Installation Notes for the Power Supply Modules for the Cisco CGS 2520

This document provides the steps for installing the AC and the DC power-supply modules for the Cisco Connected Grid Switch (CGS) 2520. The power-supply modules are field-replaceable units (FRUs) and are hot-swappable.

For information about using the power supply modules with a switch, and for technical specifications of the power supply modules, see the *Cisco CGS 2520 Hardware Installation Guide*. For a complete list of the translated warnings, safety and compliance information, see the *Regulatory Compliance and Safety Information for the Cisco CGS 2520*
http://www.cisco.com/go/cgs2520_hw

Power Supply Modules

Table 1-1   *Power-Supply Modules*
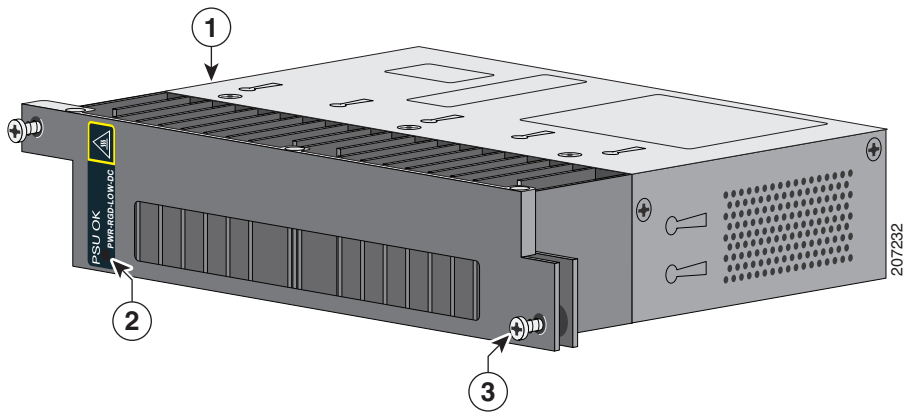
Model	Description
PWR-RGD-LOW-DC	Low-voltage DC.
PWR-RGD-AC-DC	High-voltage AC or DC.

Figure 1-1   *PWR-RGD-AC-DC Power-Supply Module*
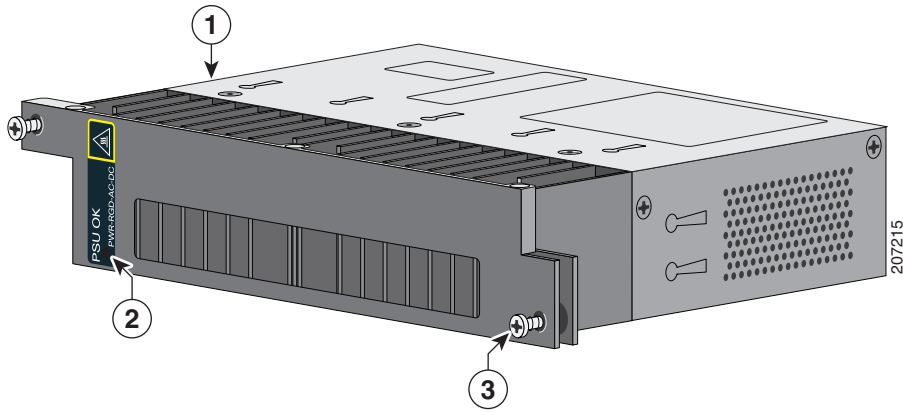
1	Power-supply module	3	Captive screw
2	PSU OK LED		

Figure 1-2   *PWR-RGD-LOW-DC Power-Supply Module*

1	Power-supply module	3	Captive screw
2	PSU OK LED		

For a description of the PSU OK LEDs, see the "Power-Supply Module LEDs" section on page 9.

Power-Supply Module Installation

Installation Guidelines

Observe these guidelines when removing or installing a power-supply module:

A power-supply module that is only partially connected to the switch disrupts the system operation.

⚠ **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

✎ **Note** You can order the blank cover (part number RPS-CG-COVER=).

⚠ **Warning** **Do not reach into a vacant slot while installing or removing a module. Exposed circuitry is an energy hazard.** Statement 206

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

⚠ **Warning** **Do not work on the system or connect or disconnect cables during periods of lightning activity.** Statement 1001

Installing a Power-Supply Module

This procedure is for installing a power-supply module in the PSU1 or PSU2 slot.

