Omnitron Systems

OmniConverter®

GHPoE/S

User Manual

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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

If you encounter problems while installing this product, contact Omnitron Technical Support:

Phone: (949) 250-6510
Fax: (949) 250-6514
Address: Omnitron Systems Technology, Inc.
38 Tesla
Irvine, CA 92618, USA
Email: support@omnitron-systems.com
URL: www.omnitron-systems.com

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OmniConverter® GHPoE/S
User Manual

PRODUCT OVERVIEW

The OmniConverter GHPoE/S are multi-port media converters that convert 10/100/1000BASE-T copper to 1000BASE-X or 100BASE-X fiber and support Power-over-Ethernet (60W PoE). Classified as Power Sourcing Equipment (PSE), they can provide power to one or two Powered Devices (PDs) using standard UTP cables that carry the Ethernet data.

The main function of the PSE is to automatically detect a PD, classify the PD and supply power to the link (only if a PD is detected). The PSE detects a PD by applying a low voltage on the cable and then looks for a signature from the attached PD. A compliant PD is required to have the valid signature. Classification of the PD is done to determine the maximum power levels required by the PD. After the PD is classified, the PSE will allow the PD to draw power up to the maximum classification level.

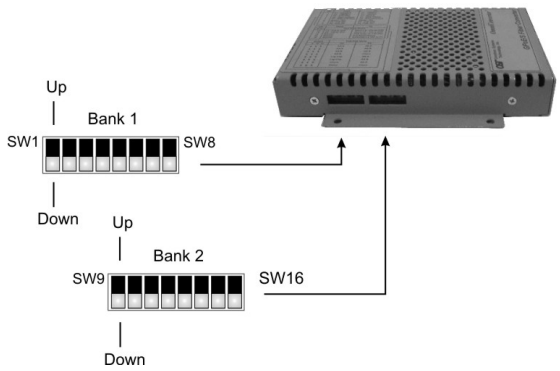
The GHPoE/S automatically preforms the detection, classification and powering functions. The GHPoE/S supports IEEE 802.3af PoE (15W) and IEEE 802.3at PoE+ (30W) standard. It can also provide up to 60W PoE per RJ-45 port.

Installation Procedure

1) Configure DIP-switches
2) Installing the Module
3) Apply Power
4) Connect Cables
5) Verify Operation

1) Configure DIP-switches

DIP-switches are located on the side of the OmniConverter module. The DIP-switches are used to configure ports, link modes and PoE/PSE options.



DIP-switch Bank Locations

The table below provides a description of each DIP-switch position and function.

Switch	DOWN	UP	Function	1 FF 1 RJ-45	1 FF 2 RJ-45	1 SFP 1 RJ-45	1 SFP 2 RJ-45
1	Auto	Forced 100M	Port 1 Fiber Speed	N/A	N/A	x	x
2	N/A	N/A	N/A	N/A			
3	Auto	Man	Port 2 Auto/Manual	x	x	x	x
4	100	10	Port 2 Speed (Only in MAN mode)	x	x	x	x
5	FDX	HDX	Port 2 Duplex (Only in MAN mode)	x	x	x	x
6	Off	On	Pause Capability	x	x	x	x
7	Enabled	Disabled	Port 2 PSE Power	x	x	x	x
8	Enabled	Disabled	Port 3 PSE Power	N/A	x	N/A	x
9	Normal	Forced On	Port 2 PSE Power Override	x	x	x	x
10	Normal	Forced On	Port 3 PSE Power Override	N/A	x	N/A	x
11	On	Off	MAC Learning	N/A	x	N/A	x
12	See DIP-switch Description		Link Mode Selection	x	x	x	x
13			Link Mode Selection	x	x	x	x
14	Off	On	PSE Reset	x	x	x	x
15	N/A	N/A	N/A	N/A			
16	N/A	N/A	N/A	N/A			

