



Installing Power Components

This chapter describes how to install the Cisco NCS 6008 LCC power components.



Note For information about removing power components, see the "Removing the Power Components" section.

- [Power System Overview, on page 1](#)
- [Installing Power Components, on page 10](#)
- [Powering On and Powering Off the LCC, on page 27](#)

Power System Overview

The LCC power system is made up of six AC or DC power trays that contain AC or DC PMs.

Basic Chassis Power Information

The Cisco NCS 6008 LCC can be configured with either an AC input power system or a DC input power system. Site power requirements differ, depending on the source voltage used.

For information about power safety requirements, see the [Regulatory Compliance and Safety Information for the Cisco Network Convergence System 6000 Series Routers guide](#).

Follow these precautions and recommendations when planning power connections to the LCC:

- Check the power at your site before installation to ensure that you are receiving clean power (free of spikes and noise). Install a power conditioner, if necessary.
- Install proper grounding to avoid damage from lightning and power surges.

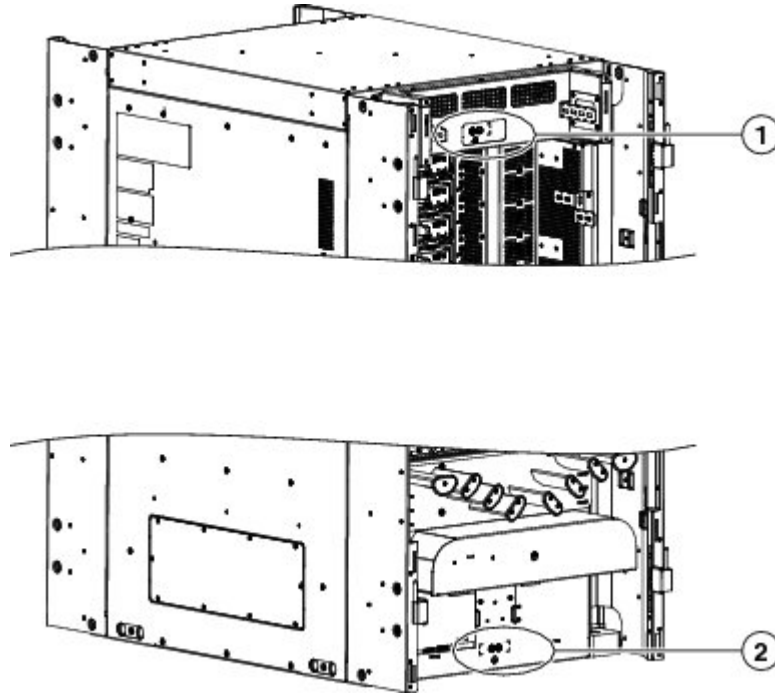
There are two types of power trays: an AC tray and a DC tray. An AC power tray houses up to three AC PMs, while a DC power tray houses up to four DC PMs. It is required that you use only one type of power tray, either AC or DC, in a LCC at a time.

Bonding and Grounding Guidelines

The LCC has two safety earth ground connections. The LCC allows you to connect the central office ground system or interior equipment grounding system to either of the two grounding points on the rear side of the

LCC. Threaded ground inserts are located on a rear panel near the top of the LCC (above the power trays) and near the bottom of the LCC. The grounding points are also referred to as Network Equipment Building System (NEBS) bonding and grounding points.

Figure 1: NEBS Bonding and Grounding Points—Rear Side of LCC



1	NEBS bonding and grounding point (upper)	2	NEBS bonding and grounding point (upper)
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Note These bonding and grounding receptacles are provided to satisfy the Telcordia NEBS requirements for bonding and grounding connections.



Caution Do not remove the LCC ground cable unless the LCC is being replaced.

AC Power System

Each AC-powered LCC contains six AC power trays. The upper three AC power trays are contained within power shelf 0 (PS0), and the lower three AC power trays are contained within power shelf 1 (PS1). Each power shelf has a Power bus Control Module (PCM) with its own I/O power switch. Each AC power tray can contain up to three AC PMs. The AC power trays and PMs are field replaceable.

Each inserted AC PM requires a single-phase, 50 to 60 Hz, 200 to 240 VAC input. Input current is variable and based on facility minimum voltage. For N+N redundancy, power feeds A must power the upper three AC

power trays and power feeds B must power the lower three AC power trays. Not all of the PM bays need to be filled.

The AC power system requires single-phase AC input power to each inserted PM. If you have 3-phase AC Delta or AC Wye at your equipment, a *Cisco NCS power distribution unit (PDU)* is required to convert 3-phase AC input power to single-phase AC input power system.



Note If you have a 3-phase AC PDU installed, we recommend that you install three AC PMs in each AC power tray to maintain a balanced 3-phase power load.

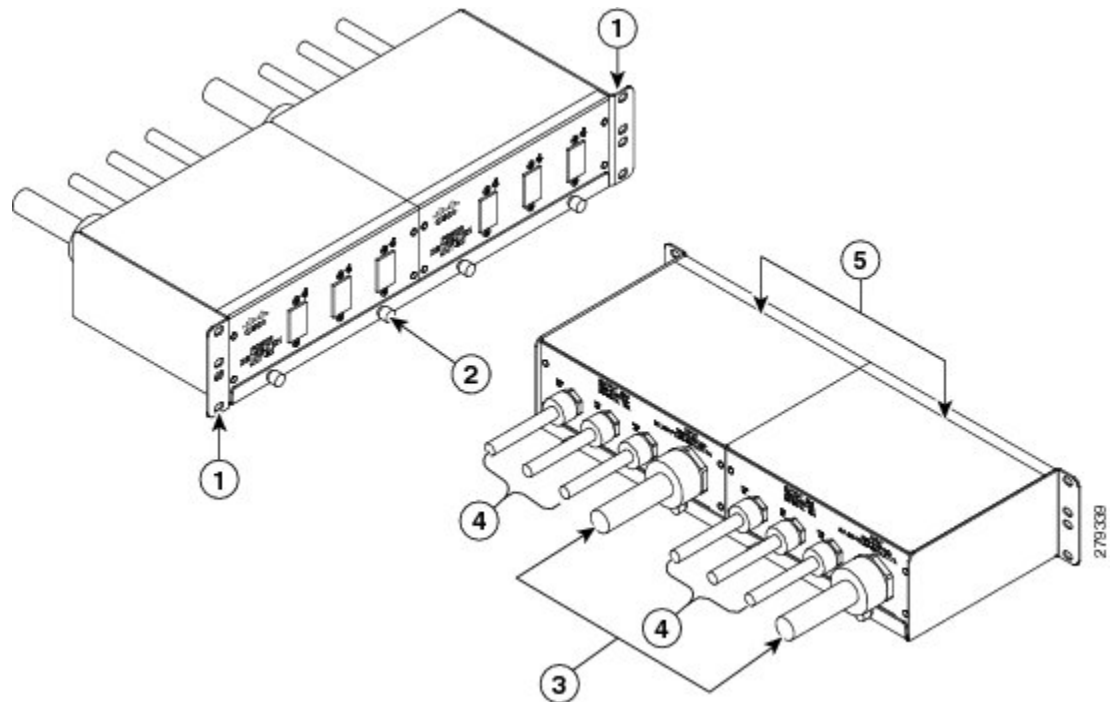


Note We recommend that you use appropriate short-circuit protection in compliance with national and local electrical codes.

AC Power Distribution Unit

The AC PDU converts 3-phase AC input power to single-phase AC input power that connects directly to the rear of each PM. The AC PDU includes either an AC Delta (NCS-PDU-DELTA) or AC Wye (NCS-PDU-WYE) power interface, and has power input and power output cords entering and exiting the box.

Figure 2: Cisco NCS-PDU



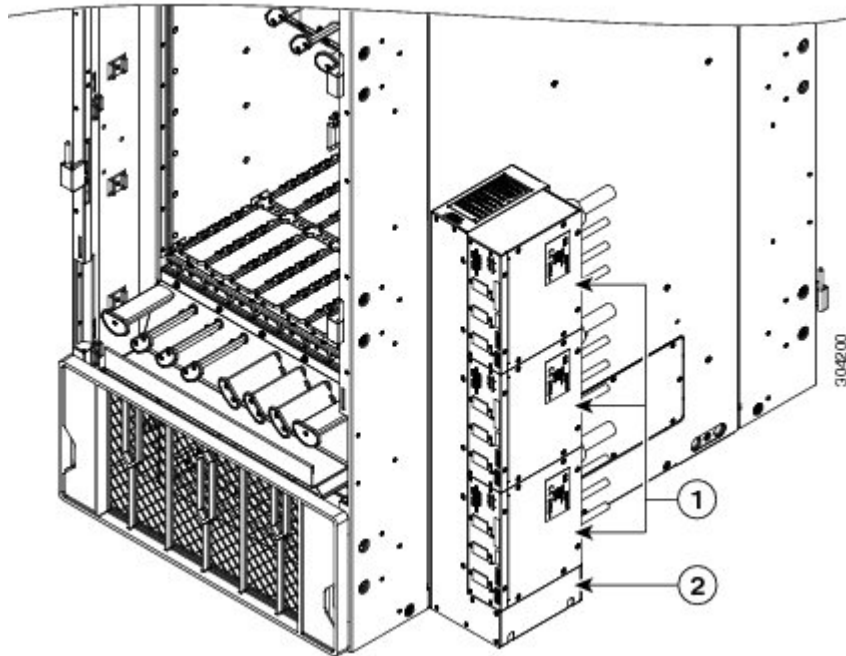
1	Rack mounting ears	4	Output cord
2	Rack tray	5	Two PDUs
3	Input cord		

For detailed information on AC PDUs, see the [Cisco CRS 3-Phase AC Power Distribution Unit Installation Guide](#).

