



Cisco UCS C240 M4 NEBS Server Service Note

This document is a supplement to the [Cisco UCS C240 M4 Server Installation and Service Guide](#). This document describes the differences between the Cisco UCS C240 M4 Server and the network equipment building system- (NEBS-) compliant Cisco UCS C240 M4 NEBS Server. This document contains the following sections:

- [Features Specific to the Cisco UCS C240 M4 NEBS Server, page 1](#)
- [Power Supply Specifications, page 7](#)
- [DC Power Cord, page 10](#)
- [NEBS GR-1089 Installation Caution and Rules, page 11](#)
- [Related Documentation, page 12](#)

Features Specific to the Cisco UCS C240 M4 NEBS Server

When installing or servicing the Cisco UCS C240 M4 NEBS server, you can use the [Cisco UCS C240 M4 Server Installation and Service Guide](#), but note the following exceptions and rules that are specific to the NEBS server.

This section contains the following topics:

- [NEBS Compliance, page 2](#)
- [Power Supplies, page 2](#)
- [Installation Grounding, page 2](#)
- [Installing a DC Power Supply, page 3](#)
- [Drive Support, page 6](#)
- [DIMMs, page 6](#)
- [CPUs, page 6](#)



NEBS Compliance

The Cisco UCS C240 M4 NEBS Server has been certified for the following levels of NEBS compliance:

- The DC-power version of the server is certified for NEBS Level 3 compliance.
- The AC-power version of the server is certified for NEBS Level 1 compliance.

Power Supplies

The Cisco UCS C240 M4 NEBS server can use either AC or DC power supplies.

1200 W AC Power Supply

The NEBS server can use one or two 1200 W AC power supplies (Cisco PID UCSC-PSU2V2-1200W=).

- The server is certified for NEBS Level 1 compliance when using this AC power supply.
- These power supplies are hot-swappable with 1+1 redundancy when two power supplies are present.
- See [Power Supply Specifications, page 7](#), for information about these power supplies.
- See the [Cisco UCS C240 M4 Server Installation and Service Guide](#), Chapter 3, for information about replacing a power supply.

930 W DC Power Supply

The NEBS server can use one or two 930 W, -48 VDC power supplies (either Version 2 Cisco PID UCSC-PSU2V2-930DC or Version 1 Cisco PID UCSC-PSU-930WDC=).

- The server is certified for NEBS Level 3 compliance when using this DC power supply.
- These power supplies are hot-swappable with 1+1 redundancy when two power supplies are present.
- See [Power Supply Specifications, page 7](#), for information about these power supplies.
- See the [Cisco UCS C240 M4 Server Installation and Service Guide](#), Chapter 3, for information about replacing a DC power supply.

Installation Grounding

The 1200 W AC power supplies have internal grounding and so no additional grounding is required when the supported AC power cords are used.

When using the 930 W DC power supply, additional grounding of the server chassis to the earth ground of the rack is available. Screw holes for use with your grounding lugs and grounding wires are supplied on the chassis rear panel.

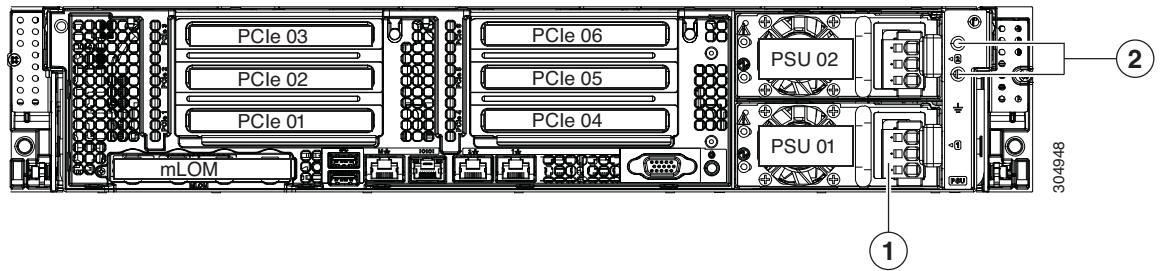


Note

The grounding points on the chassis are sized for M5 screws. The grounding points are spaced at 0.625 inches (15.86 mm). You must provide your own screws, grounding lug, and grounding wire. The grounding lug required is a Panduit LCD10-14AF-L or equivalent. The grounding cable that you provide must be 14 AWG (2 mm), minimum 60° C wire, or as permitted by the local code.

