Omnitron Systems

OmniConverter®

FPoE/SE and FPoE+/SE

User Manual

38 Tesla, Irvine, CA 92618 USA
Phone: (949) 250-6510; Fax: (949) 250-6514

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® FPoE/SE and FPoE+/SE
User Manual

Product Overview

The OmniConverter FPoE/SE and FPoE+/SE are cost-effective, multi-port media converters that convert 10/100/1000BASE-T copper to 100BASE-X fiber and support Power-over-Ethernet (PoE and PoE+). Classified as Power Sourcing Equipment (PSE), the FPoE/SE and FPoE+/SE provides power to a Powered Device (PD) 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 resistance from the attached PD. A compliant PD is required to have this signature resistance. Classification of the PD is done to determine the maximum power levels required by the PD. The PSE will determine the proper classification and power requirements of the PD. After the PD is classified, the PD is powered up according to its power requirements.

OmniConverter FPoE/SE and FPoE+/SE automatically preform the detection, classification and powering functions. The FPoE/SE supports IEEE 802.3af PoE standard providing up to 15.4W of DC power to the PD. The FPoE+/SE supports IEEE 802.3at PoE+ standard providing up to 30W of DC power to the PD.

The fiber and copper ports support auto-negotiation and will independently negotiate with the attached device. The copper ports support auto-crossover 10/100/1000BASE-T interface and Alternative B powering mode.

RJ-45 Pin Out	Alternative B
4,5	Vport Positive
7,8	Vport Negative

The ports support a maximum frame size of up to 10,240 bytes.

INSTALLATION PROCEDURE

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

1) Install the Module
2) Apply Power
3) Connect Cables
4) Verify Operation

1) 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.

2) Apply Power

AC Power

Secure the ground wire to the 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.

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 FPoE/SE requires 48 to 57VDC @ 0.6Amp max rated power and the FPoE+/SE requires 48 to 57VDC @ 1.12Amp max rated power See specification table for specific model requirements.

Description	IEEE 802.3af PoE	IEEE 802.3at PoE+
Power Supply Voltage Range	46.0 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
Maximum Power from PoE/PSE port	15.4 watts	30 watts
Minimum Voltage at PoE/PD port input*	37.0 VDC	42.5 VDC
Minimum Power at PoE/PD port*	12.95 watts	25.5 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 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 module 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.

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.

3) CONNECT CABLES

a. When using the SFP model, insert the SFP Fiber transceiver into the SFP receptacle on the front of the module (see the SFP Data Sheet 091-17000-001 for supported Fast Ethernet transceivers).

   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.

4) VERIFY OPERATION

Once the module has been installed and configured per steps 1 - 3, verify the module is operational by viewing the LED indicators.

The Power LED indicates the module is receiving power. The Fiber Optic 100 LED indicates the fiber optic connection has been established. The RJ-45 10/100/1000 LEDs indicate the speed of the UTP connection. P3 is only available on three port modules. The PSE LED indicates the module has established a successful detection of a PD and is supplying Power over Ethernet.

LED Indicators		
Legend	**Indicator**	**Description**
Pwr	OFF	Unit not powered
	Green - ON	Unit powered
P1 100	OFF	No link
	Green - ON	Port linked at 100Mbps
	Green - Blinking	Port data activity at 100Mbps
P2 and P3 10	OFF	No link
	Green - ON	Port linked at 10Mbps
	Green - Blinking	Port data activity at 10Mbps
P2 and P3 1000	OFF	No link
	Green - ON	Port linked at 1000Mbps
	Green - Blinking	Port data activity at 1000Mbps
P2 and P3 100 (10 + 1000)	OFF	No link
	Green - ON	Port linked at 100Mbps
	Green - Blinking	Port data activity at 100Mbps
P2 and P3 PSE	OFF	Port PSE is inactive
	Green - Blinking	1 flash every 1 second - Signature resistance too low
	Green - Blinking	2 flashes every 1 second - Signature resistance too high
	Green - Blinking	5 flashes every 1 second - Port overload condition
	Green - ON	Port PSE is active