Mounting the AC PDU

The AC PDU mounting bracket holds three AC PDUs. An AC PDU mounting bracket can be attached to the left and right sides of the LCC. The mounting brackets are attached to the chassis sides with the existing screws that hold the side panels on. The PDUs are attached to the mounting brackets with four M5 screws per AC PDU.

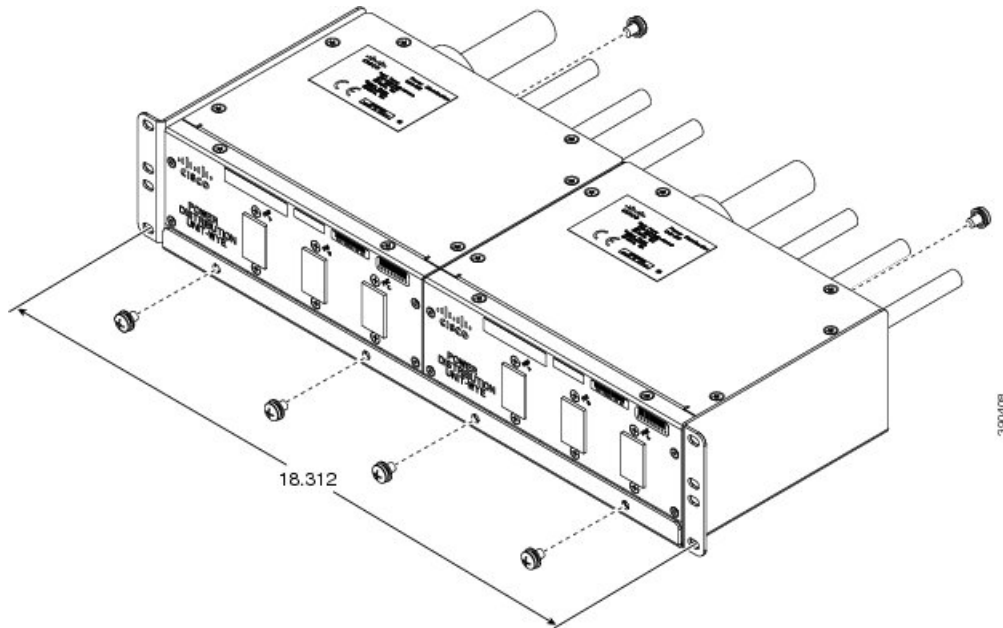
Figure 3: AC PDU Bracket Attached to the Side of the LCC



1	AC PDUs
2	Bracket

Optionally, you can mount the AC PDU in an external 19-inch rack by using six pan-head screws.

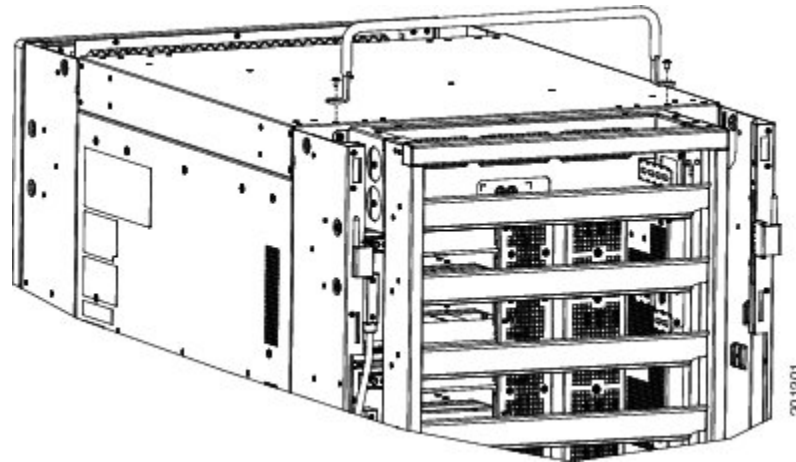
Figure 4: Mounting the AC PDU in an External 19-Inch Rack



Tie-Down Bar and Cable Clamps

A 19-inch tie-down bar can be used to add strain relief for input power cables from the AC PDUs or cables routed from a raised floor. The following figure shows holes for two 10-32 x 0.50 inch screws that are pre-drilled on the top cap for attaching a tie-down bar.

Figure 5: 19" Tie-Down Bar

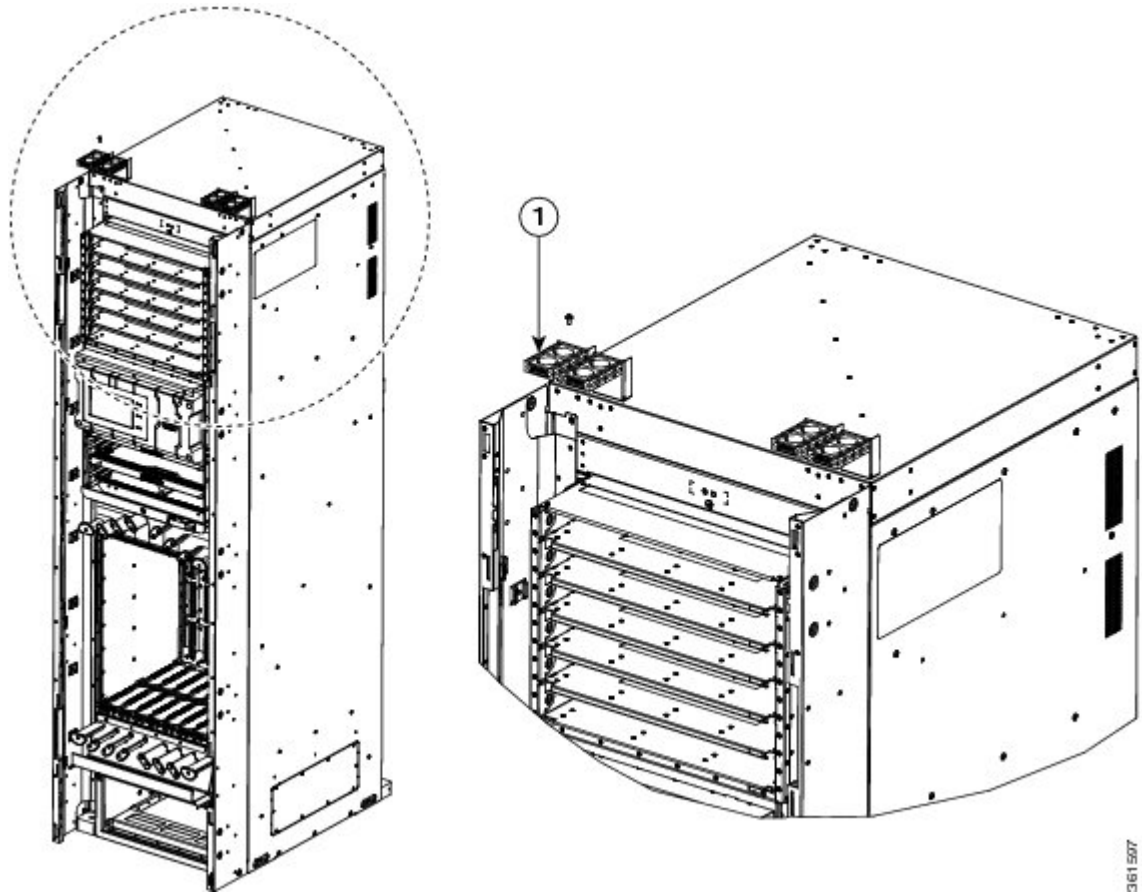


Optionally, you can install cable clamps on the top of the LCC to secure multi-fiber cables to the LCC. We recommend installing two cable clamp brackets with two stacked clamps on each bracket (four clamps for each trough), however you can configure the number of clamps according to your configuration.



Note The tie-down bar and cable clamps are not supplied by Cisco. You can order these parts from a commercial vendor such as Panduit (see <http://www.panduit.com>).

Figure 6: Optional Cable Clamps for Multi-Fiber Cables



1	Cable clamps
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DC Power System

Each DC-powered LCC contains six DC power trays. The upper three DC power trays are contained within power shelf 0, and the lower three DC power trays are contained within power shelf 1 (Each power shelf has a PCM with its own I/O power switch) Each DC power tray can contain up to four DC PMs. The DC power trays and PMs are field replaceable.

For N+N redundancy, power feeds A must power the upper three DC power trays and power feeds B must power the lower three DC power trays. Not all of the PM bays need to be filled.

This table lists the DC input current and voltage specifications.

Table 1: DC Input Current and Voltage Information

Nominal input voltage	-48 VDC or -60 VDC (tolerance range: -40 to -72 VDC)
Input line current	50 A maximum at -48 VDC 40 A maximum at -60 VDC 60 A maximum at -40 VDC

Each wiring block on the DC power tray contains two sets of terminals, one positive and one negative, and is covered by a plastic terminal block cover that is secured by a screw to a torque of 5 to 7 in-lb (0.56 to 0.79 N-m). Each DC power cable is connected to a power tray with a torque of 45 to 55 in-lb (5.1 to 6.2 N-m). The terminal block supports 2-6-AWG input wire.

