



**DESCRIPTION:**

The FlexPoint GX/T is a 10/100/1000BASE-T UTP to 1000BASE-X fiber media converter that supports jumbo frames up to 10,240 bytes. The GX/T features Small Form Pluggable (SFP) transceivers that support both 100BASE-FX and 1000BASE-X for interoperability with Gigabit and Fast Ethernet fiber equipment.

Both the fiber port and the UTP port support auto-negotiation, an IEEE standard which defines how all the communicating devices automatically perform their configuration functions.

The auto-negotiation feature can be disabled on both ports (for manual configuration) using DIP-switches on the product. This is useful in a situation where the GX/T is connected to a non-negotiating device and the configuration parameters must be set manually.

Fiber Type	Distance	Connector Type		
		ST	SC	SFP
SFP	-	-	-	4719-x
MM	220 / 550m <sup>1</sup>	4706-x	4700-x	-
SM	12km	4707-x	4701-x	-
SM	34km	-	4702-x	-
SM	80km	-	4703-x	-
SM	110km	-	4704-x	-
SM	140km	-	4705-x	-
SM-SF	20km	-	4710-x*	-
SM-SF	20km	-	4711-x*	-
SM-SF	40km	-	4712-x*	-
SM-SF	40km	-	4713-x*	-

**Power Adapter Kits (-x):**  
**-0** = No power adapter included  
**-1** = 110-120 VAC/60 Hz (US plug)  
**-2** = 100-240 VAC/50-60 Hz (IEC plug, no power cord)  
 For other power and fiber configurations, contact the factory.  
<sup>1</sup> 62.5/125µm, 100/140µm multimode fiber up to 220m, 50/125µm multimode fiber up to 550m. Refer to the fiber cable manufacturer for multimode distance specifications.  
 \*Single-Fiber converters must be used in pairs. The Tx wavelength on one end has to match the Rx wavelength on the other.

**POWER ADAPTER NOTICE:**

- This product should only be used with Omnitron Supplied Power Unit model numbers 9113-PS [US] or 9115-PS [Universal].
- When used in a standalone configuration, this product must be used with a Listed Direct Plug-In Power Unit marked "Class 2" and rated at 9VDC, 1 Amp.

**NOTE: If mounting with a safety ground attachment, use the safety ground screw at the rear of the unit.**

**NOTE: Remove safety ground screw when installing the module in the 14-Module Chassis or when using**

**UTP MODES**

SW3	SW4	SW5	SW6	UTP Mode of Operation
AN/MAN	10/100/1000	10/100	FDX/HDX	
AN	1000	NA	FDX	Configured for Auto Negotiation. (1000F, 1000H, 100F, 100H, 10F, 10H)
AN	1000	NA	HDX	Configured for Auto Negotiation. (1000H, 100F, 100H, 10F, 10H)
AN	10-100	100	FDX	Configured for Auto Negotiation. (100F, 100H, 10F, 10H)
AN	10-100	100	HDX	Configured for Auto Negotiation. (100H, 10F, 10H)
AN	10-100	10	FDX	Configured for Auto Negotiation. (10F, 10H)
AN	10-100	10	HDX	Configured for Auto Negotiation. (10H)
MAN	1000	NA	FDX	Configured for Auto Negotiation. (1000F)  When the port is set to 1000, it is always in AN mode.
MAN	1000	NA	HDX	Configured for Auto Negotiation. (1000H)  When the port is set to 1000, it is always in AN mode.
MAN	10-100	100	FDX	Port forced to 100 FDX
MAN	10-100	100	HDX	Port forced to 100 HDX
MAN	10-100	10	FDX	Port forced to 10 FDX
MAN	10-100	10	HDX	Port forced to 10 HDX

When the module is configured for auto-negotiation, the module will advertise in the order shown in the parenthesis.

**NOTE: RFD is only available when the fiber port is operating in manual mode.**

**REMOTE FAULT**

Each port will generate an "IEEE remote\_fault indicator" when the incoming signal to the port is lost. When a port is configured for auto-negotiation, it will set the remote fault bit "high" in the AN advertisement when the port detects a loss of incoming signal. See LED Indicators table on page 9 for specifics on how the unit reports the detection of this signal.

When the fiber port is operating in 100BASE-FX, a loss of incoming signal will cause the port to generate a Far-End-Fault indicator pattern. See LED Indicators table on page 9 for specifics on how the unit reports the detection of this signal.

**it with the DC-DC Converter (Model # 4384)**

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

**INSTALLATION PROCEDURE**

- Configure the appropriate FlexPoint GX/T DIP-Switch settings.
- Connect the UTP port via a Category 5 or better cable to a 10BASE-T, 100BASE-TX or 1000BASE-T Ethernet device.
- When using fixed fiber port models, connect the appropriate multimode or single-mode fiber cable to the fiber port of the installed module. 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.

- When using a GX/T SFP model, insert the SFP Fiber transceiver into the Port 1 SFP receptacle on the GX/T.

