AT-MC1004
AT-MC1005/1
AT-MC1005/2
AT-MC1005/3
AT-MC1005/4

Gigabit Ethernet Media Converters

Installation Guide

PN 613-50438-00 Rev A

Electrical Safety and Emission Compliance Statement

Standards: This product meets the following standards

U.S. Federal Communications Commission	
Declaration Of Conformity	
Manufacturer Name:	Allied Telesyn, Inc.
Manufacturer Address:	960 Stewart Drive, Suite B Sunnyvale, CA 94085 USA
Manufacturer Telephone:	408-730-0950
Declares that the product:	Gigabit Ethernet Media Converters
Model Numbers:	AT-MC1004, AT-MC1005/1, AT-MC1005/2, AT-MC1005/3, AT-MC1005/4

This product complies with FCC Part 15B, Class B Limits:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device must not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Radiated Energy

Note: This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions, may cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on. The user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes and modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commission rules.

Warning: This product requires Category 5 shielded twisted-pair or better for RJ-45 connections to comply with Class B emission limits. If not used with shielded cables, this product may cause radio interference in which case the user may be required to take adequate measures to reduce interference levels.

Industry Canada
This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

RFI Emission EN55022 Class B ✍ **1**

Warning: In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures. ✍ **2**

Immunity EN55024 ✍ **3**

Electrical Safety TUV-EN60950, UL1950, CSA 950 ✍ **4**

Laser EN60825 ✍ **5**

Important: Appendix B contains translated safety statements for installing this equipment. When you see the ✍, go to Appendix B for the translated safety statement in your language.

Wichtig: Anhang B enthält übersetzte Sicherheitshinweise für die Installation dieses Geräts. Wenn Sie ✍ sehen, schlagen Sie in Anhang B den übersetzten Sicherheitshinweis in Ihrer Sprache nach.

Vigtigt: Tillæg B indeholder oversatte sikkerhedsadvarsler, der vedrører installation af dette udstyr. Når De ser symbolet ✍, skal De slå op i tillæg B og finde de oversatte sikkerhedsadvarsler i Deres eget sprog.

Belangrijk: Appendix B bevat vertaalde veiligheidsopmerkingen voor het installeren van deze apparatuur. Wanneer u de ✍ ziet, raadpleeg Appendix B voor vertaalde veiligheidsinstructies in uw taal.

Important: L'annexe B contient les instructions de sécurité relatives à l'installation de cet équipement. Lorsque vous voyez le symbole ✍, reportez-vous à l'annexe B pour consulter la traduction de ces instructions dans votre langue.

Tärkeää: Liite B sisältää tämän laitteen asentamiseen liittyvät käännetyt turvaohjeet. Kun näet ✍-symbolin, katso käännettyä turvaohjetta liitteestä B.

Importante: l'Appendice B contiene avvisi di sicurezza tradotti per l'installazione di questa apparecchiatura. Il simbolo ✍, indica di consultare l'Appendice B per l'avviso di sicurezza nella propria lingua.

Viktig: Tillegg B inneholder oversatt sikkerhetsinformasjon for installering av dette utstyret. Når du ser ✍, åpner du til Tillegg B for å finne den oversatte sikkerhetsinformasjonen på ønsket språk.

Importante: O Anexo B contém advertências de segurança traduzidas para instalar este equipamento. Quando vir o símbolo ✍, leia a advertência de segurança traduzida no seu idioma no Anexo B.

Importante: El Apéndice B contiene mensajes de seguridad traducidos para la instalación de este equipo. Cuando vea el símbolo ✍, vaya al Apéndice B para ver el mensaje de seguridad traducido a su idioma.

Obs! Bilaga B innehåller översatta säkerhetsmeddelanden avseende installationen av denna utrustning. När du ser ✍, skall du gå till Bilaga B för att läsa det översatta säkerhetsmeddelandet på ditt språk.

Table of Contents

Preface

This guide contains instructions on how to install the AT-MC1004 and the AT-MC1005/x Series Gigabit Ethernet Media Converters.

Where to Find Web-based Guides

The Allied Telesyn web site at **www.alliedtelesyn.com** provides you with an easy way to access the most recent documentation and technical information for all of our products. All web-based documents relating to this product and other Allied Telesyn products, can be downloaded from the web site in PDF format.

Document Conventions

This guide uses the following conventions:

Note
Notes provide additional information.

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

Warning
Warnings indicate that performing or omitting a specific action may result in bodily injury.

Contacting Allied Telesyn Technical Support

You can contact Allied Teleysn technical support online or by telephone or e-mail.

Online Support

You can request technical support online accessing the Knowledge Base at **http://kb.alliedtelesyn.com**. You can use the Knowledge Base to submit questions to our technical support staff and review answers to previously asked questions.

Telephone Support

For technical support by telephone, contact Allied Telesyn at one of the following locations:

Americas
United States, Canada, Mexico,
Central America, South America
Tel: 1 (800) 428-4835

Asia
Singapore, Taiwan, Thailand,
Malaysia, Indonesia, Korea,
Philippines, China,
India, Hong Kong
Tel: (+65) 63815-612

Australia
Tel: 1 (800) 000-880

France
Belgium, Luxembourg,
The Netherlands, Middle East, Africa
Tel: (+33) 0-1-60-92-15-25

Germany
Switzerland, Austria, Eastern Europe
Tel: (+49) 30-435-900-126

Italy
Spain, Portugal, Greece, Turkey, Israel
Tel: (+39) 02-416-3-41

Japan
Tel: (+81) 3-3443-5640

United Kingdom
Denmark, Norway, Sweden, Finland
Tel: (+0044) 1-235-442560

E-mail Support

Latin America, Mexico, Puerto Rico, Caribbean, and Virgin Islands
latin_america@alliedtelesyn.com

Europe
support_europe@alliedtelesyn.com

Returning Products

Products for return or repair must first be assigned a Return Materials Authorization (RMA) number. A product sent to Allied Telesyn without a RMA number will be returned to the sender at the sender's expense.

To obtain an RMA number, contact Allied Telesyn's Technical Support at one of the following locations:

North America
Toll-free: 1-800-762-1664
Fax: 1-425-806-1050

Europe, Africa, and the Middle East
Tel: +44-1793-501401
Fax: +44-1793-431099

Latin America, the Caribbean, and Virgin Islands
Tel: international code + 425-481-3852
Fax: international code + 425-481-3895

Puerto Rico
Tel: 1-800-424-5012, ext 3852
or
1-800-424-4284, ext 3852

Mexico
Toll-free: 800-424-5012, ext 3852
Fax: international code + 425-481-3895

Asia and Southeast Asia
Tel: +65-6381-5612
Fax: +65-6383-3830

Australia
Toll-free: 1-800-000-880
Fax: +61-2-9438-4966

New Zealand
Toll-free: 0800-45-5782

For Sales or Corporate Information

You can contact Allied Telesyn for sales or corporate information at the location below:

Allied Telesyn, Inc.
19800 North Creek Parkway, Suite 200
Bothell, WA 98011
Tel: 1 (425) 487-8880
Fax: 1 (425) 489-9191

Tell Us What You Think

If you have any comments or suggestions on how we might improve this or other Allied Telesyn documents, please fill out the General Enquiry Form at online. This form can be accessed by selecting "Contact Us" from **www.alliedtelesyn.com**.

