



ABOUT THIS MANUAL

This document supports revision xx/19 or later of the 10/100. This revision incorporates the following features:

1. Flow Control via the on-board DIP-switch selections.
2. Symmetrical Fault Detection.

DESCRIPTION

The iConverter 10/100 converts 100BASE-FX fiber to 10/100BASE-T copper. Models are available for multimode (MM) and single-mode (SM) dual fiber and single-mode single-fiber.

The 10/100 supports Half-Duplex and Full-Duplex modes and features a UTP crossover switch for easy attachment to hubs, switches and workstations.

The 10/100 also features two Ethernet Backplane ports to provide connectivity to adjacent modules for network expansion.

See data sheet for available models.

The 10/100 can be used in an unmanaged or managed applications. To be managed, a 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](#).

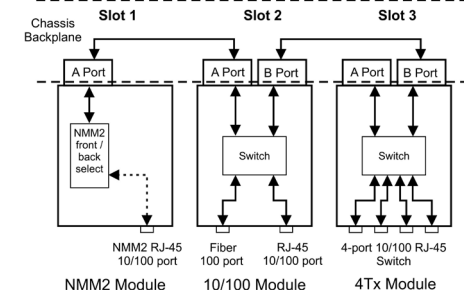
PORT STRUCTURE

The 10/100 module has two front 100M Ethernet ports and two 100M Ethernet backplane port. The front ports allow connections to external devices and the backplane ports allow connections to adjacent module in an iConverter chassis. The backplane ports on the module are enabled using the on-board DIP-switches.

Multi-slot iConverter chassis has backplane ports that allow connectivity to adjacent slots. Backplane Port A allows connectivity between Odd Slot numbers to Even Slot numbers (1 to 2, 3 to 4, etc). Backplane Port B allows connectivity between Even Slot numbers to Odd Slot numbers (2 to 3, 4 to 5, etc).

The figure below illustrates one of the many applications of the 10/100 module when enabling the backplane feature on each module.

The 10/100 connects to the slot on its right using the Backplane Port B. The module on the right is an iConverter 4TxVT 4-Port switch module and it is also using Backplane Port B to connect to the 10/100 module. The module on the left is an NMM2 which is providing management access for the chassis. This managed configuration provides five RJ-45 Ethernet ports and one 100M fiber uplink port.



The 10/100 can be used either as a traditional managed or unmanaged media converter to create flexible and effective network switch configurations.

SW3: Backplane Enable “BPOEN”

When the DIP-switch is in the UP “BPOEN” position, both the A and B backplane ports are enabled and the module is connected to the adjacent slots in the chassis. When the “BPOEN” switch is in the DOWN position (factory setting), both ports are disabled and disconnected from the backplane.

SOFTWARE CONTROLLED SETTINGS

Additional settings are available via software control when the 10/100 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:

- Fiber Duplex
- RJ-45 Auto/Manual and Duplex Configuration
- RJ-45 Speed
- Backplane Enable/Disable
- Link Modes

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

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).

For more information on backplane connectivity, refer to the specific [chassis user manual](#).

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

Fiber Full-Duplex = FDX	HDX = Fiber Half-Duplex
RJ-45 Auto = AN	Man = RJ-45 Manual
RJ-45 100Mbps = 100	10 = RJ-45 10Mbps
RJ-45 Full-Duplex = FDX	HDX = RJ-45 Half-Duplex

Fiber Duplex “FDX / HDX”

When in the Fiber Full/Half-Duplex DIP-switch is in the “FDX” position (factory setting), the fiber port operates in Full-Duplex mode. When in the “HDX” position, the fiber port operates in Half-Duplex mode and its distance is limited by the IEEE 802.3 standard to 412 meters.

RJ-45 Auto/Manual Negotiate “AN / MAN”

When the RJ-45 Auto/Manual Negotiate DIP-switch is in the “AN” position (factory setting), the converter auto-negotiates and matches the 10/100 speed and duplex mode of a mating auto-negotiating device connected to its RJ-45 port.

When the RJ-45 Auto/Manual Negotiate DIP-switch is in the “Man” position, the converter does not auto-negotiate and operates in the mode selected by the Full/Half Duplex “FDX/HDX” and “10/100” DIP-switches.

RJ-45 Speed “10 / 100”

When the RJ-45 Auto/Manual Negotiate DIP-switch is in the “Man” position, the RJ-45 “10/100” DIP-switch selects the speed of the RJ-45 port. When in the “100” position (factory setting), the RJ-45 port operates at 100 Mbps. When in the “10” position the RJ-45 port operates at 10 Mbps.

