Omnitron Systems

miConverter® GX/T PoE/D Media Converter

User Manual

38 Tesla, Irvine, CA 92618 USA
Phone: (949) 250-6510; Fax: (949) 250-6514

General and Copyright Notice

This publication is protected by U.S. and international copyright laws. All rights reserved. The whole or any part of this publication may not be reproduced, stored in a retrieval system, translated, transcribed, or transmitted, in any form, or by any means, manual, electric, electronic, electromagnetic, mechanical, chemical, optical or otherwise, without prior explicit written permission of Omnitron Systems Technology, Inc.

The following trademarks are owned by Omnitron Systems Technology, Inc.: FlexPoint®, FlexSwitch®, HybridNID®, iConverter®, miConverter®, NetOutlook®, OmniLight®, OmniConverter®, RuggedNet®, Omnitron Systems Technology, Inc.™, OST™ and the Omnitron logo.

All other company or product names may be trademarks of their respective owners.

The information contained in this publication is subject to change without notice. Omnitron Systems Technology, Inc. is not responsible for any inadvertent errors.

Warranty

This product is warranted to the original purchaser (Buyer) against defects in material and workmanship for a period of two (2) years from the date of shipment. A lifetime warranty may be obtained by the original purchaser by registering this product at www.omnitron-systems.com/support within ninety (90) days from the date of shipment. During the warranty period, Omnitron will, at its option, repair or replace a product which is proven to be defective with the same product or with a product with at least the same functionality.

For warranty service, the product must be sent to an Omnitron designated facility, at Buyer's expense. Omnitron will pay the shipping charge to return the product to Buyer's designated US address using Omnitron's standard shipping method.

Limitation of Warranty

The foregoing warranty shall not apply to product malfunctions resulting from improper or inadequate use and/or maintenance of the equipment by Buyer, Buyer-supplied equipment, Buyer-supplied interfacing, unauthorized modifications or tampering with equipment (including removal of equipment cover by personnel not specifically authorized and certified by Omnitron), or misuse, or operating outside the environmental specification of the product (including but not limited to voltage, ambient temperature, radiation, unusual dust, etc.), or improper site preparation or maintenance.

No other warranty is expressed or implied. Omnitron specifically disclaims the implied warranties of merchantability and fitness for any particular purpose.

The remedies provided herein are the Buyer's sole and exclusive remedies. Omnitron shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any legal theory.

Environmental Notices

The equipment covered by this manual must be disposed of or recycled in accordance with the Waste Electrical and Electronic Equipment Directive (WEEE Directive) of the European Community directive 2012/19/EU on waste electrical and electronic equipment (WEEE) which, together with the RoHS Directive 2015/863/EU, for electrical and electronic equipment sold in the EU after July 2019. Such disposal must follow national legislation for IT and Telecommunication equipment in accordance with the WEEE directive: (a) Do not dispose waste equipment with unsorted municipal and household waste. (b) Collect equipment waste separately. (c) Return equipment using collection method agreed with Omnitron.

The equipment is marked with the WEEE symbol shown to indicate that it must be collected separately from other types of waste. In case of small items the symbol may be printed only on the packaging or in the user manual. If you have questions regarding the correct disposal of equipment go to www.omnitron-systems.com/support or e-mail to Omnitron at intlinfo@omnitron-systems.com.

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:

Phone: (949) 250-6510
Fax: (949) 250-6514
Address: Omnitron Systems Technology
38 Tesla
Irvine, CA 92618 USA
E-mail: support@omnitron-systems.com
URL: http://www.omnitron-systems.com

040-1200D-001E 6/26

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		
-	-	-		1239D-0	-	-
MM/DF/220/550	1220D-0	1222D-0	1226D-0	-	850	850
SM/DF/12km	1221D-1	1223D-1	1227D-1	-	1310	1310
SM/DF/34km	1221D-2	1223D-2	-	-	1310	1310
SM/DF/80km	-	1223D-3	-	-	1550	1550
SM/DF/110km	-	1223D-4	-	-	1550	1550
SM/DF/140km	-	1223D-5	-	-	1550	1550
SM/SF/20km	-	1230D-1	-	-	1310	1550
SM/SF/20km	-	1231D-1	-	-	1550	1310
SM/SF/40km	-	1230D-2	-	-	1310	1550
SM/SF/40km	-	1231D-2	-	-	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 GX/T PoE/D is a rate-switching 10/100/1000 RJ-45 copper to 100/1000BASE-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 1000BASE-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, 100Mbps or 1000Mbps, and the duplex-mode adjusts to either Full-Duplex or Half-Duplex.

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

Powering Modes

The GX/T 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.

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 GX/T 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 GX/T 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 mounting.

Attach the RJ-45 port of the miConverter GX/T PoE/D to a 10BASE-T, 100BASE-TX or 1000BASE-T PoE capable Ethernet device, via a category 5 or better cable.

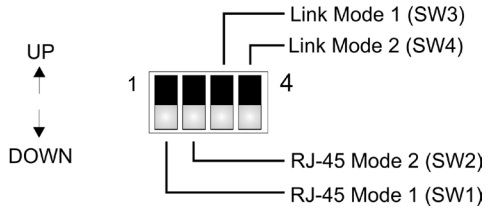
Attach the fiber port of the miConverter GX/T PoE/D to a 100BASE-X or 1000BASE-X Ethernet device, depending on the SFP transceiver installed in the module or fixed fiber optic, via a fiber cable of appropriate mode and type.

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 1230D-1 matched with the 1231D-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.

