Omnitron Systems

iConverter® **100Fx/Tx User Manual**

DESCRIPTION

The iConverter 100Fx/Tx converts 100BASE-FX fiber to 100BASE-TX copper. Models are available for multimode (MM) and single-mode (SM) dual fiber and single-mode single-fiber.

The 100Fx/Tx supports RJ-45 Half-Duplex and Full-Duplex auto-negotiation with manual override and features a crossover push button switch for easy attachment to hubs, switches and workstations.

See data sheet for available models.

The 100Fx/Tx can be used in an unmanaged or managed applications. To be managed, an Network Management Module (NMM2) or a module with integrated management must be installed in the same chassis.

For more information on management software and hardware options, see Comprehensive Network Management Solution product page.

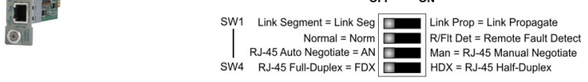
DIP-SWITCH SETTINGS

Front Panel Push Button Switch

RJ-45 Crossover "= / X" Switch (Not Shown)

When connecting the RJ-45 port to a hub or switch, set this front-panel switch to Straight-Through "=" (factory setting). When connecting to a workstation, set it to Crossover "X".

Front Panel DIP-Switches

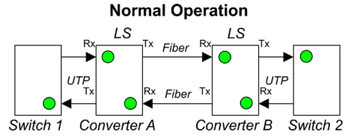


SW1 and SW2: Link Modes

SW1	SW2	Link Mode
OFF	OFF	Link Segment (LS)
ON	OFF	Link Propagate (LP)
OFF	ON	Remote Fault Detect + LP (RFD+LP)
ON	ON	Symmetrical Fault Detect (SFD)

In order to accommodate different user needs, the 100Fx/Tx supports four different linking modes. In default configuration, the module operates in Link Segment.

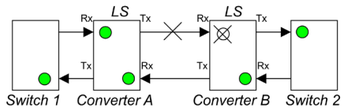
Normal Operation



LED On LED Off due to fault LED Blinking

The Link Segment (LS) mode transmits a link signal independently of any received link at any port. Utilizing this configuration, 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.

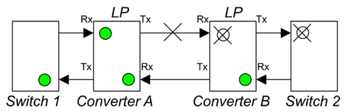
Fiber Fault with Link Segment



LED On LED Off due to fault LED Blinking

The Link Propagation (LP) mode transmits a link signal only when a link signal is detected. Utilizing this configuration, a loss of a receive link signal will continue to propagate through to the next port in the network.

Fiber Fault with Link Propagate

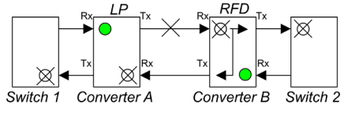


LED On LED Off due to fault LED Blinking

The Remote Fault Detection + Link Propagate (RFD+LP) mode transmits a link signal only when a link signal is detected. When a loss of link is detected, this mode will loop back and propagate forward the fault condition.

Note: Connecting two modules set to RFD is an illegal setting and will cause a "deadly embrace" lockup.

Fiber Fault with RFD+LP Link Mode



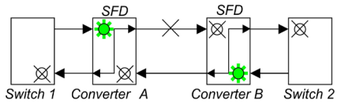
LED On LED Off due to fault LED Blinking

Symmetrical Fault Detect is only available on Revision xx/08 models or later. For earlier models, the SW1 ON, SW2 ON setting is an invalid setting and must not be used.

In Symmetrical Fault Detection (SFD), the RJ-45 port transmits a Link signal only when receiving a Link at the fiber port. The fiber port transmits a Link signal only when receiving a Link signal at both the fiber port and the RJ-45 port. As a result, fiber faults (no Link received at the fiber) are looped back and can be reported to the network core. In addition, connecting two back-to-back modules which are both set to SFD facilitates dual-loop-back, where fiber faults are reported to both ends of the network link. A blinking fiber link LED on a module indicates a fault of the transmit fiber or UTP cables of that module [Fig. 1(e)].

Note: Converters in SFD mode must be deployed in pairs.

Fiber Fault with SFD Link Mode



LED On LED Off due to fault LED Blinking

SW3: RJ-45 Auto/Manual Negotiate "AN/Man"

When this DIP-Switch is in the "AN" position (factory setting), the module auto-negotiates and matches the duplex mode of a mating auto-negotiating device connected to the RJ-45 port.

