



Cisco ONS 15200 Quick Installation Guide

Applications with External DWDM Filters

Hardware Release 2.0

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1 Before Starting

This guide provides basic instructions for installing the Cisco ONS 15200 system. This ONS 15200 system is used for applications with external dense wavelength division multiplexing (DWDM) filters. This document contains two different parts:

- Installing the ONS 15252 MCU and the ONS 15216 MUX/DEMUX.
- Installing the ONS 15201 SCU and the ONS 15216 OADM.

Use this guide as a general reference when performing an installation.

For detailed installation instructions, refer to the most recent *Cisco ONS 15200 Installation, Setup, and Test Manual* (Hardware Release 2.0) and the ONS 15216 MUX/DEMUX and ONS 15216 Optical Add/Drop Multiplexer (OADM) documentation.



Warning

Always use the supplied ESD wristband when working with an ONS 15200. Plug the wristband cable into the ESD jack of the rack assembly and ensure the rack assembly is properly grounded.

2 Power Disconnection Warning



Warning

Before working on a system that has an on/off switch, turn OFF the power and unplug the power cord.

Waarschuwing

Voordat u aan een systeem werkt dat een aan/uit schakelaar heeft, dient u de stroomvoorziening UIT te schakelen en de stekker van het netsnoer uit het stopcontact te halen.

Varoitus

Ennen kuin teet mitään sellaiselle järjestelmälle, jossa on kaksiasentokytin, katkaise siitä virta ja kytke virtajohto irti.

Attention

Avant de travailler sur un système équipé d'un commutateur marche-arrêt, mettre l'appareil à l'arrêt (OFF) et débrancher le cordon d'alimentation.

Warnung

Bevor Sie an einem System mit Ein/Aus-Schalter arbeiten, schalten Sie das System AUS und ziehen das Netzkabel aus der Steckdose.

Avvertenza	Prima di lavorare su un sistema dotato di un interruttore on/off, spegnere (OFF) il sistema e staccare il cavo dell'alimentazione.
Advarsel	Slå AV strømmen og trekk ut strømledningen før det utføres arbeid på et system som er utstyrt med en av/på-bryter.
Aviso	Antes de começar a trabalhar num sistema que tem um interruptor on/off, DESLIGUE a corrente eléctrica e retire o cabo de alimentação da tomada.
¡Advertencia!	Antes de utilizar cualquier sistema equipado con interruptor de Encendido/Apagado (ON/OFF), cortar la alimentación y desenchufar el cable de alimentación.
Varning!	Slå AV strømmen och dra ur nätsladden innan du utför arbete på ett system med strömbrytare.

3 Laser Radiation Warning



Warning

Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.

Waarschuwing

Losgekoppelde of losgeraakte glasvezels of aansluitingen kunnenonzichtbare laserstraling produceren. Kijk niet rechtstreeks in de straling en gebruik geen optische instrumenten rond deze glasvezels of aansluitingen.

Varoitus

Irrotetuista kuiduista tai liittimistä voi tulla näkymätöntä lasersäteilyä. Älä tuijota säteitä tai katso niitä suoraan optisilla välineillä.

Attention

Les fibres ou connecteurs débranchés risquent d'émettre des rayonnements laser invisibles à l'œil. Ne regardez jamais directement les faisceaux laser à l'œil nu, ni d'ailleurs avec des instruments optiques.

Warnung	Unterbrochene Fasern oder Steckerverbindungen können unsichtbare Laserstrahlung abgeben.. Blicken Sie weder mit bloßem Auge noch mit optischen Instrumenten direkt in Laserstrahlen.
Avvertenza	Le fibre ottiche ed i relativi connettori possono emettere radiazioni laser. I fasci di luce non devono mai essere osservati direttamente o attraverso strumenti ottici.
Advarsel	Det kan forekomme usynlig laserstråling fra fiber eller kontakter som er frakoblet. Stirr ikke direkte inn i strålene eller se på dem direkte gjennom et optisk instrument.
Aviso	Radiação laser invisível pode ser emitida de conectores ou fibras desconectadas. Não olhe diretamente para os feixes ou com instrumentos ópticos.
¡Advertencia!	Es posible que las fibras desconectadas emitan radiación láser invisible. No fije la vista en los rayos ni examine éstos con instrumentos ópticos.
Varning!	Osynlig laserstrålning kan avges från fränkopplade fibrer eller kontaktdon. Rikta inte blicken in i strålar och titta aldrig direkt på dem med hjälp av optiska instrument.

4 Installation Materials for ONS 15200

Several items are needed to complete the installation of the ONS 15200. Some of these items are supplied by Cisco and some need to be supplied by the user. The following are the Cisco-supplied materials; the number in parentheses is the quantity of each included item.

