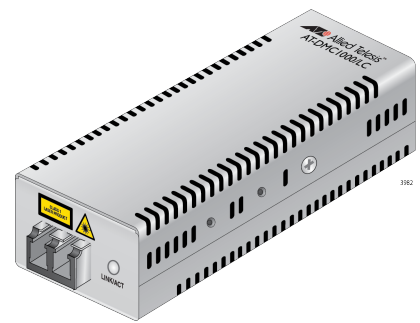


DMC1000/100 Series

Mini Media Converters

- AT-DMC1000/SC
- AT-DMC1000/ST
- AT-DMC1000/LC
- AT-DMC100/SC
- AT-DMC100/ST
- AT-DMC100/LC



Installation Guide

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Electrical Safety and Emissions Standards

This section contains the following:

- “US Federal Communications Commission”
- “Safety Standards and Electromagnetic Compatibility”
- “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.

Safety Standards and Electromagnetic Compatibility

Safety	UL60950-1, cUL CAS C22.2 No.60950-1, CE, TUV, EN60950-1
Electromagnetic Compatibility (EMC)	FCC Class A, EN55024, EN55032 Class A, VCCI Class A, ICES-003 (NMB-003)




Warning

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

Environmental Compliance

RoHS compliant

Translated Safety Statements

Important: 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/support.

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Preface

This preface contains the following sections:

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

This guide contains the installation instructions for the following DMC1000/100 Series Mini Media Converters:

- AT-DMC1000/SC
- AT-DMC1000/ST
- AT-DMC1000/LC
- AT-DMC100/SC
- AT-DMC100/ST
- AT-DMC100/LC

Symbol 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 and 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 Services & Support section of the Allied Telesis web site at **www.alliedtelesis.com/support**. You can find links for the following services on this page:

- Helpdesk (Support Portal) - Log onto Allied Telesis interactive support center to search for answers to your questions in our knowledge database, check support tickets, learn about Return Merchandise Authorizations (RMAs), and contact Allied Telesis technical experts.
- Product Documents - View the most recent installation guides, user guides, software release notes, white papers and data sheets for your product.
- Warranty - View a list of products to see if Allied Telesis warranty applies to the product you purchased and register your warranty.
- Allied Telesis Helpdesk - Contact a support representative.

To contact a sales representative or find Allied Telesis office locations, go to **www.alliedtelesis.com/contact**.

Chapter 1

Overview

This chapter contains the following sections:

- “Introduction” on page 16
- “Features” on page 19
- “LEDs” on page 21
- “V1 and V2 Series Media Converters” on page 24
- “V1 Series Media Converters” on page 26
- “V2 Series Media Converters” on page 27
- “Smart MissingLink™ (SML)” on page 28
- “Missing Link (ML)” on page 31
- “Reset the Media Converter” on page 33

Introduction

The DMC1000/100 Series Mini Media Converters are designed to extend the distance of your network by interconnecting LAN devices that are physically separated by large distances.

The DMC1000/100 Series media converters include the following models:

- ❑ AT-DMC1000/SC
- ❑ AT-DMC1000/ST
- ❑ AT-DMC1000/LC
- ❑ AT-DMC100/SC
- ❑ AT-DMC100/ST
- ❑ AT-DMC100/LC

Front Panels

Figure 1 illustrates the front panel of the AT-DMC1000/SC and AT-DMC100/SC Media Converters.

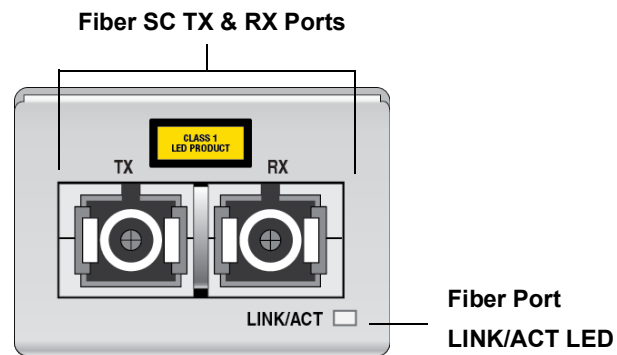


Figure 1. AT-DMC1000/SC and AT-DMC100/SC Front Panel

Figure 2 illustrates the front panel of the AT-DMC1000/ST and AT-DMC100/ST Media Converters.

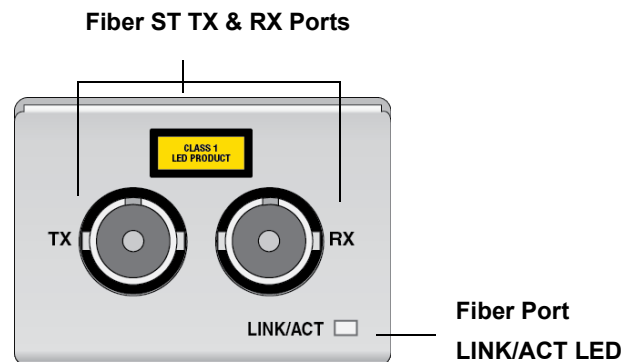


Figure 2. AT-DMC1000/ST and AT-DMC100/ST Front Panel

Figure 3 illustrates the front panel of the AT-DMC1000/LC and AT-DMC100/LC Media Converters.

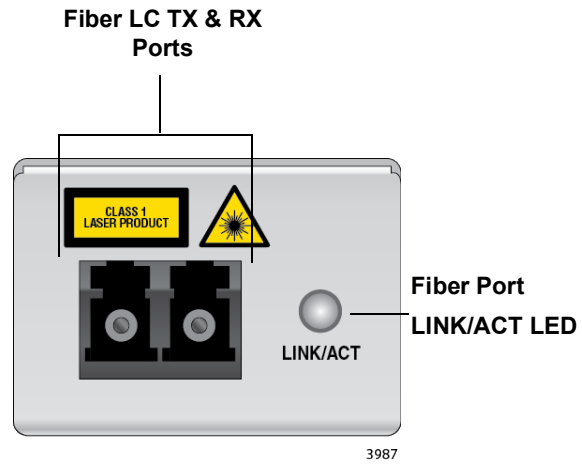


Figure 3. AT-DMC1000/LC and AT-DMC100/LC Front Panel

Back Panel Figure 4 illustrates the media converter back panel.

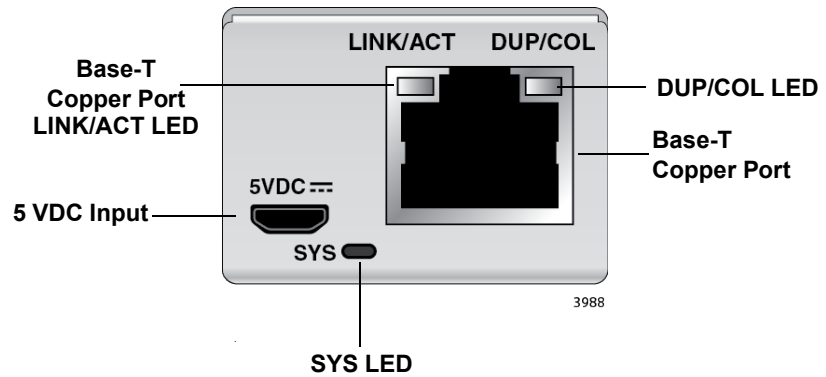


Figure 4. Media Converter Back Panel

Bottom Panels

Figure 5 illustrates the bottom panel of the DMC1000/100 V1 series media converter. The DIP switch is for the SML mode ON or OFF.

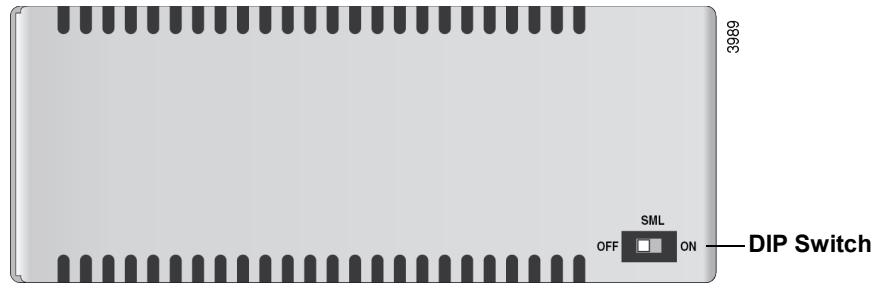


Figure 5. Bottom Panel of the DMC1000/100 V1 Series

Figure 6 illustrates the bottom panel of the DMC1000/100 V2 series media converter. The DIP switch is for the ML and SML modes.



Figure 6. Bottom Panel of the DMC1000/100 V2 Series

Features

Here are the features of the DMC1000/100 Series Mini Media Converters:

- ❑ Provide a smaller-sized space-saving alternative that allows enterprises to connect 1000Mbps fiber networks to 1000Mbps copper networks or connect 100Mbps fiber networks to 100Mbps copper networks, offering a cost-effective method for integrating fiber-optic cabling into a 10/100/1000 or 10/100 UTP environment. See Table 1 for the specifications of each model.

Table 1. Specifications on Each Model

Model	Fiber-optic Port		Copper Port
	Connector	L1 Standard	
AT-DMC1000/SC	SC	1000Base-SX	1000Base-T
AT-DMC1000/ST	ST		
AT-DMC1000/LC	LC		
AT-DMC100/SC	SC	100Base-FX	100Base-TX
AT-DMC100/ST	ST		
AT-DMC100/LC	LC		

- ❑ The AT-DMC1000/SC, AT-DMC1000/ST, and AT-DMC1000/LC models operate at 1000Mbps full duplex.
- ❑ The AT-DMC100/SC, AT-DMC100/ST, and AT-DMC100/LC models operate at 100 Mbps full duplex.
- ❑ Can be installed on a desktop or wall-mounted

Note

Wall-mounting equipment is ordered separately as a five-pack package: five mounting brackets for five media converters.

- ❑ Smart MissingLink™ (SML) to set with the DIP switch
- ❑ Missing Link (ML) to set with the DIP switch for the V2 series media converters.
- ❑ Powered via a Micro-B USB 5VDC connector, from a PC USB port, or with the optional AC/DC power adapter
- ❑ Support for Jumbo frames up to 16kB
- ❑ LEDs for unit and port status

Twisted-Pair Port

Here are the basic features of the twisted-pair port:

- ❑ 1000Base-T compliant for AT-DMC1000/SC, AT-DMC1000/ST, and AT-DMC1000/LC
- ❑ 100Base-TX compliant for AT-DMC100/SC, AT-DMC100/ST, and AT-DMC100/LC
- ❑ IEEE 802.3u Auto-Negotiation compliant
- ❑ Auto MDI/MDI-X
- ❑ 100 meters (328 feet) maximum operating distance
- ❑ RJ45 connector

Note

For the port pinouts, see “RJ45 Connector and Port Pinouts” on page 59. For cabling specifications, refer to “Planning the Installation” on page 39.

