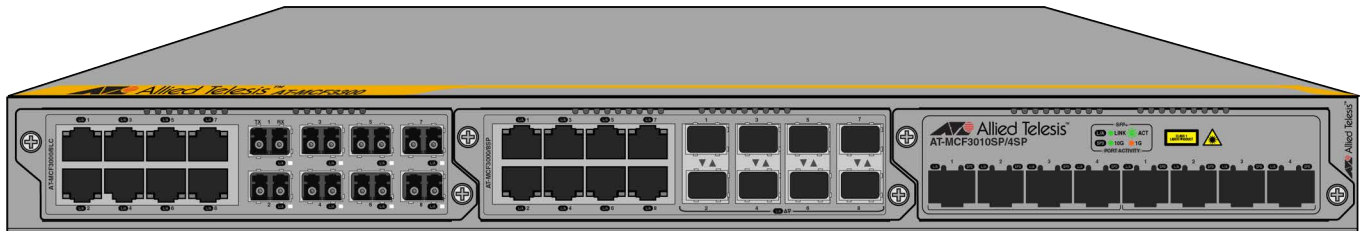


MCF3000 Series

Multi-channel Modular Media Converter

- ❑ MCF3300 Chassis
- ❑ MCF3000/8LC Media Converter
- ❑ MCF3000/8SP Media Converter
- ❑ MCF3010SP/4SP Media Converter
- ❑ MCF3010SPT/4SP Media Converter
- ❑ MCF3000M Management Module
- ❑ MCF3300AC Power Supply
- ❑ MCF3300DC Power Supply



Installation Guide

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Electrical Safety and Emissions Standards

This product meets the following standards.

U.S. Federal Communications Commission

Radiated Energy

Note: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Note: Modifications or changes not expressly approved of by the manufacturer or the FCC, can void your right to operate this equipment.

Industry Canada

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

RFI Emissions	FCC Class A, EN55032 Class A, EN61000-3-2, EN61000-3-3, VCCI Class A, ICES-003 Issue 6
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Warning: In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.


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Electrical Safety	EN62368-1 (CE), UL62368-1 (CULUS)
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


Laser Safety	EN60825
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Preface

This guide contains the hardware installation instructions for the MCF3000 Series Multi-channel Media Converter. This preface contains the following sections:

- “Document Conventions” on page 12
- “Contacting Allied Telesis” on page 13

Document Conventions

This document uses the following conventions:

Note

Notes provide additional information.



Caution

Cautions inform you that performing or omitting a specific action may result in equipment damage or loss of data.



Warning

Warnings inform you that performing or omitting a specific action may result in bodily injury.



Warning

Laser warnings inform you that an eye or skin hazard exists due to the presence of a Class 1 laser device.

Contacting Allied Telesis

If you need assistance with this product, you may contact Allied Telesis technical support by going to the Support & Services section of the Allied Telesis web site at **www.alliedtelesis.com/support**. You can find links for the following services on this page:

- ❑ 24/7 Online Support — Enter our interactive support center to search for answers to your product questions in our knowledge database, to check support tickets, to learn about Return Merchandise Authorization (RMAs), and to contact Allied Telesis technical experts.
- ❑ USA and EMEA phone support — Select the phone number that best fits your location and customer type.
- ❑ Hardware warranty information — Learn about Allied Telesis warranties and register your product online.
- ❑ Replacement Services — Submit a RMA request via our interactive support center.
- ❑ Documentation — View the most recent installation and user guides, software release notes, white papers, and data sheets for your products.
- ❑ Software Downloads — Download the latest software releases for your managed products.

For sales or corporate information, go to **www.alliedtelesis.com/purchase** and select your region.

Chapter 1

Overview

Here are the sections in this chapter:

- ❑ “Introduction” on page 16
- ❑ “Media Converter Components” on page 17
- ❑ “MCF3300 Chassis” on page 19
- ❑ “Power Supplies” on page 20

Introduction

The MCF3000 series of multi-channel module media converters provides a simple and reliable way to consolidate large numbers of geographically separated Fast Ethernet, Gigabit Ethernet, or 10 Gigabit Ethernet networks into a central location, with fiber optic cables. The media converter modules feature four or eight channels that function as independent media converters for transferring network traffic between copper and fiber optic cables. Designed for both managed and unmanaged network environments, the modules operate with low latency to minimize the impact on network performance along with store and forward to prevent the propagation of incomplete or fragmented packets on your network. The chassis has a standard 1U height and can be installed on a table or in a standard 19-inch equipment rack.

The MCF3000M module adds management capability to the media converter modules. It has both command line and web browser management interfaces for you to customize the operating parameters of the modules, media converter channels, and individual ports. Management functions include displaying status information, viewing traffic statistics, and enabling or disabling individual channels or ports. Management is supported directly through a CONSOLE port, which does not require an IP address, as well as remotely over your network from your management workstation, with the following tools:

- ❑ Telnet protocol (command line interface)
- ❑ Secure Shell (SSH) protocol (command line interface)
- ❑ Web browser (web browser interface)
- ❑ SNMP

The MCF3000 series has AC and DC power supplies. The chassis supports hot-swapping so that you can install or replace power supplies or media converter modules without powering off the unit.

Media Converter Components

The product components are listed in Table 1.

Table 1. MCF3000 Product Family

Component	Description
MCF3300	Chassis with the following physical characteristics: <ul style="list-style-type: none"> - Three slots for media converter modules. - Two slots for AC or DC power supplies. - One slot for the MCF3000M management module. - Desktop or equipment rack installation.
MCF3000/8LC	Media converter module with eight channels. Each channel has two ports: <ul style="list-style-type: none"> - One 10/100/1000Mbps copper port. - One fixed 1000Mbps (1000Base-SX) fiber optic port with duplex LC connectors. The fiber optic ports have a maximum operating distance of 500 meters (1640 ft.) with 50/125 μ m multimode cable or 220 meters (722 ft.) with 62.5/125 μ m cable.
MCF3000/8SP	Media converter module with eight channels. Each channel has two ports: <ul style="list-style-type: none"> - One 10/100/1000Mbps copper port - One port for an 100Mbps (100Base-FX) or 1000Mbps (1000Base-SX/LX) SFP transceiver.
MCF3010SP/4SP	Media converter module with four channels. Each channel has two ports: <ul style="list-style-type: none"> - One port for a 1000Mbps (1000Base-SX/LX) SFP or 10Gbps (10GBase-SR/LR) SFP+ transceiver. - One port for a 1000Mbps (1000Base-SX/LX) SFP or 10Gbps (10GBase-SR/LR) SFP+ transceiver.

Table 1. MCF3000 Product Family (Continued)

Component	Description
MCF3010SPT/4SP	Media converter module with four channels. Each channel has two ports: <ul style="list-style-type: none"> - One port containing a 10/100Mbps/1/2.5/5/10Gbps AT-SP10TM copper port transceiver. - One port for a 1000Mbps (1000Base-SX/LX) SFP or 10Gbps (10GBase-SR/LR) SFP+ transceiver.
MCF3000M	Management module for local and remote management of the chassis. The management module is optional. The module has the following ports: <ul style="list-style-type: none"> - One micro-USB CONSOLE port for local management. - One 10/100/1000Mbps MGMT port for remote management over your network. - One STACK port reserved for future use. - One USB host port for storing or transferring firmware files on USB storage devices.
MCF3300AC	AC power supply.
MCF3300DC	DC power supply.

MCF3300 Chassis

The front and rear panels of the MCF3300 Chassis are shown in Figure 1.

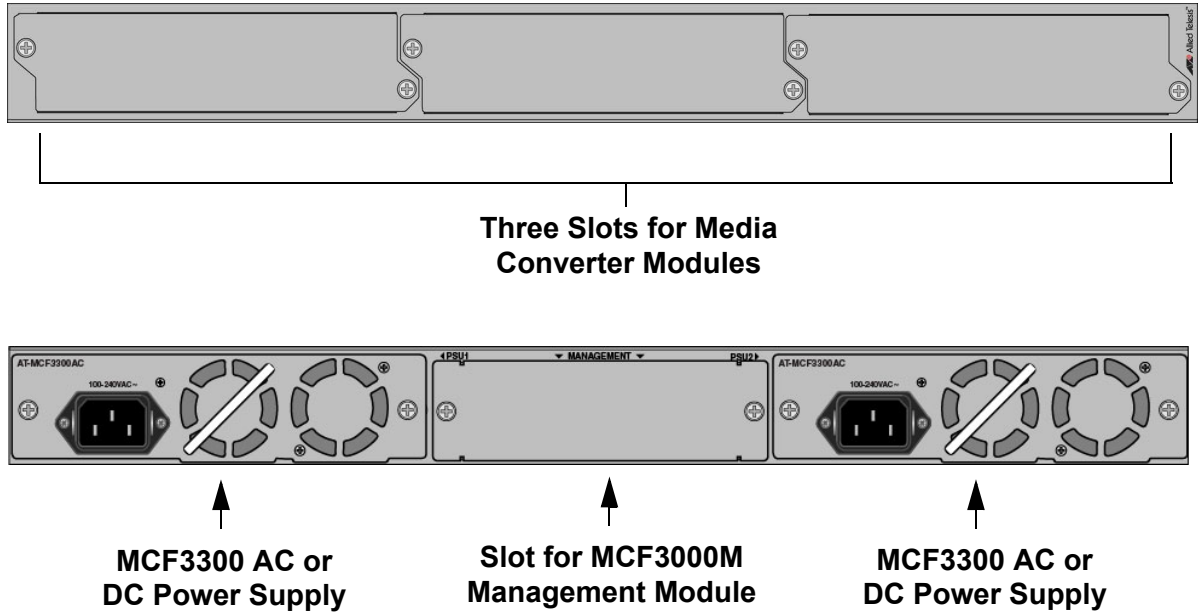


Figure 1. Front and Rear Panels of the MCF3300 Chassis

Power Supplies

The power supplies for the chassis are the AC MCF3300AC and DC MCF3300DC modules. Refer to Figure 2.

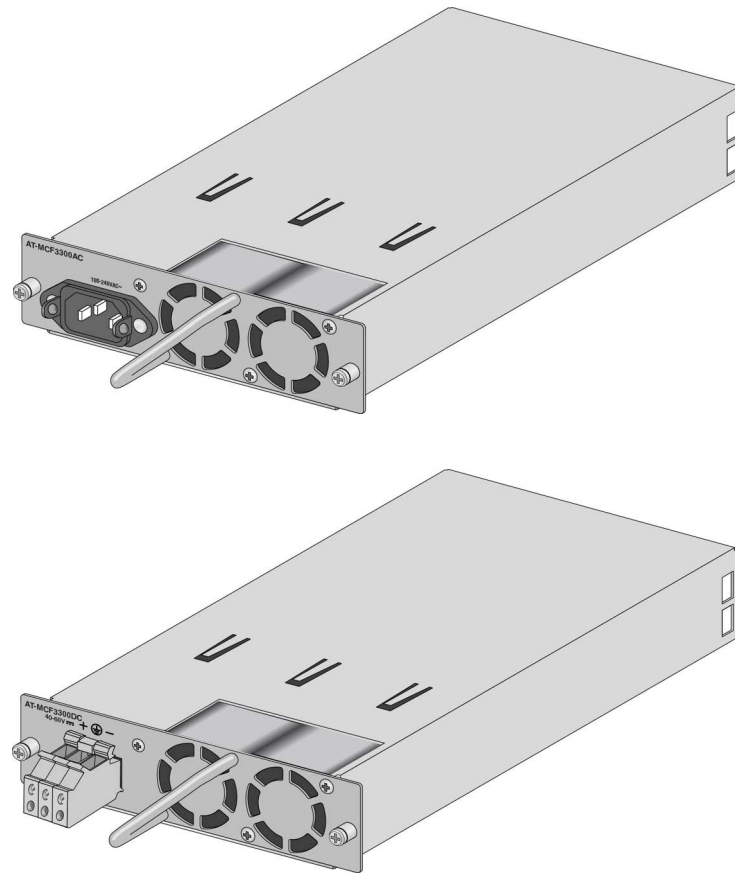


Figure 2. MCF3300AC and MCF3300DC Power Supplies

Power supplies are installed in the two slots on the rear panel. Refer to Figure 1 on page 19. Here are the guidelines:

- ❑ The MCF3000/8LC and MCF3000/8SP modules require only one power supply. Installing a second power supply adds power redundancy to the chassis.
- ❑ The MCF3010SP/4SP and MCF3010SPT/4SP modules require two power supplies.

Refer to “Power Specifications” on page 137.

Note

The media converter comes with one AC or DC power supply preinstalled. Additional power supplies are ordered separately.

Chapter 2

Media Converter Modules

Here are the sections in this chapter:

- ❑ “MCF3000/8LC and MCF3000/8SP Media Converter Modules” on page 22
- ❑ “MCF3010SP/4SP Media Converter Module” on page 27
- ❑ “MCF3010SPT/4SP Media Converter Module” on page 30
- ❑ “Media Converter Channels” on page 33
- ❑ “MissingLink Mode” on page 35

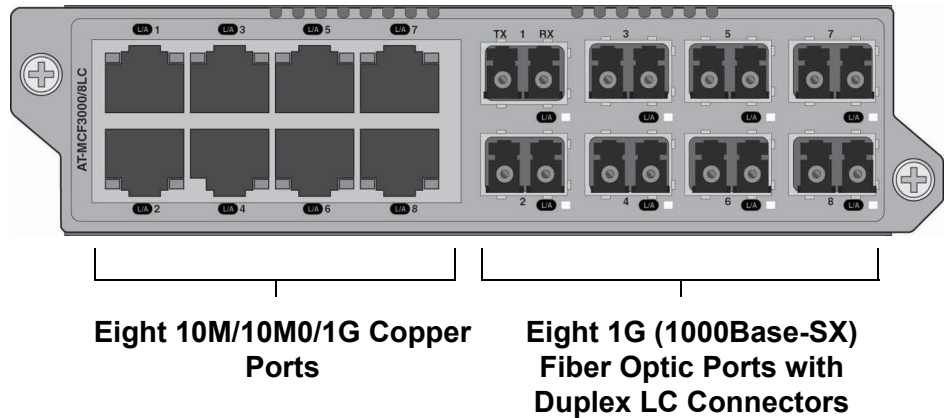
Note

The MCF3010T/4SP module described in previous versions of this Installation Guide is not available for purchase at this time.

MCF3000/8LC and MCF3000/8SP Media Converter Modules

The MCF3000/8LC and MCF3000/8SP media converter modules are illustrated in Figure 3.

MCF3000/8LC



MCF3000/8SP

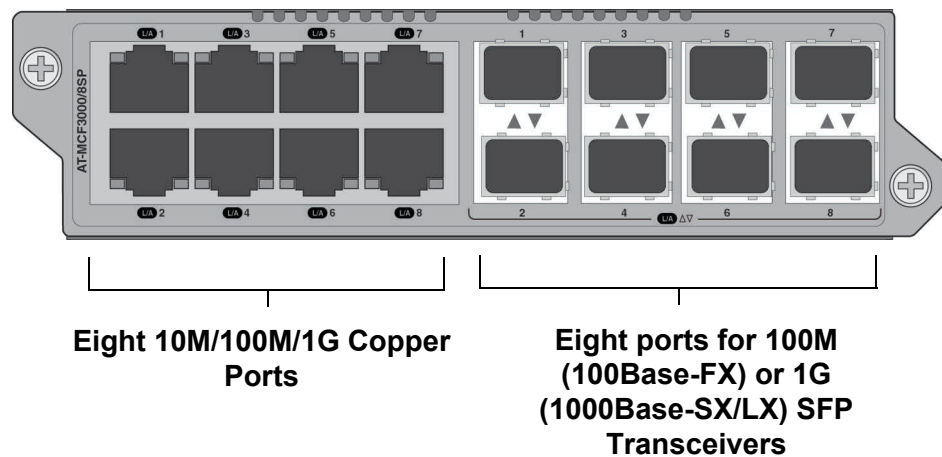


Figure 3. MCF3000/8LC and MCF3000/8SP Media Converter Modules

Media Converter Channels

The media converter channels are predefined. Channel 1 consists of copper port 1 and fiber optic port 1, channel 2 of copper port 2 and fiber optic port 2, and so forth. Refer to Figure 4 on page 23. You cannot change the port-to-channel assignments. For guidelines, refer to “Media Converter Channels” on page 33.

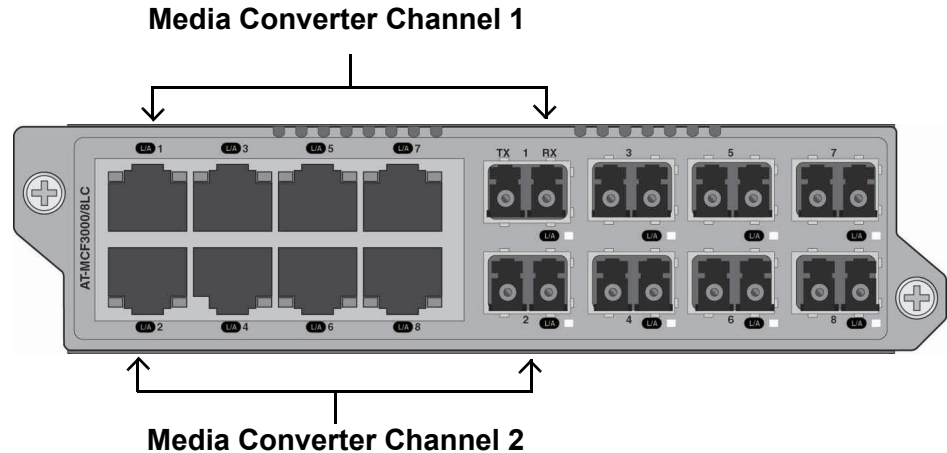


Figure 4. Media Converter Channels on the MCF3000/8LC and MCF3000/8SP Media Converter Modules

Copper Ports

Here are the properties of the copper ports:

- ❑ Standard RJ-45 8-pin connectors. For port pin-outs, refer to “RJ-45 Copper Port Pinouts” on page 140.
- ❑ Speeds of 10M/100M/1G.
- ❑ Half or full-duplex mode at 10M/100M. Full-duplex mode is recommended for best performance.
- ❑ Full-duplex mode only at 1G.
- ❑ Maximum operating distance of 100 meters (328 feet) at 10M/100M/1G.
- ❑ IEEE 802.3u. Auto-Negotiation that automatically sets speeds and duplex modes. You can manually adjust the ports with the MCF3000M management module.
- ❑ Auto-MDI/MDI-X that automatically adjusts the wiring configurations to MDI or MDI-X, depending on the wiring configuration of the local devices. This allows you to use standard UTP Ethernet copper cable regardless of the wiring configuration of the ports on network devices.

Auto-MDI/MDI-X is only available when the copper ports are using Auto-Negotiation, the default setting. If you disable Auto-Negotiation on a port and set the speed and duplex mode manually, this feature is also disabled and the port defaults to the MDI-X setting.

Copper Cable

The minimum cable requirements for the copper ports are given here.

- ❑ 10M/100M: Standard TIA/EIA 568-B-compliant Category 3 unshielded cabling.

- 1G: Standard TIA/EIA 568-A-compliant Category 5 or TIA/EIA 568-B-compliant Enhanced Category 5 (Cat 5e) unshielded cabling.

Copper Port LEDs

The copper ports have one active LED that displays link and activity information. Refer to Figure 5.

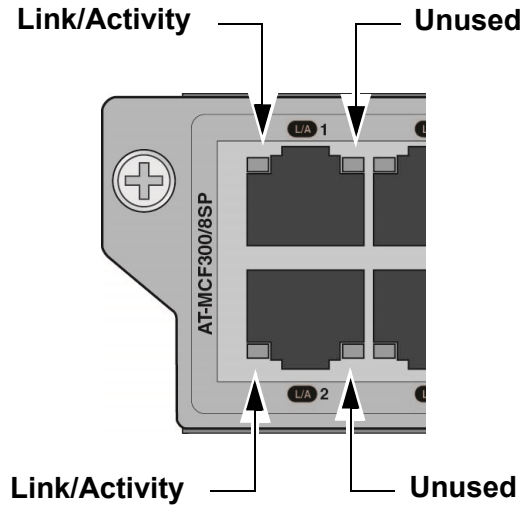


Figure 5. Copper Port LEDs on the MCF3000/8LC and MCF3000/8SP Modules

The Link/Activity LED is described in Table 2.

Table 2. Link/Activity LEDs on the Copper Ports on the MCF3000/8LC and MCF3000/8SP Modules

State	Description
Solid Green	The port has a link to a network device.
Flashing Green	The port is transmitting or receiving traffic.
Slow Flashing Green	The media converter channel is operating in the MissingLink mode. The copper port has a link to a network device, but the fiber optic port in the channel does not. Refer to the <i>MCF3000 Series Command Line Interface User Guide</i> or <i>MCF3000 Series Web Browser Interface User Guide</i> .
Off	The port is not connected to a network device or the device is not powered on.

MCF3000/8LC Fiber Optic Ports

The fiber optic ports on the MCF3000/8LC media converter module have the following properties:

- ❑ Fixed speed of 1G (1000Base-SX)
- ❑ Full-duplex mode only
- ❑ Maximum operating distance of 500 meters (1640 ft.) with 50/125µm multimode fiber optic cable or 220 meters (722 ft.) with 62.5/125µm (core/cladding) multimode cable
- ❑ Duplex LC connectors

MCF3000/8SP Fiber Optic Ports

The fiber optic ports on the MCF3000/8SP media converter module support 100M 100Base-FX or 1G 1000Base-SX/LX SFP transceivers. They do not support 10G transceivers. Contact your Allied Telesis sales representative for a list of supported transceivers.

Fiber Optic Port LEDs

The fiber optic ports have one LED that displays link and activity information. Refer to Figure 6.

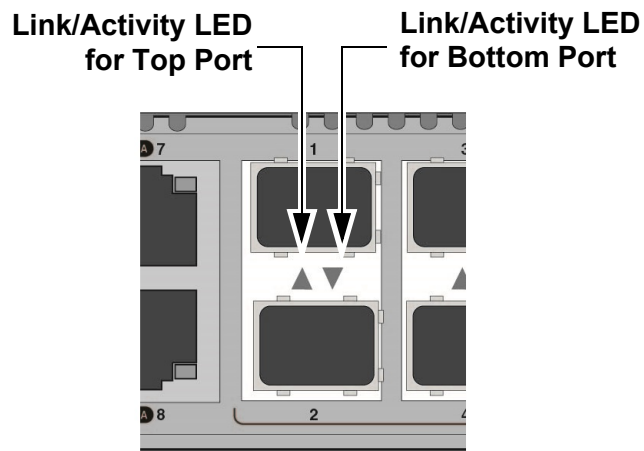


Figure 6. Fiber Optic Port LEDs on the MCF3000/8LC and MCF3000/8SP Modules

The LEDs are described in Table 3.

Table 3. Link/Activity LEDs for the Fiber Optic Ports on the MCF3000/8LC and MCF3000/8SP Modules

State	Description
Solid Green	The port has established a link to a network device.
Flashing Green	The port has established a link with a port on a network device and is transmitting or receiving network traffic.

Table 3. Link/Activity LEDs for the Fiber Optic Ports on the MCF3000/8LC and MCF3000/8SP Modules (Continued)

State	Description
Slow Flashing Green	The media converter channel is operating in the MissingLink mode. The fiber optic port has a link to a network device, but the companion copper port in the same channel does not. Refer to the <i>MCF3000 Series Command Line Interface User Guide</i> or <i>MCF3000 Series Web Browser Interface User Guide</i> .
Off	The port is not connected to a network device or the device is not powered on.

MCF3010SP/4SP Media Converter Module

The MCF3010SP/4SP media converter module is shown in Figure 7.

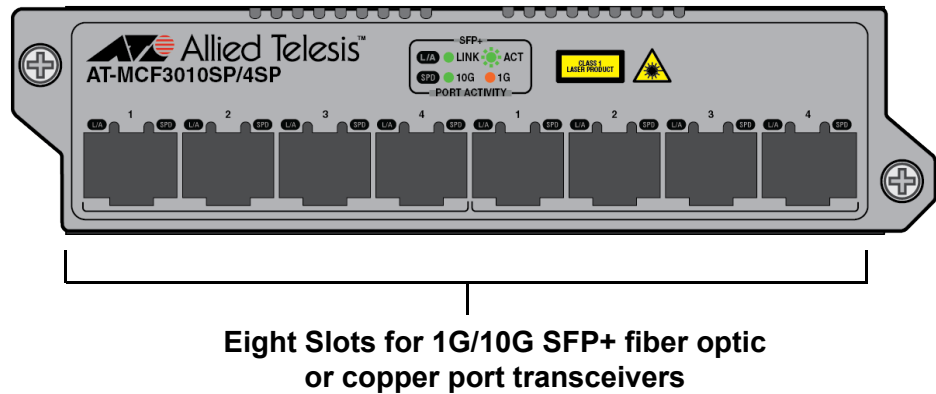


Figure 7. MCF3010SP/4SP Media Converter Module

Media Converter Channels

The MCF3010SP/4SP module has four independent media converter channels. Each channel consists of two slots for 1G/10G SFP+ fiber optic or copper port transceivers. The channels, which are predefined, are numbered 1 to 4. Channel 1 consists of slots 1 and 1, channel 2 consists of slots 2 and 2, and so on. Refer to Figure 8. For guidelines, refer to “Media Converter Channels” on page 33.

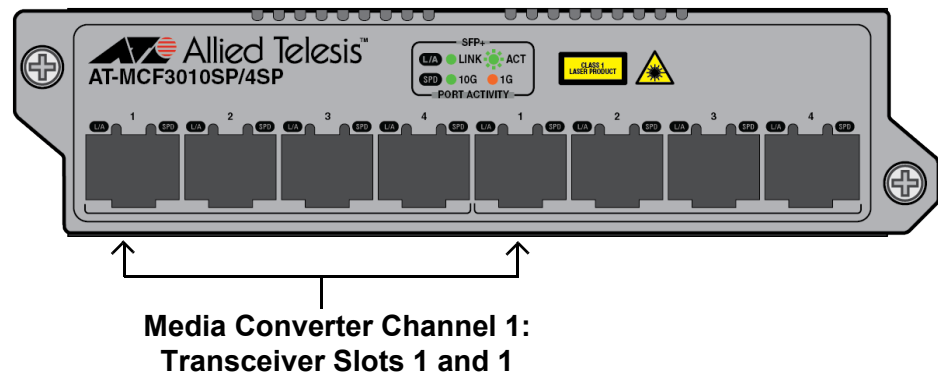


Figure 8. Media Converter Channel 1 on the MCF3010SP/4SP Module

Requirement The MCF3010SP/4SP module has the following requirement:

- ❑ The MCF3010SP/4SP module requires two MCF3300AC or MCF3300DC power supplies in the chassis to maintain adequate power and cooling.