See [Figure 1-1](#) for the location of the grounding lug screw-holes on the chassis rear panel.

Figure 1-1 Cisco UCS C240 M4 NEBS Server Rear Panel (DC Power Supply Version)



1	DC power supply connector block
2	Screw holes for grounding lugs

Installing a DC Power Supply

- [Installing a Version 2 930W DC Power Supply, UCSC-PSU2V2-930DC, page 4](#)
- [Installing a Version 1 930W DC Power Supply, UCSC-PSU-930WDC, page 5](#)


Warning

A readily accessible two-poled disconnect device must be incorporated in the fixed wiring. Statement 1022


Warning

This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations. Statement 1045


Warning

When installing or replacing the unit, the ground connection must always be made first and disconnected last. Statement 1046


Warning

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


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

Installing a Version 2 930W DC Power Supply, UCSC-PSU2V2-930DC

If you are using the Version 2 930W DC power supply, you connect power using a 3-wire cable with a keyed connector that plugs into a fixed power input socket on the power supply. See also [Installing a Version 1 930W DC Power Supply, UCSC-PSU-930WDC](#), page 5.



Caution

Before beginning this wiring procedure, turn off the DC power source from your facility's circuit breaker to avoid electric shock hazard.

Step 1

Turn off the DC power source from your facility's circuit breaker to avoid electric shock hazard.

Step 2

Wire the supplied 3-wire connector cable to your facility's DC power source.



Note

The supplied connector cable contains 8 AWG gauge wires. The recommended facility wire gauge is 8 AWG. The minimum facility wire gauge is 10 AWG.

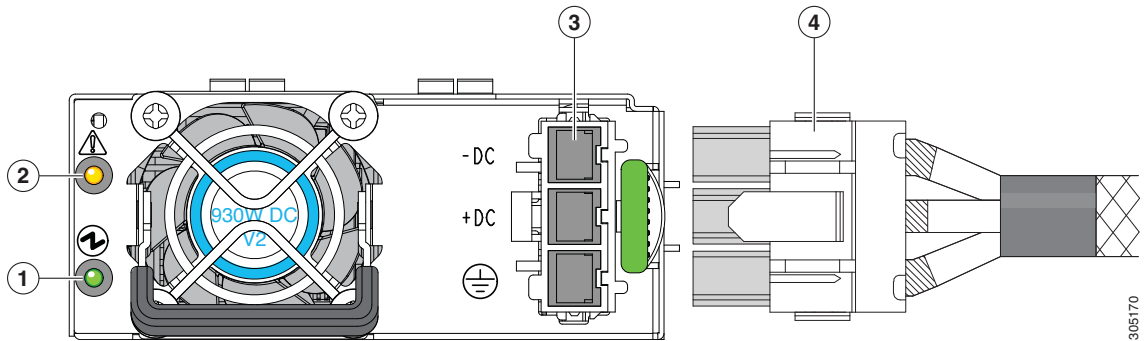
Step 3

Plug the supplied connector cable into the power input socket on the power supply. The connector is keyed to the socket so that the polarity is aligned correctly.

Step 4

Return power from your facility's DC power source at the circuit breaker.

Figure 1-2 Version 2 930 W, -48 VDC Power Supply Connector Block



1	Power supply status LED	3	Fixed power input socket
2	Power supply fault LED	4	Supplied connector cable

Installing a Version 1 930W DC Power Supply, UCSC-PSU-930WDC

If you are using a Version 1 930W DC power supply, stripped wires connect power to the removable connector block. See also [Installing a Version 2 930W DC Power Supply, UCSC-PSU2V2-930DC](#), page 4.



Caution

Before beginning this wiring procedure, turn off the DC power source from your facility's circuit breaker to avoid electric shock hazard.

Step 1 Turn off the DC power source from your facility's circuit breaker to avoid electric shock hazard.

Step 2 Remove the DC power connector block from the power supply. (The spare PID for this connector is UCSC-CONN-930WDC=.)

To release the connector block from the power supply, push the orange plastic button on the top of the connector inward toward the power supply and pull the connector block out.

Step 3 Strip 15mm (.59 inches) of insulation off the DC wires that you will use.