SPECIFICATIONS

Standard Compliances	IEEE 802.3	
Regulatory Compliances	Safety:	UL, CE, NEBS Level 3, UKCA
	EMI:	FCC Class A
	ACT:	TAA, BAA, NDA
Environmental	RoHS, WEEE, REACH	
Frame Size	Up to 1,536 bytes	
Port Types	Copper:	10/100BASE-T (RJ-45)
	Fiber:	100BASE-FX (ST, SC, LC)
Cable Types	Copper:	EIA/TIA 568A/B, Cat 5 UTP and higher
	Fiber:	Multimode: 50/125µm, 62.5/125µm Single-mode: 9/125µm
DC Power Requirements	DC Input: (Backplane)	3.3VDC, 0.95A @ 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:	0 to 50°C
	Wide:	-40 to 60°C
	Storage:	-40 to 80°C
Humidity	5 to 95% (non-condensing)	
Altitude	-100m to 4,000m	
MTBF (hrs)	1,050,000	
Warranty	Lifetime warranty and 24/7/365 free Technical Support	

RJ-45 Duplex “FDX / HDX”

When the RJ-45 Auto/Manual Negotiate DIP-switch is in the “Man” position, the RJ-45 Full/Half-Duplex “FDX/ HDX” DIP-switch selects the duplex mode of the RJ-45 port. When in the “FDX” position (factory setting), the RJ-45 port operates in Full-Duplex mode. When in the “HDX” position, the RJ-45 port operates in Half-Duplex. 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 may result in an unpredictable port setting resulting in poor performance. Configure the mating ports with the same configuration (Auto or Manual).

Board Mounted DIP-Switches

4	RFD	= Remote Fault Detect Enable
3	BPOEN	= Backplane Enable
2	LP	= Link Propagate/Link Segment
1	FLOWEN	= Flow Control Enable (PAUSE)

←Down

SW1: Flow Control (PAUSE)

When the DIP-switch is in the UP “FLOWEN” position, flow control functionality is enabled. When the module is configured for FDX, PAUSE functionality is enabled. When the module is configured for HDX, jam functionality is enabled. When flow control is enabled, a port will generate either a pause or jam frame when internal resources are not available to receive the next incoming frame.

When the DIP-switch is in the DOWN position (factory default), flow control is disabled.

SW2 and SW4: Link Modes

SW2	SW4	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)

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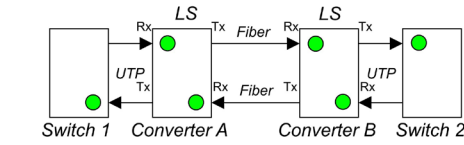
For warranty service, the product must be sent to an Omnitron designated facility, at Buyer’s expense. Omnitron will pay the shipping charge to return the product to Buyer’s designated US address using Omnitron’s standard shipping method.

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,

In order to accommodate different user needs, the 10/100 supports four different linking modes. In default configuration, the module operates in Link Segment.

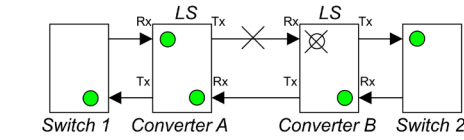
Normal Operation



● 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.

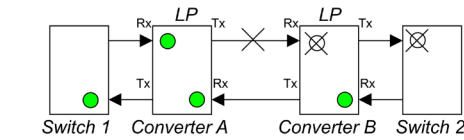
Fiber Fault with Link Segment



● LED On ✕ LED Off due to fault ⚙ LED Blinking

The Link Propagate (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

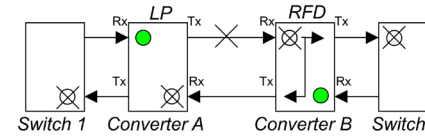


● LED On ✕ LED Off due to fault ⚙ LED Blinking

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



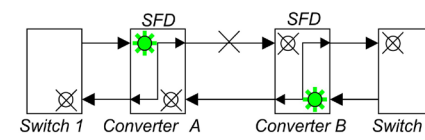
● LED On ✕ LED Off due to fault ⚙ LED Blinking

Symmetrical Fault Detect is only available on Revision xx/19 models or later. For earlier models, the SW2 ON, SW4 ON setting is an invalid setting.

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

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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