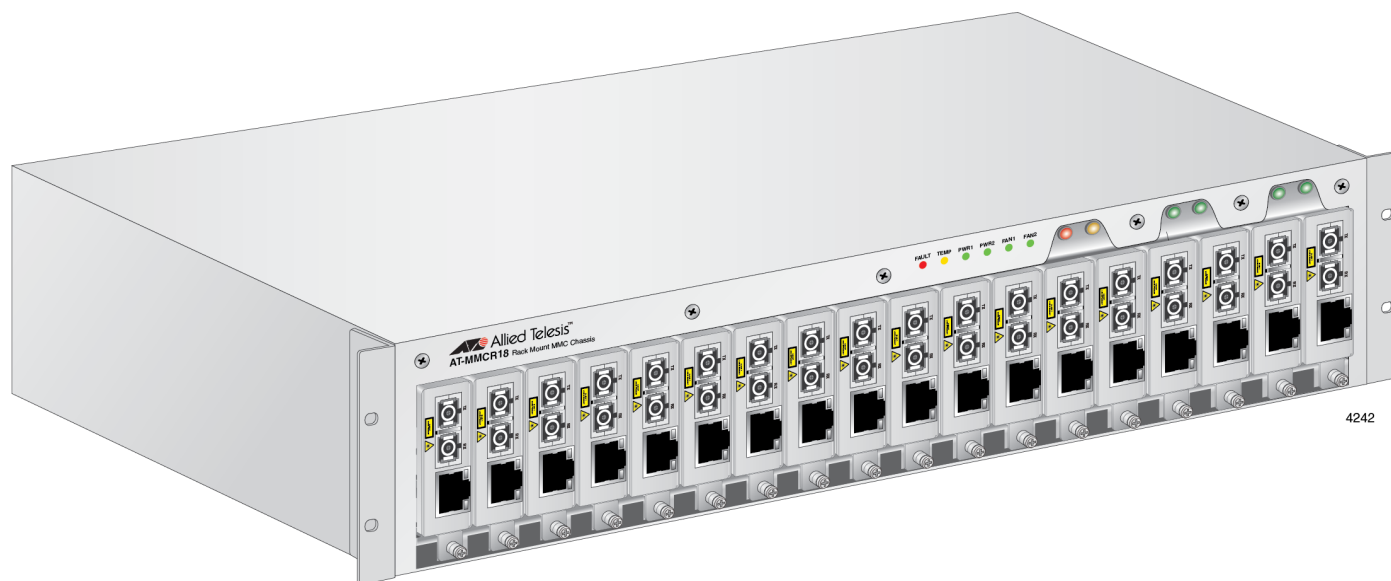


# AT-MMCR18

## Media Converter Rack-mount Chassis



# Installation Guide

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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

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### 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

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### 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, CISPR 22 Class A, C-TICK, VCCI



### Warning

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

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Immunity            EN55035, EN61000-3-2, EN61000-3-3

Electrical Safety    UL60950-1 (CULUS), EN60950-1 (TUV), RoHS

## Translated Safety Statements

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**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](http://alliedtelesis.com/services-and-support)***.

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# Preface

---

This guide contains instructions on how to install an AT-MMCR18 Media Converter Rack-mount Chassis.

This preface contains the following sections:

- ❑ “Safety Symbols Used in this Document” on page 10
- ❑ “Contacting Allied Telesis” on page 11

## Safety Symbols Used in this Document

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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

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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/services-and-support](http://www.alliedtelesis.com/services-and-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 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 Return Merchandise Authorization (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/how-to-buy](http://www.alliedtelesis.com/how-to-buy)** and select your region.



## Chapter 1

# Overview

---

This chapter provides information about the AT-MMCR18 Media Converter Rack-mount Chassis and contains the following sections:

- “Introduction” on page 14
- “LEDs” on page 17
- “Alarm Out Connector on the Fan Unit” on page 18

## Introduction

---

The AT-MMCR18 rack-mount chassis provides rack-mount or desktop installation for up to 18 AT-MMC series media converters. The chassis is available in both AC and DC power supply units to install.

