

AT-CM301 and AT-CM302 Fast Ethernet Media Converters Installation Guide

Overview

The AT-CM301 and AT-CM302 Media Converters are members of the Converteon family of media converter products. They provide a simple and reliable way to connect Fast Ethernet networks across distances of up to 2 kilometers (1.24 miles) using multimode fiber optic cable. The products feature a 10/100Base-TX port and a 100Base-FX port. The two cards support all of the same features, but they have different connectors on the 100Base-FX fiber optic ports. The features are listed here.

10/100Base-TX Twisted Pair Port	<input type="checkbox"/> IEEE 802.3u Auto-Negotiation <input type="checkbox"/> Half- or full-duplex mode <input type="checkbox"/> Auto-MDI/MDI-X <input type="checkbox"/> RJ-45 connector <input type="checkbox"/> IEEE 802.3x flow control at 10 or 100 Mbps
100Base-FX Port	Supports distances up to 2 kilometers (1.24 miles) using 50/125 μm or 62.5/125 μm (core/cladding) multimode fiber optic cable.
Fiber Optic Port Connectors	<input type="checkbox"/> AT-CM301 - duplex ST <input type="checkbox"/> AT-CM302 - duplex SC
Operating Modes	<input type="checkbox"/> Link Test <input type="checkbox"/> MissingLink™ <input type="checkbox"/> Smart MissingLink The operating modes can be activated with or without support for Operations, Administration, and Maintenance.
Operations, Administration, and Maintenance (OAM) Features	<input type="checkbox"/> Loopback tests* <input type="checkbox"/> Remote Converteon line card management* <input type="checkbox"/> Remote management software downloads* <input type="checkbox"/> Dying gasp** <input type="checkbox"/> Variable requests*
Other Features	<input type="checkbox"/> Jumbo frames up to 10,240 bytes <input type="checkbox"/> Ingress and egress packet rate limiting* <input type="checkbox"/> Operating mode and port status LEDs <input type="checkbox"/> Low power mode <input type="checkbox"/> Cyclical redundancy check <input type="checkbox"/> Suitable for managed and unmanaged network environments <input type="checkbox"/> Management available with the AT-CV5M02 Management Card <input type="checkbox"/> AT-S102 Management Software (preinstalled)

(* Requires the AT-CV5M02 Management Card.)

(** Requires an AT-CV5M02 Management Card in the upstream AT-CV5000 Chassis.)

Note

These line cards cannot be managed with the AT-CV5M01 Management Card.

Converteon Enclosures

This product is supported in all four Converteon enclosures:

- AT-CV5000 Chassis
- AT-CV1203 Chassis
- AT-CV1200 Chassis
- AT-CV1000 Chassis

Related Documents

For background information on the Converteon product, refer to the *Converteon AT-S73, AT-S99, and AT-S102 Management Software User's Guide*, available from the Allied Telesis web site.

Verifying the Package Contents

The following items should be in the shipping container:

- One AT-CM301 or AT-CM302 Media Converter
- This Installation Guide
- Warranty card

If any item is missing or damaged, contact your Allied Telesis sales representative for assistance. You should retain the original shipping material in case you need to return the unit to Allied Telesis.



Caution

The media converter line card is sensitive to and can be damaged by electrostatic discharge. Wear a grounding device and observe electrostatic discharge precautions when installing the card in the chassis.

Reviewing Safety Precautions

Before installing the media converter, review the safety precautions detailed in the Converteon chassis' Installation Guide.

Twisted Pair Cable Specifications

The cable specifications for the 10/100Base-TX twisted pair port are listed here.