DIP-switch Definitions for Models with 1 Fiber Port

Switch	DOWN	UP	Function	2 FF 1 RJ-45	2 FF 2 RJ-45	2 SFP 1 RJ-45	2 SFP 2 RJ-45
1	Auto	Forced 100M	Port 1 Fiber Speed	N/A	N/A	x	x
2	Auto	Forced 100M	Port 2 Fiber Speed	N/A	N/A	x	x
3	Auto	Man	Port 3 Auto/Manual	x	x	x	x
4	100	10	Port 3 Speed (Only in MAN mode)	x	x	x	x
5	FDX	HDX	Port 3 Duplex (Only in MAN mode)	x	x	x	x
6	Off	On	Pause Capability	x	x	x	x
7	Enabled	Disabled	Port 3 PSE Power	x	x	x	x
8	Enabled	Disabled	Port 4 PSE Power	N/A	x	N/A	x
9	Normal	Forced On	Port 3 PSE Power Override	x	x	x	x
10	Normal	Forced On	Port 4 PSE Power Override	N/A	x	N/A	x
11	On	Off	MAC Learning	x	x	x	x
12	See DIP-switch Description		Link Mode Selection	x	x	x	x
13			Link Mode Selection	x	x	x	x
14	Off	On	PSE Reset	x	x	x	x
15	Off	On	Redundant Fiber Link	x	x	x	x
16	Off	On	Return to Port 1	x	x	x	x

DIP-switch Definitions for Models with 2 Fiber Port

SW1 and SW2: F/O Speed "100/1000"

The DIP-switches are ignored for fixed fiber models.

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 automatically detect the data rate of the transceivers installed and operate at 100M or 1000M accordingly. If the automatic detection fails to detect the speed of the installed SFP, then the speed will be set to 1000M.

If these DIP-switches are in the UP position, a 100M capable transceivers must be installed in the SFP ports.

When an RJ-45 transceiver is installed in a SFP receptacle, setting this DIP-switch to Up "100" position enables the port to operate at 100Mbps.

SW3, SW4 and SW5: RJ-45 Configuration

These DIP-switches configure the first RJ-45 port on the module (Port 2 on a single fiber model and Port 3 on a dual fiber model). The second RJ-45 port is always configured for auto-negotiation.

When DIP-switch SW3 is in the Down "AN" position, SW4 and SW5 are ignored.

SW3 RJ-45 AN/Man	SW4 RJ-45 100/10	SW5 RJ-45 FDX/HDX	Mode of Operation
AN	10 or 100	FDX or HDX	The RJ-45 port is set to auto-negotiation with the following modes advertised: 1000FDX, 1000HDX, 100FDX, 100HDX, 10FDX, 10HDX
MAN	100	FDX	The RJ-45 port is set to manual negotiation and is forced to 100FDX.
MAN	100	HDX	The RJ-45 port is set to manual negotiation and is forced to 100HDX.
MAN	10	FDX	The RJ-45 port is set to manual negotiation and is forced to 10FDX.
MAN	10	HDX	The RJ-45 port is set to manual negotiation and is forced to 10HDX.

RJ-45 Port Configuration Matrix

SW6: Pause "On/Off"

In auto-negotiation mode, setting this DIP-switch to the Up "On" position allows the unit to advertise Symmetrical and Asymmetrical Pause capability. In auto-negotiation mode, setting the DIP-switch to the Down "Off" position allows the unit to advertise no Pause capability. In the manual mode, this DIP-switch determines the Symmetrical Pause behavior of the ports.

SW7: Power Sourcing "Enable/Disable", RJ-45 Port

The OmniConverter automatically detects the attached PD and provides the equipment with the necessary power.

This DIP-switch controls the power sourcing for first RJ-45 port on the module (Port 2 on the single fiber models and Port 3 on dual fiber models). When this DIP-switch in the Down "On" position, the power sourcing is enabled. When the DIP-switch is in the Up "Off" position, the power sourcing is disabled.

SW8: Power Sourcing "Enable/Disable", RJ-45 Port

This DIP-switch controls the power sourcing for the second RJ-45 port on the module (Port 3 on the single fiber models and Port 4 on dual fiber models). When this DIP-switch in the Down "On" position, the power sourcing is enabled. When the DIP-switch is in the Up "Off" position, the power sourcing is disabled.

SW9, SW10 "Normal/Forced" PoE Power Mode

This DIP-switch allows the PoE power to be forced ON when connected to a PD with non-standard detection characteristics.

DIP-switch SW9 controls the forced capability for the first RJ-45 port on the module (Port 2 on the single fiber models and Port 3 on dual fiber models) and SW10 controls the forced capability for the second RJ-45 port on the module (Port 3 on the single fiber models and Port 4 on dual fiber models).