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

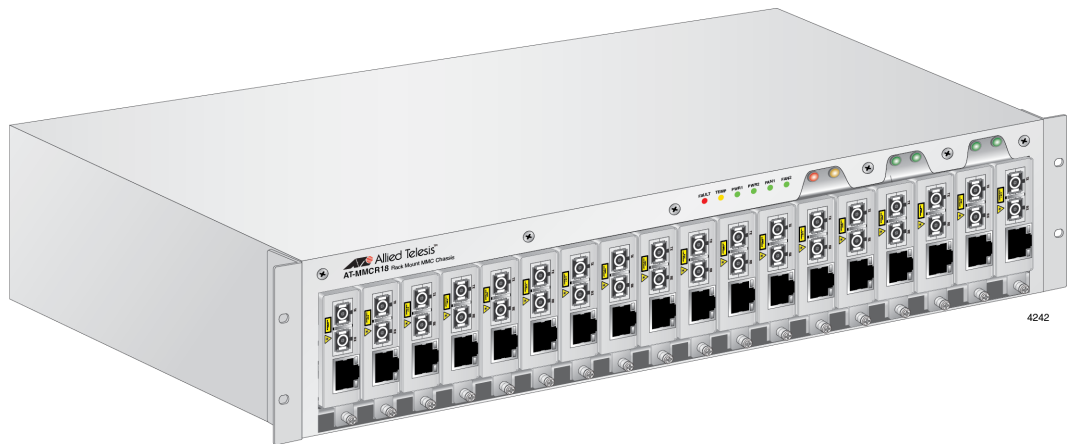


Figure 1. Full Populated AT-MMCR18 Chassis with Rack-mount Brackets Attached

### Front Panel

Figure 2 shows the front panel of the AT-MMCR18 chassis.



Figure 2. AT-MMCR18 Front Panel

The LEDs on the front provide information about the status of the system, chassis temperature, power supplies, and fan installed in the rear. For more information, see “LEDs” on page 17.

**Rear Panels** Figure 3 shows the back panels of the chassis with one AC or DC power supply unit installed. The chassis is not shipped with a power supply unit. You must install at least one AC or DC power supply unit.

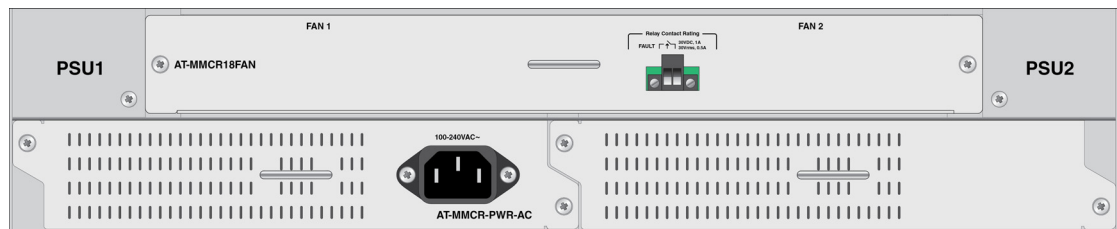
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**Note**

You must purchase the AT-MMCR-PWR-AC or AT-MMCR-PWR-DC power supply units separately.

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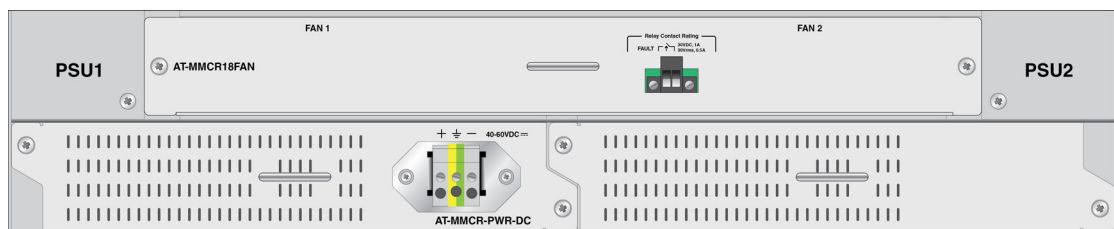
**AC Model**



Power Supply Slot A

Auxiliary Power Supply Slot B

**DC Model**



Power Supply Slot A

Auxiliary Power Supply Slot B

Figure 3. Back Panels

**Auxiliary Power Supply Slot**

You must purchase and install the AT-MMCR-PWR-A or AT-MMCR-PWR-DC power supply unit in the PSU1 slot to use the AT-MMCR18 chassis. The PSU2 slot is for an auxiliary power supply. You can purchase two power supply units and install one in the PSU1 slot and the other in the PSU2 slot.

---

**Note**

You can install two AC power supply units, two DC power supply units, or the combination of one AC and one DC power supply units in the same chassis.

---

If one power supply fails, the LED of the corresponding power supply unit on the front panel goes out and the entire power load is shifted to the other power supply unit. The power supplies are hot-swappable.

**Fan Unit** The AT-MMCR18 chassis is shipped with the AT-MMCR18FAN unit. This unit includes two fans: FAN1 and FAN2, as shown in Figure 4.



Figure 4. AT-MMCR18FAN Unit

The fan unit maintains operating temperatures by drawing cooling air into the chassis. The fan unit has an Alarm Out Connector, which can be connected to an external alert device. For more information, see “Alarm Out Connector on the Fan Unit” on page 18.



## LEDs

The AT-MMCR18 chassis have LEDs on the front panel as shown in Figure 5.