Chapter 1
Overview

The AT-MC1004 and AT-MC1005/x Series Gigabit Ethernet Media Converters are designed to extend the distance of your network by converting Gigabit Ethernet data between twisted pair cabling and either multimode or single-mode fiber optic cabling.

The AT-MC1004 media converter features a 1000Base-SX fiber optic port and a 1000Base-T twisted pair port. The fiber optic port has an SC connector and a maximum operating distance of 550 meters (1,804 feet). The twisted pair port has an RJ-45 connector and a maximum operating distance of 100 meters (328 feet).

The AT-MC1005/x media converters feature a 1000Base-LX fiber optic port and a 1000Base-T twisted pair port. The fiber optic port has an SC connector and a maximum operating distance of 10 kilometers (6.2 miles) to 70 kilometers (43.4 miles), depending on the model. The twisted pair port has an RJ-45 connector and a maximum operating distance of 100 meters (328 feet).

These units operate at 1000 Mbps and feature full-duplex operation.

The AT-MC1004 and AT-MC1005/x Series Gigabit Ethernet Media Converters can be used on a desktop or in an AT-MCR12 chassis. These units are easy to install and do not require any software configuration or management. Figure 1 illustrates an AT-MC1004 media converter.

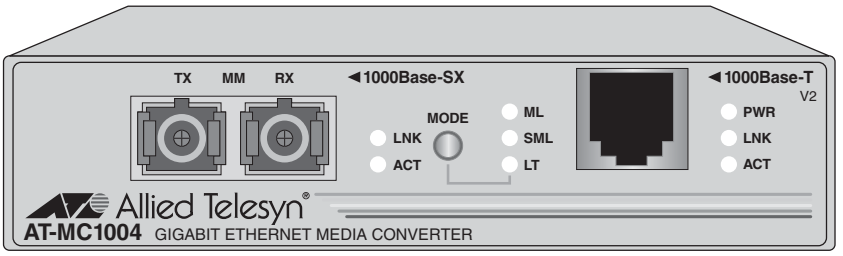

Figure 1 AT-MC1004 Gigabit Ethernet Media Converter

Figure 2 shows an example of an AT-MC1005/x Series Media Converter.

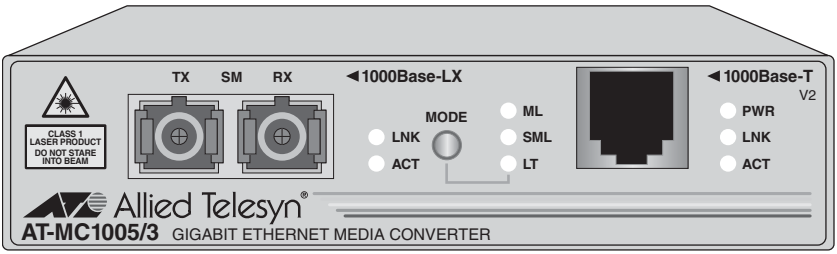

Figure 2 AT-MC1005/x Series Gigabit Ethernet Media Converter (Model AT-MC1005/3)

Table 1 lists the cabling distances for the Gigabit Ethernet media converters.

Table 1 Maximum Cabling Distances

Port	Type of Connector	Maximum Operating Distance[1]
1000Base-T[2]		
All Models	RJ-45	100 m (328 ft)
1000Base-SX		
AT-MC1004	SC	550 m (1,804 ft)
1000Base-LX		
AT-MC1005/1	SC	10 km (6.2 mi)
AT-MC1005/2	SC	20 km (12.4 mi)
AT-MC1005/3	SC	40 km (24.8 mi)
AT-MC1005/4	SC	70 km (43.4 mi)

1. Maximum distance may be less depending on the type of fiber optic cabling used with the port.
2. The 1000Base-T port uses 4 pair (8 wires) in a twisted pair cable.

Key Features

The media converters have the following key features:

- ❑ LEDs for unit and port status
- ❑ 1000Base twisted pair port with a maximum operating distance of 100 meters (328 feet)
- ❑ 1000Base fiber optic port with a maximum operating distance of 550 meters (1,804 feet) to 70 kilometers (43.4 miles) using single-mode or multimode fiber optic cabling, depending on the model
- ❑ Mode selection button that toggles between Link Test, MissingLink™, and Smart MissingLink
- ❑ Full-duplex operation
- ❑ External AC/DC power adapter
- ❑ Standard, compact size for desktop use or with an AT-MCR12 rackmount chassis

Status LEDs

Table 2 defines the units LEDs.

Table 2 Status LEDs

LED	Color	Description
PWR	Green	Power is applied to the unit.
LNK	Green	A link has been established on the ports.
ACT	Green	Data is being received on the ports.
Mode Status		
ML	Green	MissingLink is enabled.
SML	Green	Smart MissingLink is enabled.
LT	Green	Link Test is enabled.

Fiber Optic Port

The 1000Base-SX port on the AT-MC1004 media converter has an SC connector and is designed to operate with multimode fiber optic cabling. This port has a maximum operating distance of 550 meters (1,804 feet) using 62.5/125 micron multimode fiber optic cable.

The 1000Base-LX port on the AT-MC1005/x Series Media Converters has an SC connector and is designed to operate with single-mode fiber optic cabling. This port has a maximum operating distance of 10 kilometers (6.2 miles) to 70 kilometers (43.4 miles), depending on your model, using 9/125 micron single-mode fiber optic cable.

Mode Selection Button

Link Test

The link test is a fast and easy way for you to test the connections between the Gigabit Ethernet media converter ports and the end-nodes that are connected to the ports. If a network problem occurs, you can perform a link test to determine which port is experiencing a problem, and be able to focus your troubleshooting efforts on the cable and end-node where the problem resides.

A link test is performed when the Mode Selection button is toggled until the LT LED is green.

> **Note**
> Performing a link test does not interfere with a media converter's ability to pass network traffic.

MissingLink

The MissingLink feature enables the fiber optic ports on the Gigabit Ethernet media converter to pass the "Link" status of their connections to each other. When the media converter detects a problem with one of the ports, such as the loss of connection to an end-node, the media converter shuts down the connection to the other port, thus notifying the end-node that the connection has been lost.

For example, if the network twisted pair cable to the 1000Base-T port on the media converter were to fail, the unit would respond by dropping the link on the fiber optic port. In this way, the media converter notifies the end-node connected to the fiber optic port that the connection on the twisted pair port has been lost. If the failure had started with the fiber optic cabling, the unit would drop the link to the twisted pair port.

The value to this type of network monitoring and fault notification is that some devices can be configured to take a specific action in the event of the loss of connection on a port. In some cases, the unit can be configured to seek a redundant path to a disconnected end-node or send out a trap to a network management station, and so alert the network administrator of the problem.

Note
MissingLink or Smart MissingLink is disabled when you perform a link test. Consequently, to ensure that the MissingLink or Smart MissingLink is enabled on the media converter, always set the Mode Selection button so that the ML or SML LED is green during normal network operations.

