



Omnitron Systems GX-T2 Plug in Module User Manual

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Omnitron Systems GX-T2 Plug in Module



Product Information

- Product Name: GX/T2 module
- Ports:
 - 1 front 10/100/1000 copper port
 - 1 front 100/1000 port
 - 2 1000 Ethernet backplane ports
- Port Structure: The front ports allow connections to external devices, while the backplane ports allow connections to adjacent modules in an iConverter chassis.
- DIP-Switches: The module has two DIP-switch banks, each with multiple switches for configuring various settings.

Product Usage Instructions

DIP-Switch Bank 1:

- SW1 and SW2: Backplane Enable/Disable
 - DOWN position (factory default): Backplane Port is isolated from the Ethernet Backplane on the chassis.
 - UP position: Backplane Port is enabled, allowing Ethernet Backplane connectivity to an adjacent module via the chassis A/B Backplane Link (refer to the chassis user manual for detailed information).
- SW3: L2CP Block
 - DOWN position (default): Module forwards all L2CP frames.
 - UP position: Module discards all L2CP frames.
- SW4: Reserved
 - DIP-switch is reserved and must be in the DOWN (default) position.

DIP-Switch Bank 2:

- SW1: Port 1 Speed
 - DOWN position (default): Port 1 detects the data rate of the transceiver installed and operates at 100M or 1G accordingly.
 - UP position: Port 1 expects a 100M capable transceiver to be installed.
- SW2: Port 2 Negotiation
 - DOWN position (default): Port 2 is configured for Auto Negotiation.
 - UP position: Port 2 is configured for Manual operation.
- SW3 and SW4: Port Negotiation, Speed, and Duplex
 - RJ-45 Mode of Operation:
 - AN (Auto Negotiation): Port advertises the following modes – 1000FDX, 1000HDX, 100FDX, 100HDX, 10FDX, 10HDX.
 - Man (Manual):
 - 100 FDX: Port is set to manual 100FDX.
 - 100 HDX: Port is set to manual 100HDX.
 - 10 FDX: Port is set to manual 10FDX.
 - 10 HDX: Port is set to manual 10HDX.
- SW5 and SW6: Link Modes
 - It is recommended to have link modes in the DOWN position (default) during initial installation.
 - After testing and ensuring operational status, configure the module for the desired mode (refer to the Link Mode application note for more information).

DESCRIPTION

The GX/T2 is a 10/100/1000BASE-T copper to 100BASEFX or 1000BASE-X modular fiber media converter that supports jumbo frames up to 10,240 bytes. The GX/T2 features Small Form Pluggable (SFP) transceivers that support both 100BASE-FX and 1000BASE-X for interoperability with Fast Ethernet and Gigabit fiber equipment.

See data sheet for available models.

The GX/T2 modules 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/T2 supports the IEEE 802.1Q tag Virtual Local Area Network (VLAN) packet tagging and untagging (including Q-in-Q) and the 802.1p Quality of Service priority standards. The switch module also supports Port Access Control which facilitates enabling and disabling of individual RJ-45 ports, Bandwidth Allocation, and reporting of MIB statistics.