Auto MDI/MDI-X

An RJ45 twisted-pair port on a 100 Mbps Ethernet network device can have one of two possible wiring configurations: MDI or MDI-X. The RJ45 port on a PC, router, or bridge is typically wired as MDI, while the twisted-pair port on a switch or hub is usually MDI-X.

The media converter features Auto MDI/MDI-X. The twisted-pair port automatically determines the configuration of the port on the device to which it is connected and then configures itself appropriately.

For example, if a port on a media converter is connected to a port on a bridge, which is typically wired as MDI, the port on the media converter automatically configures itself as MDI-X.

This feature allows you to use a straight-through cable when connecting any type of device to the media converter, regardless of the wiring configuration of the port on the device.

Fiber-Optic Port

For maximum operating distance for the fiber-optic port, see “Fiber-Optic Port Specifications” on page 61.

Power Source

The media converter is powered via a Micro-B USB connector and provided Micro-USB to Type-A USB cable. The power source can be a PC USB port or the optional external AC/DC power adapter.

Depending on the customer order, the AC/DC power adapter is included with the media converter for standalone operation. The power adapter supplies 5 VDC to the media converter. Allied Telesis supplies a UL approved safety-compliant AC power adapter for the 120 and 240 VAC versions with a regulated output of 5 VDC. The power required for the media converter is 5 VDC, 0.5 A.

LEDs

Figure 7 shows the SYS and copper port LEDs.

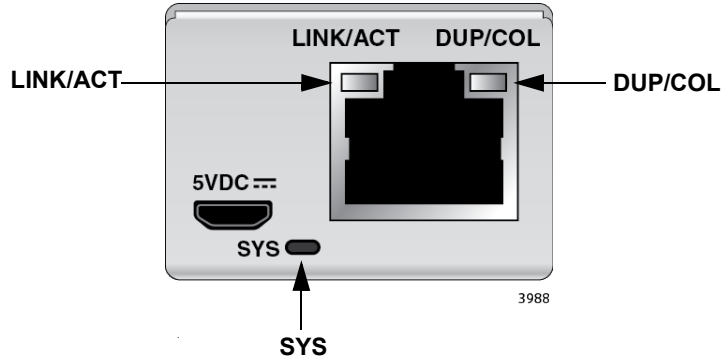


Figure 7. SYS and Copper Port LEDs

Figure 8 shows the fiber port LED.

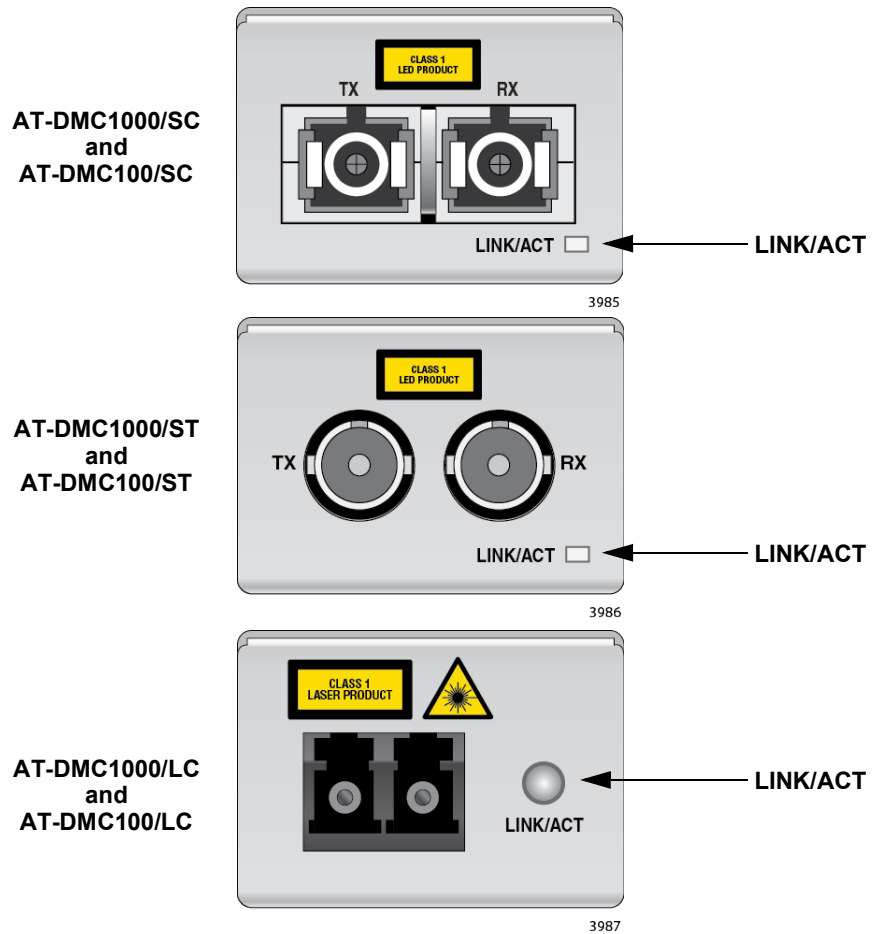


Figure 8. Fiber Port LED

Table 2 describes the media converter’s LEDs.

Table 2. Media Converter LED Functional Descriptions

LED	State	Description
SYS	Off	The media converter is not receiving power or is not operational.
	Solid Green (with Heartbeat)	The media converter is operational. Note The SYS LED flickers briefly at a regular interval. This “heartbeat” indicates that the internal system is running normally.
	Slow Blinking Green	An error is present on the media converter.
Copper Port LINK/ACT (ACT = Activity)	Off	The port has not established a link.
	Steady Green	The port has an established link to a network device, but it is not transmitting or receiving network packets.
	Rapid Blinking Green	The port is transmitting or receiving network packets.
	Slow Blinking Green	The media converter has entered the ML or SML mode. See “Smart MissingLink™ (SML)” on page 28 or “Missing Link (ML)” on page 31.
Copper Port DUP/COL	Off	The port has not established a link.
	Steady Green	The port is operating in full-duplex mode.
	Blinking Green	Collisions are occurring on the port.
	Slow Blinking Green	The media converter has entered the ML or SML mode. See “Smart MissingLink™ (SML)” on page 28 or “Missing Link (ML)” on page 31.

Table 2. Media Converter LED Functional Descriptions (Continued)

LED	State	Description
Fiber Port LINK/ACT	Off	The port has not established a link.
	Steady Green	The port has an established link to a network device, but it is not transmitting or receiving network packets.
	Rapid Blinking Green	The port is transmitting or receiving network packets.
	Slow Blinking Green	The media converter has entered the ML or SML mode. See “Smart MissingLink™ (SML)” on page 28 or “Missing Link (ML)” on page 31.

V1 and V2 Series Media Converters

The DMC1000/100 series media converters have two versions: V1 and V2. Both V1 and V2 have Smart MissingLink™ (SML). In addition to SML, the Missing Link (ML) feature is added to the V2 series media converters.

SML passes a link status from one port to the other so that user’s managed endpoints can detect a failure at links where the endpoints are not directly connected. SML is intended for use when the media converters are installed in pair, connecting two copper endpoints, as shown in Figure 9.

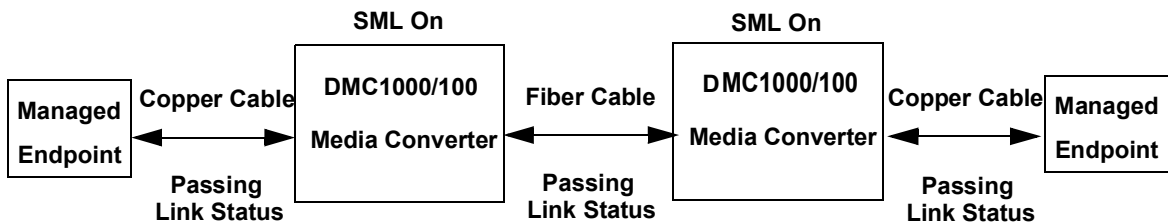


Figure 9. Two Media Converters in Pair

Note

For detailed information about SML, see “Smart MissingLink™ (SML)” on page 28.

SML helps identify a link problem in two media converters in pair; however, when SML is used in the media converter in standalone, SML may cause problems in some situations.

Figure 10 illustrates a situation where a fiber port on the media converter is connected to a certain switch. When the copper link fails, the fiber link goes up and down and the switch detects it as a problem with the fiber link. As a result, the switch disables the fiber port so that the fiber port cannot reconnect even when the copper link is back.

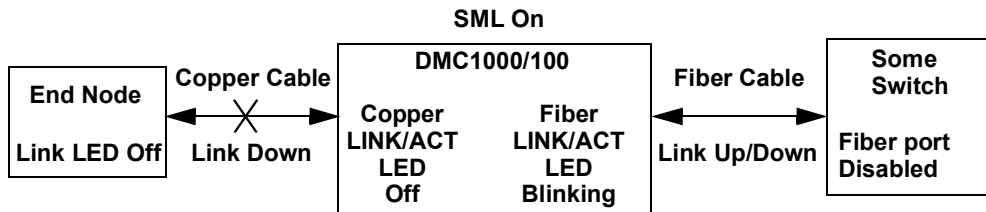


Figure 10. Possible Situation with Standalone Media Converter with SML

When encountering the problem, you either change the switch setting or turn off SML on the media converter.

To solve the above situation, ML is added to V2 series media converters, intended for use in standalone.

Figure 11 illustrates the V2 series media converter in standalone in the ML mode. When the copper link fails, the fiber link goes down.

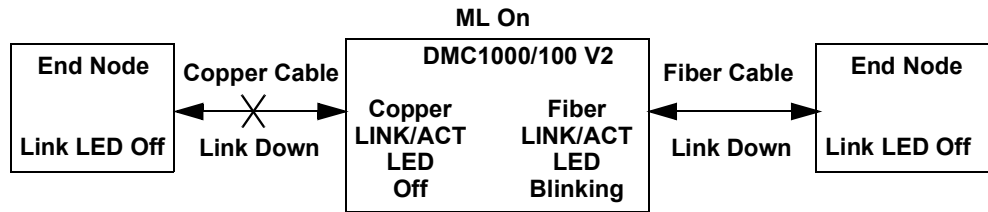


Figure 11. Standalone with ML When Copper Link is Down

Note

For detailed information about ML, see “Missing Link (ML)” on page 31.