- M6 pan head Phillips mount screws (12 per ONS 15252)
- M6 pan head Phillips mount screws (4 per ONS 15201)
- Lateral fiber guide (2 per ONS 15252)
- CIM (Communication Interface Module) connection cable (Internal BUS CAN [Controller Area Network]). Cable included in the AC/15252 [Accessory Kit MCU] (1 per ONS 15252)
- Fan unit connection cable (included in the 15252-FTA [Fan Tray Assembly]) (1 per ONS 15252)
- Fan unit alarm connection cable (included in the 15252-FTA [Fan Tray Assembly]) (1 per ONS 15252)

- ESD wrist strap with 6-ft. (1.8-m) coil cable (1)
- Staps cord

The following materials, tools, and equipment are recommended but are not supplied with the ONS 15200:

- Fuse panel
- Power cable (from fuse to assembly), #18 AWG (0.75 mm) with copper conductors
- Grounding cable
- Category 5 cable (connection cable between PC or LAN/WAN and Network Controller Board [NCB] module)
- Single-mode SC fiber jumpers
- Fiber connector inspection instruments (Cisco recommends Video Microscopes)
- Cletop cleaning cassette (type A for SC connectors and B for MU connectors)
- Caps for optical connectors (SC and MU)
- Plugs for optical adapters (SC and MU)
- Labels
- #1 Phillips
- #3 Phillips,
- 10-mm wrench (socket is recommended) to fix the ground bolts to the hardware
- Voltmeter
- Power meter (for use with fiber optics only)
- Bit error rate (BER) tester
- Patch cables to interconnect ONS 15252/15201 and ONS 15216

5 Installing the ONS 15252 MCU

To install the ONS 15252 Multichannel Unit (MCU), complete the following procedures:

1. Installing the ONS 15252 in a 19-in. (485-mm) Rack
2. Installing Power and Ground to the ONS 15252 Shelf
3. The ONS 15216 MUX/DEMUX is a passive system and needs no power supply.
4. Installing Fiber on the ONS 15252 MCU
5. Routing Fiber Patch Cords

Installation Materials for the ONS 15252

For details, see Installation Materials for ONS 15200.

Installing the ONS 15252 in a 19-in. (485-mm) Rack

The shelf assembly comes ready for installation in a 19-in. (485-mm) rack. The ONS 15252 is 19-in. (485-mm) wide by 11-in. (279-mm) deep by 21-in. (532-mm) high.



Note

You can install the ONS 15252 in a 23-in. (584-mm) rack by using extension brackets to convert it. You need two 13 RU extension brackets (included in the AC/15252 [Accessory Kit MCU]) for this procedure. For details about installing the ONS 15252 into a 23-in. (584-mm) rack using extension brackets, see the *Cisco ONS 15200 Installation, Setup, and Test Manual* (Hardware Release 2.0).