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

**LOOPBACK**

The FlexPoint GX/T has the capability to provide loopback to aid in installation and maintenance. A DIP-switch is used to enable loopback on the module (see page 7). Figure 1 shows the module in normal and loopback modes.

**LED INDICATORS**

LED Function "Legend"	Color	Off State	On / Blinking State
Power / Test "Power"	Green	No power	<b>On:</b> Module has power <b>Blinking:</b> Module in loopback mode
F/O AN "F/O-Auto-Neg"	Green	Port configured for manual negotiation	<b>On:</b> Fiber port configured for AN <b>Blinking:</b> Fiber port configured for AN but in manual mode
F/O Speed 100* "F/O-100"	Green	Not connected at 100Mbps	<b>On:</b> Fiber port linked at 100Mbps <b>Blinking (10Hz):</b> Link activity at 100Mbps
F/O Speed 1000 "F/O-1000"	Green	Not connected at 1000Mbps	<b>On:</b> Fiber port linked at 1000Mbps <b>Blinking (10Hz):</b> Link activity at 1000Mbps
UTP Duplex "UTP-FDX"	Green	Half-Duplex	<b>On:</b> UTP port in Full-Duplex
UTP AN "UTP-Auto-Neg"	Green	Port configured for manual negotiation	<b>On:</b> UTP port configured for AN <b>Blinking:</b> UTP port configured for AN but in manual mode
UTP Speed 100 "UTP-100"	Green	Not connected at 100Mbps	<b>On:</b> UTP port linked at 100Mbps <b>Blinking (10Hz):</b> Link activity
UTP Speed 1000 "UTP-1000"	Green	Not connected at 1000Mbps	<b>On:</b> UTP port linked at 1000Mbps <b>Blinking (10Hz):</b> Link activity
UTP Speed 10 "UTP-100" + "UTP-1000"	Green	Not connected at 10Mbps	<b>On:</b> UTP port linked at 10Mbps <b>Blinking (10Hz):</b> Link activity <b>Pattern Blinking (1Hz):</b> Detecting "remote_fault" (AN) on UTP port
"UTP_Auto-Neg" + "UTP-100" + "UTP-1000"	Green	-	<b>Blinking (1Hz):</b> Unable to establish AN link on the UTP port

\*SFP models only

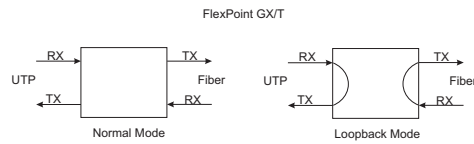


Figure 1: Loopback Mode

**LINK MODES**

In order to accommodate different user needs, the GX/T supports four different link modes (see Fig. 2).

In Link Segment (LS), a port transmits a Link signal independently of any received Link at any other port. For example, the UTP transmits a Link regardless of the fiber receiving a Link [Fig. 2(a) & (b)].

In Link Propagate (LP), a port transmits a Link signal only when receiving a Link at its other port. For example, the UTP transmits a Link only when receiving a Link at the fiber port [Fig. 2(c)].

In Remote Fault Detection + Link Segment (RFD+LS), the fiber port transmits a Link signal only when receiving a Link at the fiber port. As a result, fiber faults (no Link received at the fiber) are looped-back and can be reported to the network core [Fig. 2(d)].

In Remote Fault Detection + Link Propagate (RFD+LP), the UTP port transmits a Link signal only when receiving a Link at the fiber port. The fiber port transmits a Link signal only when receiving Link signals at both the fiber port and the UTP port. As a result, fiber faults (no Link received at the fiber) are propagated forward and looped back for fault reporting at both the network core and the customer location [Fig. 2(e)].

**NOTE:** Connecting two converters with both set to RFD mode is not supported and will cause a "deadly embrace" lockup.

**SPECIFICATIONS**

Model Type	GX/T															
Protocols	IEEE 802.3 10BASE-T, 100BASE-TX, 1000BASE-T, 100BASE-FX, 1000BASE-X															
Frame Size	10,240 byte max. frame size															
UTP Cable	RJ-45, Category 5 and higher															
Fiber Cables	Multimode: 50/125, 62.5/125, 100/140µm Single-mode: 9/125µm															
UTP Connectors	RJ-45															
Fiber Connectors	ST, SC, LC (SFP)															
DIP-Switches	Fiber: Auto-Neg, 1000, 100 UTP: Auto-Neg, 10, 100, 1000, FDX/HDX, Pause En/Dis Loopback, Link Seg, Link Prop, Remote Fault Det.															
LED Displays	Power, Fiber AN, Fiber Speed/Activity, UTP Speed/Activity, Full/Half-Duplex															
Dimensions	W: 3.0" x D: 4.0" x H: 1.0"															
Weight	6 oz. (without power adapter)															
Compliance**	UL, CE, FCC Class A															
Power Requirements	<table border="1"> <thead> <tr> <th></th> <th>Barrel Connector</th> <th>Molex Connector</th> </tr> </thead> <tbody> <tr> <td>Nominal Voltage:</td> <td>9VDC</td> <td>5VDC</td> </tr> <tr> <td>Voltage Range:</td> <td>5.0 to 32.0VDC</td> <td>5.0 to 32.0VDC</td> </tr> <tr> <td>Nominal Power:</td> <td>0.3A @ 9VDC</td> <td>0.5A @ 5VDC</td> </tr> <tr> <td>Maximum Power:</td> <td>1A @ 9VDC</td> <td>0.75A @ 5VDC</td> </tr> </tbody> </table>		Barrel Connector	Molex Connector	Nominal Voltage:	9VDC	5VDC	Voltage Range:	5.0 to 32.0VDC	5.0 to 32.0VDC	Nominal Power:	0.3A @ 9VDC	0.5A @ 5VDC	Maximum Power:	1A @ 9VDC	0.75A @ 5VDC
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Nominal Power:	0.3A @ 9VDC	0.5A @ 5VDC														
Maximum Power:	1A @ 9VDC	0.75A @ 5VDC														
Temperature	0 to 50° C															
Humidity	5 to 95% (non-condensing)															
Altitude	-100m to 4000m															
MTBF (Hours)	Module without Power Adapter: 900,000 Module with Power Adapter -1: 250,000 Module with Power Adapter -2: 100,000															