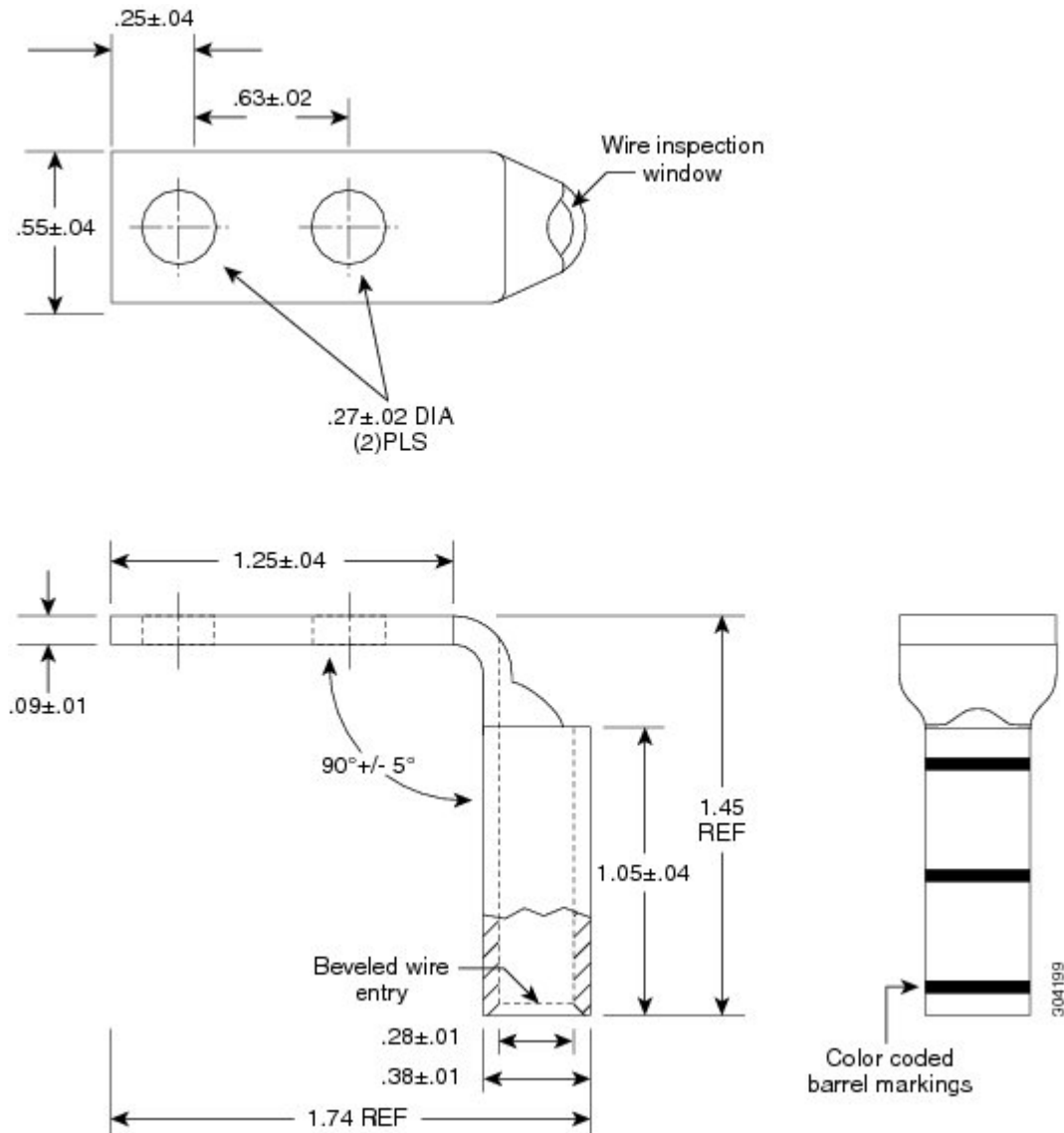
The cable should be sized according to local and national installation requirements. Use only copper cable.



Note An “allpole” separation of the power source is not required. The DC PM is an isolated DC/DC converter with no galvanic connection between “L+” and the LCC. In addition, the “L+” potentials of each PM are isolated from each other.

The power supply terminal posts are centered 0.63 inches (16 mm) apart and are 1/4-20 thread. We recommend that you use an appropriately sized 90-degree angle, industry-standard, dual-hole, standard barrel compression lug.

Figure 7: 90-Degree Angle Standard Barrel Compression Lug



DC Input-Power-Present LEDs

The DC input-power-present LED provides a visual indication that there is voltage present across the input terminal connection. The DC input-power-present LED starts to light up when the input voltage reaches –20 VDC, gets brighter as the voltage increases, and is fully lit when the input voltage reaches –48 VDC.

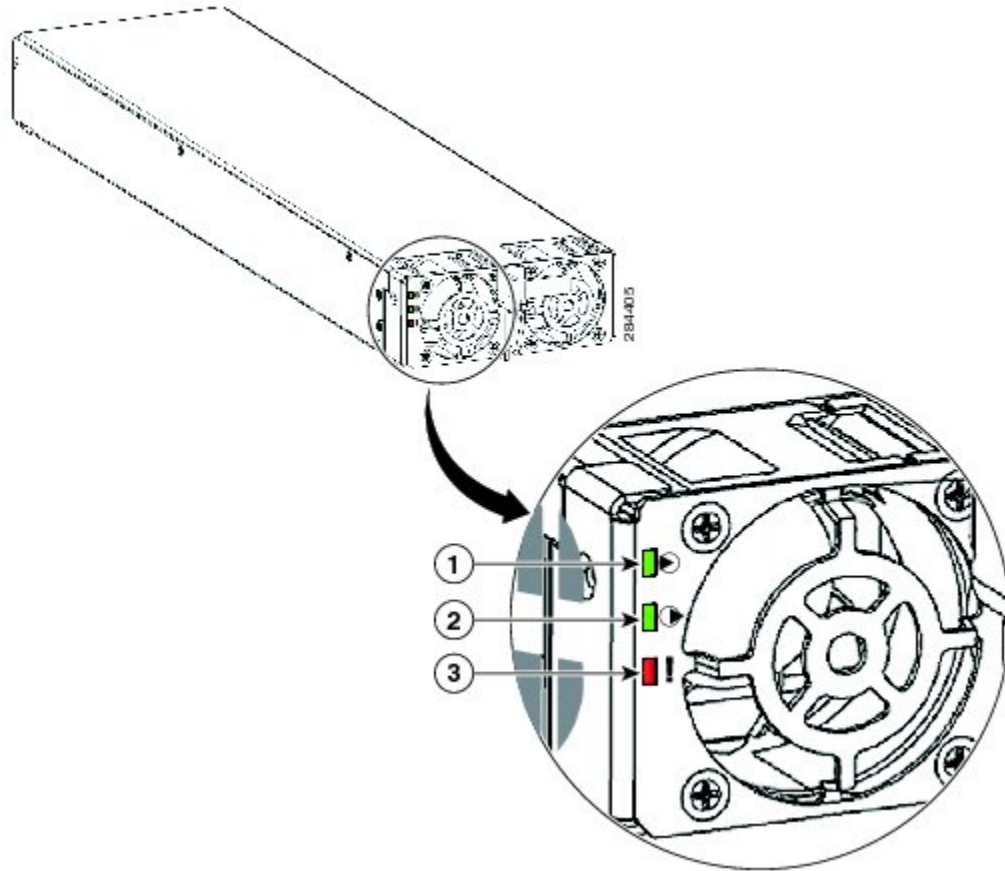


Note Power should be disconnected before servicing the input power connection.

**Caution**

If the input voltage polarity is reversed, or if the LED circuit fails, the LED will not light. In this case, service personnel should check for hazardous voltages before working on the system.

Figure 8: DC Power Module Status Indicators



1	Input OK LED	ON when input voltage is present and within the correct range
2	Output OK LED	ON when output voltage is present
3	Fault LED	ON when an internal fault has occurred on the PM

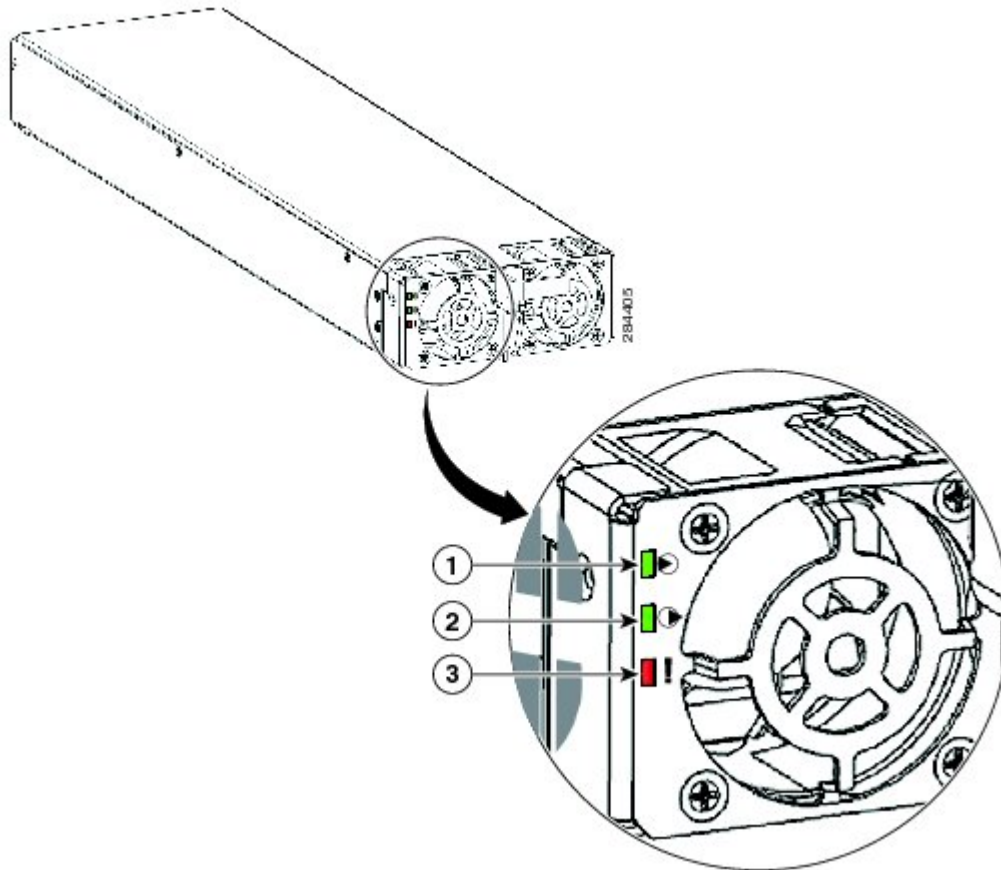
AC Input-Power-Present LEDs

The AC input-power-present LED provides a visual indication that there is voltage present across the input terminal connection. The AC input-power-present LED lights up when the input voltage reaches within the acceptable range.