⚠ **Warning** **The covers are an integral part of the safety design of the product. Do not operate the unit without the covers installed.** Statement 1077

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

⚠ **Caution** Equipment installation must comply with local and national electrical codes.

Equipment That You Need

- Ratcheting torque flathead screwdriver that exerts up to 15-inch pound (in-lb) of pressure
- Ring, spade, or flanged spade terminal
  - Ring terminal (such as Tyco part number 2-34158-1 for 16–14 AWG or 2-34852-1 for 12–10 AWG wire)
  - Spade terminal (such as Tyco part number 54367-2 for 16–14 AWG wire)
  - Flanged spade terminal (such as Tyco part number 2-324165-1 for 16–14 AWG wire or 1-324581-1 for 12–10 AWG wire)

✎ **Note** For IP-30 compliance:
Use the 16-14 AWG wire and appropriate terminals for the AC or high-voltage DC power supply

Use the 12-10 AWG wire and appropriate terminals for the low-voltage DC power supply

- Crimping tool (such as Thomas & Bett part number WT2000, ERG-2001 or equivalent)
- 6-gauge copper ground wire (such as Belden part number 9906 or equivalent)
- 12-AWG wire (minimum) for the low-voltage power-supply module and 16-AWG (minimum) wire for the high-voltage power-supply module
- For power source connections, use wires rated for at least 194°F (90°C).
- UL- and CSA-rated style 1007 or 1569 twisted-pair copper wire (such as Belden part number 9318)
- Wire-stripping tools for stripping 6-, 10-, 12-, 14-, and 16-gauge wires.
- Number-2 Phillips screwdriver
- Flat-blade screwdriver

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 (included with the switch) for number-6 AWG wire and 10-32 ground-lug screws.

Note   You can use the grounding lug to attach a wrist strap for ESD protection during servicing.

Follow these steps to install a dual-hole lug on the switch. Be sure to follow any grounding requirements at your site.

Step 1   Use a Phillips screwdriver or a ratcheting torque screwdriver with a Phillips head to remove the ground screw from the cable side of the switch. You need the screw in Step 4.

Step 2   Strip the 6-gauge ground wire to 0.5 inch (12.7 mm) ± 0.02 inch (0.5 mm). See Figure 1-3. Stripping more than the recommended amount of wire can leave exposed wire from the connector.

Figure 1-3   Stripping the Ground Wire

0.5 in. (12.7 mm) ± 0.02 in. (0.5 mm)

Insulation

Wire lead

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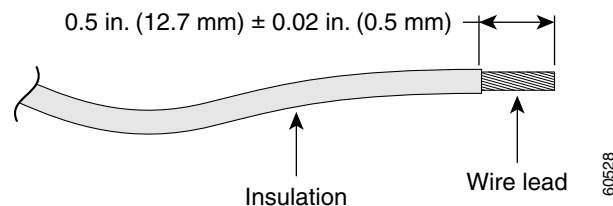
Step 3   Insert the ground wire into the terminal lug, and crimp the terminal to the wire. (see Figure 1-4).

Figure 1-4 **Crimping the Terminal Lug**
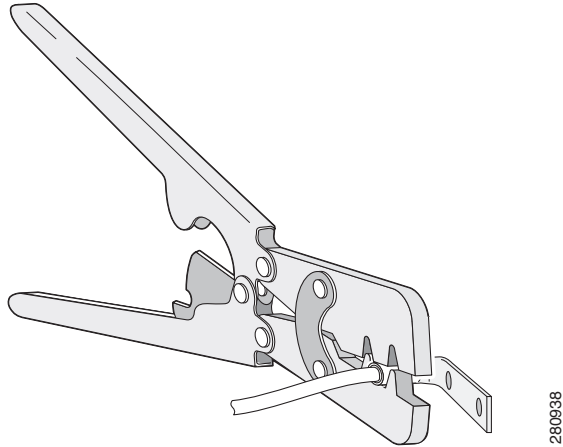
Step 4 Slide the ground screw from Step 1 through the terminal lug. Insert the ground screw into the opening on the cable side.

