Omnitron Systems

iConverter®

5 Port GM4 PoE+ and HPoE Network Interface Devices

Quick Start Guide

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Warranty

This network product and the included AC/DC power adapter are warranted to the original purchaser (Buyer) against defects in material and workmanship for a period of two (2) years from the date of shipment. The warranty for the network product can be extended to three (3) years by registering the 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.

iConverter® 5 Port GM4 PoE+ and HPoE
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Product Overview

The GM4-PoE+ and GM4-HPoE Network Interface Devices (NID) deliver advanced Carrier Ethernet 2.0 services and provide integrated Power over Ethernet (PoE) at the demarcation. The GM4 PoE NIDs enables rapid service deployments, Service Level Agreement (SLA) assurance and protection switching. GM4 PoE NIDs can function as PoE Power Sourcing Equipment in Small Cell (metro cell), WiFi and other PoE applications.

GM4-PoE+ and GM4-HPoE models support 802.3af PoE (15.4W) and 802.3at PoE+ (25.5W) on each RJ-45 port. The GM4-HPoE models also provide up to 60W of power to access points for hot spot and metro cell applications.

Power over Ethernet	Pins
IEEE 802.3af and 802.3at	Alternate B Vport Positive - pins 4,5 Vport Negative - pins 7,8
High Power over Ethernet	4 Pair Powering Vport Positive - pins 3,6 and 4,5 Vport Negative - pins 1,2 and 7,8

PoE Pinout Configuration

The GM4-PoE+ and GM4-HPoE support carrier-class Ethernet Service OAM standards. IEEE 802.1ag Connectivity Fault Management (CFM) proactively monitors service availability and provides tools for rapid fault isolation. ITU-T Y.1731 adds Performance Monitoring to monitor key SLA parameters including frame delay, frame delay variation, and frame loss.

For Ethernet Service Activation Testing, the GM4 supports ITU-T Y.1564 and IETF RFC 2544. The GM4 can also be configured to respond to 3rd party test equipment (JDSU and VeEX) and initiate or respond to RFC 5357 Two-Way Active Measurement Protocol (TWAMP) protocol.

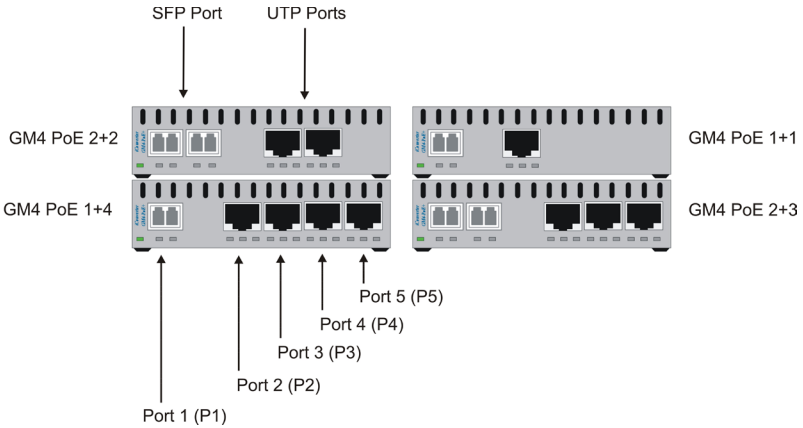
To access the user manuals for the Menu Interface (xxxxUM-02x Menu Interface iConverter GM4 NIDs) and Command Line Interface (xxxxUM-01x Command Line Interface iConverter GM4 NIDs), access the product pages at: www.omnitron-systems.com.

Recovering Access to the GM4

In the event the username and/or password is unknown, the GM4 will revert to its factory default username and password for 60 seconds after a power cycle. Using the factory default IP address, username and password, access the GM4. A recovery prompt will be displayed, allowing the username and/or password to be modified.

Front Panel

The front of the GM4 provides access to the RJ-45 and SFP ports. The SFP ports support 100/1000BASE-X SFP fiber and 10/100/1000BASE-T copper transceivers. The serial console (management) is accessed from the rear of the module.