Smart MissingLink

Like MissingLink, the Smart MissingLink feature terminates the link on the failed port thereby notifying you when a connection has been lost. Additionally, Smart MissingLink indicates on which port the connection has failed. This is shown by a blinking LNK LED on the good port.

For example, if the network twisted pair cable to the 1000Base-T port on the media converter were to fail, the LNK LED on the fiber optic port will blink, indicating a failed connection on the twisted pair port. The fiber optic port is still able to receive a signal.

The media converter notifies the end-node connected to the fiber optic port that the connection on the twisted pair port has been lost. If the failure had started with the fiber optic cabling, the LNK LED on the twisted pair port would blink.

The value to this type of network monitoring and fault notification is so that you can quickly see which port has failed and troubleshoot your network accordingly.

Half- and Full-Duplex Mode

Duplex mode refers to the way an end-node sends and receives data on the network. An end-node can operate in either half- or full-duplex mode, depending on its capabilities. An end-node that is operating in half-duplex mode can either send data or receive data, but it cannot do both at the same time. An end-node that is operating in full-duplex mode can send and receive data simultaneously. The best network performance is achieved when an end-node can operate at full-duplex, since the end-node is able to send and receive data simultaneously.

The AT-MC1004 and AT-MC1005/x Series Gigabit Ethernet Media Converters operate in full-duplex mode only. The media converter can operate with end-nodes capable of either full-duplex mode or that can auto-negotiate the duplex mode. However, it is important to remember that the two end-nodes connected to the ports on the media converter must be able to operate in full-duplex mode.

External AC/DC Power Adapter

An external AC/DC power adapter is included with the media converter for desktop operation (see Figure 3). The power adapter supplies 12V DC to the media converter. Allied Telesyn supplies an approved safety compliant AC power adapter for the 120 and 240V AC versions with an unregulated output of 12V DC at 1 A. The power required for the media converter is 12V DC, 1000 mA.

Note
The power adapter is not used if you install the media converter in an AT-MCR12 chassis.

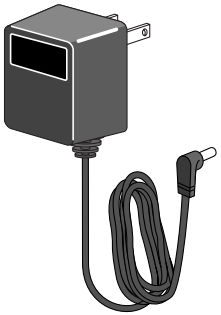

Figure 3 External AC/DC Power Adapter (North American version)

Network Topologies

The AT-MC1004 and AT-MC1005/x Series Gigabit Ethernet Media Converters can be used in two different network topologies: standalone and back-to-back. These network topologies are described below.

Standalone Topology

A standalone topology uses only one media converter between the end-nodes. Figure 4 illustrates a standalone topology that uses two AT-MC1005/1 media converters to interconnect three remote campuses. Campus 1 has an AT-8224XL switch with two AT-A15/LX expansion modules. The modules, which provide a connection of up to 10 kilometers (6.2 miles), are connected to the 1000Base-LX ports on the media converters. The 1000Base-T ports on the media converters are connected to the AT-A14 expansion modules in the AT-8216FXL/MT switches at Campus 2 and Campus 3.

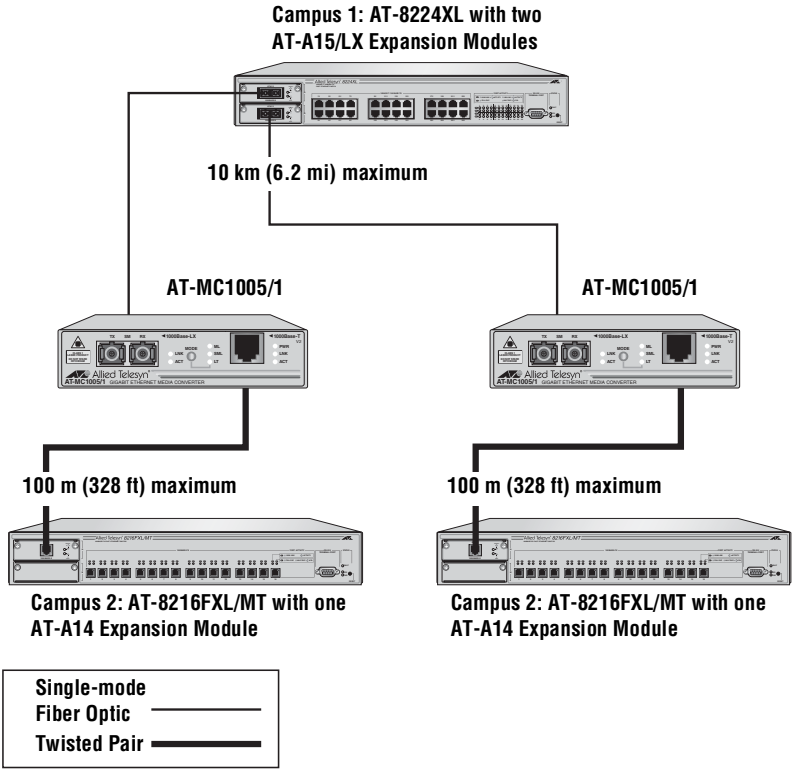

Figure 4 Standalone Topology

Back-to-Back Topology

In some network configurations you may want to interconnect two media converters in what is referred to as a back-to-back topology. In this topology, the media converters not only extend the distance of your network but also convert the fiber optic cable from twisted pair to fiber optic and back again. Figure 5 illustrates one AT-8216FXL/MT switch with an AT-A14 expansion module at each campus. The switches are interconnected by two AT-MC1005/3 media converters. The 1000Base-T ports on the media converters are connected to the AT-A14 expansion modules in the switches, while the 1000Base-LX ports on the media converters are directly connected together.

Note
When using two media converters back-to-back, you must set both converters to the same mode (ie. the first media converter is set to MissingLink mode; then the second converter must also be set to MissingLink mode.

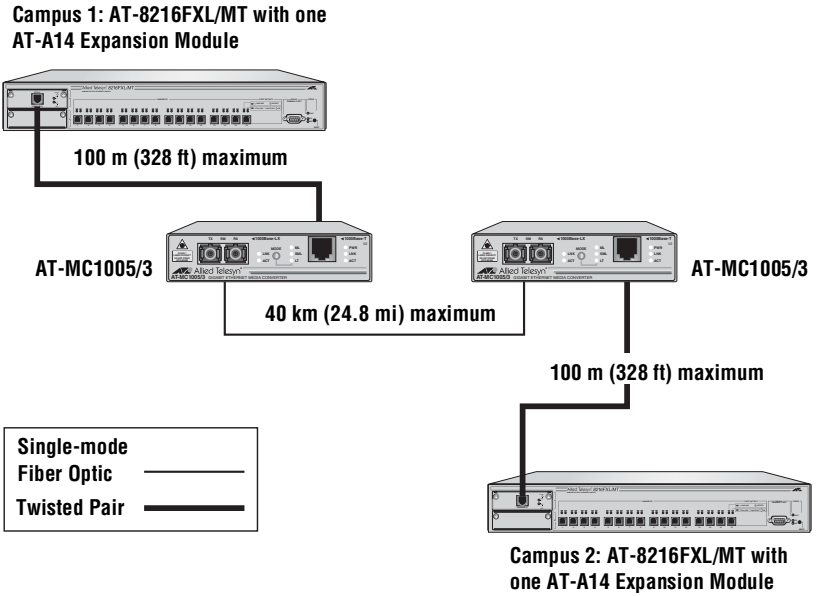

Figure 5 Back-to-Back Topology

Chapter 2
Installing the Media Converter

Verifying the Package Contents

Make sure the following items are included in your media converter package. If any item is missing or damaged, contact your Allied Telesyn sales representative.

