Omnitron Systems

miConverter® 10/100 PoE/D Media Converter

User Manual

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Safety Warnings and Cautions

ATTENTION: Observe precautions for handling electrostatic discharge sensitive devices.

WARNING: Potential damage to equipment and personal injury.

WARNING: Risk of electrical shock.

Technical Support:

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General

This User Manual covers the following model numbers:

Fiber Type and Distance	Connector Types				Tx Lambda (nm)	Rx Lambda (nm)
	ST	SC	LC	SFP		
-	-	-		1119D-0	-	-
MM/DF/5km	1100D-0	1102D-0	1106D-0		1310	1310
SM/DF/30km	1101D-1	1103D-1	1107D-1		1310	1310
SM/DF/60km	1101D-2	1103D-2			1310	1310
SM/DF/120km	-	1103D-3			1550	1550
SM/SF/20km	-	1110D-1			1310	1550
SM/SF/20km	-	1111D-1			1550	1310
SM/SF/40km	-	1110D-2			1310	1550
SM/SF/40km	-	1111D-2			1550	1310
SM/SF/60km	-	1110D-3			1310	1550
SM/SF/60km	-	1111D-3			1550	1310

Model numbers are followed by **-bpt**, where **b** indicates the mounting option, **p** indicates the specific type of power option and **t** indicates the temperature range.. See the data sheet for more information.

Description

The miniature miConverter 10/100 PoE/D is a rate-switching 10/100 RJ-45 copper to 100BASE-X fiber media converter that can be powered with Power over Ethernet (PoE) when connected to PoE switches and midspans. It can also be powered with DC power or AC power with an external power adapter.

The 100BASE-X fiber port operates in Full-Duplex mode and supports single-mode or multimode fiber with ST, SC or LC fiber connectors. Single-fiber models feature Bi-Directional fiber and support distances of up to 40km. The various fiber model options are described in the table on the first page.

The RJ-45 port can auto-negotiate by detecting the speed and duplex-mode of the connected device. Upon connection to the UTP device, the RJ-45 port speed adjusts to either 10Mbps or 100Mbps, and the duplex-mode adjusts to either Full-Duplex or Half-Duplex.

Powering Modes

The miConverter 10/100 PoE/D features power redundancy with AC or DC external power options when used with PoE powering.

AC power adapter is available in US, Universal and Country/Region specific models. Country/Region specific models feature optional interchangeable connectors, allowing for compatibility with electrical outlet types found around the world.

WARNING!
Before inserting the Power Adapter, verify that the power on the unit is appropriate for your AC line voltage source.

This product should only be used with Omnitron Supplied Power Unit.

To power the module using the AC/DC adapter, connect the AC/DC adapter to the AC outlet. Then connect the barrel connector at the end of the cable to the back of the miConverter. Confirm that the module has powered up properly by checking the power status LED located on the top of the module.

To power the unit using a DC power source, prepare a power cable using a two-conductor insulated wire (not supplied) with 12AWG to 14AWG thickness. Cut the power cable to the length required. Strip approximately 3/8 of an inch of insulation from the power cable wires. Connect the power cables to the unit by fastening the stripped ends to the DC power connector.

Connect the power wires to the DC power source. The Power LED should indicate the presence of power.

WARNING: Note the wire colors used in making the positive and negative connections. Use the same color assignment for the connection at the DC power source.

The 10/100 PoE/D is compatible with IEEE 802.3af, IEEE 802.3at and most 60W power source equipment. It supports Alternate A and B powering modes.

Powering Mode	Pin Numbers
IEEE Alternate A (Alt A)	Vport Positive - pins 1,2 Vport Negative - pins 3,6
IEEE Alternate B (Alt B)	Vport Positive - pins 4,5 Vport Negative - pins 7,8

Mounting and Cable Attachment

The miConverter 10/100 PoE/D table-top model can be quick-mounted using the included Velcro® strips, or permanently mounted using the optional wall-mounting kit (P/N 4381). The wall mount model has built-in mounting brackets for easy of permanent mounting.

Attach the RJ-45 port of the miConverter 10/100 PoE/D to a 10BASE-T or 100BASE-TX PoE capable Ethernet device, via a category 5 or better cable.

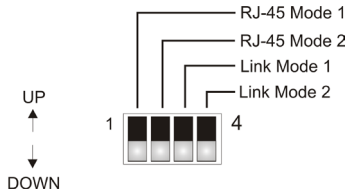
Attach the fiber port of the miConverter 10/100 PoE/D to a 100BASE-X Fast Ethernet device, via a fiber cable of appropriate mode and type.

When connecting the dual-fiber models, the miConverter transmitter (Tx) must attach to the receiver side of its link partner; the receiver (Rx) must attach to the transmitter.

When using single-fiber (SF) media converter models, the Tx wavelength on one end has to match the Rx wavelength on the other. Based on this guideline, the SF media converter models must be used in pairs, such as the 1110D-1 matched with the 1111D-1.

DIP-Switch Settings

The miConverter has four DIP-switches on the side of the module. The DIP-switches allow the RJ-45 port to be configured for auto-negotiation or manual operation. The DIP-switches also configure link modes which propagates link failures.



RJ-45 Mode Configuration

When configured for auto-negotiation, Pause is always advertised. Each port will resolve Pause capability independently during auto-negotiation. If NO Pause is resolved, the port will not send or respond to Pause frames.