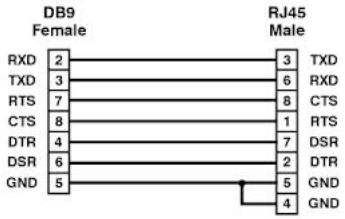
5-Port GM4 PoE Front Panel Layout

Serial Console Port

To configure the GM4 PoE NID using the serial port, attach a DB-9 serial (RS-232) equipped computer with terminal emulation software such as Procomm or Putty to the serial port on the GM4 PoE NID using the included cable. The Serial Console Port (DCE) is a RJ-45 connector (per EIA/TIA-561) which can be changed to a DB-9 connector with the included cable.

The serial console port is located on the back of the module. Attach the ends of a serial adapter cable to the serial port of the PC and the RJ-45 connector of the GM4 PoE NID. The port is a standard RS-232 asynchronous serial interface.

The serial adapter cable pin-outs are illustrated below.



Serial Adapter Cable Pin Outs

Some computers do not come with DB-9 serial port connectors and may require a USB-to-serial port adapter.

The port is a standard RS-232 asynchronous serial interface. The serial ports is configured for 57,600bps, 1 stop, 8 data, parity none.

RJ-45 and SFP Ports

The RJ-45 Ethernet ports support 10BASE-T, 100BASE-TX and 1000BASE-T protocols, auto-negotiation, auto MDI/MDI-X crossover and can be manually forced to a specific speed and duplex mode. The RJ-45 Ethernet ports support IEEE 802.3af and IEEE 802.3at PoE standards providing up to 12.95W or 25.5W of DC power to each Powered Device port. The GM4-HPoE models support up to 60W of DC power on each port.

The SFP interfaces support SERDES 100BASE-FX or 1000BASE-X fiber transceivers and SGMII 10/100/1000BASE-T copper transceivers. The SFP interfaces operate in manual mode or auto-negotiation and support full duplex operation.

NOTE: When using 100BASE-FX SGMII SFPs, the port must be manually configured using the Command Line Interface (CLI). Interface settings can be changed using the *port* command.

All ports can be enabled or disabled via network management. A port disabled with Port Access Control Setup will still connect and allow 802.3ah Link OAM monitoring, but blocks normal data traffic.

Installation Procedure

1) Configure DIP-switches

2) Installing the Module

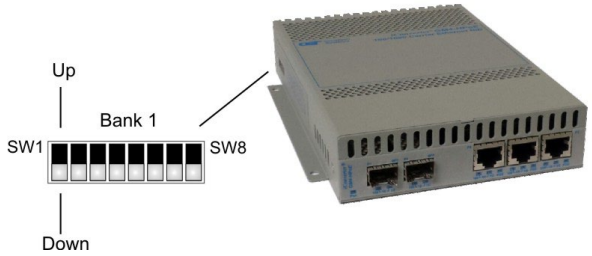
3) Apply Power

4) Connect Cables

5) Verify Operation

1) Configure DIP-switches

The GM4 has two banks of DIP-switches. The location of the DIP-switches is illustrated below.



DIP-switch Location

DIP-switch Bank 1 Settings:

The function of DIP-switch Bank 1 is outlined in the table below.

PoE+ Models				
Switch Position	**1 Fiber + 1 UTP**	**1 Fiber + 4 UTP**	**2 Fiber + 2 UTP**	**2 Fiber + 3 UTP**
1	Reserved	Reserved	Reserved	Reserved
2	Reserved	Reserved	Reserved	Reserved
3	Reserved	Reserved	Reserved	Reserved
4	Reserved	Reserved	Reserved	Reserved
5	Reserved	Reserved	Return to Primary	Return to Primary
6	Reserved	Reserved	Redundancy	Redundancy
7	Reserved	Reserved	Reserved	Reserved
8	Zero Touch	Zero Touch	Zero Touch	Zero Touch