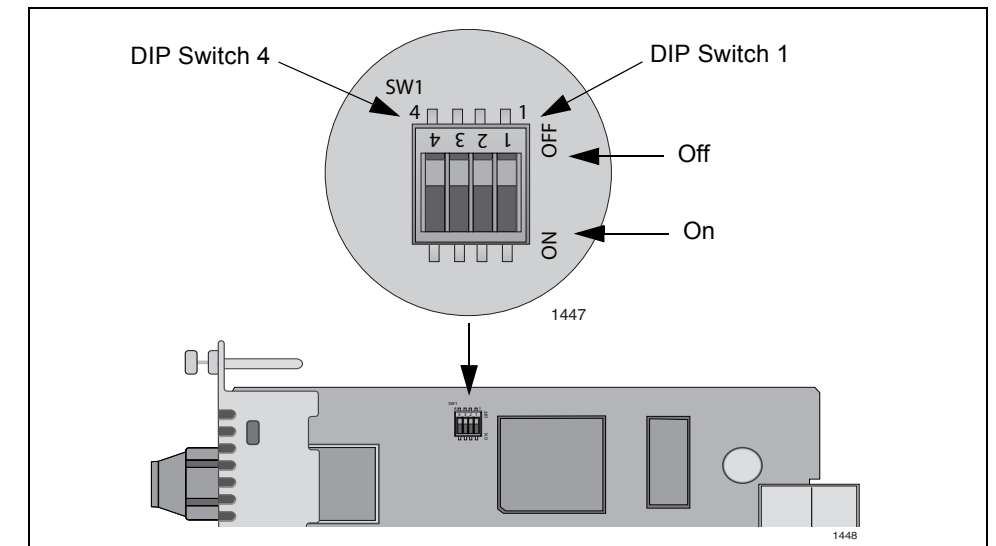
Speed	Cable Type	Maximum Operating Distance
10 Mbps	Standard TIA/EIA 568-B-compliant Category 3 or better shielded or unshielded cabling with 100 ohm impedance and a frequency of 16 MHz.	100 m (328 ft)
100 Mbps	Standard TIA/EIA 568-A-compliant Category 5 or TIA/EIA 568-B-compliant Enhanced Category 5 (Cat 5e) shielded or unshielded cabling with 100 ohm impedance and a frequency of 100 MHz.	100 m (328 ft)

Fiber Optic Cable Specifications

Line Card	Connector	Maximum Distance	Fiber Optic Cable
AT-CM301	Duplex ST	2 km (1.24 mi.)	50/125 μm or 62.5/125 μm (core/cladding) multimode fiber optic cable
AT-CM302	Duplex SC	2 km (1.24 mi.)	50/125 μm or 62.5/125 μm (core/cladding) multimode fiber optic cable

Setting the DIP Switches

The line card has DIP switches for setting the operating mode. You can also set the operating mode with the optional AT-CV5M02 Management Card. To use the DIP switches, refer to the figure and table. For background information on the operating modes, refer to the *Converteon AT-S73, AT-S99, and AT-S102 Management Software User's Guide*.



Operating Mode	Switch 4	Switch 3	Switch 2	Switch 1
Link Test (default setting)	Off	Off	Off	Off
MissingLink	Off	Off	Off	On
Smart MissingLink	Off	Off	On	Off
Link Test with OAM	Off	On	Off	Off
MissingLink with OAM	Off	On	Off	On
Smart MissingLink with OAM	Off	On	On	Off

Installing the Media Converter

Note

The media converter supports hot swapping and can be installed while the chassis is powered on.

To install the media converter:

- Remove the slot cover from one of the slots in the Converteon chassis by loosening the captive screw with a Phillips head screwdriver. The unit can be installed in any of the media converter slots.

Note

Retain the slot cover and reinstall it if you ever remove the card. An open slot allows dust to enter the unit and reduces proper airflow in the chassis.

- Align the edges of the line card with the guides in the slot and carefully slide the card into the chassis until it is flush with the front of the chassis. Light pressure may be needed to seat the module on the connector on the backplane in the chassis.
- Secure the line card in the chassis by tightening the captive-screw with a Phillips head screwdriver.
- Remove the dust cover from the fiber optic port.
- Connect the fiber optic cable to the fiber optic port.
- Connect a twisted pair cable to the RJ-45 twisted pair port on the line card.



LEDs

The RDY LED displays general status information.

LED	State	Status/Operating Mode
RDY (Ready)	Off	The line card is initializing the AT-S102 Management Software, which takes approximately one minute, or the card is not receiving power.
	Green	The line card has initialized its management software and is ready to transfer network traffic.

The operating mode of the line card is displayed by the SML, ML and OAM LEDs.

Operating Mode	LEDs		
	SML (Smart MissingLink)	ML (Missing Link)	OAM (Operations, Administration and Maintenance)
Link Test mode	Off	Off	Off
Link Test mode with OAM	Off	Off	On
MissingLink mode	Off	On	Off
MissingLink mode with OAM	Off	On	On
Smart MissingLink mode	On	Off	Off
Smart MissingLink mode with OAM	On	Off	On

The 100Base-FX port has two LEDs.

