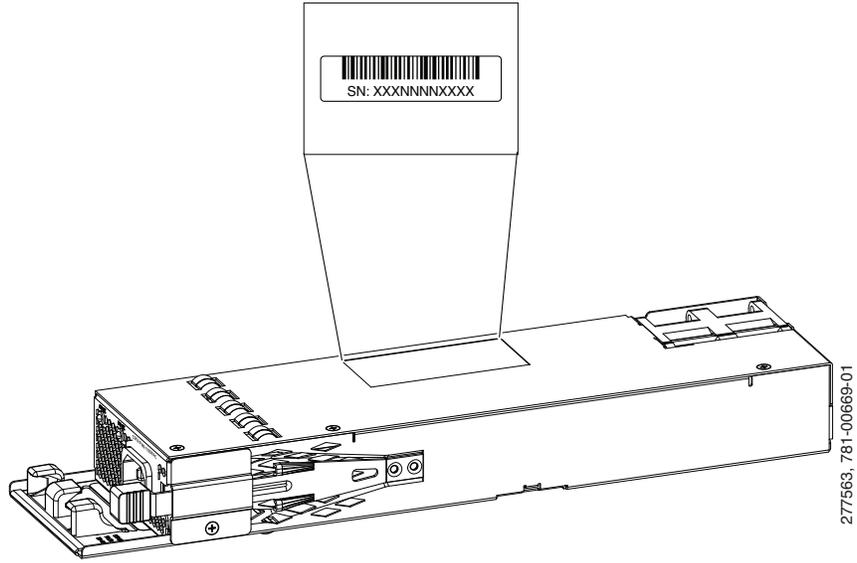


Figure 3-15 715-W and 350-W AC Power Supply Module Serial Number

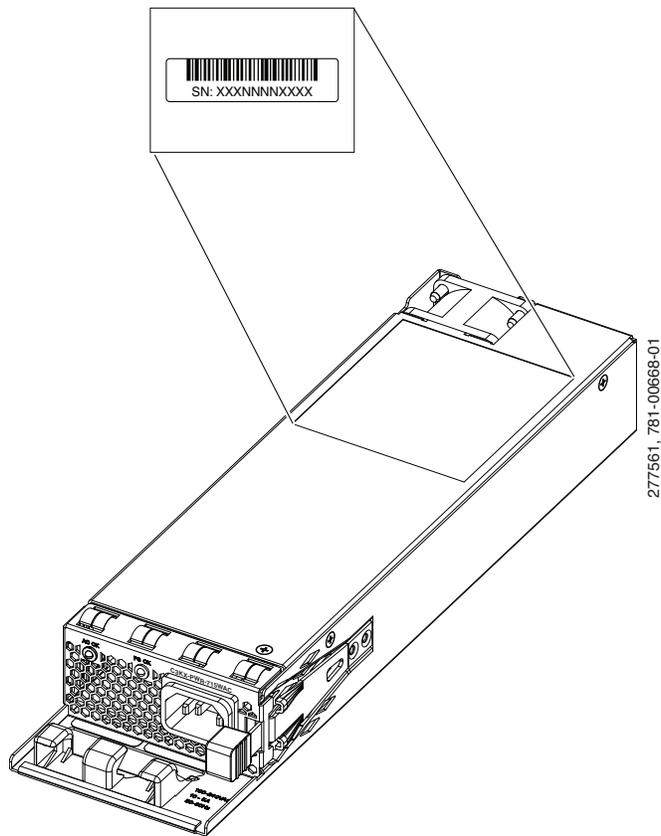
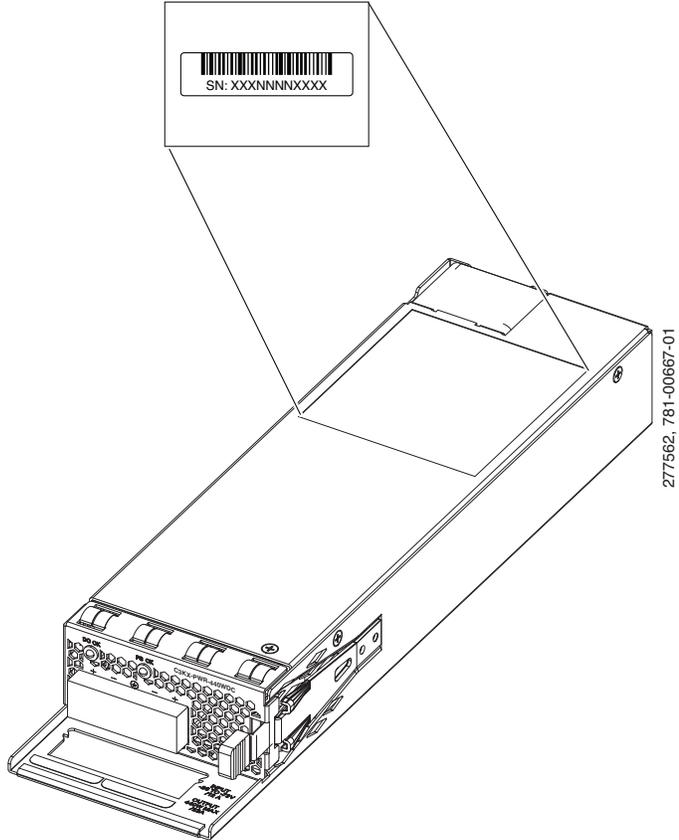


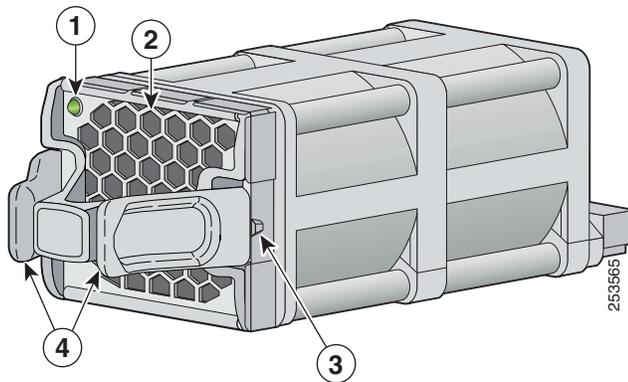
Figure 3-16 440-W DC Power Supply Module Serial Number



Fan Module Overview

The switch has two fan modules. Each fan module contains two fans. Fan modules are hot-swappable.

Figure 3-17 Fan Module



1	Fan LED	3	Retainer clip
2	Exhaust vent	4	Extraction handles

Figure 3-19 Fan Module Serial Number

