



Installing the Chassis

- [Installation Options with Rack-Mount Kits, Racks, and Cabinets, on page 1](#)
- [Install a Rack, on page 2](#)
- [Unpacking and Inspecting a New Switch, on page 2](#)
- [Planning How to Position the Chassis in the Rack, on page 3](#)
- [Installing the Chassis in a Four-Post Rack, on page 4](#)
- [Grounding the Chassis, on page 8](#)
- [Powering Up the Switch, on page 9](#)

Installation Options with Rack-Mount Kits, Racks, and Cabinets

The rack-mount kit enables you to install the switch into racks of varying depths. You can position the switch with easy access to either the port connections or the fan and power supply modules.

You can install the switch using the following rack-mount options:

- Rack-mount kit (NXX-ACC-RMK-2RU) which you can order from Cisco. This option offers you easy installation, greater stability, increased weight capacity, added accessibility, and improved removability with front and rear removal.
- Rack-mount kit (N9K-C9300-RMK) which you can order from Cisco.

You can install the switch in the following types of racks:

- Open EIA rack
- Perforated EIA cabinet

The rack or cabinet that you use must meet the requirements listed in [General Requirements for Cabinets and Racks](#) section.



Note You are responsible for verifying that your rack and rack-mount hardware comply with the guidelines that are described in this doc.

Install a Rack

Before you install the switch, you must install a standard four-post, 19-inch EIA data center rack (or a cabinet that contains such a rack) that meets the requirements listed in [Overview of Racks](#).

Step 1 Bolt the rack to the concrete subfloor before moving the chassis onto it.

Warning Statement 1048—Rack Stabilization

Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.

Step 2 If the rack has bonded construction, connect it to the earth ground. This action enables you to easily ground the switch and its components and to ground your electrostatic discharge (ESD) wrist strap to prevent damaging discharges when you handle ungrounded components before installing them.

Step 3 Include one or two power sources at the rack. For AC power, provide a power receptacle. For DC power, provide a circuit breaker with terminals for connecting power cables.

Warning Statement 1018—Supply Circuit

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

Note If you are not using power redundancy or are using $n+1$ redundancy, you need only one power source. If you are using $n+n$ redundancy, you need two power sources.

Unpacking and Inspecting a New Switch

Before you install a new chassis, you need to unpack and inspect it to be sure that you have all the items that you ordered and verify that the switch was not damaged during shipment. If anything is damaged or missing, contact your customer representative immediately.



Caution

When you handle the chassis or its components, you must follow ESD protocol at all times to prevent ESD damage. This protocol includes but is not limited to wearing an ESD wrist strap that you connect to the earth ground.



Tip

Do not discard the shipping container when you unpack the switch. Flatten the shipping cartons and store them. If you need to move or ship the system in the future, you will need this container.

Step 1 Compare the shipment to the equipment list that is provided by your customer service representative and verify that you have received all of the ordered items.

The shipment should include the following:

- Switch chassis, which includes the following installed components:
 - Two power supplies (any combination of the following with the airflow direction being the same as for the fan modules):
 - 1200-W AC power supply
 - Port-side exhaust airflow with blue coloring (N9K-PAC-1200W-B)
 - Port-side intake airflow with burgundy coloring (N9K-PAC-1200W)
 - 930-W DC power supply
 - Port-side exhaust airflow with gray coloring (UCS-PSU-6332-DC)
 - Port-side intake airflow with green coloring (UCSC-PDU-930WDC)
 - Two fan modules (all fan and power supply modules must have the same airflow direction)
 - Port-side exhaust airflow with blue coloring (N9K-C9300-FAN3-B)
 - Port-side intake airflow with burgundy coloring (N9K-C9300-FAN3)
- Switch accessory kit

Step 2 Check the contents of the box for damage.

Step 3 If you notice any discrepancies or damage, send the following information to your customer service representative by email:

- Invoice number of the shipper (see the packing slip)
- Model and serial number of the missing or damaged unit
- Description of the problem and how it affects the installation

Planning How to Position the Chassis in the Rack

The switch is designed so that you can have coolant air flow through the switch in one of the two following directions:

- Enter the port side and exhaust out the power supply side (port-side intake airflow)
- Enter the power supply side and exhaust out the port side (port-side exhaust airflow)

For port-side intake airflow, the switch must have port-side intake fan and AC power supply modules with one or more of the following colorings:

- Burgundy coloring on fan modules and AC power supplies
- Green coloring on DC power supplies

For port-side exhaust airflow, the switch must have port-side exhaust fan and AC power supply modules with one or more of the following colorings:

- Blue coloring on fan modules and AC power supplies
- Gray coloring on DC power supplies

You can plan the positioning of the switch so that its ports are located close to ports on connected devices or so that the fan and power supply modules are conveniently located in a maintenance aisle, and then order the modules that move coolant air in the appropriate direction from the cold aisle to the hot aisle.



