



CHAPTER 3

Connecting the Power Supply

This chapter describes how to connect the AC and DC power supply units and how to remove them. See these sections:

- [Connecting to AC Power, page 3-1](#)
- [Removing the AC Power Supply, page 3-3](#)
- [Connecting to DC Power, page 3-4](#)
- [Removing the DC Power Supply, page 3-12](#)
- [Connecting to Both AC and DC Power in the Switch, page 3-13](#)



Warning

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.
Statement 1030



Caution

If you use only one power supply in your switch, always cover the other power slot with the slot cover.

Connecting to AC Power

To connect the switch to an AC-input power source, follow these steps:

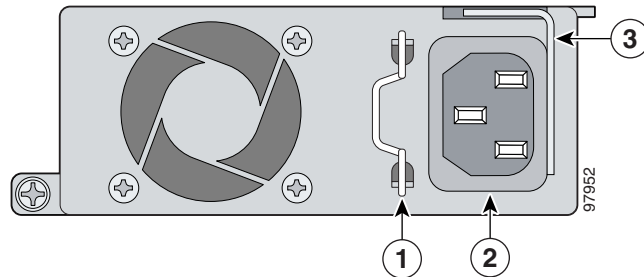


Warning

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.
Statement 1017

Before you start, locate a Phillips screwdriver and your AC power cord. [Figure 3-1](#) shows the location of the AC power supply parts.

Figure 3-1 AC Power Supply

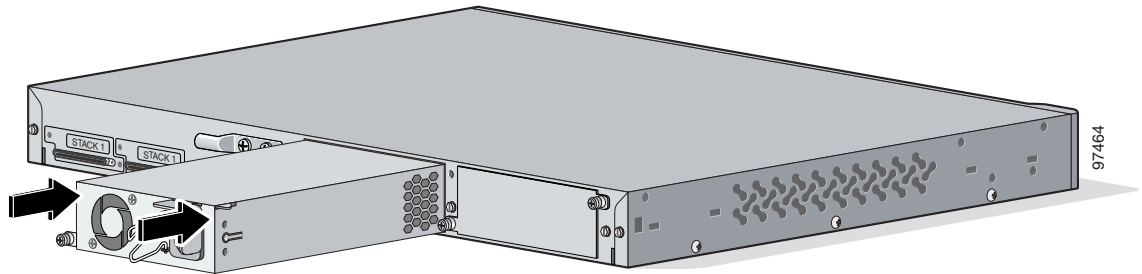


1	AC power cord retainer	3	Power-on restrictor
2	AC power connector	3	

To insert an AC power supply into power supply slot A or B, follow these steps:

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- Step 1** Insert the power supply partially into the power supply slot (see [Figure 3-2](#)).

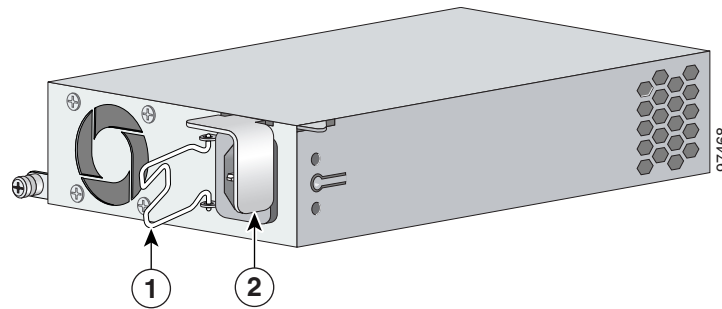
Figure 3-2 Inserting the AC Power Supply



- Step 2** Slide the power-on restrictor to the left, toward the power connector (see [Figure 3-3](#)).



Note The power supply unit will not slide completely into the power slot if the power cord is already inserted into the power connector.

