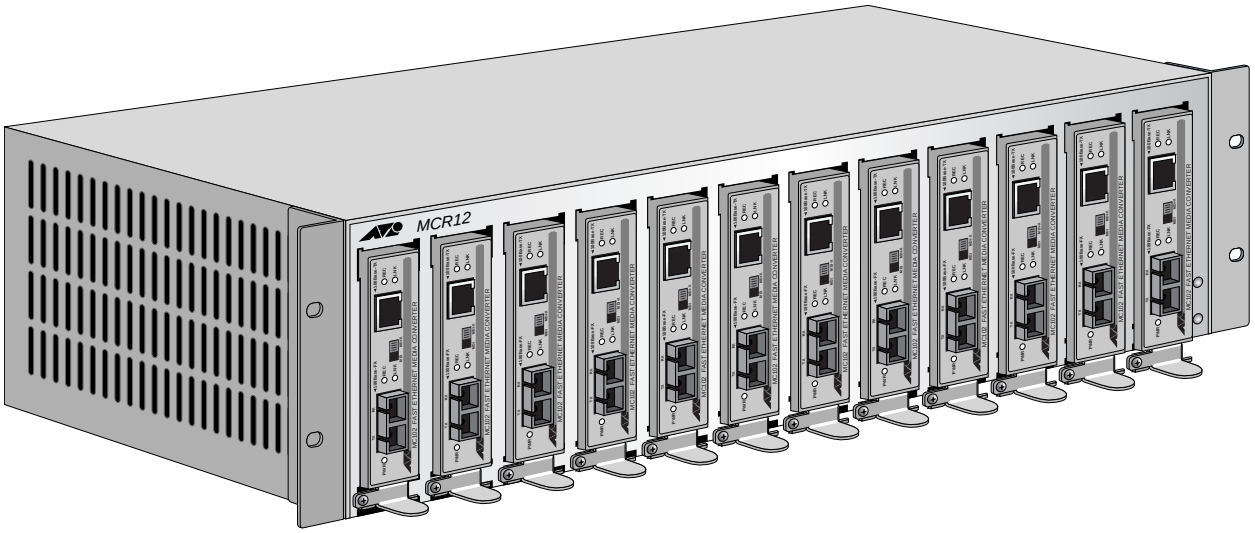
MCR12

Media Converter Rack-mount Chassis



Installation Guide

613-000815 Rev. B

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Electrical Safety and Emissions Standards

This section contains the following:

- ❒ “US Federal Communications Commission”
- ❒ “Industry Canada”
- ❒ “Emissions, Immunity and Electrical Safety Standards” on page 4
- ❒ “Translated Safety Statements” on page 4

US 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

Radiated Energy

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.

Emissions, Immunity and Electrical Safety Standards

RFI Emissions FCC Class A, EN55032 Class A, EN61000-3-2, EN61000-3-3, VCCI Class A, RCM, UKCA, ICES

Warning
In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures. E84

Immunity EN55035

Electrical Safety EN62368-1 (TUV), UL 60950-1 (cULus)

Laser Safety EN60825

Translated Safety Statements

Important: The indicates that translations of the safety statement are available in the PDF document ***Translated Safety Statements*** posted on the Allied Telesis website at ***alliedtelesis.com/services-and-support***.

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Preface

This guide contains instructions on how to install an MCR12 Media Converter Rack-mount Chassis.

This preface contains the following sections:

- ❒ “Safety Symbols Used in this Document” on page 12
- ❒ “Contacting Allied Telesis” on page 13

Safety Symbols Used in this Document

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.

Contacting Allied Telesis

If you need assistance with this product, visit the Allied Telesis web site at **www.alliedtelesis.com/services**.

Chapter 1
Overview

This chapter provides information about the MCR12 Media Conversion Rack-Mount chassis and contains the following sections:

- ❒ “Features” on page 16
- ❒ “Power Status LEDs” on page 19

Features

The MCR12 rack-mount chassis provides convenient rack-mount or desktop installation for up to twelve Allied Telesis 10Base- and/or 100Base-T media converters. The chassis is available in both AC and DC models.

Figure 1 shows a fully populated chassis with rack-mount brackets attached. All products are connected to power through a factory-installed power supply and power backplane.

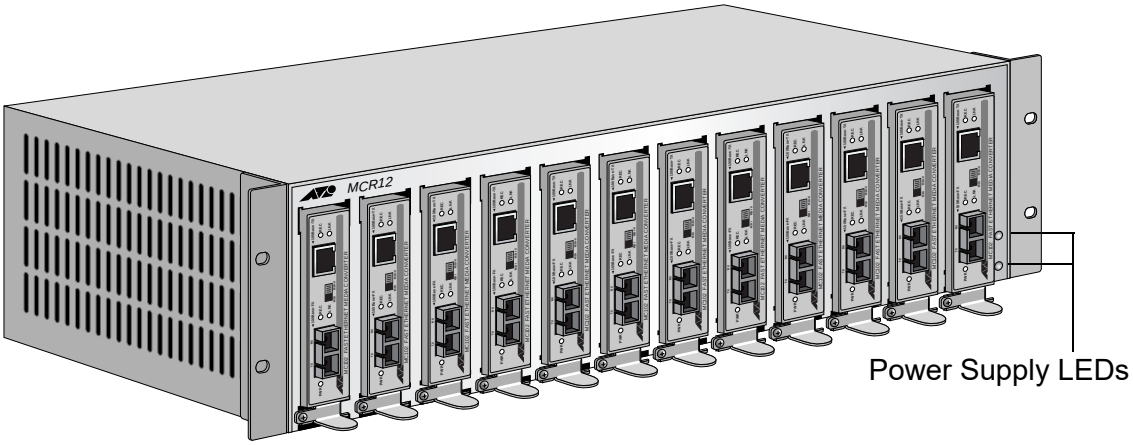


Figure 1. Full Populated MCR12 Chassis with Rack Mount Brackets Attached

Two LEDs on the front provide information about the status of the auxiliary power supplies installed in the rear, as described in “Power Status LEDs” on page 19.