SPECIFICATIONS

Regulatory Compliances (*Pending)	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
	EMI:	FCC Class A, CE Class A
	EMS:	CE
	IP Rating:	IP20 Protection

Description	**OmniConverter FPoE/SE** 10/100BASE-T to 100BASE-X Fiber Media Converter with PoE	
Standard Compliances	IEEE 802.3, IEEE 802.3af (15.40 watts max)	
PoE Supported Modes	IEEE Alternate B (Alt B)	
Environmental	RoHS, WEEE, REACH	
Frame Size	Up to 10,240 bytes	
Port Types	Copper: 10/100BASE-T (RJ-45) Fiber: 100BASE-X (ST, SC, SFP) 100BASE-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/47 to 63Hz 0.20A @ 120VAC (typical)	2 RJ-45 Ports 100 - 240VAC/50 - 60Hz 0.37A @ 120VAC (typical)
DC Power Requirements (Models with DC Terminals)	1 RJ-45 Port +/-46 to +/-57VDC; 0.32A @ 48VDC 2 Pin Terminal (non-isolated)	2 RJ-45 Ports +/-46 to +/-57VDC; 0.60A @ 48VDC 2 Pin Terminal (non-isolated)
	1 RJ-45 Port +/-46 to +/-57VDC; 0.32A @ 48VDC 3 Pin Terminal (isolated)	2 RJ-45 Ports +/-46 to +/-57VDC; 0.60A @ 48VDC 3 Pin Terminal (isolated)
	A minimum DC input voltage of 50VDC is required to guarantee 25.5 watts (for 802.3at) at the end of 100 meters on Cat 5 cable or better.	
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	Module Only: 1.1 lbs. (498.9 grams) Module w/ Adapter: 1.6 lbs. (725.7 grams)	
Operating Temperature	Commercial: 0 to 50°C Wide: -40 to 60°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: 1,238,000 AC/DC Adapter: 100,000	
Warranty	Lifetime warranty with 24/7/365 free Technical Support	

Description	**OmniConverter FPoE+/SE** 10/100BASE-T to 100BASE-X Fiber Media Converter with PoE+	
Standard Compliances	IEEE 802.3, IEEE 802.3af (15.40 watts max) and IEEE 802.3at (30 watts max)	
PoE Supported Modes	IEEE Alternate B (Alt B)	
Environmental	RoHS, WEEE, REACH	
Frame Size	Up to 10,240 bytes	
Port Types	Copper: 10/100BASE-T (RJ-45) Fiber: 100BASE-X (ST, SC, SFP) 100BASE-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/47 to 63Hz 0.36A @ 120VAC (typical)	2 RJ-45 Ports 100 - 240VAC/50 - 60Hz 0.69A @ 120VAC (typical)
DC Power Requirements (Models with DC Terminals)	1 RJ-45 Port +/-48 to +/-57VDC; 0.59A @ 48VDC 2 Pin Terminal (non-isolated)	2 RJ-45 Ports +/-48 to +/-57VDC; 1.12A @ 48VDC 2 Pin Terminal (non-isolated)
	1 RJ-45 Port +/-48 to +/-57VDC; 0.59A @ 48VDC 3 Pin Terminal (isolated)	2 RJ-45 Ports +/-48 to +/-57VDC; 1.12A @ 48VDC 3 Pin Terminal (isolated
	A minimum DC input voltage of 50VDC is required to guarantee 25.5 watts (for 802.3at) at the end of 100 meters on Cat 5 cable or better.	
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	Module Only: 1.1 lbs. (498.9 grams) Module w/ Adapter: 2.3 lbs. (1043.3 grams)	
Operating Temperature	Commercial: 0 to 50°C Wide: -40 to 60°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: 776,000 AC/DC Adapter: 100,000	
Warranty	Lifetime warranty with 24/7/365 free Technical Support	