Figure 3-3 AC Power Cord Retainer and Power-On Restrictor

1	AC power cord retainer	2	Power-on restrictor
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- Step 3** Slide the power supply unit the rest of the way into the power slot.
- Step 4** Slide the power-on restrictor to the right in order to access the power connector (see [Figure 3-3](#)).
- Step 5** Use a Phillips screwdriver to attach the screw at the lower-left of the power supply, and secure the power supply unit in the switch chassis.
- Step 6** Insert the power cord into the power connector.
- Step 7** Snap the AC power cord retainer into place to secure the power cord (see [Figure 3-3](#)).
- Step 8** Turn on the power at the power source.

Removing the AC Power Supply

To remove a power supply from power supply slot A or B, follow these steps:

- Step 1** Turn off the power at its source.
- Step 2** Detach the power cord retainer from the power cord.
- Step 3** Remove the power cord from the power connector.
- Step 4** Use a Phillips screwdriver to remove the screw at the lower-left that secures the power supply unit to the switch chassis (see [Figure 3-3](#)).
- Step 5** Slide the power-on restrictor toward the left.
- Step 6** Remove the power supply unit from the power slot by pulling on the power-on restrictor (see [Figure 3-3](#)).

Connecting to DC Power

To connect the switch to a DC-input power source, follow these steps:

1. [Preparing for Installation, page 3-4](#)
2. [Grounding the Switch, page 3-5](#)
3. [Installing the DC Power Supply in the Switch, page 3-7](#)
4. [Wiring the DC-Input Power Source, page 3-9](#)



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:
15 A, 80 Vdc** Statement 1005



Note

We recommend that you use 18 AWG copper wiring for Network Equipment Building Systems (NEBS) installation. This guideline follows the standard guidelines for DC power wiring in the Central Office.

Preparing for Installation

Locate the terminal block plug that ships with the DC power supply.

Obtain these necessary tools and equipment:

- Ratcheting torque screwdriver with a Phillips head that exerts up to 15 pound-force inches (lbf-in.) of pressure
- Panduit crimping tool with optional controlled cycle mechanism (model CT-700, CT-720, CT-920, CT-920CH, CT-930, or CT-940CH)
- 6-gauge copper ground wire (insulated or noninsulated)
- Four leads of 18-gauge copper wire. The DC terminal block also accepts 12-28 AWG copper wire (see [Figure 3-11 on page 3-9](#)).



Note

We recommend that you use 18 AWG copper wiring for Network Equipment Building Systems (NEBS) installations. This guideline follows the standard guidelines for DC power wiring in the Central Office.

- Wire-stripping tools for stripping 6- and 18-gauge wires

Grounding the Switch



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

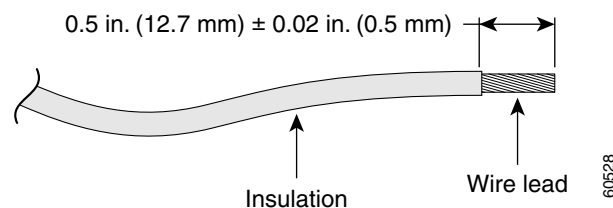
To make sure that the equipment is reliably connected to earth ground, follow the grounding procedure instructions, and use a UL-listed lug suitable for number-6 AWG wire and two number-10-32 ground-lug screws.

Preparing the Ground Wire

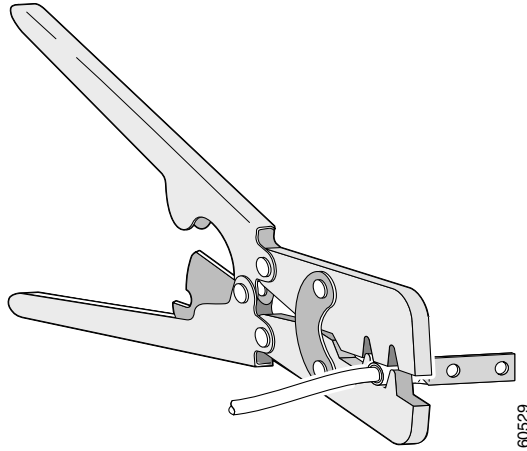
Before you ground the switch to earth ground, you must prepare the ground wire. Follow these steps. Make sure to follow any grounding requirements at your site.