Note Power should be disconnected before servicing the input power connection.

Figure 9: AC Power Module Status Indicators



1	Input OK LED	ON when input voltage is present and within the correct range
2	Output OK LED	ON when output voltage is present
3	Fault LED	ON when an internal fault has occurred on the PM

Installing Power Components

This section describes how to install power components in the Cisco NCS 6008 LCC.



Note Although there are differences between the AC and DC power trays and PMs, they are installed using the same procedures.

We recommend that you install the power components in the order outlined in this section.

Installing the LCC Ground Cable

This section describes how to install a ground cable to either NEBS bonding and grounding point on the rear of the Cisco NCS 6008 LCC.

Required Tools and Equipment

- Ground lug
- Ground cable
- Crimping tool and lug specific die
- 3/8-inch drive socket wrench
- 10-mm 6-pt. socket
- 3/8-inch drive torque wrench rated to include 30 in-lb (3.39 N-m)

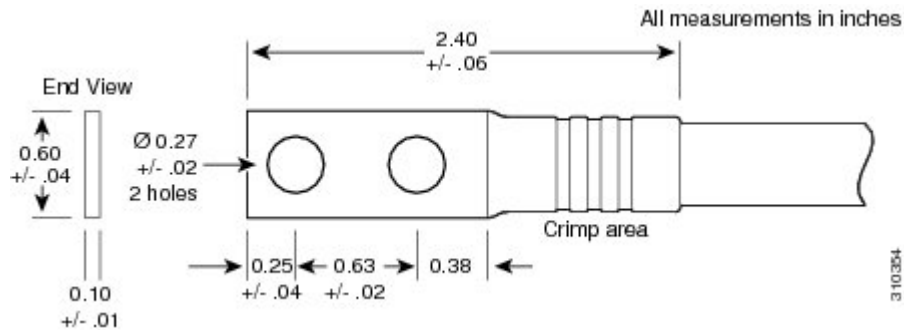
To ensure a satisfactory ground connection, you also need the following:

- One 180-degree angle (straight) grounding lug that has two M6 bolt holes with 0.63 inch (16 mm) spacing center to center between them, and a wire receptacle able to accept a 2-6-AWG multistrand copper wire (see below figure).
- Four M6 bolts with integrated square cone locking washers (shipped pre-installed on the LCC, two at each grounding point).
- We recommend 2-6-AWG multistrand copper ground cable. This cable is not available from Cisco; it is available from any commercial cable vendor such as Panduit (see <http://www.panduit.com>). The cable should be sized according to local and national installation requirements.



Note The DC return of this system should remain isolated from the system frame and LCC (DC-I: Isolated DC Return).

Figure 10: 180-Degree Angle Straight Barrel Grounding Lug



Steps

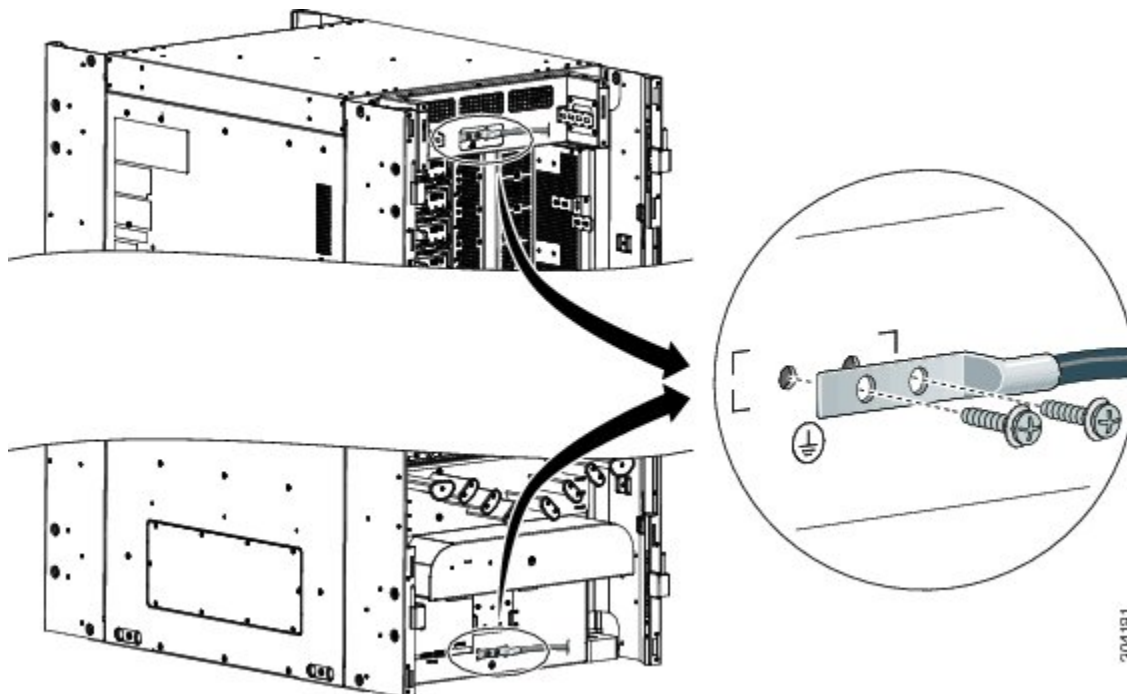
To attach the ground cable to the LCC, perform the following steps:

Step 1 Use the crimping tool mandated by the lug manufacturer to crimp the lug to the ground cable.

Step 2 Use the socket wrench to attach the lug and ground cable to either grounding point (see below figure).

Note The two bolts below each NEBS bonding and grounding point are required for proper bonding and grounding of the LCC and should not be removed.

Figure 11: Attaching to Either NEBS Bonding and Grounding Point



Step 3 Use the torque wrench to tighten the bolts to a torque of 30 in-lb (3.39 N-m).

Step 4 Connect the other end of the ground cable to a grounding point at your site, according to site requirements.

Installing an AC or DC Power Tray (Preinstalled)

AC or DC power trays are preinstalled in the shipped LCC. During normal operation, they should not have to be removed. However, they are field serviceable units (FRUs). If they need replacement, see the [“Removing an AC or DC Power Tray”](#) section.

This section describes how to install an AC or DC power tray in the Cisco NCS 6008 LCC. Although there are differences between AC and DC power trays, they are installed by using the same procedures as described below. Once they are installed into a LCC that is properly grounded, external grounding to the power tray is not needed.

The following figures show the front and rear of an AC power tray.

Figure 12: AC Power Tray—Front View

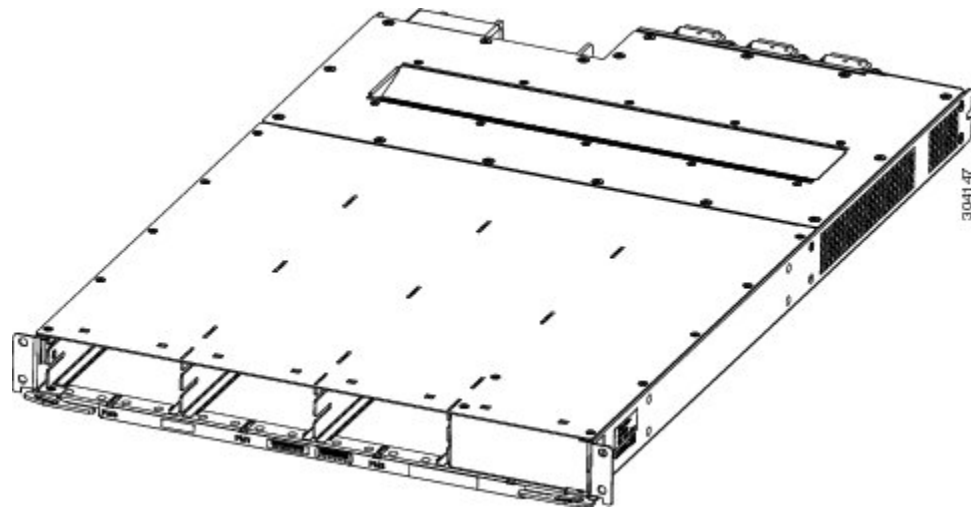
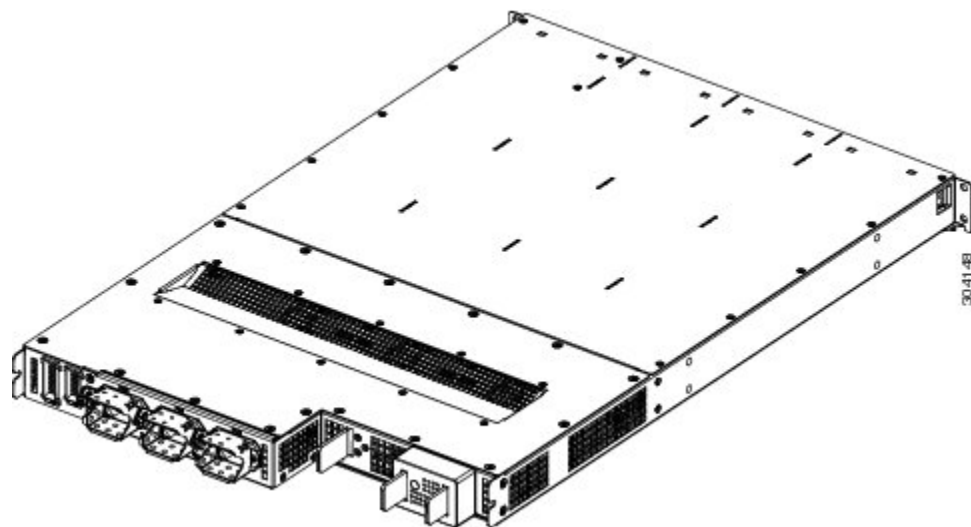


Figure 13: AC Power Tray—Rear View



The following figures show the front and rear of a DC power tray.