SW1	SW2	RJ-45 Mode of Operation
Down	Down	RJ-45 port set to auto-negotiation. The following modes are advertised. 1000F, 1000H, 100F, 100H, 10F, 10H, symmetrical and asymmetrical pause.
Down	Up	Manual Operation - 100 HDX
Up	Down	Manual Operation - 10 FDX
Up	Up	Manual Operation - 100 FDX

Link Mode

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).

SW3	SW4	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

LED Indicators

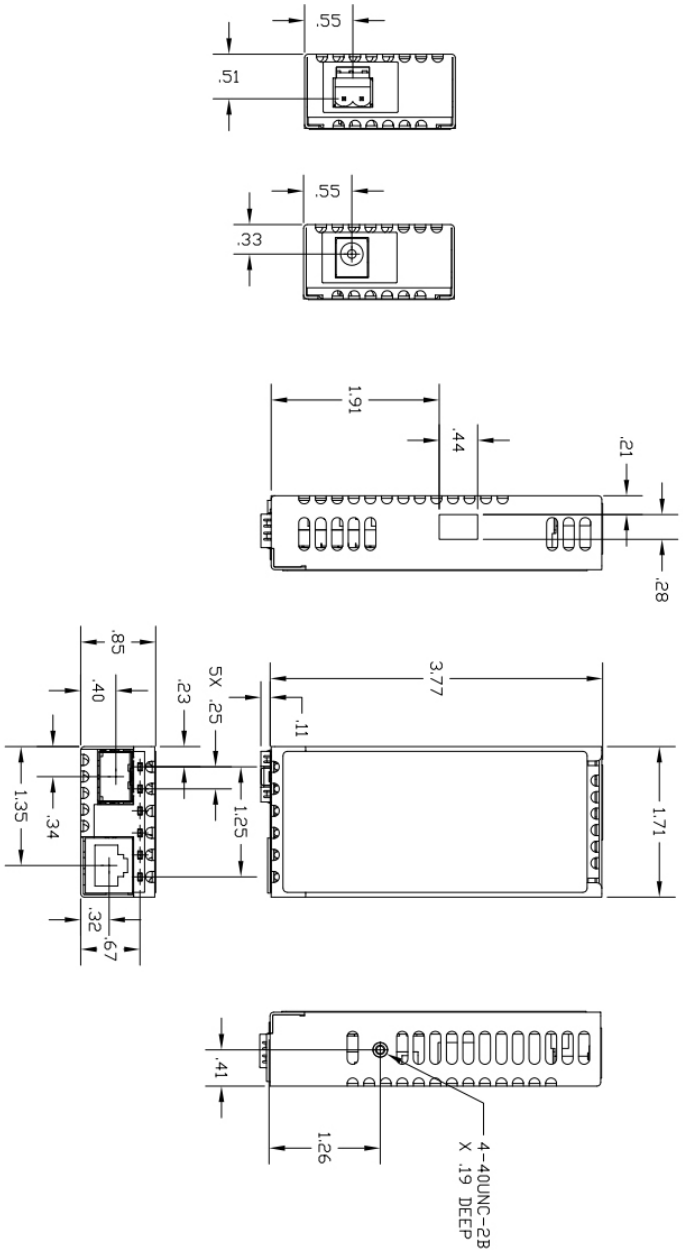
DDMI alarm indicates a possible problem with the SFP transceiver installed in the module. SFP transceivers are programmed with alarm thresholds for different parameters and the DDMI alarm indicates a threshold issue.

LED	Color	Description
AC/DC Power "DC"	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 100"	Green	Off: No fiber link Solid Green: Linked at 100 Blinking Green (10hz): Data Blinking Green (1hz): RX FEFI Solid Amber: Link with DDMI alarm Blinking Amber (10Hz): Data with DDMI Blinking Amber (1Hz): RX FEFI and DDMI
Fiber Link "F/O 1000"	Green	Solid Green: Linked at 1000 Blinking Green (10hz): Data Blinking Green (1hz): RX FEFI Solid Amber: Link with DDMI alarm Blinking Amber (10Hz): Data with DDMI Blinking Amber (1Hz): RX FEFI and DDMI
RJ-45 Speed "RJ-45 10"	Green	Solid Green: Linked at 10 FDX Blinking Green (10Hz): Data at 10 FDX Solid Amber: Linked at 10 HDX Blinking Amber (10Hz): Linked at 10 HDX
RJ-45 Speed "RJ-45 100"	Green	Solid Green: Linked at 100 FDX Blinking Green (10Hz): Data at 100 FDX Solid Amber: Linked at 100 HDX Blinking Amber (10Hz): Linked at 100 HDX
RJ-45 Speed "RJ-45 1000"	Green	Solid Green: Linked at 1000 FDX Blinking Green (10Hz): Data at 1000 FDX Solid Amber: Linked at 1000 HDX Blinking Amber (10Hz): Linked at 1000 HDX

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 10,240 bytes	
Port Types	Copper: Fiber:	10/100/1000BASE-T (RJ-45) 100BASE-X (SFP) 1000BASE-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 0.278A @ 9VDC 2.5mm Barrel Connector
	DC Input: (Terminal Connector)	8.0 to 60.0VDC 0.278A @ 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:	0 to 50°C -40 to 60°C
Humidity	5 to 95% (non-condensing)	
Altitude	-100m to 4,000m	
MTBF (hrs)	Module: With AC Adapter:	859,588 102,249
Warranty	Lifetime warranty with 24/7/365 free Technical Support	

Mechanical



Intentionally Left Blank