

Fast Ethernet to Optical Media Converter MCE300T Data Sheet



DESCRIPTION

Firecomms Fast Ethernet CAT 5 to optical Media Converter accepts standard 100 Mbps Fast Ethernet traffic from 100 Base-Tx source over CAT 5 connected via a standard RJ45 jack. Ethernet traffic is fed to a 100 Base-Fx compatible PHY IC to a Firecomms Fast Ethernet fiber optic transceiver (Tx + Rx) housed in an OptoLock connector format.

Auto-MDIX, a standard feature on the PHY IC used in this media converter, automatically corrects for cable cross-over. The PHY provides the optimum data handling conditions for streaming video with excellent quality of service (QoS). This link is particularly suitable for applications such as IPTV delivered over a POF physical layer. The Firecomms RCLED based transceiver provides high levels of light coupling into fiber with short rise and fall times. This enables Ethernet signalling over large core POF.

The media converter may be used wherever it is required to convert Fast Ethernet traffic from copper cables to an optical cable. A pair of media converters may be used to form an optical "bridge" between two copper based networks. A single media converter may be used to link a unit already equipped for Plastic Optical Fiber into a copper cable based network.

FEATURES

- Converts Ethernet over copper to Ethernet over plastic optical fiber
- 100 Mbps data (125 MBd) throughput sends high speed Fast Ethernet up to 100 meters over POF
- High speed 650 nm Resonant Cavity LED
- Compatible with IEEE 802.3u Fast Ethernet data communications standard
- Auto MDIX simplifies cable selection
- Enables low cost and rugged optical data networks
- RoHS compliant
- CE marked



APPLICATIONS

- Point to Point Fast Ethernet Links
- Set top box to gateway box in home network
- Networking of robots in industrial environment
- Connection of medical devices
- IPTV over POF
- Secure/tamperproof network
- High EMI immunity

SPECIFICATIONS

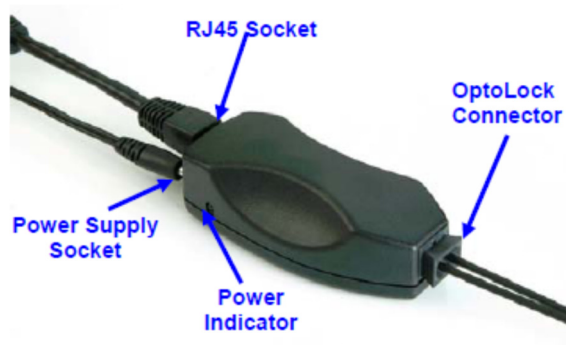
Storage Specifications

Parameter	Symbol	Minimum	Maximum	Unit
Storage Temperature	T_{stg}	-20	+70	°C
Operating Temperature	T_{op}	-20	+60	°C

Media Converter Specifications

Parameter	Description	Minimum	Typical	Maximum	Unit
Vcc	DC supply voltage	4.5	5	5.5	V
Icc	Current Consumption	100	-	200	mA
Baud Rate	For an 8B/10B encoded data bus	10	-	125	MBd
λ_{peak}	Peak Wavelength of Transmitter RCLED at 25°C	640	660	670	nm
$\Delta\lambda$	Spectral Bandwidth (FWHM)	-	23	30	nm
PO25	Average Output Power coupled into plastic fiber at TA=25 and 125Mbps data rate.	-4.0	-	-2.0	dBm
PO95	Average Output Power coupled into plastic fiber at TA= -20 to 60 oC and 125Mbps data rate	-7.0	-	-2.0	dBm
Tr	Optical Rise Time (20% - 80%)	-	1.5	2	ns
Tf	Optical Fall Time (80% - 20%)	-	2	3	ns
PINmin	Minimum Receivable Power	-24	-	-	dBm
PINmax	Maximum Receivable Power	0	+2	-	dBm

MEDIA CONVERTER USER INSTRUCTIONS



Purpose

The MCE300 Media Converter allows Fast Ethernet traffic to pass between a Plastic Optical Fiber and a CAT5 twisted pair cable.

Safety

The light source in the optical connector is classified “Class 1” eye safe.

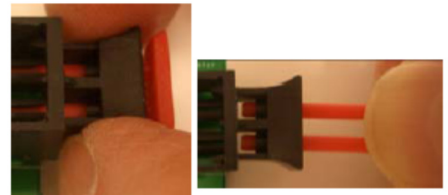
Do not dismantle the Media Converter or the power supply unit as there are no user-serviceable parts inside.