DIP-switch Bank 1 Description for PoE+ Models

HPoE Models				
Switch Position	**1 Fiber + 1 UTP**	**1 Fiber + 4 UTP**	**2 Fiber + 2 UTP**	**2 Fiber + 3 UTP**
1	Port 2 60W PoE	Port 2 60W PoE	Reserved	Reserved
2	Reserved	Port 3 60W PoE	Port 3 60W PoE	Port 3 60W PoE
3	Reserved	Port 4 60W PoE	Port 4 60W PoE	Port 4 60W PoE
4	Reserved	Port 5 60W PoE	Reserved	Port 5 60W PoE
5	Reserved	Reserved	Return to Primary	Return to Primary
6	Reserved	Reserved	Redundancy	Redundancy
7	Reserved	Reserved	Reserved	Reserved
8	Zero Touch	Zero Touch	Zero Touch	Zero Touch

DIP-switch Bank 1 Description for HPoE Models

SW1, SW2, SW3, SW4 - Reserved (All PoE+ Models)

These DIP-switches are reserved and must be in the DOWN (default) position.

SW1, SW2, SW3, SW4 - HPoE Power (All HPoE Models)

60W PoE power application can be automatically detected with the attached PD when the corresponding port DIP-switch is in the “Auto” (factory default) DOWN position. When the corresponding DIP-switch is in the “60W Forced” UP position, the power is available without detecting the 60W PoE capability of the attached PD. See DIP-switch Bank 1 Description for HPoE Models above for the proper port configuration.

SW1 - SW4	Function
Auto (DOWN)	Automatically detects the power requirement of the attached PD
60W Forced (UP)	60W Power is available without detecting the 60W PoE capability of the attached PD

HPoE SW1 - SW4 Function

NOTE: 60W Forced option will supply only the amount of power required by the PD and only up to 60 watts per port. When configured for 60W Forced, power will be applied unless an OPEN or SHORT condition is detected on the connected port.

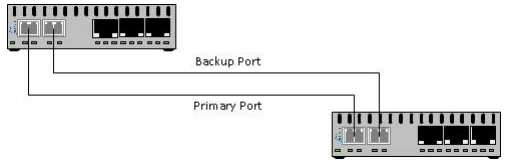
SW5, SW6 - Reserved (All One Fiber Port PoE+ and HPoE Models)

These DIP-switches are reserved and must be in the DOWN (default) position.

SW5, SW6 - Port Redundancy (All Two Port Fiber PoE+ and HPoE Models)

DIP-switches SW5 and SW6 configure the device for port redundancy. When configured for port redundancy, the device 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.

NOTE: 50msec failover is only supported on the P1 and P2 fiber ports.



Port Redundancy

DIP-switches SW5 and SW6 control the port redundancy mode of the device. When SW6 is in the “Off” (factory default) DOWN position, the ports operate in a non-redundant (independent) mode. When SW6 is in the “On” UP position, the device is configured for port redundancy and operates based on the position of SW5. When SW5 is in the “Off” (factory default) DOWN position, the device will switch back to the primary port (Port 1) once a stable connection has been established. When SW5 is in the “On” UP position, the device will remain on the backup port (Port 2) even when a stable connection has been established on Port 1. See Port Redundancy Modes table for more information.

NOTE: The ports must have MAC learning disabled to perform a 50msec switch over.

SW5	SW6	Function
Off (DOWN)	Off (DOWN)	Non-redundant mode - independent mode
On (UP)	Off (DOWN)	Non-redundant mode - independent mode
Off (DOWN)	On (UP)	Redundant mode - return to primary (RTP)
On (UP)	On (UP)	Redundant mode - no return to primary

Port Redundancy Modes

SW7 - Reserved (All PoE+ and HPoE Models)

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

SW8 - Zero Touch Provisioning

Zero Touch Provisioning (ZTP) utilizes DHCP and TFTP to automatically configure the device during the initial setup.

Zero Touch is disabled by default. The ZTP process is configured by setting this DIP-switch to the Up position (enabled). When ZTP is enabled, the device will start the DHCP process on power up or device reboot. During the process, the device will request the IP address of the TFTP Server. After the DHCP process has been completed and a TFTP Server IP address has been obtained, the device will request configuration files from the TFTP Server. When the files have been received, the device will load the configuration files and restart.

