Omnitron Systems

iConverter® 2GXT Standalone

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 2GXT is a standalone, unmanaged media converter with two 10/100/1000 RJ-45 copper ports and two Small Form Pluggable (SFP) fiber ports. The 2GXT can be deployed as a dual-channel media converter (Dual Device Mode) that provides two independent Ethernet copper-to-fiber converters in one compact module, or deployed as a four-port Ethernet switch with dual fiber ports that can be configured to provide 1:1 uplink protection with less than 50ms switchover.

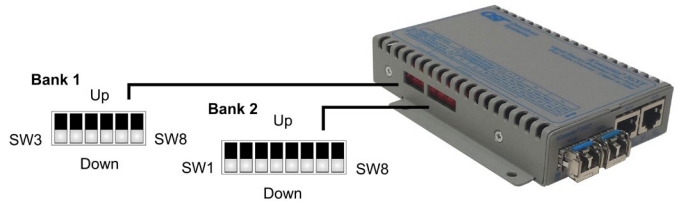
The 2GXT supports both 100BASE-X and 1000BASE-X SFPs to provide flexible connectivity to Fast Ethernet or Gigabit networks.

See data sheet for available features.

DIP-Switch Settings

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	UP
SW3 - SW4	Operational Modes		
SW5	Pause	Off	On
SW6	Link Mode	LS	P1 to P3 P2 to P4
SW7	Link Mode	LS	P3 to P1 P4 to P2
SW8	L2CP Forward	Discard	Forward

SW3 and SW4: Operational Modes

SW3	SW4	Operational Modes
Down	Down	4-Port Switch Mode (factory default)
Down	Up	Dual Device Mode
Up	Down	Switch Mode with Redundant Fiber Mode - no return to Port 1
Up	Up	Switch Mode with Redundant Fiber Mode - return to Port 1

4-Port Switch Mode

When SW3 and SW4 are in the DOWN (factory default) position, the module operates as a 4-Port Layer 2 Ethernet switch.

Dual Device Mode

When SW3 is in the DOWN position and SW4 is in the UP position, the module operates as two separate and independent Ethernet copper-to-fiber media converters, with P1 and P3 as one media converter, and P2 and P4 as the other media converter.

Switch Mode - Redundant Fiber Mode

When SW3 is in the UP position and SW4 is in either the UP or DOWN position, the module operates as a 4-Port Layer 2 Ethernet switch with the fiber ports configured as redundant links. When configured for link redundancy, the module will transmit and receive traffic on the primary port (Port 1) and no traffic on the backup port (Port 2). When a fiber failure occurs on the primary port, the device will switch over to the backup port within 50msec.

When SW3 is in the UP position and SW4 is in the DOWN position, the module is configured to remain on the backup port (Port 2) even when a stable connection has been re-established on primary port (Port 1). When SW3 is in the UP position and SW4 is in the UP position, the module is configured to switch back to the primary port (Port 1) once a stable connection has been re-established.

SW5: 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 Pause UP position, flow control functionality is enabled. When this DIP-switch is in the Pause DOWN default position, flow control functionality is disabled.

If Pause is enabled 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 enabled 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.

SW6 and SW7: Link Modes

These DIP-switches configure the link mode settings. It is recommended to have link modes DOWN default position during the initial installation. After the circuit has been tested and operational, configure the module for the desired mode. Link Modes are only valid when the module is operating in the Dual Media Converter 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 3 notation indicates the direction the loss of link signal will propagate. A loss of receive link on Port 1 causes Port 3 to drop its link due to the propagated state (Port 1 to Port 3).

SW8: L2CP Forward

When this DIP-switch is in the default Down default position, the module will discard all L2CP frames. When the DIP-switch is in the Up position, the module will forward all L2CP frames.

DIP-Switch Bank 2

The functions of DIP-switch Bank 2 are outlined below.

Switch	Function	DOWN	UP
SW1	Port 1 Speed	Auto	100
SW2	Port 2 Speed	Auto	100
SW3	Port 3 Negotiation	AN	Man
SW4	Port 3 Speed	100	10
SW5	Port 3 Duplex	FDX	HDX
SW6	Port 4 Negotiation	AN	Man
SW7	Port 4 Speed	100	10
SW8	Port 4 Duplex	FDX	HDX

SW1 and SW2: SFP Port Speed

These DIP-switches configure the speed of the transceivers installed in the SFP ports. If these DIP-switches are in the DOWN (default) position, the ports will detect the data rate of the transceivers installed and operate at 100M or 1G accordingly. If these DIP-switches are in the UP position, a 100M capable transceivers must be installed in the SFP ports.

SW3 - SW8: Port Negotiation, Speed and Duplex

Negotiation	Speed	Duplex	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

Mounting and Cable Attachment

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

The 2GXT 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 14AWG 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.

Insert the SFP fiber transceiver into the Port 1 SFP receptacle on the 2GXT.