Front and Back Panels

Figure 2 shows the front panel of the MCR12 chassis.

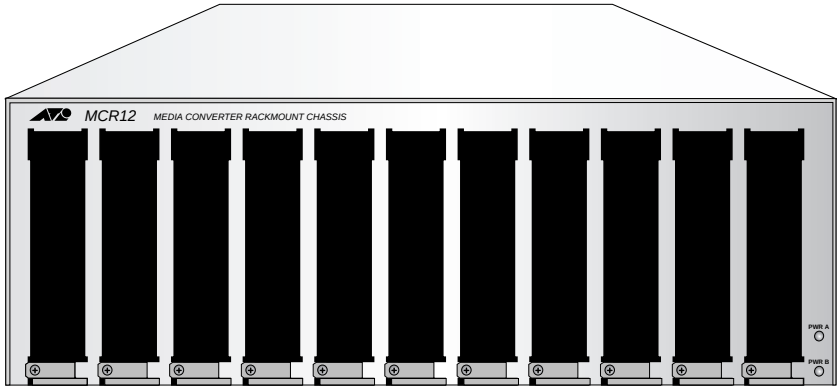
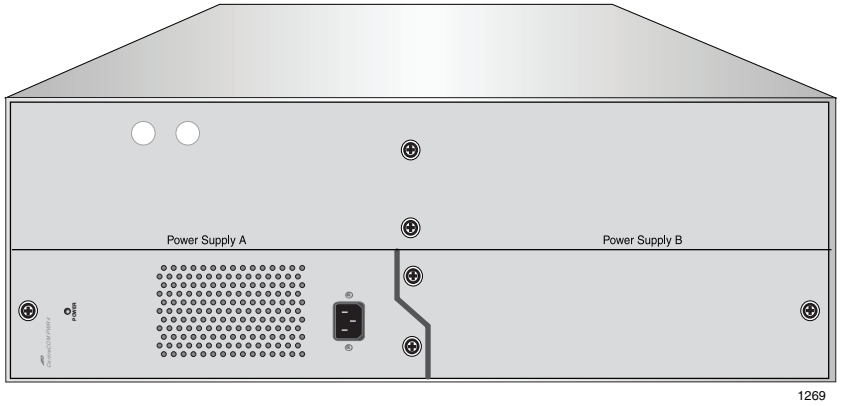


Figure 2. MCR12 Front Panel

Figure 3 shows the back panels of the AC and DC versions of the chassis as they are shipped with one power supply in slot A.

AC Model



DC Model

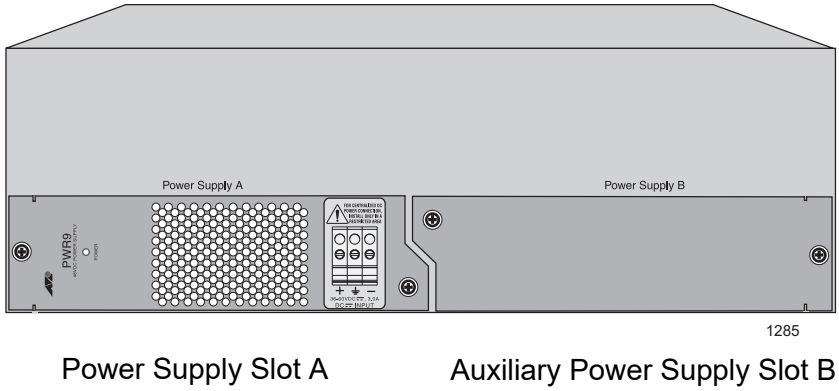


Figure 3. Back Panels

Auxiliary Power Supply Slot

The MCR12 chassis is shipped with one PWR4 (AC) or PWR9 (DC) power supply installed in slot A, with slot B for an auxiliary power supply.

The power supply provides automatic load balancing for one or two power supplies. If a power supply fails, the green power LED on the front of the MCR12 chassis goes out, and the entire power load is shifted to the auxiliary power supply unit. The power supplies are hot-swappable.

For detailed information on the features and specifications of the PWR4 power supply, refer to the*PWR4 Power Supply Installation Guide.* Information about the features and specifications of the PWR9 power supply is available in the *PWR9 Power Supply Installation Guide.*

Figure 4 shows the rear view of the MCR12 rack-mount chassis with two PWR4 AC power supplies installed.

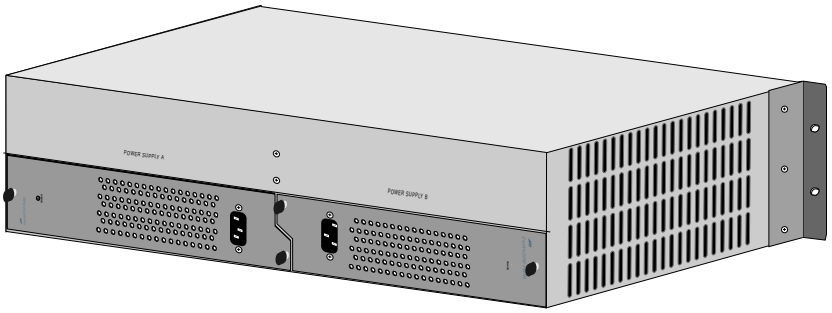


Figure 4. MCR12 Chassis with Two PWR4 AC Power Supplies Installed

Figure 5 shows the rear view of the MCR12 rack-mount chassis with two PWR9 DC power supplies installed.