Figure 1-5 **Attaching the Terminal Lug and Wire Assembly**
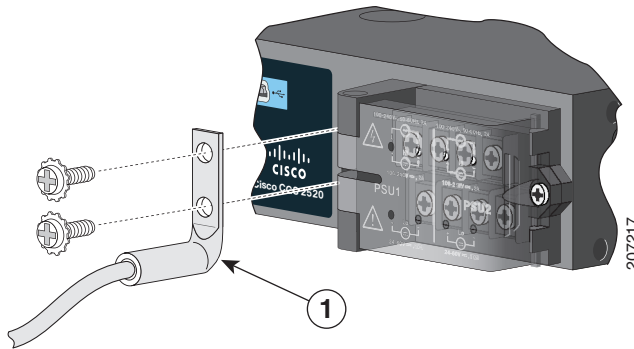
1	Dual-hole ground terminal lug

Step 5 Use a ratcheting torque screwdriver to tighten the ground screw to 30 in-lb (± 2 in-lb).

Step 6 Attach the other end of the ground wire to a grounded bare metal surface, such as a ground bus or a grounded bare rack.
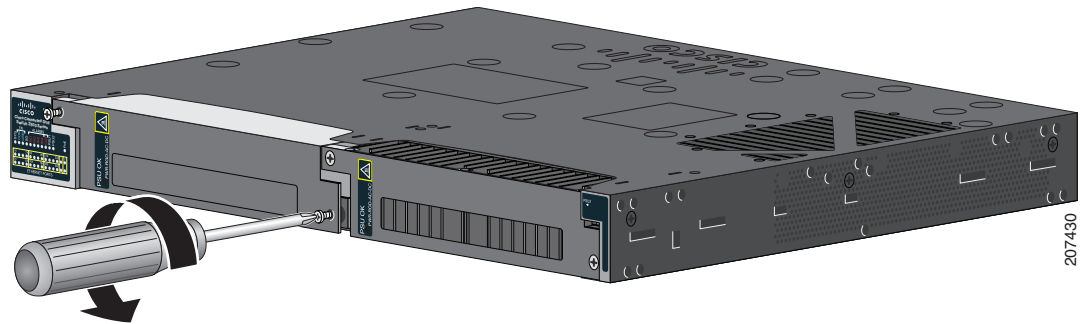
Installing the Power-Supply Module in the Switch

Step 1   We recommend that power is off at the AC or DC circuits. Locate the circuit breakers, turn them OFF, and tape them in the OFF position.
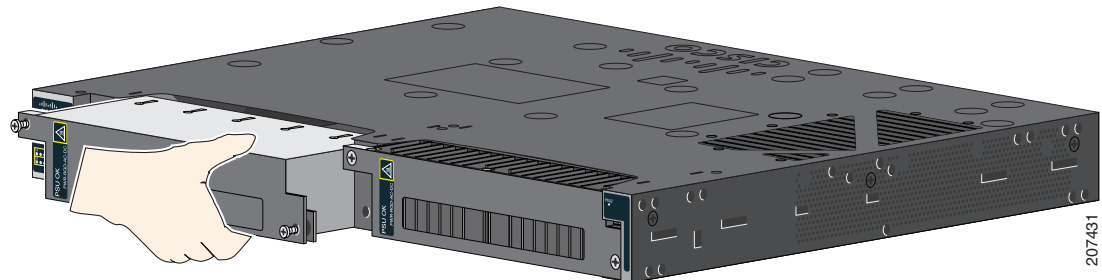
✎

Note   If the power is not off at the AC or DC circuit breaker, do not touch the power-input terminal.

Step 2   Use a Phillips screwdriver to loosen the two captive screws of the blank power-supply module and gently pull it out. See Figure 1-6 and Figure 1-7.

