Part No. 313072-B
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4401 Great America Parkway
Santa Clara, CA 95054

Installing Media Dependent Adapters for the 8683POSM Module

NORTEL NETWORKS™

EMC Compliance

Meets requirements of:

CISPR22:1997, Class A
FCC Part 15, Subparts A and B, Class A
ICES-003, Class A
EN55022:1998, Class A
VCCI, Class A
CISPR24:1997, Class A
EN55024:1998

Caution: Use of controls or adjustments, or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Caution: Only qualified technicians should install this equipment.

Place all printed circuit boards on an antistatic mat until you are ready to install them. If you do not have an antistatic mat, wear a discharge leash to free yourself of static before touching any of the printed circuit boards, or free yourself of static by touching a grounded metal object before handling a printed circuit board.

Safety Certifications

IEC 60950:1991+A1+A2+A3+A4 (with all National Deviations)
UL 60950, 3rd Edition
CSA 22.2, No. 60950
EN 60950:1992+A1+A2+A3+A4+A11
EN 60825-1:1994+A11:1996

Caution: Fiber optic equipment can emit laser or infrared light that can injure your eyes. Never look into an optical fiber or connector port. Always assume that fiber optic cables are connected to a light source.

Caution: Glasfaserkomponenten können Laserlicht bzw. Infrarotlicht abstrahlen, wodurch Ihre Augen geschädigt werden können. Schauen Sie niemals in einen Glasfaser-LWL oder ein Anschlußteil. Gehen Sie stets davon aus, daß das Glasfaserkabel an eine Lichtquelle angeschlossen ist.

Caution: L'équipement à fibre optique peut émettre des rayons laser ou infrarouges qui risquent d'entraîner des lésions oculaires. Ne jamais regarder dans le port d'un connecteur ou d'un câble à fibre optique. Toujours supposer que les câbles à fibre optique sont raccordés à une source lumineuse.

Caution: Los equipos de fibra óptica pueden emitir radiaciones de láser o infrarrojas que pueden dañar los ojos. No mire nunca en el interior de una fibra óptica ni de un puerto de conexión. Suponga siempre que los cables de fibra óptica están conectados a una fuente luminosa.

Caution: Le apparecchiature a fibre ottiche emettono raggi laser o infrarossi che possono risultare dannosi per gli occhi. Non guardare mai direttamente le fibre ottiche o le porte di collegamento. Tenere in considerazione il fatto che i cavi a fibre ottiche sono collegati a una sorgente luminosa.

Required Tool

These procedures require a Phillips screwdriver #1.

Introduction

The Media Dependent Adapters (MDAs) for the Nortel Networks* 8683POSM Module are modular port adapters that you install on the switching module. The module has three bays for up to three of the following MDAs with either single-mode fiber (SMF) cabling or multimode fiber (MMF) cabling (for information about SMF and MMF optical parameters, see "Specifications" on page 16):

- 1-port OC-12c/STM-4 (Figure 1 on page 3)
- 2-port OC-3c/STM-1 (Figure 2 on page 4)

Figure 1 OC-12c/STM-4 8683POSM Module MDA

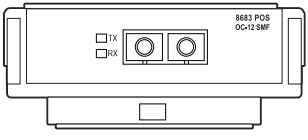

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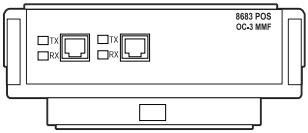
Figure 2 OC-3c/STM-1 8683POSM Module MDA



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Each MDA has ports for connection to a Packet-over-SONET (POS) network. You can mix types of MDAs to achieve flexibility in connectivity types.Table 1 shows the available types of 8683POSM MDAs.

Table 1 Types of MDAs for 8683POSM Module

Model	Port type	Cable type	Connector type
DS1333001	OC-12c/STM-4	Multimode fiber	Duplex SC
DS1333002	OC-12c/STM-4	Single-mode fiber	Duplex SC
DS1333003	OC-3c/STM-1	Multimode fiber	MT-RJ
DS1333004	OC-3c/STM-1	Single-mode fiber	MT-RJ

Note: The 8683POSM Module MDAs support concatenated transmission.

Table 2 describes the 8683POSM Module MDA specifications.

