Omnitron Systems

iConverter® **GX/F**

User Manual

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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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Description

The iConverter GX/F is a two-port fiber Ethernet switch and media converter. It provides Gigabit 1000BASE-X fiber to Fast Ethernet 100BASE-X fiber conversion. The iConverter GX/F regenerates, reshapes and re-times the fiber optic signal, and multiple GX/F converters can be cascaded to extend total network distances.

The iConverter GX/F features two 10/100 Ethernet backplane ports to provide connectivity to adjacent modules for network expansion and for in-band connectivity to an iConverter Network Management Module

See data sheet for available models.

The GX/F 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.

Advanced Features

The GX/F features Port VLAN and Tag VLAN, which allow control of traffic flow among the fiber ports and chassis backplane ports. It also features Port Access Control, which facilitates enabling and disabling of individual ports.

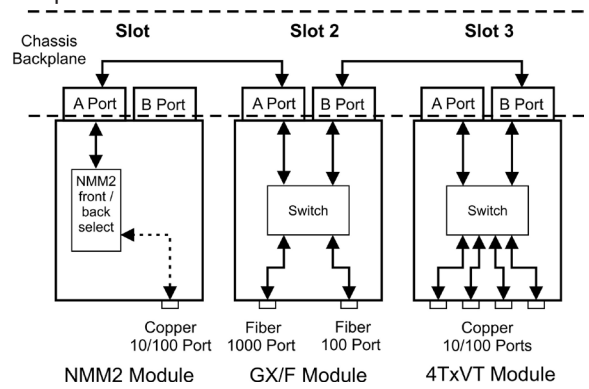
The GX/F supports reporting of MIB statistics. Statistics are available for 32 variables per port, reporting a wide range of real-time packet statistics to provide performance and operational monitoring.

Port Structure

The GX/F module has two front fiber Ethernet ports and two 10/100 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 have 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 GX/F module when enabling the backplane feature on each module.

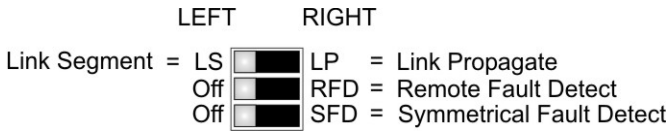


The GX/F connects to the slot on its right using the Backplane Port B. The module on the right is an iConverter 4TxVT module and it is also using Backplane Port B to connect to the GX/F module. These two modules create a 4 Port copper switch with two fiber uplink ports. The module on the left is an NMM2 which is providing management access for the chassis.

For more information on backplane connectivity, refer to the specific chassis user manual.

DIP-Switch SETTINGS

Front Panel DIP-Switch



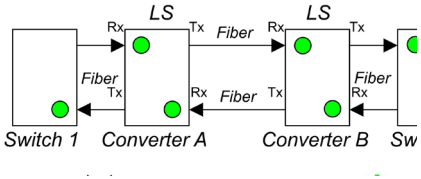
Link Modes

LS/LP	RFD	SFD	Link Mode
LEFT	LEFT	LEFT	Link Segment (LS)
RIGHT	LEFT	LEFT	Link Propagate (LP)
LEFT	RIGHT	LEFT	Remote Fault Detect + Link Segment (RFD+LS)
RIGHT	RIGHT	LEFT	Remote Fault Detect + Link Propagate (RFD+LP)
LEFT	LEFT	RIGHT	Symmetrical Fault Detect (SFD)

Any other DIP-Switch combination will result in unpredictable conditions.

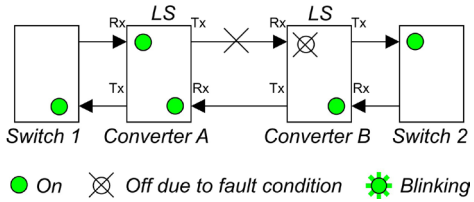
In order to accommodate different user needs, the GX/F supports four different linking modes. In default configuration, the module operates in Link Segment.

Normal Operation



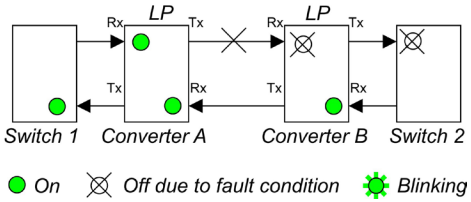
The Link Segment (LS) mode transmits a link signal independently of any received link at any port. Utilizing this configuration, a loss of a receive link signal will only affect the port detecting the loss of signal. All the other ports will continue to generate a link signal.

Fiber Fault with Link Segment



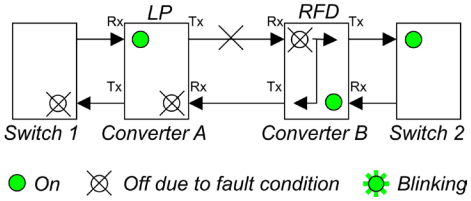
The Link Propagate (LP) mode transmits a link signal only when a link signal is detected. Utilizing this configuration, a loss of a receive link signal will continue to propagate through to the next port in the network.

Fiber Fault with Link Propagate



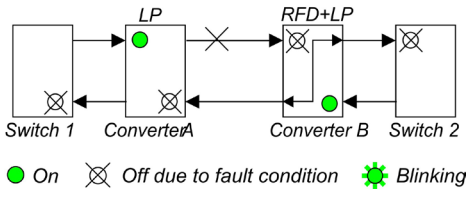
The Remote Fault Detection + Link Segment (RFD+LS) mode transmits a link signal only when a link signal is detected. When a loss of link is detected, this mode will loop back the fault condition.

Fiber Fault with RFD + LS Link Mode



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.