Figure 14: DC Power Tray—Front View

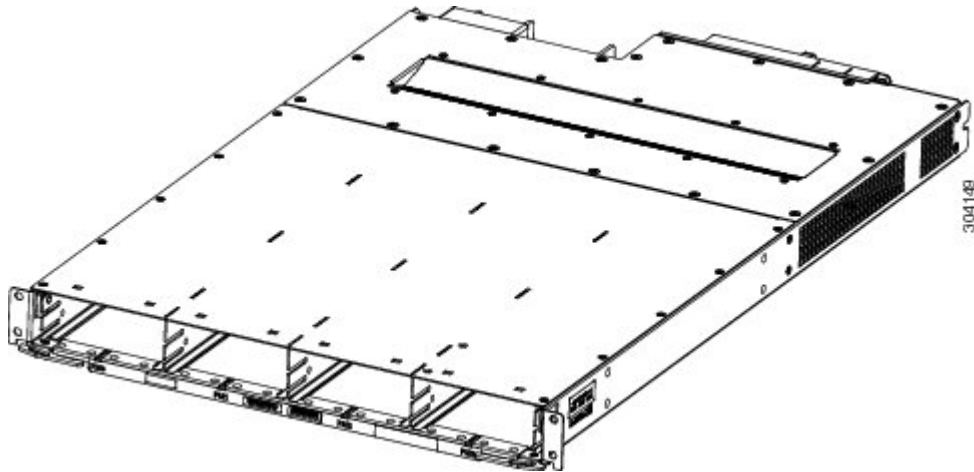
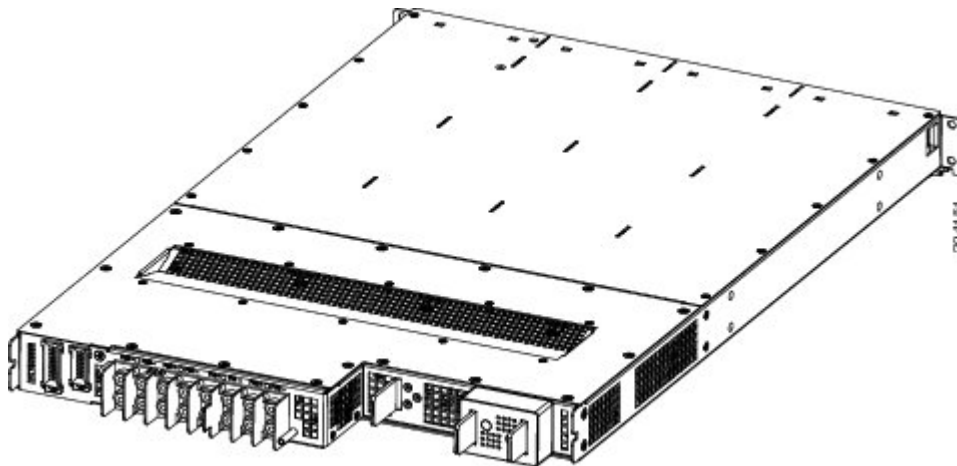


Figure 15: DC Power Tray—Rear View (Clear Plastic Safety Cover Removed)



Prerequisites

Before you reinstall an AC or DC power tray, do the following:

- Power off the power shelf that houses the power tray you are about to install by using the I/O power switch on the respective PCM.
- Completely power off the entire system at the supply circuit breakers before installing a power tray.
- Remove the top grilles from both the front and rear sides of the LCC, if installed.
- Ensure the power tray you are about to install is empty. Do not install a power tray into the LCC with PMs already installed in the power tray.



Caution

The I/O switch on each power shelf only disables the output of the PMs in that shelf. The inputs to the PMs remain hot, as well as the system's internal busbar (due to the other power shelf).

Required Tools and Equipment

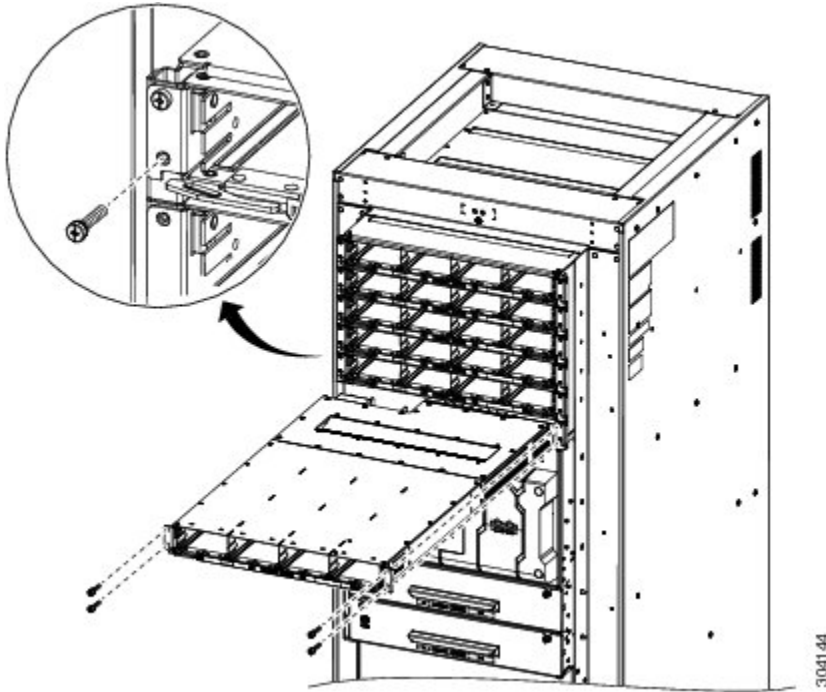
- Four M4 x 10 mm screws per power tray
- 6-inch, number-2 Phillips screwdriver
- Torque screwdriver with number-2 Phillips head and torque rated up to 55 in-lb (6.2 N-m)
- AC or DC power tray
 - AC power tray (Cisco PID NCS-AC-PWRTRAY=)
 - DC power tray (Cisco PID NCS-DC-PWRTRAY=)

Steps

To install an AC or DC power tray, perform the following steps:

-
- Step 1** Using two people, one to support the power tray underneath and the other to keep it steady, lift the power tray up and slide it partially into a power tray slot on the front side of the LCC.
- Caution** Because of the weight of a power tray, 20 lb (9 kg), and the height at which a power tray is installed in the LCC, you should be especially careful while removing and carrying a power tray. To prevent injury, avoid sudden twists or lateral moves.
- Step 2** Grasping both handles simultaneously, push both the left and right handles in at the same time to push the tray into the LCC. Slide the tray all the way into the LCC, until both power tray handles hook around the pins.
- Caution** Use care not to bend the handles.

Figure 16: Installing a Power Tray into the LCC



Step 3 Use the screwdriver to tighten the four M4 x 10 mm screws that attach the power tray to the LCC.

Step 4 Use the torque screwdriver to tighten the four screws to a torque value of 15 in-lb (1.69 N-m) to 20 in-lb (2.26 N-m).

Note The screws that attach a power tray to the LCC are relied upon for power tray bonding and grounding.

Installing an AC or DC Power Module

This section describes how to install AC or DC PMs into power trays in the Cisco NCS 6008 LCC. Although there are differences between the AC and DC PMs, they are installed using the same procedures.

The following figures show the front and rear of the AC PM.