Note

The recommended wire gauge is 8 AWG. The minimum wire gauge is 10 AWG.

Step 4 Orient the connector as shown in [Figure 1-3](#), with the orange plastic button toward the top.

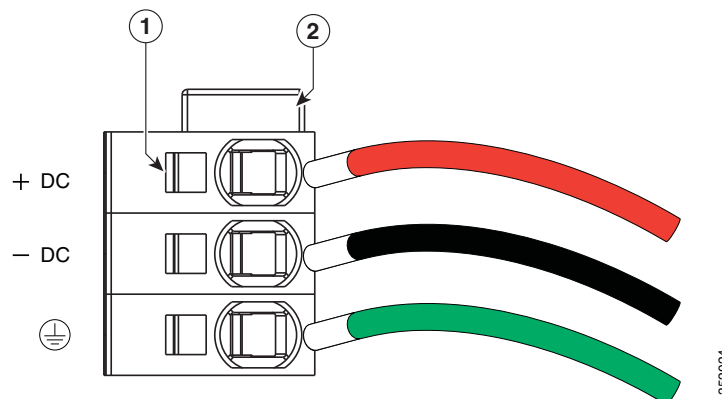
Step 5 Use a small screwdriver to depress the spring-loaded wire retainer lever on the lower spring-cage wire connector. Insert your green (ground) wire into the aperture and then release the lever.

Step 6 Use a small screwdriver to depress the wire retainer lever on the middle spring-cage wire connector. Insert your black (DC negative) wire into the aperture and then release the lever.

Step 7 Use a small screwdriver to depress the wire retainer lever on the upper spring-cage wire connector. Insert your red (DC positive) wire into the aperture and then release the lever.

Step 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".

Figure 1-3 Version 1 930 W, -48 VDC Power Supply Connector Block



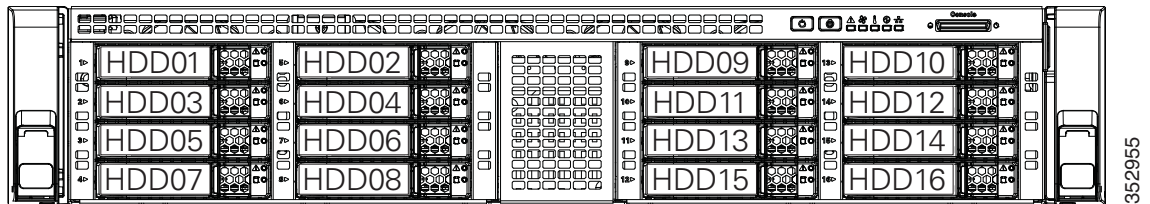
1	Wire retainer lever	2	Orange plastic button on top of the connector
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Drive Support

The NEBS server uses the small form-factor drives, 16-drive version of the Cisco UCS C240 M4 server. Up to 16 drives are supported.

- See [Figure 1-4](#) for the front panel and the drive-bay numbering.
- See the [Cisco UCS C240 M4 Server Installation and Service Guide](#), Chapter 3, for information about replacing a drive.
- See the [Cisco UCS C240 M4 Server Installation and Service Guide](#), Appendix C, for information about supported RAID controllers and cabling.

Figure 1-4 Cisco UCS C240 M4 NEBS Server



DIMMs

The NEBS server supports a maximum DIMM size of 32 GB.

See the [Cisco UCS C240 M4 Server Installation and Service Guide](#), Chapter 3, for information about populating and replacing DIMMs.

CPUs

The NEBS servers supports the following CPUs:

- NEBS Level 1 compliant servers: Intel Xeon E5-2697 or E5-2698
- NEBS Level 3 compliant servers: Intel Xeon E5-2658

See the [Cisco UCS C240 M4 Server Installation and Service Guide](#), Chapter 3, for information about populating and replacing CPUs.

