Omnitron Systems

miConverter® **Gx**
Media Converter

User Manual

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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:

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040-01200-001L 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		
MM/DF/220m	1200-0-pt	1202-0-pt	1206-0-pt	850	850
SM/DF/12km	1201-1-pt	1203-1-pt	1207-1-pt	1310	1310
SM/DF/34km	-	1203-2-pt		1310	1310
SM/DF/80km	-	1203-3-pt		1550	1550
SM/DF/110km	-	1203-4-pt		1550	1550
SM/DF/140km	-	1203-5-pt		1550	1550
MM/SF/550m	-	1210-0-pt		1310	1550
MM/SF/550m	-	1211-0-pt		1550	1310
SM/SF/20km	-	1210-1-pt		1310	1550
SM/SF/20km	-	1211-1-pt		1550	1310
SM/SF/40km	-	1210-2-pt		1310	1550
SM/SF/40km	-	1211-2-pt		1550	1310
SFP	1219-0-pt				

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

Description

The miConverter Gx converts between 1000BASE-T copper and 1000BASE-X Gigabit Ethernet fiber. The fiber optic port supports Auto-negotiation and Manual configuration via DIP-switches. The RJ-45 port automatically detects and advertises the Duplex and Pause abilities of connected Gigabit fiber optic and UTP devices.

The 1000BASE-X fiber port supports ST, SC and LC fiber connectors. Single-fiber and dual fiber models are listed in the table on the first page of this manual.

WARNING!

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

Power Modes

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 USB cable, connect the USB Standard Type A connector to a USB port on the computer. Then connect the connector at the other end of the cable (barrel connector) to the connector on 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 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 module 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.

Installation Procedure

The miConverter Gx can be quick-mounted using the included Velcro® strips, or permanently mounted using the optional wall-mounting kit (P/N 4381).

Configure the appropriate DIP-switch settings. If connecting to a fiber optic device that is set to auto-negotiation mode, set the fiber optic Auto-negotiation/Manual "AN/Man" DIP-switch to "AN." If connecting to a fiber optic device that is set to manual mode, set the fiber optic "AN/Man" switch to "Man" and the RJ-45 DIP-switches to the settings of the connected devices.

Connect the RJ-45 port to a 1000BASE-T Ethernet device using a Category 5 cable (or better).

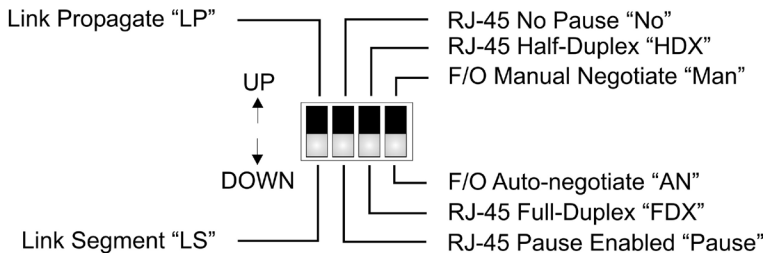
When using a SFP model, insert the SFP fiber transceiver into the Port 1 SFP receptacle on the Gx.

NOTE: The release latch of the SFP fiber transceiver must be in the closed (up) position before insertion.

When connecting the dual-fiber models, the 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 1210-1 matched with the 1211-1.

DIP-Switch Settings



Fiber Optic Auto/Manual "AN/Man" DIP-switch:

Setting this DIP-switch to the Auto-negotiation "AN" (factory default) setting enables the fiber optic port of the module to negotiate the Duplex and Pause modes with the connected fiber optic and UTP devices. The RJ-45 port negotiates with the connected UTP device based on the modes detected by the fiber optic port. Both the miConverter Gx and the connected fiber optic device must have their fiber optic auto-negotiation enabled for this process to work.

Setting this DIP-switch to the Manual "Man" setting disables the fiber optic port's ability to detect the Duplex and Pause modes of the connected fiber optic device. In this setting, the RJ-45 port negotiates with the connected UTP device based on the modes configured by the RJ-45 DIP-switches. This setting allows the miConverter Gx to connect to Gigabit fiber devices that are not capable of auto-negotiation.

Note: In auto-negotiation mode, connecting the fiber optic cables before connecting the UTP cables causes the fiber optic LED to blink steadily (0.5Hz). The blinking LED turns solid when the RJ-45 link is on and blinks quickly (10Hz) when activity is detected.

Note: The RJ-45 "FDX/HDX", "Pause/No", and "LS/LP" DIP-switches have no affect when the fiber optic port is set to auto-negotiation.

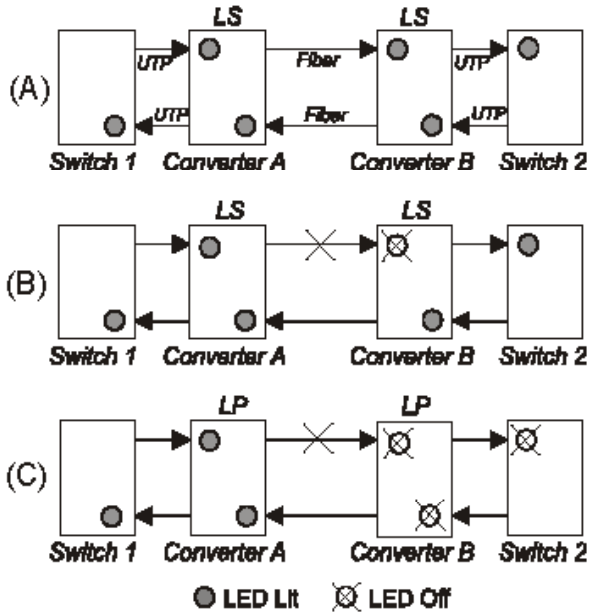
RJ-45 Full/Half Duplex "FDX/HDX" DIP-switch:

Setting this DIP-switch to "FDX" (factory default) allows the RJ-45 port to negotiate to Full-Duplex. Setting this DIP-Switch to "HDX" forces the RJ-45 port to negotiate only to Half-Duplex. These settings must be configured to match the settings of the connected fiber optic and UTP devices.