Note All fan and power supply modules in the same switch must operate with the same direction of airflow and the air intake portion of the switch must be located in a cold aisle.

Installing the Chassis in a Four-Post Rack

Before you install the chassis, be sure that the rack is fully secured to the data center floor.

Installing the Switch using the NXK-ACC-RMK-2RU Rack-mount Kit

To install the switch, you must attach mounting brackets to the rack, install slider rails on the rear of the rack, slide the switch onto the slider rails, install the retainer brackets, and secure the switch to the rack with the retainer clips. Typically, the front of the rack is the side easiest to access for maintenance.



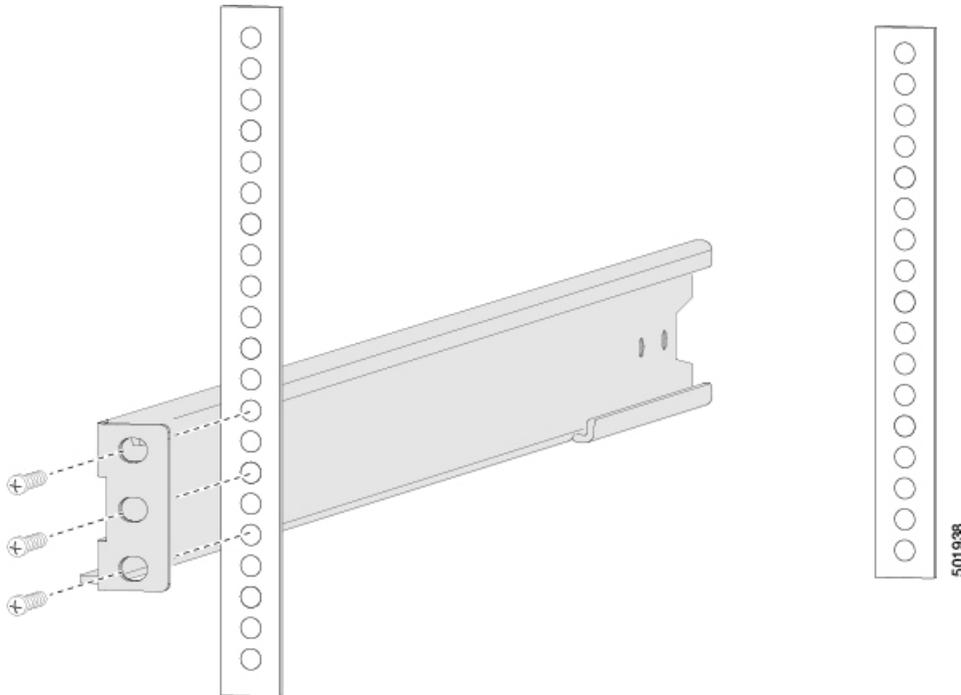
Note You must supply the eight 10-32 or 12-24 screws required to mount the slider rails and switch to the rack.

Before you begin

- You have inspected the switch shipment to ensure that you have everything ordered.
- Make sure that the switch rack-mount kit includes the following parts:
 - Rack-mount brackets (2)
 - Rack-mount retainer brackets (2)
 - Rack-mount slider rails (2)
 - Rack-mount retainer clips (2)
 - Phillips countersink screws (8)
 - Flat head screws (4)
- The rack is installed and secured to its location.

Step 1 Install two rack-mount brackets to the rack as follows:

- a) Determine which end of the chassis is to be located in the cold aisle as follows:
 - If the switch has port-side intake modules (fan modules with burgundy coloring), position the front-mount brackets so that the switch ports will be in the cold aisle.
 - If the switch has port-side exhaust modules (fan modules with blue coloring), position the front-mount brackets so that the switch fan and power supply modules will be in the cold aisle.
- b) Position a front-mount bracket so that it aligns to the desired position in the rack and secure the bracket with 12-24 screws or 10-32 screws, depending on the rack thread type (see the following figure). Tighten 12-24 screws to 30 in-lb (3.39 N·m) of torque and tighten 10-32 screws to 20 in-lb (2.26 N·m) of torque..