Except the ML mode and DIP switch markings, the DMC1000/100 V1 and V2 series media converters are the same.

**Differences
Between V1 and
V2**

To find out the version number of your media converter, see the DIP switch markings on the bottom panel as shown in Figure 5 and Figure 6.

Table 3 summarizes the differences between V1 and V2.

Table 3. Differences between V1 and V2

	DIP Switch	SML	ML
V1 Media Converters		Supported	N/A
V2 Media Converters		Supported	Supported

V1 Series Media Converters

The DMC1000/100 V1 series media converters have the SML feature to pass the link status from one port to the other for endpoints, make a connection problem visible, and help identify where troubleshooting is required.

Note

For the V2 series media converter, see “V2 Series Media Converters” on page 27.

Note

To find out whether your device is V1 or V2, see “Differences Between V1 and V2” on page 25.

Guidelines for the SML Mode for V1

Here are guidelines for the SML mode:

- ❑ The DMC1000/100 V1 series media converter is set to either the SML mode on or off.
- ❑ Use the DIP switch to select ON or OFF.
- ❑ When two media converters are connected in pairs, turn the SML mode on. See “Media Converters in Pairs in SML Mode” on page 30.
- ❑ The SML feature of fiber link communication on a link failure can cause problems with some switches when the fiber port is directly connected to a switch. The SML mode is intended when the fiber port is connected to another Allied Telesis media converter.

Example Scenarios in SML Mode

The following example scenarios explain how the V1 series media converter behaves with SML on and SML off:

- ❑ “Media Converter with SML Off” on page 28
- ❑ “Standalone Media Converter in SML Mode” on page 29
- ❑ “Media Converters in Pairs in SML Mode” on page 30

V2 Series Media Converters

The DMC1000/100 V1 series media converters have the SML and ML features to pass the link status from one port to the other for endpoints, make a connection problem visible, and help identify where troubleshooting is required.

The SML mode is for two media converters in pair; the ML mode is for a media converter in standalone.

Note

For the V1 series media converter, see “V1 Series Media Converters” on page 26.

Note

To find out whether your device is V1 or V2, see “Differences Between V1 and V2” on page 25.

Guidelines for the SML and ML Modes

Here are guidelines for the ML and SML modes:

- ❑ The DMC1000/100 V2 series media converter is set to either the ML or SML mode.
- ❑ Use the DIP switch to select ML or SML.
- ❑ Select the ML mode when a media converter is connected standalone between a fiber endpoint and copper endpoint. See “Standalone Media Converter in ML Mode” on page 31.
- ❑ Select the SML mode when two media converters are connected in pairs. See “Reset the Media Converter” on page 33.
- ❑ The SML feature of fiber link communication on a link failure can cause problems with some switches when the fiber port is directly connected to a switch. The SML mode is intended when the fiber port is connected to another Allied Telesis media converter.

Example Scenarios in ML and SML Modes

The following example scenarios explain how the V2 series media converter behaves in the ML or SML mode:

- ❑ “Standalone Media Converter in ML Mode” on page 31
- ❑ “Media Converters in Pairs in SML Mode” on page 30

Smart MissingLink™ (SML)

The Smart MissingLink™ (SML) feature makes a connection problem visible and helps you identify where troubleshooting is required.

When one of the Ethernet connections to the media converter fails, SML disables the other port and causes its LED to blink to notify where a problem is occurring.

This section explains following scenarios:

- “Media Converter with SML Off” on page 28
- “Standalone Media Converter in SML Mode” on page 29
- “Media Converters in Pairs in SML Mode” on page 30

Media Converter with SML Off

Following are example scenarios when the media converter is connected between two end nodes and SML is off.

Note

The scenarios with SML off apply only to the V1 series media converters. The V2 series media converter does *not* have the SML off option.

Figure 12 shows media converter and end node LINK/ACT LED behavior with SML off under normal conditions.

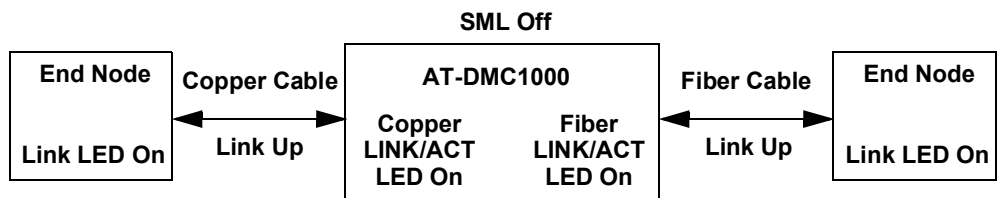


Figure 12. Normal Condition

Figure 13 shows media converter and end node LINK/ACT LED behavior with SML off with a fiber connection down.

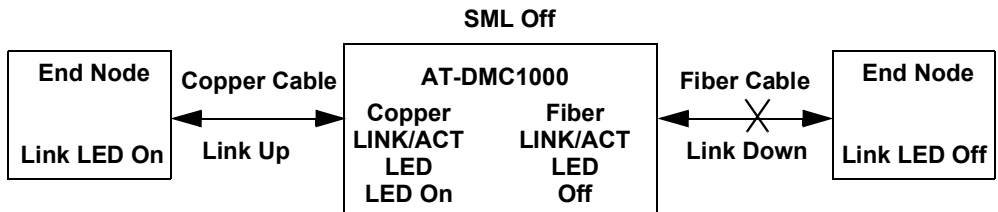


Figure 13. Fiber Connection Down wit SML Off

Figure 14 shows media converter and end node LINK/ACT LED behavior with SML off with a copper connection down.

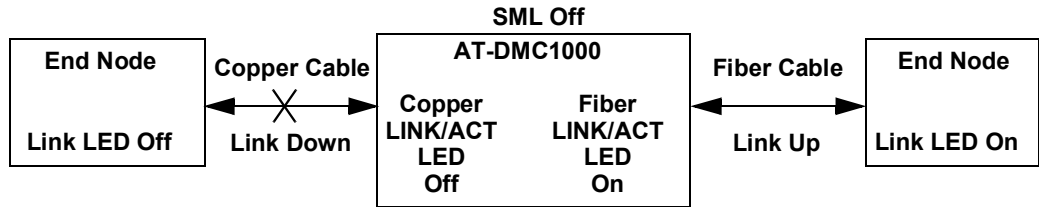


Figure 14. Copper Connection Down with SML Off

Standalone Media Converter in SML Mode

Following are example scenarios with one SML enabled media converter connected between two end nodes.

Figure 15 shows media converter and end node LINK/ACT LED behavior with SML enabled under normal conditions.

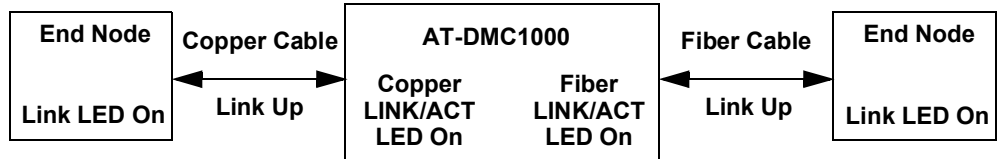


Figure 15. SML in Normal Condition

Figure 16 shows media converter and end node LINK/ACT LED behavior with SML enabled with a fiber connection down.

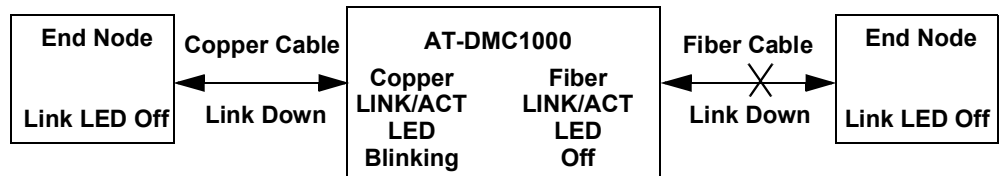
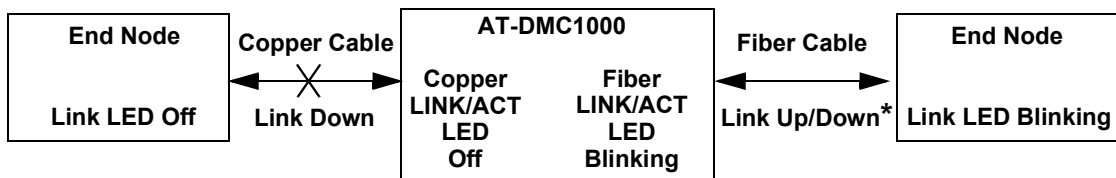


Figure 16. SML with Fiber Connection Down

Figure 17 shows media converter and end node LINK/ACT LED behavior with SML enabled with a copper connection down.



*This behavior may cause problems with some switches. See Figure 10 on page 24 for more information.

Figure 17. SML with Copper Connection Down

Media Converters in Pairs in SML Mode

Following are example scenarios with media converters in pairs in the SML mode, connected back-to-back or in the bookend mode.

Figure 18 shows media converter and its LINK/ACT LED behavior in the SML mode under normal conditions.

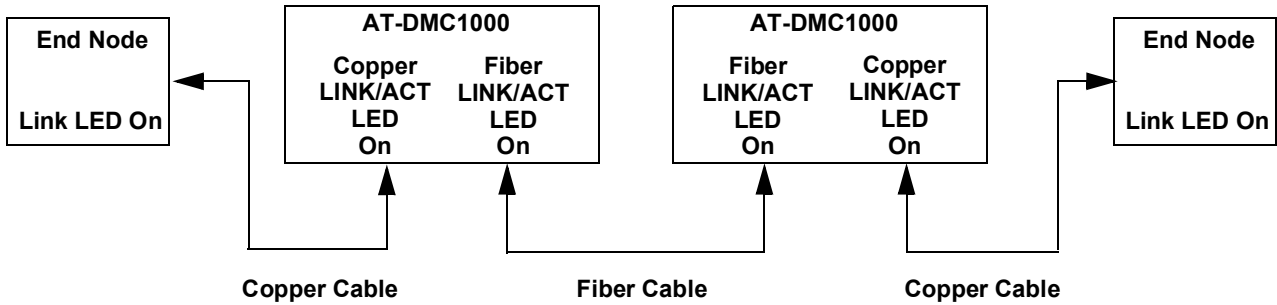


Figure 18. SML in Normal Condition with Two Media Converters

Figure 19 shows media converter and its LINK/ACT LED behavior in the SML mode with a copper connection down between a media converter and an end node.