Figure 17: AC Power Module—Front View

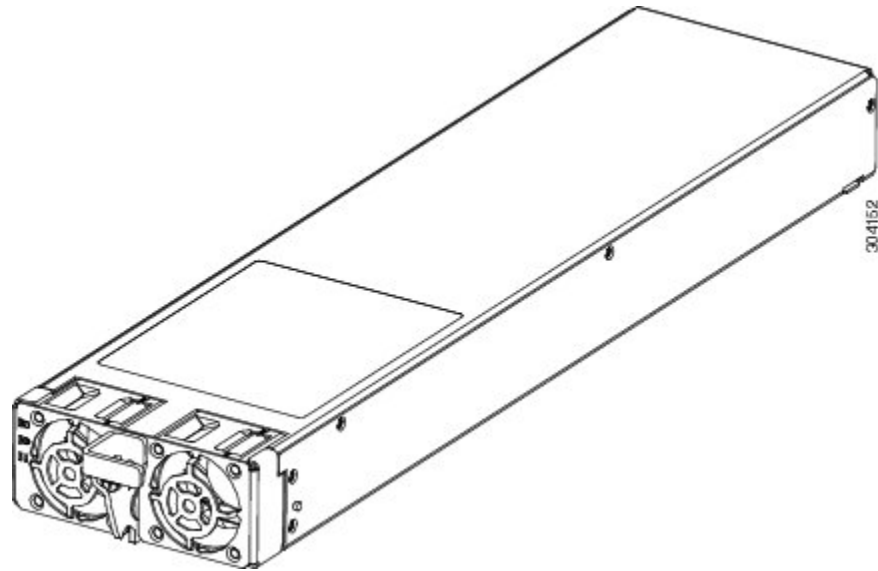
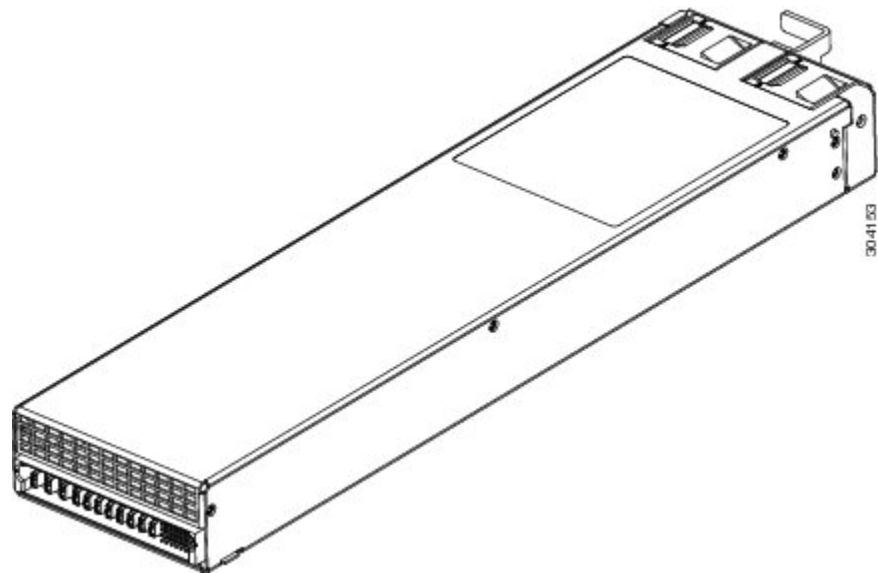
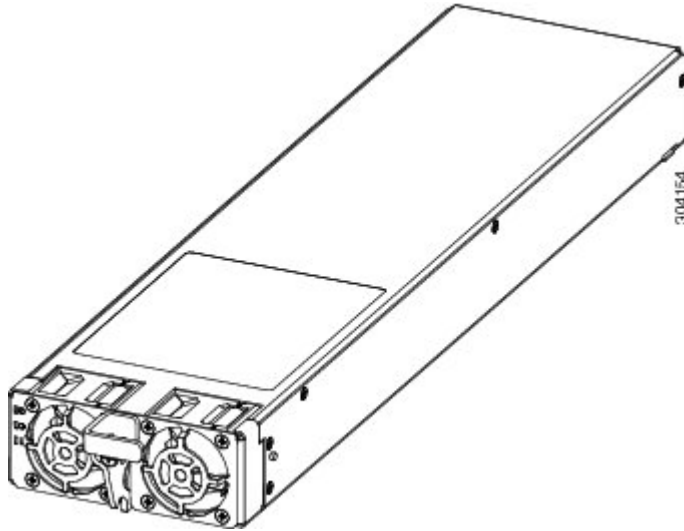
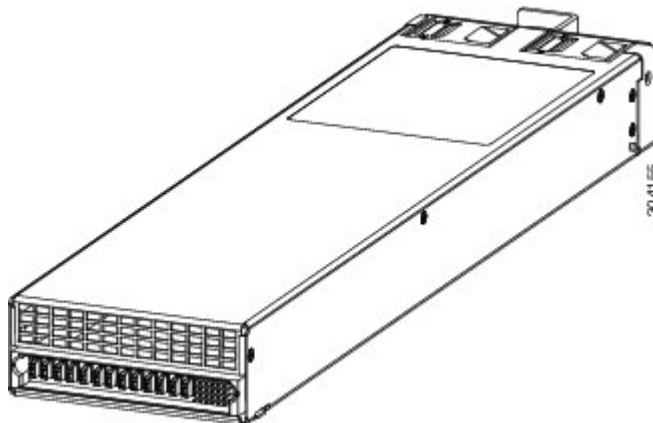


Figure 18: AC Power Module—Rear View

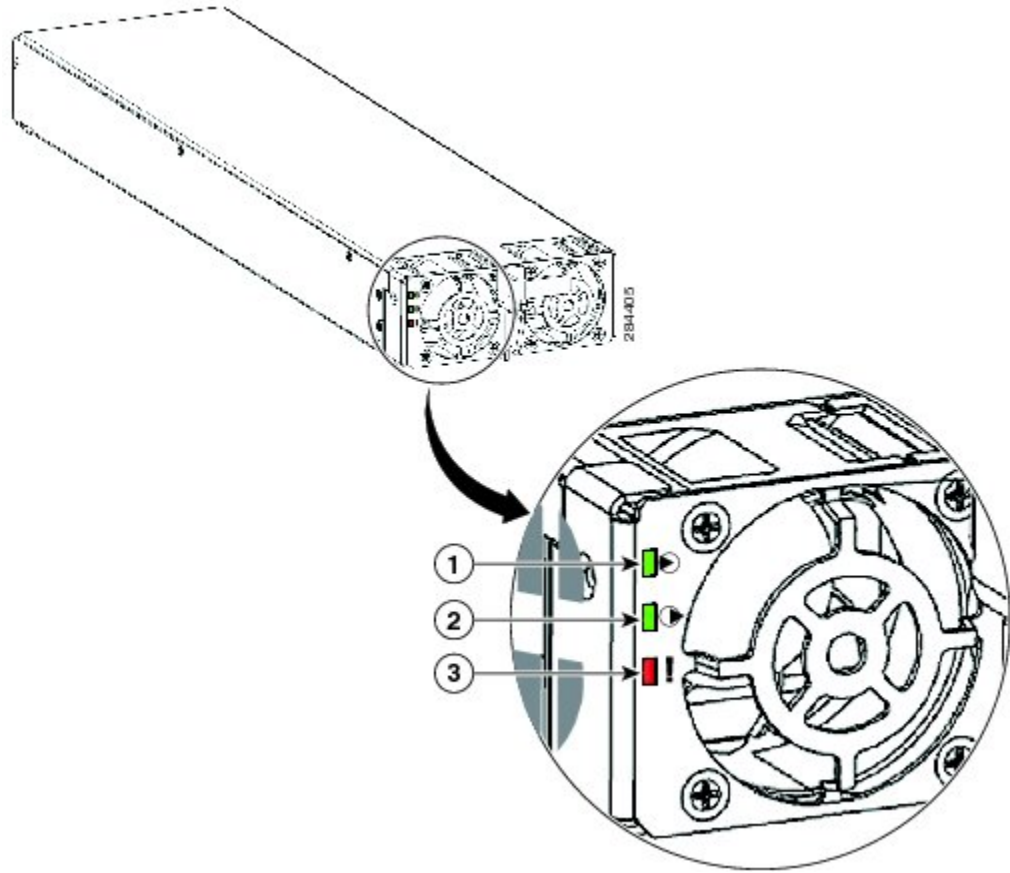


The following figures show the front and rear of the DC PM.

Figure 19: DC Power Module—Front View*Figure 20: DC Power Module—Rear View*

Each PM has three status LEDs located on the front left side of its faceplate. See the follow table for the meaning of each status LED.

Figure 21: AC and DC Power Module Status LEDs



1	Input OK LED
2	Output OK LED
3	Fault LED

Table 2: Power Module LED Status Indicator Lights

LED Name	Color	Meaning
Input OK	Green	<ul style="list-style-type: none"> • On: The input voltage is present and within regulation range. • Blinking: The input voltage is present but out of regulation range. • Off: The input voltage is not present.
Output OK	Green	<ul style="list-style-type: none"> • On: The output voltage is on. • Blinking: The PM is in a power limit or Over Current condition. • Off: The output voltage is off.

LED Name	Color	Meaning
Fault	Red	<ul style="list-style-type: none"> • On: An internal fault is detected within the PM. • Off: No internal faults detected on the PM.

Prerequisites

- [Installing the LCC Ground Cable, on page 11](#)
- [Installing an AC or DC Power Tray \(Preinstalled\), on page 13](#)



Caution

Do not attempt to install the PM until the power tray is in place and screwed into the LCC.

Related Topics

[Installing an AC or DC Power Tray \(Preinstalled\), on page 13](#)

Required Tools and Equipment

- ESD-preventive wrist strap
- 6-inch, number-1 Phillips screwdriver
- Torque screwdriver with number-1 Phillips bit and rated torque at 5.5 in-lb (0.62 N-m)
- AC or DC PM
 - AC PM (Cisco PID PWR-3KW-AC-V2)
 - DC PM (Cisco PID PWR-2KW-DC-V2)

Steps



Note

Power modules are keyed to prevent incorrect insertion.

To install a PM into a power tray, go to the front of the LCC and perform the following steps:

Step 1 Attach the ESD-preventive wrist strap to your wrist and connect its leash to the ESD connection socket on the front side of the LCC (see [Preventing Electrostatic Discharge](#)). You can also connect the ESD-preventive wrist strap leash to any bare metal surface on the LCC.

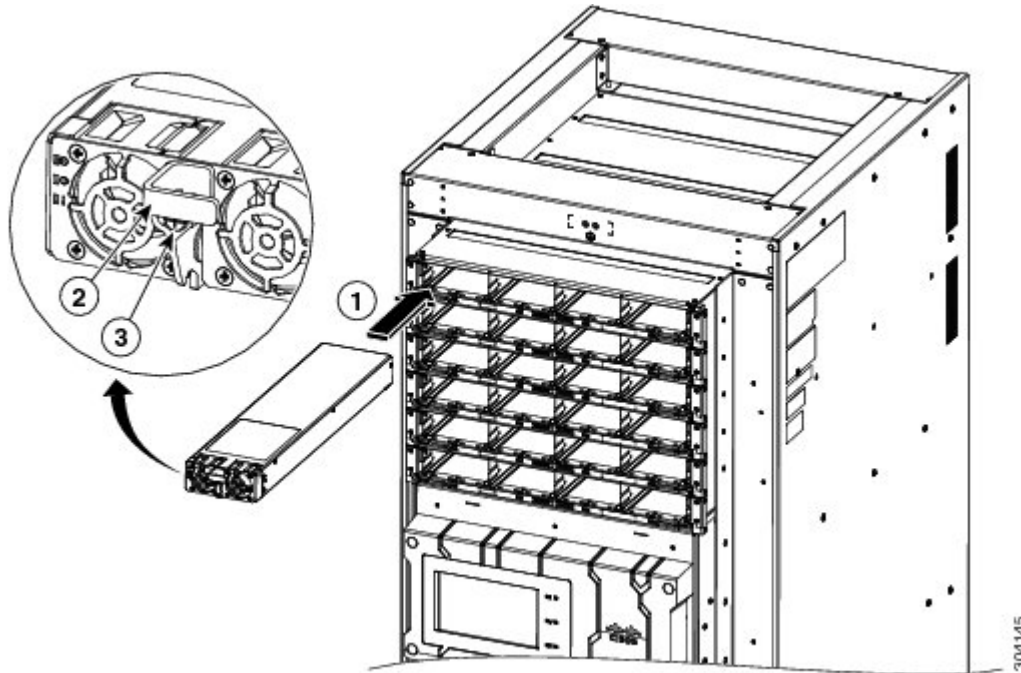
Step 2 Using two hands to support and guide the PM, slide it into the power tray (see figure below).