- ❑ One AT-MC1004 or AT-MC1005/x Series Gigabit Ethernet Media Converter
- ❑ Four protective feet (for desktop use only)
- ❑ External AC/DC power adapter (North America, Continental Europe, United Kingdom, or Australia)
- ❑ This installation guide
- ❑ Warranty card

Planning the Installation

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

- ❑ The end-nodes connected to the ports of the media converter must operate in full-duplex mode. The AT-MC1004 and AT-MC1005/x Series Gigabit Ethernet Media Converters operate only in full-duplex mode.
- ❑ Refer to Table 3 and Table 4 for the twisted pair and fiber optic cabling specifications.

Table 3 Twisted Pair Cabling Specifications

Model	Cable	Maximum Operating Distance
All Models	Shielded Twisted Pair Category 5 or better	100 m (328 ft)

Note
The 1000Base-T ports use 4 pair (8 wires) in a twisted pair cable.

Table 4 Fiber Optic Cabling Specifications

Model	Cable	Maximum Operating Distance	Maximum Allowable Loss Budget
AT-MC1004	50/125 micron multimode	550 m (1,804 ft)	8.5 dB at 850 nm
	62.5/125 micron multimode [1]	275 m (902 ft)	7.5 dB at 850 nm
AT-MC1005/1	9/125 micron single-mode	10 km (6.2 mi)	17.0 dB at 1310 nm
AT-MC1005/2	9/125 micron single-mode	20 km (12.4 mi)	18.0 dB at 1310 nm
AT-MC1005/3	9/125 micron single-mode[2]	40 km (24.8 mi)	18.0 dB at 1550 nm
AT-MC1005/4	9/125 micron single-mode[2]	70 km (43.4 mi)	20.0 dB at 1550 nm

1. Based on the multi-mode fiber cable with 200MHz per kilometer on the modal bandwidth @ 850 nm.
2. For maximum performance of Gigabit Optical Datalinks when greater than 40 km (24.8 mi) and operating within the 1550 nm optical spectrum, it is mandatory that the Single-mode Fiber (SMF) be rated as non-dispersion-shifted, dispersion shifted, or non-zero dispersion shifted.

Selecting a Site

Be sure to observe the following requirements when choosing a site for your media converter.

- ❑ Select a site that is dust-free and moisture-free.
- ❑ Be sure that the site will allow you to easily access the fiber optic and twisted pair cables and the power cord.
- ❑ Use dedicated power circuits or power conditioners to supply reliable power to the device.

Reviewing Safety Guidelines

Please review the following safety guidelines before you begin to install the media converter.

Warning
Class 1 laser device. 6

Warning
Do not stare into the laser beam. 7

Warning
Electric Shock Hazard: To prevent electric shock, do not remove the cover. There are no user-serviceable parts inside. The unit contains hazardous voltages and should only be opened by a trained and qualified technician. 8

Warning
Lightning Danger: Do not work on this equipment or cables during periods of lightning activity. 9

Caution
Power cord is used as a disconnection device: To de-energize equipment, disconnect the power cord. 10

Caution
Pluggable Equipment: The socket outlet should be installed near the equipment and should be easily accessible. 11

Caution
Air vents: The air vents must not be blocked on the unit and must have free access to the room ambient air for cooling. 12

Caution
Operating Temperature: This product is designed for a maximum ambient temperature of 40°C. 13

Caution
All Countries: Install this product in accordance with local and National Electric Codes. 14

Installing the Media Converter

The following procedure explains how to install the media converter in your network.

> **Note**
> When two media converters are connected back-to-back with no twisted pair cables connected, the LNK LEDs on the fiber port may flash. This is normal and will not affect the normal operation of the units. Refer to Figure 5 on page 8 for an example of a back-to-back topology.

To install the unit, perform the following procedure:

1. Remove all equipment from the package and store the packaging material in a safe place.

> **Note**
> Do not remove the dust cover from the fiber optic port until you are ready to connect the fiber optic cable. Dust contamination can adversely impact the operating performance of the port and the media converter.

2. If you are installing the media converter on a desktop, attach the four protective feet to each corner of the base of the unit. **Do not attach the protective feet if you are installing the unit in an AT-MCR12 chassis**.

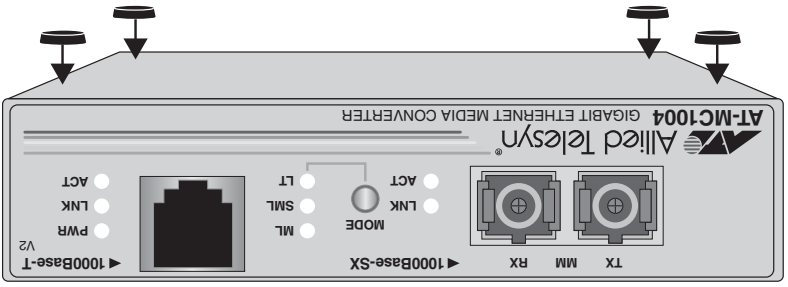

Figure 6 Attaching the Protective Feet

3. If you are installing the media converter in an AT-MCR12 chassis, refer to the chassis' installation guide for instructions on how to install the unit, then proceed to Step 6.

4. Place the media converter on a level, secure surface (such as a desk or table), leaving ample space around the unit for ventilation.

5. Plug the AC/DC power adapter into an appropriate AC power outlet and insert the power plug into the DC receptacle located on the back of the unit. **This step does not apply if you installed the unit in an AT-MCR12 chassis**.

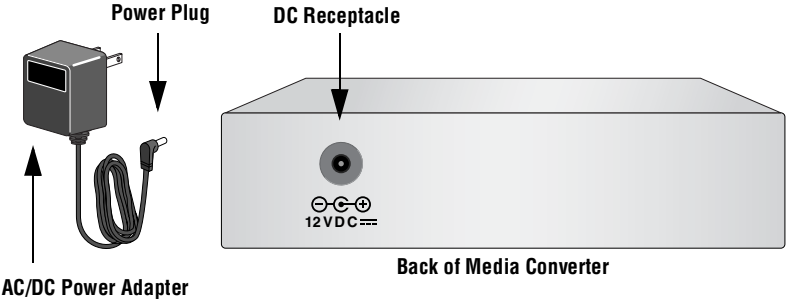

Figure 7 DC Connector

6. Verify that the PWR LED is green. If the LED is OFF, refer to "Troubleshooting" on page 15 for instructions.

7. Remove the dust cover from the fiber optic port and connect the data cable. Make sure that the media converter's receiver port (RX) is connected to the end-node's transmitter port (TX) and that the media converter's transmitter port (TX) is connected to the end-node's receiver port (RX).