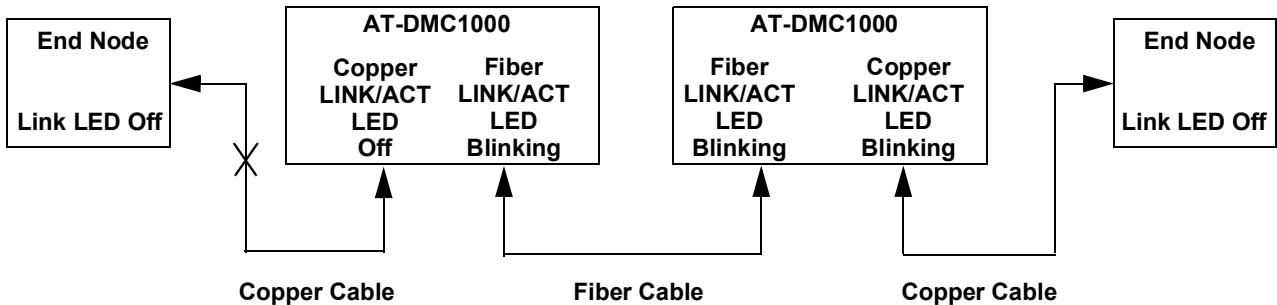


Figure 19. SML with Copper Connection to End Node Down

Figure 20 shows media converter and its LINK/ACT LED behavior in the SML mode with a fiber connection down between two media converters.

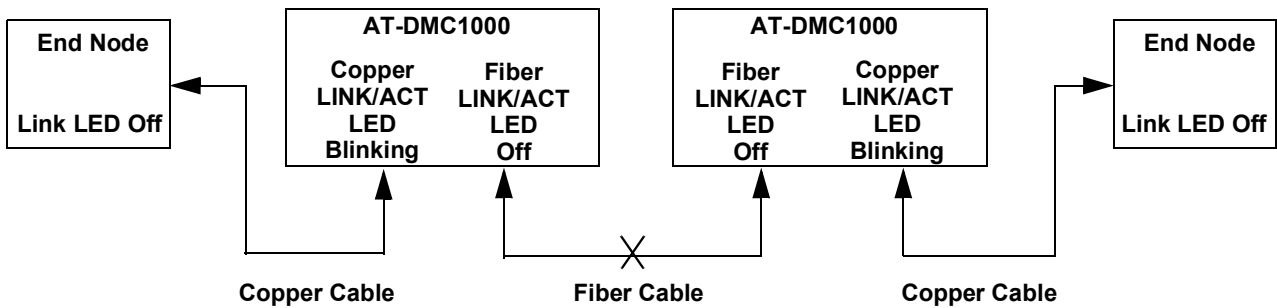


Figure 20. SML with Fiber Connection Between Media Converters Down

Missing Link (ML)

The DMC1000/100 V2 series media converters offer the Missing Link (ML), which is intended for use when the V2 media converter is connected standalone between a fiber endpoint and copper endpoint.

Note

To find out whether your device is V1 or V2, see “Differences Between V1 and V2” on page 25.

Standalone Media Converter in ML Mode

Following are example scenarios for the media converter in the ML mode, connected standalone between two end nodes.

Note

This section applies only to the DMC1000/100 V2 media converter. The DMC1000/100 V1 media converter does *not* have the ML mode.

Figure 21 shows media converter and its LINK/ACT LED behavior in the ML mode under normal conditions.

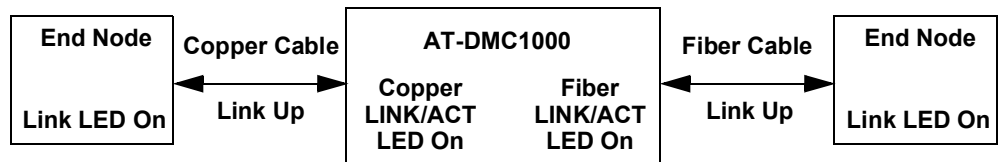


Figure 21. ML in Normal Condition

Figure 22 shows media converter and its LINK/ACT LED behavior in the ML mode when a fiber connection is down.

When a fiber connection to the media converter fails, the fiber LINK/ACT LED is turned off. The copper port LINK/ACT LED blinks slowly and the copper link goes down.

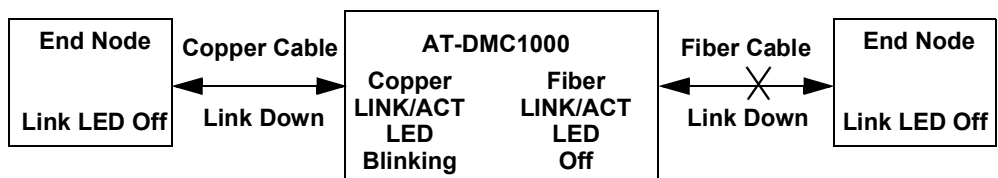


Figure 22. ML with Fiber Connection Down

Figure 23 shows media converter and its LINK/ACT LED behavior in the ML mode when a copper connection is down.

When a copper connection to the media converter fails, the copper LINK/ACT LED is turned off. The fiber port LINK/ACT LED blinks slowly and the fiber link goes down.

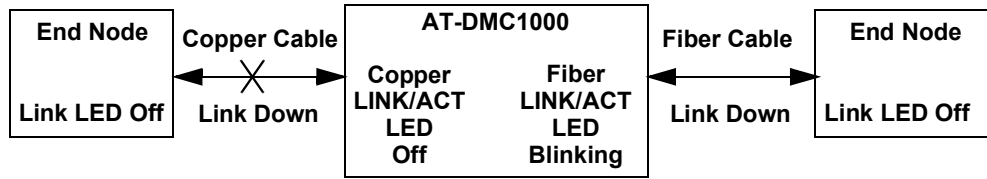


Figure 23. ML with Copper Connection Down

Reset the Media Converter

Reset the media converter by powering the unit OFF, then ON.

Chapter 2

Installation

This chapter contains the following sections:

- “Reviewing Safety Precautions” on page 36
- “Selecting a Site for the Media Converter” on page 38
- “Planning the Installation” on page 39
- “Unpacking the Shipping Box” on page 40
- “Installing the Media Converter” on page 43
- “Powering On and Cabling the Media Converter” on page 48

Reviewing Safety Precautions


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/support.




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

Laser Safety: EN60825-1.  L7




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

Note

The power input must be provided from SELV source only. Do not connect to a centralized DC battery bank.



Caution

Failing to pick up the ferrule tip when you reach the bottom of the cleaning surface can result in static electricity that can damage the fiber-optic cable. ⚡ E82



Warning

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



Caution

Power to the device must be sourced only from the adapter or from a PC USB port. ⚡ E101

Selecting a Site for the Media Converter

Observe the following requirements when choosing a site for your media converter:

- ❑ If you are installing the media converter on a table, verify that the table is level and secure.
- ❑ The power outlet for the media converter should be located near the unit and should be easily accessible.
- ❑ The site should provide for easy access to the ports on the media converter. This will make it easier for you to connect and disconnect cables, as well as view the media converter's LEDs.
- ❑ Air flow around the unit and through its vents on the side should not be restricted so that the media converter can maintain adequate cooling.
- ❑ Do not place objects on top of the media converter.
- ❑ Do not expose the media converter to moisture or water.
- ❑ You should use dedicated power circuits or power conditioners to supply reliable electrical power to the network devices.

Planning the Installation

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

- ❑ The end node connected to the fiber connector on the AT-DMC1000 media converter must operate at 1000 Mbps.
- ❑ The end node connected to the fiber connector on the AT-DMC100 media converter must operate at 100 Mbps.
- ❑ The two end-nodes connected to the ports of the media converter must operate in full-duplex mode.
- ❑ The copper port on the media converter only links up at the same speed as its fiber port; however, it only links up properly using Auto Negotiation. As such, do not try to force the copper port to match the speed.
- ❑ The devices connected to the two ports on the media converter can be a network adapter card, repeater, switch, media converter, or router.
- ❑ The twisted-pair port has a maximum operating distance of 100 meters (328 feet).
- ❑ Use a TIA/EIA 568-B-compliant Enhanced Category 5 (Cat 5e) shielded or unshielded cabling with 100 ohm impedance and a frequency of 100 MHz.

Note

For the fiber-optic port specifications, see “Fiber-Optic Port Specifications” on page 61.

Unpacking the Shipping Box

When unpacking the media converter shipping package or AT-DMCWLMT-005 wall-mount bracket kit, verify that the package includes the contents shown in this section.

Guidelines

Here are guidelines for unpacking the shipping box:

- ❑ 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.
- ❑ The AT-DMCWLMT-005 wall-mount bracket kit includes 5 sets of wall-mount brackets.
- ❑ You must purchase the AT-DMCWLMT-005 wall-mount bracket kit separately.

Unpacking the Media Converter

To unpack the media converter, perform the following procedure:

1. Remove all of the components from the shipping package.
2. Place the media converter on a level, secure surface.
3. In addition to the media converter, verify that the shipping container includes the following items as follows:
 - ❑ Figure 24 shows shipping container items for the AT-DMC1000/SC and AT-DMC100/SC.