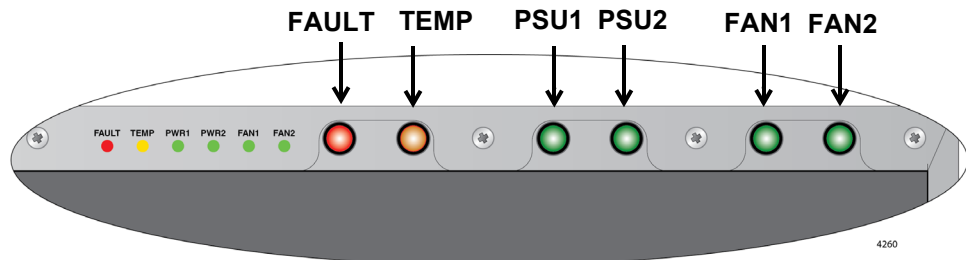


Figure 5. LEDs on the Front Panel

Table 1 describes the LEDs on the front of the AT-MMCR18 chassis.

Table 1. LEDs on the Front Panel

LED	Status	Description
FAULT (Red)	On	An error occurred on a power supply unit or fan unit.
	Off	The power supply and fans are operating normally.
TEMP (Yellow)	On	The temperature is outside the specified temperature range. (See “Environmental Specifications” on page 47.)
	Off	The temperature is in the normal operating range.
PSU1 (Green)	On	The power supply unit in PSU1 is providing power.
	Off	The power supply unit in PSU1 is <i>not</i> providing power.
PSU2 (Green)	On	The power supply unit in PSU2 is providing power.
	Off	The power supply unit in PSU2 is <i>not</i> providing power.
FAN1 (Green)	On	The FAN1 is operating normally.
	Off	An error occurred on the FAN1 unit.
FAN2 (Green)	On	The FAN2 is operating normally.
	Off	An error occurred on the FAN2 unit.

## Alarm Out Connector on the Fan Unit

The AT-MMCR18FAN unit is equipped with the 2-pin Alarm Out connector, which can be connected to an external alert device. You can use this external device to alert you a fan failure. Here are two examples of alert devices for the Alarm Out connector:

- Strobe light
- Buzzer

---

### Note

Alert devices are *not* available from Allied Telesis.

---

The Fan unit does not supply power on the Alarm Out circuit. Instead, the circuit is an on or off dry contact relay. When an alarm condition occurs, the Fan unit changes the circuit from close (on) to open (off). The circuit remains open until the alarm is resolved, at which point the Fan unit automatically closes it again. The processes to resolving alarms can vary.

The external alert device must provide the necessary power for the circuit and be able to monitor the circuit for when it is closed or open.

The minimum switching load of the contacts is 10mVDC, 10uA.

---

### Note

Perform confirmation testing with the actual load since reference values may vary according to switching frequencies, environmental conditions, and expected reliability levels.

---

For maximum contact ratings, see “Relay Contact Ratings (Alarm Out Connector on the Fan Unit)” on page 47.

Figure 6 shows an Alarm Out connector configuration example.

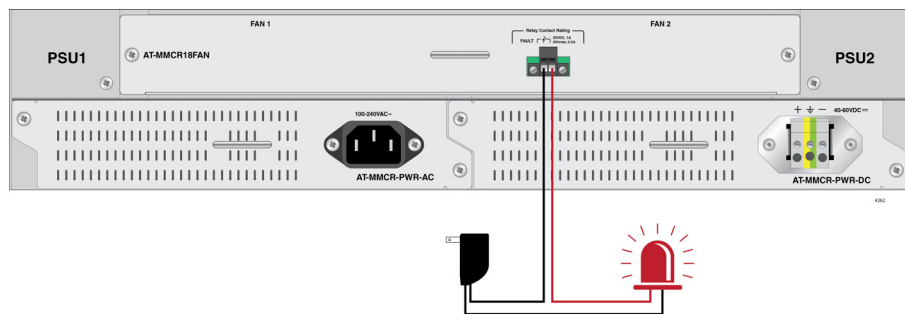


Figure 6. Example of Alarm Out Usage on the Fan Unit

The Alarm Out connector is connected to a strobe light. When the temperature of the Fan unit exceeds the maximum operating temperature and stops operating, it changes the circuit from closed to open. This change triggers the strobe light to turn on. When the temperature of the Fan unit goes down to the normal operating range and the Fan unit operates normally, it changes the circuit from open to closed. This change triggers the strobe light to turn off.



## Chapter 2

# Installation

---

This chapter provides the installation instructions for the AT-MMCR18 chassis and contains the following sections:

- “Setting up the Chassis” on page 22
- “Reviewing Safety Precautions” on page 23
- “Preparing the Site” on page 26
- “Unpacking the Package Contents” on page 27
- “Installing the Chassis on a Desktop” on page 30
- “Installing the Power Supply Unit into the Chassis” on page 31
- “Removing the Cover Plate from the Chassis” on page 33
- “Installing the Chassis in a 19-inch Equipment Rack” on page 34
- “Installing a Media Converter in the Chassis” on page 36
- “Installing a Blank Panel” on page 38
- “Powering on an AC-Powered Chassis” on page 39
- “Wiring and Powering on a DC-Powered Chassis” on page 40

## Setting up the Chassis

---

The AT-MMCR18 chassis can be used on a desktop or mounted on a 19-inch equipment rack.