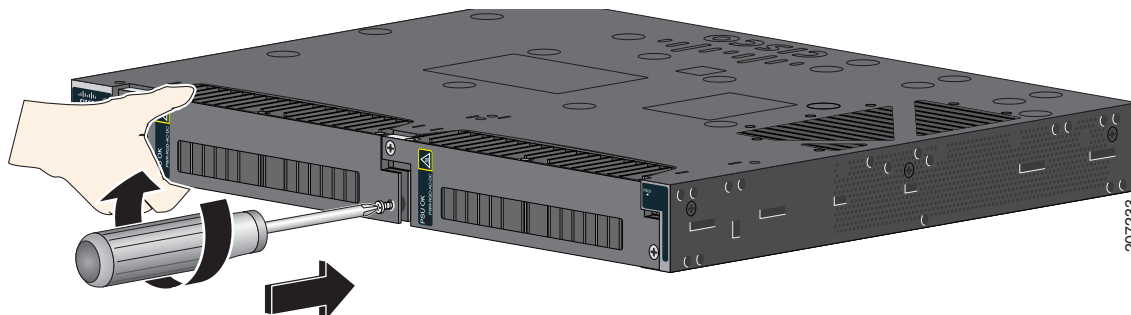*Figure 1-6   Loosen the Screws on the Power Supply Blank*

Figure 1-7   Remove the Power Supply Blank

Step 3 Insert the power-supply module into the slot, and gently push it in. See Figure 1-8. The power-supply module should be flush with the switch.

Figure 1-8   Insert the Power-Supply Module

Step 4 Use a ratcheting torque screwdriver to torque each screw to 8–10 in-lb.

Wiring the Power Source

Before you wire the power source, review the warnings in this section:

⚠ **Warning** **This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: AC: 5 A, DC: 15 A** Statement 1005

⚠ **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 or replace this equipment.** Statement 1030

⚠ **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

Step 1 Locate the AC and DC circuit breakers, turn them OFF, and tape them in the OFF position.
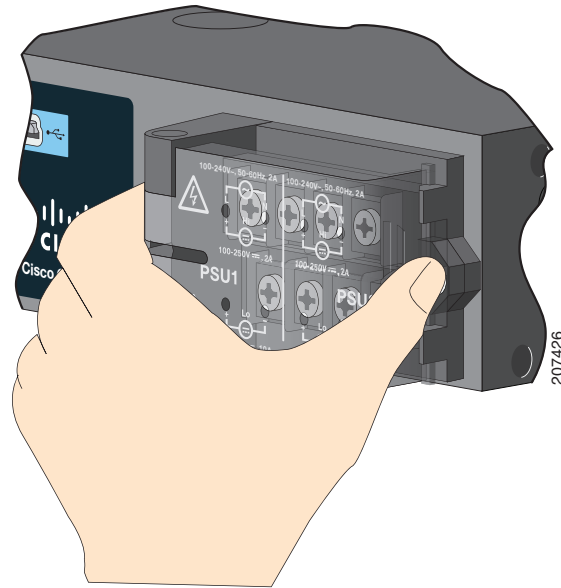
✎ **Note** Do not connect the switch to a power source that has an ON/OFF switch.

Step 2 Use a Phillips screwdriver to loosen the captive screw on the power-input terminal, and open the cover.
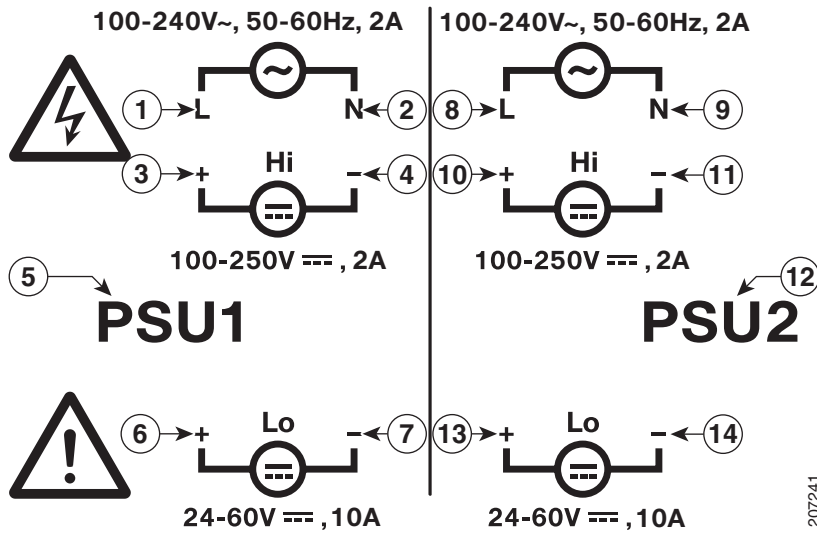
Figure 1-9   ***Opening the Power-Input Terminal Cover***

The terminal screws labels are on the power-input terminal cover. See Figure 1-10.