Guidelines Here are the guidelines to the media converter module:

- ❑ The channel slots support 1G and 10G SFP+ fiber optic or copper port transceivers. For a list of supported SFP+ and copper transceivers, contact an Allied Telesis sales representative.
- ❑ The channel assignments of the transceiver slots cannot be changed.
- ❑ The four media converter channels operate independently of each other. The network traffic of one channel cannot cross over to another channel.
- ❑ For two network devices to communicate with each other through the media converter module, they must be connected to SFP+ transceivers in slots of the same media converter channel, such as slots 1 and 1, or slots 2 and 2.
- ❑ The two network devices of a media converter channel can operate at different speeds. For example, one can be operating at 1G and the other at 10G.
- ❑ The ports of a channel use store and forward to forward traffic. Packets are forwarded to the egress port of a channel after they have been fully received and buffered on the ingress port and checked for cyclic redundancy check (CRC) errors. Packets without a CRC error are forwarded to the egress port where CRC is regenerated prior to retransmission, while packets with CRC errors are discarded to prevent their propagation on the network.
- ❑ You can use the media converter channels in any order.
- ❑ Changing channel and port settings requires the MCF3000M management module.
- ❑ The MCF3000M management module must have bootloader v1.3 and firmware v2.0 or later.
- ❑ The MCF3000M management module shuts down MCF3010SP/4SP modules if the chassis has only one power supply.
- ❑ There are no adjustable switches on the media converter module.

Port LEDs Each transceiver slot has two LEDs. The LEDs reflect the operating status of ports on SFP+ or copper port transceivers. Refer to Table 4 on page 29.

Table 4. SFP+ Transceiver LEDs on the MCF3010SP/4SP Module

LED	State	Description
L/A	Green	The SFP+ or copper port transceiver has established a link to a link partner.
	Slow flashing green	The media converter channel is operating in the MissingLink mode. The transceiver has a link to a network partner, but the transceiver in the companion channel slot does not have a link or the slot is empty. Refer to the <i>MCF3000 Series Command Line User Guide</i> or <i>MCF3000 Series Web Browser Interface User Guide</i> for information on the MissingLink feature.
	Flashing green	The transceiver is transmitting or receiving traffic from a link partner.
	Off	The port is not connected to a link partner or the link partner is powered off.
SPD	Green	The SFP+ or copper port transceiver has established a 10G link to a link partner.
	Amber	The transceiver has established a 1G link to a link partner.
	Off	The transceiver is not connected to a link partner or the link partner is powered off.

MCF3010SPT/4SP Media Converter Module

The MCF3010SPT/4SP media converter module is a bundled product consisting of these products:

- ❑ One MCF3010SP/4SP media converter module.
- ❑ Four pre-installed 10/100M/1/2.5/5/10G AT-SP10TM copper port transceivers.

Refer to Figure 9.

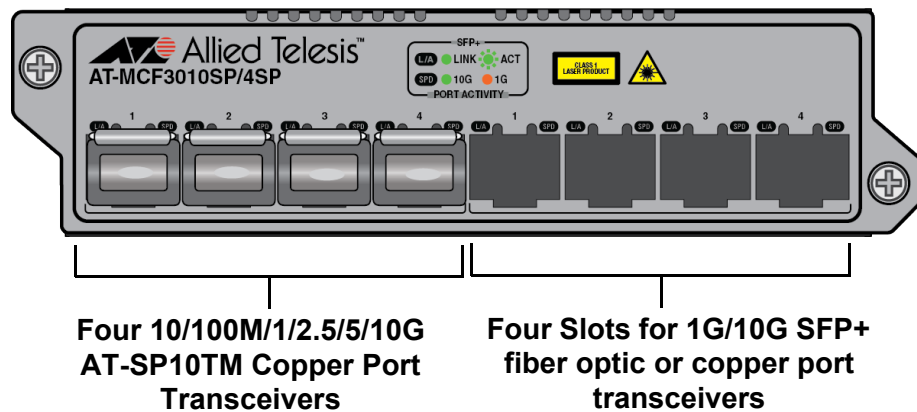


Figure 9. MCF3010SP/4SP Media Converter Module

The MCF3010SPT/4SP module has four independent media converter channels. Each channel consists of one copper port and one SFP+ transceiver slot. The copper ports are 10/100M/1/2.5/5/10G transceivers. The port and slot assignments of the channels are predefined. Media converter channel 1 consists of copper port 1 and transceiver slot 1, channel 2 consists of copper port 2 and transceiver slot 2, and so on. Refer to Figure 10.

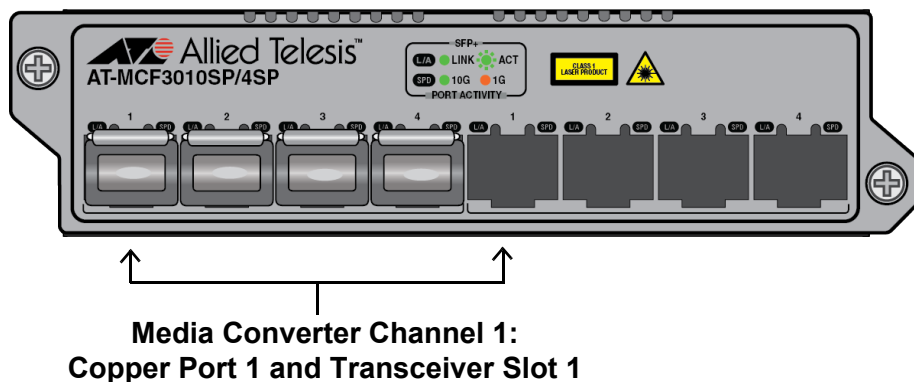


Figure 10. Media Converter Channel 1 on the MCF3010SPT/4SP Module

Requirement The MCF3010SPT/4SP module has the following requirement:

- ❑ The MCF3010SPT/4SP module requires two MCF3300AC or MCF3300DC power supplies in the chassis to maintain adequate power and cooling.

Guidelines Here are the guidelines to the MCF3010SPT/4SP module:

- ❑ The four copper port transceivers support speeds of 10/100M/1/2.5/5/10G.
- ❑ The default speed setting for the copper ports is auto-negotiation. Setting the speed manually requires the MCF3000M management module.
- ❑ The SFP+ transceiver slots support 1G and 10G fiber optic, or copper port transceivers. For a list of supported SFP+ transceivers, contact an Allied Telesis sales representative.
- ❑ The channel assignments of the ports cannot be changed.
- ❑ The four media converter channels operate independently of each other. The network traffic of one channel cannot cross over to another channel.
- ❑ For two network devices to communicate with each other through the media converter module, they have to be connected to ports in slots of the same media converter channel, such as copper port 1 and SFP+ transceiver slot 1, copper port 2 and SFP+ transceiver slot 2, and so forth.
- ❑ The two network devices of a media converter channel can operate at different speeds. For example, the copper port of a channel could be operating at 100M and the fiber optic transceiver at 1G.
- ❑ The ports of a channel use store and forward to forward traffic. Packets are forwarded to the egress port of a channel after they have been fully received and buffered on the ingress port and checked for cyclic redundancy check (CRC) errors. Packets without a CRC error are forwarded to the egress port where CRC is regenerated prior to retransmission, while packets with CRC errors are discarded to prevent their propagation on the network.
- ❑ You can use the media converter channels in any order.
- ❑ Changing channel and port settings requires the MCF3000M management module.
- ❑ The MCF3000M management module must have bootloader v1.3 and firmware v2.0 or later.
- ❑ The MCF3000M management module shuts down MCF3010SPT/4SP modules if the chassis has only one power supply.
- ❑ There are no adjustable switches on the media converter module.

Copper Port LEDs

Each copper port has two status LEDs. Refer to Table 5.

Table 5. Copper Port LEDs on the MCF3010SPT/4SP Module

LED	State	Description
L/A	Green	The copper port has established a link to a link partner.
	Slow flashing green	The media converter channel is operating in the MissingLink mode. The copper port can establish a link to a network partner, but the SFP+ transceiver in the companion channel slot does not have a link or the slot is empty. Refer to the <i>MCF3000 Series Command Line User Guide</i> or <i>MCF3000 Series Web Browser Interface User Guide</i> for information on the MissingLink feature.
	Flashing green	The copper port is transmitting or receiving traffic from a link partner.
	Off	The copper port is not connected to a link partner or the link partner is powered off.
SPD	Green	The copper port has established a 10G link to a link partner.
	Amber	The copper port has established a 10M, 100M, 1G, 2.5G, or 5G link to a link partner.
	Off	The copper port is not connected to a link partner or the link partner is powered off.

SFP+ Port LEDs

Each SFP+ transceiver slot has two LEDs. The LEDs reflect the operating status of ports on SFP+ transceivers. Refer to Table 4 on page 29.

Media Converter Channels

The ports on the media converters are paired together. Each pair functions as an independent media converter channel. The MCF3000/8LC and MCF3000/8SP media converters have eight independent media converter channels. The MCF3010SP/4SP and MCF3010SPT/4SP modules have four channels.

The channel ports are predefined. You cannot change the channel port assignments. An example of a media converter channel is shown in Figure 11.

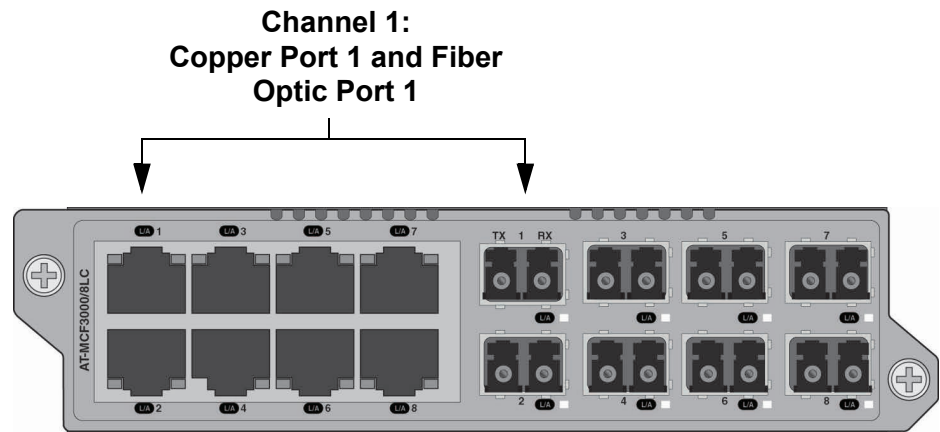


Figure 11. Channel 1 on a Media Converter Module

The channels are independent media converters. The two ports of a channel can forward traffic to each other, but not to any of the other ports. Consequently, the traffic on one channel cannot crossover to any other channel. Local and remote network devices that need to forward traffic to each other through a media converter module have to be connected to ports of the same channel. For example, for a local Fast Ethernet switch to communicate with a remote switch, the cables from the local and remote switches have to be connected to ports in the same channel. Devices that are connected to ports in different channels cannot communicate with each other through the media converters.

The channels use store and forward to forward traffic. A packet is forwarded to the egress port of a channel after it has been fully received and buffered on the ingress port and checked for cyclic redundancy check (CRC) errors. Packets without a CRC error are forwarded to the egress port where CRC is regenerated prior to the transmission of the packet, while packets with CRC errors are discarded to prevent their propagation on the network.

Here are the media converter guidelines:

- ❑ Local and remote devices that need to communicate with each other through the media converter have to be connected to ports in the same channel.
- ❑ You cannot change the port assignments of the channels.
- ❑ You can use the media converter channels in any order.
- ❑ The two ports of a media converter channel can operate at different speeds.
- ❑ Copper and fiber optic ports at 1G or 10G support full-duplex mode only.
- ❑ Copper ports at 10/100M and SFP ports at 100M support half or full-duplex mode. Full-duplex mode is recommended for best performance.
- ❑ Changing the settings of the ports requires the MCF3000M management module.
- ❑ There are no adjustable switches on the media converter modules.

MissingLink Mode

The MissingLink mode enables the two ports of a media converter channel to pass the “Link” status of their connections to each other. This allows channel ports and, consequently, the network devices connected to the ports, to instantly be aware of changes to the states of the links on companion ports.

When a channel in the MissingLink mode detects the loss of a link on one of the ports, it blocks the companion channel port by disabling its transmitter. This notifies the network device connected to the companion port of the loss of the link on the other channel port. Without the MissingLink mode, a network device connected to a port on the media converter would not be aware of a loss of a link on the companion channel port, because its link to the media converter would be unaffected.

When the link is reestablished on a channel port, the MissingLink mode automatically reactivates the transmitter on the companion channel port so that the two network devices can again forward traffic to each other through the media converter channel.

The value to this type of fault notification is that some network devices, such as managed Fast Ethernet switches, can respond to the loss of a link on a port by performing a specific action. For example, the network device might send a trap to a network management station, and so alert the network administrator of the problem. Or, if the device is running a spanning tree protocol, it might seek a redundant path to a disconnected node.

Figure 12 on page 36 is an example of the MissingLink mode. The two ports of channel 1 on the MCF3010SP/4SP module are connected to two Ethernet switches, A and B. With the MissingLink mode, if the link on the channel port to Ethernet switch A is lost or cannot be established, the switch blocks the port to switch B by disabling the transmitter. This notifies switch B of the problem so that it too, along with switch A, can take remedial action, such as activating a redundant path if it is running a spanning tree protocol or sending an SNMP trap to a management workstation. Without the MissingLink mode, switch B would assume that it still had a valid link to the switch A because its link to the port on the channel would still exist, even though no remote traffic is received.

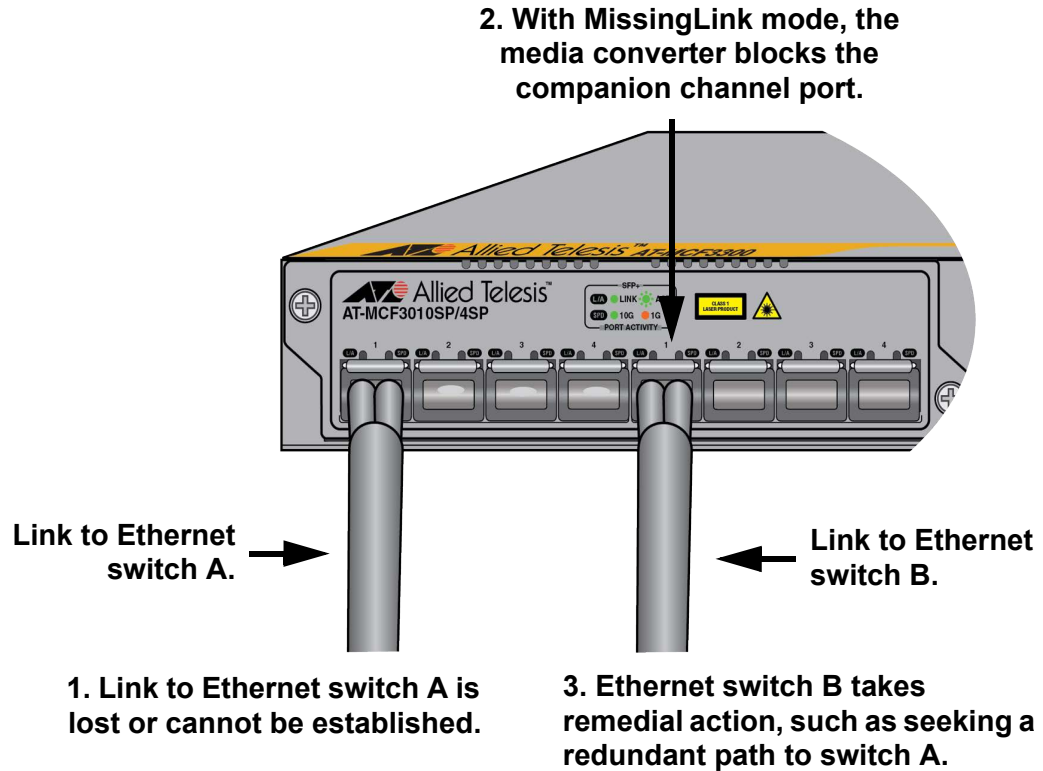


Figure 12. Example of the MissingLink Mode

The MissingLink mode works the same regardless of which port in a media converter channel is unable to establish a link. In the previous example, Ethernet switch A had no link, so MissingLink disabled the media converter port to switch B. If switch B is unable to establish a link, the switch would disable the companion channel port to switch A.

The Link LEDs of the ports in a channel that are running in this mode always operate in tandem. They are either both on or off. Both Link LEDs of the ports of a channel remain off until both ports can establish links with their network devices.

This operating mode is primarily used on a channel when the network devices can react to the loss of a link on a port, such as managed Fast Ethernet switches that are running a spanning tree protocol. Conversely, the MissingLink mode should not be used on a channel if the two ports are connected to network devices that cannot react to a lost link.

Furthermore, Allied Telesis does not recommend using the MissingLink mode when troubleshooting network problems that might be caused by link problems. This is because the MissingLink mode does not allow you to use the Link LEDs on the channel ports to assist in diagnosing the problem.

Guidelines Here are MissingLink guidelines:

- ❑ The default MissingLink setting is enabled.
- ❑ Disabling the MissingLink mode requires the MCF3000M management module.
- ❑ You can enable or disable the MissingLink mode on the individual media converter channels.
- ❑ The mode does not block or interfere with the flow of traffic between the ports of a channel during normal network operations.
- ❑ When the MissingLink mode is disabled on a channel, the Link LEDs reflect the link states of the ports. They are on when ports are linked to network devices and off when they are not linked.

Chapter 3

MCF3000M Management Module

Here are the sections in this chapter:

- ❑ “Overview” on page 40
- ❑ “Front Panel” on page 42
- ❑ “MGMT Port” on page 43
- ❑ “MGMT Port LEDs” on page 44
- ❑ “CONSOLE Port” on page 45
- ❑ “RESET Button” on page 46
- ❑ “USB Port” on page 47
- ❑ “Power and System LEDs” on page 48

Overview

The MCF3000M management module is used to monitor and configure the ports and channels on the media converter modules. Refer to Figure 13. You can access the module locally through its CONSOLE port or remotely over your network through the MGMT 10/100/1000Base-T port, from Telnet or SSH clients.

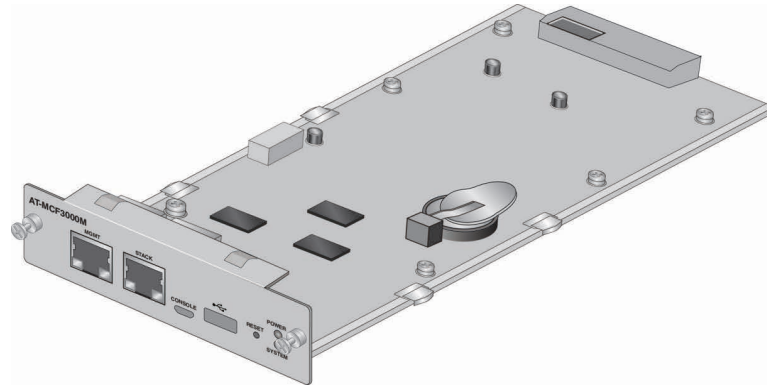


Figure 13. MCF3000M Management Module

Note

The management module is optional. Media converter modules can be unmanaged.

Note

The management module will shut down MCF3010SP/4SP and MCF3010SPT/4SP modules if the chassis has only one power supply.

Here are examples of management functions:

- ❑ Configure the following operating parameters of the copper ports on the media converter channels:
 - Auto-Negotiation
 - Speed
 - Duplex mode
 - Flow control
- ❑ Set the operating modes of the media converter channels:
 - Regular
 - MissingLink
- ❑ Download new versions of the management software to the management module and the media converter modules.

Note

For the complete list of management features, refer to the *MCF3000 Series Command Line Interface User Guide* or *MCF3000 Series Web Browser Interface User Guide*, available from the Allied Telesis web site.

Front Panel

Figure 14 illustrates the front panel of the MCF3000M management module.

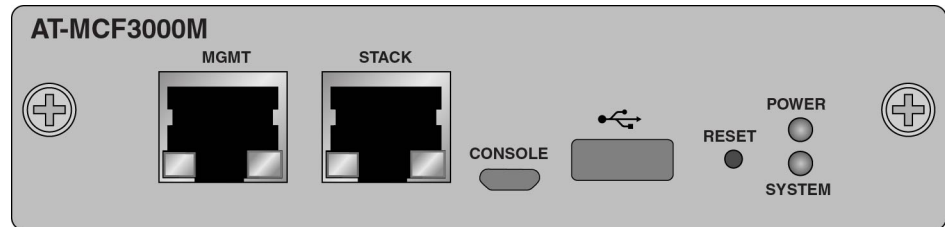


Figure 14. Front Panel of the MCF3000M Management Module

The front panel components are briefly described here:

- ❑ MGMT port - This is a standard 10/100/1000Base-T Ethernet port. The management module uses the port to communicate with your network when performing selected management functions, such as remote Telnet or Secure Shell (SSH) management and transmissions of log messages to a syslog server. Refer to “MGMT Port” on page 43.

Note

The management module cannot communicate with your network through the ports and channels on the media converter modules.

- ❑ CONSOLE port - Use this micro-USB port for local management of the chassis. The management module does not require an IP address for local management. Refer to “CONSOLE Port” on page 45.
- ❑ Reset button - Use this button to restore the default settings to all system parameters. Refer to “RESET Button” on page 46.
- ❑ USB host port - Use this port to store or transfer firmware files on USB storage devices. Refer to “USB Port” on page 47.

Note

The STACK port is reserved for future use.

MGMT Port

The MGMT port is a standard Gigabit Ethernet port. You need to connect it to a device on your network, such as a Fast Ethernet or Gigabit Ethernet switch, if the management module will be performing any of the following management functions:

- ❑ Obtaining its IP address configuration from a DHCP server.
- ❑ Supporting remote Telnet or SSH management.
- ❑ Remotely uploading or downloading the configuration file.
- ❑ Remotely uploading new firmware to the management and media converter modules.
- ❑ Setting the date and time from a Network Time Protocol (NTP) server.
- ❑ Sending or receiving TCP/IP ping requests.
- ❑ Supporting remote SNMPv1, SNMPv2c, or SNMPv3 management.

The port has a standard RJ-45 8-pin connector and can operate at 10M/100M/1G in either half- or full-duplex mode. The minimum cable requirements for the port are listed here:

- ❑ 10M/100M: Standard TIA/EIA 568-B-compliant Category 3 unshielded cabling.
- ❑ 1G: Standard TIA/EIA 568-A-compliant Category 5 or TIA/EIA 568-B-compliant Enhanced Category 5 (Cat 5e) unshielded cabling.

For port pinouts, refer to “RJ-45 Copper Port Pinouts” on page 140.

The default setting for the Management port is Auto-Negotiation with auto-MDI/MDI-X. At the default setting, the port, which is IEEE 802.3u compliant, sets its speed and duplex mode automatically with Auto-Negotiation. You can disable Auto-Negotiation and set the speed and duplex mode manually.

The wiring configuration of the port is set automatically with auto-MDI/MDI-X to either MDI or MDI-X, depending on the wiring configuration of the end node. This allows you to use a straight-through twisted pair cable regardless of the wiring configuration of the port on the network device.

MGMT Port LEDs

The MGMT management port has an L/A (Link/Activity) LED.

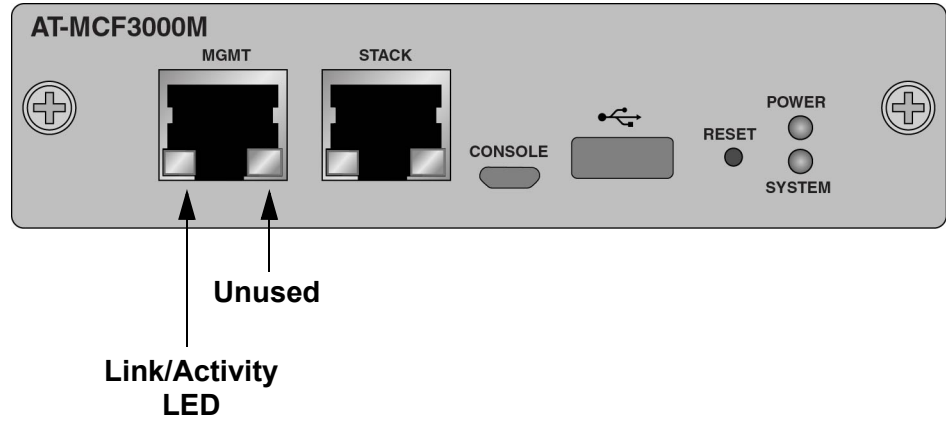


Figure 15. Link/Activity LED on the Management Port

The states of the Link/Activity LED are defined in Table 6.

Table 6. Link/Activity LED on the MGMT Port

State	Description
Off	The port has not established a link to a network device.
Solid Green	The port has established a link with a network device, but is not forwarding or receiving network packets.
Flashing Green	The port is forwarding or receiving network packets.

CONSOLE Port

This micro USB connector is used to locally manage the chassis with a console or a PC and a terminal emulation program. This management method does not need an Internet Protocol (IP) address because it is not conducted over a network. For instructions on how to start a local session, refer to “Starting a Local Management Session” on page 103 or the *MCF3000 Series Command Line Interface User Guide*.

RESET Button

The RESET button is used to restore the default settings to all system parameters. Here are situations where you might want to reset the module:

- ❑ Discard the current configuration and start over again with the default values.
- ❑ If the management module is experiencing a problem.

Note

The management module will be unresponsive to management commands for about one minute while it initializes its management software.

The RESET button is recessed in the faceplate to prevent someone from accidentally resetting the management module. To press the button, use a pointed object, such as the tip of a pen as shown in Figure 16 on page 46, or the end of a straightened paper clip. Press the button for 20 seconds, until you see the system LED blink. This indicates that the management module is restoring the default configuration settings and rebooting.

