Omnitron Systems

*iConverter®* **GXTM2**

**Standalone Module Quick Start**

## Product Overview

The iConverter GX/TM2 media converter and Network Interface Device (NID) provides 10BASE-T, 100BASE-TX or 1000BASE-T copper to 1000BASE-X fiber media conversion.

The GX/TM2 has built-in Operation, Administration and Maintenance (OAM) functionality enabling the GX/TM2 to operate as a managed demarcation point at the customer premises and network edge, offering Quality of Service capabilities.

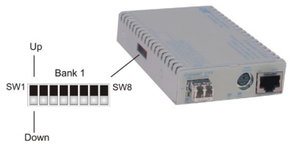
The GX/TM2 supports IPv4 addressing, IP-Less protocol using the 802.3ah OAM channel, SNMPv1/v2c/v3, Telnet and serial console port.

See data sheet for available models.

## DIP-Switches

### DIP-Switch Bank 1

The location of the DIP-switches is shown in below.




*DIP-switch Location*



The functions of DIP-switch Bank 1 are outlined in below.

| Switch | Down (Factory Default) | Up |
|---|---|---|
| **SW1** | **AN:** Fiber Auto | **Man:** Fiber Manual |
| **SW2** | **AN:** RJ-45 Auto | **Man:** RJ-45 Manual |
| **SW3** | **1000:** RJ-45 1000Mbps | **10-100:** RJ-45 10-100Mbps |
| **SW4** | **100:** RJ-45 100Mbps | **10:** RJ-45 10Mbps |
| **SW5** | **FDX:** RJ-45 Full-Duplex | **HDX:** RJ-45 Half-Duplex |
| **SW6 - SW8** | **See Link Mode Selection** | |

*DIP-switch BANK 1 Definitions*

**SW1 - Fiber Negotiation "AN/Man"**

When this DIP-switch is in the Down "AN" position (factory default), the fiber optic port automatically determines the pause modes of the connecting fiber optic device. If the connecting fiber optic device cannot provide the proper signal to indicate its own mode of operation, the DIP-switch should be set to the Up "Man" position. When Port 1 is set to the "Man" position, no capabilities are advertised.

Gigabit fiber always operate in Full-Duplex mode.

**SW2, SW3, SW4 and SW5 - RJ-45 Mode of Operation**

DIP-switches SW2, SW3, SW4 and SW5 control the setting of the RJ-45 port.



| SW2 | SW3 | SW4 | SW5 | RJ-45 Mode of Operation |
|---|---|---|---|---|
| AN | 1000 | 100 or 10 | FDX | Port is set to auto-negotiation with the following modes advertised: 1000F, 1000H, 100F, 100H, 10F, 10H |
| AN | 1000 | 100 or 10 | HDX | Port is set to auto-negotiation with the following modes advertised: 1000H, 100F, 100H, 10F, 10H |
| AN | 100-10 | 100 | FDX | Port is set to auto-negotiation with the following modes advertised: 100F, 100H, 10F, 10H |
| AN | 100-10 | 100 | HDX | Port is set to auto-negotiation with the following modes advertised: 100H, 10F, 10H |
| AN | 100-10 | 10 | FDX | Port is set to auto-negotiation with the following modes advertised: 10F, 10H |
| AN | 100-10 | 10 | HDX | Port is set to auto-negotiation with the following modes advertised: 10H |
| Man | 100-10 | 100 | FDX | Port is set to manual negotiation and is forced to: 100F |
| Man | 100-10 | 100 | HDX | Port is set to manual negotiation and is forced to: 100H |
| Man | 100-10 | 10 | FDX | Port is set to manual negotiation and is forced to: 10F |
| Man | 100-10 | 10 | HDX | Port is set to manual negotiation and is forced to: 10H |

*RJ-45 Port - Mode of Operation*

**When SW2 is set to MAN and SW3 is set to 1000, the module is operating per the IEEE specification in Auto-Negotiation mode.**

**SW6, SW7, SW8 - Link Modes**

These three DIP-switches configure the link mode settings. It is recommended to have link modes Down (default) during the initial installation. After the circuit has been tested and operational, configure the module for the desire mode.



For detailed information on the operation of the different Link Modes, download the application note "iConverter Link Modes".

| SW6 | SW7 | SW8 | Link Mode Selection |
|---|---|---|---|
| Down | Down | Down | **Link Segment (LS)** (Factory Default) |
| Up | Down | Down | **Link Propagate (LP)** |
| Down | Up | Down | **Remote Fault Detect + Link Segment (RFD + LS)** |
| Up | Up | Up | **Remote Fault Detect + Link Propagate (RFD + LP)** |
| Down | Down | Up | **Symmetrical Fault Detect (SFD)** |
| Up | Down | Up | **Asymmetrical Link Propagate Port 1 to Port 2 (ALP P1-P2)** |
| Down | Up | Up | **Asymmetrical Link Propagate Port 2 to Port 1 (ALP P2-P1)** |
| Up | Up | Up | **Pass Remote Link Fault (PRLF)** |

*Link Modes*



## Software Controlled Switch Settings

Additional settings are available via software control.

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

- DIP-switch Configuration
- Port 1 and Port 2 Configuration
- 802.1ad Q-in-Q, QoS and Port Access Control
- MIB statistics
- Bandwidth control (rate limiting)
- Configurable Link Fault Propagation modes

The module can be configured by attaching the serial port to a DB-9 serial (RS-232) equipped computer with terminal emulation software such as ProComm or Putty. The Serial Console Port (DCE) is a mini DIN-6 female connector which can be changed to a DB-9 connector with the included adapter. Attach the ends of a serial cable to the serial port of the PC and the Serial Console Port of the module. The port is a standard RS-232 asynchronous serial interface with the following settings.

| | |
|---|---|
| Bits Per Second | 57,600 |
| Stop Bits | 1 |
| Data Bits | 8 |
| Parity | NONE |
| Hardware Flow Control | NONE |

The default password is public.