To set up the chassis to install media converters, do the following steps:

1. “Reviewing Safety Precautions” on page 23
2. “Preparing the Site” on page 26
3. “Unpacking the Package Contents” on page 27
4. “Installing the Chassis on a Desktop” on page 30
5. “Installing the Power Supply Unit into the Chassis” on page 31
6. “Removing the Cover Plate from the Chassis” on page 33
7. Do one of the following steps:
  - To set up the chassis on a desktop, continue to Step 8.
  - To set up the chassis on an equipment rack, go to “Installing the Chassis in a 19-inch Equipment Rack” on page 34.
8. “Installing a Media Converter in the Chassis” on page 36
9. Do one of the following steps for connecting the power supply:
  - For the AC power supply, “Powering on an AC-Powered Chassis” on page 39.
  - For the DC power supply, “Wiring and Powering on a DC-Powered Chassis” on page 40.


## Reviewing Safety Precautions

---

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

---

### Note


The  indicates that a translation of the safety statement is available in a PDF document titled “Translated Safety Statements” on the Allied Telesis website at [www.alliedtelesis.com](http://www.alliedtelesis.com) and on the documentation CD shipped with this product

---



---

### Warning


Do not work on equipment or cables during periods of lighting 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**

---



---

### Warning

Operating Temperature. This product is designed for a maximum ambient temperature of 50 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**

High Leakage Current exists in this chassis. Connect external ground wire before connecting AC power supply(s). ⚡ **E46**

---

## Preparing the Site

---

The AT-MMCR18 chassis can be installed on a table top or in an equipment rack.

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

- ❑ If you plan to install the chassis in an equipment rack, the rack should be safely secured so that the rack does not tip over. Devices in a rack should be installed starting at the bottom, with the heavier devices near the bottom of the rack.
- ❑ If you plan to install the chassis on a table, the table should be level and stable.
- ❑ 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.
- ❑ 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 chassis.

## Unpacking the Package Contents

You must have one AT-MMCR18 chassis package with at least one AC or DC power supply unit. You can have up to two power supply units.

### Chassis Package

To unpack the AT-MMCR18 chassis package and power supply unit package, perform the following procedure:

1. Remove all components from the chassis package.

---

#### Note

Store the packaging material in a safe location. You must use the original shipping material if you need to return the unit to Allied Telesis.

---

2. Place the AT-MMCR18 chassis on a level, secure surface.
3. Verify that the hardware components are included in your chassis package. See Table 2.

Table 2. Chassis Shipment Components

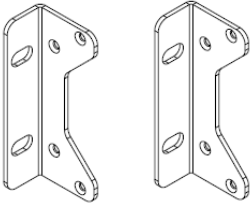

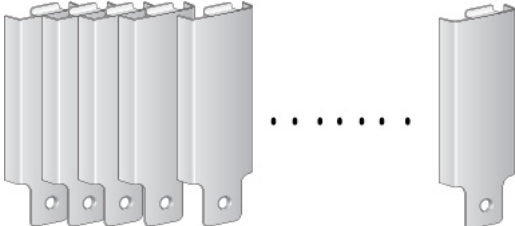

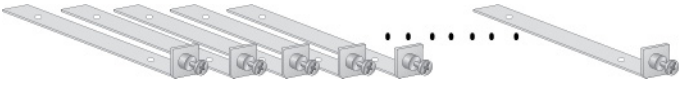

Component Name	Component
2 Rack-mount brackets	
8 Screws for the rack-mount brackets	 <p>M3x8mm Phillips recessed flat-head</p>
18 Blank panels	

Table 2. Chassis Shipment Components

Component Name	Component
18 Screws for the blank panels	 <p>M3x4mm Phillips recessed flat-head at 120° included angle</p>
18 Sliding carriers	
36 Screws for the sliding carriers	 <p>M3x4mm Phillips recessed flat-head at 120° included angle</p>

**Note**

If you need replacement screws for the blank panels and sliding carriers, contact Allied Telesis. See “Contacting Allied Telesis” on page 11.

**Power Supply Package**

In addition to the chassis, you must have at least one power supply unit.

1. Remove all components from the power supply package.

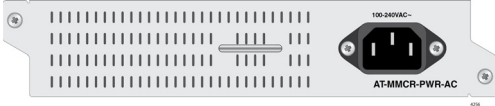
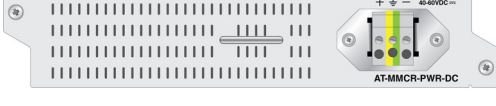

**Note**

Store the packaging material in a safe location. You must use the original shipping material if you need to return the unit to Allied Telesis.

2. Verify that the following components are included in your power supply package. See Table 3 on page 29.

You must have either the AC power supply package or DC power supply package.