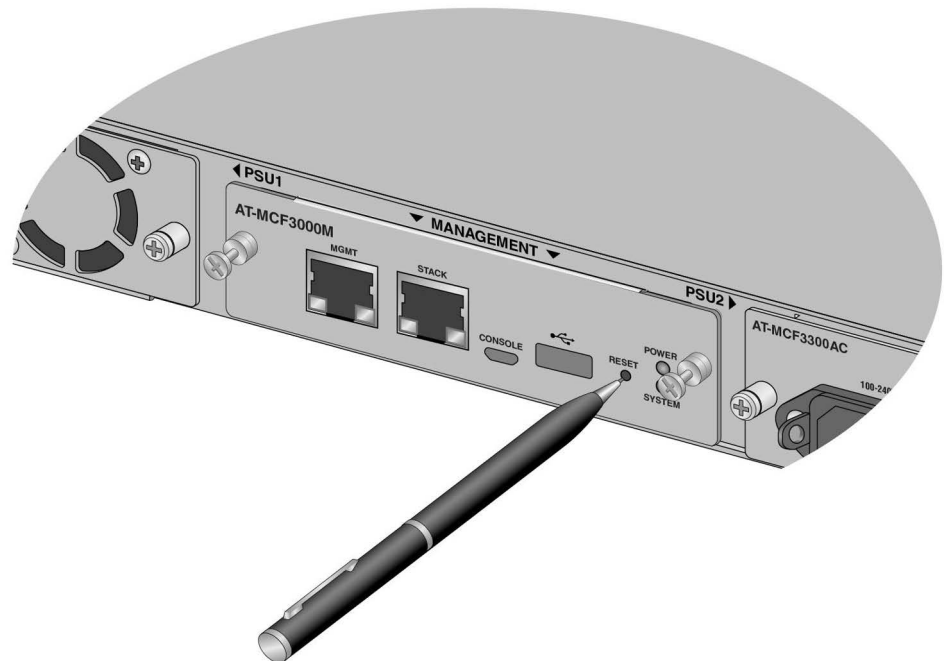



Figure 16. Pressing the Reset Button

USB Port

The USB port  is used with memory devices to upload new versions of the management software to the management module.

Note

A memory device is optional. The management module does not require a memory device for normal operations.

Note

The USB port cannot be used to upload or download configuration files from the management module.

For instructions, refer to the *MCF3000 Series Web Browser Interface User Guide* or *MCF3000 Series Command Line Interface User Guide*.

Power and System LEDs

The Power and System LEDs on the right side of the panel display general status information. Refer to Figure 17.

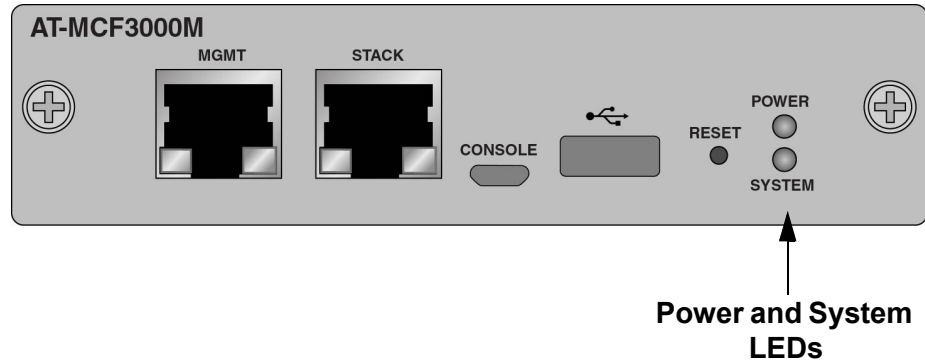


Figure 17. Power and System LEDs

Table 7 defines the states of the LEDs.

Table 7. Power and System LEDs

LED	State	Description
Power	Green	The management module is receiving power that is within the permitted range.
	Off	The management module is not receiving power or the power is outside the permitted operating range. Refer to “Power Specifications” on page 137.
System	Steady Green	The management module is operating normally.
	Off	The management module is not receiving power, the power is outside the permitted operating range, or the module is experiencing a technical problem.

Chapter 4

Beginning the Installation


The chapter contains the following sections:

- “Reviewing Safety Precautions” on page 50
- “Choosing a Site for the Media Converter Chassis” on page 54
- “Unpacking the MCF3300 Media Converter Chassis” on page 55
- “Unpacking the MCF3300AC or MCF3300DC Power Supply” on page 59
- “Unpacking the MCF3000M Management Module” on page 61
- “Installing the Power Cord Retaining Clips” on page 63


Reviewing Safety Precautions

Please review the following safety precautions before beginning the installation procedure.

Note


Safety statements that have the  symbol are translated into multiple languages in the *Translated Safety Statements* document at www.alliedtelesis.com/library.

Note

Les consignes de sécurité portant le symbole  sont traduites dans plusieurs langues dans le document *Translated Safety Statements*, disponible à l'adresse www.alliedtelesis.com/library.



Warning

Class 1 Laser product.  L1




Warning

Do not stare into the laser beam.  L2




Warning

Do not look directly at the fiber optic cable ends or inspect the cable ends with an optical lens.  L6




Warning

To prevent electric shock, do not remove the cover. No user-serviceable parts inside. This unit contains hazardous voltages and should only be opened by a trained and qualified technician. To avoid the possibility of electric shock, disconnect electric power to the product before connecting or disconnecting the LAN cables.  E1




Warning

Do not work on equipment or cables during periods of lightning activity.  E2



Warning

Power cord is used as a disconnection device. To de-energize equipment, disconnect the power cord.  E3

**Warning**

Class I Equipment. This equipment must be earthed. The power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts. *see* E4

Note

Pluggable Equipment. The socket outlet shall be installed near the equipment and shall be easily accessible. *see* E5

**Caution**

Air vents must not be blocked and must have free access to the room ambient air for cooling. *see* E6

**Warning**

Operating Temperatures. This product is designed for a maximum ambient temperature of 50 degrees C. *see* E57

Note

All Countries: Install product in accordance with local and National Electrical Codes. *see* E8

**Warning**

Only trained and qualified personnel are allowed to install or replace this equipment. *see* E14

**Caution**

Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern. *see* E21

**Caution**

Risk of explosion if battery is replaced by an incorrect type. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. *see* E22



Warning

Mounting of the equipment in the rack should be such that a hazardous condition is not created due to uneven mechanical loading. *↻* E25

Note

Use dedicated power circuits or power conditioners to supply reliable electrical power to the device. *↻* E27



Caution

The chassis may be heavy and awkward to lift. Allied Telesis recommends that you get assistance when mounting the chassis in an equipment rack. *↻* E28

Note

The operating ambient temperature in a closed or multi-unit rack assembly may be greater than the room ambient temperature. Consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra). *↻* E35



Caution

Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised. *↻* E36



Warning

Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuits (e.g., use of power strips). *↻* E37



Caution

The unit does not contain serviceable components. Please return damaged units for servicing. *↻* E42



Warning

The case temperature of operational fiber optic transceivers can exceed 40° C (158° F). Exercise caution when handling transceivers with unprotected hands. *↻* E43

**Warning**

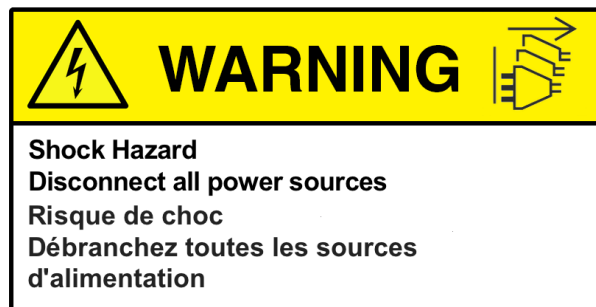
Switches should not be stacked on top of one another on a table or desktop because that could present a personal safety hazard if you need to move or replace switches. ⚡ E76

**Warning**

A transceiver can be damaged by static electricity. Be sure to observe all standard electrostatic discharge (ESD) precautions, such as wearing an antistatic wrist strap, to avoid damaging the device. ⚡ E77

**Warning**

This product may have multiple AC power cords installed. To de-energize this equipment, disconnect all power cords from the device. ⚡ E41



Choosing a Site for the Media Converter Chassis

Observe these requirements when planning the installation of the media converter chassis.

- ❑ The device can be installed on a table or in a standard 19-inch equipment rack.
- ❑ Before installing the device on a table, verify that the table is level and stable.
- ❑ Before installing the device in an equipment rack, verify that the rack is safely secured so that it will not tip over. Devices in a rack should be installed starting at the bottom, with the heavier devices near the bottom of the rack.
- ❑ The power outlet should be located near the device and be easily accessible.
- ❑ The site should allow for easy access to the ports on the front of the device, so that you can easily connect and disconnect cables, and view the port LEDs.
- ❑ The site should allow for adequate air flow around the unit and through the cooling vents on the front and rear panels. (The ventilation direction in units that have a cooling fan is from front to back, with the fan on the back panel drawing the air out of the unit.)
- ❑ Do not install the device in a wiring or utility box because the switch might overheat and fail from inadequate airflow.
- ❑ The site should not expose the device to moisture or water.
- ❑ The site should be a dust-free environment.
- ❑ The site should include dedicated power circuits or power conditioners to supply reliable electrical power to the network devices.
- ❑ The site should not expose the twisted pair cabling to sources of electrical noise, such as radio transmitters, broadband amplifiers, power lines, electric motors, and fluorescent fixtures.
- ❑ Ports are suitable for intra-building connections, or where non-exposed cabling is required.
- ❑ Do not place objects on top of the device.



Warning

Devices should not be stacked on top of one another on a table or desktop. They could present a personal safety hazard if you need to move or replace switches. *or* E76

Unpacking the MCF3300 Media Converter Chassis

The shipping box for the MCF3300 Media Converter Chassis is shown in Figure 18.

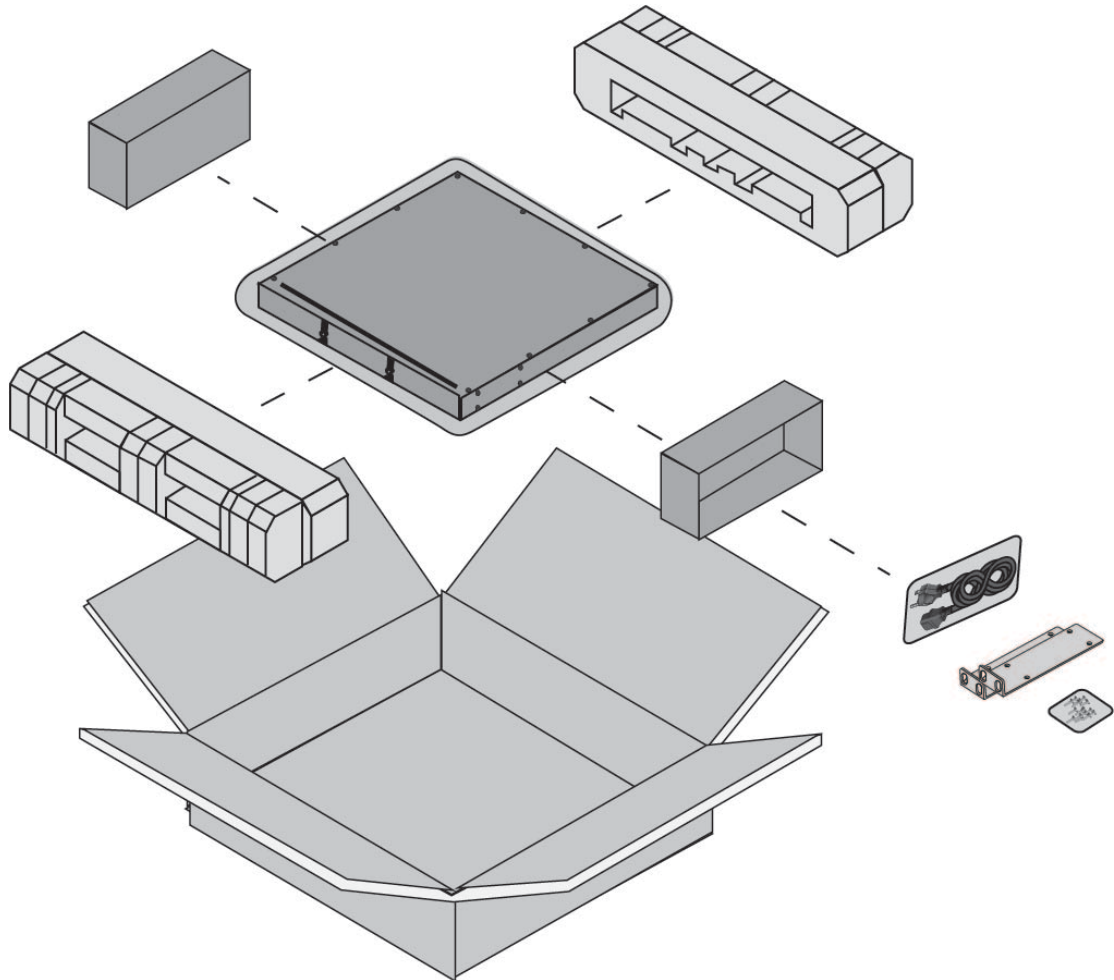
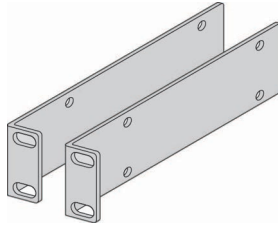


Figure 18. MCF3300 Media Converter Chassis Shipping Box

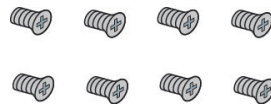
Figure 19 lists the items included in the MCF3300 Media Converter Chassis shipping box.



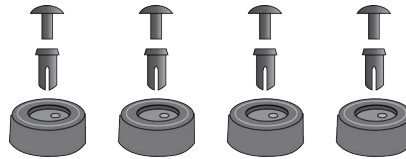
One MCF3300 Chassis



Two equipment rack brackets



**Eight bracket screws:
Length: 6.0mm (0.2 in.)
Diameter: 4.0mm (0.2 in.)**



Four bumper feet with rivets

Figure 19. Items in the MCF3300 Chassis Shipping Box

The items in Figure 20 are included if you purchased the chassis with the AC MCF3300AC Power Supply.



One regional power cord



One power cord retaining clip

Figure 20. Items for the MCF3300AC Power Supply

Visually inspect the front panel for the pre-installed items in Figure 21.

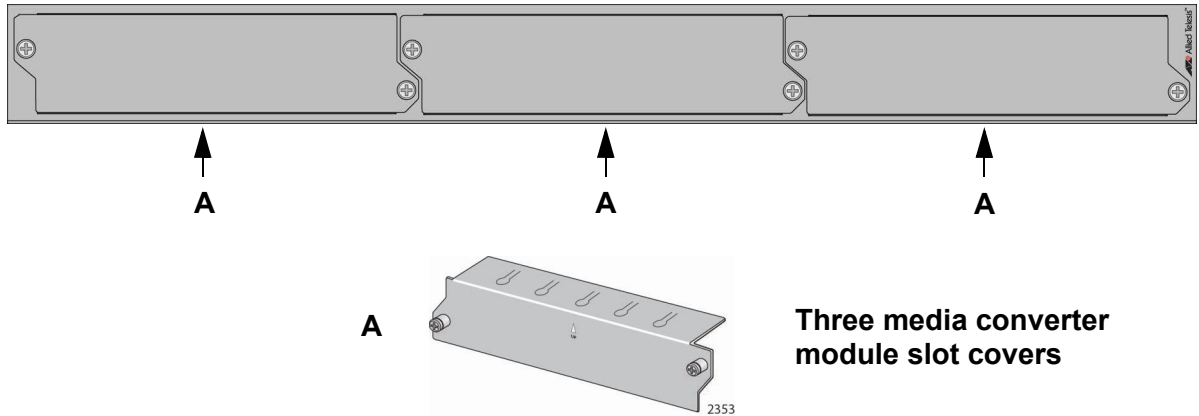


Figure 21. Front Panel

Visually inspect the back panel. Figure 22 shows the pre-installed components for the chassis with the MCF3300AC Power Supply.

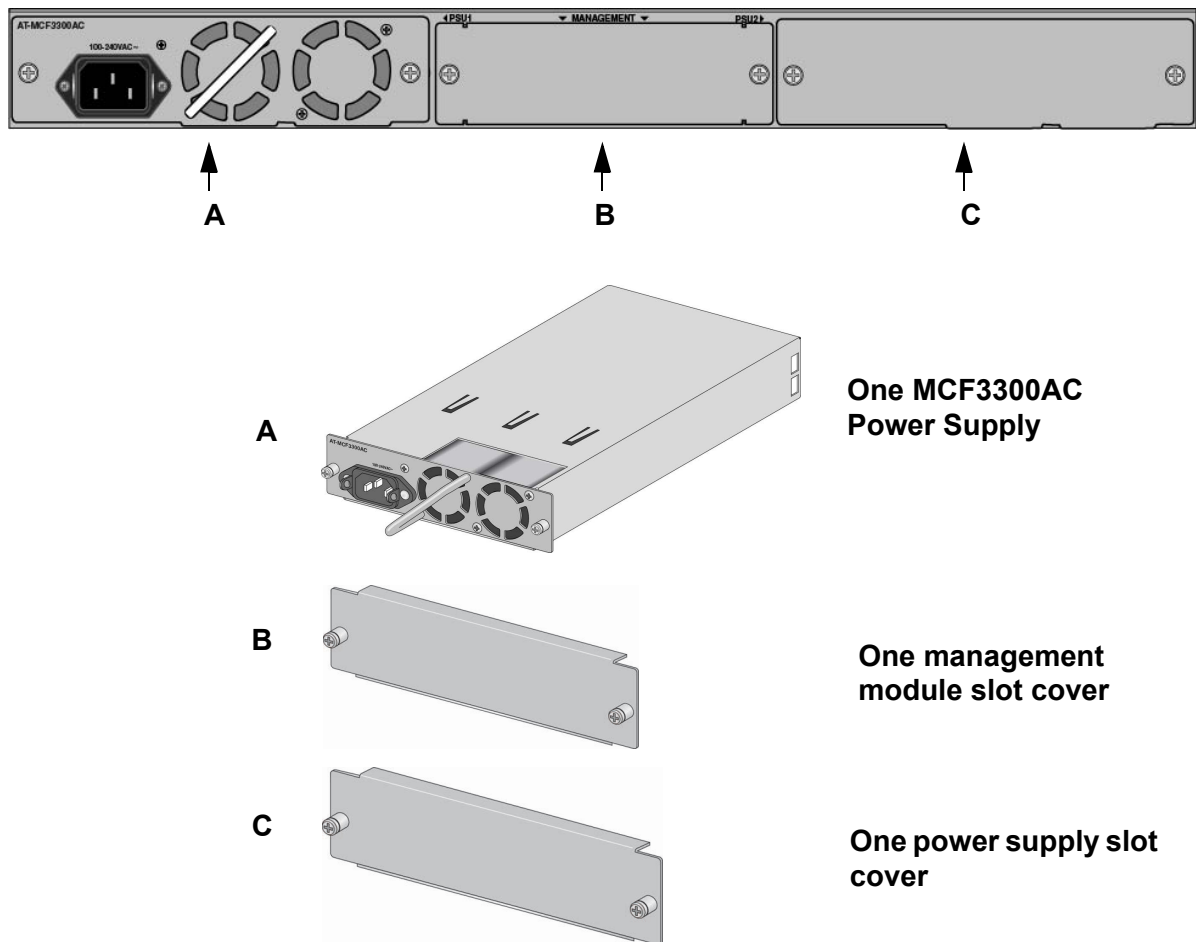


Figure 22. Pre-installed Back Panel Components - Chassis and the MCF3300AC Power Supply

Figure 23 shows the pre-installed components on the back panel for the chassis with the MCF3300DC Power Supply.

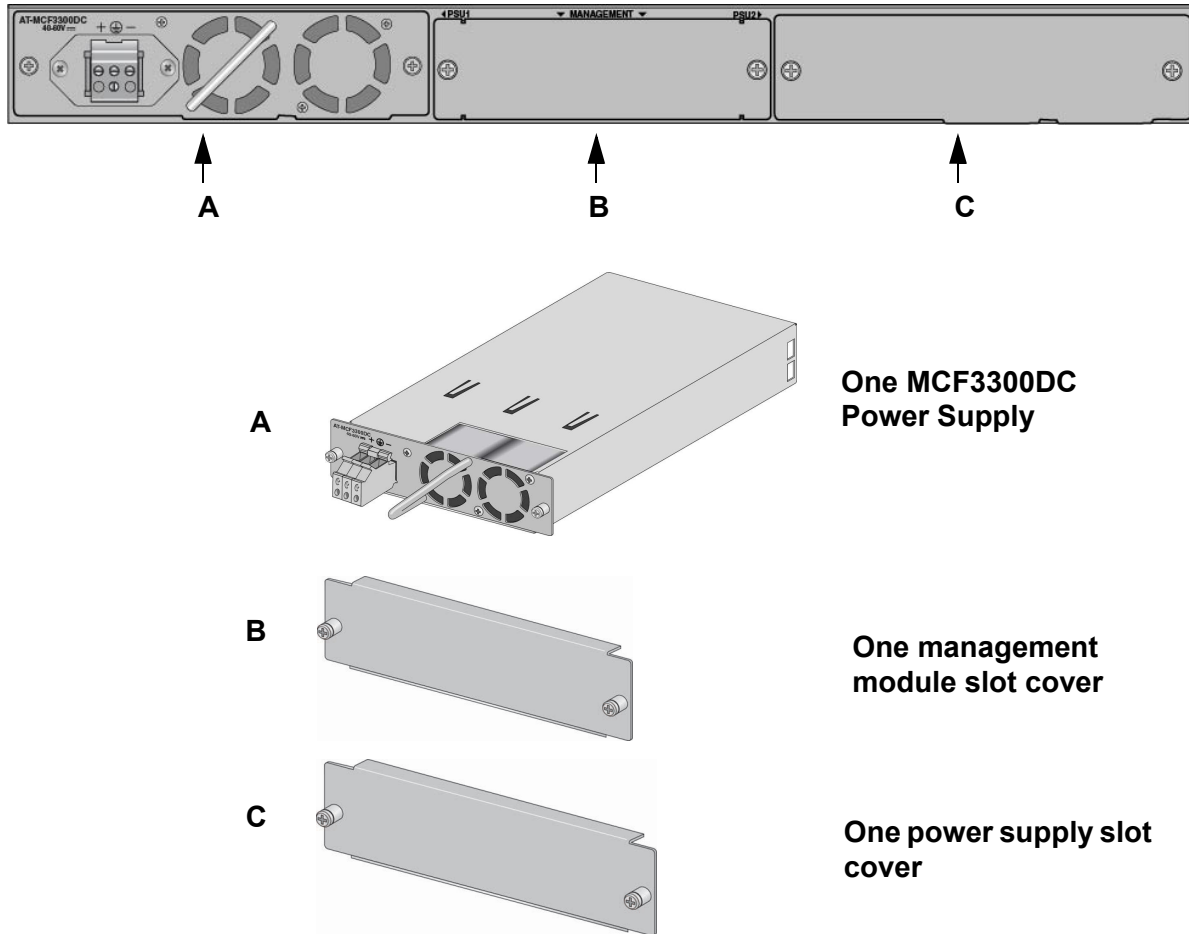


Figure 23. Pre-installed Back Panel Components - Chassis and the MCF3300DC Power Supply

Note

Please retain the original packaging material in the event you need to return the unit to Allied Telesis.

Unpacking the MCF3300AC or MCF3300DC Power Supply

The chassis comes with one pre-installed AC or DC power supply. A second power supply can be installed for power redundancy. Figure 24 shows the MCF3300AC Power Supply shipping box.

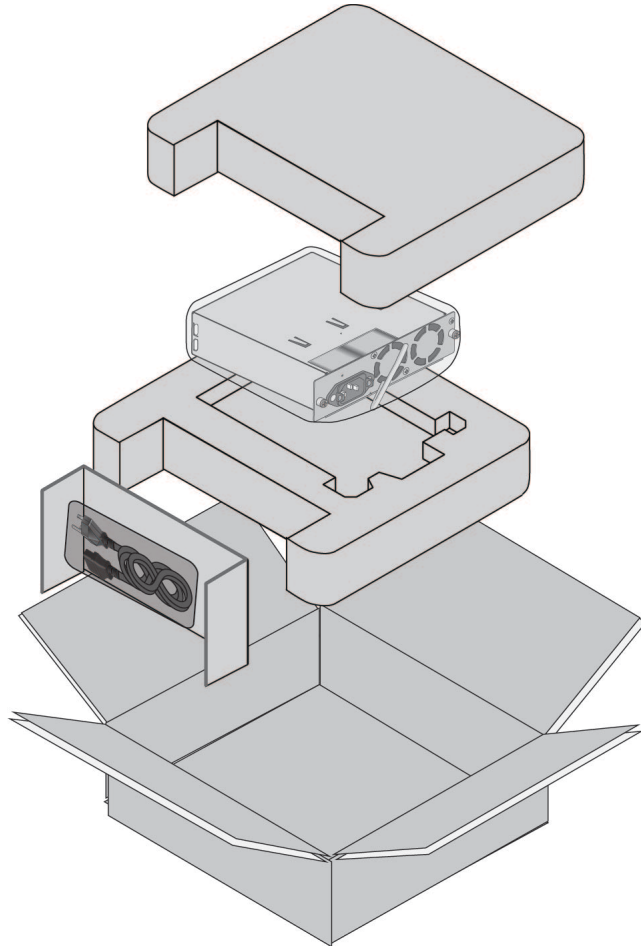


Figure 24. MCF3300AC Power Supply Shipping Box

The contents include the power supply, power cord, and power cord retaining clip. Refer to Figure 20 on page 56.

Figure 25 shows the MCF3300DC Power Supply shipping box.