Figure 1-10 Power-Input Terminal

1	Line connection for high-voltage AC (PSU1)	**8**	Line connection for high-voltage AC (for PSU2)
2	Neutral connection for high-voltage AC (PSU1)	**9**	Neutral connection for high-voltage AC (PSU2)
3	Positive connection for high-voltage DC (PSU1)	**10**	Positive connection for high-voltage DC (PSU2)
4	Negative connection for high-voltage DC (PSU1)	**11**	Negative connection for high-voltage DC (PSU2)
5	PSU1 (power-supply module 1)	**12**	PSU2 (power-supply module 2)
6	Positive connection for low-voltage DC (PSU1)	**13**	Positive connection for low-voltage DC (PSU2)
7	Negative connection for low-voltage DC (PSU1)	**14**	Negative connection for low-voltage DC (PSU2)

Note The power-supply module 1 connection is labeled PSU1, and the power-supply module 2 connection is labeled PSU2. Make sure that you connect the wires to the correct terminal screws.

Step 3 Use twisted-pair copper wire (10- to 18-AWG) to connect from the power-input terminal to the power source.

Note Use 12-AWG (minimum) for the low-voltage DC power supply module. Use 16-AWG (minimum) for the high-voltage AC or DC power supply module.

Step 4 Strip each of the two wires to 0.25 inch (6.3 mm) ± 0.02 inch (0.5 mm). Do not strip more than 0.27 inch (6.8 mm) of insulation from the wire. Stripping more than the recommended amount of wire can leave exposed wire from the connector after installation.

Figure 1-11   ***Stripping the Input Power Source Wire***

0.25 in. (6.3 mm) ± 0.02 in. (0.5 mm)

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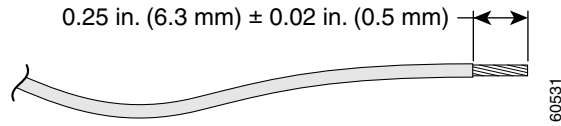
Step 5   Insert the wire into a spade terminal, and crimp the it to the wire. You can also use a ring or flanged spade terminal as listed in the "Equipment That You Need" section on page 4.

Figure 1-12   ***Crimping the Spade Terminal Lug***

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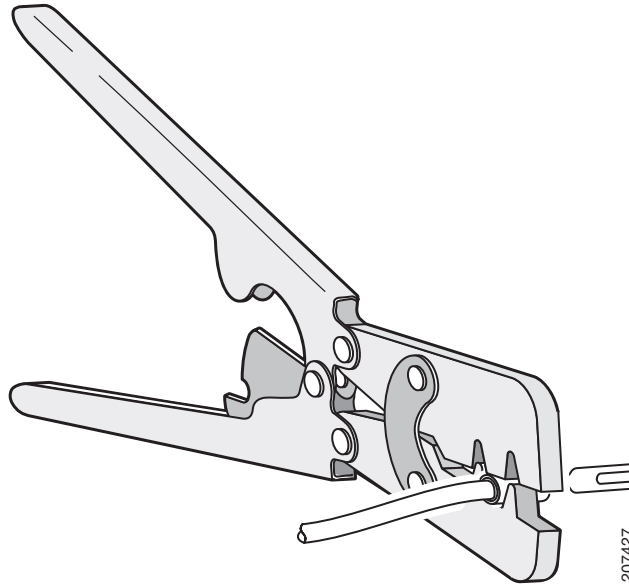
Step 6   Loosen the terminal screw, and slide the terminal under the screw and washer. See Figure 1-14.

Note   Use the appropriate terminal screws, depending on whether you are installing a high-voltage (AC or DC) or a low-voltage (DC) power supply.

Step 7   AC power connection

Connect the line wire into the terminal screw labeled *L* and the neutral wire into the terminal screw labeled *N*.