Table 2 MDA specifications for 8683POSM Module

Port type	Operating wavelength	Operating power	Pulse repetition rate	Laser class
OC-12c/STM-4	1274-1356 nm	-14 to -20 dBm	622.08Mb/s	1
OC-12c/STM-4	1260-1360 nm	-8 to -15 dBm	622.08Mb/s	1
OC-3c/STM-1	1274-1356 nm	-14 to -20 dBm	155.52Mb/s	1
OC-3c/STM-1	1274-1356 nm	-8 to -15 dBm	155.52Mb/s	1

This manual provides the following procedures:

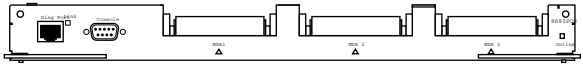
Installing an MDA

Warning: The 8683POSM Module is hot-swappable but the MDAs are not. You must power down and remove the 8683POSM Module, install the MDA, and re-install and power up the module. For more information about removing and installing the 8683POSM Module, refer to *Installing 8600 Switch Modules* (part number 312749-C).

To install an MDA:

1 Remove the 8683POSM Module (Figure 3) from the chassis and lay it on a flat, static-free surface.

Figure 3 8683POSM Module



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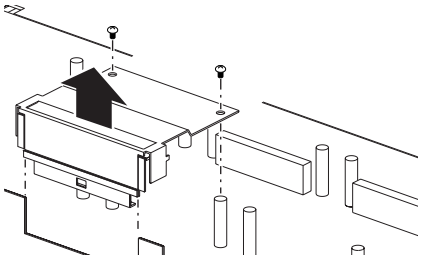
2 Lift the cover out of the MDA slot by unscrewing the two screws and lifting the cover straight up (Figure 4). Set the cover aside for possible future use.

Figure 4 Removing the MDA slot covers



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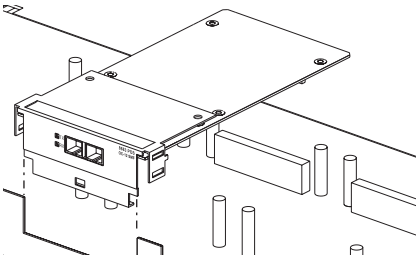
3 Line up the MDA with the front of the 8683POSM Module, positioning the MDA so that the front aligns with the front of the 8683POSM Module (Figure 5).

Figure 5 Aligning the MDA with the front of the module



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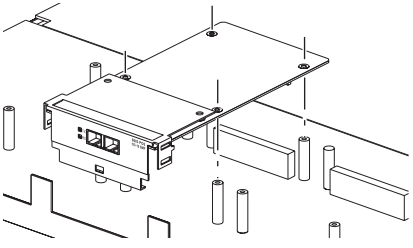
4 Align the four holes on the MDA with the mounting posts on the 8683POSM Module (Figure 6).

5 Align the connector.

Figure 6 Aligning the MDA with the posts of the module



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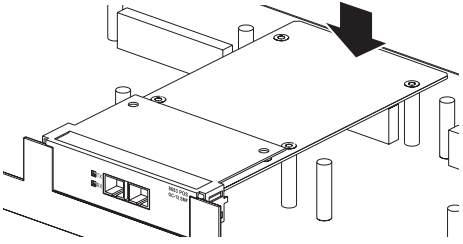
6 Press firmly on the MDA in the middle of the back to seat the MDA in the mounting posts on the module (Figure 7). Apply about 20 pounds of pressure.

Figure 7 Seating the MDA on the module



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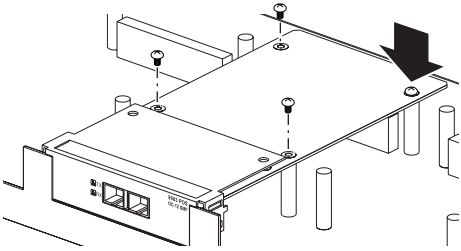
When the MDA is seated properly, the posts of the module are visible in the holes of the MDA.

7 Insert the Phillips pan head screws through the holes. Use the #1 Phillips screwdriver to tighten the screws (Figure 8).

Note: Tighten the rear screws first before you tighten the front screws.