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 standalone modules with integrated mounting brackets or using the optional mounting bracket kit 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.

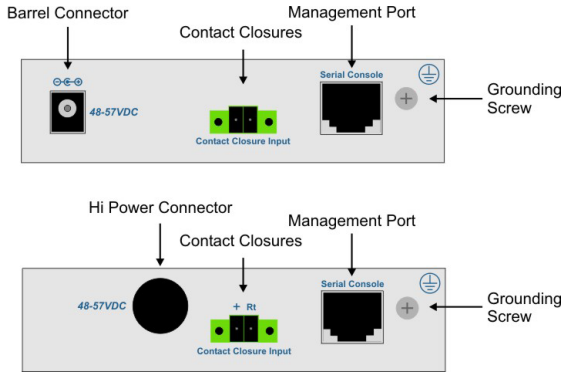
Follow the same guidelines above when rack mounting the module.

3) Apply Power

AC Power

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

Route the power cord through the provided strain relief for additional support and connect the barrel/DIN connector at the end of the wire on the AC/DC adapter to the barrel connector on the module. 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 module.



AC Models Rear View: Barrel/DIN Connector for AC/DC Power Adapter

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

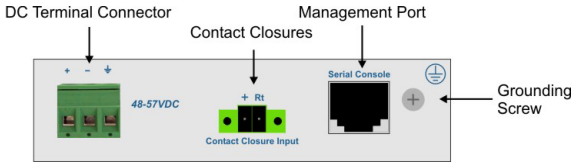
This module is intended for installation in restricted access areas. ("Les matériels sont destinés à être installés dans des EMPLACEMENTS À ACCÈS RESTREINT"). A restricted access area can be accessed only through the use of a special key, or other means of security.

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 GM4-PoE+ requires +/-48 to +/-57VDC inclusive of tolerances (48VDC @ 2.74 Amp max rated power when powering four PoE+ PDs). The GM4-HPoE requires +/-48 to +/-57VDC inclusive of tolerances (48VDC@ 5.24 Amp max rated power when powering four 60W PoE PDs). See specification table for specific model requirements.

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



DC Models Rear View: 3-Pin Terminal for DC Power

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.

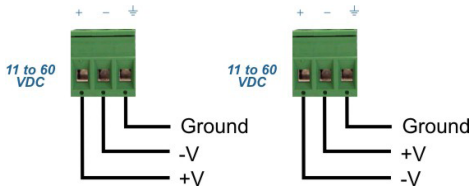
Locate the DC circuit breaker of the external power source, and switch the circuit breaker to the OFF position.

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 power and ground cables to the module by fastening the stripped ends to the DC power connector.

WARNING: The positive lead of the power source must be connected to the "+" terminal on the module, the negative lead of the power source to the "-" terminal on the module and ground lead to ground.



Power Options

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.

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.

Make sure to disconnect the power and ground cables before removing the equipment.

4) Connect Cables

a. When using SFP models, 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/Gigabit transceivers).

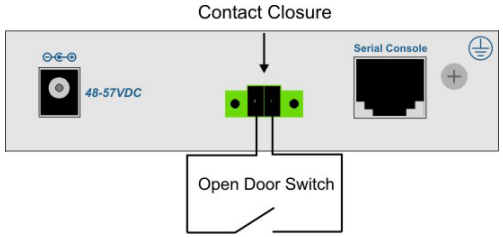
NOTE: The release latch of the SFP fiber transceiver must be in the closed (up) position before insertion.

The module has the ability to detect the speed and automatically configure the port to match the speed of approved SFP transceivers. Some SFP fiber transceivers will need to be configured using the portattribute CLI commands to configure the speed of the port to match the speed of the installed SFP transceiver.