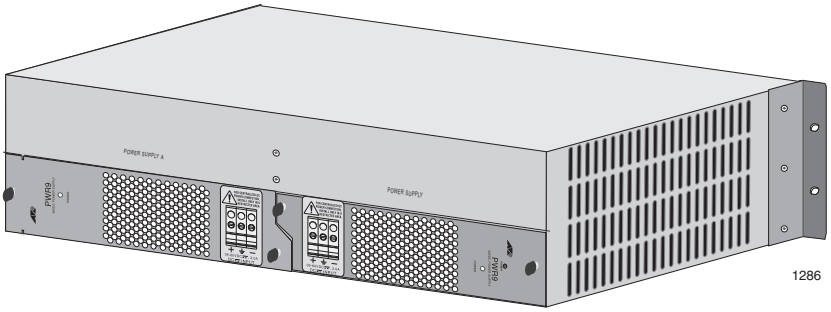


Figure 5. MCR12 Chassis with Two PWR9 DC Power Supplies Installed

Power Status LEDs

Table 1 describes the operation of the power status LEDs on the front of the MCR12 chassis.

Table 1. Power Status LEDs

PWR LED	Color	Description
PWR A	Green	Power supply A is operating normally.
	OFF	Power supply A is off, not present, or has failed.
PWR B	Green	Power supply B is in operating normally.
	OFF	Power supply B is off, not present, or has failed.

Chapter 2

Installation

This chapter provides the installation instructions for the MCR12 chassis and contains the following sections:

- ❒ “Reviewing Safety Precautions” on page 22
- ❒ “Verifying the Package Contents” on page 25
- ❒ “Preparing the Site” on page 26
- ❒ “Installing the Chassis on a Desktop” on page 27
- ❒ “Installing the Chassis in a Rack” on page 28
- ❒ “Grounding the Chassis” on page 30
- ❒ “Installing a Media Converter in the Chassis” on page 32
- ❒ “Installing a CV1000 Chassis in an MCR12 Rack-Mount Chassis” on page 35
- ❒ “Powering on an AC-Powered Chassis” on page 39
- ❒ “Wiring and Powering on a DC-Powered Chassis” on page 40
- ❒ “Installing an Auxiliary Power Supply” on page 43
- ❒ “Warranty Registration” on page 44

Reviewing Safety Precautions

Please review the following safety precautions before you begin to install the chassis or any of its components.

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. E4

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

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

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

Warning
Operating Temperature. This product is designed for a maximum ambient temperature of 40° degrees C. E7

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

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

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

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**

Warning
When installing this equipment, always ensure that the frame ground connection is installed first and disconnected last. **E11**

Warning
Check to see if there are any exposed copper strands coming from the installed wire. 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**

Note
This system works with positive grounded or negative grounded DC systems. **E13**

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

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

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**

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

Warning
Remove all metal jewelry, such as rings and watches, before installing or removing a line card from a powered-on chassis. **E26**

Warning
Circuit breaker is used as a disconnection device. To de-energize equipment, shut down the circuit breaker and then disconnect the input wire. **E38**

Warning
The source of the DC input shall be isolated from the AC power source by reinforced insulation. **E117**

Verifying the Package Contents

Ensure that the following items are included in your package. If any item is missing or damaged, contact your Allied Telesis sales representative for assistance.

- ❒ One MCR12 Media Conversion Rack-Mount Chassis
- ❒ Two rack-mount brackets
- ❒ Six mounting screws
- ❒ One power cord
- ❒ One ground lug
- ❒ Two M5 lock nuts
- ❒ Warranty card

Preparing the Site

Be sure to observe the following guidelines when planning the installation of your chassis.

- ❒ Make sure power for the chassis is accessible and cables can be easily connected.
- ❒ Cables must be away from sources of electrical noise such as radios, transmitters, broadband amplifiers, power lines, fluorescent or halogen light fixtures.
- ❒ Air flow around the chassis and through its vents on the rear and side panels should not be restricted.
- ❒ If you are using the chassis on a desktop, make sure it is placed on a level, secure surface.
- ❒ Do not place objects on top of the chassis.
- ❒ Do not expose the chassis to moisture or water.
- ❒ Make sure the chassis is in a dust-free environment.
- ❒ Use dedicated power circuits or power conditioners to supply reliable electrical power to the network devices.

Installing the Chassis on a Desktop

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

1. Unpack all the items from the shipping container and store the packaging material in a safe location.

   Note
   Keep the shipping material. You must use the original shipping material if you need to return the chassis to Allied Telesis.

2. Place the chassis on a level, secure surface.

   The chassis is equipped with four protective rubber feet. This allows the chassis to be placed on many types of surfaces.

3. Do not apply power at this time. Go to “Grounding the Chassis” on page 30.

Installing the Chassis in a Rack

To install the MCR12 chassis in a rack, perform the following procedure:

1. Place the chassis upside down on a level, secure surface.
2. Using a flat-head screwdriver, remove the rubber feet from the bottom of the chassis and set them aside for future use.
3. Turn the chassis over.
4. Attach one rack-mount bracket to each side of the chassis with three screws (provided) on each side, as shown in Figure 1