8. Connect the twisted pair cable to the twisted pair port.

9. Power ON the end-nodes.

10. Check that LNK LEDs on both ports of the media converter are green. If the LEDs are OFF, refer to "Troubleshooting" on page 15.

Note
End-nodes used with the media converter must be able to operate at 1000 Mbps in full-duplex mode.

The media converter is now ready for use.

Warranty Registration

When you finish installing the product, you should register your product by completing the enclosed warranty card and sending it in.

Chapter 3
Troubleshooting

Follow the guidelines below to test and troubleshoot the installation in the event a problem occurs.

If the PWR LED is OFF, do the following:

- ❑ If the media converter is installed on a desktop, check to be sure that the power adapter is securely connected to a power outlet and that the power adapter cable is securely connected to the back of the media converter.
- ❑ If the media converter is installed in an AT-MCR12 chassis, check that the unit is fully seated in the slot. Installing a redundant power supply is recommended if the chassis is fully loaded with (a combination of) AT-MC1004 or AT-MC1005/x Series Media Converters.
- ❑ Verify that the power outlet has power by connecting another device to it.
- ❑ Try using another power adapter.

If the LNK LED for the twisted pair port is OFF, do the following:

- ❑ Check that the end-node connected to the port is powered ON and is operating properly.
- ❑ Check that the twisted pair cable is securely connected to the twisted pair port on the media converter and on the remote end-node.
- ❑ Make sure that the twisted pair cable does not exceed 100 meters (328 feet) and that you are using Category 5 or better cable.
- ❑ Verify that the end-node is operating at 1000 Mbps and full-duplex mode.

If the LNK LED for the fiber optic port is OFF, do the following:

- ❑ Verify that the end-node connected to the port is ON and is operating properly.
- ❑ Check that the fiber optic cable is securely connected to the fiber optic port on the media converter and on the remote end-node.
- ❑ Check to be sure that the end-node connected to the port is operating at 1000 Mbps.
- ❑ Make sure that the fiber optic port on the remote end-node is operating in full-duplex.
- ❑ Make sure that the fiber optic cable connected to the media converter's receiver port (RX) is connected to the end-node's transmitter port (TX) and that the media converter's transmitter port (TX) is connected to the end-node's receiver port (RX).
- ❑ Test the attenuation on the fiber cable to ensure that it does not exceed acceptable values.
- ❑ Verify that you are using the appropriate type of fiber optic cables and that you have not exceeded the maximum operating distance. For cable types and operating distances, refer to Table 4 on page 10.
- ❑ Check that the operating specifications (e.g., wavelength and maximum operating distance) of the fiber optic port on the end-node are compatible with the operating specifications of the fiber optic port on the media converter. For the fiber optic port specifications, refer to "Fiber Optic Port Specifications" on page 18.

If you are still experiencing problems after testing and troubleshooting the installation, contact Allied Telesyn Technical Support for assistance. Refer to "Contacting Allied Telesyn Technical Support" on page viii or visit our web site at **www.alliedtelesyn.com** for support information.

Appendix A
Technical Specifications

Physical

Dimensions:	W x D x H 10.5 cm x 9.5 cm x 2.5 cm (4.125 in x 3.75 in x 1.0 in)
Weight:	294 g (10.3 oz)

Temperature

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

Electrical Rating

Input Supply Voltage:	12 V DC ± 3%
Maximum Current:	500 mA
Power Consumption:	6W

Agency Certifications

EMI/RFI:	FCC Class B, EN55022 Class B
Safety:	UL 1950, CSA 950, EN60950, EN60825
Immunity:	EN55024 Immunity Standard

Fiber Optic Port Specifications

Table 5 and Table 6 list the specifications for the fiber optic port.

Table 5 Fiber Optic Port Specifications

Model	Cable	Transmitter Output Power (dBm)	Optical Wavelength (nm)	Minimum Receiver Sensitivity (dBm)
AT-MC1004	50/125 or 62.5/125 micron multimode	-4.0 to -9.5	850	-17.0
AT-MC1005/1	9/125 micron single-mode	-3.0 to -9.0	1310	-20.0
AT-MC1005/2	9/125 micron single-mode	-4.0 to 1.0	1310	-21.0
AT-MC1005/3	9/125 micron single-mode	-4.0 to 1.0	1550	-21.0
AT-MC1005/4[1]	9/125 micron single-mode	-3.0 to 2.0	1550	-23.0

1. For maximum performance of Gigabit Optical Datalinks for distances greater than 40 km (24.8 mi) and operating within the 1550 nm optical spectrum, it is mandatory that the Single-mode Fiber (SMF) be rated as non-dispersion-shifted, dispersion shifted, or non-zero dispersion shifted.

Table 6 Launch and Receive Power Specifications

Model	Launch Power (dBm)			Receive Power (dBm)		
	Min.	Avg.	Max.	Minimum Sensitivity	Typical Sensitivity	Saturation
1000Base-SX						
AT-MC1004	-9.5	-6.0	-4.0	-17.0	-17.0	0.0
1000Base-LX						
AT-MC1005/1	-9.0	-5.0	-3.0	-20.0	-20.0	-3.0
AT-MC1005/2	-4.0	-1.0	1.0	-21.0	-21.0	-3.0
AT-MC1005/3	-4.0	-2.0	1.0	-21.0	-21.0	-3.0
AT-MC1005/4	-3.0	0.0	2.0	-23.0	-23.0	-3.0

RJ-45 Pin Assignments

Figure 8 shows the pin assignments of the media converter's RJ-45 port.

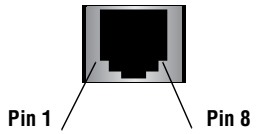

Figure 8 RJ-45 Pin Assignments

Table 7 lists the RJ-45 connector pins and their signals for 1000Base-T.

Table 7 RJ-45 Connector Pinouts

Pinout	Pair	Signal
1	0	TX and RX+
2	0	TX and RX-
3	1	TX and RX+
4	2	TX and RX+
5	2	TX and RX-
6	1	TX and RX-
7	3	TX and RX+
8	3	TX and RX-

Appendix B
Translated Safety Statements

Important: This appendix contains multiple-language translations for the safety statements in this guide.

Wichtig: Dieser Anhang enthält Übersetzungen der in diesem Handbuch enthaltenen Sicherheitshinweise in mehreren Sprachen.

Vigtigt: Dette tillæg indeholder oversættelser i flere sprog af sikkerhedsadvarslerne i denne håndbog.

Belangrijk: Deze appendix bevat vertalingen in meerdere talen van de veiligheidsopmerkingen in deze gids.

Important: Cette annexe contient la traduction en plusieurs langues des instructions de sécurité figurant dans ce guide.

Tärkeää: Tämä liite sisältää tässä oppaassa esiintyvät turvaohjeet usealla kielellä.

Importante: questa appendice contiene traduzioni in più lingue degli avvisi di sicurezza di questa guida.

Viktig: Dette tillegget inneholder oversettelser til flere språk av sikkerhetsinformasjonen i denne veiledningen.