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 transceiver 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 using a Category 5 or better cable to an external 10BASE-T, 100BASE-TX or 1000BASE-T Ethernet device.

d. The contact closure is located on the back of the module and is used to detect the state of external alarm conditions. The contact closure can detect if the wired circuit is open or closed. The change of state of the contact closure (open/close) will generate a SNMP trap. Use the supplied connector to attach the wire to the external alarm. Use 16 - 24 AWG wire.



Contact Closure Example

WARNING: Never apply an active circuit or voltage to the contact closure pins.

5) Verify Operation

Once the module has been installed and the DIP-switches have been configured, verify the module is operational by viewing the status of the LED indicators.

The Power LEDs indicate the module is receiving power from the external power source.

The port LEDs indicate the state of connection between link partners. A blinking port activity LED indicates the presence of data.

The PSE LEDs indicate the state of the PoE power. A solid green PSE LED indicates sufficient PoE power to the device. A solid amber PSE LED indicates a PSE power error.

PSE Error conditions

Over current: When the PD consumes more power than it has negotiated.

Brownout: When the available power is insufficient to fulfil the requested PD power load.

Insufficient Power: When the requested power is less than the capability of the power supply.

PD: When the heartbeat function is enabled and the consecutive lost heartbeats exceed the configured value.

LED Function "Legend"	Color	OFF State	ON/Blinking State
Power "PWR"	Green	No power	ON: Module has power
P1 Link Activity "100"	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P1 Link Activity "1G"	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P1 Link Activity "100" and "1G"	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P2 Link Activity "100"	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P2 Link Activity "1G"	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P2 Link Activity "100" and "1G"	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P2 PoE Status "PSE"	Green/ Amber	Port not providing PoE power	Solid Green: Port is providing PoE power to the PD Solid Amber: PoE error

1 + 1 LED Indicates

LED Function "Legend"	Color	OFF State	ON/Blinking State
Power "PWR"	Green	No power	ON: Module has power
P1 Link Activity "100"	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P1 Link Activity "1G"	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P1 Link Activity "100" and "1G"	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P2 Link Activity "100"	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P2 Link Activity "1G"	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P2 Link Activity "100" and "1G"	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P2 PoE Status "PSE"	Green/ Amber	Port not providing PoE power	Solid Green: Port is providing PoE power to the PD Solid Amber: PoE error
P3 Link Activity "100"	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P3 Link Activity "1G"	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P3 Link Activity "100" and "1G"	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P3 PoE Status "PSE"	Green/ Amber	Port not providing PoE power	Solid Green: Port is providing PoE power to the PD Solid Amber: PoE error
P4 Link Activity "100"	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P4 Link Activity "1G"	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P4 Link Activity "100" and "1G"	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P4 PoE Status "PSE"	Green/ Amber	Port not providing PoE power	Solid Green: Port is providing PoE power to the PD Solid Amber: PoE error
P5 Link Activity "100"	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P5 Link Activity "1G"	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P5 Link Activity "100" and "1G"	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P5 PoE Status "PSE"	Green/ Amber	Port not providing PoE power	Solid Green: Port is providing PoE power to the PD Solid Amber: PoE error

1 +4 LED Indicators

LED Function “Legend”	Color	OFF State	ON/Blinking State
Power “PWR”	Green	No power	ON: Module has power
P1 Link Activity “100”	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P1 Link Activity “1G”	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P1 Link Activity “100” and “1G”	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P2 Link Activity “100”	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P2 Link Activity “1G”	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P2 Link Activity “100” and “1G”	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P3 Link Activity “100”	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P3 Link Activity “1G”	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P3 Link Activity “100” and “1G”	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P3 PoE Status “PSE”	Green/ Amber	Port not providing PoE power	Solid Green: Port is providing PoE power to the PD Solid Amber: PoE error
P4 Link Activity “100”	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P4 Link Activity “1G”	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P4 Link Activity “100” and “1G”	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P4 PoE Status “PSE”	Green/ Amber	Port not providing PoE power	Solid Green: Port is providing PoE power to the PD Solid Amber: PoE error