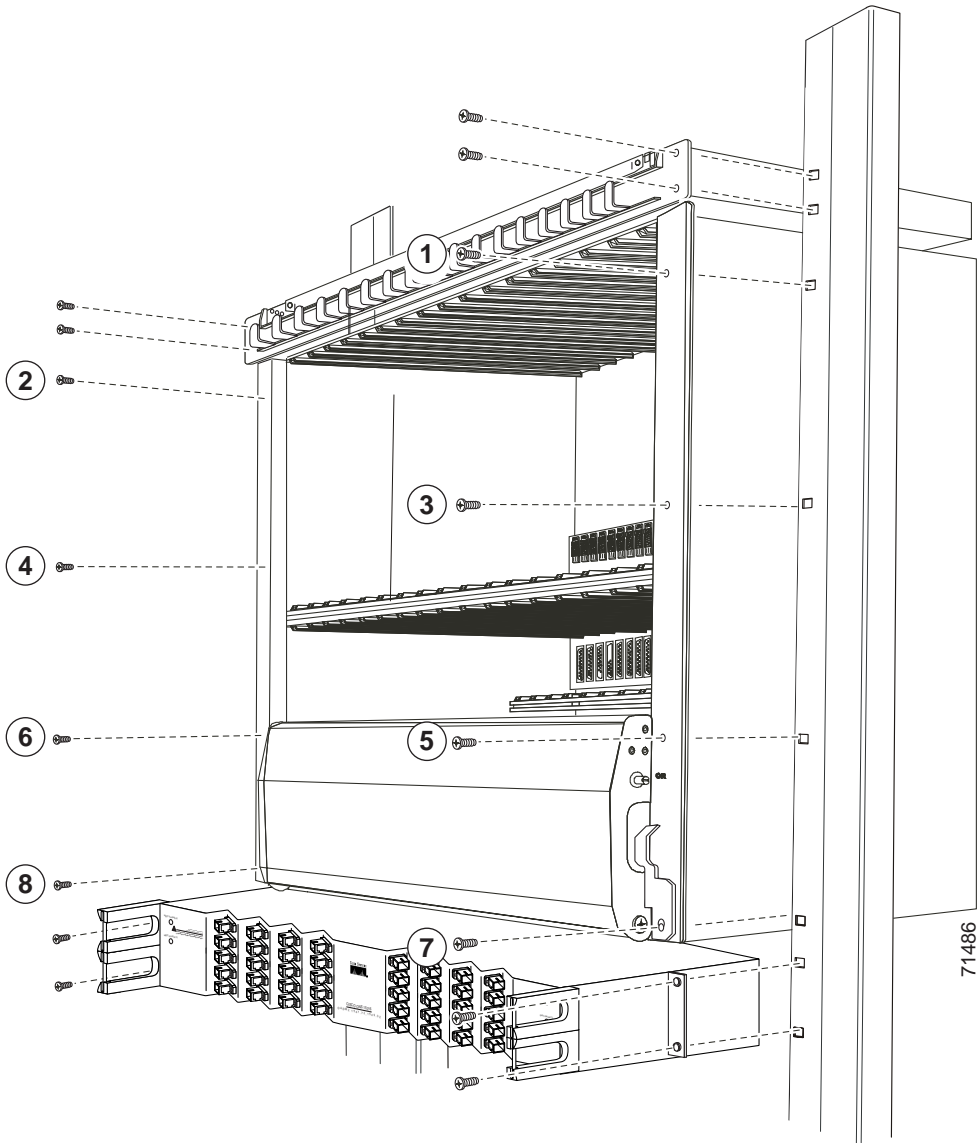


Note

Cisco recommends that two people install the ONS 15252 in a rack, although it is possible for one person to perform the installation.

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- Step 1** Move the ONS 15252 shelf to the desired rack position (Figure 1).
 - Step 2** Secure the ONS 15252 to the rack. Tighten the shelf with the screws first on position 5 and 6 and then on position 1 to 4. Use the screws that are included (Figure 1).
 - Step 3** Secure the shelf and the fiber guide to the rack using the two screws on positions 7 and 8 (Figure 1).
 - Step 4** Move the ONS 15252 fan unit to the desired rack position (above the ONS 15252 shelf) with the fiber organizer in front (Figure 1).
 - Step 5** Secure the ONS 15252 fan unit and fiber organizer to the rack using the four mounting screws that are included (Figure 1).
 - Step 6** Move the ONS 15216 MUX/DEMUX to the desired rack position below the ONS 15252 shelf.
 - Step 7** Secure the ONS 15216 MUX/DEMUX to the rack using the four mounting screws that are included (Figure 1).
 - Step 8** Repeat Steps 6 and 7 for additional MUX/DEMUX units as required.

Figure 1 Install the ONS 15252 Shelf with the ONS 15252 Fan Unit and the ONS 15216 MUX/DEMUX in a 19-in. Rack

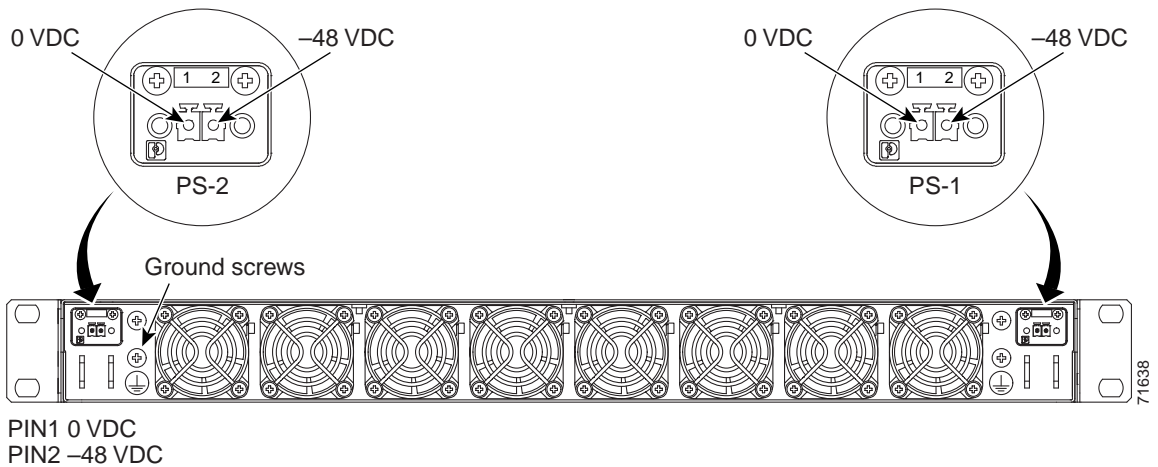


Installing Power and Ground to the ONS 15252 Fan Tray Assembly

Use the following procedure to install power and ground to the ONS 15252 fan tray assembly:

- Step 1** Connect the ground connection to the fan unit (Figure 2).
- Step 2** Connect the power connection to the fan unit (Figure 2).
- Step 3** Make sure the fan is operating properly.