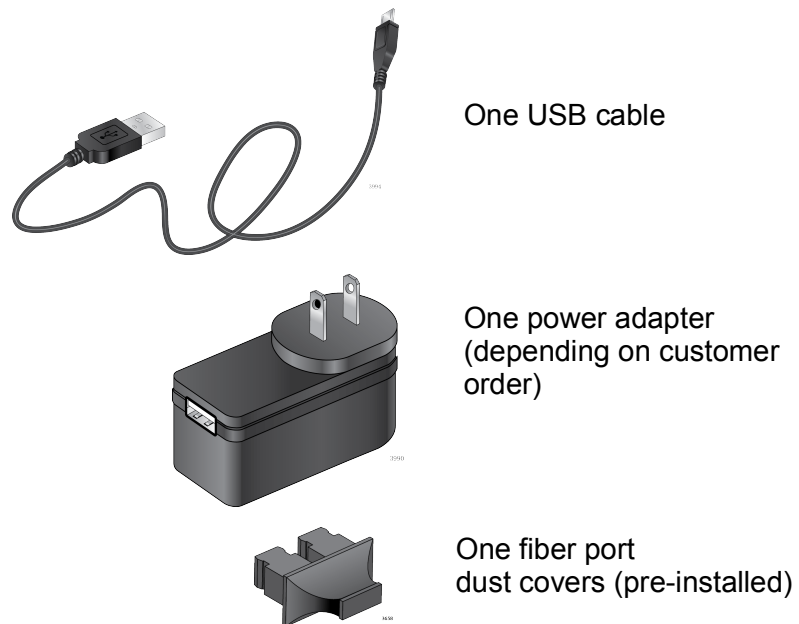


Figure 24. AT-DMC1000/SC and AT-DMC100/SC Shipping Package Contents

- Figure 25 shows shipping container items for the AT-DMC1000/ST and AT-DMC100/ST.

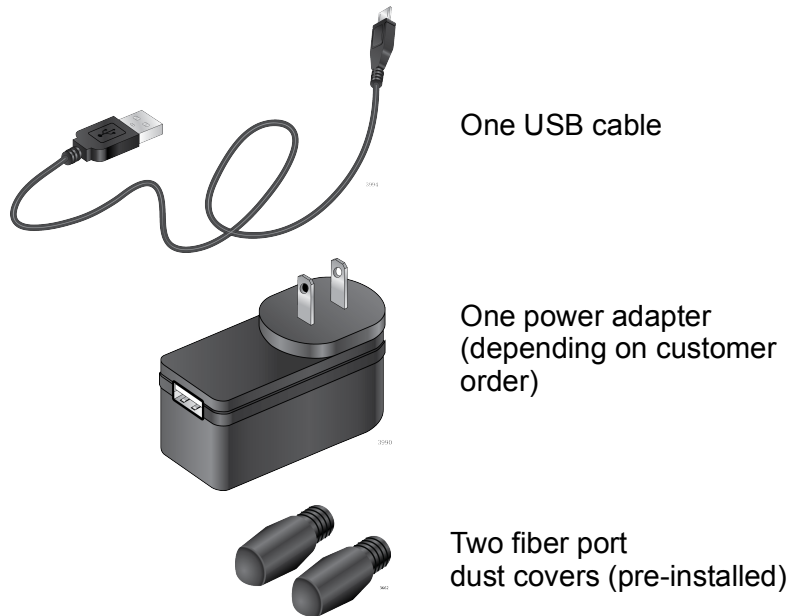


Figure 25. AT-DMC1000/ST and AT-DMC100/ST Shipping Package Contents

- Figure 26 shows shipping container items for the AT-DMC1000/LC and AT-DMC100/LC.

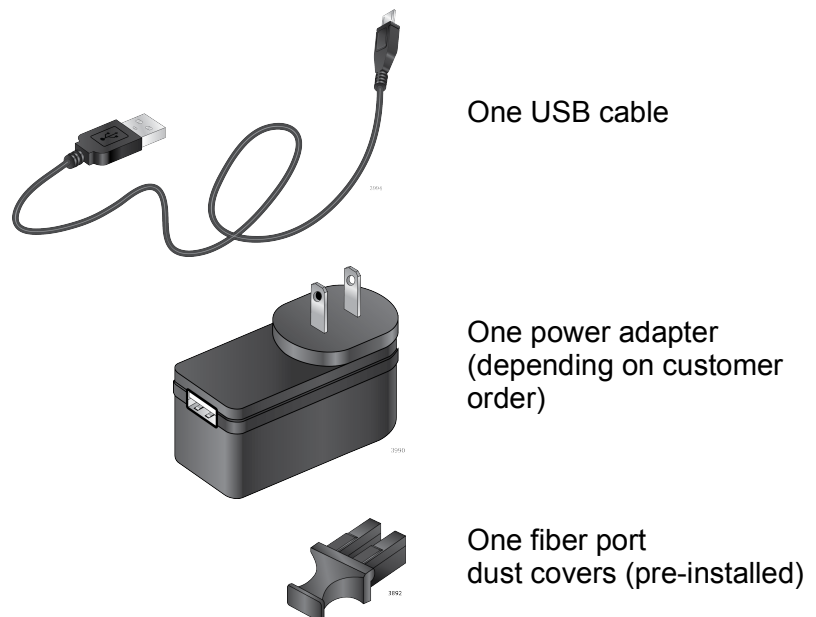


Figure 26. AT-DMC1000/LC and AT-DMC100/LC Shipping Package Contents

4. If you plan to install the media converter on the wall, go to “Unpacking the AT-DMCWLMT-005 Wall-mount Bracket Kit” on page 42.

Unpacking the AT-DMCWL MT-005 Wall-mount Bracket Kit

To unpack the AT-DMCWLMT-005 wall-mount bracket kit, perform the following procedure:

1. Remove all of the components from the shipping package.
2. verify that the shipping container includes the following items as shown in Figure 27.

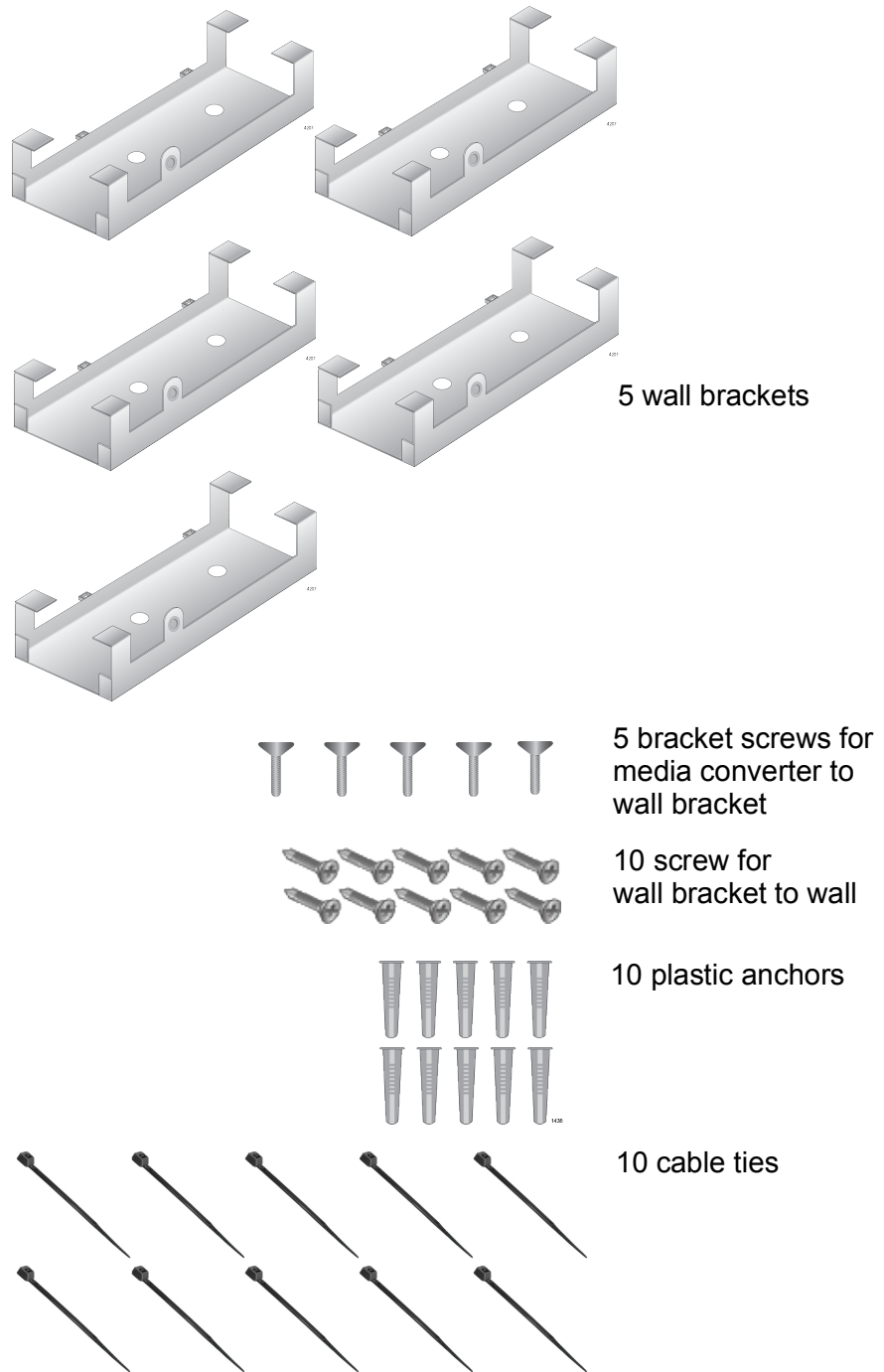


Figure 27. AT-DMCWLMT-005 Bracket Kit Shipping Package Contents

Installing the Media Converter

The DMC1000/100 Series media converter can be mounted on a desktop or a wall. Select one of the following procedures depending upon your mounting surface:

- “Installing the Media Converter on a Desktop,” next
- “Installing the Media Converter on a Wood Wall,” next.
- “Installing the Media Converter on a Sheetrock, Cinder Block, or Concrete Wall” on page 47.

Installing the Media Converter on a Desktop

To install the media converter on a desktop, perform the following procedure:

1. Place the media converter on a flat, secure surface, such as a desk or table, leaving ample space around the unit for ventilation.
2. Go to “Powering On and Cabling the Media Converter” on page 48.

Installing the Media Converter on a Wood Wall

To install the media converter on a wood wall, perform the following procedure:

1. Provide the following items:
 - One wall-mount bracket (included in the AT-DMCWLMT-005 kit)
 - One screw to attach the media converter to the bracket (included in the AT-DMCWLMT-005 kit)
 - Two flat-head self-tapping screws to attach the wall-mount bracket to the wall (included in the AT-DMCWLMT-005 kit)
 - Phillips-head screwdriver (not provided)
 - Scotch tape (not provided)
 - Wall-mount template (printout of the template in Appendix B, “Wall-mount Template” on page 63)
2. Place the printout of the wall-mount template on the wall where you install the media converter.

For the wall-mount template, see Appendix B on page 63.

Allied Telesis recommends the bracket horizontally oriented with the cable tie notches facing either upward or downward. However, if there are space restrictions, the bracket may also be oriented vertically with the cable tie notches facing toward either the left or right. Figure 28 on page 44 shows an example of a recommended orientation.