- c) Repeat Step 1 for the other front rack-mount bracket on the other side of the rack and be sure to position that bracket horizontally to the same level as first bracket.

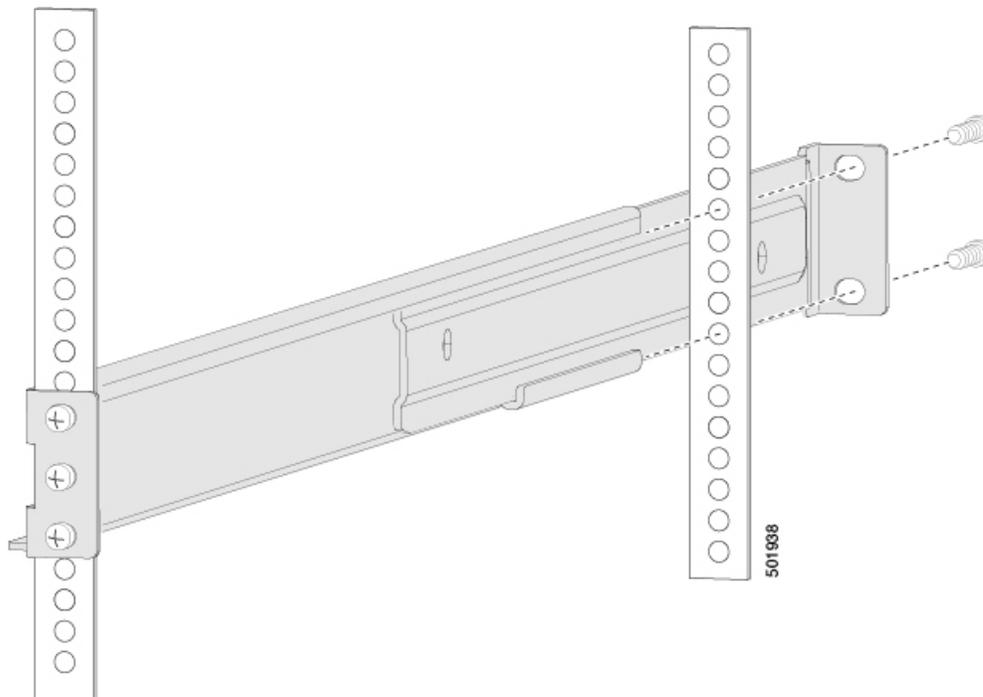
Step 2

If you are not installing the chassis into a grounded rack, you must attach a customer-supplied grounding wire to the chassis as explained in [Grounding the Chassis, on page 8](#). If you are installing the chassis into a grounded rack, you can skip this step.

Step 3

Install the slider rails on the rack or cabinet as follows:

- a) Determine which two posts of the rack or cabinet you should use for the slider rails. Of the four vertical posts in the rack or cabinet, two will be used for the front mount brackets attached to the easiest accessed end of the chassis, and the other two posts will have the slider rails.
- b) Position a slider rail at the desired level on the back side of the rack and slide it into the front-mount bracket already installed and secure with 12-24 screws or 10-32 screws, depending on the rack thread type (see the following figure). Tighten 12-24 screws to 30 in-lb (3.39 N·m) of torque and tighten 10-32 screws to 20 in-lb (2.26 N·m) of torque.

