



Installing and Removing Power Supplies

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Power Supply Overview

You can install two types of power supplies in the chassis:

- C6880-X-3KW-AC-Input power supply

- C6880-X-3KW-DC-Input power supply

Figure 1: C6880-X-3KW-AC-Input Power Supply

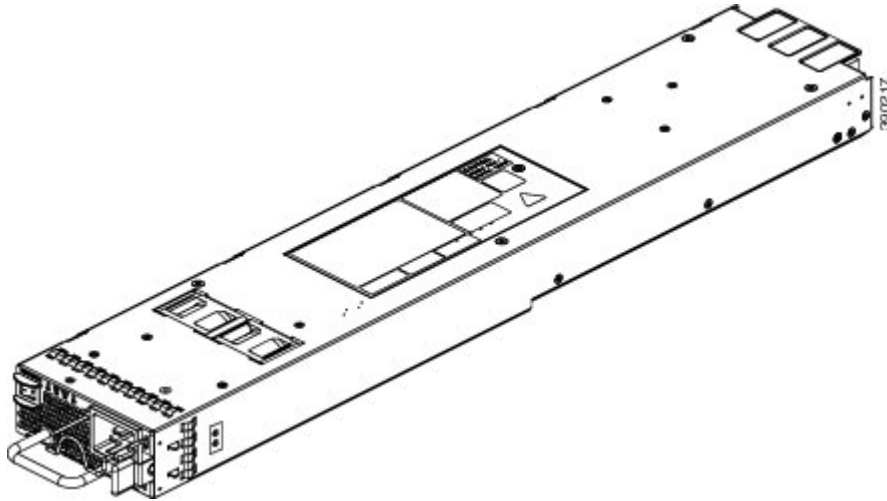
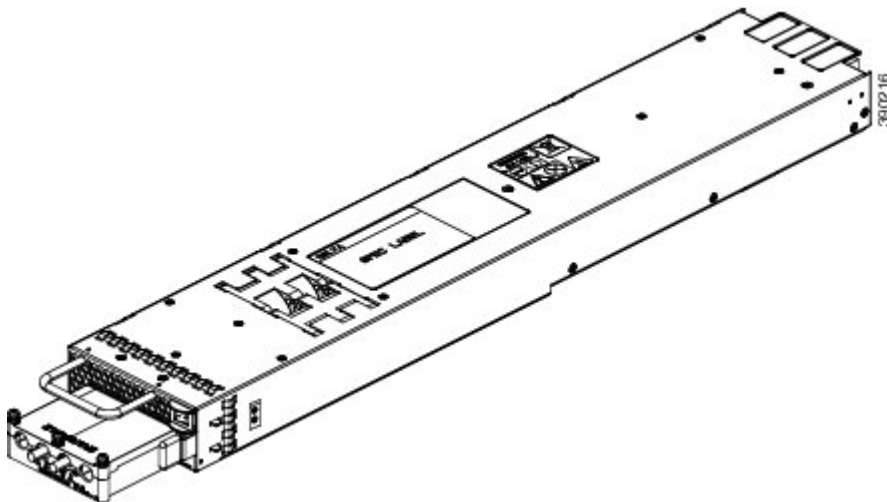


Figure 2: C6880-X-3KW-DC-Input Power Supply



The switch chassis has two slots in which you can install power supplies using any of the following combinations:

- Two AC-input power supplies
- Two DC-input power supplies
- One AC-input power supply and one DC-input power supply
- One AC-input power supply (leaving the blank cover on the other slot)
- One DC-input power supply (leaving the blank cover on the other slot)

**Note**

If you leave any power supply slots empty, you must ensure that the blank cover (C6800-PS-CV) is installed in that slot to maintain the designed airflow.

This table lists the power supply models.

Part Number	Description
C6880-X-3KW-AC	3000-W AC Power Supply
C6880-X-3KW-DC	3000-W DC Power Supply
C6800-PS-CVR	Blank cover

The power supplies can work together in either of the two modes:

- **Redundant Mode**—Each power supply operates at approximately 50 percent of its capacity, no greater than 60 percent and no less than 40 percent. If one power supply fails, the other power supply can provide power for the entire system on its own. This is the default and recommended mode for production.
- **Combined Mode**—Each power supply provides approximately 83 percent of its capacity, providing a combined capacity of approximately 167 percent. If one power supply fails, the other power supply might not be able to provide power for the entire system. This is not the recommended mode for operation.