Figure 8 Tightening the screws



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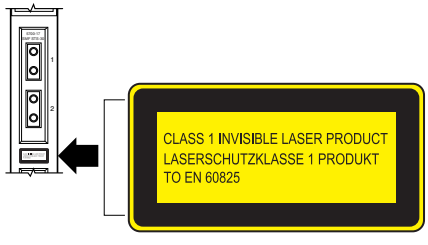
8 For each MDA installed, attach the supplied laser product label to the front panel of the host module, directly below the MDA (Figure 9). Use the label that is printed in the appropriate language for the country where you are installing the equipment.

Figure 9 Attaching product label



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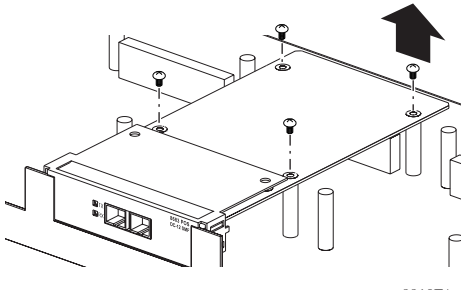
Replacing an MDA

Warning: The MDAs cannot be hot-swapped. You must power down and remove the 8683POSM Module, install the MDA, and re-install and power up the module. For more information on removing and installing the 8683POSM Module, refer to *Installing 8600 Switch Modules* (part number 312749-C).

To replace an MDA:

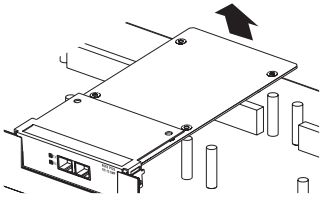
1. Remove the 8683POSM Module from the chassis and lay it on a flat, static-free surface. For information about removing a module from the chassis, refer to *Installing 8600 Switch Modules* (part number 312749-C).
2. Using the screwdriver, unscrew the four screws from the MDA you want to remove (Figure 10).

Figure 10 Preparing an MDA for removal



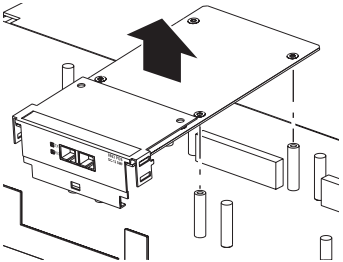
3 Place your palm on top of the MDA, cup your fingers around the back of the MDA, and lift enough to loosen the MDA from the mounting posts (Figure 11).

Figure 11 Loosening the MDA from the mounting posts



4 When the MDA is loosened from the mounting posts, hold the sheet metal by each side and lift the MDA straight up, being careful not to catch the lip of the MDA on the 8683POSM Module (Figure 12). Store the MDA in a static-free container for later use.

Figure 12 Removing the MDA from the module



5 Refer to “Installing an MDA” on page 5 for instructions on installing the replacement MDA.

Connecting fiber cables

The OC-12c/STM-4 MDA uses duplex SC connectors (Figure 13), and the OC-3c/STM-1 MDA uses MT-RJ connectors (Figure 14).

Figure 13 OC-12c/STM-4 MDA duplex SC connector with dust caps

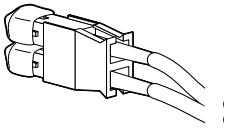


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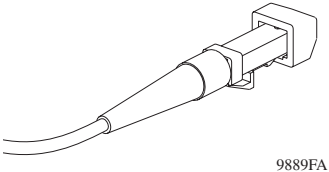
Figure 14 OC-3c/STM-1 MDA MT-RJ connector with dust cap



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To connect fiber cables:

1 Remove the protective dust plug from the SC connector on the MDA (Figure 15 or Figure 16). Store the dust plug for later use.

Figure 15 Removing the dust plug from the OC12c/STM-4 MDA (SC) connector

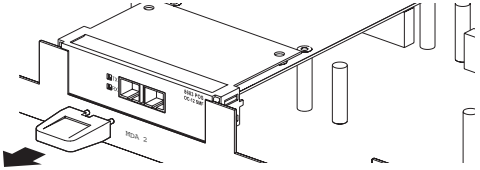

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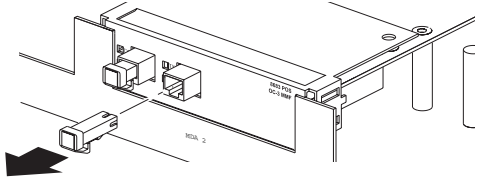
Figure 16 Removing the dust plug from the OC-3c/STM-1 MDA (MT-RJ) connector



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2 Remove the protective dust cap from the connector on the fiber cable (Figure 17 or Figure 18). Store the dust cap for later use.