When this DIP-Switch is in the "Man" position, the module does not auto-negotiate and operates in the duplex mode selected by the RJ-45 Full/Half-Duplex DIP-Switch.

SW4: RJ-45 Full/Half Duplex "FDX/HDX"

When the RJ-45 Auto/Manual Negotiate "AN/Man" DIP-Switch is in the Manual "Man" position, the RJ-45 Full/Half-Duplex "FDX/HDX" DIP-Switch determines the duplex mode for the module.

When this DIP-Switch is in the "FDX" position (factory setting), the module operates in Full-Duplex mode. When in the "HDX" position, it operates in Half-Duplex mode. Set the duplex mode to match the connecting device and check for link status.

Note: Attaching an auto-negotiating RJ-45 port to a non-auto-negotiating (manual / forced / hard-coded) RJ-45 port will result in an unpredictable port setting with excessive collisions and poor link performance.

When operating in Manual mode both connected ports MUST be set manually to the same speed and duplex mode.

MOUNTING AND CABLE ATTACHMENT

The iConverter modules are hot-swappable and can be installed into any iConverter chassis.

Caution: Use proper ESD protection to reduce the risk of damage to your equipment.

1. Carefully slide the module into an open slot in the chassis. Align the module with the installation guides and ensure that the module is firmly seated against the backplane. Secure the module by fastening the front panel thumbscrew (push in and turn clockwise to tighten) to the chassis front. Verify the "Pwr" LED is ON (indicating the chassis is powered).

2. Using a Category 5 or higher Ethernet cable, attach the RJ-45 port to a 100BASE-TX Ethernet device.

3. Using a multimode or single-mode dual-fiber cable as required per the converter type, attach the fiber port to a 100BASE-FX mating Ethernet device. The transmit (Tx) must attach to the receive side of the mating device and the receive (Rx) must attach to the transmit side.

4. Single-fiber (SF) converters must be used in matched pairs. The transmit (Tx) and receive (Rx) wavelengths of one converter must match the receive (Rx) and transmit (Tx) wavelengths of the mating converter. For example, an 8370-1 must be connected to an 8371-1.

SOFTWARE CONTROLLED SETTINGS

Additional settings are available via software control when the 100Fx/Tx is installed in an iConverter chassis with a Management Module, such as a Network Management Module (NMM2) or a 10/100M2 Media Converter with Integrated Management. The following settings can be controlled via the Serial Console, Telnet or SNMP Management Software such as *NetOutlook*® Management Software or other third-party SNMP-based clients:

- RJ-45 Auto/Manual Configuration
- RJ-45 Full/Half Duplex
- Link Modes

For more information on using and configuring the software features, register for access to the NetOutlook Management Software user manual.

LED INDICATORS

LED	Color	Description
Pwr	Yellow	Module has power
Port 1 F/O Lk	Green	ON: Fiber port is linked Blinking: Fiber activity
Port 2 AN	Green	OFF: Manual mode enabled ON: Auto-negotiation is enabled
Port 2 FDX	Green	OFF: Configured for half-duplex ON: Configured for full-duplex
Port 2 UTP Lk	Green	ON: RJ-45 port is linked Blinking: Port is receiving data activity

SPECIFICATIONS

Standard Compliances	IEEE 802.3	
Regulatory Compliances	Safety: EMI: ACT:	UL, CE, NEBS Level 3, UKCA FCC Class A TAA, BAA, NDAA
Environmental	RoHS, WEEE, REACH	
Frame Size	Unlimited	
Port Types	Copper: Fiber:	100BASE-T (RJ-45) 100BASE-FX (ST, SC, SC/SF)
Cable Types	Copper: Fiber:	EIA/TIA 568A/B, Cat 5 UTP and higher Multimode: 50/125µm, 62.5/125µm Single-mode: 9/125µm
DC Power Requirements	DC Input: (Backplane)	3.3VDC, 0.7A @ 3.3VDC
Dimensions W x D x H	0.85" x 4.5" x 2.8" (21.6 mm x 114.3 mm x 71.1 mm)	
Weight	8 oz. (226.8 grams)	
Temperature	Commercial: Wide: Extended: Storage:	0 to 50°C -40 to 60°C -40 to 75°C -40 to 80°C
Humidity	5 to 95% (non-condensing)	
Altitude	-100m to 4,000m	
MTBF (hrs)	730,000	
Warranty	Lifetime warranty and 24/7/365 free Technical Support	

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.omniton-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.

Customer Support Information

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

040-08360-001M 6/23