Installing Power Supplies

You follow the same steps to install the AC-input and DC-input power supplies, but you must ground them differently.

Before You Begin

- The switch chassis must be installed in a cabinet or rack that is secured to the data center.
- Remove the power supply from its shipping container and remove any packaging.
- You need the following additional tools and equipment:
 - Nut driver attachment for number 1 Phillips-head screwdriver or ratchet wrench with torque capability (used only for DC-input power supplies).
 - Crimping tool.
 - For the DC-input power supply, you need four power cables sized to reach the DC power source or power interface unit (PIU).
 - Grounding wire — Size this wire to meet local and national installation requirements. For U.S. installations, you must use a 6 AWG copper conductor. For installations outside the U.S., consult your local and national electrical codes. The length of the grounding wire depends on the proximity of the switch to proper grounding facilities.

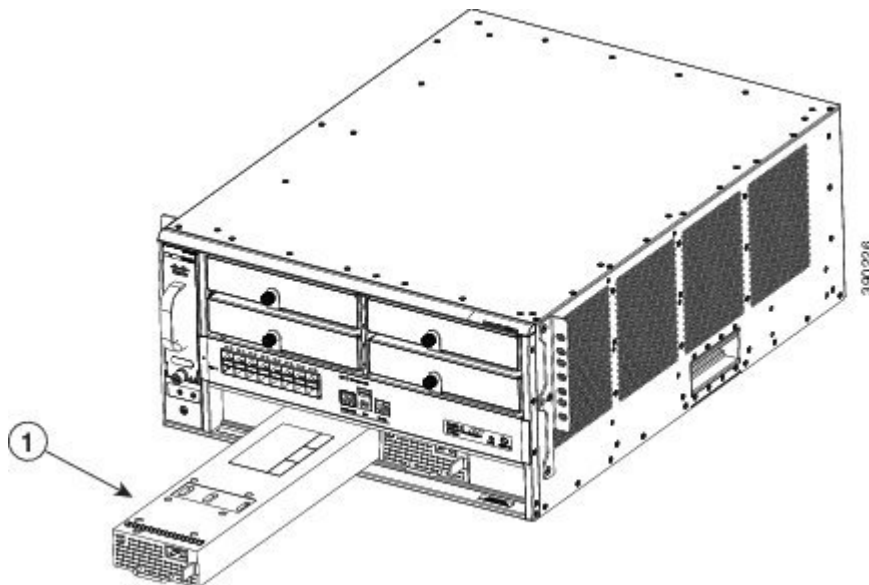
Inserting the Power Supply

To insert the power supply into the chassis, follow these steps:

Procedure

- Step 1** Unscrew the screws that secure the blank cover on the slot in which you want to install the power supply.
- Step 2** Remove the blank cover and store it for future use.
- Step 3** Verify that the power switch on the front of the new power supply is set to standby (labelled as 0) and that the power supply is not connected to any power sources.
- Step 4** Hold the handle on the power supply with one hand, place your other hand under the power supply to support its weight, and position the power supply with its back end at the open power supply bay. See the figure for an example (AC power supply is shown as an example, DC power supply can be installed in the same way).
- Step 5** Slide the unit all the way into the power supply bay until the release latch on the front of the power supply clicks and prevents you from moving the power supply in or out of the chassis.

Figure 3: Installing the Power Supply



1	AC power supply
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Connecting to the Power Source

You follow the same steps to install the AC-input and DC-input power supplies, but you must ground them differently.

- AC-input power supply—It is automatically grounded when you connect its power cable to the power supply and the power source.
- DC-input power supply—You do not connect the power supply directly to the earth ground.

You use one power cord for each power supply to connect the power supply to its power source.

The number of power sources you use for your power supplies depends on the mode with which you install them:

- Combined mode (no power redundancy)—Connect both power supplies to the same power source.
- Redundancy mode—Connect each power supply to a separate power source.