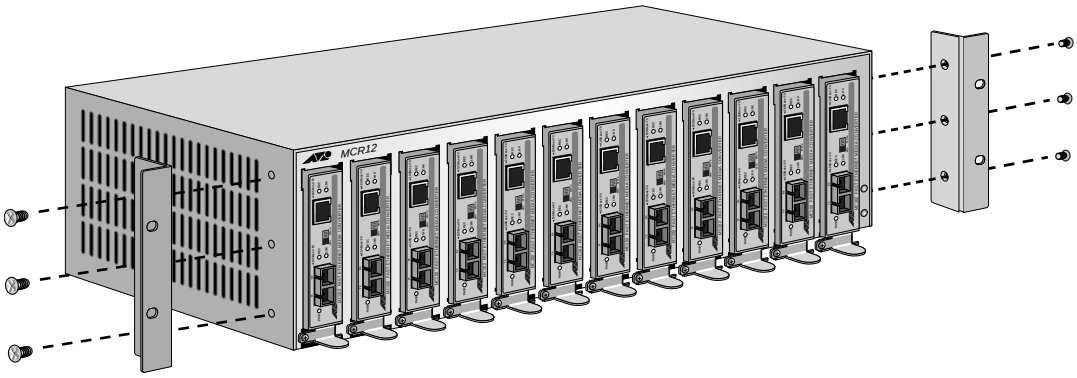


Figure 1. Attaching the Rack-Mount Brackets

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

5. Mount the chassis on the rack with two screws (not provided) on each side, as illustrated in Figure 2.

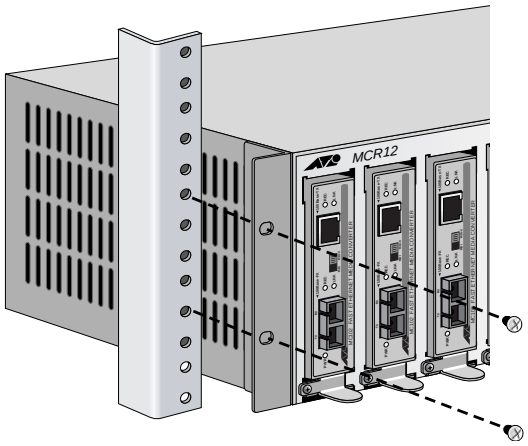


Figure 2. Installing the Chassis in a Rack

6. Do not apply power at this time. Go to “Grounding the Chassis” on page 30.

Grounding the Chassis

Warning
When installing this equipment, always ensure that the frame ground connection is installed first and disconnected last. **E11**

Grounding the chassis requires the following items:

- One ground lug (provided)
- Two M5 lock nuts for securing the ground lug to the chassis (provided)
- Crimping tool (not provided)
- One 12 AWG stranded wire or 14 AWG solid wire (not provided)

To ground the chassis to a ground point, perform the following procedure:

1. Use a crimping tool to affix one end of the 12 AWG bundled or 14 AWG solid ground wire to the provided ground lug, as illustrated in Figure 3.

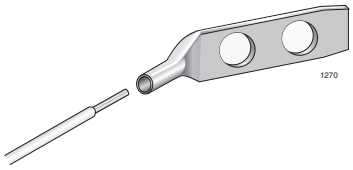


Figure 3. Connecting the Wire to the Ground Lug

2. Place the ground lug on the two studs located on the rear panel of the MCR12 chassis, as shown in Figure 4.

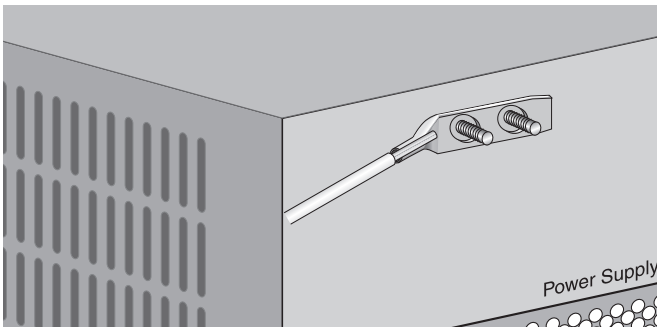


Figure 4. Position of the Ground Lug on the Studs

3. Secure the ground lug with the two M5 lock nuts provided, as illustrated in Figure 5.

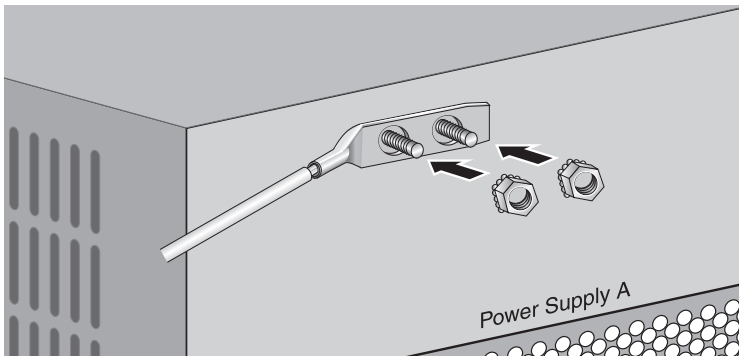


Figure 5. Securing the Ground Lug with Two M5 Lock Nuts

4. Attach the other end of the ground wire to an appropriate ground (earth) rod of the building.

5. Go to “Powering on an AC-Powered Chassis” on page 39 to complete the installation.

Installing a Media Converter in the Chassis

To install a media converter in the MCR12 chassis, perform the following procedure.

1. Select the slot where you want to install the media converter.
2. Loosen the captive screw that secures the mounting rail in the MCR12 chassis, and remove the mounting rail by sliding it out, as shown in Figure 6.