- Step 1** Locate the ground lug and the two number-10-32 screws on the rear panel of the switch. Use a standard Phillips screwdriver or a ratcheting torque screwdriver with a Phillips head to remove the ground lug. Set the screws and the ground lug aside.
- Step 2** If your ground wire is insulated, use a wire stripping tool to strip the 6-gauge ground wire to 0.5 inch (12.7 millimeter [mm]) \pm 0.02 inch (0.5 mm) as shown in [Figure 3-4](#).

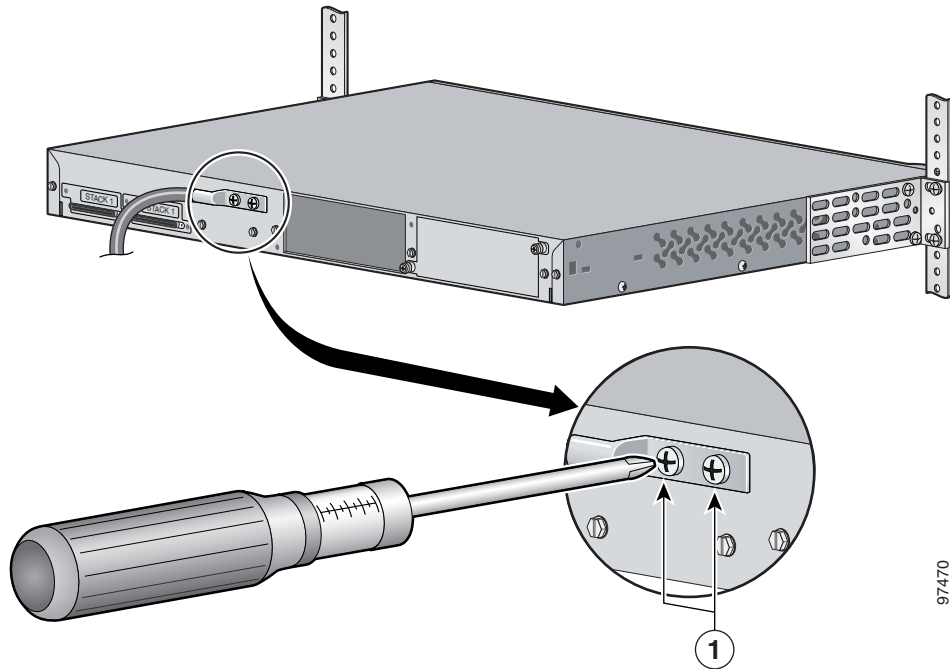
Figure 3-4 *Stripping the Ground Wire*



- Step 3** Slide the open end of the ground lug over the exposed area of the 6-gauge wire.
- Step 4** Using a Panduit crimping tool, crimp the ground lug to the 6-gauge wire (see [Figure 3-5](#)).

Figure 3-5 Crimping the Ground Lug

- Step 5** Use the two number-10-32 screws to attach the ground lug and wire assembly to the rear panel of the switch.
- Step 6** Using a ratcheting torque screwdriver, torque each grounding-lug screw to 15 lbf-in. (240 ounce-force inches [ozf-in.]). [Figure 3-6](#) shows how to torque the grounding-lug screws on a switch.