Note Though a PM can be inserted into any empty PM bay in any power tray, during the initial installation, install a PM into PM0 in PT0 first. Next, install PMs in ascending order into the remaining PM bays in PT0. Then, install PMs in ascending order into the remaining power trays.

Step 3 Rotate the ejector lever upwards to seat the PM into the power tray.

- Step 4** Tighten the ejector lever screw to a nominal installation torque of 5.5 in-lb (0.62 N-m). Do not exceed a maximum installation torque of 10 in-lb (1.13 N-m).

Figure 22: Installing a PM into a Power Tray



1	Insert the PM
2	Ejector lever
3	Ejector lever screw

- Step 5** Fill the power tray, in PM ascending order, to the required configuration.

- Step 6** If necessary, repeat these steps for the remaining power trays.

Installing a Power Module Slot Cover

This section describes how to install a PM slot cover into an empty PM slot.

Prerequisites

Before performing this task, you must remove the cosmetic grilles and install the PMs to the required configuration in each power tray.

Required Tools and Equipment

- ESD-preventive wrist strap

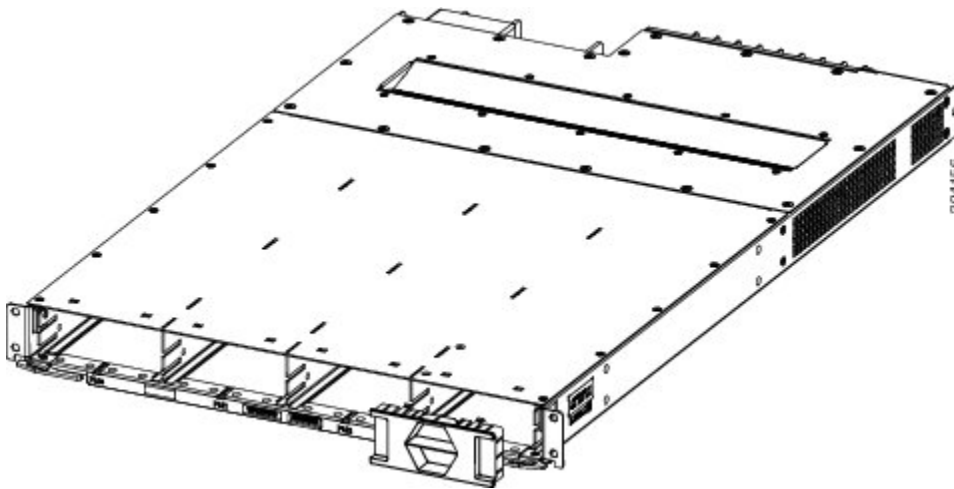
- 6-inch, number-1 Phillips screwdriver
- Torque screwdriver with number-1 Phillips bit and rated torque at 5.5 in-lb (0.62 N-m)
- AC or DC PM
 - AC PM (Cisco PID PWR-3KW-AC-V2)
 - DC PM (Cisco PID PWR-2KW-DC-V2)

Steps

To install a PM slot cover in a power tray, perform the following steps:

-
- Step 1** Attach the ESD-preventive wrist strap to your wrist and connect its leash to the ESD connection socket on the front side of the LCC (see [Preventing Electrostatic Discharge](#)). You can also connect the ESD-preventive wrist strap leash to any bare metal surface on the LCC.
- Step 2** Align the PM slot cover with the empty PM slot in the power tray.
- Step 3** Insert the two tabs on the top of the PM slot cover into the two holes on the top of the PM slot (See figure in Step 4).
- Step 4** Push in the top of the PM slot cover gently until it clicks into place.

Figure 23: PM Slot Cover on the Front of a Power Tray



Installing AC Input Power Cords

This section describes how to connect the AC input power cords to the power modules.

Prerequisites



Note Before connecting AC input power cords to the power system, make sure that the input power cords are not energized.



Note Ensure that there is a readily accessible disconnect device incorporated in the building's installation wiring.



Note The circuit breaker and fuse lockout procedures should follow the rules and regulations in the National Electrical Code (NEC) and any local codes.



Note The AC power system requires single-phase AC input power to each PM. If you have 3-phase AC Delta or AC Wye at your equipment, a *Cisco NCS 6008 LCC Power Distribution Unit (PDU)* is required to convert 3-phase AC input power to single-phase AC input power (Cisco PID NCS-PDU-DELTA or NCS-PDU-WYE). For more information, see the [Cisco CRS 3-Phase AC Power Distribution Unit Installation Guide](#).

Required Tools and Equipment

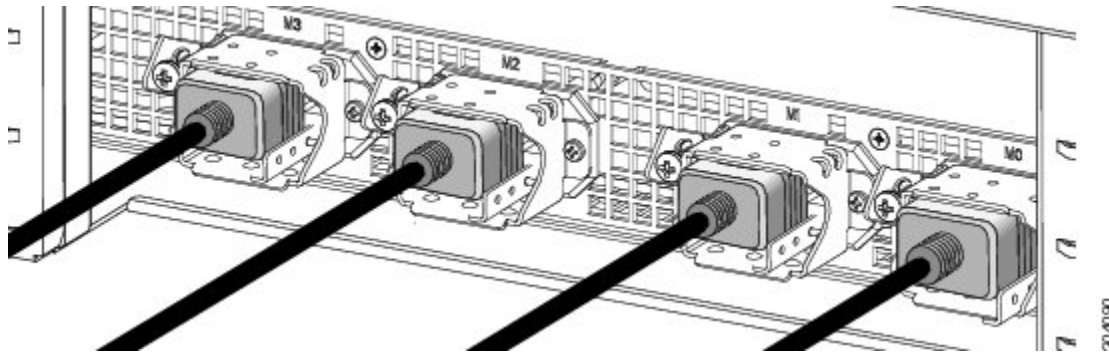
- 6-inch, number-1 Phillips screwdriver
- AC input power cords, depending on locale (see [System Product IDs](#))

Steps

To install the AC input power cords and perform the following steps:

-
- Step 1** On the rear of the LCC, insert the cord plug into the cord clamp following the labeling on the phase assignments from the PDU or the labeling on the single-phase power cords.
- Step 2** Use the screwdriver to secure the screw that clamps the cord plug in place.

Figure 24: AC Input Power Cords Connected to the Power Tray

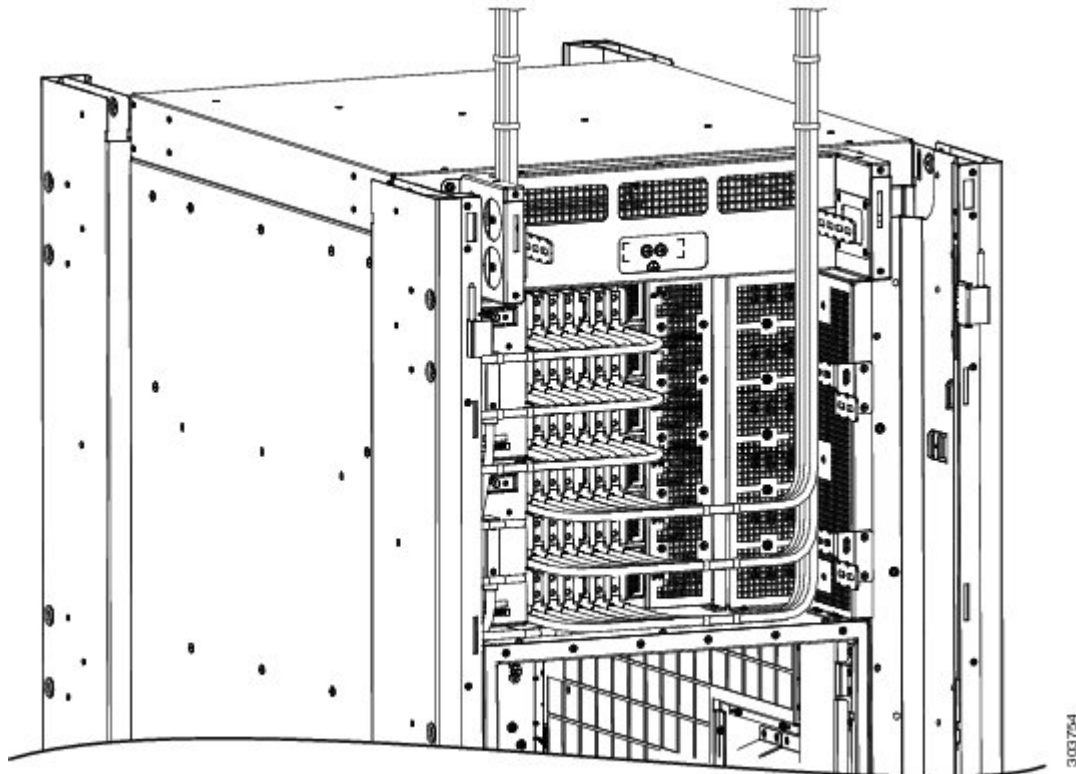


Installing DC Input Power Cables

This section describes how to connect DC input power cables and install DC terminal block covers. The DC terminal block cover is one piece that covers all four DC connections per tray.

This figure shows DC input power cabling. In this example, the cabling for power shelf 0 (power trays 0,1,2) route to the left. The cabling for power shelf 1 (power trays 3,4,5) route to the right.

Figure 25: DC Input Power Cabling



Prerequisites



Note Before installing cabling on the power tray, make sure that the input power cables are not energized.