Figure 2 *Installing Power and Ground to the ONS 15252 Fan Unit*



Installing Power and Ground to the ONS 15252 Shelf

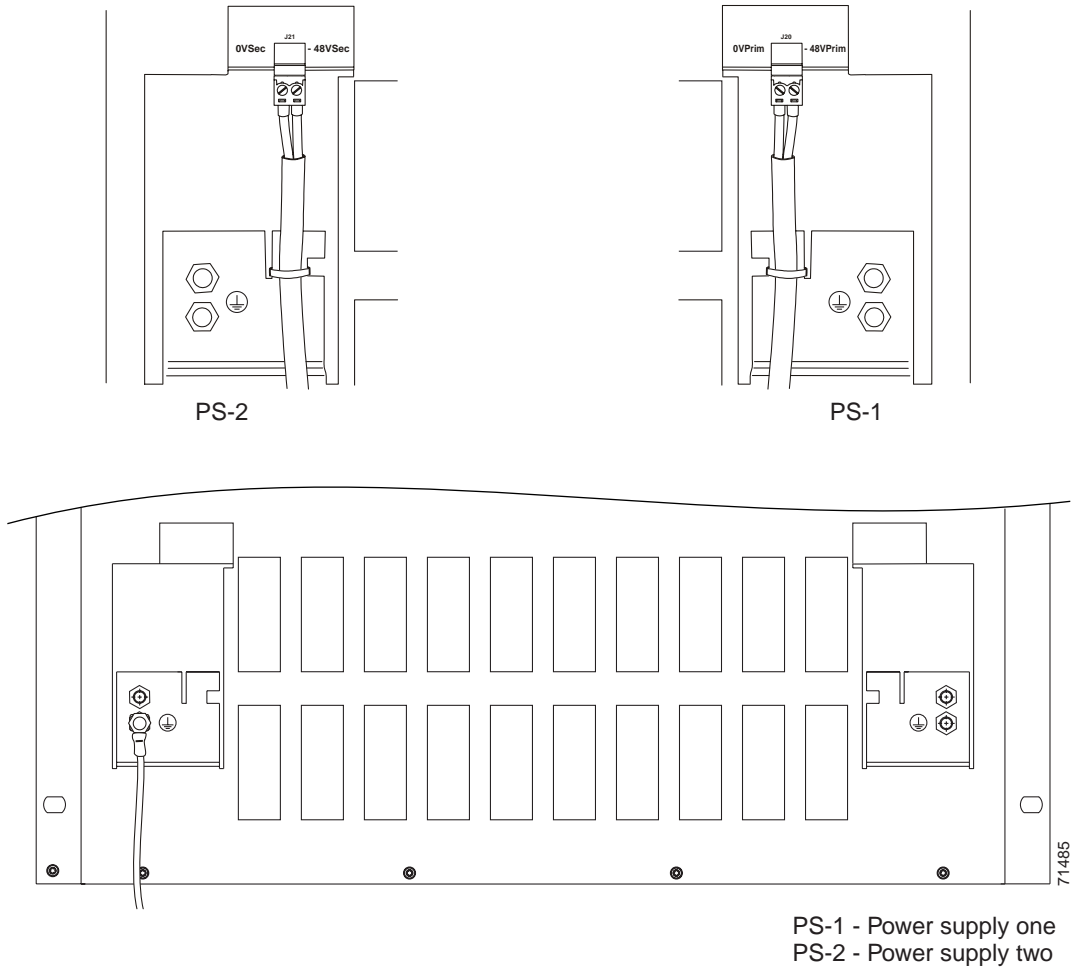
The power needs to be properly installed and grounded for operation of the ONS 15252. Use Figure 3 while completing the following procedure:



Warning

Before installing power to the ONS 15252 MCU, remove the fuses from both the A and B sides of the battery distribution bay (BDB) and power distribution panel (PDP). Failure to do so can result in injury or death. Determine the actual wire gauge based on local engineering standards and practices.

Figure 3 *Installing Power and Ground to the ONS 15252*



Caution

You have to connect the ground connection before proceeding with the installation.

Step 1 Remove the A- and B-side fuses from the BDB and the PDP.

Step 2 Connect the single or double lugs to the grounding pins located on each side of the MCU backplane (Figure 3).