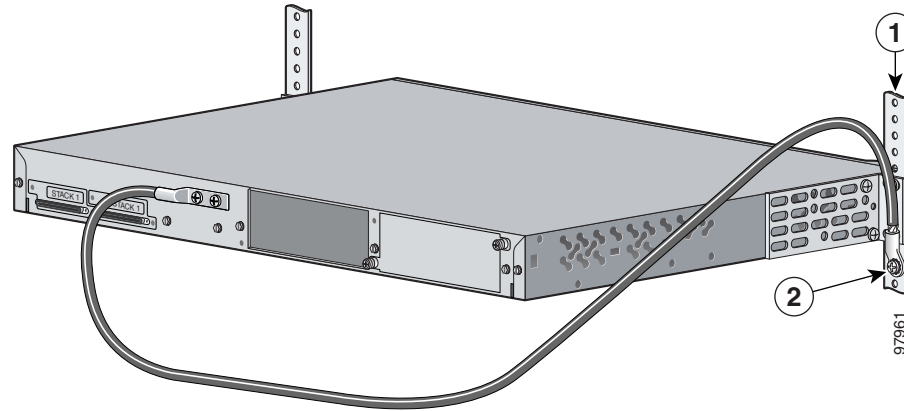
Figure 3-6 Torquing Ground-Lug Screws

1	Grounding-lug screws
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Connecting the Grounding Wire to Earth Ground

Next you must connect the other end of the grounding wire to an appropriate grounding point at your site or to the telco rack (see [Figure 3-7](#)).

Figure 3-7 Connecting the Grounding Wire to the Rack



1	Telco Rack	2	Grounding wire
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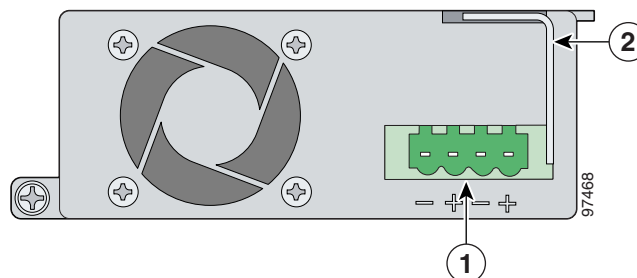
Complete these steps:

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- Step 1** Remove all paint or oxidation from the rack at the point of the grounding connection.
 - Step 2** Use a 3/16-inch flat-head screwdriver to loosen the grounding screw on the rack.
 - Step 3** Connect the wire to a ring lug (large enough for the rack screw to fit through).
 - Step 4** Use a 3/16-inch flat-head screwdriver and the screw to attach the ring lug to the rack.
 - Step 5** Tighten the grounding screw on the rack over the ring lug.
- Repeat these steps for each switch being installed.

Installing the DC Power Supply in the Switch

[Figure 3-8](#) shows the location of the DC power supply parts.

Figure 3-8 DC Power Supply

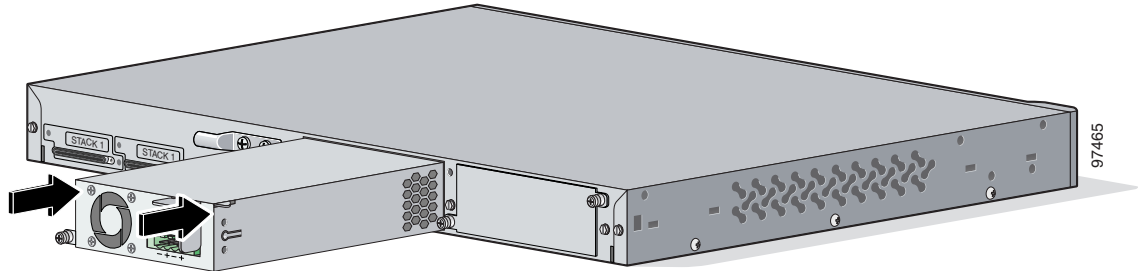


1	Power-on restrictor	2	DC-power connector
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To insert a DC power supply into power supply slot A or B, follow these steps:

- Step 1** Insert the power supply partially into the power slot (see [Figure 3-9](#)).