Importante: Este anexo contém traduções em vários idiomas das advertências de segurança neste guia.

Importante: Este apéndice contiene traducciones en múltiples idiomas de los mensajes de seguridad incluidos en esta guía.

Obs! Denna bilaga innehåller flerspråkiga översättningar av säkerhetsmeddelandena i denna handledning.

Standards: This product meets the following standards.

U.S. Federal Communications Commission	
Declaration Of Conformity	
Manufacture Name:	Allied Telesyn, Inc.
Manufacture Address:	960 Stewart Drive, Suite B Sunnyvale, CA 94085 USA
Manufacture Telephone:	408-730-0950
Declares that the product:	Gigabit Ethernet Media Converters
Model Numbers:	AT-MC1004, AT-MC1005/1, AT-MC1005/2, AT-MC1005/3, AT-MC1005/4

This product complies with FCC Part 15B, Class B Limits:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device must not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Radiated Energy

Note: This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions, may cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on. The user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes and modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commission rules.

Industry Canada

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

1	RFI Emission	EN55022 Class B
2	**Warning**: In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.	
3	Immunity	EN55024
4	Electrical Safety	EN60950, UL1950, CSA 950
5	Laser	EN60825

Safety

6 **Warning:** Class 1 Laser product.

7 **Warning:** Do not stare into the laser beam.

8 **Electrical Notices**
Warning: ELECTRIC SHOCK HAZARD
To prevent ELECTRIC shock, do not remove the cover. No user-serviceable parts inside. This unit contains HAZARDOUS VOLTAGES and should only be opened by a trained and qualified technician. To avoid the possibility of ELECTRIC SHOCK, disconnect electric power to the product before connecting or disconnecting the LAN cables.

9 **Lightning Danger**
Danger: Do not work on equipment or cables during periods of lightning activity.

10 **Caution:** Power cord is used as a disconnection device. to de-energize equipment, disconnect the power cord.

11 Pluggable equipment, the socket outlet shall be installed near the equipment and shall be easily accessible.

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

13 **Operating Temperature:** This product is designed for a maximum ambient temperature of 40° degrees C.

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

Normen: Dieses Produkt erfüllt die Anforderungen der nachfolgenden Normen.

1	Hochfrequenzstörung	EN55022 Klasse B

2 **Warnung**: Bei Verwendung zu Hause kann dieses Produkt Funkstörungen hervorrufen. In diesem Fall müßte der Anwender angemessene Gegenmaßnahmen ergreifen.

3	Störsicherheit	EN55024
4	Elektrische Sicherheit	EN60950, UL1950, CSA 950
5	Laser	EN60825

Sicherheit

6 **Warnung:** Laserprodukt der Klasse 1.

7 **Warnung:** Nicht direkt in den Strahl blicken.

8 **Achtung:** GEFÄHRLICHE SPANNUNG
Das Gehäuse nicht öffnen. Das Gerät enthält keine vom Benutzer wartbaren Teile. Das Gerät steht unter Hochspannung und darf nur von qualifiziertem technischem Personal geöffnet werden. Vor Anschluß der LAN-Kabel, Gerät vom Netz trennen.

9 **Gefahr Durch Blitzschlag**
Gefahr: Keine Arbeiten am Gerät oder an den Kabeln während eines Gewitters ausführen.

10 **Vorsicht:** Das netzkabel dient zum trennen der stromversorgung. Zur trennung vom netz, kabel aus der steckdose ziehen.

11 Steckbares Gerät: Die Anschlußbuchse sollte in der Nähe der Einrichtung angebracht werden und leicht zugänglich sein."

12 **Vorsicht**
Die Entlüftungsöffnungen dürfen nicht versperrt sein und müssen zum Kühlen freien Zugang zur Raumluft haben.

13 **Betriebstemperatur:** Dieses Produkt wurde für den Betrieb in einer Umgebungstemperatur von nicht mehr als 40° C entworfen.

14 **Alle Länder:** Installation muß örtlichen und nationalen elektrischen Vorschriften entsprechen.

Standarder: Dette produkt tilfredsstiller de følgende standarder.

1 Radiofrekvens forstyrrelsesemission EN55022 Klasse B

2 **Advarsel**: I et hjemligt miljø kunne dette produkt forårsage radio forstyrrelse. Bliver det tilfældet, påkræves brugeren muligvis at tage tilstrækkelige foranstaltninger.

3 Immunitet EN55024

4 Elektrisk sikkerhed EN60950, UL1950, CSA 950

5 Laser EN60825

Sikkerhed

6 **Advarsel:** Laserprodukt av klasse 1.

7 **Advarsel:** Stirr ikke på strålen.

8 **Elektriske Forholdsregler**
AdvarseL: RISIKO FOR ELEKTRISK STØD
For at forebygge ELEKTRISK stød, undlad at åbne apparatet. Der er ingen indre dele, der kan repareres af brugeren. Denne enhed indeholder LIVSFARLIGE STRØMSPÆNDINGER og bør kun åbnes af en uddannet og kvalificeret tekniker. For at undgå risiko for ELEKTRISK STØD, afbrydes den elektriske strøm til produktet, før LAN-kablerne monteres eller afmonteres.

9 **Fare Under Uvejr**
Fare: Undlad at arbejde på udstyr eller kabler i perioder med lynaktivitet.

10 **Advarsel:** Den strømførende ledning bruges til at afbryde strømmen. Skal strømmen til apparatet afbrydes, tages ledningen ud af stikket.

11 Udstyr Til Stikkontakt, stikkontakten bør installeres nær ved udstyret og skal være lettilgængelig.

12 **Advarsel:** Ventilationsåbninger må ikke blokeres og skal have fri adgang til den omgivende luft i rummet for afkøling.

13 **Betjeningstemperatur:** Dette apparat er konstrueret til en omgivende temperatur på maksimum 40 grader C.

14 **Alle Lande:** Installation af produktet skal ske i overensstemmelse med lokal og national lovgivning for elektriske installationer.

Eisen: Dit product voldoet aan de volgende eisen.

1 RFI Emissie EN55022 Klasse B

2 **Waarschuwing**: Binnenshuis kan dit product radiostoring veroorzaken, in welk geval de gebruiker verplicht kan worden om gepaste maatregelen te nemen.

3 Immuniteit EN55024

4 Electrische Veiligheid EN60950, UL1950, CSA 950

5 Laser EN60825

Veiligheid

6 **Waarshuwing**: Klasse-1 laser produkt.

7 **Waarchuwing** Neit in de straal staren.

8 **Waarschuwingen Met Betrekking Tot Elektriciteit**
Waarschuwing: GEVAAR VOOR ELEKTRISCHE SCHOKKEN Verwijder het deksel niet, teneinde ELEKTRISCHE schokken te voorkomen. Binnenin bevinden zich geen onderdelen die door de gebruiker onderhouden kunnen worden. Dit toestel staat onder GEVAARLIJKE SPANNING en mag alleen worden geopend door een daartoe opgeleide en bevoegde technicus. Om het gevaar op ELEKTRISCHE SCHOKKEN te vermijden, moet u het toestel van de stroombron ontkoppelen alvorens de LAN-kabels te koppelen of ontkoppelen.