Note The MCU is grounded at one of two possible locations of the MCU backplane. The MCU should not be grounded at both locations, which can cause ground currents and EMI problems.

Step 3 Be sure that the power cable is connected with the correct polarity (Figure 3). Connect the PS-1 MCU power cable to the A side of the PDP.

Step 4 Be sure that the power cable is connected with the correct polarity (Figure 3). Connect the PS-2 MCU power cable to the B side of the PDP.



Note The ONS 15216 MUX/DEMUX is a passive system and needs no power supply.

Installing Fiber on the ONS 15252 MCU

Transmit and receive fibers from the client side connect to the top connectors of the Client Layer Interface Port (CLIP). In protected mode, transmit and receive fibers from the DWDM side connect to the four bottom connectors of the Network Adapter Module (NAM) (Figure 5). In protected mode, three transmit and receive fibers from the NAM connect to the bottom connectors of the CLIP. In unprotected mode, only two fibers connect to the CLIP.



Warning Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.



Note Clean and inspect SC and MU connectors prior to installation. Any dust particle or damaged connector will affect the optical transmission.

To avoid confusion in the future, label each end of the transmit and receive cables. To install the fiber patch cords, gently push the SC connector into the connector on the card until it snaps into place with a click.

For future use (in case of servicing) keep the dust caps in a clean location.



Note The label of the NAM connectors (indicating split ratio) is placed on the lid of the ONS 15252 shelf (Figure 4).

Figure 4 *NAM Connector Label*

NAM	50/50	Unprotected*
■	A	A
■	B	100
■	50	Not used
■	50	Not used

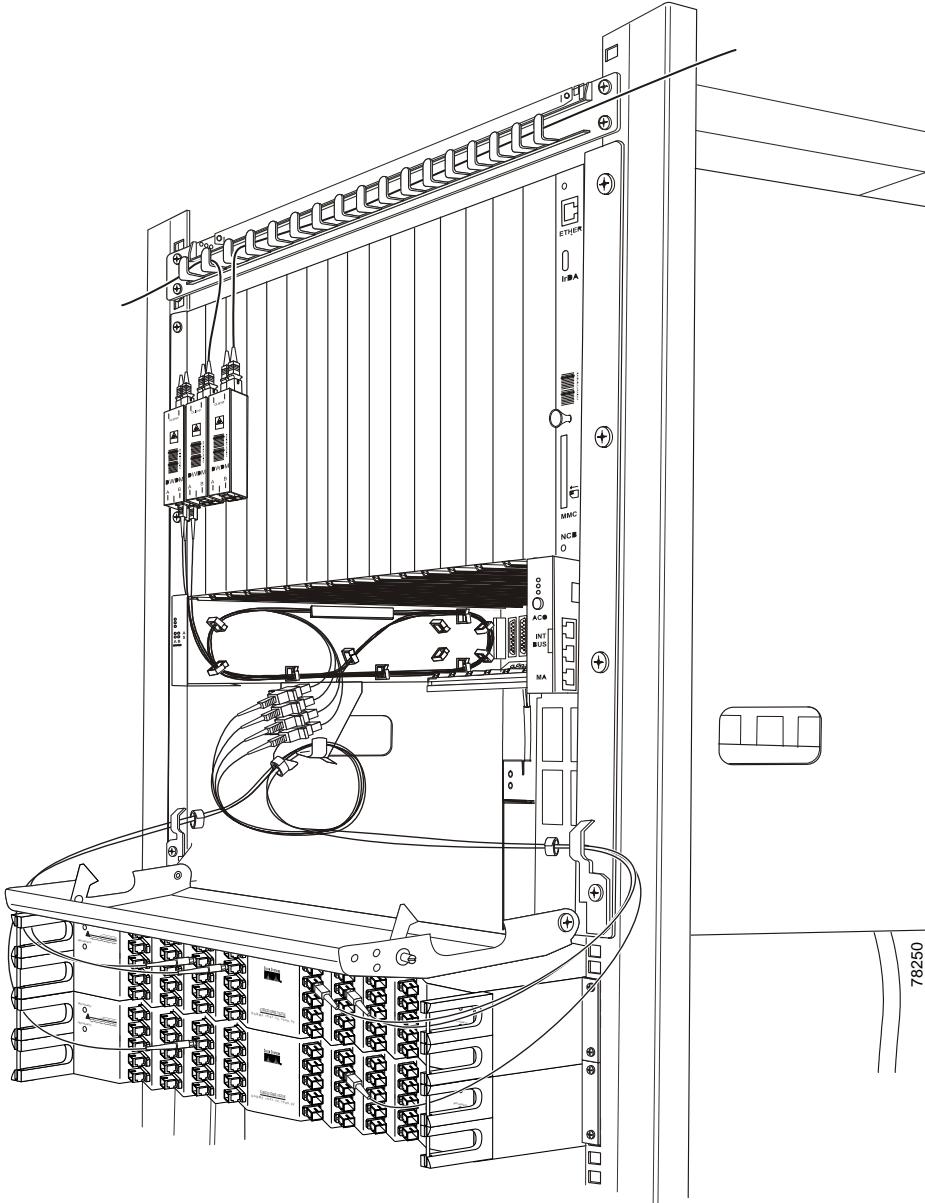
*See manual for installation of unprotected NAM.