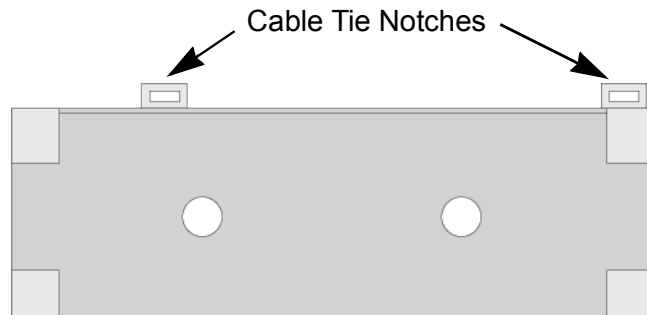


Figure 28. Recommended Orientation

3. Use scotch tape to attach the template on the wall as shown in Figure 29.

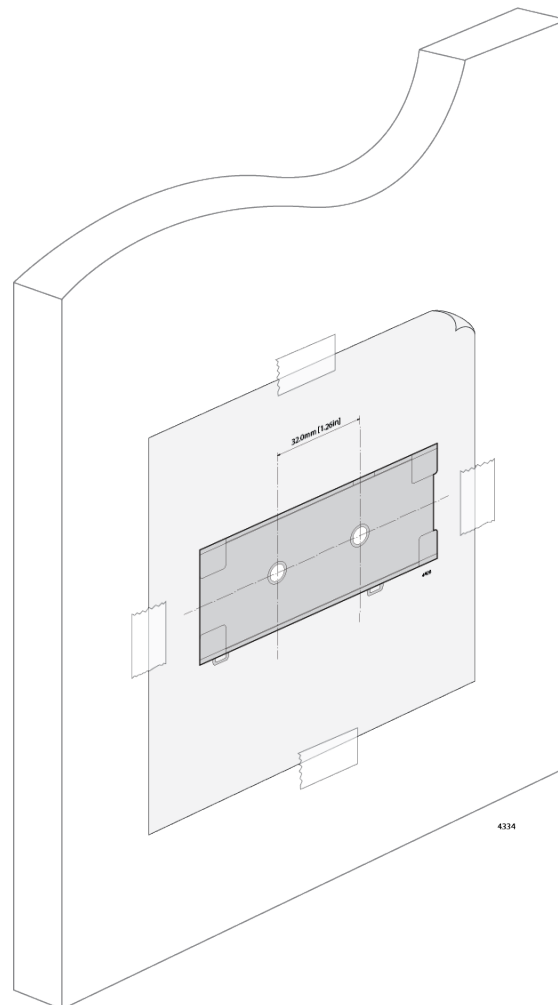


Figure 29. Placing the Template on the Wall

4. Use a Phillips-head screwdriver or hard and pointy object to mark two holes on the wall.

5. Remove the template from the wall.
6. Align the holes on the brackets to the marks on the wall.
7. Secure the bracket to the wall using two wall mounting screws as shown in Figure 30.

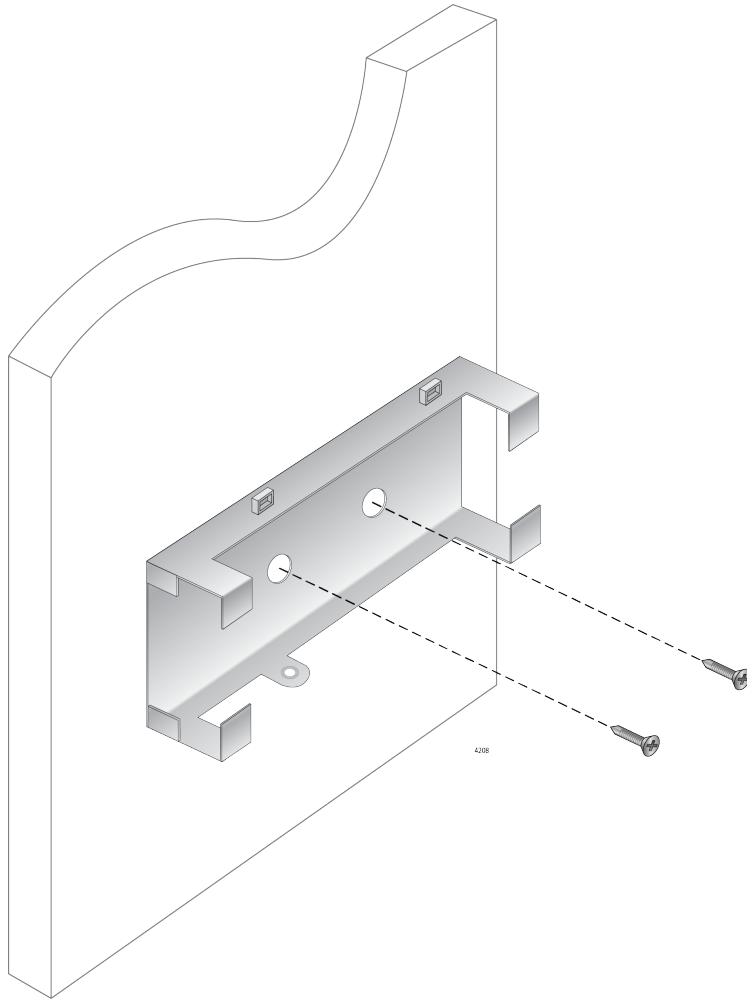


Figure 30. Securing the Mounting Bracket to the Wall

8. Slide the media converter through the mounting bracket with the DIP switch facing outward, as shown in Figure 31 on page 46.

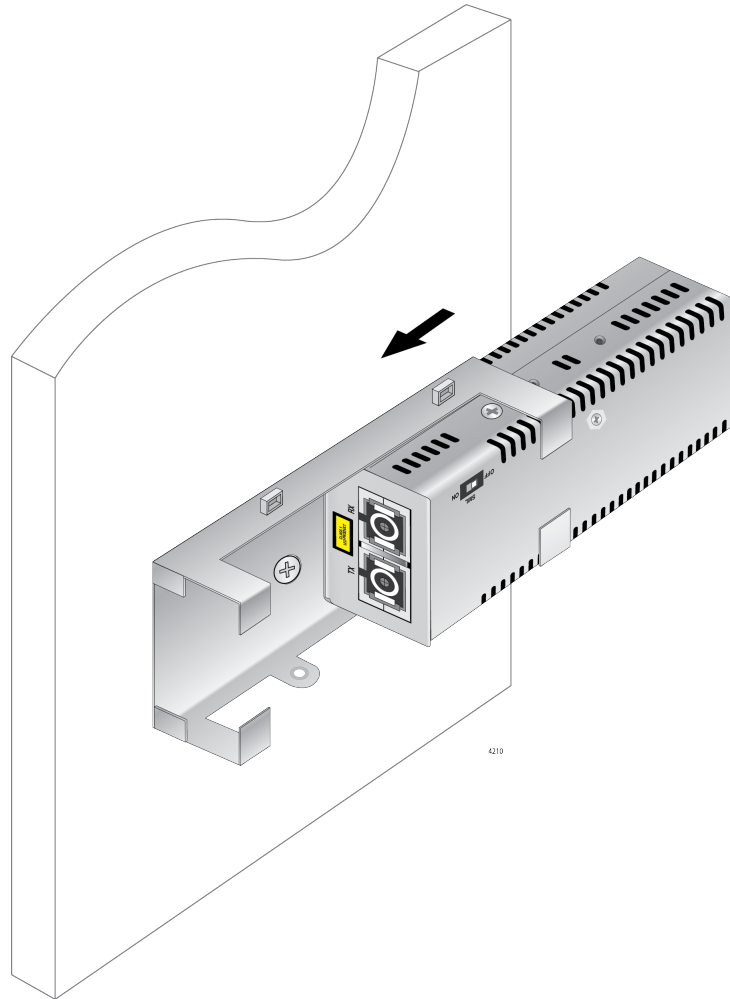


Figure 31. Attaching the Media Converter to the Mounting Bracket

9. Secure the bracket to the media converter with the bracket screw included with the bracket.
10. Go to “Powering On and Cabling the Media Converter” on page 48.

Installing the Media Converter on a Sheetrock, Cinder Block, or Concrete Wall

To install the media converter on a sheetrock, cinder block, or concrete wall, perform the following procedure:

1. Provide the following items:
 - ❑ One wall-mount bracket (included in the AT-DMCWLMT-005 kit)
 - ❑ One screw to attach the media converter to the bracket (included in the AT-DMCWLMT-005 kit)
 - ❑ Two flat-head self-tapping screws to attach the media converter to the wall (included in the AT-DMCWLMT-005 kit)
 - ❑ Two anchor plugs to attach the media converter to the wall (included in the AT-DMCWLMT-005 kit)
 - ❑ Phillips-head screwdriver (not provided)
 - ❑ Scotch tape (not provided)
 - ❑ Wall-mount template (printout of the template in Appendix B, "Wall-mount Template" on page 63)
2. Place the printout of the wall-mount template on the wall where you install the media converter.

For the wall-mount template, see Appendix B on page 63.

Allied Telesis recommends the bracket horizontally oriented with the cable tie notches facing either upward or downward. However, if there are space restrictions, the bracket may also be oriented vertically with the cable tie notches facing toward either the left or right. Figure 28 on page 44 shows an example of a recommended orientation.

3. Use scotch tape to attach the template on the wall as shown in Figure 29 on page 44.
4. Pre-drill two 1/4" (6mm) diameter holes on the template.
5. Remove the template from the wall.
6. Install two plastic anchors into the holes you just made.
7. Align the holes on the wall-mount bracket to the holes that the plastic anchors were inserted.
8. Secure the bracket to the wall using two wall mounting screws. See Figure 30 on page 45.
9. Slide the media converter through the mounting bracket with the DIP switch facing outward, as shown in Figure 31 on page 46.
10. Secure the bracket to the media converter with the screw.
11. Go to "Powering On and Cabling the Media Converter" on page 48.

Powering On and Cabling the Media Converter

After installing the media converter on a desk or wall, next step is to power on and cable the media converter.

Cabling Guidelines

Observe the following guidelines when connecting twisted-pair and fiber-optic cables to the ports on the media converter:

- ❑ The connector on the cable should fit snugly into the port on the media converter. The tab on the connector should lock the connector into place.
- ❑ Because the twisted-pair port has Auto MDI/MDI-X, you may use straight-through twisted-pair cable to connect any type of network device to that port.
- ❑ For the fiber optic cables, refer to the cable manufacturer specification for the minimum bend radius.