2 +2 LED Indicators

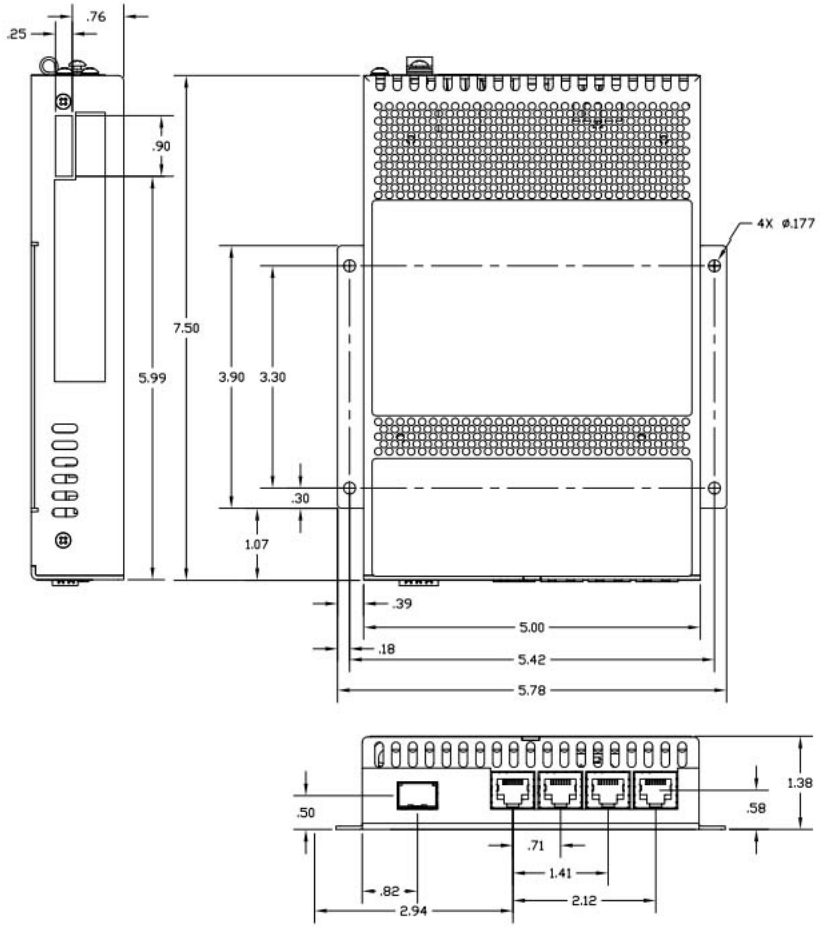
LED Function “Legend”	Color	OFF State	ON/Blinking State
Power “PWR”	Green	No power	ON: Module has power
P1 Link Activity “100”	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P1 Link Activity “1G”	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P1 Link Activity “100” and “1G”	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P2 Link Activity “100”	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P2 Link Activity “1G”	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P2 Link Activity “100” and “1G”	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P3 Link Activity “100”	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P3 Link Activity “1G”	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P3 Link Activity “100” and “1G”	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P3 PoE Status “PSE”	Green/ Amber	Port not providing PoE power	Solid Green: Port is providing PoE power to the PD Solid Amber: PoE error
P4 Link Activity “100”	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P4 Link Activity “1G”	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P4 Link Activity “100” and “1G”	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P4 PoE Status “PSE”	Green/ Amber	Port not providing PoE power	Solid Green: Port is providing PoE power to the PD Solid Amber: PoE error
P5 Link Activity “100”	Green	Port not linked at 100M	ON: Port linked at 100M Blinking: Data activity
P5 Link Activity “1G”	Green	Port not linked at 1000M	ON: Port linked at 1000M Blinking: Data activity
P5 Link Activity “100” and “1G”	Green	Port not linked at 10M	ON: Port linked at 10M Blinking: Data activity
P5 PoE Status “PSE”	Green/ Amber	Port not providing PoE power	Solid Green: Port is providing PoE power to the PD Solid Amber: PoE error