Make sure that you cannot see any wire lead. Only wire *with insulation* should extend from the terminal screw.

Figure 1-13 Connecting the Wires to the High-Voltage AC Power (PSU1)
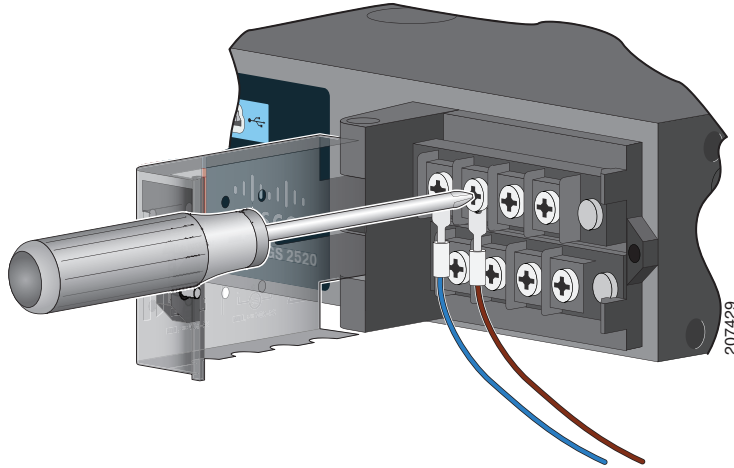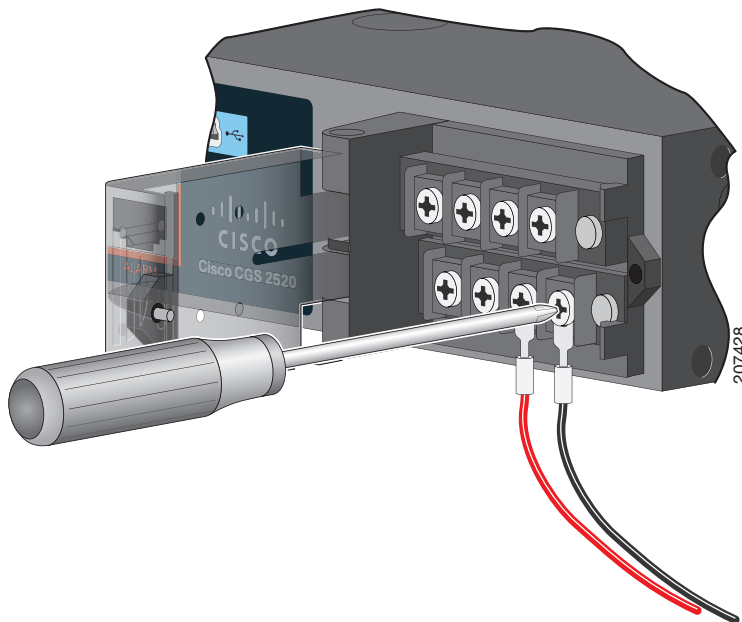

DC power connection
Connect the positive wire into the terminal screw labeled +, and the negative wire into the terminal screw labeled –. Make sure that you cannot see any wire lead. Only wire *with insulation* should extend from the terminal screw.

Note If you have a low-voltage DC power-supply module, connect the wires to the terminals labeled *Lo*. If you have a high-voltage DC power-supply module, connect the wires to the terminals labeled *Hi*.

Figure 1-14 Connecting the Wires to the Low-Voltage DC Power (PSU2)

Step 8   Torque the captive screws (above the wires) to 8.5 in-lb (± 0.5 in-lb).

Step 9   *AC power*

Connect the other end of the line wire (the one connected to *L*) to the line terminal on the AC-power source, and connect the other end of the neutral wire (the one connected to *N*) to the neutral terminal on the AC power source.

DC power

Connect the other end of the positive wire (the one connected to +) to the positive terminal on the DC-power source, and connect the other end of the negative wire (the one connected to –) to the negative terminal on the DC power source.

Step 10   Turn on the power at the AC or DC circuit, verify that the *PSU1 or PSU2 LED* on the switch and *PSU OK* LED on the power-supply module are green.

Step 11   If you have two power supplies, repeat Step 1 through Step 10. See the switch software guide for information on how to configure the power supply settings.