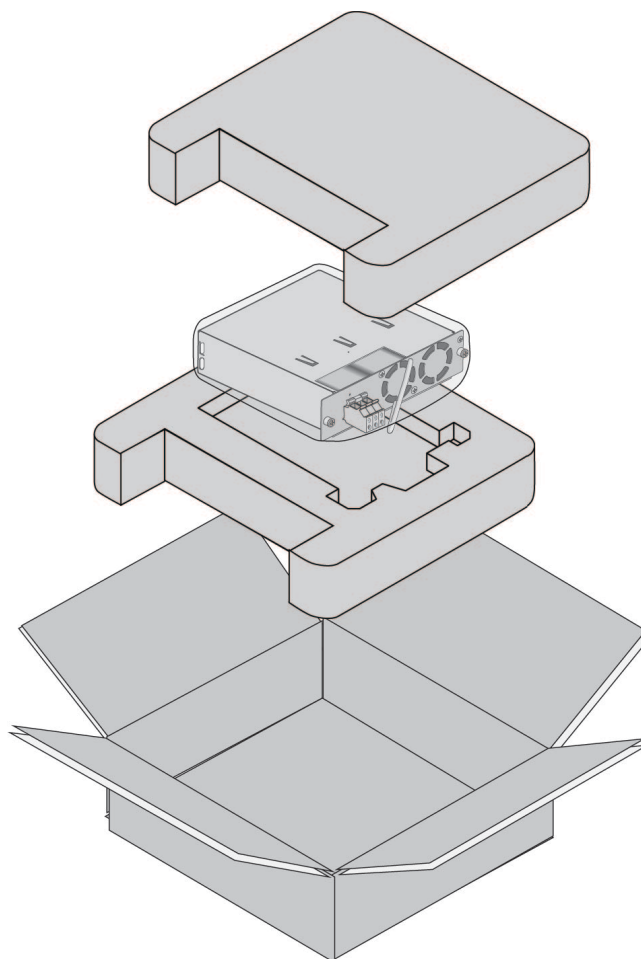


Figure 25. MCF3300DC Power Supply Shipping Box

The contents include only the power supply.

Unpacking the MCF3000M Management Module

Figure 26 shows the MCF3000M management module shipping box.

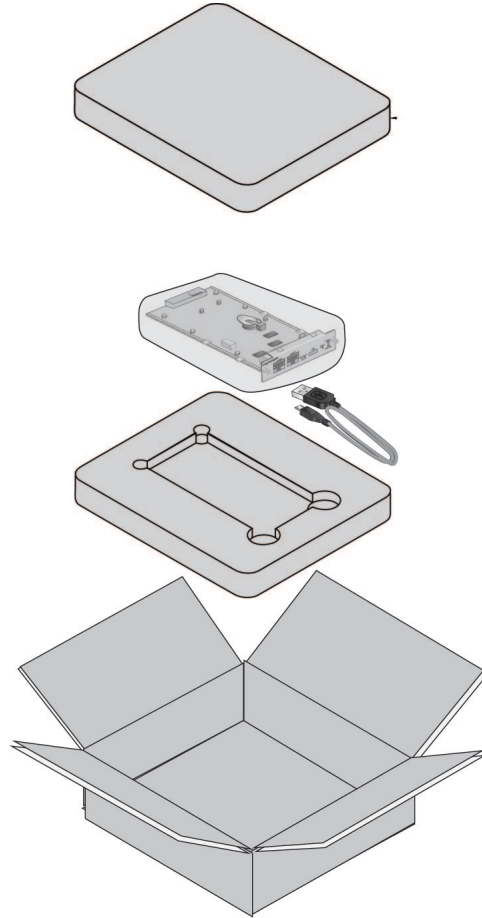
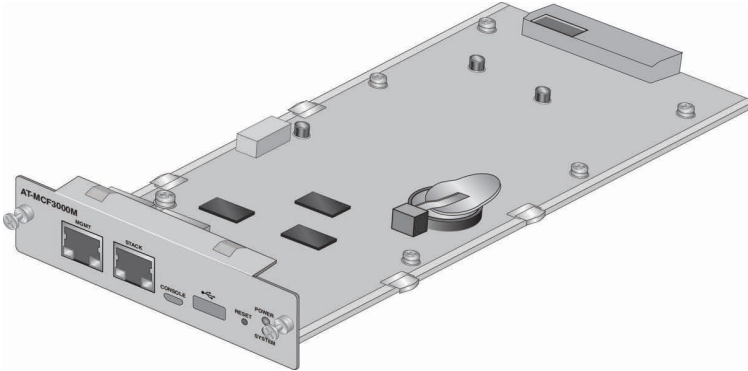
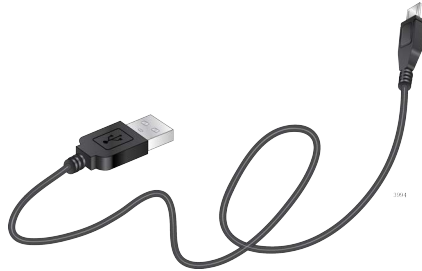


Figure 26. MCF3000M Management Module Shipping Box

Figure 27 lists the items included in the shipping box with the MCF3000M management module.



One MCF3000M Management Module



One management cable with micro USB and DB-9 (D-sub 9-pin) connectors

Figure 27. Items in the MCF3000M Management Module Shipping Box

Installing the Power Cord Retaining Clips

The MCF3300AC Power Supply comes with a power cord retaining clip that protects the power cord from being accidentally unplugged from the unit. To install a power cord retaining clip, position the “u” part facing down, press in the sides, and insert the ends of the clip into the holes in the retaining bracket on the AC connector on the switch. Refer to Figure 28.

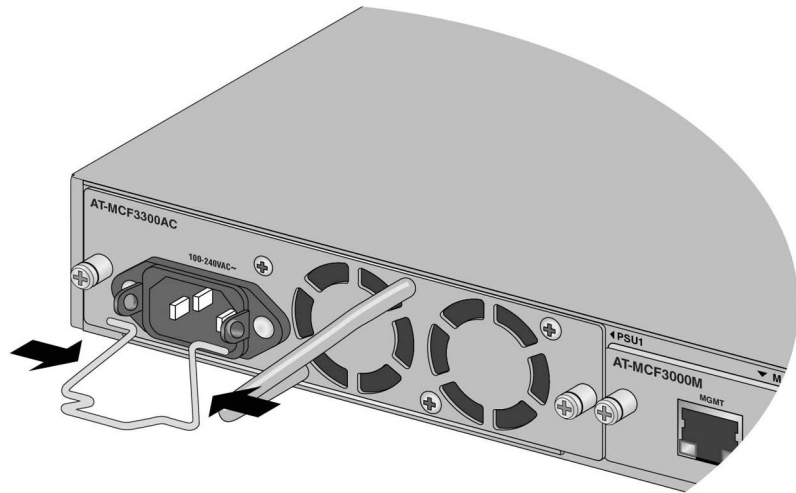


Figure 28. Installing Power Cord Retaining Clips

Chapter 5

Installing Media Converter and Management Modules

This chapter contains the following procedures:

- ❑ “Installing Media Converter Modules” on page 66
- ❑ “Installing the MCF3000M Management Module” on page 69
- ❑ “Installing a Power Supply” on page 73

Installing Media Converter Modules

Note

The media converter modules support hot swapping. You can install them while the chassis is powered on.

Note

There are no adjustable switches on the circuit boards of the media converter modules.



Caution

Media converter modules are sensitive to and can be damaged by electrostatic discharge. Wear a grounding device and observe electrostatic discharge precautions when handling the modules.

The illustrations show the MCF3000/8SP module. The procedure is the same for all the modules.

To install a media converter module, perform the following procedure:

1. Select a slot for the module. Modules are installed in the three slots in the front panel.
2. If the selected slot has a blank cover, loosen its two captive screws with a cross-head screwdriver and remove it from a media converter. The example in Figure 29 shows the removal of the blank cover from slot 1.

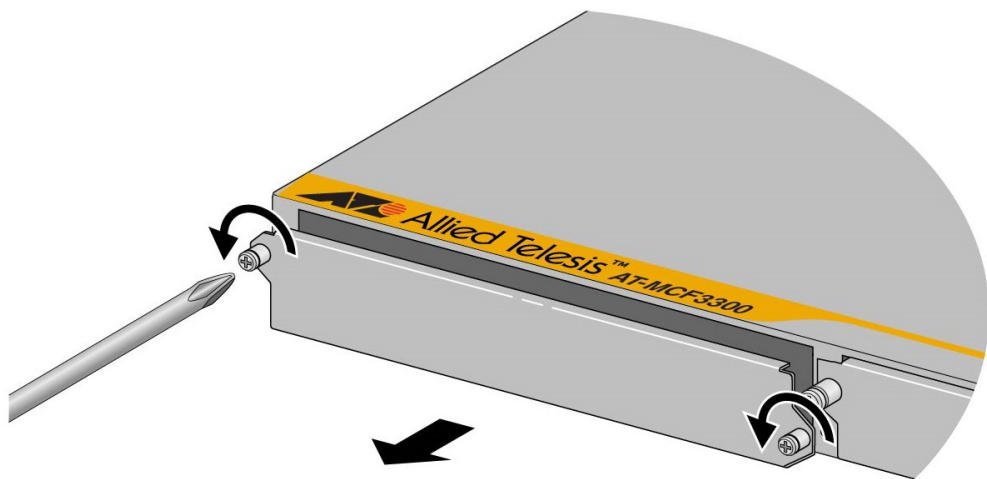


Figure 29. Removing a Blank Cover from a Media Converter Slot

3. Unpack the media converter module from its shipping container and ant-static bag.

Note

You should retain the packaging material in the event you need to return the unit to Allied Telesis.

4. Align the edges of the module with the guides in the slot and carefully slide the module into the chassis until it makes contact with the backplane connector in the chassis. Refer to Figure 30.

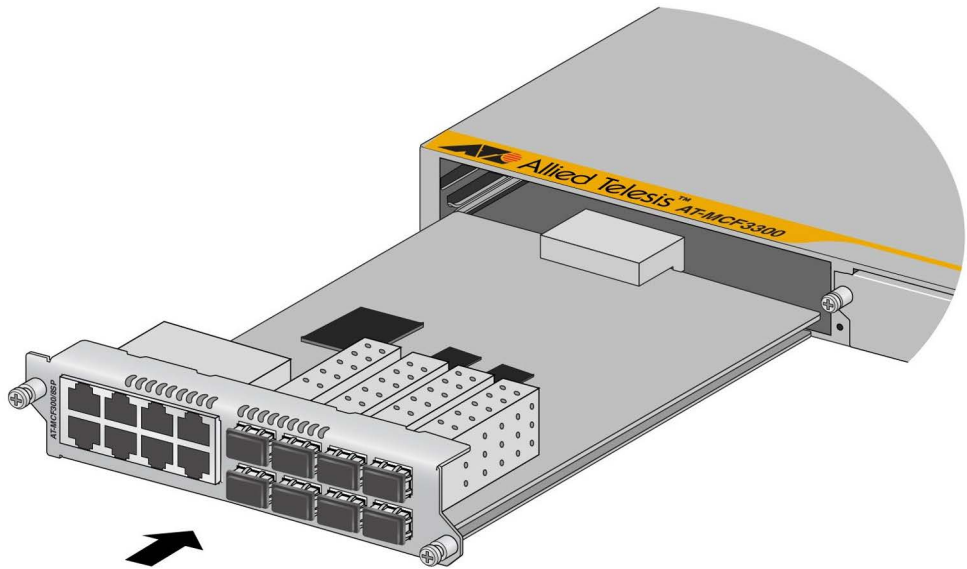


Figure 30. Sliding a Media Converter Module into the Chassis

**Caution**

Do not force the module into place. If there is resistance, remove the module, verify that the edges of the card are properly aligned in the guides in the chassis' module slot, and reinsert it.

5. Gently press on both sides of the faceplate to seat the module on the backplane connector in the chassis. Refer to Figure 31 on page 68.

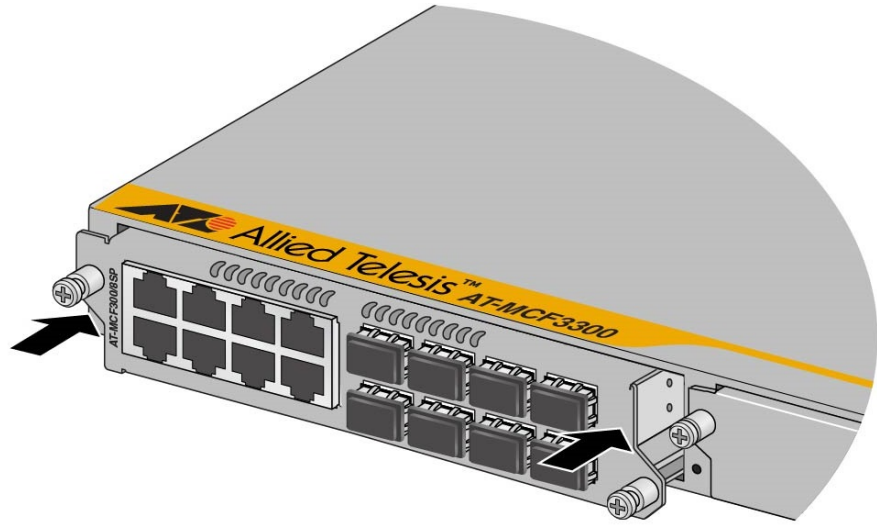


Figure 31. Seating a Media Converter Module on the Backplane Connector

6. Tighten the two captive screws on the media converter module with a cross-head screwdriver to secure it in the chassis. Refer to Figure 32.

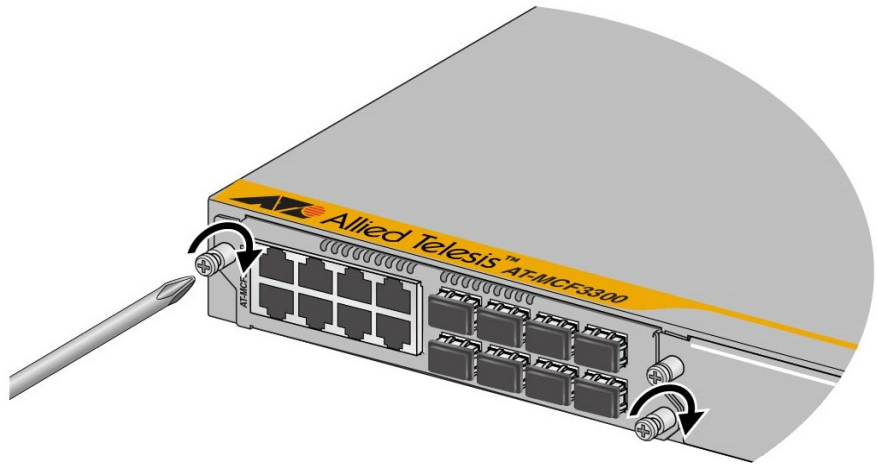


Figure 32. Securing a Media Converter Module

7. Repeat this procedure to install additional media converter modules.

Installing the MCF3000M Management Module

Note

The MCF3000M Management Module supports hot-swapping. You can install it while the chassis is powered on.



Caution

The module is sensitive to and can be damaged by electrostatic discharge. Wear a grounding device and observe electrostatic discharge precautions when handling the module.

To install the MCF3000M Management Module, perform the following procedure:

1. Using a cross-head screwdriver, loosen the two captive screws that secure the blank panel over the Management slot on the rear panel, and remove the panel. Refer to Figure 33.

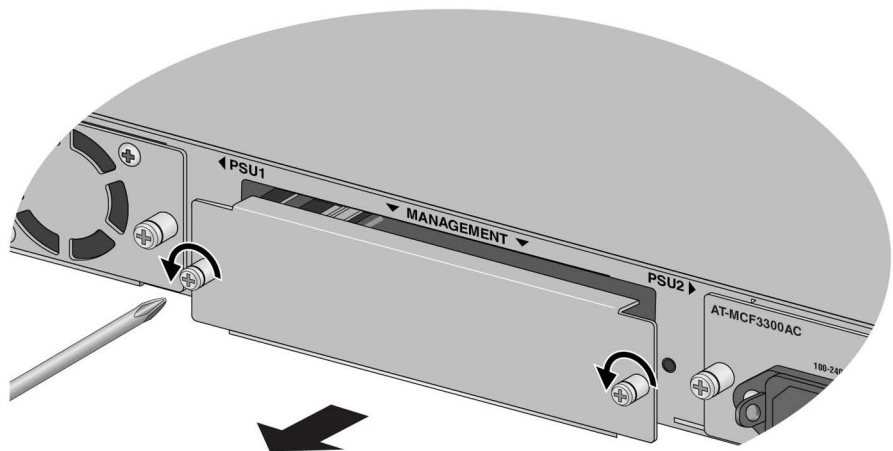


Figure 33. Removing the Blank Panel from the Management Module Slot

2. Unpack the MCF3000M Management Module from its shipping container and verify the package contents. Refer to Figure 27 on page 62.
3. Remove the insulator labeled “REMOVE BEFORE INSTALL” from the battery on the management module by sliding it out from beneath the battery clip. Refer to Figure 34 on page 70.

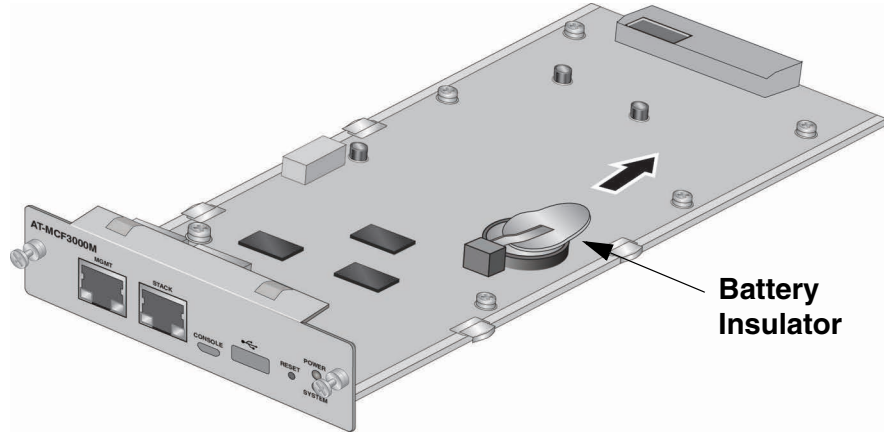


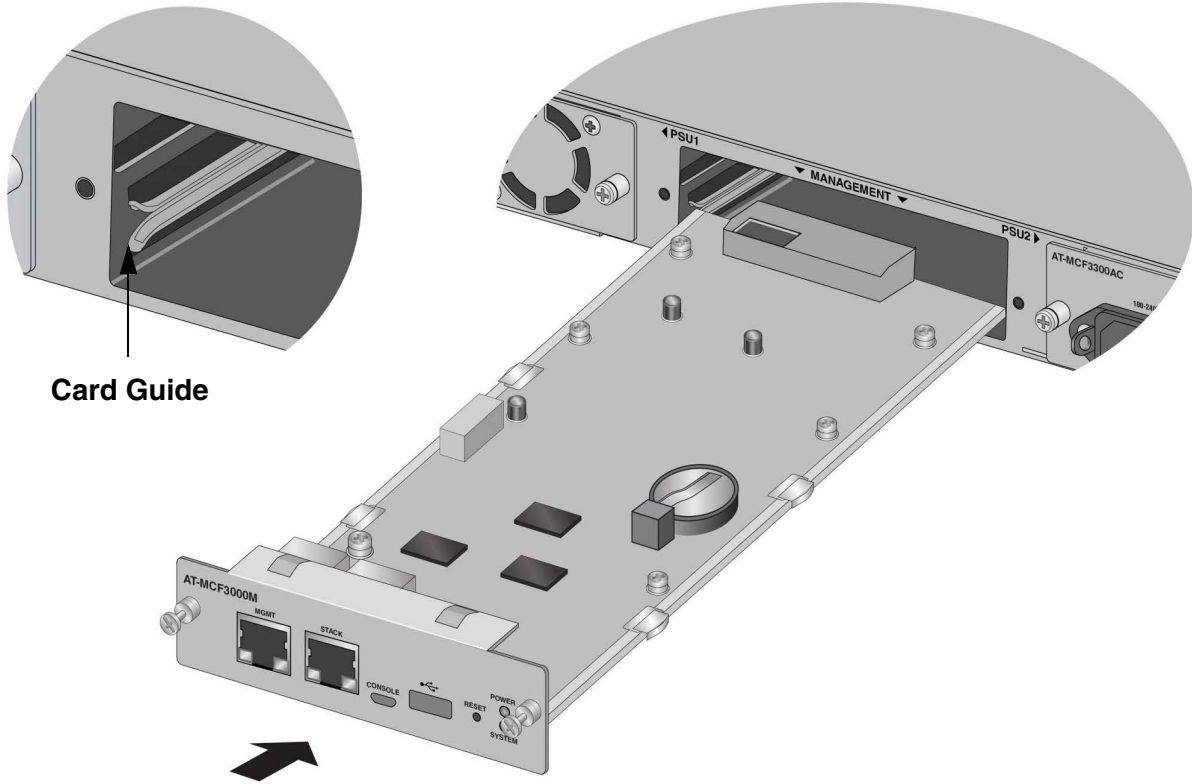
Figure 34. Removing the Battery Insulator from the MCF3000M Management Module

4. Align the edges of the module with the card guides in the slot and carefully slide the module into the chassis until it makes contact with the connector on the backplane inside the chassis. Refer to Figure 35 on page 71



Caution

Do not force the module into place. If there is resistance, remove the module. Before reinserting it, verify that the edges of the card are properly aligned in the guides in the chassis' module slot.



Card Guide

Figure 35. Installing the Management Module

5. Gently press on both sides of the faceplate to seat the card on the connector on the backplane inside the chassis. Refer to Figure 36.

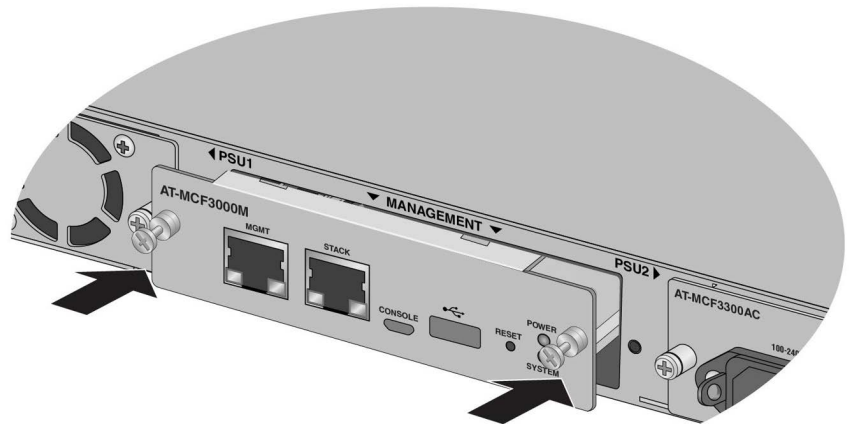


Figure 36. Seating the MCF3000M Management Card on the backplane Connector

6. Tighten the two captive screws on the module with a cross-head screwdriver. Refer to Figure 37 on page 72.

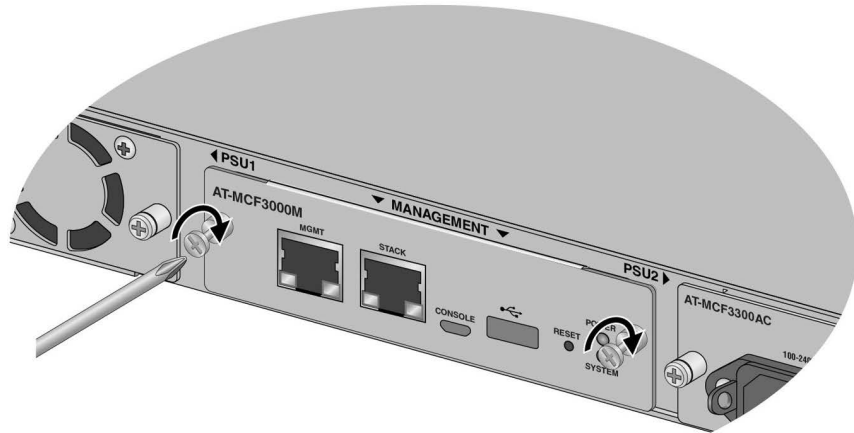


Figure 37. Tightening the Captive Screws on the MCF3000M Management Module

Installing a Power Supply

If you purchased a second power supply for the chassis, perform the following procedure to install it in slot B in the back panel. The illustrations shown the MCF3300AC Power Supply. The procedure is the same for the MCF3300DC Power Supply.

To install a power supply, perform the following procedure:

1. Unpack the MCF3300AC or MCF3300DC Power Supply from its shipping package and verify the package contents. Refer to “Unpacking the MCF3300AC or MCF3300DC Power Supply” on page 59. If any item is missing or damaged, contact your Allied Telesis sales representative for assistance.

Note

Please retain the original packaging material in the event you need to return the unit to Allied Telesis.

2. With a cross-head screwdriver, loosen the two captive screws on the blank cover over the power supply slot. Refer to Figure 38.

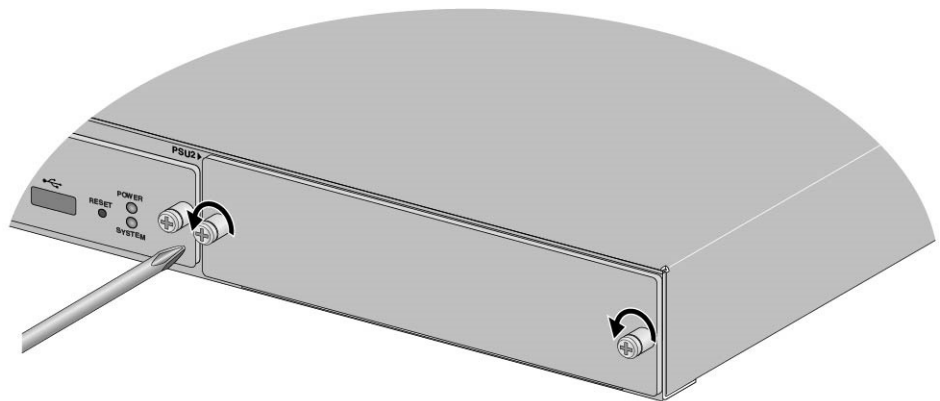


Figure 38. Loosening the Captive Screws on the Blank Cover on a Power Supply Slot

3. Remove the blank cover. Refer to Figure 39 on page 74.

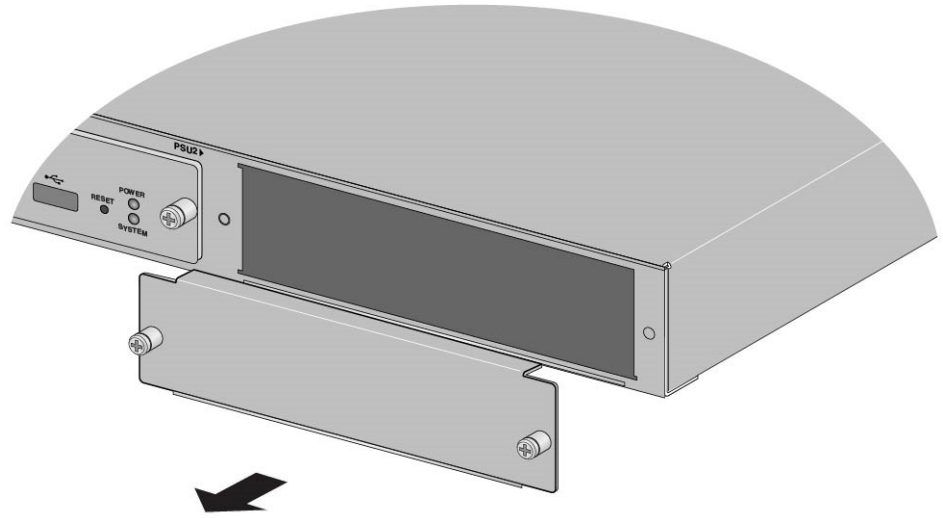


Figure 39. Removing the Blank Cover from a Power Supply Slot

4. Position the power supply as shown in Figure 40 and slide it into the slot until it makes contact with the connector inside the chassis.