Fiber Fault with RFD+LP Link Mode

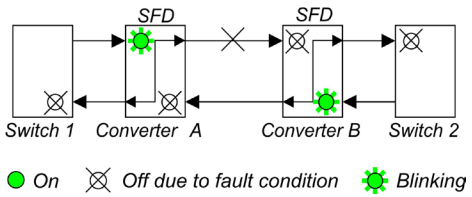


NOTE: Connecting two modules set to RFD is an illegal setting and will cause unpredictable conditions.

In Symmetrical Fault Detection (SFD), Port 2 transmits a Link signal only when receiving a Link on Port 1. Port 1 transmits a Link signal only when receiving a Link signal at both the Port 1 and Port 2. As a result, faults (no Link received on Port 1)

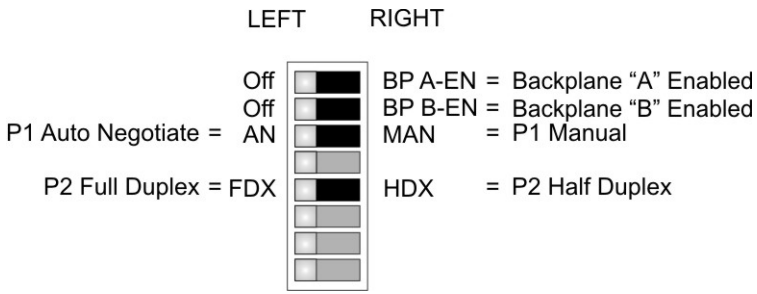
are looped back and can be reported to the network core. In addition, connecting two back-to-back modules which are both set to SFD facilitates dual-loop-back, where faults are reported to both ends of the network link. A blinking fiber link LED on a module indicates a fault of the transmit port or cables of that port.

Fiber Fault with SFD Link Mode



NOTE: SFD mode must be deployed in pairs.

Board Mounted DIP-Switch



DIP-switches not labeled are unused and should be left in the default LEFT position.

Backplane A Enable "BP A-EN"

When this DIP-switch is in the "BP A-EN" RIGHT position, backplane A is enabled and the module is connected to the adjacent slots in the chassis. When this DIP-switch is in the LEFT position (factory setting), the backplane port is disabled and disconnected from the backplane.

Backplane B Enable "BP B-EN"

When this DIP-switch is in the "BP B-EN" RIGHT position, backplane B is enabled and the module is connected to the adjacent slots in the chassis. When this DIP-switch is in the LEFT position (factory setting), the backplane port is disabled and disconnected from the backplane.

Fiber Port 1 Negotiation "AN/MAN"

When this DIP-switch is in the "AN" LEFT position (factory setting), Port 1 is operating in auto-negotiation. The port will determine duplex mode automatically. If the device connected to Port 1 cannot provide the proper signal to indicate its own mode of operation, then the DIP-Switch should be set to the "MAN" RIGHT position, forcing Port 1 to Full-Duplex mode.

Fiber Port 2 Full/Half-Duplex "FDX / HDX"

When this DIP-switch is in the "HDX" RIGHT position, the port will operate in half-duplex mode. This allows connections to hubs or workstations that supports

only half-duplex. When this DIP-switch is in the "FDX" LEFT position, the port will operate in full-duplex mode. This allows connections to hubs or workstations that supports full-duplex.

Software Controlled Settings

Additional settings are available via software control when a GX/F is installed in an iConverter chassis with a Management Module.

The following software only settings can be controlled via Serial Console/Telnet Console, NetOutlook Management Software or other third-party SNMP-based clients:

- Backplane Control
- Port 1 and Port 2 Configuration
- Port VLAN for Front Ports and Backplane Ports
- Port Access Control for All Ports
- MIB Statistics Reporting

Software controlled settings can be selected to override DIP-Switch settings.

For more information on using and configuring the Advanced 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).

2. Connect an appropriate multimode or single-mode fiber cable to the Gigabit Port 1 fiber port.

3. Connect an appropriate multimode or single-mode fiber cable to the Fast Ethernet Port 2 fiber port.

4. It is important to ensure that the transmit (TX) is attached to the receive side of the device at the other end and the receive (RX) is attached to the transmit side. Single-fiber (SF) media converter models operate in pairs. The TX wavelength must match the RX wavelength at the other end and the RX wavelength must match the TX wavelength at the other end.

LED Indicators

LED	Color	Description
Power “PWR”	Amber	OFF: No power applied or module is not operational ON: Module has power
P1 Duplex “FDX”	Green	OFF: Configured for half-duplex (with active link) ON: Configured for full-duplex (with active link)
P1 Activity “Lk/Act”	Green	OFF: Port is not linked at 1000M Solid Green: Port linked at 1000M Blinking Green: Data activity
P2 Activity “Lk/Act”	Green	OFF: Port is not linked at 1000M Solid Green: Port linked at 1000M Blinking Green: Data activity
P2 Duplex “FDX”	Green	OFF: Configured for half-duplex (with active link) ON: Configured for full-duplex (with active link)

Specifications

Standard Compliances	IEEE 802.3, 802.1Q RFC 2819 (RMON)	
Regulatory Compliances	Safety: EMI: ACT:	UL, CE, UKCA FCC Class A TAA, BAA, NDAA
Environmental	RoHS, WEEE, REACH	
Frame Size	Up to 1,536 bytes	
Port Types	Fiber:	1000BASE-X (Port 1) 100BASE-X (Port 2)
Cable Types	Fiber:	Multimode: 50/125µm, 62.5/125µm Single-mode: 9/125µm
DC Power Requirements	DC Input: (Backplane)	3.3VDC, 1.5A @ 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: Storage:	0 to 50°C -40 to 60°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	

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