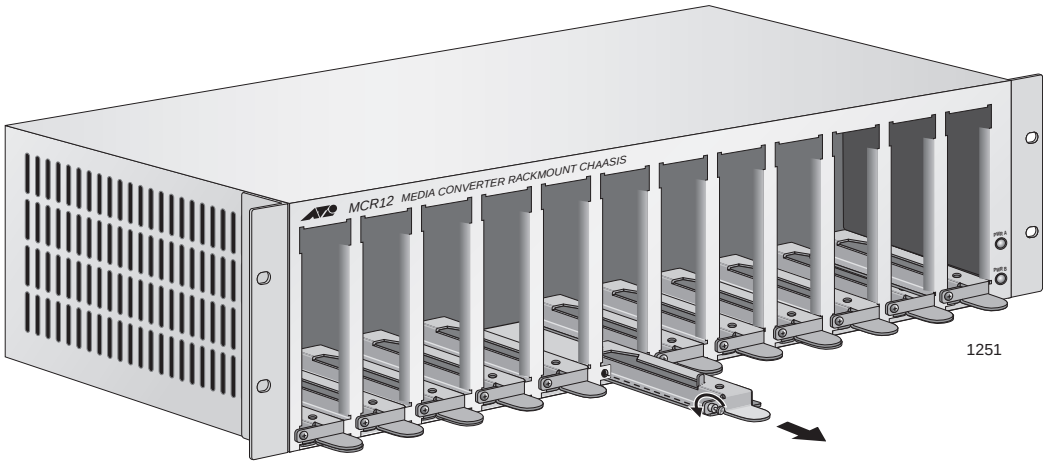


Figure 6. Removing the Mounting Rail

Note
Leave the mounting rails in the slots until you are ready to install a media converter.

3. Position the media converter so that its top is facing up, align the mounting rail with the left side of the media converter, and insert the tabs on the mounting rail into the front and rear air vents on the media converter as shown in Figure 7.

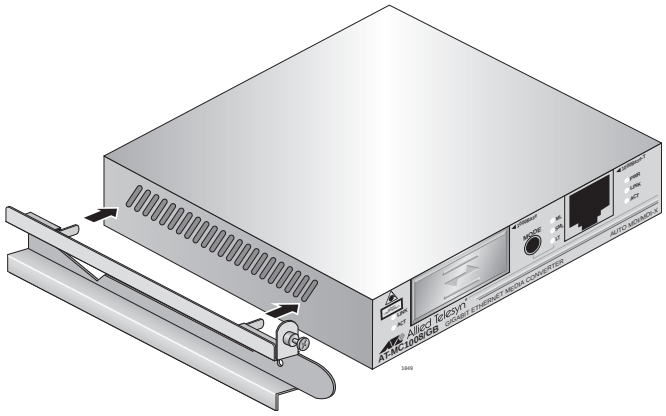


Figure 7. Aligning and Connecting the Mounting Rail to the Media Converter

4. While you hold the mounting rail onto the media converter, turn it over so that the mounting rail is on the bottom and slide the assembly into the chassis, as shown in Figure 8.

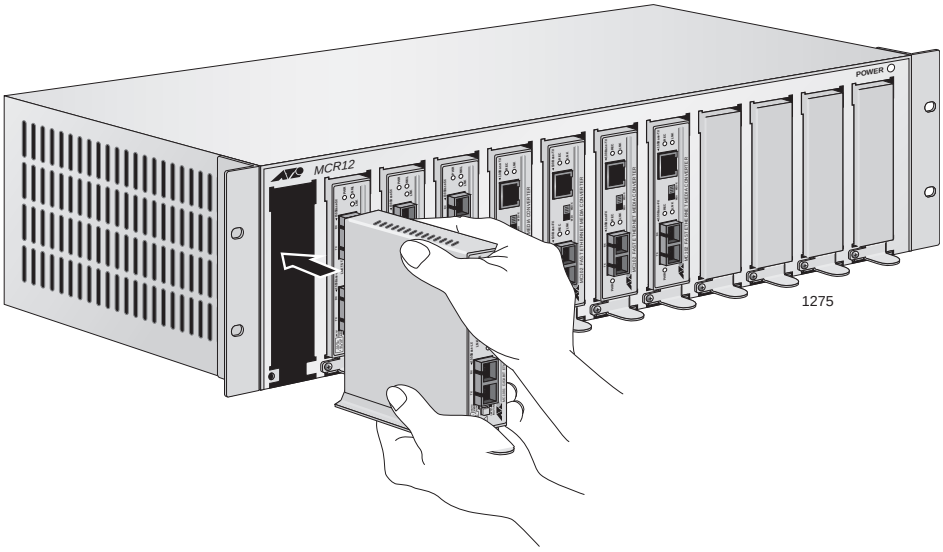


Figure 8. Installing the Media Converter with Mounting Rail in the Chassis

5. Gently press the media converter to seat the power connector into the backplane.

6. Secure the mounting rail to the chassis by tightening the captive screw, as shown in Figure 9.

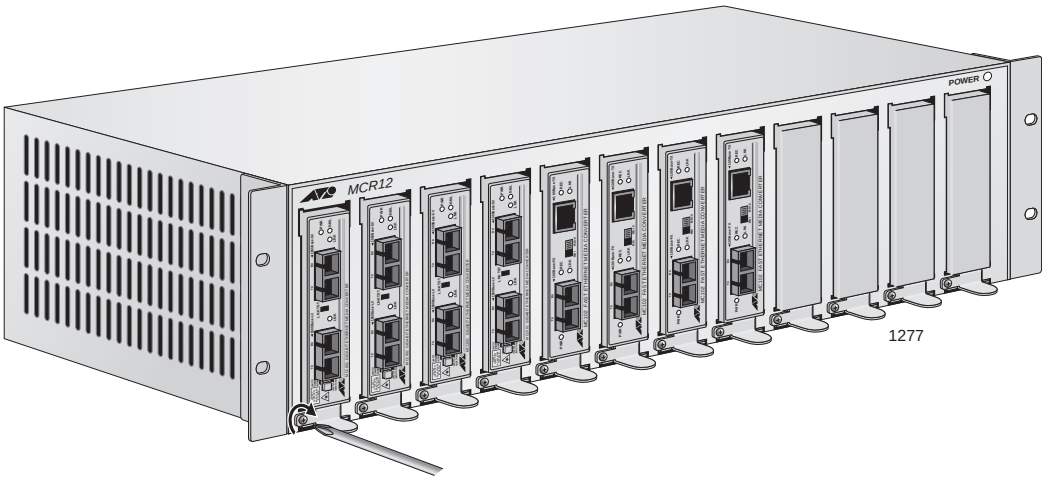


Figure 9. Securing the Mounting Rail

Installing a CV1000 Chassis in an MCR12 Rack-Mount Chassis

In order to install the CV1000 chassis in an MCR12 rack-mount chassis, a CVMCR Installation Adapter, as shown in Figure 10, is required.