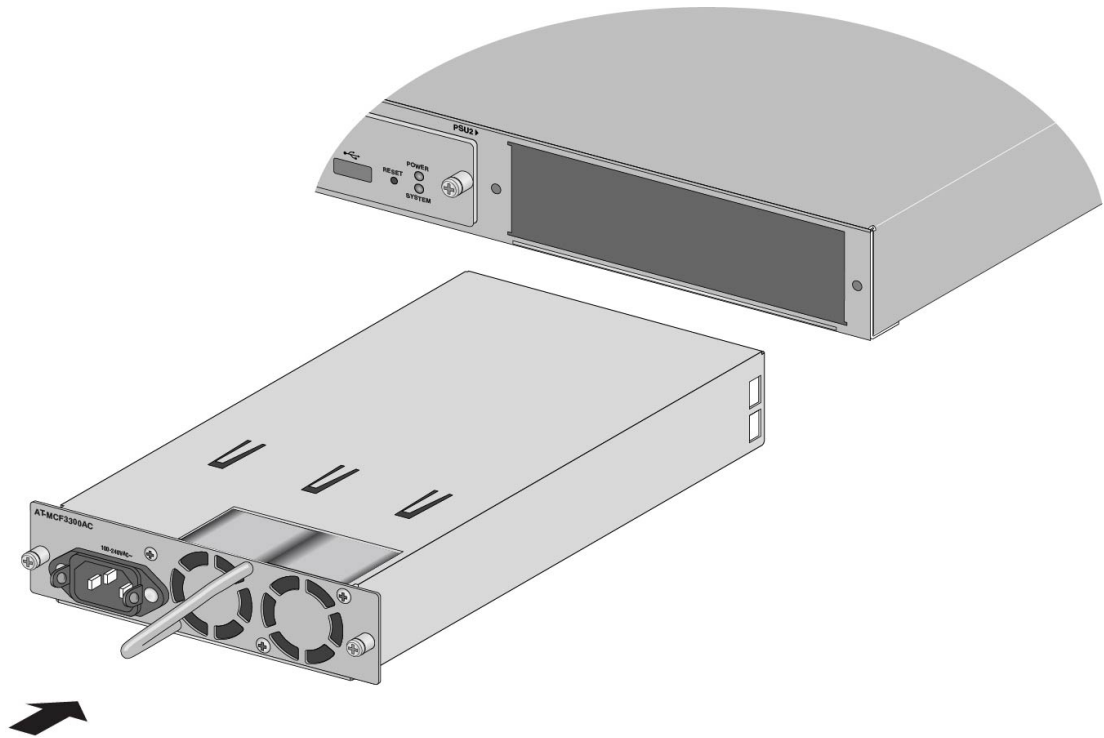


Figure 40. Positioning the MCF3300AC Power Supply

5. Press on both sides of the faceplate to seat the power supply on the connector inside the chassis. Refer to Figure 41 on page 75.

**Caution**

To prevent damaging the connector pins on the backplane, do not force the module into place.

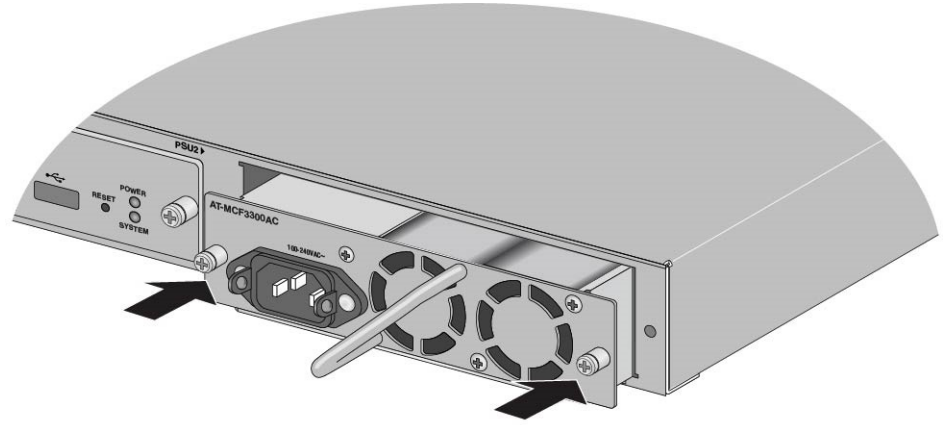


Figure 41. Seating the Power Supply on the Connector in the Chassis

6. Secure the power supply by tightening the two captive screws on the faceplate, with a cross-head screwdriver. Refer to Figure 42.

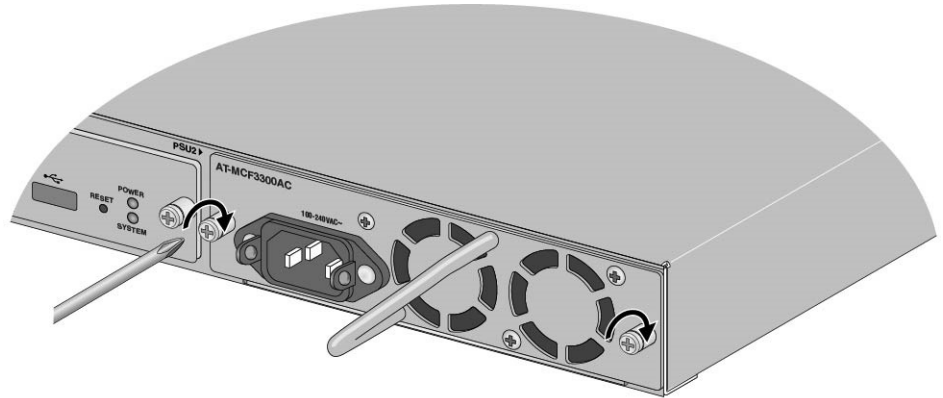


Figure 42. Securing the MCF3300AC Power Supply Module

Chapter 6

Installing the Media Converter on a Table or Desktop

This chapter contains the instructions for installing the media converter on a table or desktop.



Warning

Media converters should not be stacked on a table or desktop. They could present a physical safety hazard if you need to move or replace them. *GS* E91

The bumper feet for the bottom of the media converter are reusable. If they are already assembled, disassemble them by removing the rivets and rivet housings from the bumper feet and then the rivets from the housings. Refer to Figure 43.

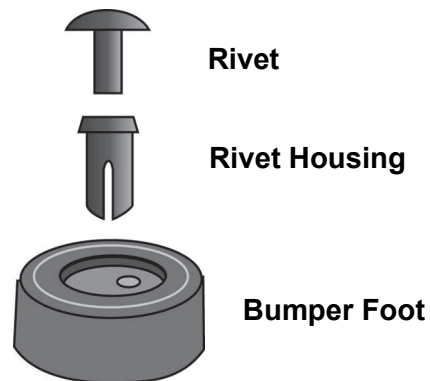


Figure 43. Parts of the Bumper Feet

To install the chassis on a table, perform the following procedure:

1. Review the procedure in Chapter 4, “Choosing a Site for the Media Converter Chassis” on page 54 to verify that the selected site is suitable for the unit.
2. Verify that the table is strong enough to support the weight of the chassis.
3. Verify that the accessory kit came with all the appropriate items. Refer to Figure 19 on page 56.
4. Lift the chassis from the shipping box and place it upside down on a table.

5. Install the bumper feet as follows:
 - a. Insert a rivet housing into a bumper foot. Refer to Figure 44.

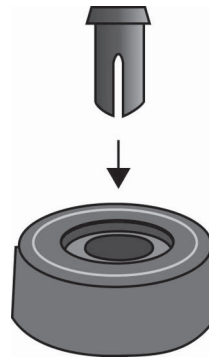


Figure 44. Inserting the Rivet Housing into the Bumper Foot

- b. Place the bumper foot on one of the corner holes in the base of the switch. Refer to Figure 45.

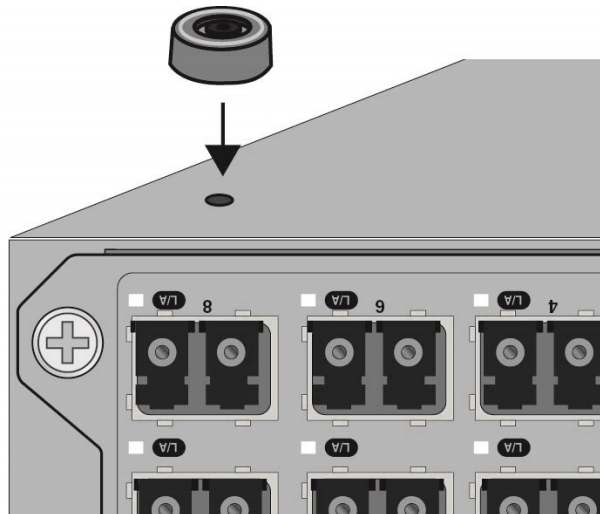


Figure 45. Placing the Bumper Foot on a Base Corner Hole

- c. Insert the rivet to secure the bumper foot to the base. Refer to Figure 46 on page 79.

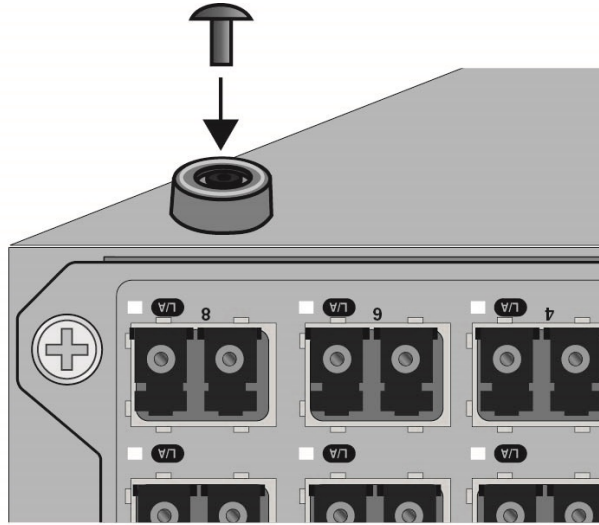


Figure 46. Inserting the Rivet into the Bumper Foot

- d. Repeat this step to install the remaining bumper feet.
6. Turn the switch over and place it on a flat, secure desk or table, leaving ample space around it for ventilation.
7. Go to Chapter 8, “Cabling the Media Converter and Management Modules” on page 85.

Chapter 7

Installing the MCF3300 Chassis in an Equipment Rack

This chapter contains the following procedures:

- “Removing the Bumper Feet” on page 82
- “Installing the MCF3300 Chassis” on page 83

Removing the Bumper Feet

The bumper feet included with the media converter should not be used when installing the device in an equipment rack. If they are already installed, perform the following procedure to remove them:

1. Place the media converter upside down on a level, secure surface.
2. Use a small flat-head screwdriver to gently pry the feet from the bottom of the device. Refer to Figure 47.

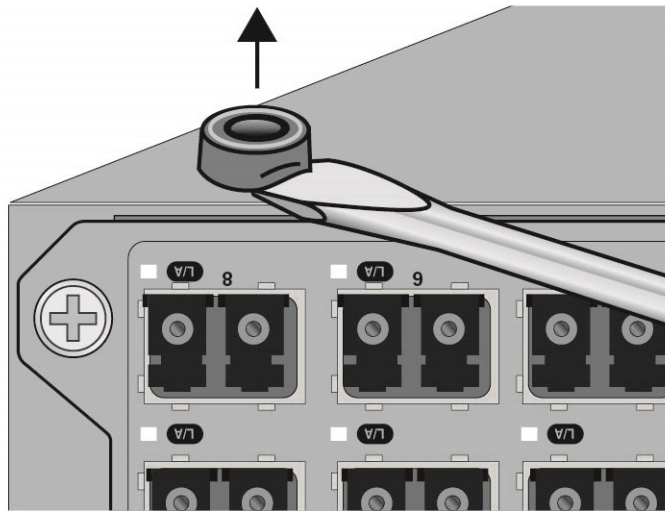


Figure 47. Removing the Bumper Feet

3. Turn the media converter back over.
4. Go to "Installing the MCF3300 Chassis" on page 83.

Installing the MCF3300 Chassis

Please review the information and perform the procedures in Chapter 4, “Beginning the Installation” on page 49 before installing the switch.



Caution

The chassis may be heavy and awkward to lift. Allied Telesis recommends that you get assistance when mounting the chassis in an equipment rack. *See* E28

To install the chassis in a standard 19-inch equipment rack, perform the following procedure:

1. Place the unit on a level, secure surface.
2. Attach the two rack-mount brackets to the sides of the media converter with the eight M4x6mm screws included with the unit. Refer to Figure 48.

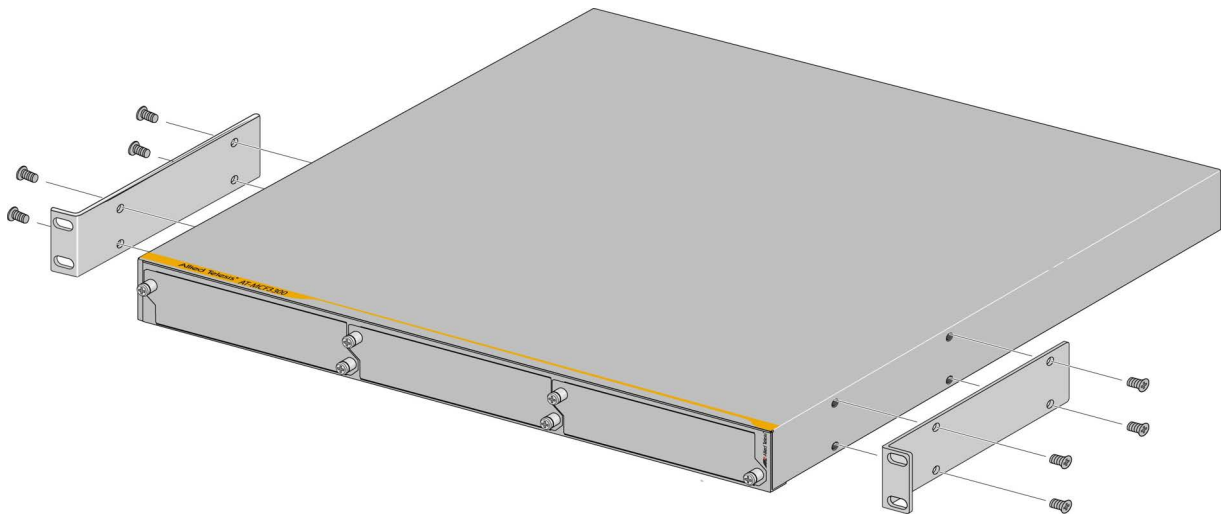


Figure 48. Attaching the Rack-mount Brackets to the MCF3300 Chassis



Caution

For maximum safety and stability of the device in the rack, use four screws to secure each bracket to the chassis.



Caution

The chassis is heavy. Assistance is required to safely install the unit in the equipment rack. Two people should hold the chassis while another person secures it to the rack.

3. Mount the chassis in a 19-inch rack using standard screws (not provided). Refer to Figure 49.

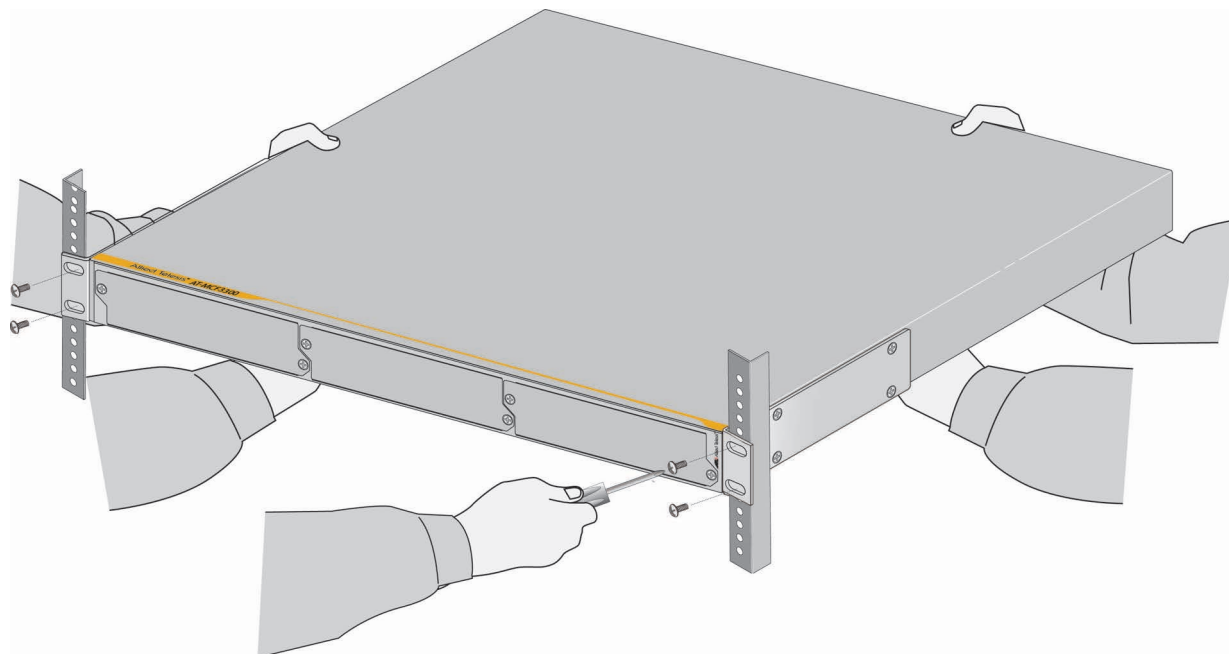


Figure 49. Installing the MCF3300 Chassis in an Equipment Rack

Chapter 8

Cabling the Media Converter and Management Modules

Here are the sections in this chapter:

- “Cabling Copper Ports” on page 86
- “Installing SFP/SFP+ Transceivers” on page 87
- “Cabling the MGMT Port on the MCF3000M Management Module” on page 91

Please review “Media Converter Channels” on page 33 before connecting network cables to the ports on the media converter modules.

Cabling Copper Ports

Here are the guidelines to cabling copper ports:

- ❑ The connectors on the cables should fit snugly into the ports, and the tabs should lock the connectors into place.
- ❑ The setting for the wiring configurations of the ports is auto-MDI/MDI-X. You cannot change the wiring configurations manually.
- ❑ The default speed setting for the ports is Auto-Negotiation. This setting is appropriate for ports connected to network devices that also support Auto-Negotiation.
- ❑ The default speed setting of Auto-Negotiation is not appropriate for ports connected to 100Base-TX network devices that do not support Auto-Negotiation and have fixed speeds. For those switch ports, you should disable Auto-Negotiation and set the port's speed manually to match the speeds of the network devices.
- ❑ Copper ports must be set to Auto-Negotiation, the default setting, to operate at 1G or 10G.
- ❑ The default duplex mode setting for the ports is Auto-Negotiation. This setting is appropriate for ports connected to network devices that also support Auto-Negotiation for duplex modes.
- ❑ The default duplex mode setting of Auto-Negotiation is not appropriate for ports connected to network devices that do not support Auto-Negotiation and have a fixed duplex mode. You should disable Auto-Negotiation on those ports and set their duplex modes manually to avoid the possibility of duplex mode mismatches. A switch port using Auto-Negotiation defaults to half-duplex if it detects that the end node is not using Auto-Negotiation. This can result in a mismatch if the end node supports only full-duplex mode.

Installing SFP/SFP+ Transceivers

This section contains guidelines and the procedure for installing SFP/SFP+ transceivers.

Installation Guidelines

Please review the following guidelines before installing copper or fiber optic transceivers:

- ❑ Transceivers are hot-swappable. You can install them while the media converter is powered on.
- ❑ Do not remove dust covers from fiber optic ports until you are ready to connect the cables. Dust contamination can adversely affect the operations of the ports.
- ❑ The connector on the fiber optic cable should firmly lock into place on the port.
- ❑ For the operational specifications and fiber optic cable requirements for fiber optic transceivers, refer to the documents included with the transceivers.
- ❑ You should install transceivers in the media converter modules before connecting the fiber optic cables.
- ❑ Fiber optic transceivers are dust sensitive. Always keep the plug in the optical bores when a fiber optic cable is not installed, or when you store the transceiver. When you do remove the plug, keep it for future use.
- ❑ Repetitive removal or insertion of transceivers can lead to premature failures.



Warning

A transceiver can be damaged by static electricity. Be sure to observe all standard electrostatic discharge (ESD) precautions, such as wearing an antistatic wrist strap, to avoid damaging the device. ⚡ E77



Warning

The temperature of an operational transceiver can exceed 70° C (158° F). Exercise caution when removing or handling transceivers with unprotected hands. ⚡ E43

Installing Copper or SFP+ Transceivers

To install copper or SFP+ fiber optic transceivers in the media converter modules, perform the following procedure:

Note

The illustrations in the procedure show an SFP transceiver with a duplex LC connector. Your transceivers may have different connectors.

1. Select a port for the transceiver in the module.
2. If the selected port has a dust cover, remove it.
3. Remove the transceiver from its shipping container and store the packaging material in a safe location.
4. If there are two rows of transceivers, position the transceiver as follow:

For a top slot, position the transceiver with the handle on top. For a bottom slot, position the transceiver with the handle beneath the module. Refer to Figure 50.

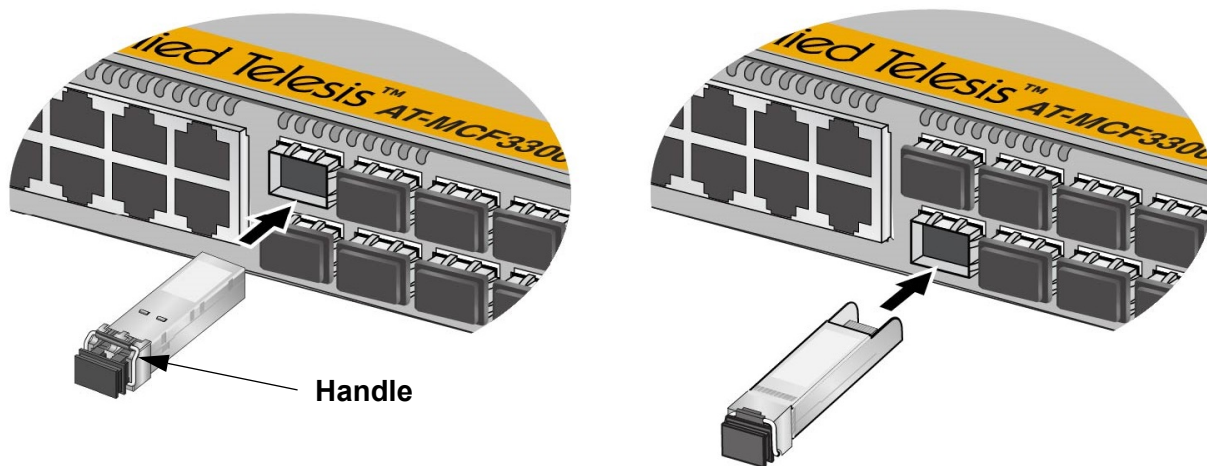


Figure 50. Installing Fiber Optic Transceivers in the MCF3000/8SP Module

5. Slide the transceiver into the slot until it clicks into place.

Note

If you are ready to attach the fiber optic cable to the transceiver, continue with the next step. Otherwise, repeat this procedure to install other transceivers in the media converter modules.

6. Remove the dust cover from the transceiver. Refer to Figure 51 on page 89.

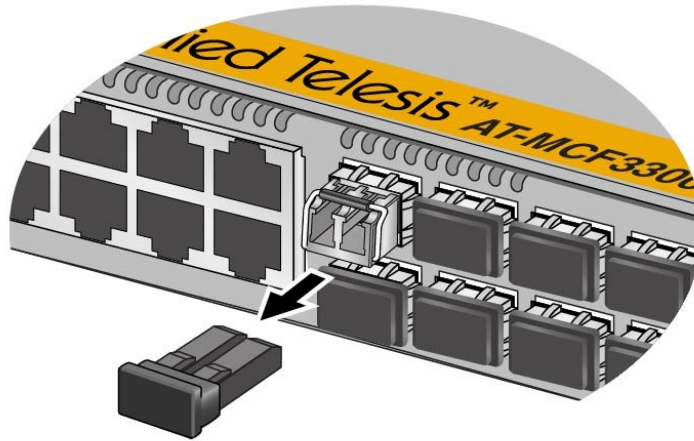


Figure 51. Removing the Dust Cover from a Transceiver

7. Verify the position of the handle on the transceiver.

For a top slot, the handle is in the upright position. Refer to Figure 52.
For a bottom slot, the handle should be in the down position.

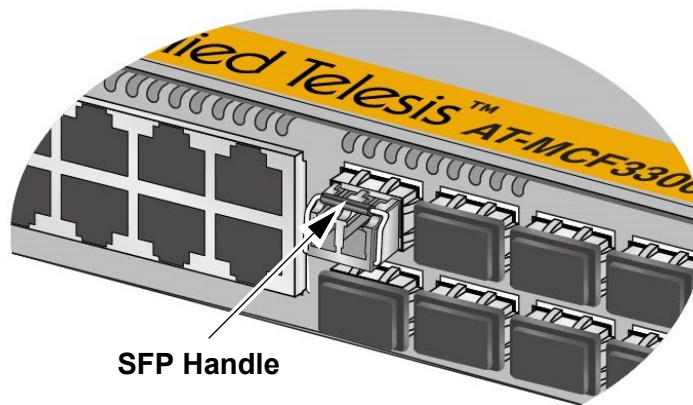


Figure 52. Positioning the Transceiver Handle in the Upright Position

8. Connect the fiber optic cable to the transceiver, as shown in Figure 53.

The connector on the cable should fit snugly into the port, and the tab should lock the connector into place.