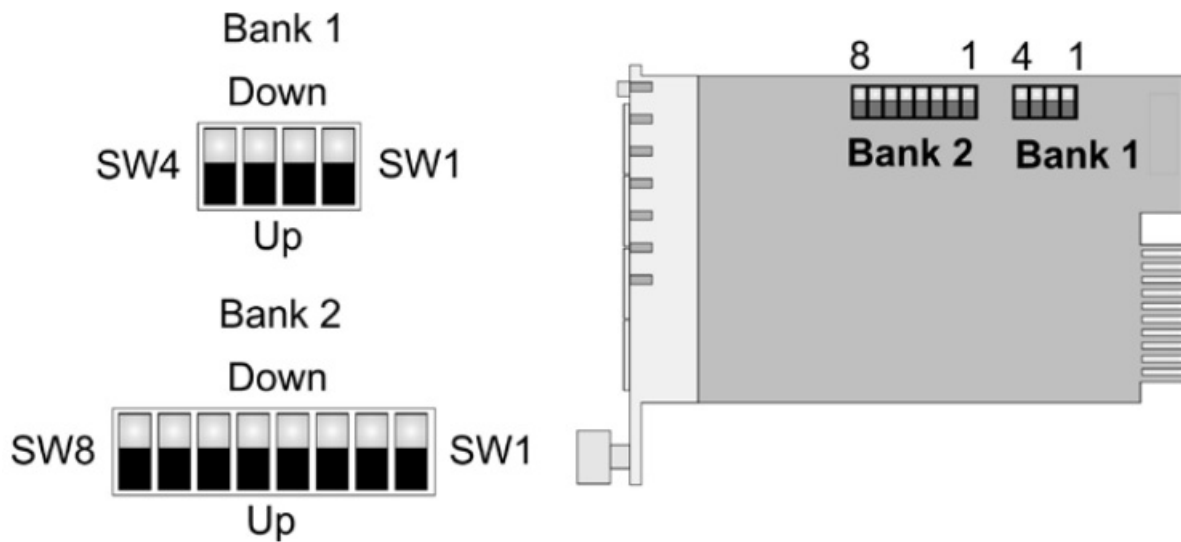
PORT STRUCTURE

The GX/T2 module has one front 10/100/1000 copper ports, one front 100/1000 port and two 1000 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.

DIP-SWITCHES

DIP-Switch Bank 1

The location of the DIP-switches is shown below



The functions of DIP-switch Bank 1 are shown below.

Switch	Function	DOWN (Default)	UP
SW1	Backplane A Enable/Disable	Disable	Enable
SW2	Backplane B Enable/Disable	Disable	Enable
SW3	L2CP Block	Forward	Discard
SW4	Reserved	Off	On

SW1 and SW2: Backplane Enable When these DIP-switches are in the DOWN position (factory default), the Backplane Port of the GX/T2 is isolated from the Ethernet Backplane on the chassis. When these DIP-switches are in the UP position the Backplane Port is enabled. This allows Ethernet Backplane connectivity to an adjacent module via the chassis A/B Backplane Link depending on the switch setting. Refer to the chassis user manual for detailed information on the Ethernet Backplane.

SW3: L2CP Block When this DIP-switch is in the default DOWN position, the module will forward all L2CP frames. When the DIP- switch is in the UP position, the module will discard all L2CP frames.

SW4: Reserved This DIP-switch is reserved and must be in the DOWN (default) position.

DIP-Switch Bank 2 The functions of DIP-switch Bank 2 are shown below

Switch	Function	DOWN (Default)	UP
SW1	Port 1 Speed	Auto	100
SW2	Port 2 Negotiation	Auto	Man
SW3	Port 2 Speed	100	10
SW4	Port 2 Duplex	Full (FDX)	Half (HDX)
SW5	Link Propagate Port 1 to Port 2	Link Segment	P1 to P2
SW6	Link Propagate Port 2 to Port 1	Link Segment	P2 to P1
SW7	Pause	Off	On
SW8	MAC Learning	On	Off

SW1: Port 1 Speed

This DIP-switch configures the speed of the transceiver installed in Port 1. If the DIP-switch is in the DOWN “Auto” (default) position, the port detects the data rate of the transceiver installed and operates at 100M or 1G accordingly. If the DIP-switch is in the UP “100” position, the port is expecting a 100M capable transceiver to be installed.

NOTE: SW1 is not available for fixed fiber models. The fiber port is always set to 1000.

SW2: Port 2 Negotiation

This DIP-switch configures Port 2 for Auto Negotiation or Manual operation.

SW2 – SW4: Port Negotiation, Speed and Duplex

Copper port configurations are shown below.

Negotiation SW2	Speed SW3	Duplex SW4	RJ-45 Mode of Operation
AN	10 or 100	FDX or HDX	When set to AN the following modes are advertised: 1000FDX, 1000HDX, 100FDX, 100HDX, 10FDX, 10HDX
Man	100	FDX	Port is set to manual 100FDX
Man	100	HDX	Port is set to manual 100HDX
Man	10	FDX	Port is set to manual 10FDX
Man	10	HDX	Port is set to manual 10HDX

SW5 and SW6: Link Modes

These DIP-switches configure the link mode settings. It is recommended to have link modes DOWN position (default) during the initial installation. After the circuit has been tested and operational, configure the module for the desired mode. [See Link Mode application note for more information.](#)

Link Segment

In Link Segment mode, all ports operate independently. 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

Link Propagate

In Link Propagate mode, faults are propagated based on the port notation. Port 1 to Port 2 notation indicates the direction the loss of link signal will propagate. A loss of receive link on Port 1 causes Port 2 to drop its link due to the propagated state (Port 1 to Port 2).

Port 2 to Port 1 notation indicates the direction the loss of link signal will propagate. A loss of receive link on Port 2 causes Port 1 to drop its link due to the propagated state (Port 2 to Port 1).

SW5	SW6	Function
DOWN	DOWN	Link Segment
DOWN	UP	Link Propagate Port 2 to Port 1
UP	DOWN	Link Propagate Port 1 to Port 2
UP	UP	Reserved

SW7: Pause

The Pause DIP-switch sets the flow control functionality for all ports on the module, including pause mode advertisement, pause functionality, and half duplex back pressure. When the DIP-switch is in the UP “On” position, flow control functionality is enabled. When this DIP-switch is in the DOWN “Off” position (factory default), flow control functionality is disabled.