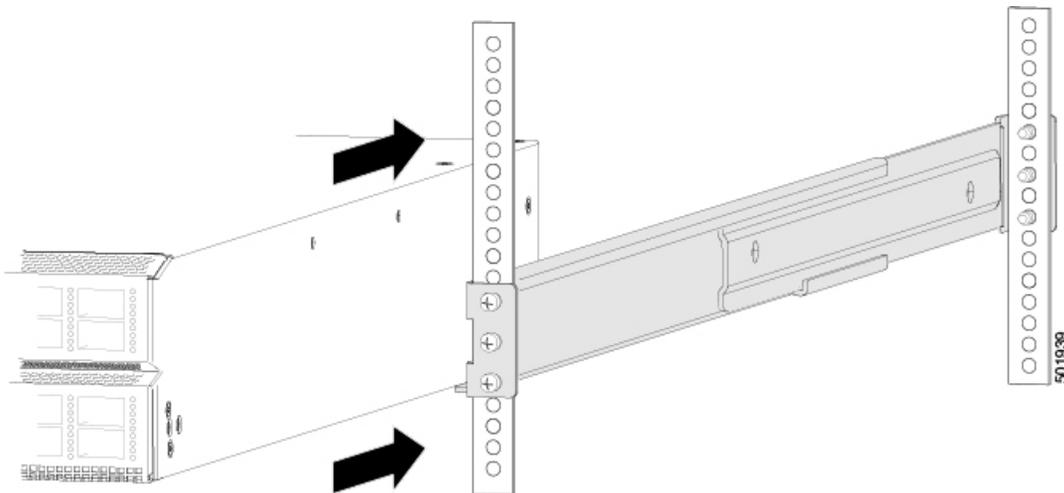


- c) Repeat Step 3 to attach the other slider rail to the other side of the rack.

To make sure that the slider rails are at the same level, you should use a level tool, tape measure, or carefully count the screw holes in the vertical mounting rails.

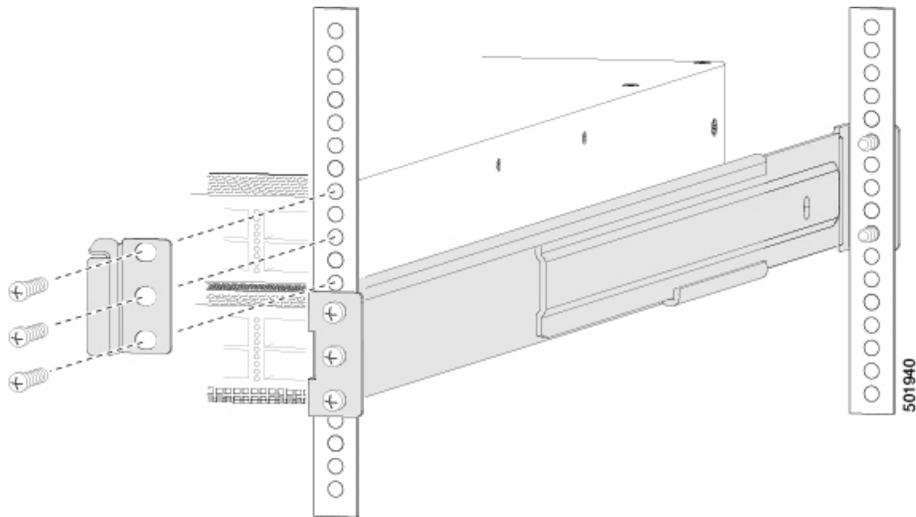
Step 4 Insert the switch into the rack and attach it as follows:

- a) Holding the switch with both hands, position the switch onto the rack-mount brackets and carefully slide the chassis into the rack (see the following figure).



Step 5 Insert the rack-mount retainer brackets

- a) Align the retainer brackets to the front of the chassis, being careful not to damage anything on the front of the chassis (see the following figure).
 b) Repeat Step 5 to attach the other retainer bracket on other side of the chassis.