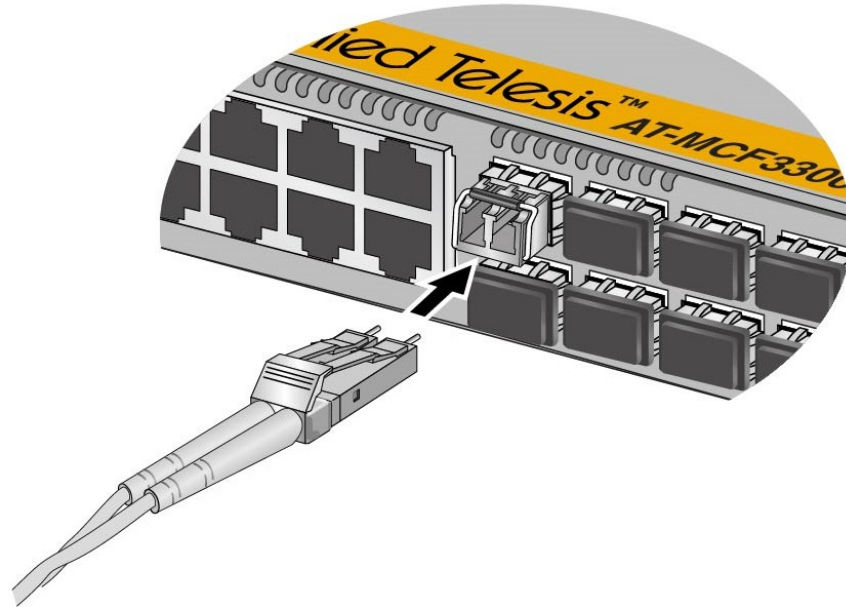


Figure 53. Connecting a Fiber Optic Cable to a Transceiver

9. Repeat this procedure to install additional transceivers.
10. After installing the transceivers, go to Chapter 9, "Powering On and Verifying the Chassis" on page 93.

Cabling the MGMT Port on the MCF3000M Management Module

The MGMT port on the MCF3000M management module is a standard 10/100/1000Base-T Ethernet port. It is used by the module to communicate with your network when performing the remote functions listed in “Overview” on page 40. (The management module cannot communicate with your network through the ports on the media converter modules.) To enable the management module to perform the remote functions, you have to connect the MGMT port to a device on your network, such as a Fast or Gigabit Ethernet switch. The port requires a TIA/EIA 568-B-compliant Enhanced Category 5 (Cat 5e) unshielded cable.

Note

The management module must have an IP address to communicate with your network. For instructions, refer to the *MCF3000 Series Web Browser Interface User Guide* or *MCF3000 Series Command Line Interface User Guide*.

Note

The STACK port is reserved for future development.

To cable the MGMT port, perform the following procedure:

1. Attached an Ethernet cable to the MGMT port. Refer to Figure 54.

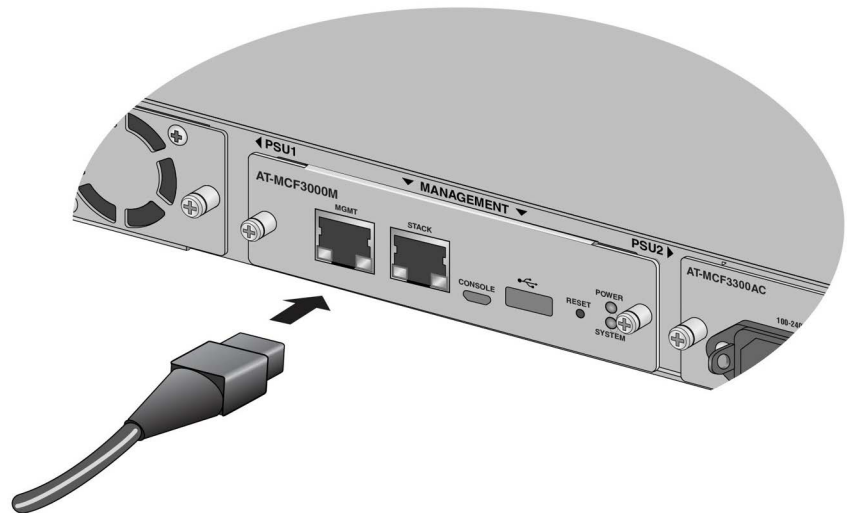


Figure 54. Cabling the MGMT Port on the MCF3000M Management Module

2. Connect the other end of the cable to a 10M, 100M, or 1G port on a network device, such as an Ethernet switch or router.

Chapter 9

Powering On and Verifying the Chassis

This chapter contains the following procedures:

- ❑ “Powering On the MCF3300AC Power Supply” on page 94
- ❑ “Powering On the MCF3300DC Power Supply” on page 97
- ❑ “Verifying the Media Converter” on page 102
- ❑ “Starting a Local Management Session” on page 103

Powering On the MCF3300AC Power Supply

To power on MCF3300AC power supplies, perform the following procedure:

1. Raise the retaining clip to the upright position on the MCF3300AC Power Supply. Refer to Figure 55.

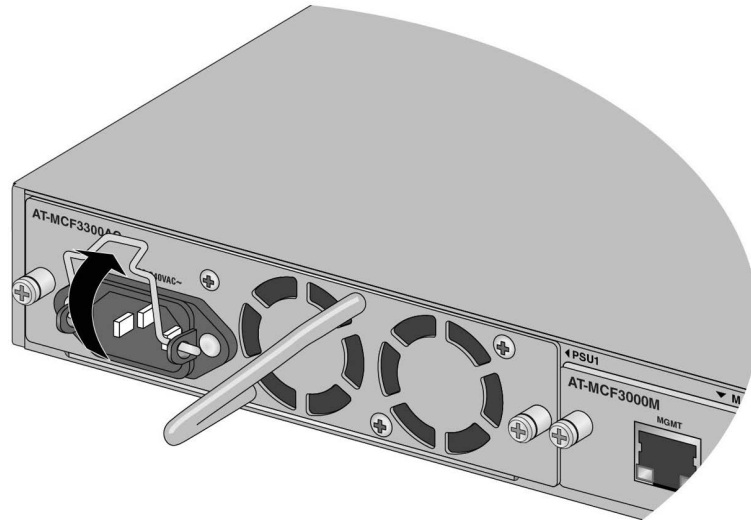


Figure 55. Raising the Retaining Clip on the MCF3300AC Power Supply

2. Plug the power cord into the AC power connector on the power module. Refer to Figure 56.

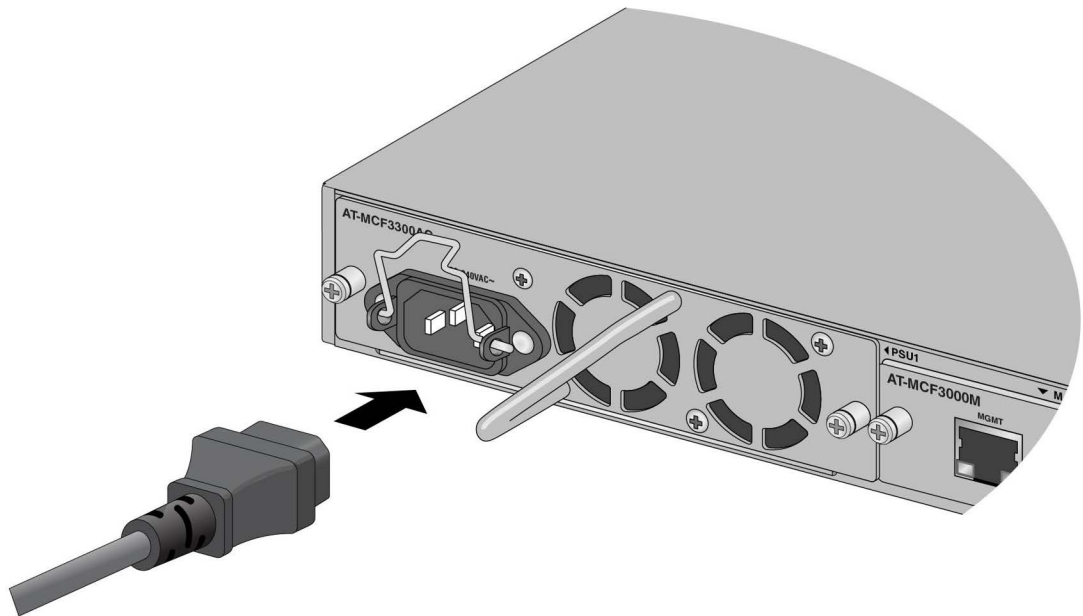


Figure 56. Connecting the AC Power Cord

3. Lower the power cord retaining clip to secure the power cord to the chassis.

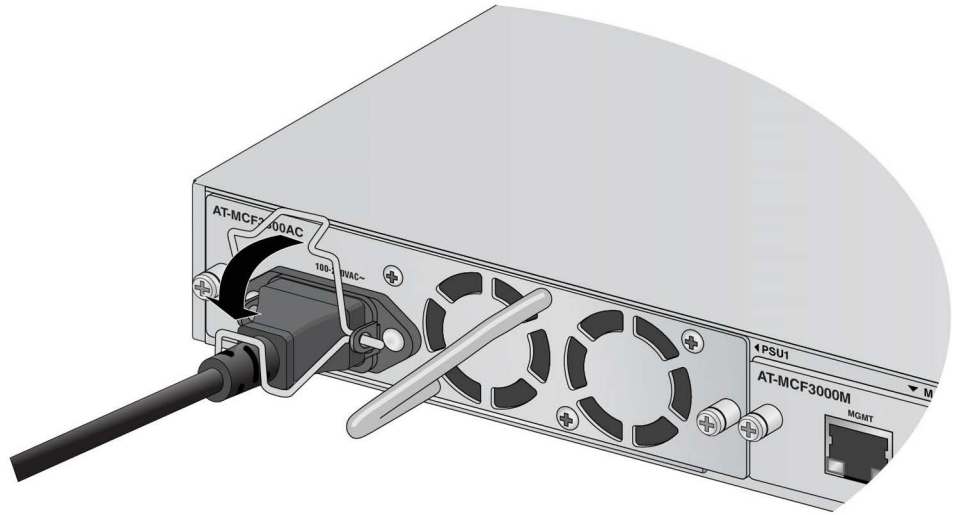


Figure 57. Positioning the Power Cord Retaining Clip

4. Plug the other end of the power cord into an appropriate power source. Refer to Figure 58. For power requirements, refer to “Power Specifications” on page 137.

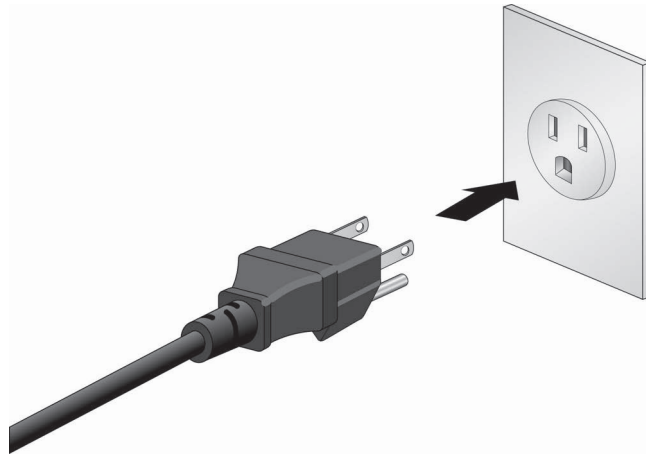



Figure 58. Connecting the Power Cord to an AC Power Source

5. If the media converter has two power supply modules, repeat this procedure to power on the second module.

Note

If the media converter has two power supplies, you can protect it from a power circuit failure by connecting the power cords to outlets on different circuits.

Note

The unit might have more than one power source. To reduce the risk of electric shock, disconnect all power cords before servicing the unit.  E30

For instructions on how to verify the operations of the modules, go to “Verifying the Media Converter” on page 102.

Powering On the MCF3300DC Power Supply

This section contains the procedure for wiring the DC connector on the MCF3300DC power supply.



Warning

As a safety precaution, install a circuit breaker with a minimum value of 15 Amps between the equipment and the DC power source.

↪ E9



Warning

Always connect the wires to the LAN equipment first before connecting them to the circuit breaker. Do not work with HOT feeds to avoid the danger of physical injury from electrical shock. Always verify that the circuit breaker is in the OFF position before connecting the wires to the circuit breaker. ↪ E9



Warning

For centralized DC power connection, install only in a restricted access area. ↪ E23



Warning

This equipment must be installed in a Restricted Access location. ↪ E45

Note

A tray cable is required to connect the power source if the unit is powered by centralized DC power. The tray cable must be a UL listed Type TC tray cable and rated at 600 V and 90 degrees C, with three conductors, minimum 14 AWG. ↪ E24

The following procedure requires the following material and tools:

- Three 18 AWG stranded wires. Do not use stranded wire lighter than 24AWG or heavier than 10AWG. Do not use solid wire.
- #1 flat-head screwdriver.
- 14-gauge wire insulation stripper

To wire the DC connector on the MCF3300DC Power Supply, perform the following procedure:

1. Power off the DC circuit where the media converter will be connected.

2. Use the legend above the terminal block to identify the terminals. The terminals are **positive**, **power supply ground** and **negative**, from left to right, as shown in Figure 59.

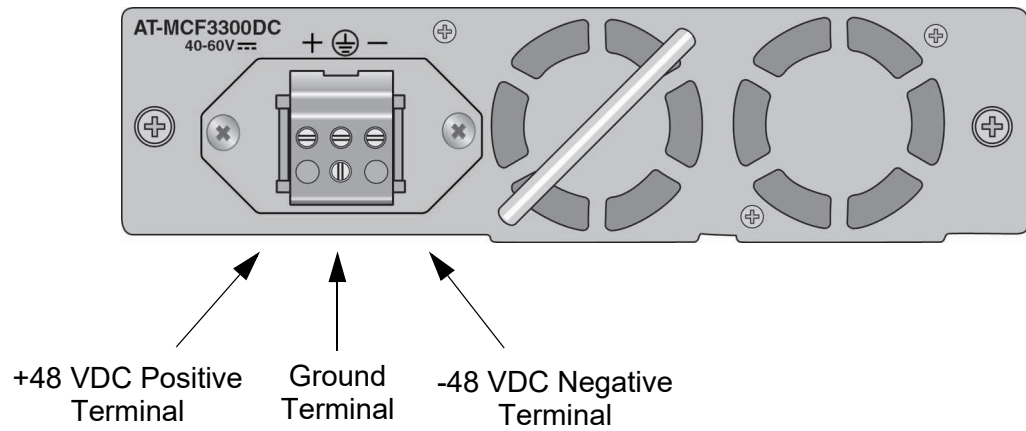


Figure 59. DC Terminal Block

3. With a 14-gauge wire insulation stripping tool, strip the three wires in the tray cable coming from the DC input power source to $8\text{mm} \pm 1\text{mm}$ ($0.31\text{ in.} \pm 0.039\text{ in.}$), as shown in Figure 60 on page 98.



Warning

Do not strip more than the recommended amount of wire. Stripping more than the recommended amount can create a safety hazard by leaving exposed wire on the terminal block after installation. E10

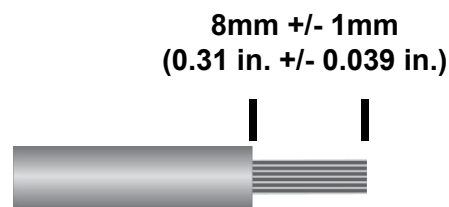


Figure 60. Stripped Wire

4. Tightly wrap the wire strands with your finger tips. Refer to Figure 61.

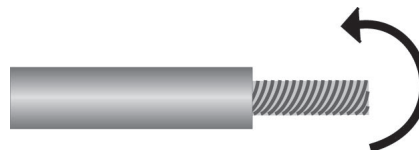


Figure 61. Wrapping the Wire Strands

Note

Allied Telesis recommends tinning the wires with solder to protect against loose strands. This guide does not contain instructions on how to tin wires.

5. Loosen the retaining screw to the Ground connector on the power supply with a #1 flathead screwdriver. Refer to Figure 62.

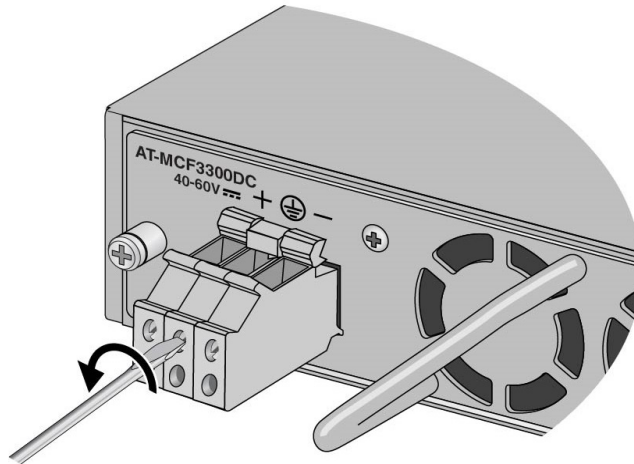


Figure 62. Loosening the Ground Screw on the MCF3300DC Power Supply

6. Insert the power supply ground wire into the ground connector of the DC terminal and tighten the connection with a flathead screwdriver. Refer to Figure 63 on page 100.

**Warning**

When installing this equipment, always ensure that the power supply ground connection is installed first and disconnected last. ⚡ E11

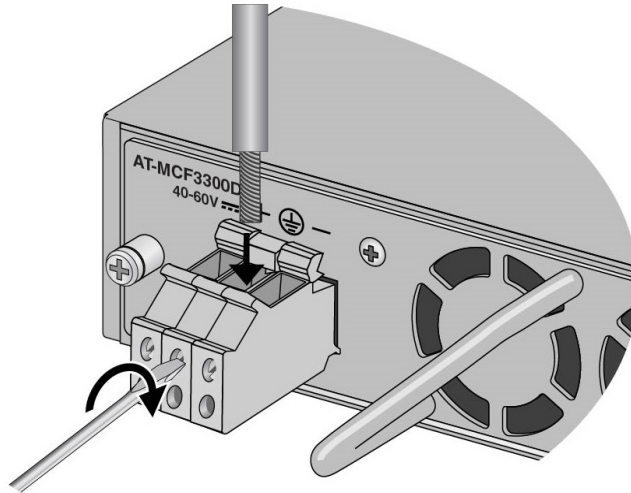
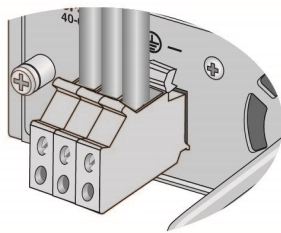
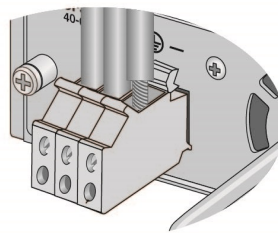


Figure 63. Connecting the Ground Wire to the DC Terminal Block

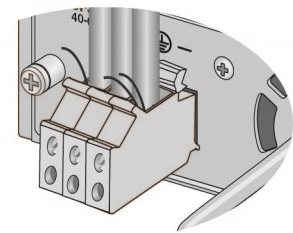
7. Repeat steps 5 and 6 to connect the +48 VDC (RTN) feed wire to the terminal block marked + (plus).
8. Repeat steps 5 and 6 to connect the -48 VDC feed wire to the terminal block marked - (minus).
9. After attaching the wires, visually check for exposed wires or loose strands. Refer to Figure 64.



Correct



**Incorrect:
Exposed Wires**



**Incorrect:
Loose Strands**

Figure 64. Verifying the DC Wire Installation




Warning

Check to see if there are any exposed copper strands coming from the installed wires. When this installation is done correctly there should be no exposed copper wire strands extending from the terminal block. Any exposed wiring can conduct harmful levels of electricity to persons touching the wires. ⚡ E12

10. Secure the tray cable near the rack framework using multiple cable ties to minimize the chance of the connections being disturbed by casual contact with the wiring. Use at least four cable ties, separated four inches apart. Locate the first one within six inches of the terminal block.

Note

This system will work with a positive grounded or negative grounded DC system.  E13

11. Verify that the circuit breaker is in the OFF position.
12. Connect the supply-cable wires to the circuit breaker.
13. If the switch has two MCF3300DC Power Supplies, repeat this procedure to wire the DC connector on the second power supply.
14. Power on the DC circuits.

Note

The unit might have more than one DC power source. To reduce the risk of electric shock, be sure to power off all DC circuits before servicing the unit.

For instructions on how to verify the operations of the media converter, go to “Verifying the Media Converter” on page 102.

Verifying the Media Converter

The instructions in this chapter are used to verify the proper operations of the modules and should be performed after the initial installation of the media converter or whenever you add or replace modules. The sections are listed here:

- ❑ “Media Converter Modules,” next
- ❑ “MCF3000M Management Module” on page 102

Media Converter Modules

This procedure explains how to verify the operations of the individual channels on a media converter module, using the default MissingLink mode and the Link LEDs. The procedure assumes the following:

- ❑ The media converter chassis is powered on.
- ❑ The network cables are connected to the ports on the media converter module and to the local and remote network devices.
- ❑ The local and remote network devices are powered on.

To verify the operations of the copper and fiber optic ports of a channel, observe their Link LEDs. If the Link LEDs for both ports in a channel are steady on or flashing, the ports have established links with the local and remote network devices, which may already be forwarding network traffic to each other through the media converter channel.

If the Link LED for one port in a channel is off and the Link LED for the other port is blinking once a second, the port with the off LED does not have a link to a network device while the port with the blinking LED does have a link.

MCF3000M Management Module

To verify the MCF3000M Management Module:

- ❑ Verify that the Power LED on the module is green.
- ❑ Verify that the System LED is steady green.
- ❑ If the 10/100/1000Base-T Management port is connected to a network device, check that the port’s L/A (Link/Activity) LED is steady or flashing green.

For more information, refer to “MCF3000M Management Module” on page 130.

Starting a Local Management Session

This section contains the procedure for starting a local management session on the MCF3000M management module using the micro-USB Console port and the provided management cable.

Note

Local management of the management module requires the CP210x USB to UART Bridge Virtual COM Port (VCP) driver from Silicon Labs. The driver comes standard with Microsoft Windows 10 and later. You may have to manually install the driver on workstations with earlier versions of Microsoft Windows or other operating systems.

Note

The management module comes with the default IP address 192.168.1.1. For instructions on remote management sessions, refer to the *MCF3000 Series Web Browser Interface User Guide* or *MCF3000 Series Command Line Interface User Guide*.

To start a local management session on the MCF3000M Management Module:

1. Connect the micro-USB connector on the management cable to the CONSOLE port on the management module. Refer to Figure 65.

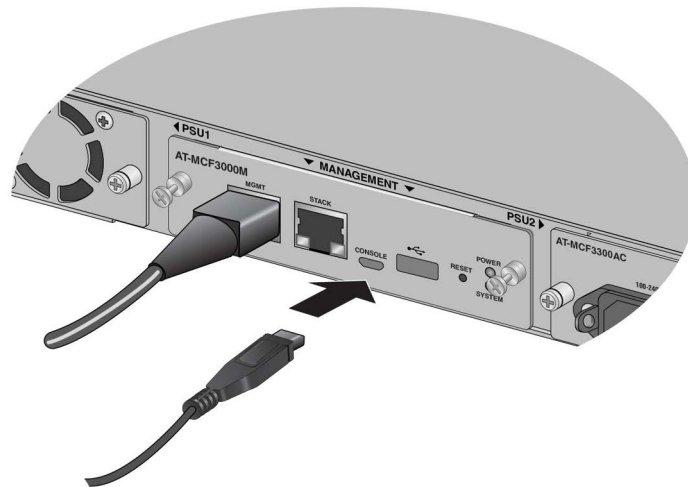


Figure 65. Connecting the Management Cable to the CONSOLE Port

2. Connect the USB Micro Type A connector on the management cable to a USB port on your computer. Refer to Figure 66 on page 104.



Figure 66. Connecting the USB Cable to Your Computer

3. Configure the terminal or terminal emulator program as follows:
 - Baud rate: 115200 bps (The baud rate of the RS-232 Terminal port is adjustable from 9600 to 115200 bps. The default is 115200 bps.)
 - Data bits: 8
 - Parity: None
 - Stop bits: 1
 - Flow control: None

The terminal emulator also needs to know the COM number of the Silicon Labs driver. If your program does not display COM numbers and you are using Microsoft Windows, open the Device Manager and display Ports (COM & LPT) to view the numbers.

Note

The port settings are for a DEC VT100 or ANSI terminal, or an equivalent terminal emulator program.

4. Press the Enter key.

The management module displays:

```
welcome...  
MCF3000 login:
```

5. Enter the user name of an on-board or remote manager account. The module comes with two on-board manager accounts. The login names

are “manager” and “user1”. The manager account lets you view and change all system parameters, as well as view traffic statistics. The user1 account is only used to view the parameter settings and traffic statistics.

After you enter the user name, the management module displays:

Password:

6. Enter the password of the manager account you are using. The “manager” account has the default password “friend”. The “user1” account has the default password “user1”.

The management session starts and the command line interface prompt is displayed:

```
MCF3000>>
```

7. To display a list of commands, press the Return key or type a question mark “?”:

```
MCF3000>>?
```

For more information, refer to the *r MCF3000 Series Command Line Interface User Guide*.

Chapter 10

Replacing Modules

This chapter contains the following procedures:

- ❑ “Replacing Media Converter Modules” on page 108
- ❑ “Removing the MCF3300AC Power Supply” on page 111
- ❑ “Removing the MCF3300DC Power Supply” on page 115
- ❑ “Replacing the MCF3000M Management Module” on page 118

Replacing Media Converter Modules



Caution

Media converter modules are sensitive to and can be damaged by electrostatic discharge. Wear a grounding device and observe electrostatic discharge precautions when handling the modules.

To remove a media converter module:

1. Label and disconnect all network cables from the ports on the module. The labels will make it easier for you to connect the cables to the correct ports on the new module.
2. Install dust covers on all fiber optic ports.
3. If you are replacing media converter modules, remove and label all SFP/SFP+ modules.
4. Using a cross-head screwdriver, loosen the two captive screws that secure the module to the chassis. Refer to Figure 67.