Figure 3-9 Inserting the DC Power Supply

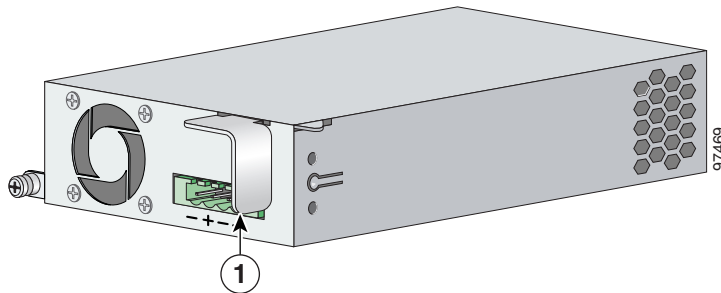


- Step 2** Slide the power-on restrictor to the left, toward the power connector (see [Figure 3-10](#)).



Note The power supply unit will not slide completely into the power slot if the terminal block is already inserted into the terminal block plug.

Figure 3-10 DC Power-On Restrictor



1	Power-on restrictor
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- Step 3** Slide the power supply unit the rest of the way into the power slot.
- Step 4** Slide the power-on restrictor to the right to access the power connector (see [Figure 3-10](#)).
- Step 5** Use a Phillips screwdriver to attach the screw at the lower-left and secure the power supply unit in the switch chassis.

Wiring the DC-Input Power Source

**Warning**

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

Statement 1022

**Warning**

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

Statement 1030

**Warning**

Installation of the equipment must comply with local and national electrical codes. Statement 1074

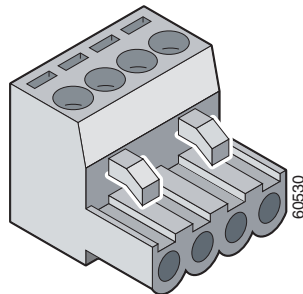
**Caution**

You must connect the switch only to a DC-input power source that has an input supply voltage from -36 to -72 VDC. If the supply voltage is not in this range, the switch might not operate properly or might be damaged.

To wire the switch to a DC-input power source, follow these steps:

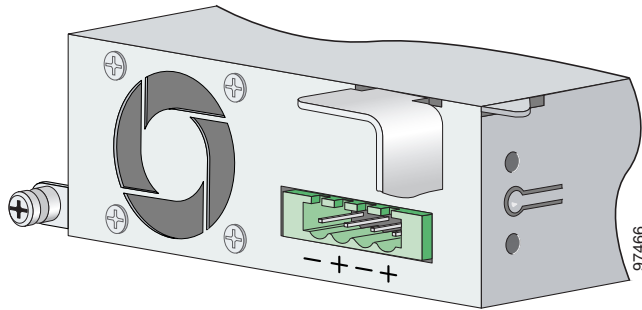
- Step 1** Locate the terminal block plug (see [Figure 3-11](#)).

Figure 3-11 Terminal Block Plug

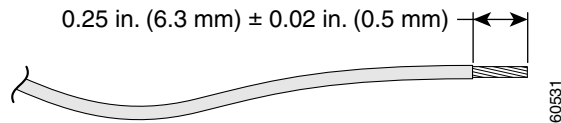


- Step 2** Identify the positive and negative feed positions for the terminal block connection. The wiring sequence is positive to positive and negative to negative for both the A and the B feed wires.

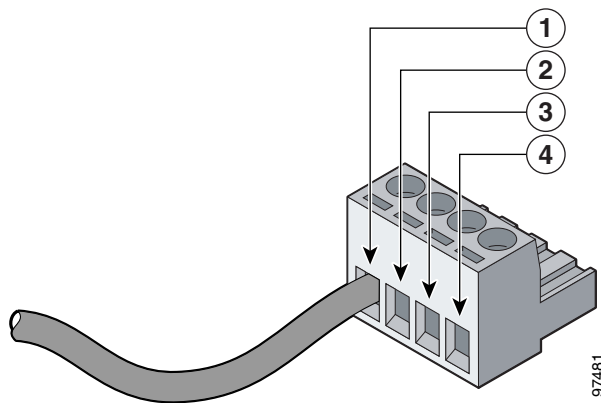
The rear panel of the power supply unit identifies the positive and negative positions for both the A and B feed wires. [Figure 3-12](#) shows the positions on the power supply.