Table 3. Power Supply Shipment Components

Component	AC unit	DC unit
Power supply unit	 <p>The image shows an AT-MMCR-PWR-AC power supply unit. It is a long, thin, silver-colored metal chassis with a series of ventilation slots along its length. On the right side, there is a black AC power inlet labeled '100-240VAC~' and 'AT-MMCR-PWR-AC'. A small '40A' label is visible on the bottom right corner.</p>	 <p>The image shows an AT-MMCR-PWR-DC power supply unit. It is a long, thin, silver-colored metal chassis with ventilation slots. On the right side, there is a DC power input section with a red '+' terminal and a black '-' terminal, labeled '+ - 40-60VDC'. Below this, there are two yellow terminals. The unit is labeled 'AT-MMCR-PWR-DC' and has a small '40A' label on the bottom right corner.</p>
Power cord	 <p>The image shows a power cord with a standard three-prong AC plug on one end and a custom connector on the other. The cord is black and coiled. A small '1570' label is visible at the bottom right of the cord.</p>	Not Available

- If you order two power supply units, repeat Step 1 and Step 2 on the other unit.

## Installing the Chassis on a Desktop

---

To install the AT-MMCR18 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**

Store the packaging material in a safe location. You must use the original shipping material if you need to return the unit to Allied Telesis.

---

2. Place the chassis on a level, secure surface.
3. Do not apply power at this time. Go to “Installing the Power Supply Unit into the Chassis” on page 31.

## Installing the Power Supply Unit into the Chassis

To install the power supply unit into the chassis, perform the following procedure:

### Note

You must provide a Phillips-head screwdriver.

1. Face the back panel of the chassis as shown in “Back Panel” on page 31

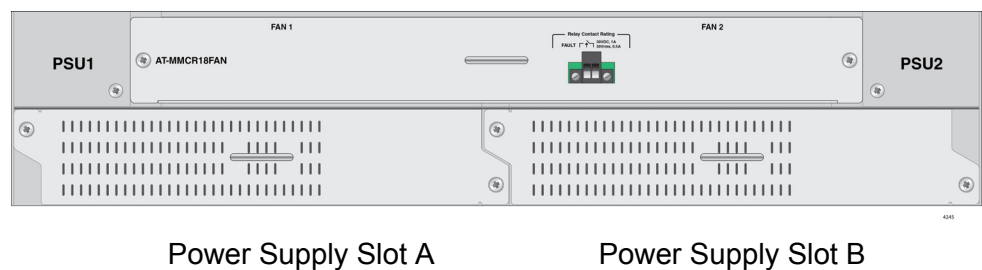


Figure 7. Back Panel

2. Untighten the screws on the blank panel in Slot A using a Phillips-head screw driver and remove the blank panel.
3. Insert the power supply unit into the power supply slot A. See Figure 8 for the AC power supply unit and Figure 9 on page 31 for the DC power supply unit.

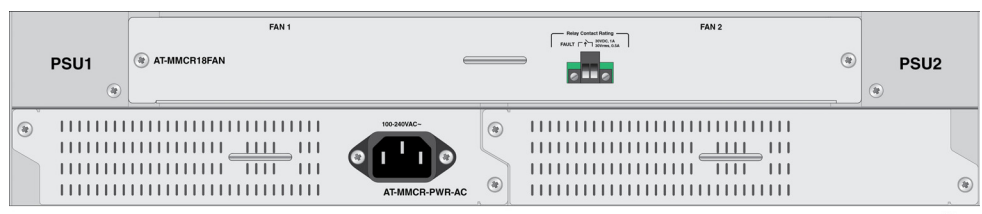


Figure 8. Inserting the AC Power Supply Unit into Slot A

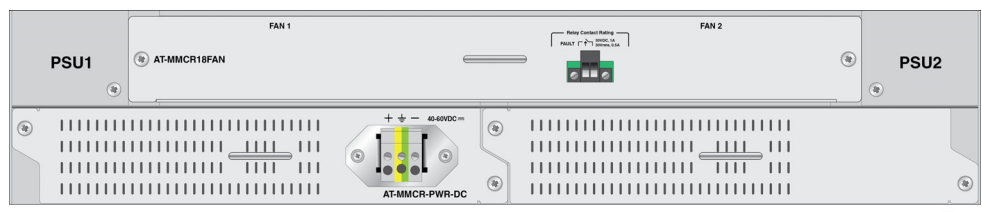


Figure 9. Inserting the DC Power Supply Unit into Slot A

4. Tighten the screws on the power supply unit.
5. If you install another power supply unit, remove the blank panel from Slot B and insert the second power supply unit into Slot B. See Figure 10.

---

**Note**

You can install two AC power supply units, two DC power supply units, or the combination of one AC and one DC power supply units.