RJ-45 Mode 1	RJ-45 Mode 2	RJ-45 Mode of Operation
Down	Down	RJ-45 port set to auto-negotiation. The following modes are advertised. 100F, 100H, 10F, 10H, and symmetrical pause.
Down	Up	Manual Operation - 100H
Up	Down	Manual Operation - 10F
Up	Up	Manual Operation - 100F

Link Modes

Link Mode 1	Link Mode 2	Link Mode of Operation
Down	Down	Link Segment
Down	Up	Link Propagate - Port 2 to Port 1
Up	Down	Link Propagate - Port 1 to Port 2
Up	Up	Link Propagate - Port 1 to Port 2 and Port 2 to Port 1

Link Segment

In Link Segment mode, all ports operate independently. A loss of a receive link signal will only affect the port detecting the loss of signal. All the other ports will continue to generate a link signal.

Link Propagate

In Link Propagate mode, the loss of a receive link signal will continue to propagate through to the next port in the network causing the port to drop link.

Asymmetrical Link Propagate

In Asymmetrical Link Propagate mode, faults are propagated based on the port notation. Port 1 to Port 2 notation indicates the direction the loss of link signal will

propagate. A loss of receive link on the fiber optic Port 1 causes the RJ-45 Port 2 to drop its link due to the propagated state (Port 1 to Port 2).

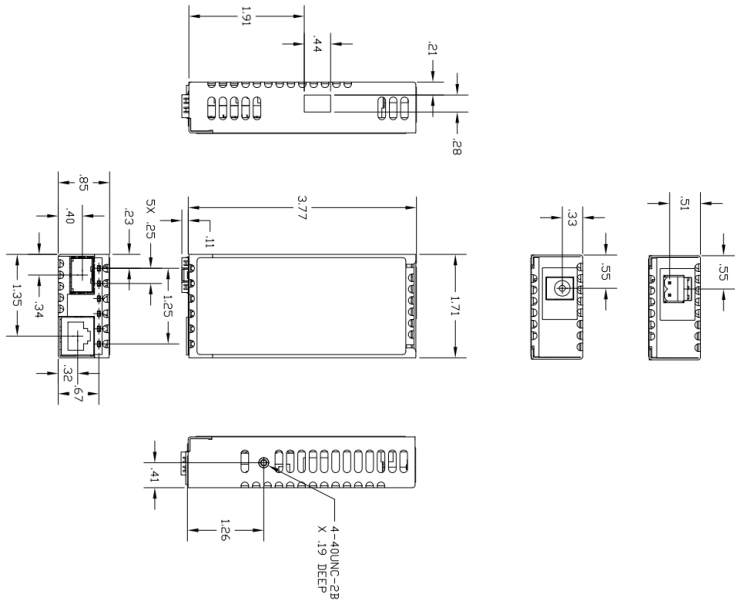
LED Indicators

LED	Color	Description
AC/DC Power "Pwr"	Green	Off: No AC/DC power On: Power applied
PoE Power "PoE"	Green	Off: No PoE power detected On: PoE power applied
Fiber Link "F/O"	Green	Off: No fiber link On: Fiber link Blinking (10hz): Data Blinking (1hz): RX FEFI
	Amber	Off: No fiber link or DDMI alarm On: Link with DDMI alarm Blinking (10Hz): Data with DDMI Blinking (1Hz): RX FEFI and DDMI
RJ-45 Speed "10"	Green	Off: No link at 10M On: Linked at 10M Blinking (10Hz): Data at 10M
RJ-45 Speed "100"	Green	Off: No link at 100M On: Linked at 100M Blinking (10Hz): Data at 100M
RJ-45 Duplex "FDX"	Green	Off: Half Duplex On: Full Duplex

DDMI alarm indicates a possible problem with the SFP transceiver installed in the module. SFP transceivers are programmed with alarm thresholds for different parameters and the DDMI alarm indicates a threshold issue.

Specifications

Standard Compliances	IEEE 802.3, 802.3af	
Regulatory Compliances	Safety: EMI: ACT:	UL, cUL, CE, UKCA FCC Class A TAA, BAA, NDAA
Environmental	RoHS, REACH, WEEE	
Frame Size	Up to 2,048 bytes	
Port Types	Copper: Fiber:	10/100BASE-T (RJ-45) 100BASE-X (ST, SC, LC, SFP)
Cable Types	Copper: Fiber:	EIA/TIA 568A/B, Cat 5 UTP and higher Multimode: 50/125µm, 62.5/125µm Single-mode: 9/125µm
AC Power Requirements	AC Adapter:	100 - 240VAC/50 - 60Hz 0.03A @ 120VAC (max)

DC Power Requirements	DC Input: (AC Adapter)	8.0 to 60.0VDC 0.28A @ 9VDC 2.5mm Barrel Connector
	DC Input: (Terminal Connector)	8.0 to 60.0VDC 0.28A @ 9VDC 2-Pin Terminal Connector
	DC Input: (PoE)	44 - 57VDC, 0.05A @ 48VDC (typical) RJ-45 (Alternative A & B)
Dimensions **W x D x H**	Standalone: Standalone w/Integrated Brackets	1.71" x 4.10" x 0.84" (43.4 mm x 104.1 mm x 21.3 mm) 2.41" x 4.10" x 0.84" (61.2 mm x 104.1 mm x 21.3 mm)
Weight	Module: With AC adapter:	4 oz. (113.4 grams) 12 oz. (340.2 grams)
Temperature	Commercial: Wide: Extended:	0 to 50°C -40 to 60°C -40 to 75°C (Industrial models only)
Humidity	5 to 95% (non-condensing)	
Altitude	-100m to 4,000m	
MTBF (hrs)	Module: With AC Adapter:	1,160,000 206,000
Warranty	Lifetime warranty with 24/7/365 free Technical Support	

Mechanical