When using Telnet or SNMP, the default IP address for the module is 192.168.1.220.

For more information on using and configuring the Advanced Features, register for access to the NetOutlook Management Software user manual or the GX/TM2 full user manual.



## Mounting and Cable Attachment

Caution: Use proper ESD protection to reduce the risk of damage to your equipment.

a. The module is available as a standalone module with integrated wall-mount brackets. Attach the unit to a wall, backboard or other flat surfaces. Make sure the unit is placed in a safe, dry and secure location.

**For AC models:**

To power the unit using the AC/DC adapter, connect the AC/DC adapter to an AC outlet. Then connect the barrel plug at the end of the wire on the AC/DC adapter to the 2.5mm DC barrel connector (center-positive) on the unit. Confirm that the unit has powered up properly by checking the power status LED located on the front of the unit.

**For DC Models:**

To power the unit using a DC power source, prepare a power cable using a two conductor insulated wire (not supplied) with 12AWG to 20AWG thickness. Cut the power cable to the length required. Strip approximately 3/8 of an inch of insulation from the power cable wires. Connect the power cables to the unit by fastening the stripped ends to the DC power connector.

Connect the power wires to the DC power source. The Power LED should indicate the presence of power.

WARNING: Note the wire colors used in making the positive and negative connections. Use the same color assignment for the connection at the DC power source.

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

b. When using a model with a SFP port, insert the SFP fiber transceivers into the SFP receptacles on the module.

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

c. Connect the RJ-45 ports via a Category 5 or better cables to a 10BASE-T, 100BASE-TX or 1000BASE-T Ethernet devices.



d. 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 faulty<br>**ON:** Module has power |
| P1 Activity "FO" | Green | **OFF:** No fiber link<br>**ON:** Fiber link<br>**Blinking Green:** Data activity |
| P2 Speed "100" | Green | **OFF:** Port is not linked at 100M<br>**ON:** Port linked at 100M<br>**Blinking Green:** Data activity |
| P2 Speed "1000" | Green | **OFF:** Port is not linked at 1000M<br>**ON:** Port linked at 1000M<br>**Blinking Green:** Data activity |
| P2 Speed "1000 + 100" | Green | **OFF:** Port is not linked at 10M<br>**ON:** Port linked at 10M<br>**Blinking Green:** Data activity |
| P2 Duplex "FDX" | Green | **OFF:** Half-Duplex<br>**ON:** Full-Duplex |



## Specifications

| | |
|---|---|
| **Description** | iConverter GX/TM2<br>10/100/1000BASE-T Copper to 1000BASE-X Fiber Media Converter and Network Interface Device |
| **Standard Compliances** | IEEE 802.3, 802.1Q, 802.1p, 802.1ad, 802.3ah<br>RFC 2819 (RMON), 2863, 2131<br>MEF 9, 14, 21 |
| **Regulatory Compliances** | Safety: UL, CE, NEBS Level 3, UKCA<br>EMI: FCC Class A,<br>ACT: TAA, BAA, NDAA |
| **Environmental** | RoHS, WEEE, REACH |
| **Management** | IPv4, Telnet, SNMPv1, SNMPv2c, SNMPv3, Serial Console |
| **Frame Size** | Up to 10,240 bytes |
| **Port Types** | Copper: 10/100/1000BASE-T (RJ-45)<br>Fiber: 1000BASE-X (SFP, ST, SC, LC)<br>Serial: RS-232 (Mini DIN-6 female)<br>Mini DIN-6 to DB-9 adapter included |
| **Cable Types** | Copper: EIA/TIA 568A/B, Cat 5 UTP and higher<br>Fiber: Multimode: 50/125µm, 62.5/125µm<br>Single-mode: 9/125µm<br>Serial: RS-232, 22 to 24 AWG,<br>12 to 50 pF/ft |



| | |
|---|---|
| **AC Power Requirements** | AC Adapter:<br>100 - 240VAC/50 - 60Hz,<br>0.08A @ 120VAC (max) |
| **DC Power Requirements** | DC Input (Terminal):<br>+8 to +15VDC, 0.6A @ 9VDC<br>2-Pin Terminal (non-isolated) |
| | DC Input (AC Adapter):<br>+8 to +15VDC, 0.6A @ 9VDC<br>2.5mm Barrel Connector |
| **Dimensions W x D x H** | Standalone:<br>3.1" x 4.8" x 1.0"<br>(78.7 mm x 121.9 mm x 25.4 mm)<br>Standalone with Mounting Brackets:<br>3.8" x 4.8" x 1.0"<br>(96.5 mm x 121.9 mm x 25.4 mm) |
| **Weight** | 1.0 lb. (453.6 grams) - without AC Adapter<br>1.5 lbs. (680.4 grams) - with AC Adapter |
| **Temperature** | Commercial: 0 to 50°C<br>Wide: -40 to 60°C<br>Extended: -40 to 75°C<br>Storage: -40 to 80°C |
| **Humidity** | 5 to 95% (non-condensing) |
| **Altitude** | -100m to 4,000m |
| **MTBF (hrs)** | 450,000 - Module<br>250,000 - Module with US Adapter<br>100,000 - Module with Universal Adapter |
| **Warranty** | Lifetime warranty and<br>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.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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