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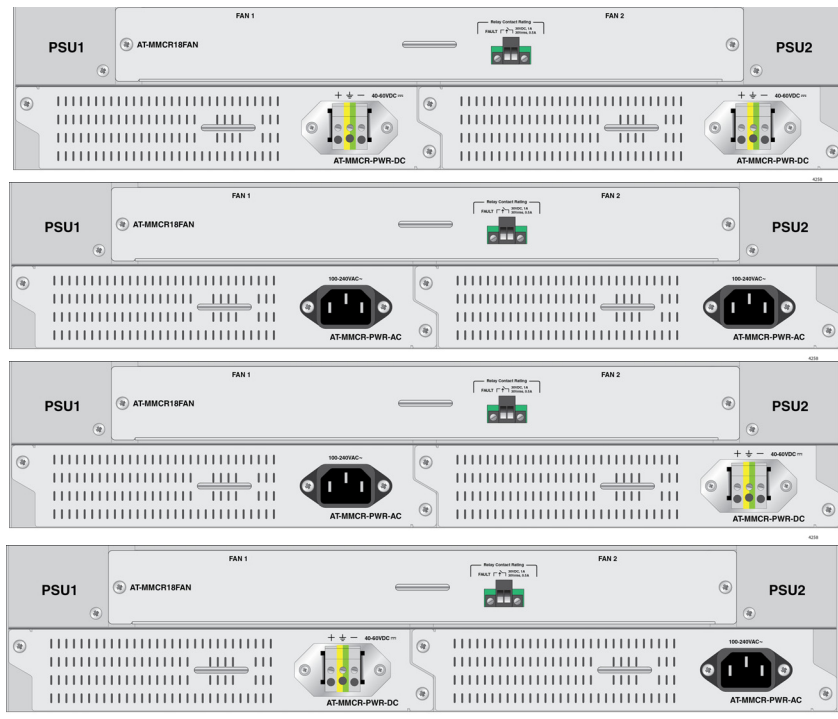


Figure 10. Combinations of Two Power Supply Units

6. Tighten the screws on the power supply unit.
7. Go to “Removing the Cover Plate from the Chassis” on page 33.



## Removing the Cover Plate from the Chassis

The chassis is shipped with the cover plate installed. Before installing media converters into the slots, remove the cover plate from the chassis.

To remove the cover plate, perform the following procedure:

---

**Note**

You must provide a Phillips-head screwdriver.

---

1. Face the front panel of the chassis as shown in Figure 11.



Figure 11. Front Panel with the Cover Panel

2. Untighten the four screws at the lower side of the cover panel using a Phillips-head screw driver and remove the cover panel. See Figure 12.



Figure 12. Removing the Cover Panel

## Installing the Chassis in a 19-inch Equipment Rack

---

To install the AT-MMCR18 chassis in a 19-inch equipment rack, perform the following procedures:

### What to Prepare

In addition to the components from the shipping packages, you must provide the following items:

- Eight screws to attach the brackets to the chassis (provided)
- Four screws to attach the brackets to the equipment rack (not provided)
- One Phillips-head screwdriver (not provided)

### Installing the Chassis in an Equipment Rack

To install the chassis in an equipment rack, do the following procedures:

1. Place the chassis on a level, secure surface.
2. Attach one rack-mount bracket to each side of the chassis with four screws on each side, as shown in Figure 13.