Power Supply Specifications

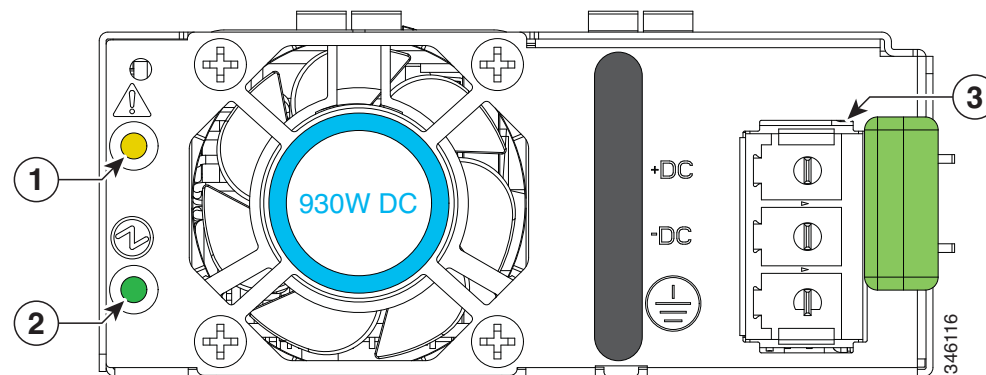
This section contains the following topics:

- [Power Supply LEDs \(AC and DC\), page 7](#)
- [1200 W AC Power Supply Specifications, page 8](#)
- [930 W DC \(Version 2\) Power Supply, UCSC-PSU2V2-930DC, page 9](#)
- [930W DC \(Version 1\) Power Supply Specifications, UCSC-PSU-930WDC, page 9](#)

Power Supply LEDs (AC and DC)

Figure 1-5 shows the rear of the Version 1 930 W DC power supply, but the LEDs and their states are the same for the Version 2 930 W DC power supply and the 1200 W AC power supply. See [Table 1-1](#) for an explanation of the LED states.

Figure 1-5 930 W, -48 VDC Power Supply (Rear View)



1	Power supply fault LED	3	DC input connector
2	Power supply status LED		

Table 1-1 Power Supply LEDs, Definition of States

LED Name	State
Power supply fault	<ul style="list-style-type: none"> • Off—The power supply is operating normally. • Amber, blinking—An event warning threshold has been reached, but the power supply continues to operate. • Amber, solid—A critical fault threshold has been reached, which causes the power supply to shut down (for example, a fan failure or an over-temperature condition).
Power supply status	<ul style="list-style-type: none"> • Off—There is no DC power to the power supply. • Green, blinking—DC power OK; DC output not enabled. • Green, solid—DC power OK; DC outputs OK.

1200 W AC Power Supply Specifications

Table 1-2 lists the specifications for each 1200 W AC power supply (Cisco PID UCSC-PSU2V2-1200W=).

Table 1-2 **1200 W AC Power Supply Specifications**

Description	Specification
Class	RSP1
Input	
AC input voltage range	90–264 V and 180–264V nominal
AC input frequency	Range: 50 to 60 Hz nominal (single phase, 47 to 63 Hz)
AC line input current (steady state)	11 A peak at 100 VAC 7 A peak at 208 VAC
Output	
Maximum output power for each power supply	1200 W
Power supply output voltage	Main power: 12 VDC Standby power: 12 VDC

930 W DC (Version 2) Power Supply, UCSC-PSU2V2-930DC

Table 1-3 lists the specifications for each 930 W DC power supply (Cisco part number UCSC-PSU2V2-930DC=).

Table 1-3 930 W DC Power Supply Specifications

Description	Specification
DC input voltage range	Nominal range: -48 to -60 VDC nominal (Range: -40 to -60 VDC)
Maximum DC input current	28 A at -40 VDC
Maximum input W	1104 W
Maximum output power per PSU	930 W
Maximum inrush current	35 A (sub-cycle duration)
Maximum hold-up time	5 ms at 930 W
Power supply output voltage	12 VDC
Power supply standby voltage	12 VDC
Efficiency rating	> 92% at 50% load
Form factor	RSP1 (C-Series 2U and 4U servers)
Input connector	Fixed 3-wire block

930W DC (Version 1) Power Supply Specifications, UCSC-PSU-930WDC

Table 1-4 lists the specifications for each 930 W DC power supply (Cisco PID UCSC-PSU-930WDC).