Figure 3-12 Positive and Negative Positions

- Step 3** Using an 18-gauge wire-stripping tool, strip each of the four wires coming from the DC-input power source to 0.27 inch (6.6 mm) \pm 0.02 inch (0.5 mm). Do not strip more than 0.29 inch (7.4 mm) of insulation from the wire. Stripping more than the recommended amount of wire can leave exposed wire from the terminal block plug after installation. (See [Figure 3-13](#).)

Figure 3-13 Stripping the DC-Input Power Source Wire

- Step 4** Insert the exposed wire of one of the four DC-input power source wires into the terminal block plug, as shown in [Figure 3-14](#). Make sure that you cannot see any wire lead. Only wire *with insulation* should extend from the terminal block.

Figure 3-14 Inserting Wires in the Terminal Block Plug

1	Negative	3	Negative
2	Return	4	Return

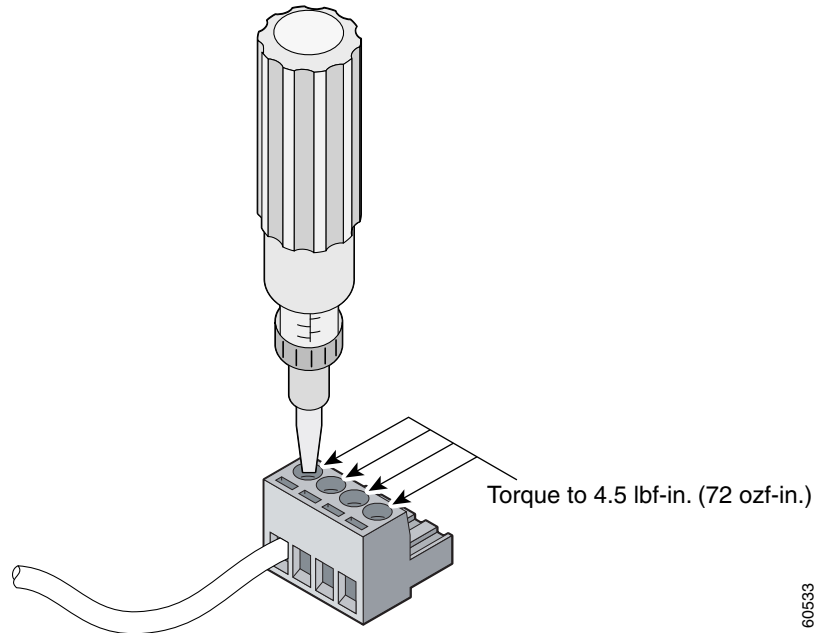
Step 5 Use a ratcheting torque screwdriver to torque the terminal block captive screw (above the installed wire lead) to 4.5 lbf-in. (72 ozf-in.). (See [Figure 3-15](#).)



Caution

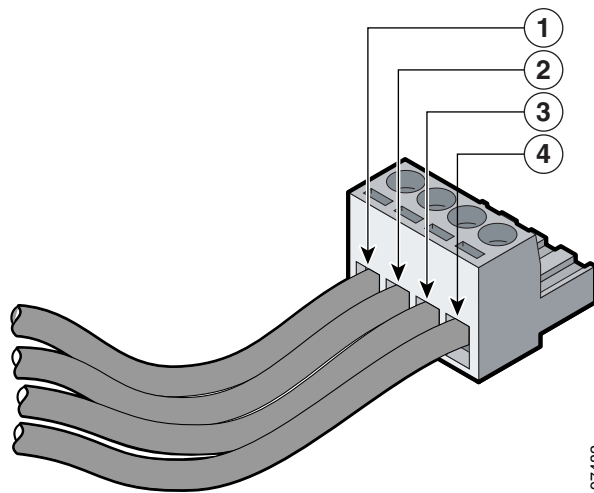
Do not overtorque the terminal-block captive screws. The recommended maximum torque is 4.5 lbf-in.