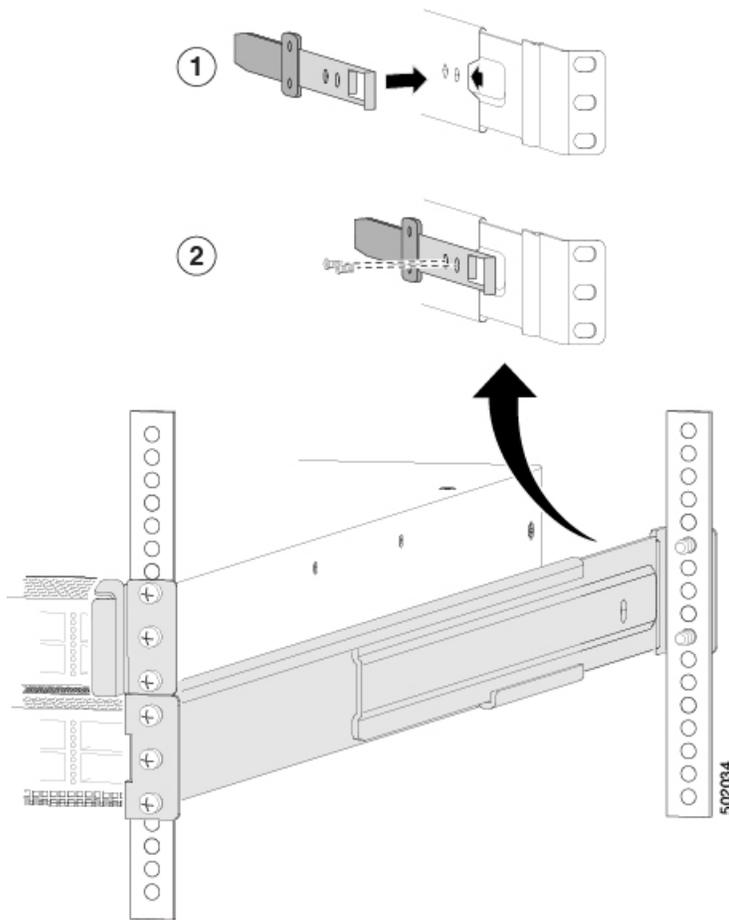


- c) Tighten the 10-32 screws to 20 in-lb (2.26 N·m) or tighten the 12-24 screws to 30 in-lb (3.39 N·m).

Step 6

Insert the retainer clip to hold the chassis in place.

- a) Align the retainer clip to the inside of the back of the slider rail. Make sure to hook the flange to the cutout on the bracket and align the screw holes (see the following figure).
- b) Attach the screws to secure the retainer clip (see the following figure).
- c) Repeat Step 6 to attach the other retainer clip on the other side of the chassis.



Step 7 If you attached a grounding wire to the chassis grounding pad, connect the other end of the wire to the facility ground.

Grounding the Chassis

The switch chassis is automatically grounded when you properly install the switch in a grounded rack with metal-to-metal connections between the switch and rack.

You can also ground the chassis, which is required if the rack is not grounded, by attaching a customer-supplied grounding cable. Attach the cable to the chassis grounding pad and the facility ground.



Warning Statement 1024—Ground Conductor

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.



Warning Statement 1046—Installing or Replacing the Unit

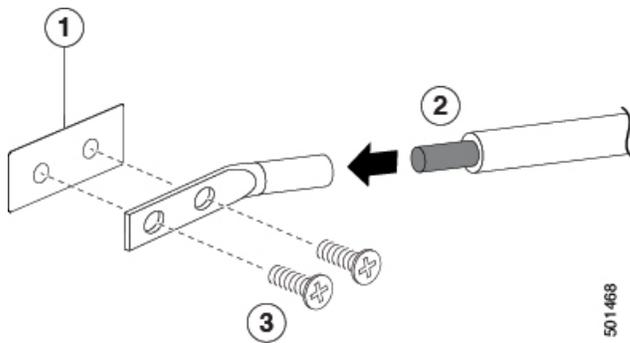
When installing or replacing the unit, the ground connection must always be made first and disconnected last.

Before you begin

Before you can ground the chassis, you must have a connection to the earth ground for the data center building.

Step 1 Use a wire-stripping tool to remove approximately 0.75 inch (19 mm) of the covering from the end of the grounding wire. We recommend 6-AWG wire for the U.S. installations.

Step 2 Insert the stripped end of the grounding wire into the open end of the grounding lug. Use a crimping tool to crimp the lug to the wire, see the following figure. Verify that the ground wire is securely attached to the grounding lug by attempting to pull the wire out of the crimped lug.



1	Chassis grounding pad	3	2 M4 screws are used to secure the grounding lug to the chassis
2	Grounding cable, with 0.75 in. (19 mm) of insulation that is stripped from one end, which is inserted into the grounding lug and crimped in place		

Step 3 Secure the grounding lug to the chassis grounding pad with two M4 screws, see the previous figure. Tighten the screws to 11 to 15 in-lb (1.24 to 1.69 N·m) of torque.

Step 4 Prepare the other end of the grounding wire and connect it to the facility ground.

Powering Up the Switch

To power up the switch, you must connect the power supplies to one or two power sources. The number of power sources used depends on the type of power redundancy that you require as follows:

- For no power redundancy, connect only the power supplies to one power source.
- For $n+1$ redundancy, connect the power supplies to one or two power sources.
- For $n+n$ redundancy, connect each power supply to a different power source (two power sources required).

