Omnitron Systems

# *iConverter*® 10FL/T User Manual

## ABOUT THIS MANUAL

This document supports revision "xx/20" of the iConverter 10FL/T. Please refer to the label on the ROM chip of the 10FL/T for the revision number. This revision incorporates the following improvements to the 10FL/T.

The 10FL/T always operates in Link Propagate mode. Both the fiber and copper ports must be connected to active equipment before an end-to-end link is established.

## DESCRIPTION

The iConverter 10FL/T is a 10Mbps copper to fiber converter. The RJ-45 port supports 10BASE-T in either Half or Full-Duplex mode. A UTP crossover switch facilitates connectivity to network equipment such as hubs, switches and workstations.

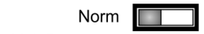
See data sheet for available models.

The iConverter 10FL/T can be used in managed or unmanaged applications. Management provides remote configuration, monitoring and trap notification. Management of the 10FL/T is accomplished by installing an iConverter Management Module (NMM2) or Network Interface Device (NID) in the same chassis.

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



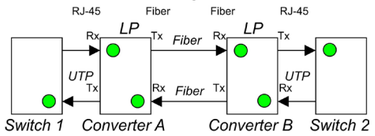
## FRONT PANEL DIP-SWITCH




## Link Modes

The 10FL/T always operates in Link Propagate mode when the front panel switch is set to Norm. Both the fiber and copper ports must be connected to active equipment before an end-to-end link is established as shown below.

### Normal Operation




● *LED On* ⊗ *LED Off due to fault condition*

**All equipment must be configured for Manual operation (disable auto-negotiation).**

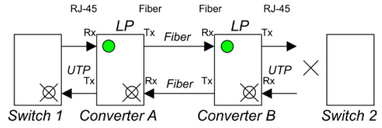
If either the copper or fiber is not connected, an end-to-end link will not be established.

In Link Propagate (LP), sometimes referred to as "Link Loss Carry Forward", a converter port transmits a Link signal only when receiving a Link on its other port.

For example, the Fiber port transmits a signal only when receiving a signal on the RJ-45 port, as shown in the top portion of the figure below. The bottom portion shows the fault condition propagating to due no link on the RJ-45 port.



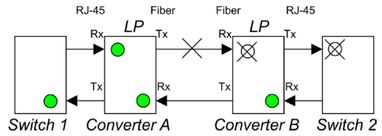
### Copper Fault with Default Link Mode




● *LED On* ⊗ *LED Off due to fault condition*

The next example shows a fault on the Fiber side of Converter B causing the RJ-45 port of Converter B to stop transmitting.

### Fiber Fault with Default Link Mode




● *LED On* ⊗ *LED Off due to fault condition*

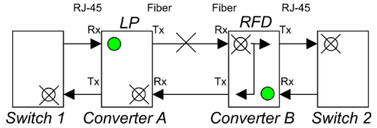
When the DIP-switch is in the "R/Flt Det" position, the module is configured for Remote Fault Detect.

When using RFD, the loss of receive link signal is looped back in the opposite direction causing the transmitting device to drop its link.

For example, a loss of link on the Rx fiber on Converter B will loop the fault back causing the port on Converter A to lose fiber link.



### Fiber Fault with RFD Link Mode




● *LED On* ⊗ *LED Off due to fault condition*

**Connecting two converters with both set to RFD mode is not supported and will cause a lockup condition.**

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

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

**Disable Auto-Negotiation on the attached switch port and manually set the port speed to 10Mbps.**

**While the link would appear to be up, the failed AN process may default into half duplex mode on the switch port, so a manual setting of 10 full duplex is preferred to utilize the full bandwidth.**



## MOUNTING AND CABLE ATTACHMENT

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

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/module is powered).

2. Attach the RJ-45 port to a 10BASE-T Ethernet device using a Category 5 or higher Ethernet cable. If the attached device features 10/100 or 10/100/1000 Auto-Negotiation, disable this feature and manually set the RJ-45 port speed of the connected device to 10Mbps.

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3. Using a multimode or single-mode dual-fiber cable as required per the converter type, attach the fiber port to a 10BASE-FL 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 8310-1 must be connected to an 8311-1.



## SOFTWARE CONTROLLED SETTINGS

Additional settings are available via software control when the 10FL/T 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:

- 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 | OFF: No power<br>ON: Module has power |
| Fiber Lk/Act | Green | OFF: No fiber link<br>ON: Device detected<br>Blinking: Port is receiving activity |
| RJ-45 Lk/Act | Green | ON: Device detected<br>Blinking: Port is receiving activity |



## SPECIFICATIONS

| | | |
|---|---|---|
| **Standard Compliances** | IEEE 802.3 | |
| **Regulatory Compliances** | Safety:<br>EMI:<br>ACT: | UL, CE, NEBS Level 3, UKCA<br>FCC Class A<br>TAA, BAA, NDAA |
| **Environmental** | RoHS, WEEE, REACH | |
| **Frame Size** | Unlimited | |
| **Port Types** | Copper:<br>Fiber: | 10BASE-T (RJ-45)<br>10BASE-FL (ST, SC, LC) |
| **Cable Types** | Copper:<br>Fiber: | EIA/TIA 568A/B, Cat 5 UTP and higher<br>Multimode: 50/125µm, 62.5/125µm<br>Single-mode: 9/125µm |
| **DC Power Requirements** | DC Input:<br>(Backplane) | 3.3VDC, 1.0A @ 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:<br>Wide:<br>Storage: | 0 to 50°C<br>-40 to 60°C<br>-40 to 80°C |
| **Humidity** | 5 to 95% (non-condensing) | |
| **Altitude** | -100m to 4,000m | |
| **MTBF (hrs)** | 830,000 | |
| **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**

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040-08300-001N 6/23