Before You Begin

Before you connect power supplies to power sources, ensure the following:

- The chassis is connected to an earth ground. See [Establishing the System Ground](#).
- You have receptacles for the power sources within reach of the power supply cables.
- If you are connecting to a DC power, check that you are using 6-AWG power cables to connect to the power supply. The 6-AWG wire size applies to the negative [-], and positive [+] cables that connect to negative and positive slots of the terminal box respectively. You have to procure the power cable.
- If you are installing more than one DC-input power supply, each must be protected by a dedicated circuit breaker or a fuse that is sized according to the power supply input rating and the local or national electrical code requirements.
- The power sources are rated as follows:
 - For North American AC-input installations—20 A with 110 V or 220 V circuits.
 - For North American DC-input installations—(-48 VDC nominal at 37 A in North America (operating range: -40.5 to -56 VDC).
 - For international installations—Size the circuits by local and national standards.
- The power supply is already inserted into the chassis.

**Caution**

Ensure that the power source is OFF. As an added precaution, place the appropriate safety flag and lockout devices at the source power circuit breaker, or place a piece of adhesive tape over the circuit breaker handle to prevent accidental power restoration while you are working on the circuit.

**Warning**

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

Connecting to an AC Power Source

To connect to a power source, follow these steps:

**Warning**

Take care when connecting units to the supply circuit so that wiring is not overloaded. **Statement 1018**

Procedure

Step 1 Ensure that the power supply switch located on the front of the power supply is set at standby (labeled as 0).

Step 2 Plug the power cable into the power supply. Pull down the retention clip over the plug on the power cable.

Step 3 Plug the other end of the power cable into an power source supplied by the data center.

Note When using redundant mode, connect each power supply to a separate power source.

Step 4 Turn the power switch from standby to on (from 0 to 1 as labeled on the power switch).

Step 5 Verify that the power supply is receiving power and outputting DC power by checking that the INPUT and OUTPUT power supply LEDs are on and the FAULT LED is not on or flashing. For an explanation of all the power supply LEDs and the conditions that they indicate, see [AC-input Power Supply LEDs, page 1-8](#) and [DC-input Power Supply LEDs, page 1-9](#).

Tip When you first activate the power supply, you can verify the functionality of the LEDs by checking that each LED turns on for a couple of seconds.

If the Fault LED is flashing red, turn the power switch to standby (labeled as 0), check the AC power connections on the power supply and the AC power source, and then turn the power switch back on (labeled as 1). The Input and Output LEDs for the connected power supplies should be green and the Fault LED should be off.

Connecting to a DC Power Source

To connect the DC power supply directly to one or two DC power sources, follow these steps:

**Warning**

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

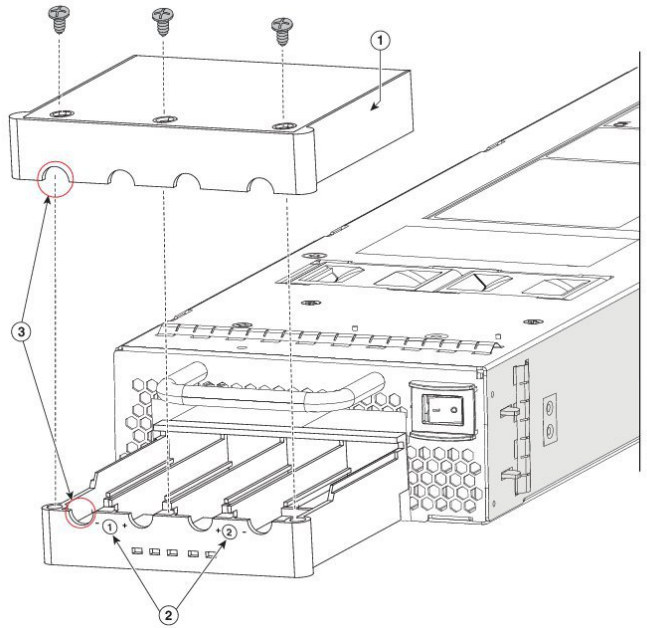
**Warning**

Hazardous voltage or energy may be present on DC power terminals. Always replace cover when terminals are not in service. Be sure uninsulated conductors are not accessible when cover is in place. **Statement 1075.**