Note
For detailed descriptions and installation procedures for the MCR12 rack-mount chassis, refer to the *MCR12 Media Conversion Rack-Mount Chassis Installation Guide* available on the Allied Telesis website, www.alliedtelesis.com.

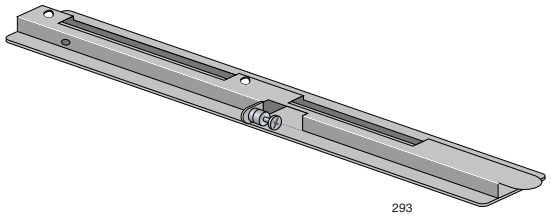


Figure 10. CVMCR Installation Adapter

Calculating the Power Requirements

Even if your MCR12 rack-mount chassis contains two PWR4 power supply modules (a primary and an auxiliary), the total available power for the modules in the chassis is limited to 80 Watts. This limitation determines how many media converters the MCR12 chassis can support before the primary power supply shuts down.

To avoid power problems, Allied Telesis strongly recommends that you calculate the total power required to supply your chosen media converters before you install them in the MCR12 chassis. Use the following approximate power consumption guidelines for your calculation:

- Use 6 Watts of power for any MC series media converter and the CV1000 with any of the Converteon line cards except the CM2K0S.
- Use 9 Watts of power for the CV1000 with a CM2K0S line card installed.

If the total power requirement exceeds the 80 Watt limit, then multiple MCR12 rack-mount chassis are required.

Installing the CV1000 Chassis

To install an CV1000 chassis in an MCR12 rack-mount chassis using the CVMCR Installation Adapter, perform the following procedure:

1. Choose the slot in the MCR12 chassis where you want to install the CV1000 chassis and loosen the captive screw to remove the mounting rail from that slot, as shown in Figure 11.

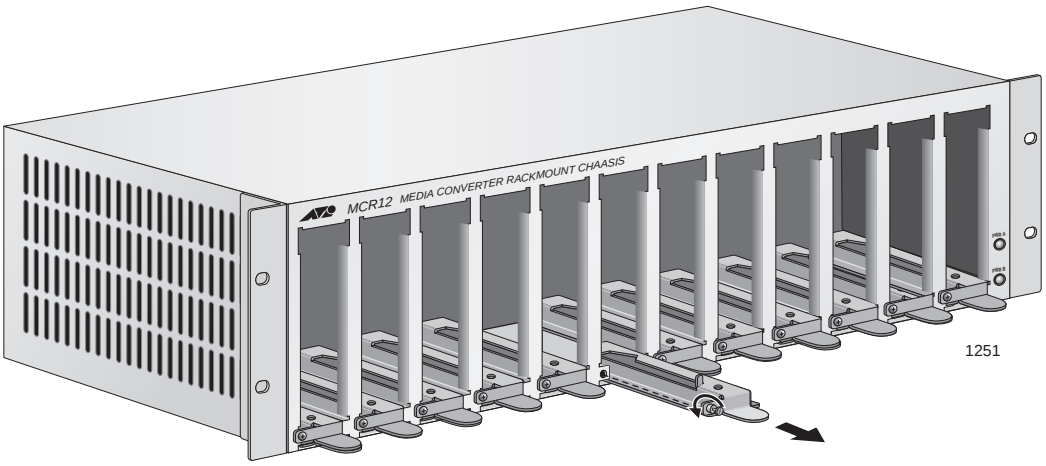


Figure 11. Removing the Mounting Rail from a Slot in the MCR12 Chassis

2. Turn the CV1000 chassis upside down.

3. Turn the CVMCR adapter over, align it with the base of the chassis, and attach it to the chassis with two screws (provided), as shown in Figure 12.