Applying Power and Connecting the Network Cables

To apply power to the media converter and connect the network cables, perform the following steps:

1. Attach the smaller end of the USB cable to the USB port labeled 5VDC on the back panel of the media converter.
2. Secure the USB cable to the media converter using one of the cable ties (included with the separately purchased wall-mount bracket) as described below and shown in Figure 32 on page 49:
 - a. Insert the cable tie through the integral notch on the mounting bracket adjacent to the USB port.
 - b. Route the cable next to the cable tie.

Note

Do not exceed the minimum bend radius of your fiber optic cable. See the manufacturer specifications for the minimum bend radius of your cable.

- c. Loop the cable tie around the cable.
- d. Fasten the cable tie.

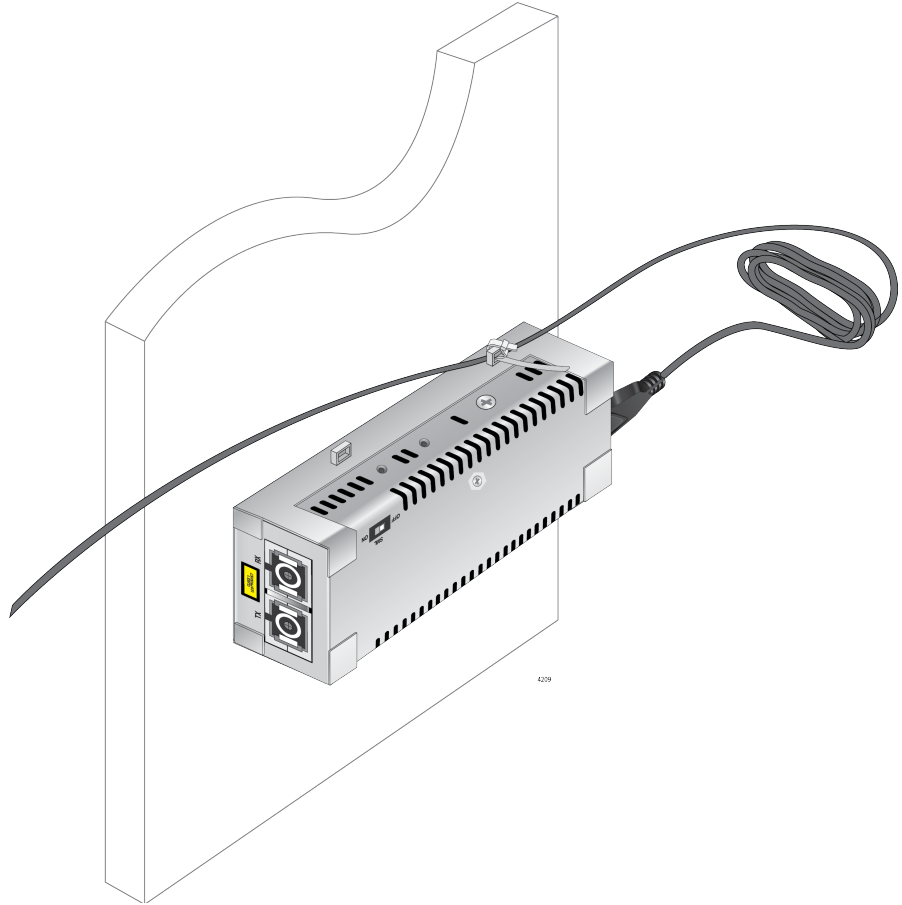


Figure 32. Securing the USB Cable Tie

3. Do one of the following:

- Attach the other end of the USB cable to the USB port on a PC, as shown in Figure 33.

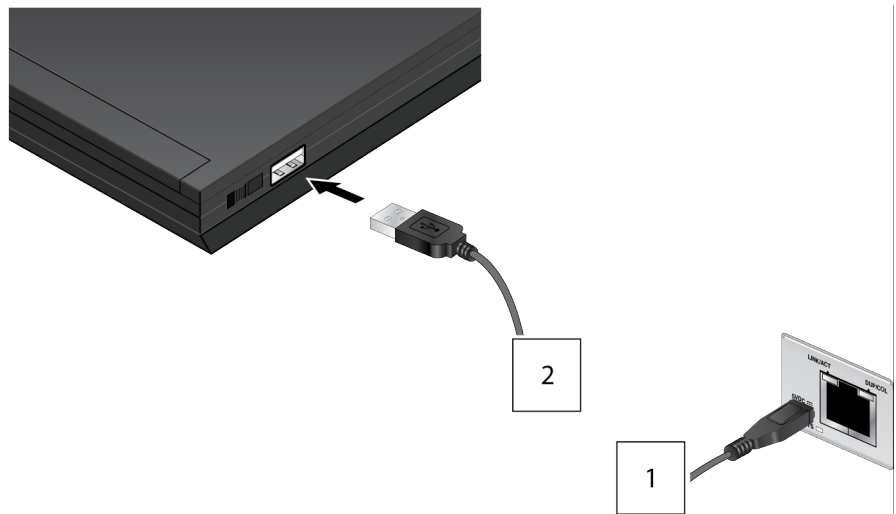


Figure 33. Connecting Power via USB Port

OR

- Attach the other end of the USB cable to the USB port on the power adapter, then plug the power adapter to a power outlet, as shown in Figure 34. See “Power Specifications” on page 58 for power requirements.

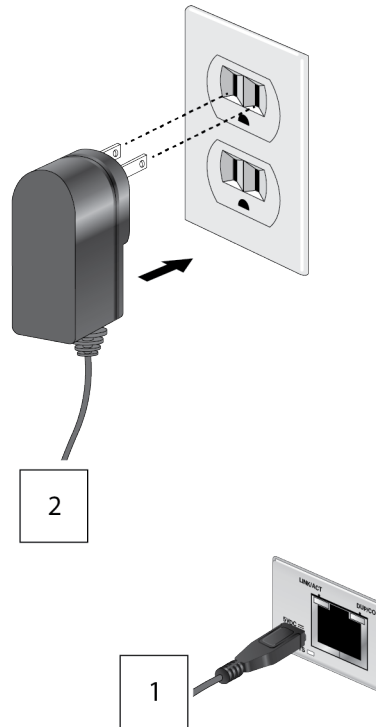


Figure 34. Connecting Power via Power Adapter

4. Verify that the SYS LED is lit green. If the SYS LED is off, see “Troubleshooting” on page 53.
5. Remove the dust cover from the fiber-optic connector(s) and connect the cable to the fiber-optic port as shown in Figure 35 on page 51.

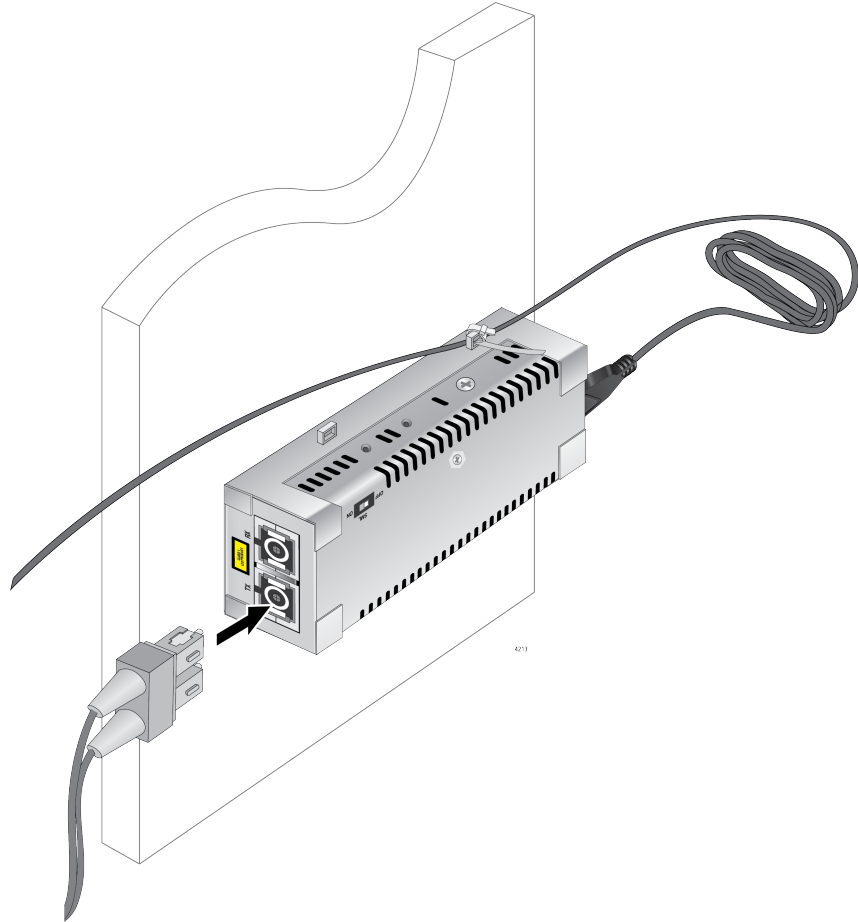


Figure 35. Connecting Cable to Fiber Optic Port

6. Verify that the media converter's transmitter port (TX) is connected to the end node's receiver port (RX) and that the media converter's receiver port (RX) is connected to the end node's transmitter port (TX).

For example, on the AT-DMC1000/ST media converter, connect the red TX connector on the fiber-optic cable to the transmitter port on the AT-DMC1000/ST media converter and connect the other connector to the receiver port on the end node. Then connect the black RX connector on the fiber-optic cable to the receiver port on the AT-DMC1000/ST media converter and connect the other connector to the transmitter port on the end node.

7. Secure the fiber optic cable to the media converter using the other cable tie as described below and shown in Figure 36:
 - a. Insert the cable tie through the other integral notch on the mounting bracket.
 - b. Route the cables next to the cable tie.

Note

Do not exceed the minimum bend radius of your fiber optic cable. See the manufacturer specifications for the minimum bend radius of your cable.

- c. Loop the cable tie around the cables.
- d. Fasten the cable tie.