Procedure

- Step 1** Ensure that the power supply switch located on the front of the power supply is set at standby (labeled as 0).
- Step 2** Turn off the power at the circuit breakers for the portions of the DC grid power that you are connecting to and verify that all of the LEDs on the power supplies are off.
- Step 3** Size the 6-AWG power cables to the distance between the power supply and the DC power grid. If you need to cut the cable, cut it at the end that connects to the DC power grid, remove 0.75 inch (19 mm) of insulation from the cut ends, and attach them to the DC power system. Be sure to connect the negative cables to negative lines and positive cables to positive lines.
 - Note** For all your power connections, if you are using cables with two different colors, use one color cable for all positive circuits and the other color for all negative circuits.
- Step 4** Remove the three screws that hold down the safety cover for the terminal box on the front of the DC power supply and remove the cover.
 - Note** The terminal box has four slots for four power terminals (ordered as negative [-], positive [+], positive [+], and negative [-]). Each terminal has two nuts that you use to fasten a power cable to the terminal.

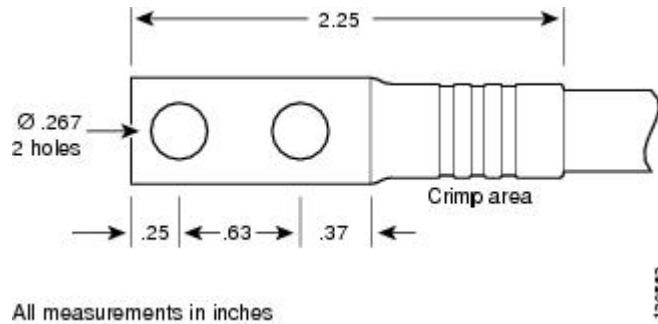
Figure 4: Safety Cover of the Terminal Box



1	Safety Cover	3	Opening for the 6-AWG power cable. Note The diameter of the 6-AWG cable (wire + insulation + heat-shrink tubing) should be less than 10mm.
2	Terminal slots showing cable installation order (negative [-], positive [+], positive [+], and negative [-])		

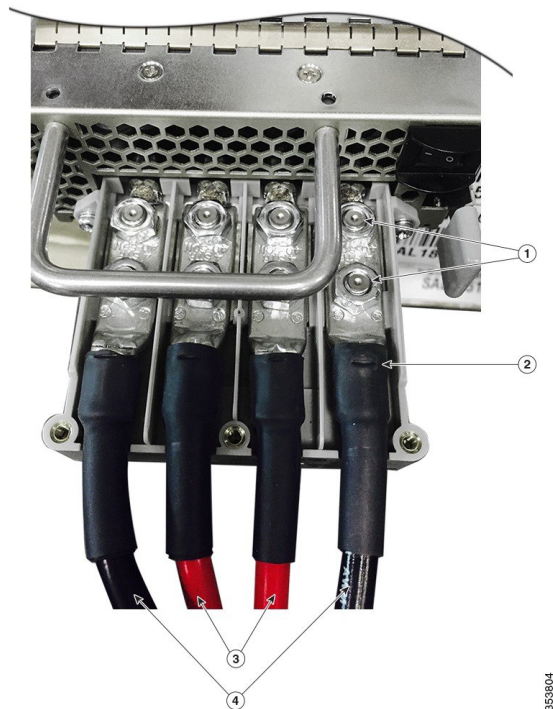
- Step 5** Install four cables (two positive and two negative cables) in the four terminal slots as follows:
- Unscrew the two nuts in each of the four terminal slots.
 - Attach and crimp each lug to the end of each power cable.

Figure 5: Crimping the Cable Lug



- Attach each cable lug to the two terminal posts in each slot, fasten with two nuts, and tighten to 40 in-lb (4.5 N·m).
- Note** For all your power connections, if you are using cables with two different colors, use one color cable for all positive circuits and the other color for all negative circuits.
- Replace the safety cover on the terminal box and fasten with three screws.