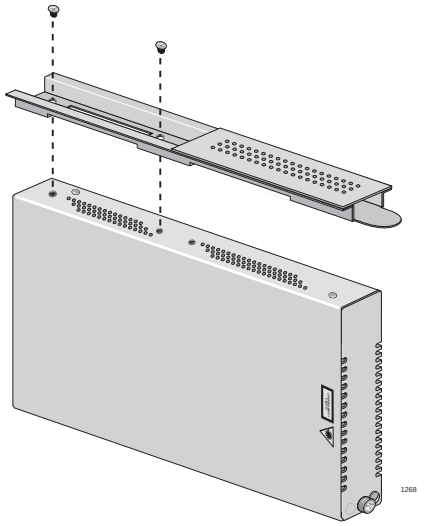


Figure 12. Installing the CVMCR Adapter on the CV1000 Chassis

4. Turn the chassis over, as shown Figure 13.

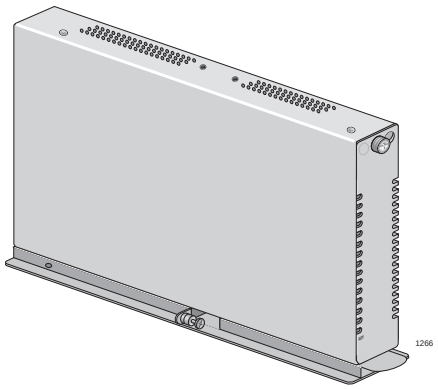


Figure 13. CV1000 Chassis with CVMCR Adapter Installed

5. Use the thumb tab on the adapter to slide the CV1000 chassis into the MCR12 chassis, as shown in Figure 14.

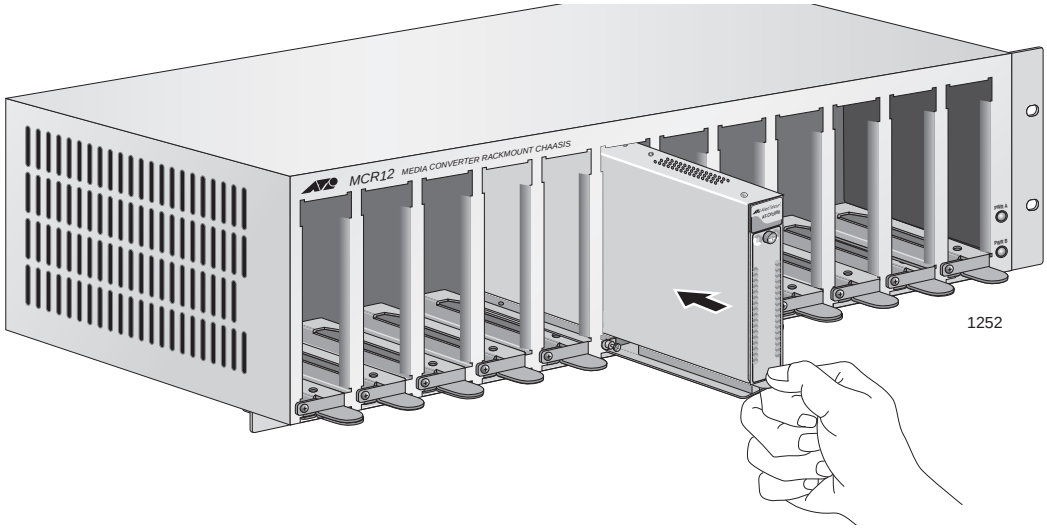


Figure 14. Sliding the CV1000 into the MCR12 Chassis Slot

6. Press gently on the CV1000 chassis to seat the chassis into the backplane.

7. Tighten the captive screw on the CVMCR adapter to secure the CV1000 in the chassis, as shown in Figure 15.

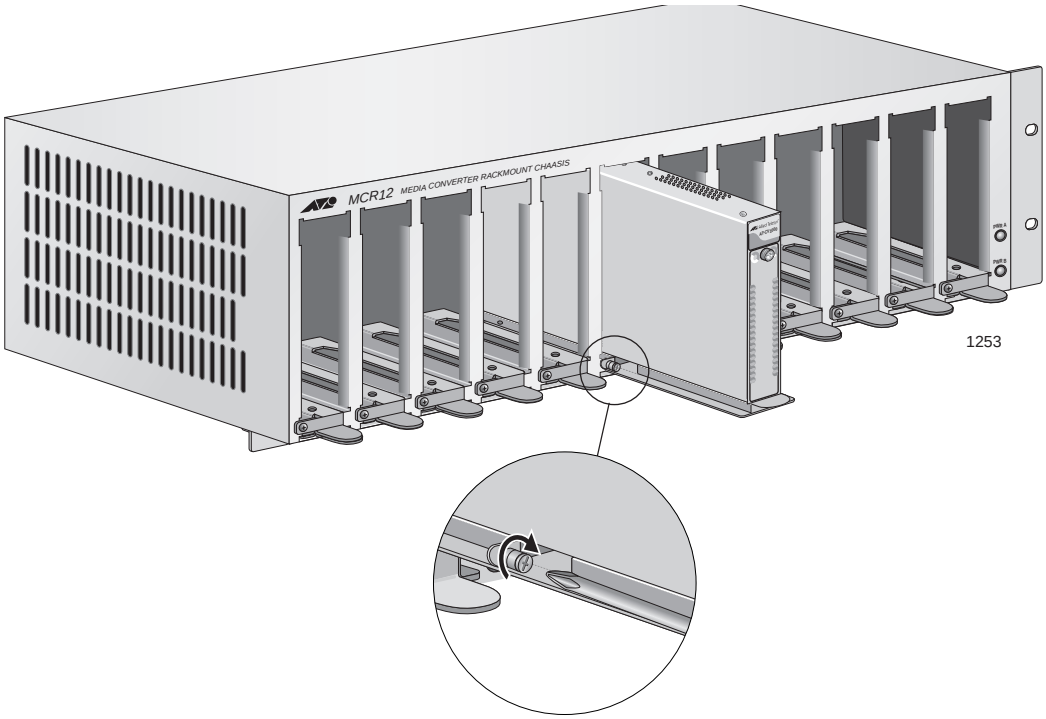


Figure 15. Tightening the Captive Screw on the CVMCR Adapter

Install a line card in the according to the instructions in the *CV1000 One-Slot Chassis Installation Guide*.