Figure 17 Removing the dust caps for the SC fiber cable connector

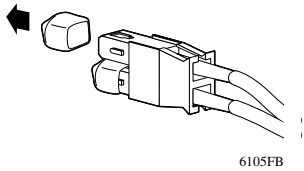
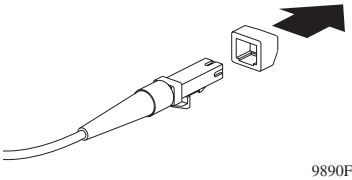


Figure 18 Removing the dust cap from the MT-RJ fiber cable connector



3 Hold the cable connector so the keyed surface will insert easily into the MDA connector. Carefully insert the cable connector into the MDA connector and push gently until you hear the cable connector snap into place (Figure 19 or Figure 20).

Figure 19 Inserting the cable connector into the OC-12c/STM-4 MDA (SC) connector

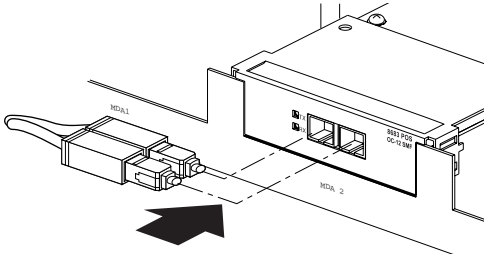


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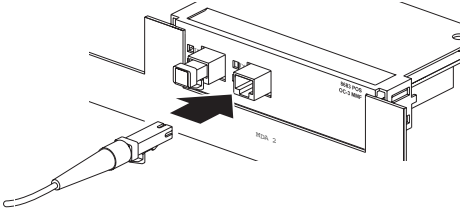
Figure 20 Inserting the cable connector into the OC-3c/STM-1 MDA (MT-RJ) connector



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Specifications

The OC-3c/STM-1 MDA uses SONET STS-3c/STM-1 1300 nm optical transceivers with MT-RJ fiber optic connectors and either single-mode fiber (SMF) or multimode fiber (MMF) cabling. Table 3 describes the connector specifications for OC-3c/STM-1.

Table 3 OC-3c/STM-1 optical parameters

Parameter	SMF description	MMF description
Physical media	9/125 um	62.5/125 um
Line code	NRZ	NRZ
Wavelength	1274 to 1356 nm	1274 to 1356 nm
Average transmit output power	-8 to -15 dBm	-14 to -20 dBm
Average receiver sensitivity	-14 to -28 dBm	-4 to -29 dBm
Distance	20 km	2 km
Input current	70 W	70 W
Thermal rating	241 BTU/hour maximum	241 BTU/hour maximum

The OC-12c/STM-4 MDA uses SONET STS-3c/STM-1 1300 nm optical transceivers with duplex SC-type fiber optic connectors and either single-mode fiber (SMF) or multimode fiber (MMF) cabling. Table 4 describes the connector specifications for OC-12c/STM-4.

Table 4 OC-12c/STM-4 optical parameters

Parameter	SMF description	MMF description
Physical media	9/125 um	62.5/125 um
Line code	NRZ	NRZ
Wavelength	1274 to 1356 nm	1260 to 1360 nm
Average transmit output power	-8 to -15 dBm	-14 to -20 dBm
Average receiver sensitivity	-7 to -18 dBm	-14 to -28 dBm
Distance	15 km	500 m
Input current	90 W	90 W
Thermal rating	310 BTU/hour maximum	310 BTU/hour maximum

LEDs

Both the OC-12c/STM-4 MDA and the OC-3c/STM-1 MDA have two bicolor LEDs on each port marked as follows:

- TX for transmit
- RX for receive

Table 5 describes the meaning of the LED colors for each LED.

Table 5 MDA LED indications

TX LED	RX LED	Port state
Amber	Amber	AdminDown/Out-of-Service
Off	Amber	AdminUp/In-Service/Sonet-alarm-condition
Amber	Green	AdminUp/In-Service/Sonet-Up/PPP link down
Off	Green	AdminUp/In-Service/Sonet-Up/PPP-UP
Green (Blinking)	Green (Blinking)	Admin Up/In-Service/Traffic Activity