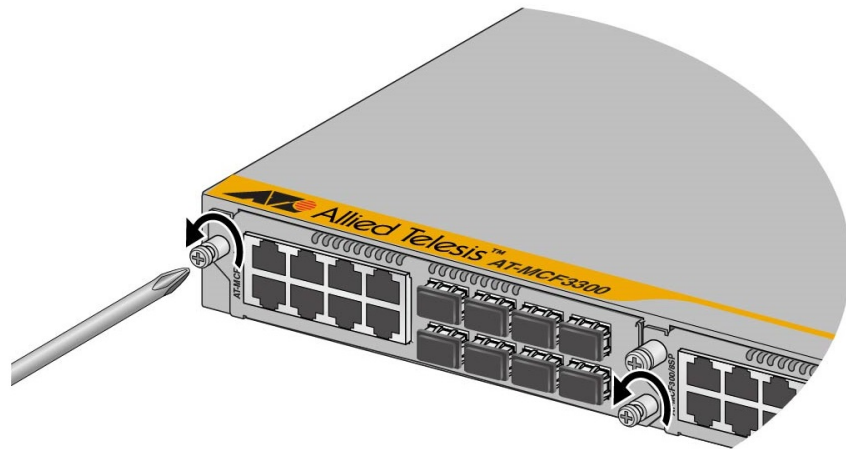


Figure 67. Loosening the Two Captive Screws on the Media Converter Module

5. Slide the module from the unit. Refer to Figure 68 on page 109.

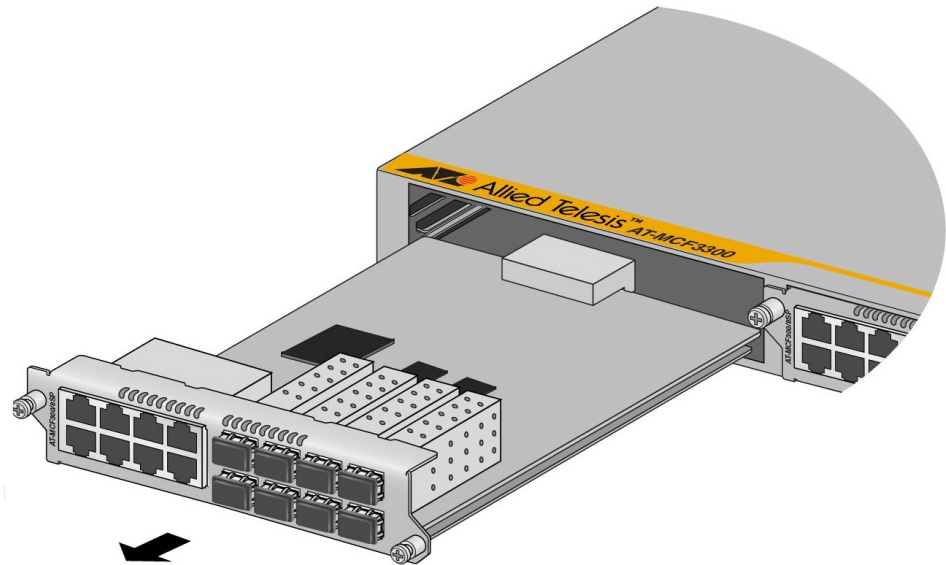


Figure 68. Sliding the Media Converter Module from the Chassis

6. To install a new module, refer to “Installing Media Converter Modules” on page 66.

Note

If the chassis is unmanaged, the channels in the replacement module use their current settings or if the module is new, the default values. However, if the chassis has a management module, the settings on the replacement module are configured by the management module to match the previous module. For further information, refer to the *MCF3000 Series Command Line Interface User Guide* or *MCF3000 Series Web Browser Interface User Guide*.

7. If you are not installing a new module, position the slot cover and secure it by tightening the two captive screws. Refer to Figure 69 on page 110.

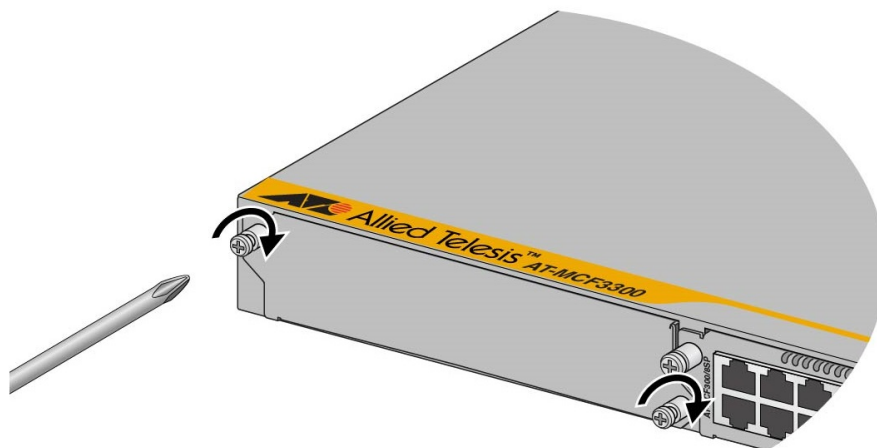


Figure 69. Installing the Slot Cover over a Media Converter Slot

Removing the MCF3300AC Power Supply

This section contains the procedure for removing the MCF3300AC Power Supply from the chassis. The power supply is hot-swappable. You do not have to power off the chassis to install or remove a power supply in a chassis that has two power supplies.

The illustrations shown the power supply in PSU A slot. The procedure is the same for PSU B slot.

To remove the MCF3300AC Power Supply, perform the following procedure:

1. Disconnect the power cord from the AC power source. Refer to Figure 70.

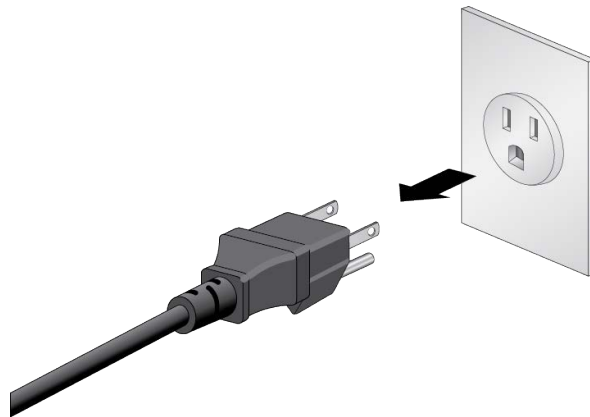


Figure 70. Disconnecting the Power Cord from the AC Power Source

2. Raise the retaining clip on the power cord. Refer to Figure 71.

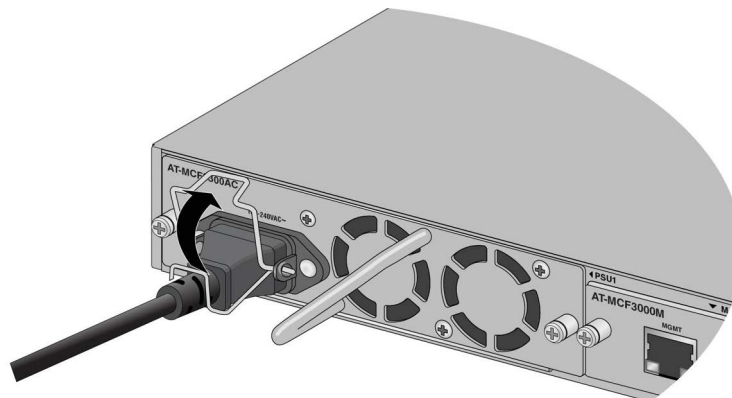


Figure 71. Raising the Power Cord Retaining Clip on the MCF3300AC Power Supply

3. Disconnect the power cord from the chassis. Refer to Figure 72.

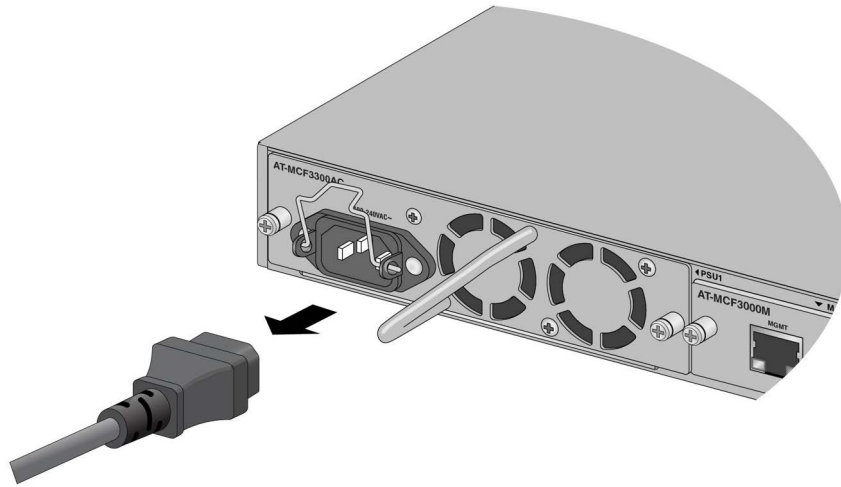


Figure 72. Disconnecting the Power Cord from the MCF3300AC Power Supply

4. Using a cross-head screwdriver, loosen the two captive screws on the power supply. Refer to Figure 73.

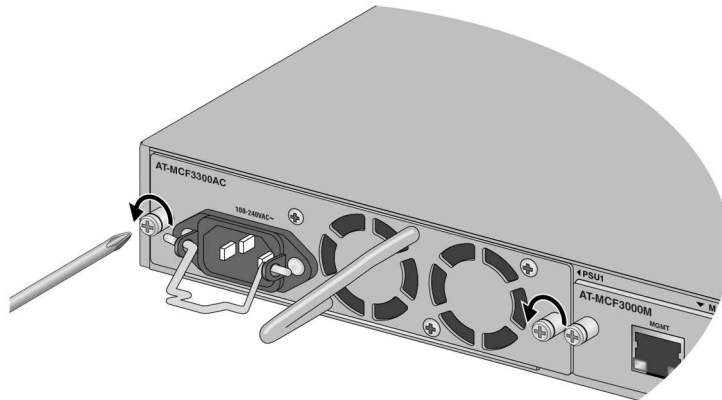


Figure 73. Loosening the Two Captive Screws on the MCF3300AC Power Supply

5. Pull on the handle to disconnect the power supply from the backplane connector inside the chassis. Refer to Figure 74 on page 113.

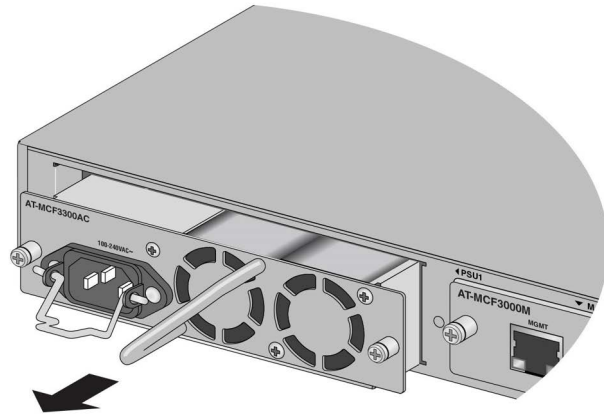


Figure 74. Pulling on the Handle to Disconnect the MCF3300AC Power Supply from the Chassis

6. Slide the power supply out from the chassis. Refer to Figure 75.



Caution

The power supply is heavy. Hold it with both hands when removing it from the chassis.

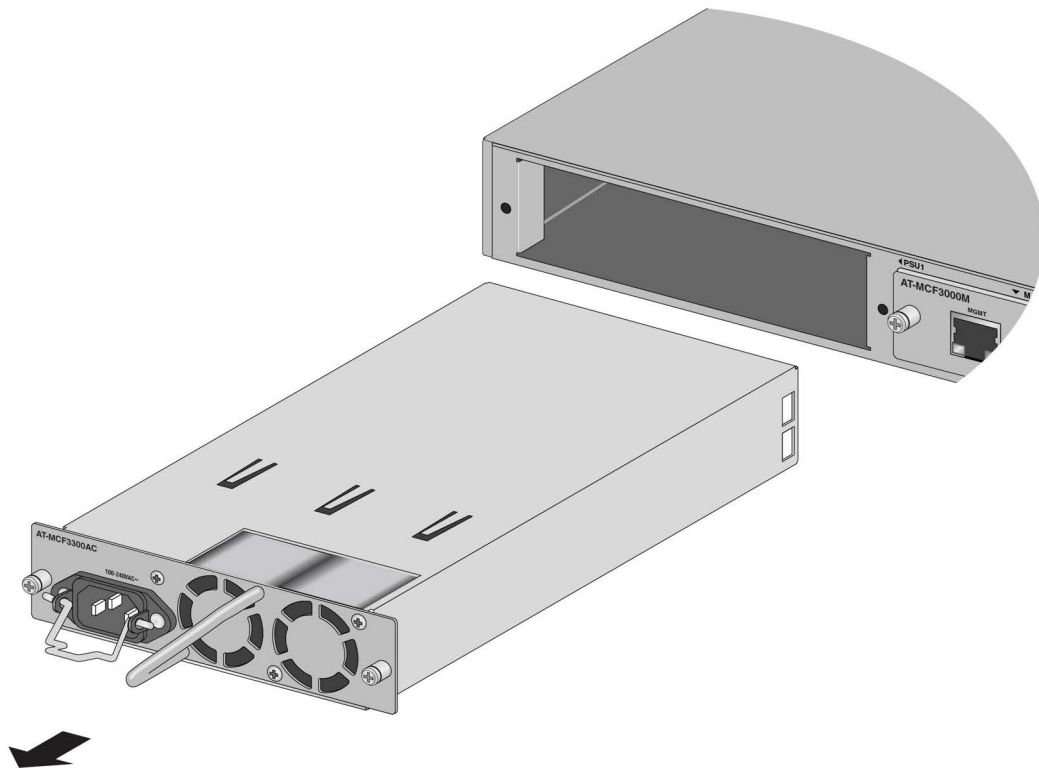


Figure 75. Sliding the MCF3300AC Power Supply from the Chassis

7. To install a replacement power supply, refer to “Installing a Power Supply” on page 73.
8. If you are not installing a replacement power supply now, install the blank slot cover. Refer to Figure 76.

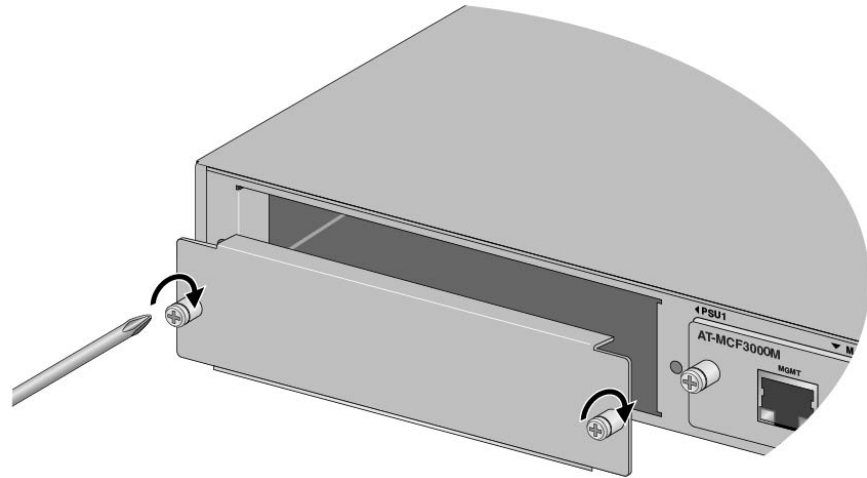


Figure 76. Installing the Blank Cover on the Power Supply Slot

Removing the MCF3300DC Power Supply

This section contains the procedure for removing the MCF3300DC Power Supply from the chassis. The power supply is hot-swappable. You do not have to power off the chassis to install or remove a power supply in a chassis that has two power supplies.

The illustrations show the power supply in PSU A slot. The procedure is the same for removing the power supply from PSU B slot.

To remove the MCF3300DC Power Supply, perform the following procedure:

1. Power off the DC circuit to the MCF3300DC Power Supply.



Warning

Never handle live DC power wires. Always verify that the DC circuit is powered off before connecting or disconnecting power wires from the DC circuit breaker or power supply.

2. Disconnect the -48 VDC feed wire from the terminal marked - (minus). Refer to Figure 77.

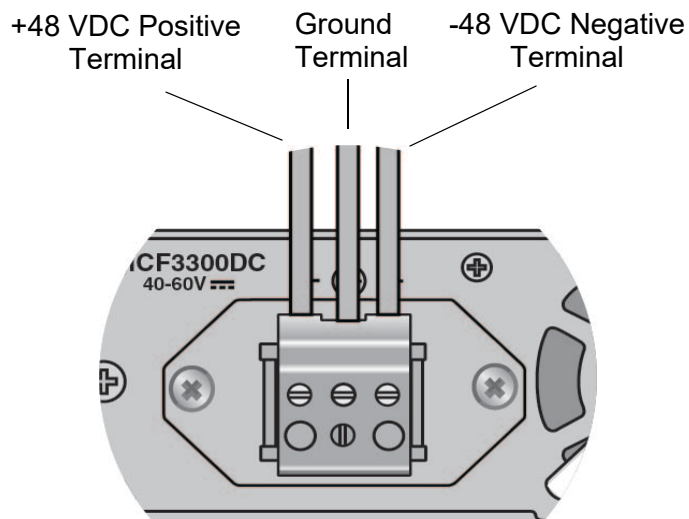



Figure 77. Power Wires on the MCF3300DC Power Supply

3. Disconnect the +48 VDC (RTN) feed wire from the terminal block marked + (plus).
4. Disconnect the power supply ground wire.



Warning

When installing or removing this equipment, always connect the power supply ground connection first and disconnect it last.  E11

5. Using a cross-head screwdriver, loosen the two captive screws on the power supply. Refer to Figure 78.

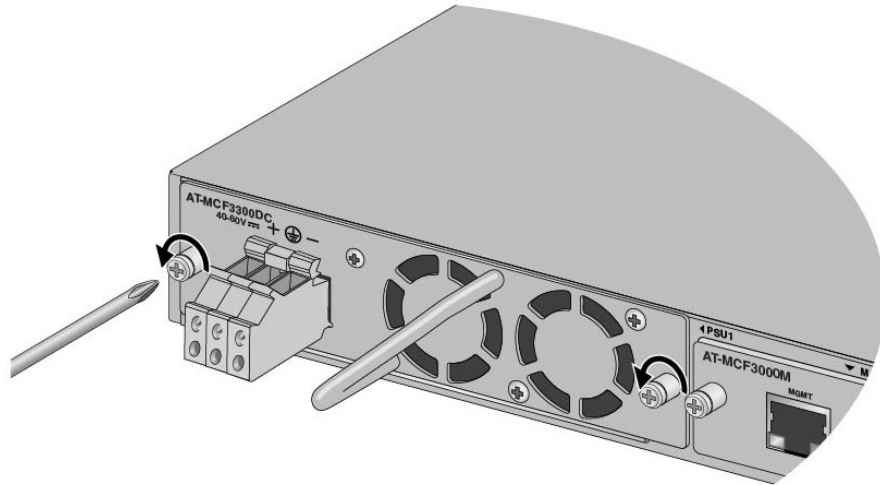


Figure 78. Loosening the Two Captive Screws on the MCF3300DC Power Supply

6. Pull on the handle to disconnect the power supply from the backplane connector inside the chassis. Refer to Figure 79.

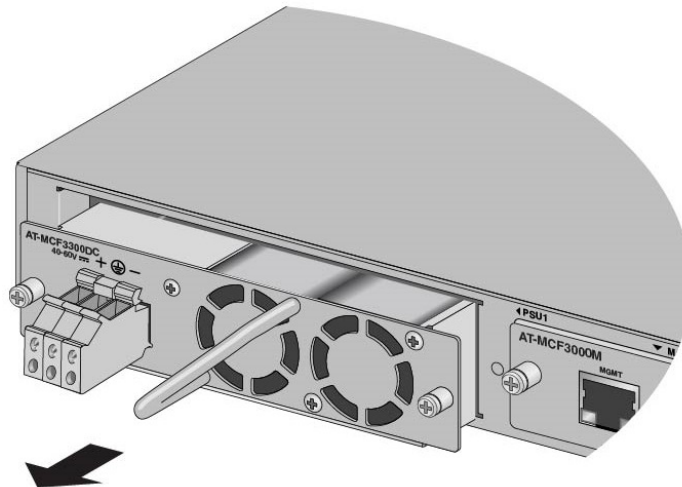


Figure 79. Pulling on the Handle to Disconnect the MCF3300DC Power Supply from the Chassis

7. Slide the power supply out from the chassis. Refer to Figure 80 on page 117.

**Caution**

The power supply is heavy. Use both hands to remove it from the chassis.

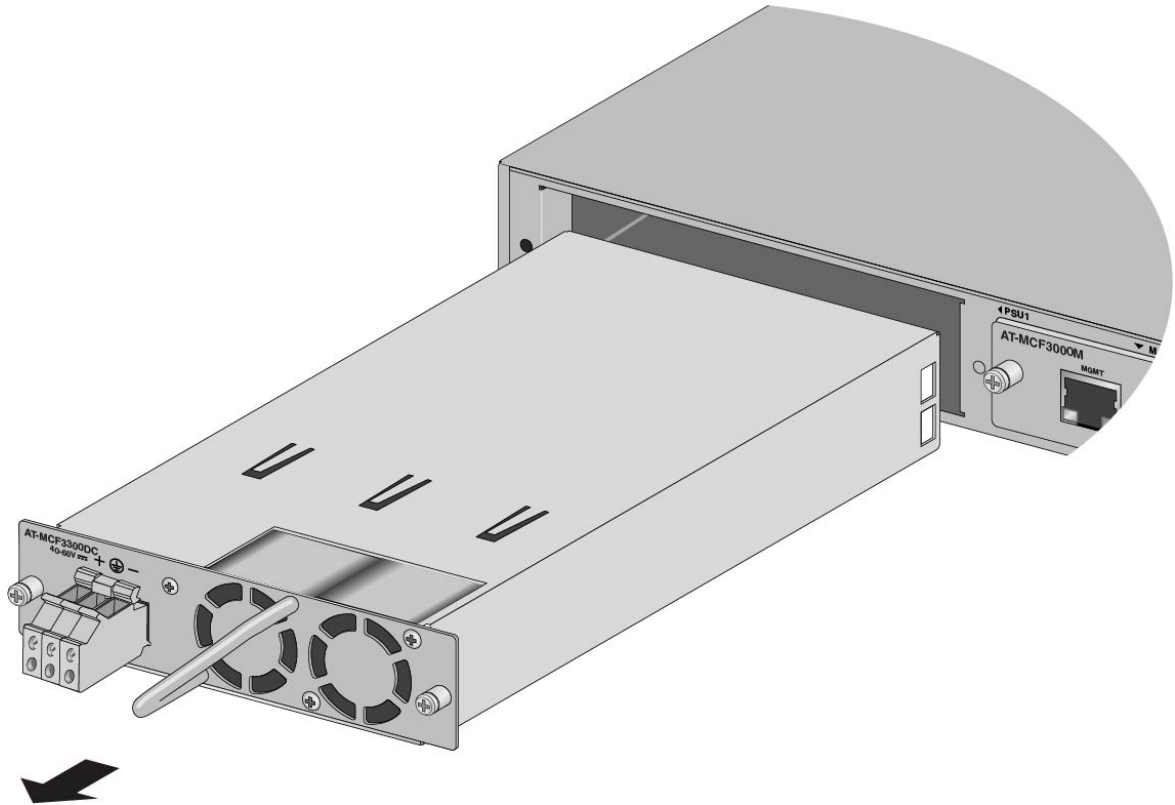


Figure 80. Sliding the MCF3300DC Power Supply from the Chassis

8. To install a replacement power supply, refer to “Installing a Power Supply” on page 73.
9. If you are not installing a replacement power supply now, install the blank slot cover. Refer to Figure 76 on page 114.

Replacing the MCF3000M Management Module

This section contains the procedure for replacing the MCF3000M management module. Please review the following information before performing the procedure:

- ❑ The management module can be hot-swapped. You do not have to power off the chassis to remove or install it.
- ❑ Replacing the management module does not interrupt the operations of the media converter modules. They continue forwarding network traffic on their channels.
- ❑ If you do not have a backup copy of the configuration file from the current management module and if the module is still operational, you should create a backup copy before replacing it. Refer to the *MCF3000 Series Command Line Interface User Guide* or *MCF3000 Series Web Browser Interface User Guide*.
- ❑ After replacing a management module, download the most recent backup configuration file to the new module.

To remove or replace the MCF3000M Management Module, perform the following procedure:



Caution

The modules are sensitive to and can be damaged by electrostatic discharge. Wear a grounding device and observe electrostatic discharge precautions when handling the modules.