Powering on an AC-Powered Chassis

To power on the chassis, perform the following procedure:

1. Connect the power cord to the power supply.
2. Plug the other end of the power cord into a wall outlet.

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

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

3. Verify that the power on LED is illuminated and the power supply cooling fan is operating normally.

Wiring and Powering on a DC-Powered Chassis

To wire and power on a DC-powered chassis, perform the following procedure:

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

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

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

1. Identify the **negative**, **frame ground**, and **positive** terminals on the terminal block, as shown in Figure 16.

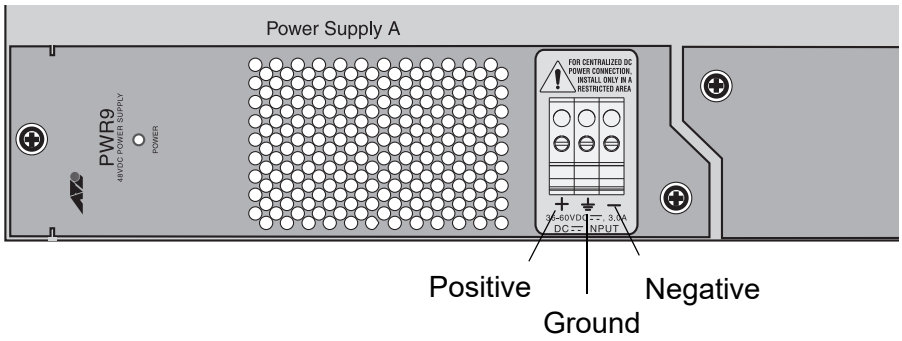


Figure 16. Locating the Terminals on the DC Terminal Block

2. Before you strip and attach the wires, review the following safety precautions:

Note
This system works with positive grounded or negative grounded DC systems. **E13**

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

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**

Warning
Circuit breaker is used as a disconnection device. To de-energize equipment, shut down the circuit breaker and then disconnect the input wire. **E38**

Warning
The source of the DC input shall be isolated from the AC power source by reinforced insulation. **E117**

3. With a 14-gauge wire-stripping tool, strip the three wires in the tray cable coming from the DC input power source to 8 millimeters ± 1 millimeters (0.31 inches ± 0.039 inches), as shown in Figure 17.

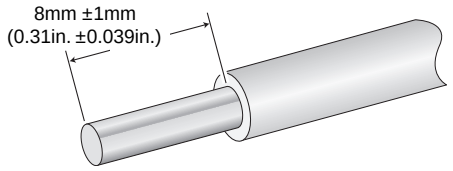


Figure 17. Stripped Wire

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**

4. Connect the frame ground wire to the terminal marked with the ground symbol by inserting the wire into the terminal block and tightening the connection with a flathead screwdriver, as shown in Figure 18.

Warning
When installing this equipment, always ensure that the frame ground connection is installed first and disconnected last. **E11**

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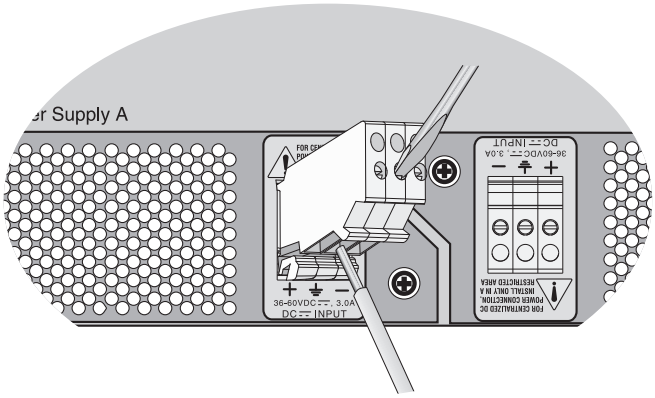

Figure 18. Connecting the Frame Ground Wire

5. Connect the positive feed wire to the terminal block marked **+** (**positive**).

6. Connect the negative feed wire to the terminal block marked **-** (**negative**).

Warning
Check to see if there are any exposed copper strands coming from the installed wire. 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**

7. Secure the tray cable near the rack framework using multiple cable ties (not provided) to minimize the chance of the connections being disturbed by casual contact with the wiring. Allied Telesis recommends that you use at least four cable ties 10 centimeters (4 inches) apart with the first one located within 15 centimeters (6 inches) of the terminal block.

8. Ensure that the circuit breaker is in the Off position.

9. Connect the DC wires to the circuit breaker.

10. Power on the circuit breaker.

11. Verify that the Power LED is green. If it is not, refer to Chapter 3, “Troubleshooting” on page 45.

Installing an Auxiliary Power Supply

To install an auxiliary power supply unit in the power supply slot in the back of the MCR12 chassis, refer to the documentation that is shipped with the power supply.

Warranty Registration

Allied Telesis hardware products are covered under limited warranties. Some products have a longer warranty coverage than others.

The MCR12 chassis has a limited warranty of Lifetime (24 months Fan & PSU).

All Allied Telesis warranties are subject to the terms and conditions set out on the Allied Telesis website at **www.alliedtelesis.com/warranty**.

Chapter 3

Troubleshooting

Follow the guidelines below to test and troubleshoot the installation of the MCR12 chassis in the event that a problem occurs.

Verify that the PWR A main power supply and PWR B optional power supply LEDs are green. If one of the LEDs is OFF, do the following:

- Check to be sure that the power supply is securely connected to the power outlet.
- Check to be sure that the power supply is securely seated in the chassis.
- For a DC unit, check to be sure that the wires are connected to the correct terminals.

If the MCR12 chassis is not operating correctly after testing and troubleshooting the installation, refer to “Contacting Allied Telesis” on page 14 or visit our web site at www.alliedtelesis.com for support information.

Appendix A

Technical Specifications

Physical Specifications

Dimensions:	W x H x D 483 mm x 132 mm x 226 mm (19.0 in x 5.18 in x 8.88 in)

Environmental Specifications

Operating Temperature:	0° C to 40° C (32° F to 104° F)
Storage Temperature:	-25° C to 70° C (-13° F to 158° F)
Operating Humidity:	5% to 90% non-condensing
Storage Humidity:	5% to 95% non-condensing
Operating Altitude:	Up to 3,048 meters (10,000 feet)

Power Specifications

PWR4 Power Supply:	100-120/200-240 VAC, 3.0/1.5 A, 50/60 Hz
MCR Power Rating:	100-120/200-240 VAC, 3.0/1.5 A, 50/60 Hz

Quality and Reliability

MTBF > 100,000 hrs.