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Routing Fiber Patch Cords

After connecting the fibers from the client side, route the fibers through the fiber organizer tray on the fan unit. After connecting the fibers from the ONS 15216 to the NAM (DWDM side), route the fibers through the holding device of the NAMs and route the fibers through the lateral fiber guide of the shelf. Wind the fibers to a loop with a diameter of approximately 3.15 in. (80 mm). Fix the fibers from each NAM with a strap and place them on the holding device of the NAM (Figure 5).

Figure 5 Routing the Fiber in the ONS 15252 Shelf



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Installation Checklist for ONS 15252

The following list is an installation checklist. Use this list as a reference when performing an installation. For detailed installation instructions, refer to the *Cisco ONS 15200 Installation, Setup and Test Manual* (Release 2.0). To check the installation, verify the following items:

- ONS 15252 is mounted securely in the rack.
- ONS 15216 MUX/DEMUX is mounted securely in the rack.
- ONS 15252 is grounded with rack ground.
- Power runs to the ONS 15252.
- Power connections are fused properly (6A recommended).
- -48 VDC (tolerance -42 to -57 VDC) power is present at PS-1 and PS-2 terminals when power is applied.
- Fan-tray filter is installed in the fan tray with the flow direction arrow on the filter frame pointing down.
- Fiber organizer tray is installed.
- Each card turns up successfully. See the Turn-Up and Test procedure in Chapter 4 in the *Cisco ONS 15200 Installation, Setup and Test Manual Release 2.0*.
- Transmit and receive fiber patch cords from the client side are correctly connected to the CLIPs.
- Transmit and receive fiber patch cords from the DWDM side are correctly connected to the connection panel under the NAMs.
- Fiber-optic patch cords route through either the fiber organizer or through the holding device of the NAMs, and through the lateral fiber guide on the shelf.
- The cables from each NAM are bundled with straps.
- Each fiber cable is labeled.



Note

For connection to the ONS 15216 MUX/DEMUX, see *Installing the Cisco ONS 15216 100 GHz DWDM Filters*.

6 Installing the ONS 15201 SCU

To install the ONS 15252 Single-channel Unit (SCU), complete the following procedures:

1. Mounting the ONS 15201 SCU in an Equipment Rack
2. Installing Power and Ground to the ONS 15201

3. Installing Fiber on the ONS 15201 SCU
4. Routing Fiber Patch Cords

Installation Materials for the ONS 15201

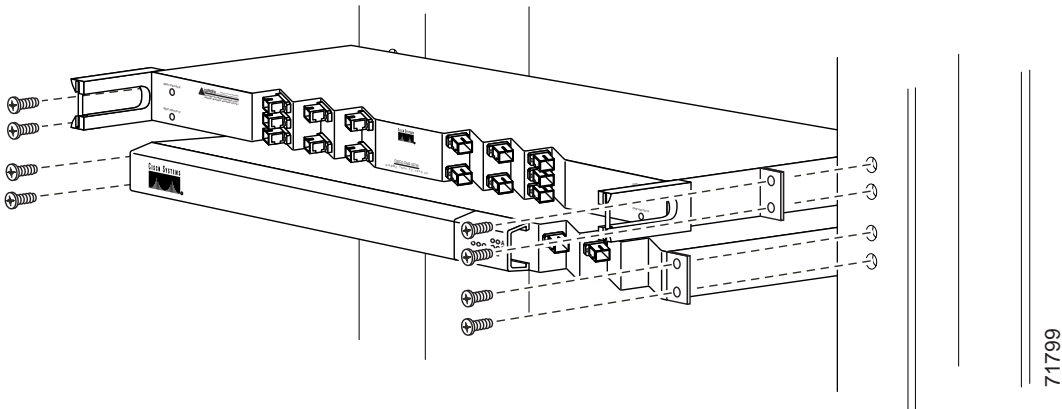
For details, see Installation Materials for ONS 15200.

Mounting the ONS 15201 SCU in an Equipment Rack

The shelf assembly comes ready for installation in a 19-in. (485-mm) rack. The ONS 15201 is 19-in. (485-mm) wide by 11-in. (279-mm) deep by 1.8-in. (44.5-mm) high.