9 **Gevaar Voor Blikseminslag**
Gevaar: Niet aan toestellen of kabels werken bij bliksem.

10 **Waarschuwing:** Het toestel wordt uitgeschakeld door de stroomkabel te ontkoppelen.Om het toestel stroomloos te maken: de stroomkabel ontkoppelen.

11 Aan te sluiten apparatuur, de contactdoos wordt in de nabijheid van de apparatuur geïnstalleerd en is gemakkelijk te bereiken."

12 **Opgelet:** De ventilatiegaten mogen niet worden gesperd en moeten de omgevingslucht ongehinderd toelaten voor afkoeling.

13 **Bedrijfstemperatuur:** De omgevingstemperatuur voor dit produkt mag niet meer bedragen dan 40 graden Celsius.

14 **Alle Landen:** het toestel installeren overeenkomstig de lokale en nationale elektrische voorschriften.

Normes: ce produit est conforme aux normes de suivantes:

1	Emission d'interférences radioélectriques	EN55022 Classe B
2	**Mise En Garde**: dans un environnement domestique, ce produit peut provoquer des interférences radioélectriques. Auquel cas, l'utilisateur devra prendre les mesures adéquates.	
3	Immunité	EN55024
4	Sécurité électrique	EN60950, UL1950, CSA 950
5	Laser	EN60825

Sécurité

6 **Attention**: Producit laser di classe 1.

7 **Attention:** Ne pas fixer le faisceau des yeux.

8 **Information Sur Les Risques Électriques**
Avertissement: DANGER D'ÉLECTROCUTION
Pour éviter toute ÉLECTROCUTION, ne pas ôter le revêtement protecteur du matériel. Ce matériel ne contient aucun élément réparable par l'utilisateur. Il comprend des TENSIONS DANGEREUSES et ne doit être ouvert que par un technicien dûment qualifié. Pour éviter tout risque d'ÉLECTROCUTION, débrancher le matériel avant de connecter ou de déconnecter les câbles LAN.

9 **Danger De Foudre**
Danger: NE PAS MANIER le matériel ou les CÂBLES lors d'activité orageuse.

10 **Attention:** Le cordon d'alimentation sert de mise hors circuit. Pour couper l'alimentation du matériel, débrancher le cordon.

11 Equipement pour branchement electrique, la prise de sortie doit être placée près de l'équipement et facilement accessible".

12 **Attention:** Ne pas bloquer les fentes d'aération, ceci empêcherait l'air ambiant de circuler librement pour le refroidissement.

13 **Température De Fonctionnement:** Ce matériel est capable de tolérer une température ambiante maximum de ou 40 degrés Celsius.

14 **Pour Tous Pays:** Installer le matériel conformément aux normes électriques nationales et locales.

Standardit: Tämä tuote on seuraavien standardien mukainen.

1	Radioaaltojen häirintä	EN55022 Luokka B
2	**Varoitus**: Kotiolosuhteissa tämä laite voi aiheuttaa radioaaltojen häiröitä, missä tapauksessa laitteen käyttäjän on mahdollisesti ryhdyttävä tarpeellisiin toimenpiteisiin.	
3	Kestävyys	EN55024
4	Sähköturvallisuus	EN60950, UL1950, CSA 950
5	Laser	EN60825

Turvallisuus

6 **Varoitus:** Luokan 1 Lasertuote.

7 **Variotus:** Älä katso säteeseen.

8 **Sähköön Liittyviä Huomautuksia**
Varoitus: SÄHKÖISKUVAARA
Estääksesi SÄHKÖISKUN älä poista kantta. Sisällä ei ole käyttäjän huollettavissa olevia osia. Tämä laite sisältää VAARALLISIA JÄNNITTEITÄ ja sen voi avata vain koulutettu ja pätevä teknikko. Välttääksesi SÄHKÖISKUN mahdollisuuden katkaise sähkövirta tuotteeseen ennen kuin liität tai irrotat paikallisverkon (LAN) kaapelit.

9 **Salamaniskuvaara**
Hengenvaara: Älä työskentele laitteiden tai kaapeleiden kanssa salamoinnin aikana.

10 **Huomautus:** Virtajohtoa käytetään virrankatkaisulaitteena. Virta katkaistaan irrottamalla virtajohto.

11 Pistorasiaan kytkettävä laite; pistorasia on asennettava laitteen lähelle ja siihen on oltava esteetön pääsy."

12 **Huomautus:** Ilmavaihtoreikiä ei pidä tukkia ja niillä täytyy olla vapaa yhteys ympäröivään huoneilmaan, jotta ilmanvaihto tapahtuisi.

13 **Käyttölämpötila:** Tämä tuote on suunniteltu ympäröivän ilman maksimilämpötilalle 40°C.

14 **Kaikki Maat:** Asenna tuote paikallisten ja kansallisten sähköturvallisuusmääräysten mukaisesti.

Standard: Questo prodotto è conforme ai seguenti standard.

1	Emissione RFI (interferenza di radiofrequenza)	EN55022 Classe B
3	Immunità	EN55024
4	Sicurezza elettrica	EN60950, UL1950, CSA 950
5	Laser	EN60825

Norme Di Sicurezza

2 **Avvertenza:** in ambiente domestico questo prodotto potrebbe causare radio interferenza. In questo caso potrebbe richiedersi all'utente di prendere gli adeguati provvedimenti.

6 **Avvertenza:** Prodotto laser di Classe 1.

7 **Avertenza:** Non fissare il raggio con gli occhi.

8 **Avvertenze Elettriche**
Attenzione: PERICOLO DI SCOSSE ELETTRICHE
Per evitare SCOSSE ELETTRICHE non asportare il coperchio. Le componenti interne non sono riparabili dall'utente. Questa unità ha TENSIONI PERICOLOSE e va aperta solamente da un tecnico specializzato e qualificato. Per evitare ogni possibilità di SCOSSE ELETTRICHE, interrompere l'alimentazione del dispositivo prima di collegare o staccare i cavi LAN.

9 **Pericolo Di Fulmini**
Pericolo: Non lavorare sul dispositivo o sui cavi durante precipitazioni temporalesche.

10 **Attenzione:** Il cavo di alimentazione è usato come dispositivo di disattivazione. Per togliere la corrente al dispositivo staccare il cavo di alimentazione.

11 Apparecchiatura collegabile, la presa va installata vicino all'apparecchio per risultare facilmente accessibile".

12 **Attenzione:** le prese d'aria non vanno ostruite e devono consentire il libero ricircolo dell'aria ambiente per il raffreddamento.

13 **Temperatura Di Funzionamento:** Questo prodotto è concepito per una temperatura ambientale massima di 40 gradi centigradi.

14 **Tutti I Paesi:** installare il prodotto in conformità delle vigenti normative elettriche nazionali.

Sikkerhetsnormer: Dette produktet tilfredsstiller følgende sikkerhetsnormer.

1 RFI stråling EN55022 Klasse B

2 **Advarsel**: Hvis dette produktet benyttes til privat bruk, kan produktet forårsake radioforstyrrelse. Hvis dette skjer, må brukeren ta de nødvendige forholdsregler.