When these DIP-switches are in the Down "Normal" position, the port will automatically preform the detection, classification and powering functions for the attached PD. When these DIP-switches are in the Up "Forced" position, a maximum of 60 or up to 100 watts of power will be available to the PD. The maximum wattage depends on the model number of the module.

SW11: MAC Learning "On/Off"

When this DIP-switch is in the Down "On" position, 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.

Models with one fiber port and one copper port have MAC learning disabled.

SW12 and SW13: Link Modes

The OmniConverter supports Link Segment and Asymmetrical Link Propagate.

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. A loss of link on the RJ-45 port will only affect the RJ-45 port, and the other ports will remain unaffected.

Asymmetrical Link Propagate

In Asymmetrical 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 the fiber optic Port 1 causes the RJ-45 Port 2 to drop its link due to the propagated state (Port 1 to Port 2). The loss of link on the RJ-45 Port 2 does not cause the loss of link to propagate. The loss only propagates in the Port 1 to Port 2 direction.

NOTE: A loss of link or loss of signal is when the optical receiver on the media converter can no longer detect the presence of an optic signal.

NOTE: On models with 2 fiber ports or 2 RJ-45 ports, both ports of the same media type must be in link fault condition before the fault will propagate.

SW12	SW13	Function
DOWN	DOWN	Link Segment (LS)
UP	DOWN	Asymmetrical Link Propagate Port 1 to Port 2 (1+1 - 2 Port models), Port 1 to Port 2 and Port 3 (1+2 - 3 Port models), Port 1 and Port 2 to Port 3 (2+1 - 3 Port models) and Port 1 and Port 2 to Port 3 and Port 4 (2+2 - 4 Port models).
DOWN	UP	Asymmetrical Link Propagate Port 2 to Port 1 (1+1 - 2 Port models), Port 2 and Port 3 to Port 1 (1+2 - 3 Port models) Port 3 to Port 1 and Port 2 (2+1 - 3 Port models) and Port 3 and Port 4 to Port 1 and Port 2 (2+2 - 4 Port models)
UP	UP	Invalid Configuration

Link Modes

SW14: Power Sourcing Reset "Off/Reset"

The OmniConverter can be configured to reset the PoE output power for 2 seconds after a loss of receive link on any fiber port. This feature is typically used to allow a PD to re-initialize after a failure on the incoming fiber.

When this DIP-switch is in the Up "Reset" position, the module will disable PoE output power for 2 seconds following a loss of receive link on any fiber port. When this DIP-switch is in the Down "Off" position, PoE output power does not reset on fiber link loss.

SW15: Link Redundant "Off/On"

SW15 is only valid on models with 2 fiber ports. Port redundancy is available when connected to Omnitron and third party devices with 2 fiber ports.

SW15 controls the port redundancy mode of the module. When SW15 is in the Down "Off" (default) position, the fiber ports operate in a non-redundant (independent) mode. When SW15 is in the Up "On" position, the fiber ports operate as redundant links. A fault on the primary fiber port (Port 1), will cause a fail over to the secondary fiber port (Port 2) within 50msec.

SW16: Return to P1 "Off/On"

SW16 is only valid on models with 2 fiber ports.

SW16 enables the module to return to the primary fiber port (Port 1) after the fiber link has been restored and stable for 6 seconds. When SW16 is in the Down "Off" position, return to primary is disabled (inactive). When the SW16 is in the Up "On" position, return to primary is enabled.

When SW15 is in the Down "Off" position, SW16 is ignored.

Switch 15 P1+P2 Redun	Switch 16 Rtn P1	Function
DOWN (Off)	DOWN (Off)	Non-redundant mode - normal mode
DOWN (Off)	UP (On)	Non-redundant mode - normal mode
UP (On)	DOWN (Off)	Redundant mode - no return to primary
UP (On)	UP (On)	Redundant mode - return to primary

Port Redundancy Modes

2) Installing the Module

Wall Mounting

The wall mounting height of the module should be less than or equal to 2 meters (6.6 feet) from the floor. Use the four mounting holes on the module to secure the module to the wall. The module can accommodate #6 screws (not included).

Installation of the module should be such that the air flow in the front, back, side and top vents of the switch are not compromised or restricted.

The accessory cables should have their own strain relief and do not pull down on the module.