Figure 6: Connecting Cables to the Terminal Slots



1	The two nuts in each terminal slot	3	The two cables for the positive circuits
2	Crimped lug attached to the end of the power cable	4	The two cables for the negative circuits

- Step 6** Install the four cables from the DC power supply to a DC power sources as follows:
- If the unconnected end of each power cable is not stripped of its insulation for the last 0.75 inches (19 mm), use wire strippers to remove that amount of insulation.
 - Attach the negative cables to the negative terminals of a DC power source, and attach the positive cables to the positive terminals of the same power source.
- Note** If you are using combined power mode or power supply redundancy mode, connect all the power supplies in the chassis to the same power source. If you are using input source redundancy mode or full redundancy mode, connect half the power supplies to one DC power source and the other half of the power supplies to another DC power source.
- Step 7** For the powered down circuits connected to the power supplies, turn on the power at the circuit breaker. The Input 1 (IN1) and Input 2 (IN2) LEDs turn on each connected power supply.
- Step 8** Turn the power switch on the connected DC power supplies from standby to on (from 0 to 1 as labelled on the power switch for each power supply).
The LEDs should flash and then the Output LED should turn on in addition to the Input LEDs. If the FAULT LED is on or flashing, call Cisco TAC for assistance.

Removing Power Supplies

Procedure

- Step 1** Turn off the power to the power supply that you are removing, as follows:
- Ensure that the power switch on the front of the power supply is set to standby (labeled as 0).
 - Verify that the OUTPUT LED has turned off. If the LED is still on, return to Step 1.
 - If you are removing a DC-input power supply, ensure that the power is turned off at the power source by turning off the power for that circuit, and then verify that the INPUT LEDs turn off.
- Step 2** Detach the power and ground cables, as follows:
- For the AC-input power supply, unplug the power cables that are attached to the power supply and the power source.
 - For the DC-input power supply, open the terminal box, and use a Phillips screwdriver to remove the power cables from their terminals. Replace the terminal box cover and then remove the power cables from the power source.
- Step 3** Remove the power supply from the chassis, as follows:
- Press the ejector latch on the left of the power supply.
 - Pull the power supply partially out of the slot by its handle.

- c) Place your other hand under the unit to support its weight.
- d) Pull the power supply fully from the slot.

Caution If you intend to operate the switch without installing another power supply in the empty slot, then you must reinstall the blank cover over the empty power supply slot to ensure proper air flow in the system and for safety reasons.

Finding the Serial Number

If you contact Cisco Technical Assistance, you need to know the serial number. These figures show where the serial number is located. You can also use the **show version** privileged EXEC command to see the serial number.

Figure 7: Serial Number on the AC Power Supply

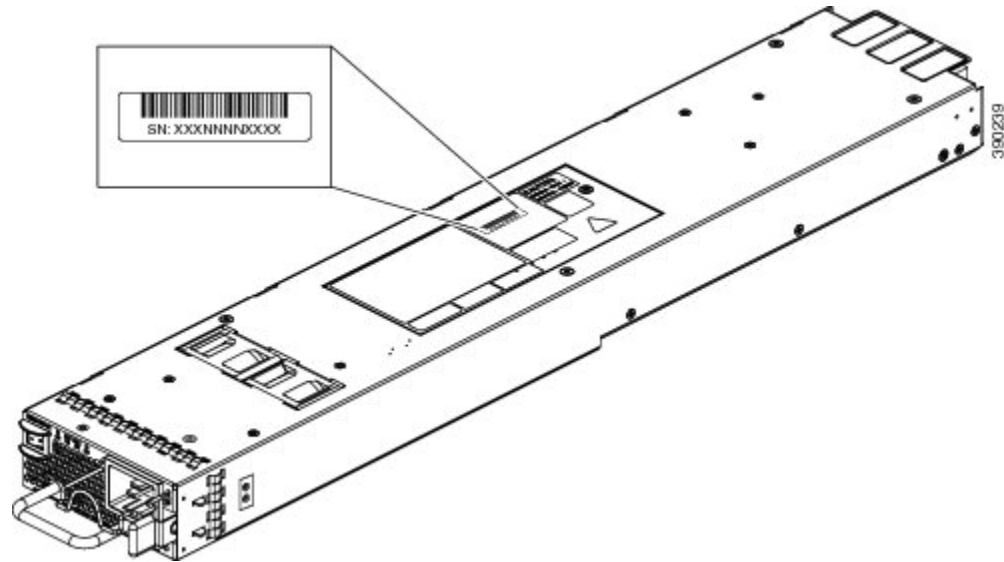


Figure 8: Serial Number on the DC Power Supply