Figure 3-15 Torquing the Terminal-Block Captive Screws



Step 6 Repeat Steps 4 and 5 for the remaining three DC-input power source wires. [Figure 3-16](#) shows the completed wiring of a terminal block plug.

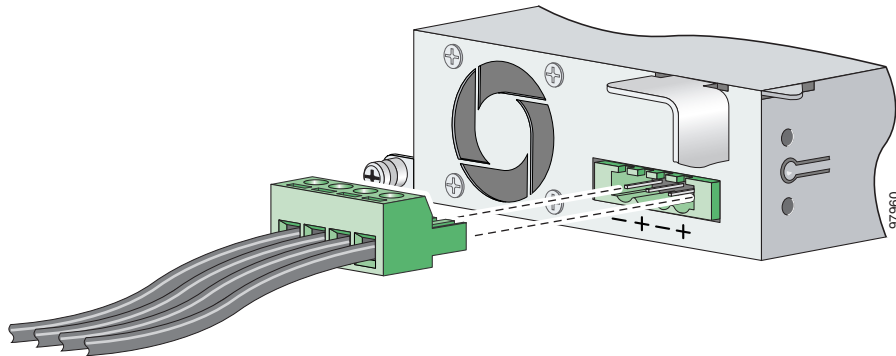
Figure 3-16 Completed Wiring of Terminal Block Plug



1	Feed A Negative	3	Feed B Negative
2	Feed A Return	4	Feed B Return

- Step 7** Insert the terminal block plug in the terminal block header of the power supply (see [Figure 3-17](#)).

Figure 3-17 Inserting the Terminal Block Plug



Caution

Secure the wires coming in from the terminal block so that they cannot be disturbed by casual contact. For example, use tie wraps to secure the wires to the rack.

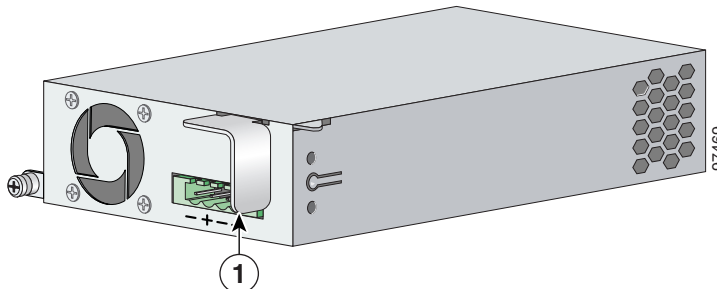
- Step 8** Remove the tape from the circuit-breaker switch handle, and move the circuit-breaker handle to the on position.

Removing the DC Power Supply

To remove a power supply from power supply slot A or B, follow these steps:

- Step 1** Move the circuit-breaker to the off position.
Step 2 Detach the terminal block plug from the terminal block header of the power supply.
Step 3 Slide the power-on restrictor towards the left (see [Figure 3-18](#)).

Figure 3-18 DC Power-On Restrictor



- | | |
|----------|---------------------|
| 1 | Power-on restrictor |
|----------|---------------------|

- Step 4** Use a Phillips screwdriver to remove the screw at the lower-left that secures the power supply unit to the switch chassis.
- Step 5** Remove the power supply unit from the power slot by pulling on the power-on restrictor (see [Figure 3-18](#)).
-

Connecting to Both AC and DC Power in the Switch

You can install an AC power supply or a DC power supply in either slot. You can also install an AC power supply in one slot and a DC power supply in the other slot.



Caution

If a DC power supply is present in your configuration, you must install a grounding lug on the switch.

See the section that applies to your configuration:

- To install an AC power supply in one of the slots, see the [“Connecting to AC Power”](#) section on [page 3-1](#).
- To install a DC power supply in either slot, see the [“Connecting to DC Power”](#) section on [page 3-4](#).
- To remove an AC power supply, see the [“Removing the AC Power Supply”](#) section on [page 3-3](#).
- To remove a DC power supply, see the [“Removing the DC Power Supply”](#) section on [page 3-12](#).



Warning

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit. Statement 1028