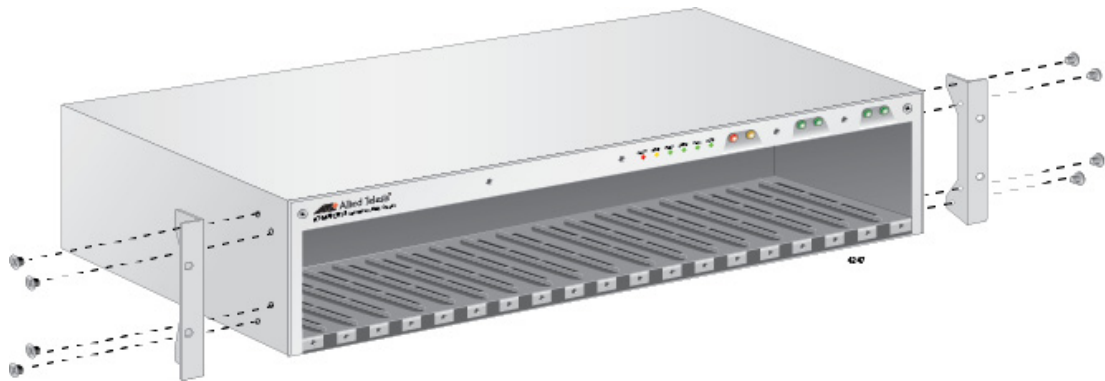


Figure 13. Attaching the Rack-Mount Brackets



### Warning

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

---

3. Mount the chassis on the rack with two screws on each side, as illustrated in Figure 14 on page 35.

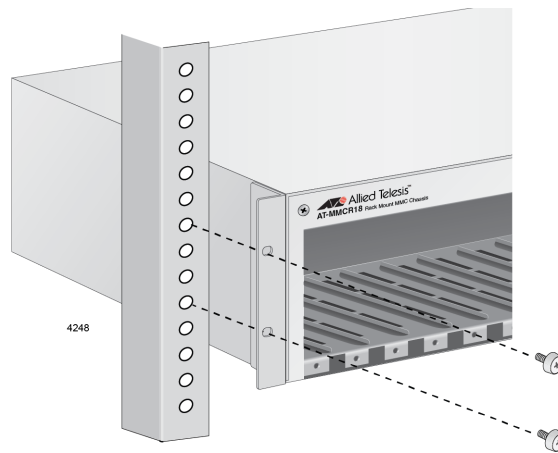


Figure 14. Installing the Chassis in a Rack

4. Go to "Installing a Media Converter in the Chassis" on page 36.

## Installing a Media Converter in the Chassis

---

To install a media converter in the AT-MMCR18 chassis, perform the following procedure.

---

**Note**

You must provide a Phillip-head screwdriver.

---

1. Align the sliding carrier on the media converter as shown in Figure 15.

---

**Note**

Ensure that the orientation is correct when attaching the sliding carrier to the media converter.

---

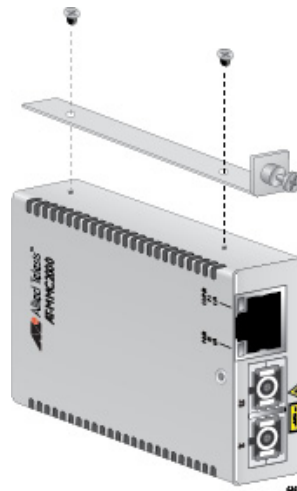


Figure 15. Attaching the Sliding Carrier on a Media Converter

2. Tighten two screws to attach the sliding carrier and media converter.
3. Turn over the media converter as shown in Figure 16.

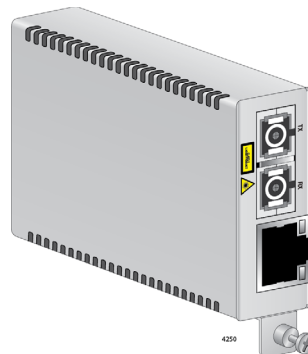


Figure 16. Media Converter on the Sliding Carrier

- Slide the media converter assembly into the chassis as shown in Figure 17.

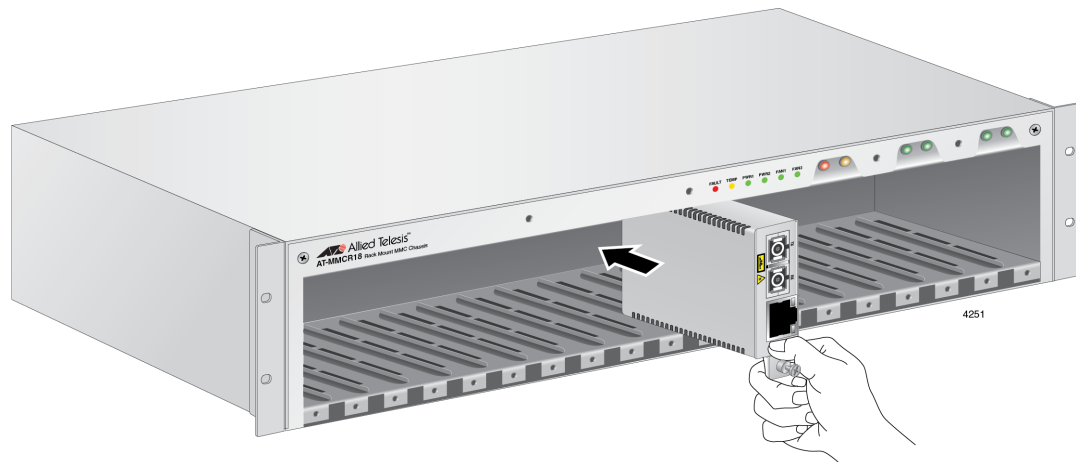


Figure 17. Installing the Media Converter in the Chassis

- Gently press the media converter to seat the power connector into the backplane.
- Tighten the captive screw on the sliding carrier to secure the media converter assembly in the chassis as shown in Figure 18 on page 37.



Figure 18. Tightening the Captive Screw on the Sliding Carrier

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**Note**

If you have more media converters to install, repeat this procedure.

---

## Installing a Blank Panel

---

You can install up to 18 media converters in the AT-MMCR18 chassis; however, you might not need all the slots. In the case, you can cover the slots not in use by installing blank panels.

---

**Note**

Allied Telesis recommends covering empty slots with blank panels.

---

To install a blank panel in the AT-MMCR18 chassis, perform the following procedure.

---

**Note**

You must provide a Phillips-head screwdriver.

---

1. Prepare the number of blank panels that you need.
2. Hook the top of the blank panel into the top of the empty slot and cover the slot with the panel. See Figure 19.



Figure 19. Installing the Blank Panel to Cover an Empty Slot

3. Tighten the captive screw on the blank panel to secure it in the chassis.

---

**Note**

If you have more empty slot to install blank panels, repeat Step 2 to Step 3.