If Pause is On and the port is in half duplex, then half duplex flow control is enabled. When a port is in half duplex

flow control it generates a back pressure signal when internal buffer resources are low.

If Pause is On and the port is in full duplex, then full duplex flow control is enabled. When a port is in full duplex flow control and internal buffering resources are low, a pause frame is generated to slow down the traffic flow to the port.

SW8: MAC Learning

When this DIP-switch is in the DOWN “On” position (factory default), all ports on the module will learn the source MAC address of each received packet and store the address so packets destined for the stored addresses can be forwarded to the appropriate interface on the module. When the DIP-switch is in the UP “Off” position, learning is turned off and all received packets are forwarded to all ports.

SOFTWARE CONTROLLED SETTINGS

Additional settings are available via software control when a GX/T2 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
- QoS and VLAN with 1ad
- Bandwidth Control

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. Insert the SFP fiber transceivers into the Port 1 SFP receptacles on the GX/T2
NOTE: The release latch of the SFP Fiber transceiver must be in the closed position before insertion.
3. The GX/T2 module has the ability to detect the speed and automatically configure the port to match the speed of Omnitron SFP transceivers. For non-Omnitron transceivers, configure the port for the correct speed of the transceiver using SW1 of DIP-switch Bank 2.
4. Connect the RJ-45 ports via a Category 5 or better Ethernet cables to a 10BASE-T, 100BASE-TX or

1000BASE-T Ethernet devices.

5. Connect an appropriate multimode or single-mode fiber cables to the fiber ports 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.

LED Indicators

LED	Color	Description
Power "PWR"	Green	OFF: No power applied or module is not operational ON: Module has power
P1 Activity "100"	Green/ Amber	OFF: Port is not linked at 100M Solid Green: Port linked at 100M Blinking Green: Data activity Blinking Amber: Operating at 100M and receiving FEFI
P1 Activity "1000"	Green/ Amber	OFF: Port is not linked at 1000M Solid Green: Port linked at 1000M Blinking Green: Data activity Blinking Amber: Operating at 1000M and receiving a remote fault
P1 Activity "100" and "1000"	Green	OFF: Port is not linked at 10M Solid Green: Port linked at 10M Blinking Green: Data activity

LED	Color	Description
P1 Duplex “F DX”	Green	OFF: Configured for half duplex per DIP-switch or resolved by auto-negotiation Solid Green: Configured for full duplex per DIP-switch or resolved by auto-negotiation
P1 SFP DMMI Alarm “Stat” ¹	Green/ Amber	OFF: Installed transceiver does not support digital diagnostics or no transceiver installed Solid Green: Installed transceiver supports digital diagnostics and no alarm detected Solid Amber: Transceiver has detected an alarm
P2 Negotiation Mode “AN”	Green	OFF: Configured for Manual operation Solid Green: Configured for Auto-negotiation Blinking Green: Configured for auto-negotiation but has not completed the process with link partner
P2 Activity “10 0”	Green/ Amber	OFF: Port is not linked at 100M Solid Green: Port is linked at 100M Blinking Green: Data activity Blinking Amber: Receiving a remote fault at 100Mbps
P2 Activity “10 00”	Green/ Amber	OFF: Port is not linked at 1000M Solid Green: Port is linked at 1000M Blinking Green: Data activity Blinking Amber: Receiving a remote fault at 1000Mbps
P2 Activity “10 0” and “1000”	Green	OFF: Port is not linked at 10M Solid Green: Port is linked at 1000M Blinking Green: Data activity
P2 Duplex “F DX”	Green	OFF: Configured for half duplex per DIP-switch or resolved by auto-negotiation Solid Green: Configured for full duplex per DIP-switch or resolved by auto-negotiation

¹ LEDs are not installed on the fixed fiber models

Specifications

Standard Compliances	IEEE 802.3, 802.1Q, 802.1p, 802.1ad, 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 10,240 bytes	
Port Types	Copper: Fiber:	10/100/1000BASE-T (RJ-45) 100BASE-X (SFP Model Only) 1000BASE-X
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, 1.4A @ 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)	520,000	
Warranty	Lifetime warranty and 24/7/365 free Technical Support	

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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.omnitron-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.

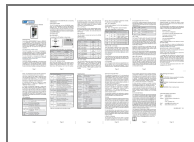
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Documents / Resources



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8520NUM-PI-F, GX-T2, GX-T2 Plug in Module, Plug in Module, Module

References

-  [Omnitron Systems | Making Networks Reliable Since 1992](#)
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[Manuals+](#)