It is normal for the Media Converter and the power supply to become warm during normal operation. If either becomes excessively hot, emits smoke or appears to be melting then do not touch. Power down, by switching off the mains supply at source and discontinue use of the unit.

Power Supply is 5V DC, 300mA centre positive. Unit is for indoor use only. Do not place over a heater or over the cooling grid of other equipment.

Installation

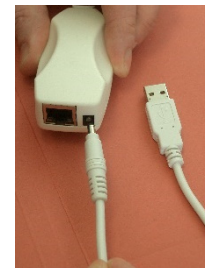
- (1) Remove the dust cap if present. Pull the transceiver lock to the open position and pull the dust cap free of the connector.



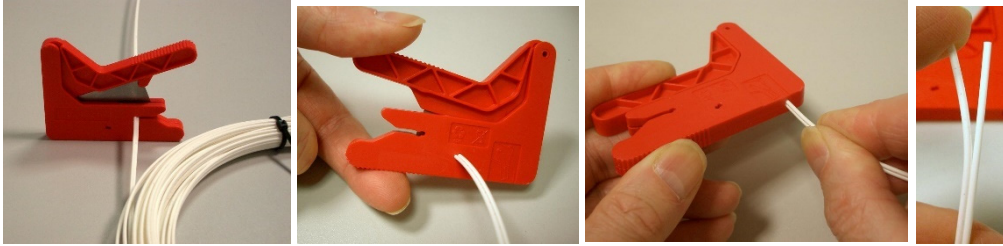
- (2) Power up the media converter using either the 5V DC power brick and cord connected to mains power OR to 5V via the USB power-only cable connected to a standard USB connector. The green LED at the side should light up indicating power on. Shortly after the OptoLock will emit red light from its transmitter port (the hole marked TX).



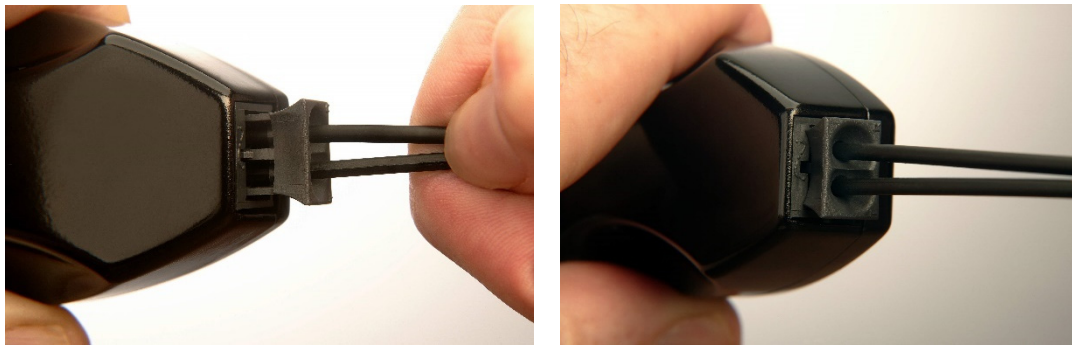
OR



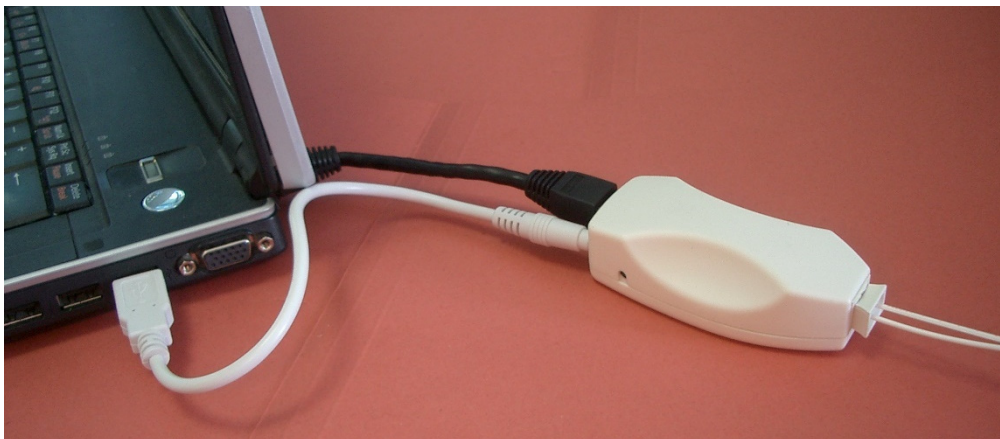
- (3) With both pieces of equipment switched on, terminate one end of the POF cable. Using a cutter, slice of a small section of POF to a clean cut. Then separate the fiber.