Close the power-input terminal cover. Use a ratcheting torque screwdriver to tighen the screw to 6–8 in-lb.

Removing the Power-Supply Module

The power-supply modules are hot-swappable. By removing the power-supply modules, you can power off the switch without disconnecting the wiring from the power-input terminal.

Step 1   We recommend that power is OFF at the AC or DC circuits. Locate the circuit breakers, turn them OFF and tape them in the OFF position.
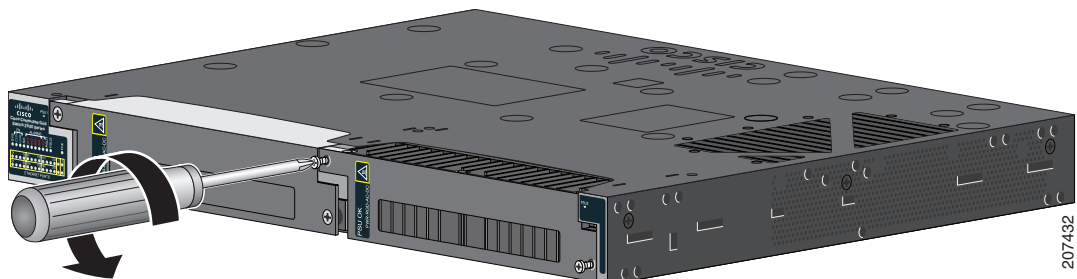
> ✎
> **Note**   If the power is not off at the AC or DC circuit breaker, do not touch the power-input terminal.

Step 2   Verify that the PSU LED and PSU OK LED is blinking red or is off.

Step 3   Use a Phillips screwdriver to loosen the captive screws that secure the power-supply module to the switch. See Figure 1-15.
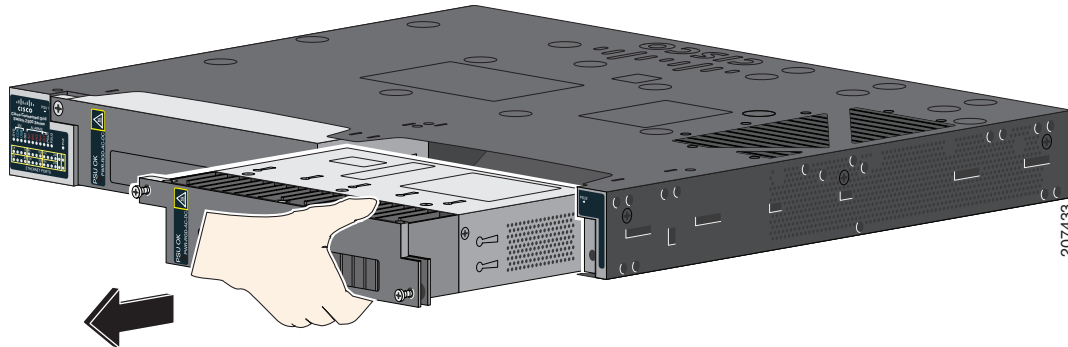
> ⚠
> **Warning**   **Hot surface.** Statement 1079

Figure 1-15   *Removing the Screws*

Step 4 Remove the power-supply module from the power slot. The power-supply module might be hot. See Figure 1-16.

Step 5 Install a new power-supply module or a blank cover.

Figure 1-16 **Removing the Power-Supply Module**

⚠

Caution To prevent exposure to hazardous voltages and to contain electromagnetic interference (EMI), either a power-supply module or a blank cover must be in each power-supply module slot at all times. You can order the blank cover (part number RPS-CG-COVER=).

Related Publications

http://www.cisco.com/en/US/products/ps10978/tsd_products_support_series_home.html

✎

Note Before installing, configuring, or upgrading the switch, see the release notes on Cisco.com for the latest information.

- *Release Notes for the Cisco CGS 2520*
- *Cisco CGS 2520 Getting Started Guide*
- *Regulatory Compliance and Safety Information for the Cisco CGS 2520*
- *Cisco CGS 2520 Software Configuration Guide*
- *Cisco CGS 2520 Command Reference*
- *Cisco CGS 2520 System Message Guide*

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