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

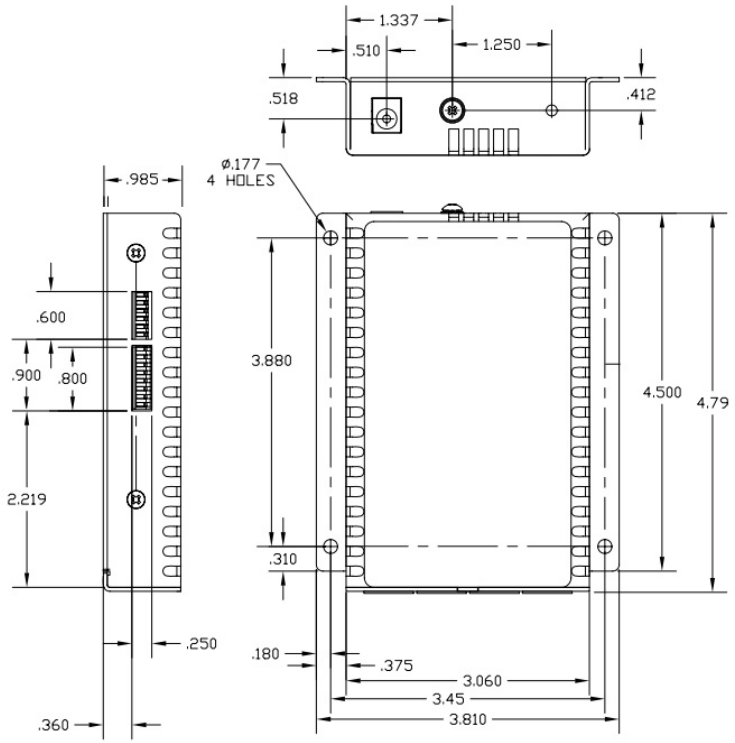
Connect the RJ-45 port via a Category 5 or better Ethernet cable to a 10BASE-T, 100BASE-TX or 1000BASE-T Ethernet device.

Connect an 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) SFP 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 or P2 Activity “100”	Green/ Amber	OFF: Port is not linked at 100M Solid Green: Port linked at 100M Blinking Green (10Hz): Data activity Blinking Green (1Hz): Port linked and in redundant standby mode Solid Amber: Port linked and detecting a DDMI alarm Blinking Amber (10Hz): Data activity and SFP has detected a DDMI alarm Blinking Amber (1Hz): Port linked and SFP has detected a DDMI alarm (redundant standby mode) or Port is operating at 100M and receiving FEFI
P1 or P2 Activity “1000”	Green/ Amber	OFF: Port is not linked at 1000M Solid Green: Port linked at 1000M Blinking Green (10Hz): Data activity Blinking Green (1Hz): Port linked and in redundant standby mode Solid Amber: Port linked and detecting a DDMI alarm Blinking Amber (10Hz): Data activity and SFP has detected a DDMI alarm Blinking Amber (1Hz): Port linked and SFP has detected a DDMI alarm (redundant standby mode) or Port is operating at 1000M and receiving AN_Remote_Fault
P1 or P2 Activity “100” and “1000”	Green	OFF: Port is not linked at 10M Solid Green: Port linked at 10M Blinking Green (10Hz): Data activity Blinking Green (1Hz): Port linked and in redundant standby mode Solid Amber: Port linked and s detecting a DDMI alarm Blinking Amber (10Hz): Data activity and SFP has detected a DDMI alarm Blinking Amber (1Hz): Port linked and SFP has detected a DDMI alarm (redundant standby mode)
P3 or P4 Activity “100”	Green/ Amber	OFF: Port is not linked at 100M Solid Green: Port is linked at 100M Blinking Green (10Hz): Data activity
P3 or P4 Activity “1000”	Green/ Amber	OFF: Port is not linked at 1000M Solid Green: Port is linked at 1000M Blinking Green (10Hz): Data activity
P3 or P4 Activity “100” and “1000”	Green/ Amber	OFF: Port is not linked at 10M Solid Green: Port is linked at 1000M Blinking Green (10Hz): Data activity Blinking Amber (1Hz): Port receiving AN_Remote_Fault

Specifications

Standard Compliances	IEEE 802.3	
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: SFP Fiber:	10/100/1000BASE-T (RJ-45) 100BASE-X 1000BASE-X
Cable Types	Copper:	EIA/TIA 568A/B, Cat 5 UTP and higher
DC Power Requirements	DC Input: (Terminal)	7 - 60VDC, 0.4A @ 9VDC (typical) 2-Pin Terminal (non-isolated)
	DC Input: (AC Adapter)	7 - 60VDC, 0.4A @ 9VDC (typical) 2.5mm Barrel Connector
Dimensions W x D x H	3.8” x 4.8” x 1.0” (96.5 mm x 121.9 mm x 25.4 mm)	
Weight	1.0 lb. (453.6 grams) - without AC Adapter 1.5 lbs. (680.4 grams) - with AC Adapter	
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)	722,000 - Module 250,000 - Module with US AC Adapter 100,000 - Module with Universal AC Adapter	
Warranty	Lifetime warranty and 24/7/365 free Technical Support	

Mechanical