Rack Mounting

The module can be rack mounted using the optional Rack Mount Shelf (8260-0). Refer to the Rack Mount Shelf user manual (040-08260-001x) for the proper installation guidelines.

Follow the same guidelines above when rack mounting the module.

DIN-rail Mounting

The module can be DIN-rail mounted using the optional DIN-rail Mounting Bracket (8250-0) or the optional DIN-rail Mounting Clip (8251-0). Refer to the user manuals (040-08250-001x or 040-08251-001x) for the proper installation guidelines.

3) Apply Power

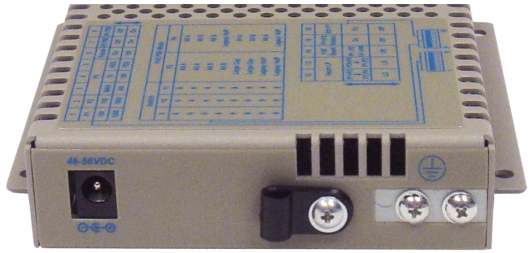
AC Power

Secure the ground wire to the NEBS grounding screw located on the back of the module.

To power the unit using the AC/DC adapter, route the power cord through the provided strain relief for additional support. Then connect the barrel connector at the end of the wire on the AC/DC adapter to the 2.1mm DC barrel connector (center-positive) on the

unit. Connect the AC/DC adapter to the AC outlet. Confirm that the module has powered up properly by checking the Power LED located on the front of the installed module.

Installation of the equipment should be such that the air flow in the front, back, side and top vents of the chassis are not compromised or restricted.



Rear View with AC Power Connector

WARNING!!!

NEVER ATTEMPT TO OPEN THE CHASSIS OR SERVICE THE POWER SUPPLY. OPENING THE CHASSIS MAY CAUSE SERIOUS INJURY OR DEATH. THERE ARE NO USER REPLACEABLE OR SERVICEABLE PARTS IN THIS UNIT.

DC Power

This module is intended for installation in restricted access areas. ("Les matériels sont destinés à être installés dans des EMPLACEMENTS À ACCÈS RESTREINT"). A restricted access area can be accessed only through the use of a special key, or other means of security.

The over current protection for connection with centralized DC shall be provided in the building installation, and shall be a UL listed circuit breaker rated 20 Amps, and installed per the National Electrical Code, ANSI/NFPA-70.

Appropriate overloading protection should be provided on the DC power source outlets utilized.

The GHPoE/S requires 50 to 57VDC @ 2.25 Amp max rated power (see specification table for specific model requirements).

Description	15W IEEE 802.3af PoE	30W IEEE 802.3at PoE+	60W Pre-BT
Power Supply Voltage Range	46.0 to 57.0 VDC	51.0 to 57.0 VDC	51.0 to 57.0 VDC
Voltage Range at PSE port Output	44.0 to 56.0 VDC	50.0 to 56.0 VDC	50.0 to 56.0 VDC
Maximum Power from PoE/PSE port	15.4 watts	30 watts	60 watts
Minimum Voltage at PoE/PD port input*	37.0 VDC	42.5 VDC	42.5 VDC
Minimum Power at PoE/PD port*	12.95 watts	25.5 watts	51 watts
* at 100 meters using Cat5			

WARNING: Only a DC power source that complies with safety extra low voltage (SELV) requirements can be connected to the DC-input power supply.

WARNING REGARDING EARTHING GROUND:

- This equipment shall be connected to the DC supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the DC supply system earthing electrode is connected.
- This equipment shall be located in the same immediate area (such as adjacent cabinets) as any other equipment that has a connection between the earthed conductor of the same DC supply circuit and the earthing conductor, and also the point of earthing of the DC system. The DC system shall not be earthed elsewhere.
- The DC supply source is to be located within the same premises as this equipment.
- There shall be no switching or disconnecting devices in the earthed circuit conductor between the DC source and the earthing electrode conductor.

Locate the DC circuit breaker of the external power source, and switch the circuit breaker to the OFF position.

Prepare a power cable using a three 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 ground wire to the NEBS grounding screws on the back of the module.