LED	Color	Description
LK (Link)	Off	The fiber optic port has not formed a link with the remote device.
	Green	The port has formed a link with the fiber optic port on the remote device.
	Blinking Green	The media converter is operating in the Smart MissingLink mode and the twisted pair port has not formed a link with a network device.
AT (Activity)	Off	The port is not connected to a fiber optic cable, has not formed a link with the remote device, or is not sending or receiving network traffic.
	Blinking Green	The fiber optic port is receiving or transmitting network packets.

The 10/100Base-TX twisted pair port has four LEDs.

LED	Color	Description
LK (Link)	Off	The port has not formed a link with a network device.
	Green	The port has formed a link with a network device.
	Flashing Green	The media converter is operating in the Smart MissingLink mode and the fiber optic port has not formed a link with a network device.
AT (Activity)	Off	The port is not receiving or transmitting network packets.
	Blinking Green	The port is receiving or transmitting network packets.

LED	Color	Description
FD (Full duplex)	Off	The port is operating in half-duplex mode.
	Green	The port is operating in full-duplex mode.
100M	Off	The port is operating at 10 Mbps.
	Green	The port is operating at 100 Mbps.

Note

For more information on the Link LEDs, refer to the explanation of the media converter operating modes in the *Converteam AT-S73, AT-S99, and AT-S102 Management Software User's Guide*.

ECO Friendly Button

The recessed ECO Friendly button on the front panel of the line card is used to toggle the low power mode, which controls the LEDs. You can use the mode to turn off the LEDs to conserve power when you are not monitoring them. To toggle the LEDs on or off, press the recessed button with a pointed object, such as the end of a straightened paperclip. You can also toggle the low power mode with the AT-CV5M02 Management Card. The low power mode does not affect the network operations of the line card or control the RDY LED.

Default Settings

The default settings for the media converters are listed here.

Feature	Default Setting
Basic Settings	
Operating Mode	Link Test
Maximum Frame Size	10240 bytes
Twisted Pair Port	Auto-Negotiation with auto-MDI/MDI-X
Ingress and Egress Filtering	None
Low Power Mode	Disabled
Operating Mode DIP Switches	Enabled
OAM Settings	
Admin State	Enabled
Mode	Passive
Maximum OAMPDU Size	1518 bytes
Loopback Support	Enabled
Variable Retrieval Support	Enabled

Fiber Optic Port Specifications

General	
Maximum Distance	2 km (1.24 miles)
Fiber Optic Cable	50/125 µm or 62.5/125 µm (core/cladding) multimode fiber optic cable
Transmitter	
Wavelength	1310 nm
Output Optical Power - 50/125 µm	BOL: -22.5 dBm min.; -14 dBm max. EOL: -23.5 dBm min.; -14 dBm max.

Output Optical Power - 62/125 µm	BOL: -19 dBm min.; -14 dBm max. EOL: -20 dBm min.; -14 dBm max.
Receiver	
Wavelength	1310 nm
Sensitivity	-31 dBm max.
Maximum Input Power	-14 dBm min.

Technical Specifications

Physical and Environmental	
Dimensions (H x W x L)	22 mm x 73 mm x 130 mm (.86 in. x 2.9 in. x 5.1 in.)
Weight	113 grams (0.25 lb.)
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 Relative Humidity	5% to 90% RH (non-condensing)
Storage Relative Humidity	5% to 95% RH (non-condensing)
Operating Altitude Range	Up to 3,048 m (10,000 ft.)
MTBF	1,500,000 hours
Electrical Ratings	
Power Consumption	8.5 Watts maximum

Electrical, Safety, and Emissions Statements

Standards: This product meets the following standards when installed in compliant host equipment.

U.S. Federal Communications Commission
<p>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.</p> <p>Note: Modifications or changes not expressly approved of by the manufacturer or the FCC, can void your right to operate this equipment.</p>
Industry Canada
<p>This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.</p> <p>Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.</p>

Emission FCC Class A, EN55022 Class A, VCCI Class A, C-TICK, CE



Warning

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

Immunity EN55024

Electrical Safety UL60950-1 (cULus), EN60950-1 (TUV), CAN/CSA C22.2 No. 60950-1

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