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- Step 1** Move the ONS 15201 to the desired rack position (Figure 6).
 - Step 2** Secure the ONS 15201 to the rack using the four mounting screws that are included.
 - Step 3** Move the ONS 15216 OADM to the desired rack position, either below or above the ONS 15252 (Figure 6).
 - Step 4** Secure the ONS 15216 OADM to the rack using the four mounting screws that are included.

Figure 6 Install the ONS 15201 SCU and the ONS 15216 OADM



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Installing Power and Ground to the ONS 15201

The power needs to be properly installed and grounded for operation of the ONS 15201. Use Figure 7 while completing the following procedure:



Warning

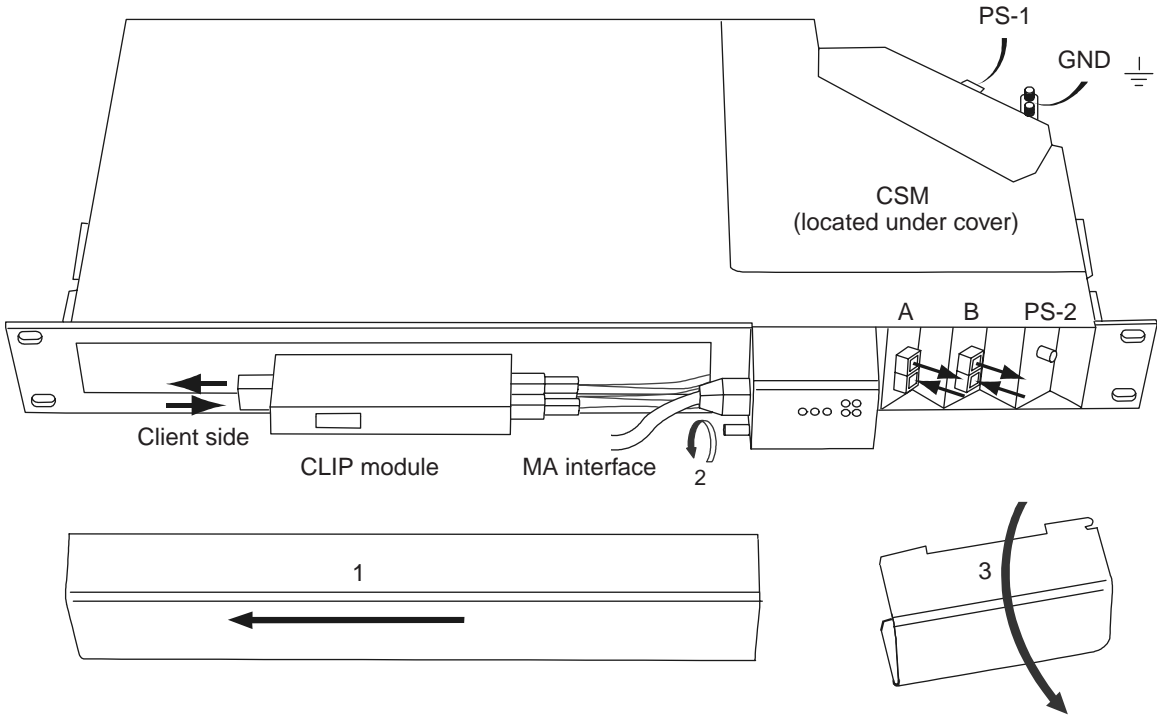
Before installing power to the ONS 15201 SCU, remove the fuses from both the A and B sides of the battery distribution bay (BDB) and power distribution panel (PDP). Failure to do so can result in injury or death. Determine the actual wire gauge based on local engineering standards and practices.



Warning

You have to connect the ground connectors before you proceed with the installation.

Figure 7 Installing Power and Ground to the ONS 15201



LEGEND

- CSM = Collector Splitter Module
- CLIP = Client Layer Interface Port
- MA = management access
- PS-1 = power supply one
- PS-2 = power supply two

