

Dell™ Systems


Cabling Instructions for the -48 VDC




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Notes, Notices, and Cautions

 **NOTE:** A NOTE indicates important information that helps you make better use of your computer.

 **NOTICE:** A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

 **CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.**

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This document describes the requirements and wiring instructions for a –48 VDC power cable and safety ground wire for systems equipped with a –48 VDC power supply.

 **CAUTION: A qualified electrician must perform all connections to DC power and safety grounds. The system must be safety grounded at the cabinet frame. All electrical wiring must comply with applicable local or national codes and practices.**

 **CAUTION: The system chassis must be positively grounded to the rack cabinet frame. Do not attempt to connect power to the system until grounding cables are connected.**


 **CAUTION: An energy hazard will exist if the safety ground cable is omitted or disconnected.**


Precaution Statements


This product is intended for restricted access locations (dedicated equipment rooms, equipment closet, or the like) in accordance with Articles 110-5, 110-6, 110-11, 110-14, and 110-17 of the National Electrical Code, American National Standards Institute (ANSI)/National Fire Protection Association (NFPA) 70.

Wire the unit with copper only, unless otherwise specified, 16 American Wire Gauge (AWG) wire, and protect it with a 7.2-ampere (A) minimum to a 20-A maximum protective device or a 25-A maximum protective device when used with 90°C wire.

Connect the equipment to a –48 VDC supply source that is electrically isolated from the AC source. Ensure that the –48 VDC source is efficiently secured to earth (ground).

 **CAUTION: When stranded wiring is required, use approved wiring termination, such as closed-loop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and must be double crimped, one on the conductor and one on the insulation.**

 **CAUTION: When installing the unit, the ground connection must always be made first and disconnected last to prevent an energy hazard.**

 **CAUTION: 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.**

Input Requirements

Supply voltage: -(48-60) VDC

Current
consumption: 8 A


Kit Contents

- AMP 794949-1 connector housing, or equivalent
- AMP 350218-1 connector contacts, or equivalent
- AMP 2-36161-5 ring-tongue terminal, or equivalent
- #6-32 nut equipped with lock washer
- Heat-shrink tubing

Required Tools

- Wire-stripper pliers capable of removing insulation from size 16 AWG solid or stranded, insulated copper wire
- Three UL 1061 16 AWG black wires (-48 VDC)
- Three UL 1061 16 AWG red wires (-48 VDC return)
- One UL 1015 12 AWG green/yellow, green with a yellow stripe, wire (ground)
- AMP 90296-2 hand-crimping tool, or equivalent
- AMP 59824-1 hand-crimping tool, or equivalent
- Heat gun

Assembling the DC Input Power Cable

 **CAUTION:** Before connecting safety ground or power cables to the connector, ensure that the power is removed from the DC circuit. To ensure that the power is off, locate the circuit breaker on the DC source circuit. Switch the circuit breaker to the off position and, if available, install an approved safety locking device to the circuit breaker or switch, to prevent against another person energizing the circuit.

To construct the DC input power cable, perform the following steps:

- 1 Strip the insulation from the ends of the six DC power wires, exposing approximately 4.5 mm (0.175 inches) of copper wire.
- 2 Using a hand-crimping tool, crimp a connector contact to each DC power wire.
- 3 Slide a piece of heat-shrink tubing over the DC power cable.
The heat-shrink tubing should be approximately 3.175 cm (1.25 inches) in length.
- 4 Insert the three black -48 VDC wires into connector housing positions 2, 3, and 6 (see Figure 1-1 and Table 1-1).
- 5 Insert the three red -48 VDC return wires into connector housing positions 1, 4, and 5 (see Figure 1-1 and Table 1-1).
- 6 Slide the heat-shrink tubing over the DC power cable so that it overlaps the connector housing by at least 6.35 mm (0.25 inches).
- 7 Using a heat gun, shrink the tubing around the cable and connector housing.

Figure 1-1. Connector Housing

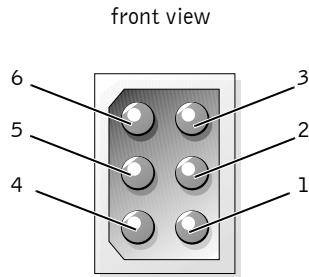


Table 1-1. Connector Housing Pin Assignments

Pin	Description	Wire Color and Size
1	-48 VDC return	Red 16 AWG
2	-48 VDC	Black 16 AWG
3	-48 VDC	Black 16 AWG
4	-48 VDC return	Red 16 AWG
5	-48 VDC return	Red 16 AWG
6	-48 VDC	Black 16 AWG

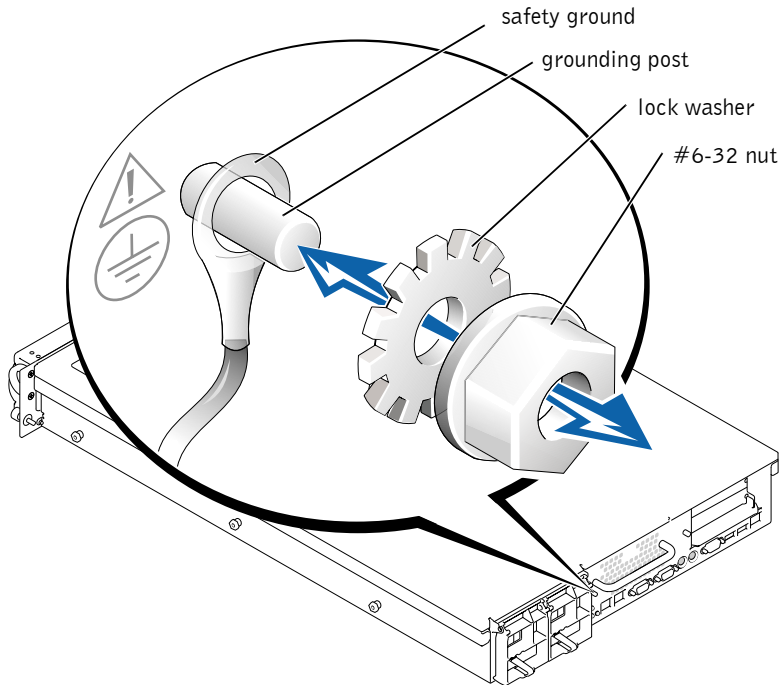
Assembling the Safety Ground Wire

- 1 Strip the insulation from the end of the green/yellow wire, exposing approximately 4.5 mm (0.175 inches) of copper wire.
- 2 Using a hand-crimping tool, crimp the ring-tongue terminal to the green/yellow wire.

Connecting the -48 VDC Power Cable and Safety Ground

- 1 Connect the safety ground to the grounding post on the back of the system using a #6-32 nut equipped with a locking washer (see Figure 1-2).
- 2 Plug the DC power cable into the system.

Figure 1-2. Safety Ground





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