Statement 7012—Equipment Interfacing with AC Power Ports

This equipment shall be connected to AC mains provided with a surge protective device (SPD) at the service equipment complying with NFPA 70, the National Electrical Code (NEC).



Warning Statement 1004—Installation Instructions

Read the installation instructions before using, installing or connecting the system to the power source.



Warning Statement 1018—Supply Circuit

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

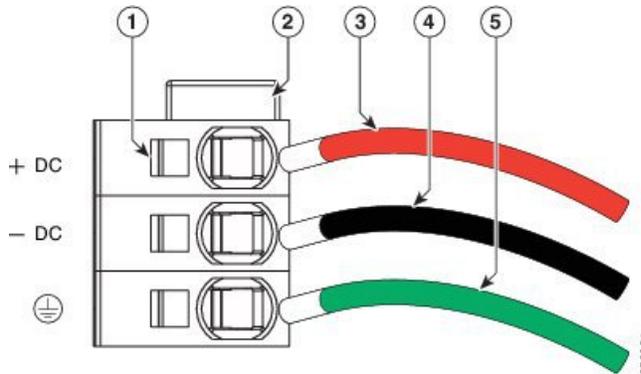
Before you begin

- Switch installed in a rack and connected to an earth ground
- Recommended power cable for your nation or region
- Power source with the required amperage located within reach of the power cable being used

Connect each power supply to a power source as follows:

- Connecting an AC power supply:
 1. Using the recommended power cable for your country or region (see [Power Cable Specifications](#)), connect the C13 plug on the power cable to the power receptacle on the power supply.
 2. Rotate the cable retention clip on the power supply over the C13 plug to prevent accidental unplugging of the cable.
 3. Connect the other end of the power cable to the AC power source.
 4. Verify that the  LED is on and green.
If the LED is off, check the AC power source circuit breaker to be sure that it is turned on.
- Connecting a DC power supply:
 1. Verify that the circuit breaker for the DC power source you are connecting is turned off.
 2. Remove the DC power connector block from the power supply by doing the following:
 1. Push the orange plastic button on the top of the connector block inward toward the power supply.
 2. Pull the connector block out of the power supply.

3. Strip 0.6 inches (15 mm) of insulation off the DC wires that you are using.
4. Orient the connector as shown in the following figure with the orange plastic button on top.



1	Wire retainer lever	4	-48V (-DC) cable
2	Orange plastic button on top of the connector	5	Grounding cable (8 AWG recommended)
3	-48V Return (+DC) cable		

5. Use a small screwdriver to depress the spring-loaded wire retainer lever on the lower spring-cage wire connector. Insert your green (ground) wire into the aperture and then release the lever.
6. Use a small screwdriver to depress the spring-loaded wire retainer lever on the middle spring-cage wire connector. Insert your black (DC negative) wire into the aperture and then release the lever.
7. Use a small screwdriver to depress the spring-loaded wire retainer lever on the upper spring-cage wire connector. Insert your red (DC positive) wire into the aperture and then release the lever.
8. Insert the connector block back into the power supply. Make sure that your red (DC positive) wire aligns with the power supply label, "+ DC".

Note If you require $n+n$ redundancy, be sure that each power supply is powered by a different power source.

• Connecting an HVAC/HVDC power supply:

1. Using the recommended power cable for your country or region (see [Power Cable Specifications](#)), insert the Saf-D-Grid connector on the power cable to the power receptacle on the power supply until it clicks in place.
2. Connect the other end of the power cable to the power source.
 - If connecting to an AC power source, plug the cable into the receptacle for the power source.
 - If connecting to a DC power source, do the following:
 1. Verify that the power source is turned off at the circuit breaker located between the power source and the terminals where you will connect the power cable.
 2. Connect each of the three wires in the power cable to the three terminals for the power source and secure them with the terminal nuts. Make sure that the positive wire is attached to the positive terminal, the negative wire is attached to the negative terminal, and the ground wire is attached to the ground terminal.

3. If there is a safety cover for the terminals, place it over the terminals to prevent people from accidentally touching the terminals when the power is on.
 4. Turn the power on at the circuit breaker.
-
3. Verify that the  LED is on and green.
If the LED is off, check the AC power source circuit breaker to be sure that it is turned on.
-