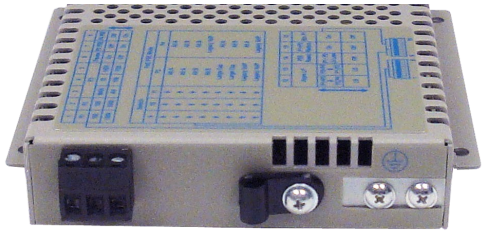
Route the power cables through the provided strain relief for additional support. Connect the power cables to the OmniConverter by fastening the stripped ends to the DC power connector.

WARNING: Note the wire colors used in making the positive, negative and ground connections. Use the same color assignment for the connection at the circuit breaker.

Connect the power wires to the circuit breaker and switch the circuit breaker ON. If any module are installed, the Power LED will indicate the presence of power.

During the installation, ensure that the ground potentials are maintained throughout the system connections. This includes but not limited to the power source ground and any shielded cabling grounds.

Installation of the equipment should be such that the air flow in the front, back, side and top vents of the chassis are not compromised or restricted.



Rear View with DC Terminal Connector

WARNING!!!

NEVER ATTEMPT TO OPEN THE CHASSIS OR SERVICE THE POWER SUPPLY. OPENING THE CHASSIS MAY CAUSE SERIOUS INJURY OR DEATH. THERE ARE NO USER REPLACEABLE OR SERVICEABLE PARTS IN THIS UNIT.

4) Connect Cables

a. When using the SFP model, insert the SFP Fiber transceiver into the SFP receptacle on the front of the module.

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

b. Connect an appropriate multimode or single-mode fiber cable to the fiber port on the front of the module. It is important to ensure that the transmit (TX) is attached to the receive side of the module at the other end and the receive (RX) is attached to the transmit side. When using single-fiber (SF) models, 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.

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

5) Verify Operation

Once the module has been installed and configured per steps 1 - 4, verify the module is operational by viewing the LED indicators.

The Power LED indicates the module is receiving power.

The Fiber Optic LEDs indicates the fiber optic connection has been established.

The RJ-45 10/100/1000 LEDs indicate the speed of the RJ-45 port connection.

The PSE LED indicates the module has established a successful detection of a PD and is supplying Power over Ethernet.

Power LED Indicators		
Legend	**Indicator**	**Description**
Pwr	OFF	Unit not powered
	Green - ON	Unit powered
	Amber - ON	Over temperature condition

Power LED Indicators

Fiber Port LED Indicators		
Legend	**Indicator**	**Description**
100	OFF	No link
	Green - ON	Port linked at 100Mbps
	Green - Blinking at 10Hz	Port data activity at 100Mbps
	Green - Blinking at 1Hz	Port linked at 100Mbps and in redundant standby mode
	Amber - Blinking at 1Hz	Port linked at 100Mbps and receiving Far End Fault Indicator (FEFI)
1000	OFF	No link
	Green - ON	Port linked at 1000Mbps
	Green - Blinking at 10Hz	Port data activity at 1000Mbps
	Green - Blinking at 1Hz	Port linked at 1000Mbps and in redundant standby mode
	Amber - Blinking at 1Hz	Port linked at 1000Mbps and receiving AN Remote Fault
10 (100+1000)	OFF	No link
	Green - ON	Port linked at 10Mbps
	Green - Blinking at 10Hz	Port data activity at 10Mbps
	Green - Blinking at 1Hz	Port linked at 10Mbps and in redundant standby mode
Stat	OFF	Transceiver does not support digital diagnostics or no transceiver (SFP) is installed
	Green - ON	Transceiver (SFP) supports digital diagnostics and no alarm is detected
	Amber - ON	Transceiver (SFP) supports digital diagnostics and alarms are present

Fiber LED Indicators

RJ-45 Port Indicators		
Legend	**Indicator**	**Description**
100	OFF	No link
	Green - ON	Port linked at 100Mbps
	Green - Blinking at 10Hz	Port data activity at 100Mbps
1000	OFF	No link
	Green - ON	Port linked at 1000Mbps
	Green - Blinking at 10Hz	Port data activity at 1000Mbps
10 (100+1000)	OFF	No link
	Green - ON	Port linked at 10Mbps
	Green - Blinking at 10Hz	Port data activity at 10Mbps
	Amber - Blinking at 1Hz	Port linked at 10Mbps and receiving AN Remote Fault
FDX	Green - ON	Port is configured for full-duplex via DIP-switch or has negotiated to full-duplex in AN mode
	OFF	Port is configured for half-duplex via DIP-switches or Port 2 has negotiated to half-duplex in AN mode or Port 2 in AN mode has not established the correct connection
PSE	Green - ON	Port PSE is active
	Amber - ON	Port PSE inactive
	OFF	Port PSE disabled