Note Ensure that there is a readily accessible disconnect device incorporated in the building's installation wiring.



Note The circuit breaker and fuse lockout procedures should follow the rules and regulations in the National Electrical Code (NEC) and any local codes.

Required Tools and Equipment

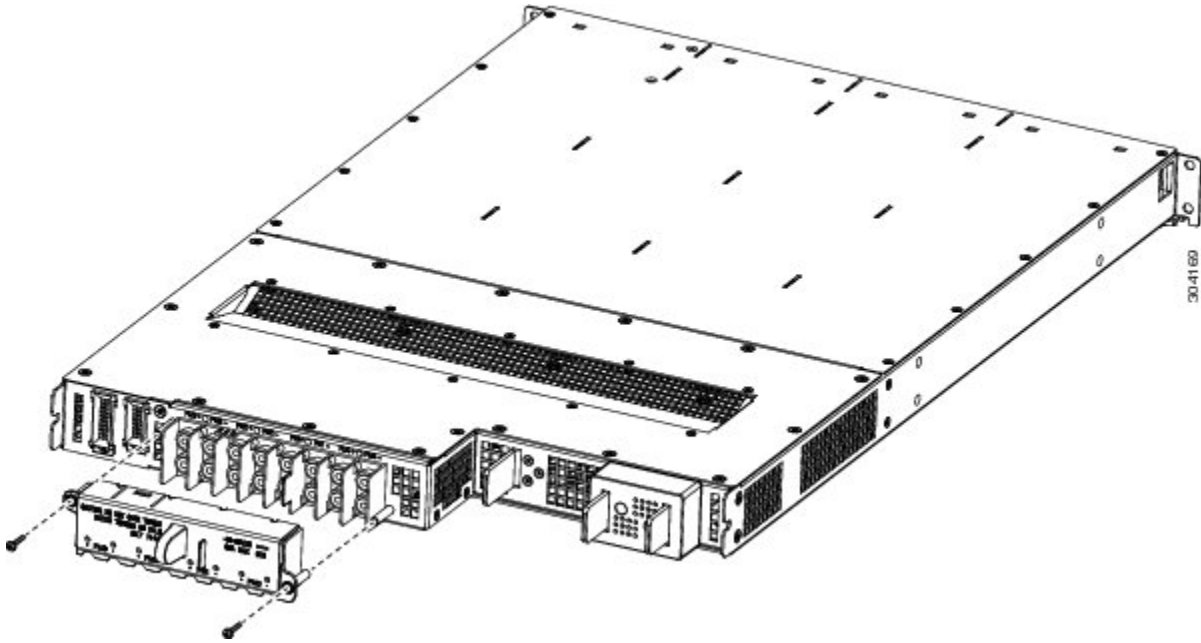
- DC power cables
- DC power cable lugs
- Crimping tool and lug-specific die
- 3/8-inch ratchet wrench with 7/16-pt. socket
- Multimeter
- Torque wrench with torque value rated up to 55 in-lb (6.2 N-m)
- Terminal block cover
- Torque screwdriver with number-1 Phillips head 8-inch shank, and a torque rating of 5 to 7 in-lb (0.56 to 0.79 N-m)

Steps

To connect DC input power cables, go to the rear of the LCC and perform the following steps:

Step 1 Remove any DC terminal block covers, if installed.

Figure 26: DC Terminal Block Cover Installed on Rear of Power Tray



Step 2 Verify the following resistance values:

- The resistance between the positive and negative power terminal studs of each input must be greater than 90 Kohm.
- The resistance between each positive terminal stud and bare metal surface on the power tray must be greater than 10 Mohm.
- The resistance between each negative terminal stud and bare metal surface on the power tray must be greater than 10 Mohm.

Note Typical hand held ohm meters will not measure 10 Mohm; instead they will auto-range to acquire a measurement and give an out-of-range reading. This is an acceptable reading provided that the meter is in calibration.

Step 3 Use the crimping tool mandated by the lug manufacturer to crimp the lugs to the DC input cables. For details on lugs, see the [DC Power System](#), on page 6.

The cable should be sized according to local and national installation requirements. Use only copper cable.

Note The power supply terminal block lug width is 0.60 inches (1.50 cm). The terminal posts are centered 0.63 inches (16 mm) apart and are 1/4-20 thread. We recommend that you use an appropriately sized 90-degree, industry-standard, dual-hole, standard barrel compression lug.

Step 4 Using the wrench, attach the positive and negative cable pairs to each terminal block on the power tray (PT0). Start with PM0 (located on the right side) and move left, finishing with PM3 (located on the left side). Use the torque wrench to tighten to a torque of 45 to 55 in-lb (5.1 to 6.2 N-m).

Step 5 Align the DC terminal block cover with the cover latch tab.

Step 6 Slide the terminal block cover upwards to align the screw with the mounting standoff.

Step 7 Use the screwdriver to secure the screw into the mounting standoff and tighten to a torque of 5 to 7 in-lb (0.56 to 0.79 N-m).

Step 8 If necessary, repeat these steps for all power trays.

Powering On and Powering Off the LCC

This section describes how to power on and power off an AC or DC powered system.

Powering On the LCC

Prerequisites

- [Installing the LCC Ground Cable](#)
- [Installing an AC or DC Power Tray \(Preinstalled\)](#)
- [Installing an AC or DC Power Module](#)
- [Installing AC Input Power Cords](#)
- [Installing DC Input Power Cables](#)



Note If you have a DC power system installed, wiring at the Battery Distribution Fuse Bay (BDFB) or at the power plant should be complete.

Required Tools and Equipment

- Voltmeter

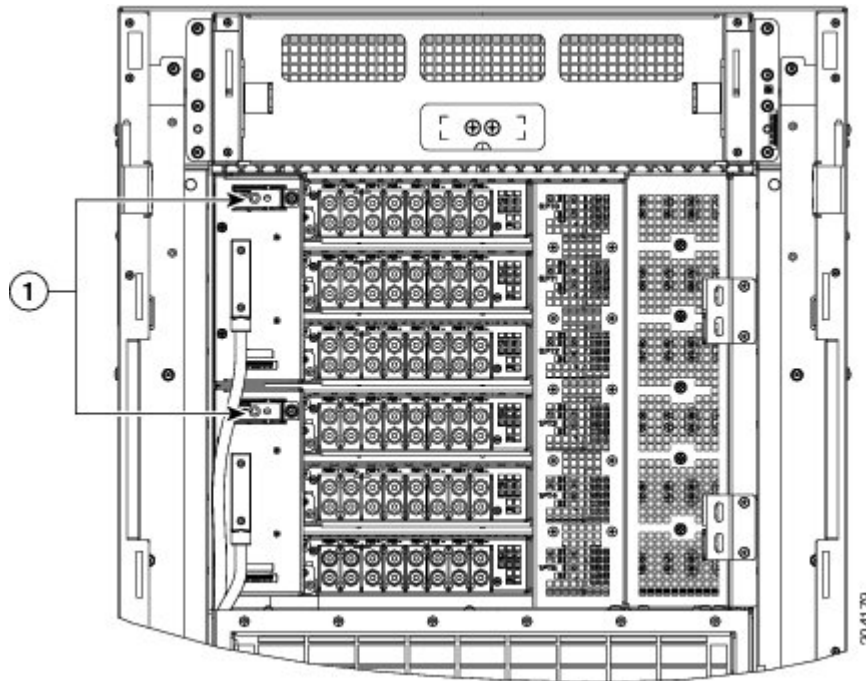
Steps

To power on the LCC, perform the following steps:

Step 1 Make sure that the LCC is properly grounded (see the [Bonding and Grounding Guidelines, on page 1](#)).

Step 2 Make sure that the I/O switches on the rear are in the OFF position.

Figure 27: I/O Power ON/OFF Switches



1	I/O power ON/OFF switches
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Step 3 Verify that none of the Output OK LEDs on the front of the PMs installed in the tray are green.

Step 4 If you have a DC power system installed, perform the following steps:

- Insert the power fuse at the BDFB or power plant to energize power tray 0, PM 0.
- Measure the voltage at the input terminal block and verify that the DC voltage between the positive and negative terminals is between -48 VDC and -60 VDC.

Caution Make sure that the polarity of the DC input power cabling is correct. This is a negative voltage system.

Caution This is a positive ground system; make sure to connect the positive lead to the +RTN terminal and the negative lead to the -48 V terminal.

- Verify that the correct Input OK LED on the front of the PM is lit.
- Repeat Steps a through b for each of the remaining DC inputs.
- Continue to Step 7.

Step 5 If you have an AC power system installed, perform the following steps:

- Open the circuit breaker for each feed on the PDU or the individual single-phase input for each installed PM at the circuit breaker cabinet.
- Energize the individual single-phase breaker at the circuit breaker panel one at a time, and verify the correct input LED lights.
- Close PM0 (AB) on the PDU and verify that the Input OK LED is lit on the front of the PM that is energized.
- Repeat Step c for the remaining PMs.

Step 6 Turn the I/O switches at the rear to the ON position, and verify the output LED is on.

Step 7 Verify that the fan tray status LEDs are lit and that the fans are running.

- Step 8** Turn off the rear power breakers for power shelf 0 (PS0) and power shelf 1 (PS1).
- Step 9** Install all cards (RP, FC, and LC) in the LCC. For more information, see *Installing Route Processor Cards, Line Cards, and Fabric Cards* chapter.
- Step 10** Turn on the output breakers when done.
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Powering Off the LCC

Steps

To power off the LCC, perform the following steps:

- Step 1** Turn the I/O switches at the rear to the OFF position.
- Step 2** If you have a DC power system installed, remove the power fuse at the BDFB or power plant for each PM on all power trays.
- Step 3** If you have an AC power system installed, turn off the source circuit breakers to de-energize the PMs in all power trays.
- Step 4** Verify that all PM input LEDs are off.

Note All DC power cables or AC power cords must be de-energized to fully remove power from the LCC.