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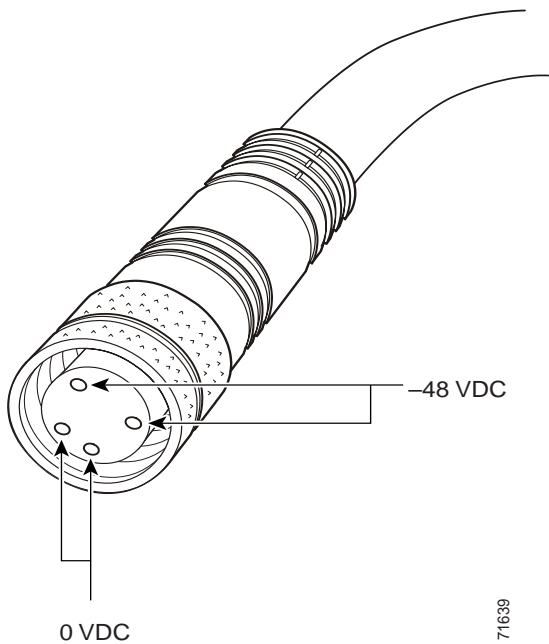
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- Step 1** Remove the A- and B-side fuses from the BDB and the PDP.
 - Step 2** Connect the single or double lugs to the grounding pins located on the rear side of the SCU.
 - Step 3** Connect the PS-1 SCU power cable to the A side of the PDP (Figure 7). Be sure the polarity is correct when you connect the power cable (Figure 8).

Step 4 Connect the PS-2 SCU (alternative) power cable to the B side of the PDP. Be sure the polarity is correct when you connect the power cable (Figure 8).



Note You can use PS-1 or PS-2 as a single power connection point.

Figure 8 ONS 15201 SCU Power Cable Connector



Note The ONS 15216 OADM is an active optical system and needs a power supply. For further details, see the ONS 15216 OADM documentation.

Installing Fiber on the ONS 15201 SCU

Transmit and receive fibers from the client side connect to the left connectors (behind the sliding cover) of the CLIP. Transmit and receive fibers from the DWDM side are preconnected.

To avoid confusion in the future, label each end of the transmit and receive cables. To install the fiber patch cords, gently push the connector into the adapter on the CLIP and on the SCU until it snaps into place with a click.



Warning

Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.



Note

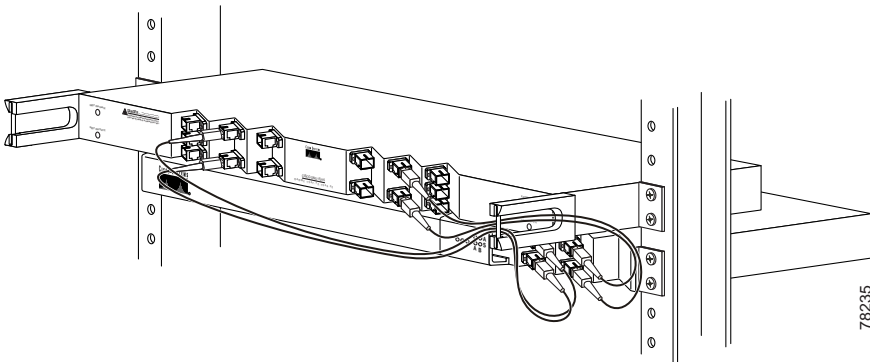
Clean and inspect connectors prior to installation. Any dust particle or damaged connector will affect the optical transmission.

For future use (in case of servicing) keep the dust caps in a clean location.

Routing Fiber Patch Cords

After connecting the fibers from the client side to the ONS 15201 SCU, route the fibers through the rack. After connecting the fibers between the ONS 15216 OADM and the ONS 15201 SCU (DWDM side), route the fibers through the fiber guides of the ONS 15216 OADM (Figure 9).

Figure 9 Routing the Fiber in the ONS 15201 Shelf



Installation Checklist for ONS 15201

The following list is an installation checklist. Use this list as a reference when performing an installation. For detailed installation instructions, refer to the *Cisco ONS 15200 Installation, Setup and Test Manual* (Hardware Release 2.0).

To check the installation, verify the following items:

- ONS 15201 is mounted securely in rack.
- ONS 15216 OADM is mounted securely in the rack.
- ONS 15201 is grounded with rack ground.
- Power runs to the ONS 15201.
- Power connections are fused properly (6A recommended).
- -48 VDC (tolerance -42 to -57 VDC) power present at PS-1 and PS-2 terminals (if used) when power is applied.
- Each card turns up successfully. See the Turn-Up and Test procedure in Chapter 4 in the *Cisco ONS 15200 Installation Setup and Test Manual* (Hardware Release 2.0).
- Transmit and receive fiber patch cords from the client side are correctly connected to the CLIP.
- Transmit and receive fiber patch cords from and to the DWDM side are correctly connected.
- Fiber-optic patch cords route through the shelf.
- Each fiber cable is labeled.



Corporate Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters
Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: 31 0 20 357 1000
Fax: 31 0 20 357 1100

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-7660
Fax: 408 527-0883

Asia Pacific Headquarters
Cisco Systems, Inc.
Capital Tower
168 Robinson Road
#22-01 to #29-01
Singapore 068912
www.cisco.com
Tel: +65 317 7777
Fax: +65 317 7799

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