3 Immunitet EN55024

4 Elektrisk sikkerhet EN60950, UL1950, CSA 950

5  Laser EN60825

Sikkerhet

6  **Advarsel:** Laserprodukt av klasse 1.

7  **Advarsal:** Stirr ikke på strålen.

8  **Elektrisitet**
Advarsel: FARE FOR ELEKTRISK SJOKK
For å unngå ELEKTRISK sjokk, må dekslet ikke tas av. Det finnes ingen deler som brukeren kan reparere på innsiden. Denne enheten inneholder FARLIGE SPENNINGER, og må kun åpnes av en faglig kvalifisert tekniker. For å unngå ELEKTRISK SJOKK må den elektriske strømmen til produktet være avslått før LAN-kablene til- eller frakobles.

9  **Fare For Lynnedslag**
Fare: Arbeid ikke på utstyr eller kabler i tordenvær.

10  **Forsiktig:** Strømledningen brukes til å frakoble utstyret. For å deaktivisere utstyret, må strømforsyningen kobles fra.

11  Utstyr For Stikkontakt. Stikkontakten skal monteres i nærheten av utstyret og skal være lett tilgjengelig."

12  **Forsiktig:** Lufteventilene må ikke blokkeres, og må ha fri tilgang til luft med romtemperatur for avkjøling.

13  **Driftstemperatur:** Dette produktet er konstruert for bruk i maksimum romtemperatur på 40 grader celsius.

14  **Alle Land:** Produktet må installeres i samsvar med de lokale og nasjonale elektriske koder.

Padrões: Este produto atende aos seguintes padrões.

1	Emissão de interferência de radiofrequência	EN55022 Classe B
2	**Aviso**: Num ambiente doméstico este produto pode causar interferência na radiorrecepção e, neste caso, pode ser necessário que o utente tome as medidas adequadas.	
3	Imunidade	EN55024
4	Segurança Eléctrica	EN60950, UL1950, CSA 950
5	Laser	EN60825

Segurança

6 **Aviso:** Produto laser de classe 1

7 **Aviso:** Não olhe fixamente para o raio.

8 **Avisos Sobre Características Elétricas**
Atenção: PERIGO DE CHOQUE ELÉTRICO
Para evitar CHOQUE ELÉTRICO, não retire a tampa. Não contém peças que possam ser consertadas pelo usuário. Este aparelho contém VOLTAGENS PERIGOSAS e só deve ser aberto por um técnico qualificado e treinado. Para evitar a possibilidade de CHOQUE ELÉTRICO, desconecte o aparelho da fonte de energia elétrica antes de conectar e desconectar os cabos da LAN.

9 **Perigo De Choque Causado Por Raio**
Perigo: Não trabalhe no equipamento ou nos cabos durante períodos suscetíveis a quedas de raio.

10 **Cuidado:** O cabo de alimentação é utilizado como um dispositivo de desconexão. Para deseletrificar o equipamento, desconecte o cabo de alimentação.

11 Equipamento De Ligação, a tomada eléctrica deve estar instalada perto do equipamento e ser de fácil acesso."

12 **Cuidado:** As aberturas de ventilação não devem ser bloqueadas e devem ter acesso livre ao ar ambiente para arrefecimento adequado do aparelho.

13 **Temperatura De Funcionamento:** Este produto foi projetado para uma temperatura ambiente máxima de 40 graus centígrados.

14 **Todos Os Países:** Instale o produto de acordo com as normas nacionais e locais para instalações elétricas.

Estándares: Este producto cumple con los siguientes estándares.

1 Emisión RFI EN55022 Clase B

2 **Advertencia**: en un entorno doméstico, este producto puede causar radiointerferencias, en cuyo caso, puede requerirse del usuario que tome las medidas que sean convenientes al respecto.

3 Inmunidad EN55024

4 Seguridad eléctrica EN60950, UL1950, CSA 950

5 Laser EN60825

Seguridad

6 ¡**Advertencia**! Producto láser Clase 1.

7 **¡Advertencia!** No mirat fijamente el haz.

8 **Avisos Electricos**
Advertencia: PELIGRO DE ELECTROCHOQUE
Para evitar un ELECTROCHOQUE, no quite la tapa. No hay ningún componente en el interior al cual puede prestar servicio el usuario. Esta unidad contiene VOLTAJES PELIGROSOS y sólo deberá abrirla un técnico entrenado y calificado. Para evitar la posibilidad de ELECTROCHOQUE desconecte la corriente eléctrica que llega al producto antes de conectar o desconectar los cables LAN.

9 **Peligro De Rayos**
Peligro: No realice ningun tipo de trabajo o conexion en los equipos o en los cables durante tormentas electricaS.

10 **Atencion:** El cable de alimentacion se usa como un dispositivo de desconexion. Para desactivar el equipo, desconecte el cable de alimentación.

11 Equipo Conectable, el tomacorriente se debe instalar cerca del equipo, en un lugar con acceso fácil".

12 **Atencion:** Las aberturas para ventilación no deberán bloquearse y deberán tener acceso libre al aire ambiental de la sala para su enfriamiento.

13 **Temperatura Requerida Para La Operación:** Este producto está diseñado para una temperatura ambiental máxima de 40 grados C.

14 **Para Todos Los Países:** Monte el producto de acuerdo con los Códigos Eléctricos locales y nacionales.

Standarder: Denna produkt uppfyller följande standarder.

1 Radiostörning EN55022 Klass B

2 **Varning**: Denna produkt kan ge upphov till radiostörningar i hemmet, vilket kan tvinga användaren till att vidtaga erforderliga åtgärder.

3 Immunitet EN55024

4 Elsäkerhet EN60950, UL1950, CSA 950

5 Laser EN60825

Säkerhet

6 **Varning**! Laserprodukt av klass 1.

7 **Varning!** Laserstrålning när enheten är öppen.

8 **Tillkännagivanden Beträffande Elektricitetsrisk:**
RISK FÖR ELEKTRISK STÖTFör att undvika ELEKTRISK stöt, ta ej av locket. Det finns inga delar inuti som behöver underhållas. Denna apparat är under HÖGSPÄNNING och får endast öppnas av en utbildad kvalificerad tekniker. För att undvika ELEKTRISK STÖT, koppla ifrån produktens strömanslutning innan LAN-kablarna ansluts eller kopplas ur.

9 **Fara För Blixtnedslag**
Fara: Arbeta ej på utrustningen eller kablarna vid åskväder.

10 **Varning:** Nätkabeln används som strömbrytare för att koppla från strömmen, dra ur nätkabeln.

11 Utrustning Med Plugg. Uttaget skall installeras i utrustningens närhet och vara lättåtkomligt".

12 **Varning:** Luftventilerna får ej blockeras och måste ha fri tillgång till omgivande rumsluft för avsvalning.

13 **Driftstemperatur:** Denna produkt är konstruerad för rumstemperatur ej överstigande 40 grader Celsius.

14 **Alla Länder:** Installera produkten i enlighet med lokala och statliga bestämmelser för elektrisk utrustning.