RJ-45 LED Indicators

SPECIFICATIONS

AC/DC Adapter Temperature Total Available Wattage to RJ-45 Ports							
Model	RJ-45 Ports	Watts Required	40°C	50°C	60°C	70°C	75°C
GHPoE/S 60 watts	1	60 watts	Full Power	Full Power	Full Power	Full Power	50 watts
	2	120 watts	Full Power	100 watts	80 watts	60 watts	50 watts

The AC/DC Adapter Temperature table is not applicable to models with DC Terminal. The DC Terminal models will provide full PoE power over the operating temperature range of the module as long as the DC input voltage meets the requirements stated in the specification table.

Description	**OmniConverter GHPoE/S** 10/100/1000BASE-T to 1000BASE-X or 100BASE-X Fiber Media Converter with 60W PoE	
Standard Compliances	IEEE 802.3, IEEE 802.3af (15.40 watts max), IEEE 802.3at (30 watts max) High Power 60W PoE	
PoE Supported Modes	IEEE Alternate A (Alt A) and 4 Pair	
Environmental	RoHS, WEEE and REACH	
Frame Size	Up to 10,240 bytes	
Port Types	Copper: 10/100/1000BASE-T (RJ-45) Fiber: 100BASE-X (SFP) 1000BASE-X (ST, SC, LC, SFP) 1000BASE-BX (SC, SFP)	
Cable Types	Copper: EIA/TIA 568A/B, Cat 5 UTP and higher Fiber: Multimode: 50/125, 62.5/125µm Single-mode: 9/125µm	
AC Power Requirements (Models with AC/DC Adapters)	1 RJ-45 Port 100 - 240VAC/50 - 60Hz 0.62A @ 120VAC (typical)	2 RJ-45 Ports 100 - 240VAC/50 - 60Hz 1.19A @ 120VAC (typical)
DC Power Requirements (Models with DC Terminals)	1 RJ-45 Port +/-44 to +/-57VDC; 1.16A @ 56VDC 3 Pin Terminal (isolated)	2 RJ-45 Ports +/-44 to +/-57VDC; 2.25A @ 56VDC 3 Pin Terminal (isolated)
Dimensions (W x D x H)	4.5” x 6.0” x 1.0” (114.3 mm x 152.4 mm x 25.4 mm)	
Weight	Module Only: 1.1 lbs. (498.9 grams) Module w/ Adapter: 2.8 lbs. (1256.4 grams)	
Operating Temperature (See Temperature Derating Table)	Commercial: 0 to 50°C Wide: -40 to 60°C (-20°C AC cold start) Extended: -40 to 75°C (-20°C AC cold start) Storage: -40 to 80°C	
Humidity	5 to 95% (non-condensing)	
Altitude	-100m to 4,000m	
MTBF (hours)	Module Only: 474,000 AC/DC Adapter: 100,000	
Warranty	Lifetime warranty with 24/7/365 free Technical Support	

Regulatory Compliances	Safety:	UL 62368-1, UL 60950-1, IEC 62368-1, IEC 60950-1, EN 62368-1, EN 60950-1, CAN/CSA C22.2 No. 62368-1-14, CAN/CSA C22.2 No. 60950-1, CE Mark
	EMC:	EN 55032/24 CE Emissions/Immunity, IEC 61000-6-4 Industrial Emissions, IEC 61000-6-2 Industrial Immunity
	EMI:	CISPR 32, FCC 47 Part 15 Subpart B Class A
	EMS:	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV, IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m, IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV (DC models), IEC 61000-4-4 EFT: Power: 1 kV; Signal: 1 kV (AC models), IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV (DC models), IEC 61000-4-5 Surge: Power: 1 kV Line/Line; 2 kV Line/Gnd; Signal: 2 kV (AC models), IEC 61000-4-6 CS: Signal: 10 V, IEC 61000-4-8 (Magnetic Field) 30 A/m, IEC 61000-4-11 (Voltage Dips, interrupts)
	IP Rating:	IP20 Protection