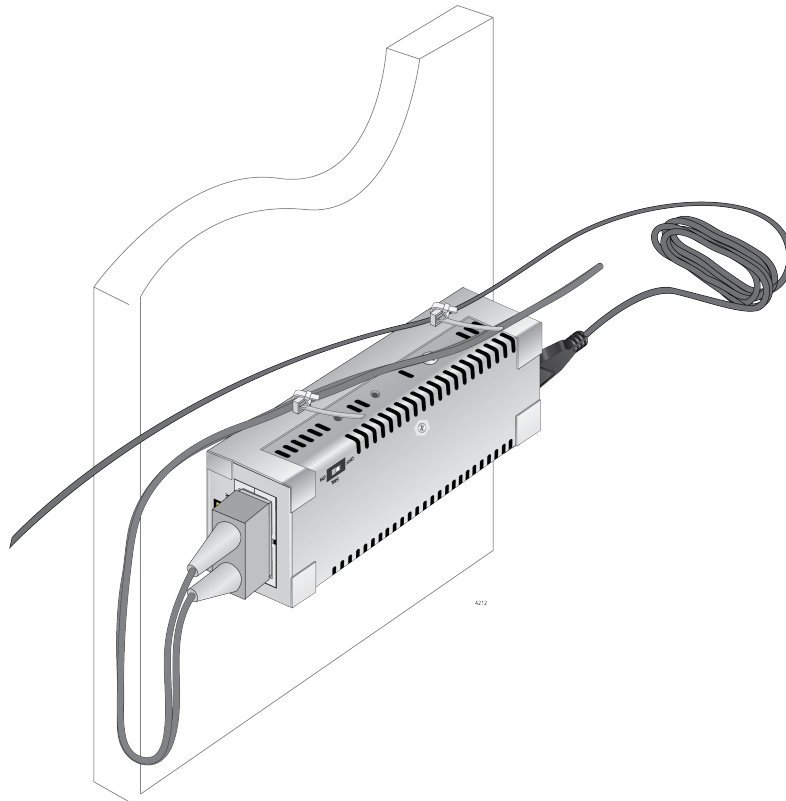


Figure 36. Securing the Fiber Optic Cable Tie

- 8. Connect the twisted-pair cable to the twisted-pair port.
- 9. Power on the end nodes.

The media converter is now ready for use.

Chapter 3

Troubleshooting

This chapter contains information on how to troubleshoot the media converter if a problem occurs.

Note

For further assistance, please contact Allied Telesis Technical Support at www.alliedtelesis.com/support.

Problem 1: The SYS LED on the media converter is off.

Solutions: The unit is not receiving power. Try the following:

- ❑ Verify that the power cord is securely connected to the power source and to the DC connector on the back panel of the media converter.
- ❑ Verify that the power outlet has power by connecting another device to it.
- ❑ Try using another power adapter of the same type that came with your media converter.
- ❑ Verify that the voltage from the power source is within the required levels for your region.
- ❑ An error is present on the unit. Try power cycling the unit.

Problem 2: The SYS LED on the media converter is blinking slowly.

Solution: An internal component on the unit is damaged or not working properly. Try power cycling the unit. If power cycling does not clear the fault, return the unit to Allied Telesis.

Problem 3: The twisted-pair port on the media converter is connected to an end node, but the copper port's LINK/ACT LED is off.

Solutions: The port is unable to establish a link to an end node. Try the following:

- ❑ Verify that the end node connected to the twisted-pair port is powered on and is operating properly.
- ❑ Verify that the twisted-pair cable is securely connected to the port on the media converter channel and to the port on the remote end-node.
- ❑ Verify that the port is connected to the correct twisted-pair cable. This is to eliminate the possibility that the port is connected to the wrong end-node, such as a powered-off device.

- ❑ Try connecting another end node to the twisted-pair port with a different cable. If the twisted-pair port is able to establish a link, then the problem is with the cable or the other end-node.
- ❑ Verify that the twisted-pair cable does not exceed 100 meters (328 feet).
- ❑ Verify that the end node connected to the media converter is set to auto-negotiate.
- ❑ Verify that you are using the appropriate category of twisted-pair cable: Category 5 or Category 5e.

Note

A 1000Base connection may require 5 to 10 seconds to establish a link.

Problem 4: The fiber port on the media converter is connected to an end node, but the fiber port's LINK/ACT LED is off.

Solutions: The fiber-optic port on the transceiver is unable to establish a link to an end node. Try the following:

- ❑ Verify that the end node 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 end-node.
- ❑ Verify that the end node connected to the media converter is operating at the same speed.
- ❑ Verify that the media converter's transmitter port (TX) is connected to the end node's receiver port (RX) and that the media converter's receiver port (RX) is connected to the end node's transmitter port (TX).
- ❑ Verify that the correct type of fiber-optic cabling is being used.
- ❑ Verify that the wavelength between the media converter and end node matches, and the media converter fiber port is connected to a multi-mode (not single-mode) port on the end node.
- ❑ Verify that the port is connected to the correct fiber-optic cable. This is to eliminate the possibility that the port is connected to the wrong remote end-node, such as a powered-off device.
- ❑ Try connecting another end node 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 end node.
- ❑ If the remote end-node 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 (sensitivity) or too strong (maximum input power).

Problem 5: Network performance between the twisted-pair port on the media converter and an end node is slow.

Solution: Check the DUP/COL LED: if it is off and occasionally blinking, there might be a duplex-mode mismatch between the port and the end node. (Off indicates the port has not established a link, and blinking indicates collisions.) This occurs when a twisted-pair port using Auto Negotiation is connected to a device with a fixed duplex mode of full duplex. If this is the cause of the problem, set the end node to auto-negotiate speed and duplex.

Appendix A

Technical Specifications

Below are the technical specifications for the media converters. The specification categories are as follows:

- “Physical Specifications”
- “Power Specifications” on page 58
- “Environmental Specifications” on page 58
- “RJ45 Connector and Port Pinouts” on page 59
- “Fiber-Optic Port Specifications” on page 61

Physical Specifications

DMC1000/100 Series Media Converter

Table 4. Physical Specifications

Dimensions W x D x H	3.2 cm x 9.1 cm x 2.2 cm (1.3 in x 3.6 in x 0.9 in)
Weight	113g (0.25 lb)

AT-DMCWLMT-005 Wall Bracket

Table 5. Physical Specifications

Dimensions W x D x H	3.9 cm x 9.2 cm x 2.9 cm (1.5 in x 3.6 in x 1.2in)
Weight	45.4g (0.1 lb)

Power Specifications

The following specifications apply to the DC power connector on the media converter.

Table 6. Power Specifications

Input supply voltage	5 VDC
Input current	0.5 A

Environmental Specifications

Table 7. Environmental Specifications

Operating Temperature	0° C to 40° C (32° F to 104° 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 Range	Up to 3,000 m (9,843 ft)

RJ45 Connector and Port Pinouts

Figure 37 illustrates the pin layout for the RJ45 connector and port.

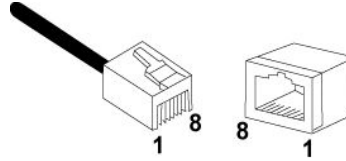


Figure 37. RJ45 Connector and Port Pin Layout

Table 8 lists the pin signals when a port is operating in the MDI configuration at 100 Mbps.

Table 8. MDI Pin Signals (100 Mbps)

Pin	Signal
1	TX+
2	TX-
3	RX+
6	RX-

Table 9 lists the pin signals when a port is operating in the MDI-X configuration at 100 Mbps.

Table 9. MDI-X Pin Signals (100 Mbps)

Pin	Signal
1	RX+
2	RX-
3	TX+
6	TX-

Table 10 lists the pin signals when a port is operating at 1000 Mbps.

Table 10. Pin Signals (1000 Mbps)

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

Fiber-Optic Port Specifications

The fiber type for the media converter is multimode.

Table 11 lists fiber-optic port specifications for the AT-DMC1000/SC, AT-DMC1000/ST, and AT-DMC1000/LC media converters.

Table 11. AT-DMC1000 Fiber-Optic Port Specifications

Fiber Optic Diameter (microns)	Optical Wavelength	Launch Power (dBm) ¹		Receive Power (dBm)		Max. Distance
		Min.	Max.	Min.	Max.	
50/125	850 nm	-9.5	-4	-17	-3	500 m (1,640 ft)
62.5/125	850 nm	-9.5	-4	-17	-3	220 m (722 ft)

1. The launch power is measured 1 meter (3.28 feet) from the transmitter.

Table 12 lists fiber-optic port specifications for the AT-DMC100/SC, AT-DMC100/ST, and AT-DMC100/LC media converters.

Table 12. AT-DMC100 Fiber-Optic Port Specifications

Fiber Optic Diameter (microns)	Optical Wavelength	Launch Power (dBm) ¹		Receive Power (dBm)		Max. Distance
		Min.	Max.	Min.	Max.	
50/125	1310 nm	-20	-14	-32	-3	2000 m (6,562 ft)
62.5/125	1310 nm	-20	-14	-32	-3	2000 m (6,562 ft)

1. The launch power is measured 1 meter (3.28 feet) from the transmitter.

Appendix B

Wall-mount Template

When installing the media converter on a wall, use the template shown in Figure 38 as a guide.

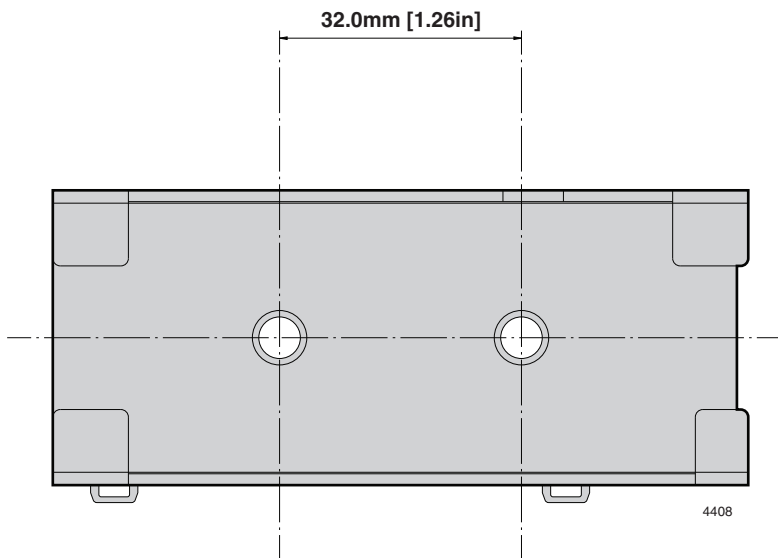


Figure 38. Wall-mount Template