Table 1-4 930 W DC Power Supply Specifications

Description	Specification
Class	RSP1
Input	
DC input voltage range	-48 to -60 VDC nominal (self-ranging, -40 to -72 VDC)
DC line input current (steady state)	23 A peak at -48 VDC
Output	
12 V main power output	930 W
12 V standby power output	30 W
Power supply output voltage	Main power: 12 VDC Standby power: 12 VDC

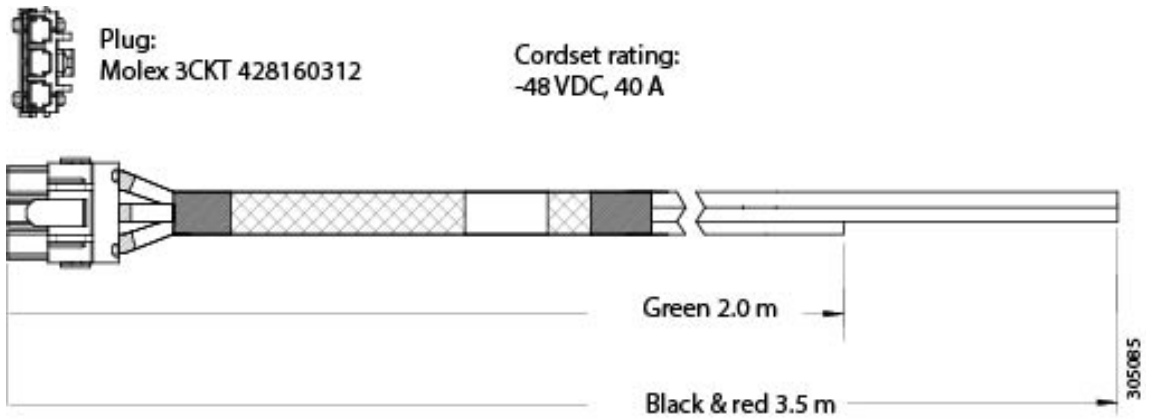
DC Power Cord

Table 1-5 describes the supported DC power cord. For the list of AC power cords supported with the server, see the *Cisco UCS C240 M4 Server Installation and Service Guide*.

Table 1-5 Supported Power Cords for the Server

Description	Length		Power Cord Reference Illustration
	Feet	Meters	
CAB-48DC-40A-8AWG Power cord, -48 VDC 40 A, Three-socket Mini-Fit connector to three-wire pigtail 8 AWG	11.7	3.5	Figure 1-6

Figure 1-6 CAB-48DC-40A-8AWG, DC Power Cord (3.5 m)



NEBS GR-1089 Installation Caution and Rules

The following information is derived from the NEBS GR-1089 specification, *Electromagnetic Compatibility and Electrical Safety—Generic Criteria for Network Telecommunications*.

This content also appears in the *Regulatory Compliance and Safety Information For Cisco UCS C-Series Servers*.



Caution

The intrabuilding ports (Ethernet and serial) of the equipment or subassembly is suitable for connection to intrabuilding or unexposed wiring or cabling only. The intrabuilding ports of the equipment or subassembly must not be metallically connected to interfaces that connect to the outside plant (OSP) or its wiring. These interfaces are designed for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE) and require isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection in order to connect these interfaces metallically to OSP wiring.

- The Cisco Unified Computing System (UCS) has AC power ports that are intended for deployments where an external Surge Protective Device (SPD) is utilized at the AC power service equipment (see the definition in National Electric Code).
- The Cisco UCS is designed for a Common Bonding Network (CBN) installation.
- The Cisco UCS can be installed in network telecommunication facilities or locations where the National Electric Code applies.
- An electrical conducting path shall exist between the product chassis and the metal surface of the enclosure or rack in which it is mounted or to a grounding conductor. Electrical continuity shall be provided by using thread-forming type mounting screws that remove any paint or nonconductive coatings and establish a metal-to-metal contact. Any paint or other nonconductive coatings shall be removed on the surfaces between the mounting hardware and the enclosure or rack. The surfaces shall be cleaned and an antioxidant applied before installation.
- The DC return connection to this system should remain isolated from the system frame and chassis (DC-I).
- The nominal DC operating voltage is –48 VDC.
- The intrabuilding RJ-45 Ethernet ports of the equipment or subassembly must use shielded intrabuilding cabling or wiring that is grounded at both ends.

Related Documentation

This document is intended to be a supplement for the [Cisco UCS C240 M4 Server Installation and Service Guide](#). The documentation set for the Cisco Unified Computing System (UCS) C-Series rack-mount servers is also described in the roadmap document at the following link:

[Cisco UCS C-Series Documentation Roadmap](#)

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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