- (4) Insert both fibers into the OptoLock.



- (5) Slide the fiber in until it is fully home, then press closed the OptoLock.
- (6) Connect the CAT5 cable to both the media converter and the target equipment (e.g. a laptop, desktop, set-top-box or router).



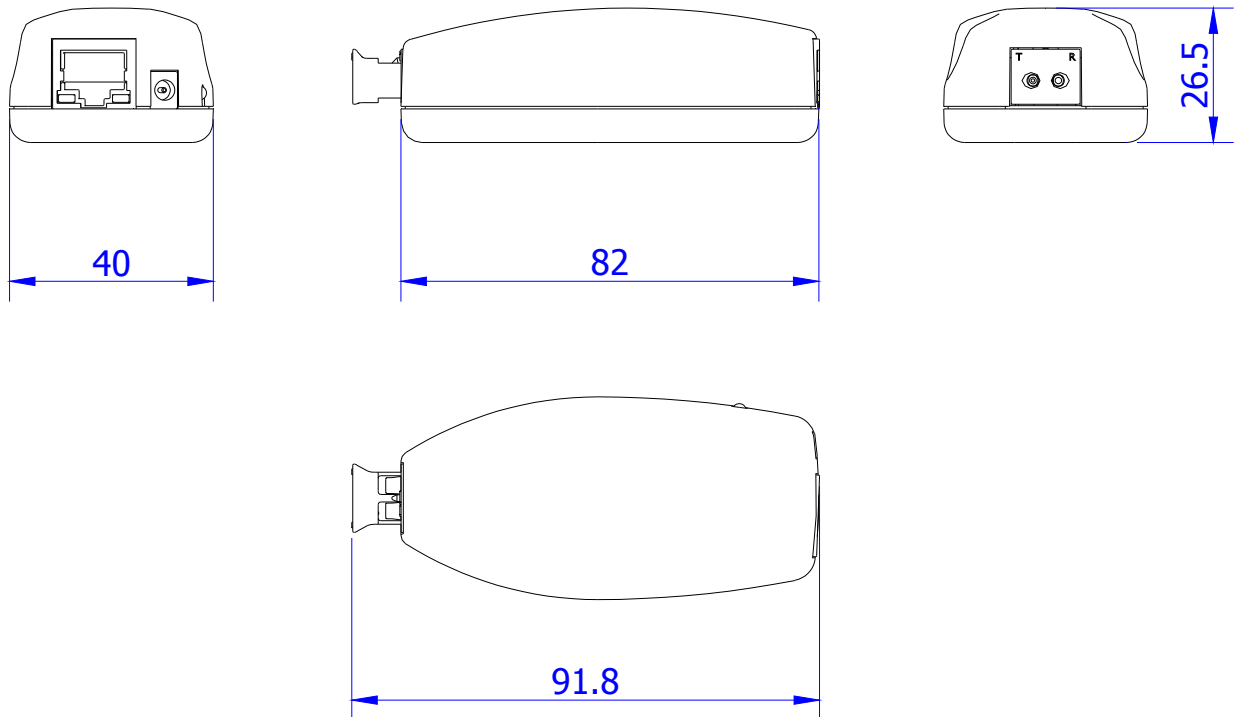
- (7) At the other end of the connection take the fiber and the powered up media converter. Terminate the fiber with a clean cut and separate the two strands. Match the fiber strands to the OptoLock as follows. The lit fiber should insert into the dark side of the OptoLock (marked RX). The dark fiber should insert into the lit side of the OptoLock (marked TX).



- (8) As before push the fiber fully into the transceiver as far as it will travel and push the transceiver lock to close and secure the POF into place.
- (9) Once again connect the CAT5 cable to the Ethernet equipment and to the media converter.
- (10) The green and yellow LED's on each media converter should be lit and start flashing indicating that data is flowing in the link.



DIMENSIONS (mm)



ORDERING INFORMATION (For media converter main unit only)

Part Number	Description
MCE300T-229	Ethernet Media Converter, White, 2.2 mm OptoLock®
MCE300T-220	Ethernet Media Converter, Black, 2.2 mm OptoLock®
MCE300T-159	Ethernet Media Converter, White, 1.5 mm OptoLock®
MCE300T-150	Ethernet Media Converter, Black, 1.5 mm OptoLock®

Note: Cables and accessories are not included in above part numbers. Please see below for more information.

ACCESSORIES

Please contact the nearest sales representative for additional region specific DC power supplies, POF cables and CAT 5 cables.

Media converter kits are available upon request which can be customised for specific applications.