1. Disconnect cables and USB device from the ports on the module. Refer to Figure 81 on page 119.



Figure 81. Disconnecting Cables and USB Device from the MCF3000M Module

2. Loosen the two captive screws on the management modules with a cross-head screwdriver. Refer to Figure 82.

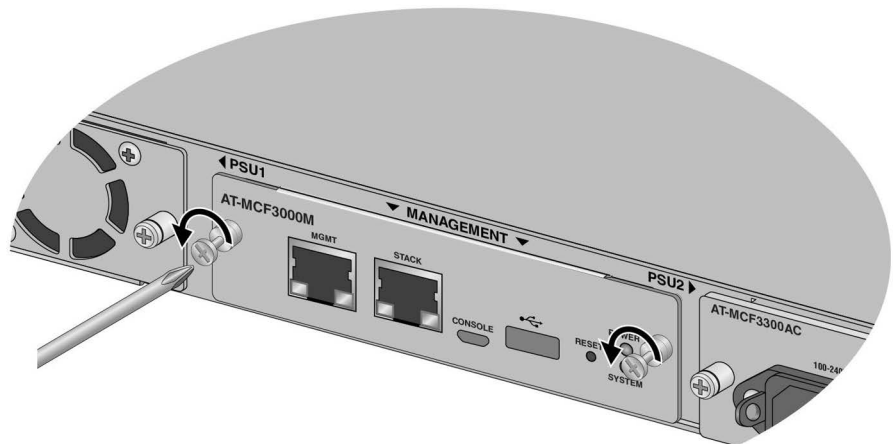


Figure 82. Loosening the Captive Screws on the MCF3000M Management Module

3. Pull on the captive screws to disconnect the module from the connector on the backplane. Refer to Figure 83.

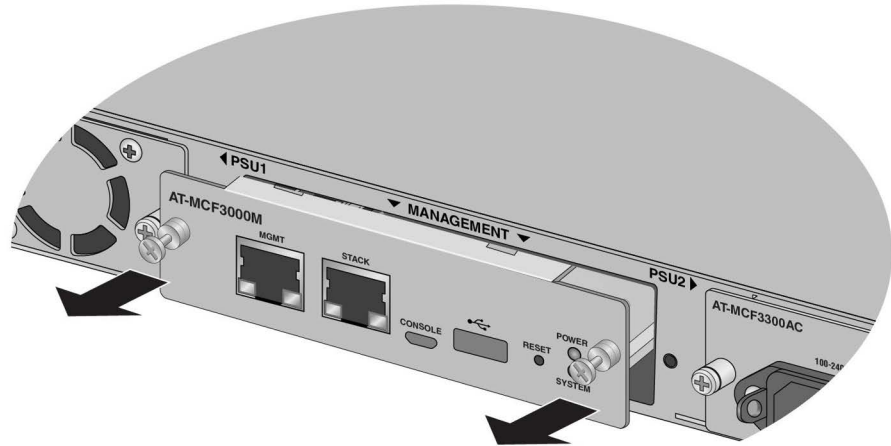


Figure 83. Disconnecting the MCF3000M Management Module from the Backplane Connector

4. Slide the module from the chassis. Refer to Figure 84.

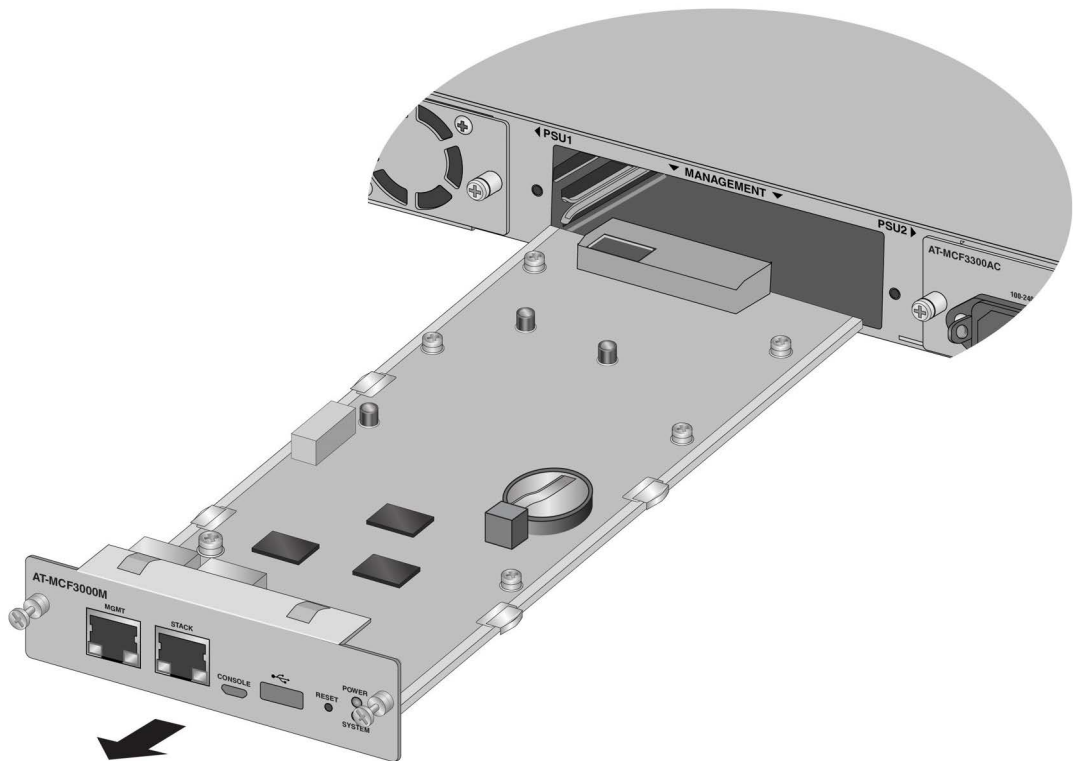


Figure 84. Removing the MCF3000M Management Module from the MCF3300 Chassis

5. If you are not immediately installing the management module in another chassis, store it in an anti-static bag.

6. Do one of the following:
 - ❑ To install a replacement module, refer to “Installing the MCF3000M Management Module” on page 69. After installing the replacement module, download the most recent backup configuration file to it. Refer to the *MCF3000 Series Command Line Interface User Guide* or *MCF3000 Series Web Browser Interface User Guide*.
 - ❑ If you are not installing a replacement module, continue with the next step to install the blank panel.
7. Position the blank cover over the management module slot. Refer to Figure 85.

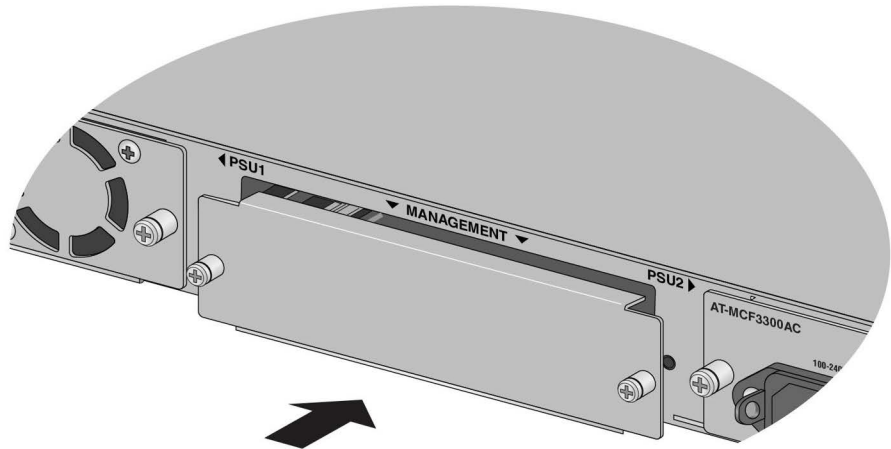


Figure 85. Installing the Blank Management Slot Cover

8. Tighten the two captive screws with a cross-head screwdriver. Refer to Figure 86.

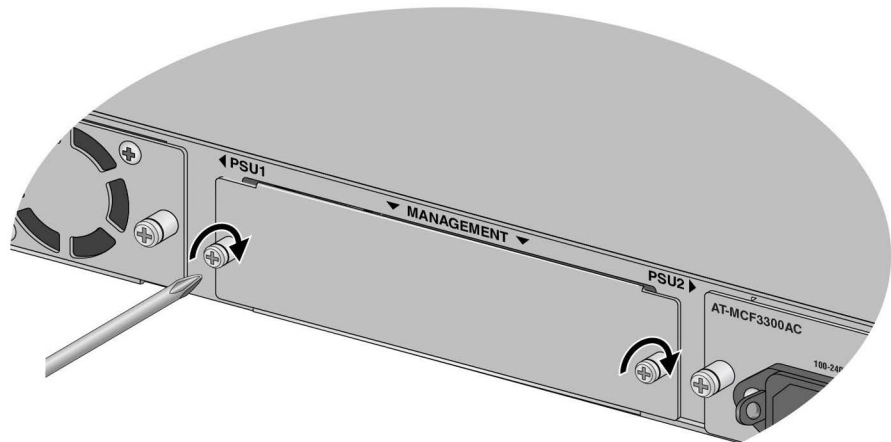


Figure 86. Tightening the Captive Screws on the Blank Management Slot Cover

Chapter 11

Troubleshooting

The following sections contain troubleshooting recommendations should you encounter a problem with the product:

- ❑ “Media Converter Modules” on page 124
- ❑ “MCF3300AC Power Supply Module” on page 128
- ❑ “MCF3300DC Power Supply Module” on page 129
- ❑ “MCF3000M Management Module” on page 130

Media Converter Modules

Problem: All the port LEDs on a media converter module are off.

Solution: Try the following:

- ❑ For MCF3010SP/4SP and MCF3010SPT/4SP modules, verify that the chassis has two MCF3300AC or MCF3300DC power supplies and that both power supplies are powered on. These media converter modules require two power supplies.
- ❑ Visually inspect the media converter module to verify that it is fully installed in the slot.
- ❑ If the chassis has the MCF3000M management module, check the Power and System LEDs. They should be green. If they are off, the chassis is not receiving power, in which case the problem is with the power supplies. Refer to “MCF3300AC Power Supply Module” on page 128 or “MCF3300DC Power Supply Module” on page 129 for troubleshooting suggestions.
- ❑ If the chassis does not have the management module, listen for the fans in the power supplies. If they are off, the chassis is not receiving power, in which case the problem is with the power supplies.
- ❑ Remove the media converter module from the chassis and reinstall it.
- ❑ Install the media converter module in another slot or chassis.
- ❑ Replace the media converter module.

Problem: The Link/Activity LED of a copper port is off.

Solution: The copper port is unable to form a link with its network device. Try the following:

- ❑ Verify that the local network device connected to the copper port is powered on and is operating properly.
- ❑ Verify that the copper cable is securely connected to the port on the media converter channel and to the port on the remote network device.
- ❑ Verify that the port is connected to the correct copper cable. This is to verify that the port is connected to the correct network device, and not to a powered off device.
- ❑ Try connecting another network device to the copper port with a different cable. If the copper port is able to establish a link, then the problem is with the cable or the other network device.
- ❑ Verify that the cable is not longer than 100 meters (328 feet).

- ❑ Verify that the cable is the correct category for the port speed. Refer to “Copper Cable” on page 23.
- ❑ If the chassis has the MCF3000M management module, use the management software to verify that the port is enabled.

Problem: The Link/Activity LED of a fiber optic port is off.

Solution: The fiber optic port is unable to establish a link to the remote network device. Try the following:

- ❑ Verify that the remote network device connected to the fiber optic port is operating properly.
- ❑ Verify that the fiber optic cable is securely connected to the port on the media converter channel and to the port on the remote device.
- ❑ If the problem is with an SFP/SFP+ transceiver, check to be sure that the transceiver is fully inserted in the slot.
- ❑ Verify that the operating specifications of the fiber optic ports in the channel and on the remote network device are compatible. The fiber optic port specifications for the MCF3000/8LC Module are provided in “Fiber Optic Ports on the MCF3000/8LC Module” on page 143. For the specifications for SFP/SFP+ transceivers, refer to the documents included with the transceivers.
- ❑ Verify that the correct type of fiber optic cabling is being used. The fiber optic port specifications for the MCF3000/8LC Module are provided in “Fiber Optic Ports on the MCF3000/8LC Module” on page 143. For the specifications for SFP/SFP+ transceivers, refer to the documents included with the transceivers.
- ❑ Verify that the port is connected to the correct fiber optic cable. This is to verify that the port is connected to the correct network device, and not to a powered off device.
- ❑ Try connecting another network device to the fiber optic port using a different cable. If the port is able to establish a link, then the problem is with the cable or with the other network device.
- ❑ If the chassis has the MCF3000M management module, use the management software to verify that the port is enabled.
- ❑ If the remote network device is a management device, use its management firmware to determine whether its port is enabled.
- ❑ Test the attenuation on the fiber optic cable with a fiber optic tester to determine whether the optical signal is too weak (i.e., sensitivity) or too strong (i.e., maximum input power). The fiber optic port specifications for the MCF3000/8LC Module are provided in “Fiber Optic Ports on the MCF3000/8LC Module” on page 143. For the specifications for SFP/SFP+ transceivers, refer to the documents included with the transceivers.

Problem: A port's Link/Activity LED is slowly blinking once a second.

Solution: This means that the media converter channel is operating in the MissingLink mode. The port with the blinking LED can establish a link with its network device, but the companion port in the same channel cannot establish a link. If the companion port is a copper port, refer to Problem 2. If the companion port is a fiber optic port, refer to Problem 3.

Problem: The Link/Activity LEDs for the two ports of a channel are on, but the network devices are not forwarding traffic to each other through the channel.

Solution: Try the following:

- ❑ Verify that the copper and fiber optic cables from the local and remote network devices are connected to ports in the same channel. For background information, refer to "Media Converter Channels" on page 33.
- ❑ If the network devices are managed devices, use their management firmware to determine whether they are configured and operating properly.
- ❑ If the network devices are using a spanning tree protocol, the ports on the devices may have been placed in the standby mode if the path is a redundant path.

Problem: Two network devices are forwarding traffic through a media converter channel, but performance is slow.

Solution: Try the following:

- ❑ The two ports of a channel and the two devices connected to the ports should all operate in the same duplex mode, preferably full-duplex, for best performance.
- ❑ There could be an intermittent problem with one of the network devices connected to the ports in the channel or with a cable. To determine if this is the problem, set the channel to the regular mode and observe the Link/Activity LEDs on the ports. If one of the LEDs periodically blinks, the link may be intermittent. Refer to the next Problem for suggestions on causes and resolutions.

Problem: The Link/Activity LEDs for both ports in a channel set to the MissingLink mode are blinking once a second.

Solution: This can have several possible causes. It might happen when channel ports are connected to other media converters, forming a chain of media converters, and a link problem occurs somewhere in the chain. To identify the source of the problem, set the operating modes on all the media converter channels in the chain to the regular mode and then examine the Link/Activity LEDs of the ports. The LED will be off on the port that cannot establish a link to its network device.

Another possible cause is an intermittent link on a port, perhaps because of a problem with a cable or a network device. To identify which port has the problem, set the channel to the regular mode and go to the previous Problem.

MCF3300AC Power Supply Module

Problem: The fans in the power supply have stopped.

Solution: The power supply module is not receiving power or has a technical problem. Try the following:

- Verify that the module is fully seated in the power supply slot in the chassis.
- Verify that the power cord is firmly connected to the power supply module and the power source.
- Try connecting the power module to another power source, preferably located on a different circuit.
- Verify that the power source is operating properly by plugging a different device into it.
- Verify that the power from the power source meets the operating specifications of the power supply module. Refer to “Input Voltage” on page 137.
- Replace the power supply module.

MCF3300DC Power Supply Module

Problem: The fans in the power supply have stopped.

Solution: The power supply module is not receiving power or has a technical problem. Try the following:

- ❑ Verify that the module is fully seated in the power supply slot in the chassis.
- ❑ Verify that the DC power circuit is powered on and operating normally.
- ❑ Verify that the DC wires are correctly and securely connected to the DC connector on the power supply and to the DC circuit.
- ❑ Try using a different DC power source.
- ❑ Verify that the DC wires are in the range of 10AWG to 24AWG.
- ❑ Try replacing the DC power wires.
- ❑ Test the output voltage from the DC power source to verify that it is within the operating range of the power supply. Refer to “Input Voltage” on page 137.
- ❑ Replace the power supply module.

MCF3000M Management Module

Problem: The POWER and SYSTEM LEDs on the module are off.

Solution: Try the following:

- ❑ Verify that the power supply module in the chassis is operating properly. Refer to “MCF3300AC Power Supply Module” on page 128.
- ❑ Visually inspect the management module to ensure that it is fully inserted into the management slot in the chassis.
- ❑ Try replacing the management module.

Problem: A network cable is connected to the 10/100/1000Base-T MGMT port, but the port’s Link/Activity LED is off.

Solution: Try the following:

- ❑ Verify that the network device connected to the MGMT port is powered on and is operating properly.
- ❑ Verify that the copper cable is securely connected to the MGMT port and the port on the network device.
- ❑ Verify that you are using the correct type of cable for the port and have not exceeded the maximum length. Refer to “MGMT Port” on page 43 for the cable specifications.
- ❑ Try connecting another network device to the port with a different cable. If the port is able to establish a link, then the problem is with the cable or with the other network device.

Problem: You cannot start a local management session on the management module.

Solutions: Try the following:

- ❑ Verify that the Management Cable is securely connected to the Console port on the module and to the port on the terminal or personal computer.
- ❑ Verify that the communications settings for the USB port on the terminal or personal computer are set correctly. Refer to “Starting a Local Management Session” on page 103.

Problem: You cannot start a remote Telnet or SSH management session with the management module.

Solution: Try the following:

- ❑ Verify that the MGMT port is connected to a network device, such as an Ethernet switch or router.
- ❑ Use a PING utility on your workstation to verify the existence of a network pathway between your workstation and the management module.
- ❑ Start a local management session on the management module and verify that it has an IP address configuration. Refer to the *MCF3000 Series Command Line Interface User Guide*.
- ❑ If your workstation and the management module are members of different networks, verify that the IP address configuration on the module includes a default gateway. This is the IP address of the routing interface of the first hop to reaching the network where your workstation is a member. The default gateway's IP address must be a member of the same network as the management module.

Note

Remote Telnet or SSH management must be performed through the MGMT port. Remote management is not supported through the ports on the media converter modules.

Appendix A

Technical Specifications

This appendix contains the following sections:

- ❑ "Physical Specifications" on page 134
- ❑ "Environmental Specifications" on page 136
- ❑ "Power Specifications" on page 137
- ❑ "Certifications" on page 139
- ❑ "RJ-45 Copper Port Pinouts" on page 140
- ❑ "Micro-USB Console Port Pinouts" on page 142
- ❑ "Fiber Optic Ports on the MCF3000/8LC Module" on page 143

Physical Specifications

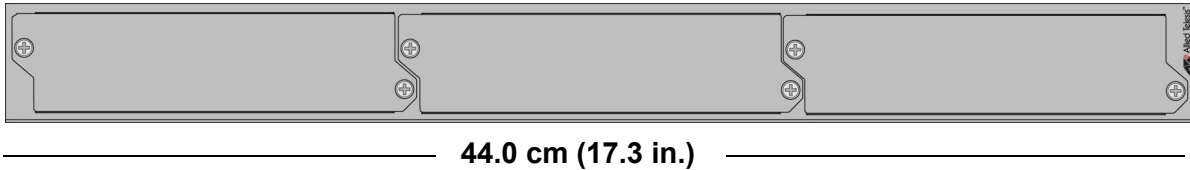
Dimensions (H x W x D)

Table 8 and Figure 87 list the product dimensions.

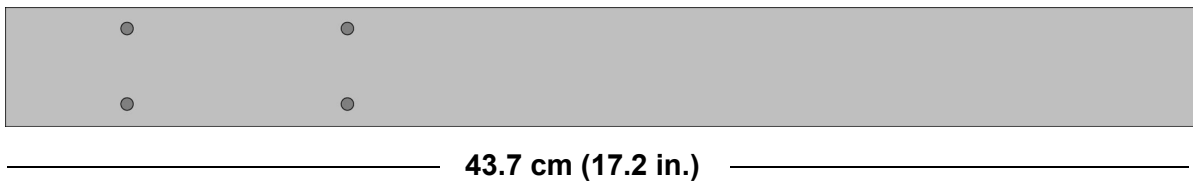
Table 8. Product Dimensions

MCF3300 Chassis	4.3 cm x 44.0 cm x 43.7 cm (1.7 in. x 17.3 in. x 17.2 in.)
MCF3000/8LC Module MCF3000/8SP Module MCF3010SP/4SP Module MCF3010SPT/4SP Module	3.6 cm x 14.5 cm x 16.5 cm (1.4 in. x 5.7 in. x 6.5 in.)
MCF3000M Management Module	3.1 cm x 12.2 cm x 20.7 cm (1.2 in. x 4.8 in. x 8.1 in.)
MCF3300AC	4.1 cm x 15.7 cm x 21.0 cm (1.6 in. x 6.2 in. x 8.3 in.)
MCF3300DC	4.1 cm x 15.7 cm x 21.0 cm (1.6 in. x 6.2 in. x 8.3 in.)

Front



Side



Height

4.3 cm (1.7 in.)



Figure 87. Media Converter Chassis Dimensions

Figure 88 shows the locations of the bracket holes on the sides of the media converter.

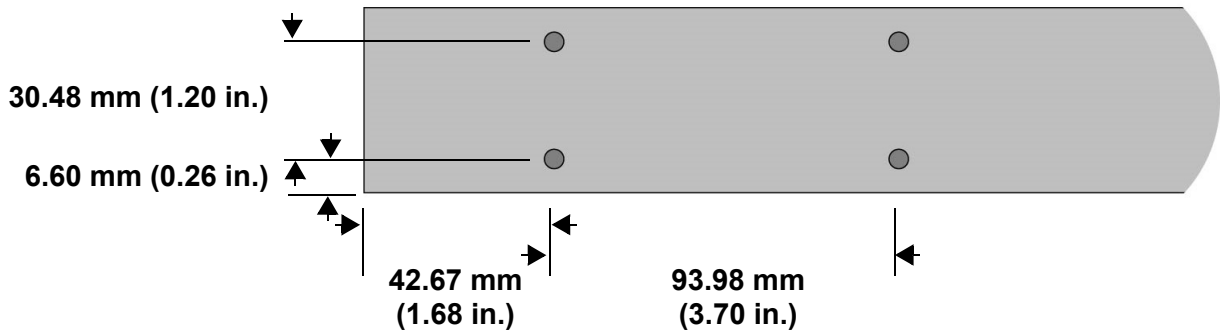


Figure 88. Bracket Hole Locations

Weights

Table 9 lists the product weights.

Table 9. Product Weights

MCF3300 Chassis with slot covers and no power supplies	4.40 kg (9 lb. 7 oz.)
MCF3300 Chassis with slot covers and one MCF3300AC power suppl	4.99 kg (11 lb.)
MCF3000/8LC Module	0.59 kg (1.3 lb.)
MCF3000/8SP Module	0.45 kg (1.1 lb.)
MCF3010SP/4SP Module	0.43 kg (0.75 lb.)
MCF3010SPT/4SP Module	0.45 kg (1.1 lb.)
MCF3000M Module	0.34 kg (0.75 lb.)
MCF3300AC	0.88 kg (1 lb. 15 oz.)
MCF3300DC	0.82 kg (1 lb. 13 oz.)

Ventilation

Table 10 lists the ventilation requirements.

Table 10. Ventilation Requirements

Recommended Minimum Ventilation on All Sides	10 cm (4.0 in)
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Environmental Specifications

Table 11 lists the environmental specifications of the switches. sb - from PRD

Table 11. Environmental Specifications

Operating Temperature	0° C to 50° C (32° F to 122° F)
Storage Temperature	-15° C to 65° C (-5° F to 149° F)
Operating Humidity	5% to 95% noncondensing
Storage Humidity	5% to 95% noncondensing
Maximum Operating Altitude	3,048 m (10,000 ft)
Maximum Non-operating Altitude	4,000 m (13,100 ft)

Power Specifications

This section contains the maximum power consumption values and input voltages.

Maximum Power Consumption

Table 12 list the maximum power consumption.

Table 12. Maximum Power Consumption (Watts)

MCF3300 Chassis	100W
MCF3000/8LC Module	13W
MCF3000/8SP Module	21W
MCF3010SP/4SP Module	26W
MCF3010SPT/4SP Module	30W
MCF3000M Module	7W

Input Voltage

Table 13 lists the input voltage for the power supply.

Table 13. Input Voltages

MCF3300AC Power Supply	100-240V ~, 1.0A per input (x2)
MCF3300DC Power Supply	40-60VDC, 4.0A per input (x2)

Maximum Power Supply Efficiency

Table 14 on page 137 lists the maximum power supply efficiency.

Table 14. Maximum Power Supply Efficiency (Based on 100V Input Voltage)

MCF3300AC Power Supply	Up to 85%
MCF3300DC Power Supply	Up to 94.9%

Heat Dissipations

Table 15 lists the heat dissipations.

Table 15. Heat Dissipations (British Thermal Units/Hour)

MCF3300 Chassis	341.00 BTU/hr
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Table 15. Heat Dissipations (British Thermal Units/Hour) (Continued)

MCF3000/8LC Module	44.33 BTU/hr
MCF3000/8SP Module	71.61 BTU/hr
MCF3010SP/4SP Module	tbd BTU/hr
MCF3010SPT/4SP	tbd BTU/hr
MCF3000M Module	23.87 BTU/hr
MCF3300AC Power Supply	8.67 BTU/hr = 2.54W
MCF3300DC Power Supply	8.67 BTU/hr = 2.54W

Certifications

Table 16 lists the product certificates.

Table 16. Product Certifications

Safety	UL62368-1 CAS C22.2 No. 62368-1 EN62368-1, CE Mark
EMI (Emissions)	FCC Class A EN55022 Class A VCCI Class A ICES
EMC (Immunity)	EN55024
Electrical and Laser Safety	EN62368-1 (TUV), UL62368-1 (cUL _{US}), EN60825
Compliance Marks	CE, cUL _{US} , TUV, C-Tick
Environmental	RoHS WEEE

RJ-45 Copper Port Pinouts

Figure 89 illustrates the pin layout of the RJ-45 connectors on the media converter modules and the MGMT port on the MCF3000M module.

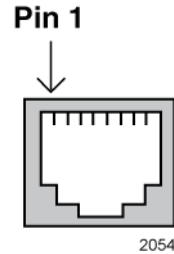


Figure 89. Pin Layout (Front View) of the RJ-45 Connectors

Table 17 lists the pin signals for 10 or 100Mbps.

Table 17. Pin Signals for 10 or 100Mbps

Pin	MDI Signal	MDI-X Signal
1	TX+	RX+
2	TX-	RX-
3	RX+	TX+
4	Not used	Not used
5	Not used	Not used
6	RX-	TX-
7	Not used	Not used
8	Not used	Not used

Table 18 lists the pin signals for 1000Mbps.

Table 18. Pin Signals on Copper Ports at 1000Mbps

Pin	Pair	Signal
1	1 +	TX and RX+
2	1 -	TX and RX-
3	2 +	TX and RX+

Table 18. Pin Signals on Copper Ports at 1000Mbps (Continued)

4	3 +	TX and RX+
5	3 -	TX and RX-
6	2 -	TX and RX-
7	4 +	TX and RX+
8	4 -	TX and RX-

Micro-USB Console Port Pinouts

Table 19 lists the pin signals on the micro-USB Console port on the MCF3000M management module. sb - need to verify

Table 19. Micro-USB Console Port Pin Signals

Pin	Signal
1	USB2 VBUS Input
2	USB2 Data Negative
3	USB2 Data Positive
4	Not Connected
5	Ground

Fiber Optic Ports on the MCF3000/8LC Module

Table 20 lists the specifications for the 1000Base-FX fiber optic ports on the MCF3000/8LC Module. sb - done

Table 20. Specifications for the Fiber Optic Ports on the MCF3000/8LC Module

General	
Connector	Duplex LC
Maximum Distance and Fiber Optic Cable	500 meters with 50/125 μ m or 220 meters with 62.5/125 μ m (core/cladding) multimode fiber optic cable
Transmitter	
Wavelength	850 nm
Output Optical Power	-9.5 dBm minimum -4 dBm maximum
Receiver	
Wavelength	850 nm
Sensitivity	-17 dBm maximum
Maximum Input Power	0 dBm maximum