RJ-45 Pause Enable/Disable "Pause/No" DIP-switch:

Setting this DIP-switch to "Pause" (factory default) allows the RJ-45 port to negotiate to Symmetrical Pause. Setting this DIP-switch to "No" disables Pause. These settings must be configured to match the settings of the connected fiber optic and UTP devices.

Link Mode Diagram



Link Segment/Link Propagate "LS/LP" DIP-switch:

Setting this DIP-switch to "LS" (factory default) allows the generation and detection of link presence to occur at each point-to-point segment. In this configuration, the loss of a receive link on either port has no affect on the other port's ability to transmit a link. For example, if there is a loss of a receive link on the fiber optic port, the RJ-45 port continues to maintain its link [Link Mode A & B].

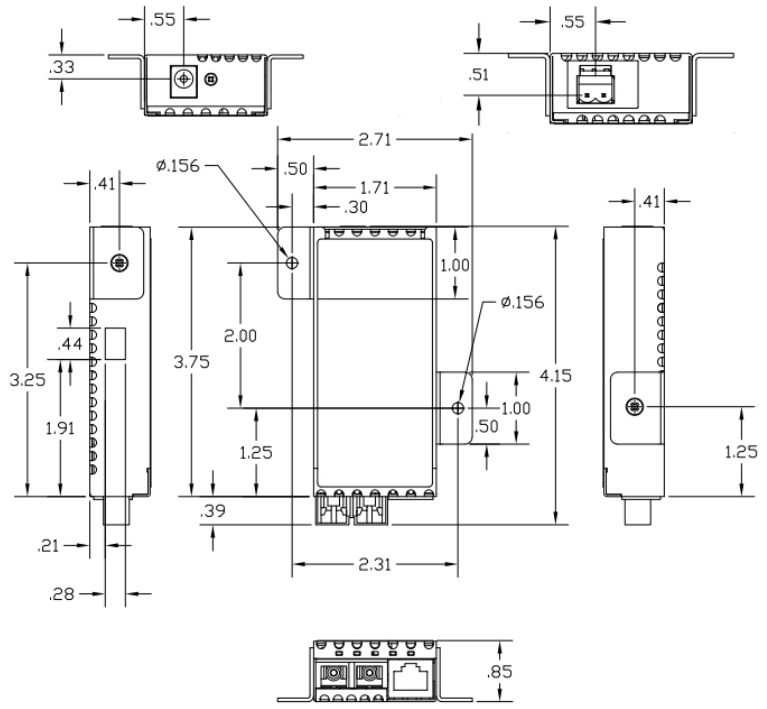
Setting this DIP-switch to "LP" allows the link state to propagate from one port to the other port. In this configuration, the loss of a receive link on either port causes the transmit link of the opposite port to be turned off. For example, a loss of a receive link on the fiber optic port causes the RJ-45 port to drop its link due to the propagated fiber optic link state [Link Mode C]. This setting allows the loss of a link to be detected by SNMP or other managed network devices to which the miConverter Gx is connected.

Note: Only the first loss of a receive link detected by the miConverter Gx turns off the other port's transmit link. An additional loss of a receive link on the other port has no affect on the module. The module returns to normal operation when the first loss of a receive link is restored.

LED Indicators

LED	Color	Description
Power "Pwr"	Amber	Off: No Power On: Power applied
Fiber Link "F/O"	Green	Off: No fiber link On: Fiber link Blinking (10Hz): Data activity Blinking (5Hz): Linked but unable to complete AN
Fiber Negotiation "AN"	Green	Off: Manual Mode On: Auto-negotiation mode
RJ-45 Link "UTP"	Green	Off: No RJ-45 link On: RJ-45 link Blinking: Data activity
RJ-45 Duplex "FDX"	Green	Off: Half-Duplex On: Full-Duplex

Mechanical



Specifications

Standard Compliances	IEEE 802.3	
Regulatory Compliances	Safety: EMI: ACT:	UL, cUL, CE, UKCA FCC Class A TAA, BAA, NDAA
Environmental	RoHS, REACH, WEEE	
Frame Size	Unlimited frame size	
Port Types	Copper: Fiber:	1000BASE-T (RJ-45) 1000BASE-X (ST, SC, LC, SFP) 1000BASE-BX (SC Single-Fiber, 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)	5.0 to 12.0VDC 0.5A @ 5VDC, 0.3A @ 9VDC 2.5mm Barrel Connector
	DC Input: (DC Terminal)	5.0 to 12.0VDC 0.5A @ 5VDC, 0.3A @ 9VDC 2-Pin Terminal Connector
	DC Input: (micro-B)	4.75 to 5.25VDC 0.5A @ 5VDC, micro-B Receptacle
Dimensions W x D X H	Standalone	1.71” x 4.10” x 0.84” (43.4 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 US AC Adapter: Univ AC Adapter:	810,000 250,000 100,000
Warranty	Lifetime warranty with 24/7/365 free Technical Support	

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