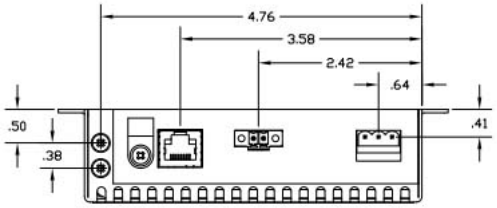
2 +3 LED Indicators

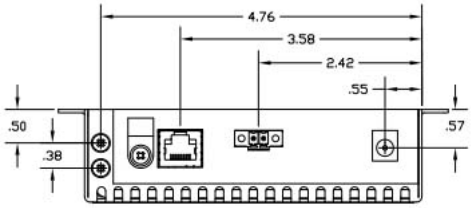
LED Legend/State		Link Speed
"1G"	"100"	
OFF	OFF	Port not linked
OFF	ON	Port linked at 100Mbps
ON	OFF	Port linked at 1000Mbps
ON	ON	Port linked at 10Mbps

Port Speed LED Indicators for all Models

Mechanical







Specifications

Standard Compliances	IEEE 802.1Q, 802.1ad, 802.1ax, 802.1p, 802.3, 802.3ad, 802.3ah*, 802.1ag, 1588v2 IEEE 802.3af (15.40 watts max), IEEE 802.3at (30 watts max) High Power 60W PoE RFC 2819 (RMON), 2863 (IF-MIB), 2131 (DHCP), 2544, 5357 ITU-T G.8031, G.8032, G.8262, Y.1731, Y.1564 MEF 9, 14, 21, 30, 31, Carrier Ethernet 2.0	
Regulatory Compliances	Safety: EMI: ACT:	UL, CE, NEBS Level 3, UKCA FCC Class A TAA, BAA, NDAA
Environmental	REACH, RoHS and WEEE	
Management	IPv4, IPv6, Telnet, SNMPv1, SNMPv2c, SNMPv3, SSH, Serial Console	
Frame Size	Up to 10,240 bytes	
Port Types	Copper: Fiber: Serial:	RJ-45: 10/100/1000BASE-T SFP: 10/100/1000BASE-T SGMII Copper Transceiver 100BASE-X or 1000BASE-X Fiber Transceiver RJ-45
Cable Types	Copper: Fiber: Serial:	EIA/TIA 568A/B, Cat 5 and higher Multimode: 50/125, 62.5/125µm Single-mode: 9/125µm Category 3 and higher

*IEEE 802.3ah Link OAM with Dying Gasp
Supported on all standalone models.

AC Power Requirements	AC Adapter:	100 - 240VAC/50 - 60Hz, 2.8A @ 120VAC
DC Power Requirements	Terminal:	3-Pin Terminal (isolated) +/-48 - +/-57VDC inclusive of tolerance
	AC Adapter:	2.1mm Barrel Connector +/-48 - +/-57VDC inclusive of tolerance
	1 PoE/PoE+ Port (30W) 0.83A @ 48VDC 2 PoE/PoE+ Ports (60W) 1.50A @ 48VDC 3 PoE/PoE+ Ports (90W) 2.13A @ 48VDC 4 PoE/PoE+ Ports (120W) 2.74A @ 48VDC 1 HPoE Port (60W) 1.45A @ 48VDC 2 HPoE Ports (120W) 2.75A @ 48VDC 3 HPoE Ports (180W) 4.01A @ 48VDC 4 HPoE Ports (240W) 5.24A @ 48VDC	
Dimensions (W x D X H)	5” x 7.5” x 1.375” (127 mm x 190.5 mm x 34.93 mm)	
Weight	Module Only: 1.38 lbs. (0.626 kg.) Module w/ AC adapter: 2.50 lbs. (1.134 kg.)	
Operating Temperature	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 (operational)	
MTBF (hours)	8991S-11, 8991T-11: 77,258 8991S-14: 73,708 8991T-14: 98,980 8991S-22, 8991T-22: 75,328 8991S-23: 73,918 8991T-23: 99,360	
Warranty	3 year warranty	

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

040-8991S-001C 7/23