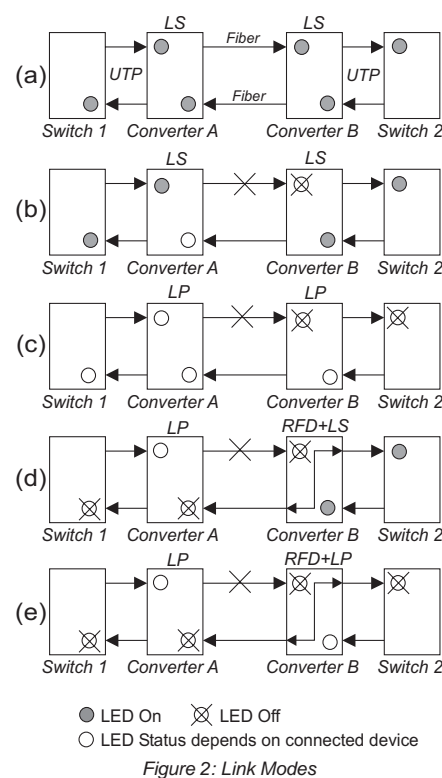


Figure 2: Link Modes  
 ● LED On    ✕ LED Off  
 ○ LED Status depends on connected device

**Warning**

The operating description in this Instruction Manual is for use by qualified personnel only. To avoid electrical shock, do not perform any servicing of this unit other than that contained in the operating instructions, unless you are qualified and certified to do so by Omnitron Systems Technology, Inc.

**Caution**

All user-required operations can be performed without opening the unit. Never attempt to open or remove the cover or tamper with the unit.

**Warranty**

This product is warranted to the original purchaser against defects in material and workmanship for a period of TWO YEARS from the date of shipment. A LIFETIME warranty may be obtained by the original purchaser by REGISTERING this product with Omnitron within 90 days from the date of shipment. TO REGISTER, COMPLETE AND MAIL OR FAX THE REGISTRATION PORTION OF THIS INSTRUCTION MANUAL TO THE INDICATED ADDRESS. Or you may register your product on the internet at http://www.omnitron-systems.com. During the warranty period, Omnitron will, at its option, repair or replace a product which is proven to be defective.

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 defects 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

**DIP-SWITCHES**

**F/O Manual/Auto "MAN/AN" DIP-Switch:**

Setting this DIP-Switch to P1 Auto-Negotiate "AN" (factory setting) enables the Fiber Port to determine duplex mode automatically. If the connected device cannot provide the proper signal to indicate its own mode of operation, this DIP-Switch should be set to P1 Manual "MAN." This feature allows connections with legacy devices that do not support auto-negotiation.

**NOTE:** When the fiber port is in Manual Mode, a link-up may not occur with other devices. Both devices must be set to the same mode (either Manual or Auto-Negotiate) for the link-up to occur.

When set to auto-negotiation, the fiber port will automatically reconfigure to manual mode when an auto-negotiation connection cannot be established.

**F/O Speed "100/1000" DIP-Switch:**

The GX/T supports 100BASE-FX and 1000BASE-X SFPs. This DIP-switch is used to configure the unit for the speed of SFP used. Setting this DIP-switch to "1000" enables the fiber port to accept 1000BASE-X SFPs. Setting this DIP-switch to "100" enables the fiber port to accept 100BASE-FX SFPs. This DIP-switch is only available on the SFP model.

This DIP-switch is ignored when using Omnitron branded SFPs. The GX/T automatically configures the fiber port to the correct speed.

**UTP Configuration DIP-Switches:**

See the UTP Modes table on page 8.

**Pause "On/Off" DIP-Switch:**

In auto-negotiation mode, setting this DIP-switch to "On" allows the unit to advertise as Symmetrical and Asymmetrical Pause capability. In auto-negotiation mode,

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.

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