---

## Powering on an AC-Powered Chassis

---

To power on the chassis, perform the following procedure:



---

**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**

---

1. Connect the power cord to the power supply.
2. Plug the other end of the power cord into a wall outlet.
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 **positive**, **ground**, and **negative** terminals on the DC power supply terminal block, as shown in Figure 20.

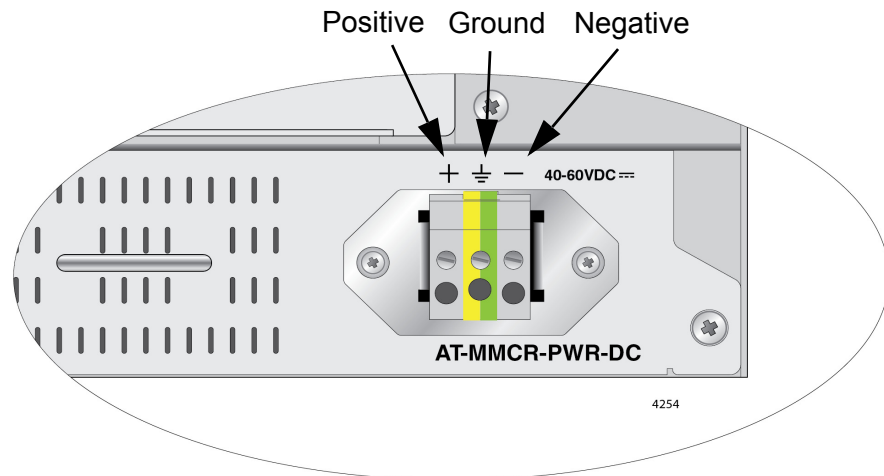


Figure 20. Locating the Terminals on the DC Terminal Block

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**

DC input shall be from a secondary source isolated from the mains by reinforced insulation.

- 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  $\pm$  1 millimeter (0.31 inches  $\pm$  0.039 inches), as shown in Figure 21.

**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**

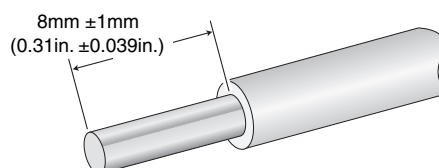


Figure 21. Stripped Wire

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 22.



**Warning**

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

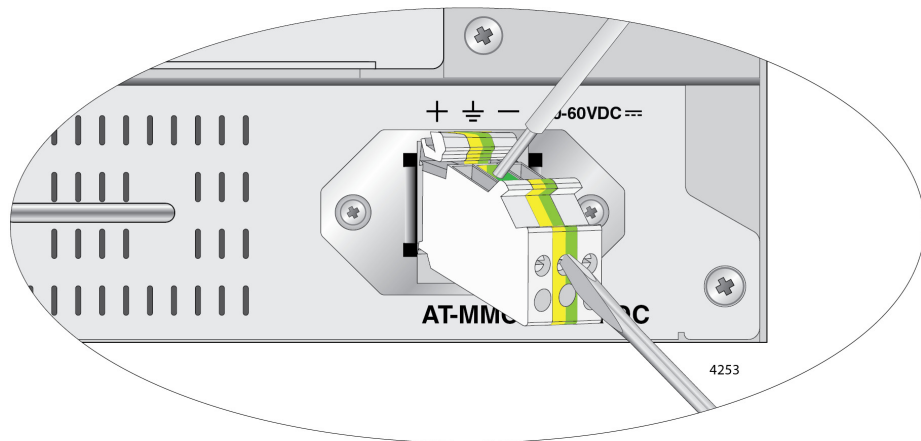


Figure 22. Connecting the Frame Ground Wire

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.



## Chapter 3

# Troubleshooting

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Follow the guidelines below to test and troubleshoot the installation of the AT-MMCR18 chassis in the event that a problem occurs.

Verify that the PSU1 main power supply and PSU2 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 AT-MMCR18 chassis is not operating correctly after testing and troubleshooting the installation, see “Contacting Allied Telesis” on page 11 or visit our web site at [www.alliedtelesis.com](http://www.alliedtelesis.com) for support information.



## Appendix A

# Technical Specifications

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## Physical Specifications

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Dimensions:	W x H x D 439 mm x 86mm x 239 mm (17.3 in x 3.4 in x 9.4 in)
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## Environmental Specifications

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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 90% non-condensing
Storage Humidity:	5% to 95% non-condensing
Operating Altitude:	Up to 3,048 meters (10,000 feet)

## Electrical Ratings

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AC Power	
Power Rating:	100-240 VAC, 50/60 Hz, 2.0A
DC Power	
Input Current:	40-60 VDC (1.5A)

## Relay Contact Ratings (Alarm Out Connector on the Fan Unit)

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AC Rating:	30Vrms, 0.5A
DC Rating:	30VDC, 1A

