OmniConverter® GHPoE/M

Managed 6-Port 60W Pre-BT PoE Gigabit Switches

The OmniConverter GHPoEBT/M replaces the GHPoE/M and is recommended for all new designs.

The OmniConverter GHPoE/M are compact High-Power PoE Ethernet switches that feature copper or fiber uplink ports and four 10/100/1000 RJ-45 copper Power Sourcing Power-over-Ethernet user ports.

The GHPoE/M is a pre-IEEE 802.3bt switch featuring up to 60W per user port models.

The OmniConverter PoE switches are standard Layer 2 Ethernet switches that forward frames to any port based on their MAC address.

All models support Directed Switch mode, which directs multicast traffic (such as video) only to the appropriate uplink port, preventing multicast traffic from flooding other network ports.

Models with two fiber or two copper uplink ports support redundant uplinks, industrial ring Media Redundancy Protocol (MRP), Rapid Spanning Tree Protocol (RSTP) and daisy-chain configurations for high availability industrial network applications.

Models with two fiber or two copper uplink ports also support Dual Device mode that enables the switches to operate as two independent and isolated Ethernet switches.

The mode of operation can be configured using easily accessible DIP-switches or using Web, Telnet, SSH, SNMPv1/v2c/v3 or Serial Console management interfaces. IPv4 and IPv6 are supported on the switches. These management interfaces provide access to filtering and security options, such as, broadcast storm prevention, IGMP, IEEE 802.1x, RADIUS, TACACS+ and Access Control Lists. Email and text event notification and alarm reporting is provided.

The OmniConverter PoE switches are available with fixed fiber ST, SC, and LC connectors or Small Form Pluggable (SFP) transceiver receptacles. Fiber ports support multimode or single-mode and dual fiber or single-fiber with distances up to 140km. SFP models support a variety of distances in standard, CWDM and DWDM wavelengths.

The switches feature a Remote PoE Power Reset function that enables the user to remotely power-cycle and reset each PD. They also feature a configurable Heartbeat Reset function that automatically pings the attached PDs and automatically power cycles and resets the PDs when detecting a heartbeat loss. The Remote Power Reset and the Heartbeat Reset functions save time and expense by eliminating the need to dispatch manpower to remote network sites.

Not recommended for new designs

SFPs not included

KEY FEATURES

- Managed 1G 60W PoE Ethernet Switch
- Supports 60W Pre-BT HPoE
- Two 10/100/1000 copper or Gigabit fiber uplink ports
- Four 10/100/1000 copper PoE user ports
- ST, SC and LC fixed fiber ports or standard, CWDM or DWDM Gigabit SFP transceivers
- Supports jumbo frames up to 10,240 bytes
- Heartbeat signal to verify connectivity to the PD
- Configurable PoE Power Reset
- PoE power management with LLDP MED and MDI TLV, and PoE Power Multi-Day Scheduler
- Management via Web, Telnet, SSH, SNMPv1/v2c/v3 and serial interfaces
- SNMP management via Omnitron's NetOutlook® management software, or third-party SNMP software
- Supports IPv4 and IPv6
- IEEE 802.1x, RADIUS, TACACS+ and ACL
- RFC 5424 Syslog to manage system logs and alerts
- Email Notification with Simple Mail Transfer Protocol
- Text Notification with Short Messaging Service
- Dual Device mode for operating as two separate switches
- Directed Switch mode AKA Camera mode to prevent port flooding
- AC to DC Power Adapter or 2-Pin DC terminal
- Wall, Rack and DIN-rail mountable
- Commercial (0º to 50ºC), wide (-40º to 60ºC) and extended (-40º to 75ºC) operating temperature ranges
- Made in the USA
- Free 24/7/365 Technical Support

ADDITIONAL FEATURES

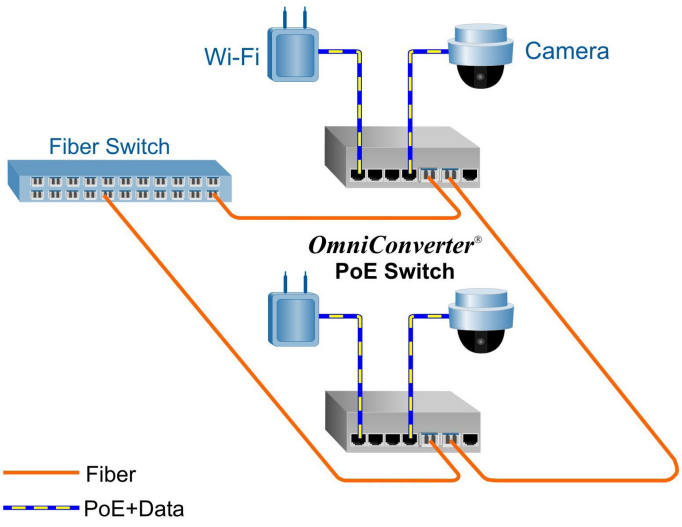
- Rapid and Multiple Spanning Tree Protocol
- IEC 62439-2 Industrial Ring Media Redundancy
- IEEE 802.1ax LAG and LACP; Active/Active and Active/Standby
- IPv4 Internet Group Management (IGMP) and IPv6 Multicast Listener Discovery (MLD) snooping
- DHCP Relay Option 82
- IEEE 802.1ab Link Layer Discovery Protocol
- Rate Limiting, Queue prioritization and Class of Service
- IEEE 802.1Q VLAN tagging and IEEE 802.1ad Q-in-Q
- Static MAC configuration and blocking of unknown Unicast/Multicast addresses
- SNTP / NTP and time of day

APPLICATIONS

Daisy-Chain and Ring Topology Network Application

This example demonstrates the daisy chaining and ring capabilities of the OmniConverter. In this application each OmniConverter switch connects to its neighboring switches via its uplink ports eventually closing the ring.

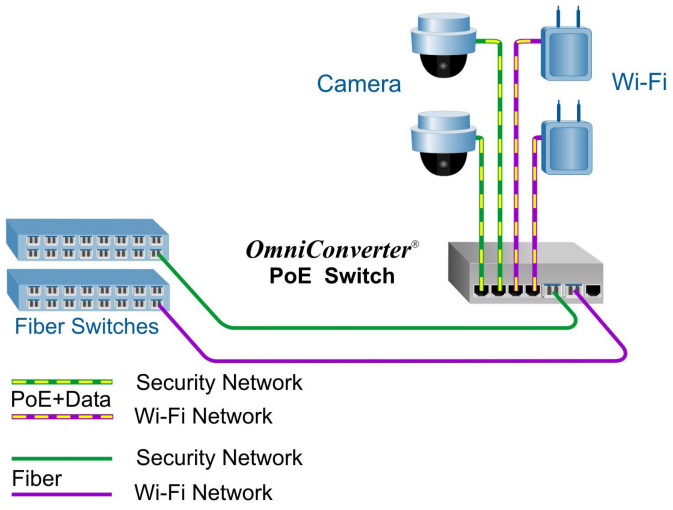
Using this network architecture combined with ring protection protocols such as Media Redundancy Protocol (MRP) or Rapid Spanning Tree Protocol (RSTP) facilitates a highly resilient network required in mission critical applications.



Dual Device Mode Application

This Dual Device feature is extremely useful when two isolated networks domains share a single network distribution location.

The example below depicts a scenario where a surveillance security (green) network and a Wi-Fi (purple) network are sharing a single hub distribution location. Using the two uplinks and the Dual Switch mode facilitates using a single PoE switch driving both the Cameras and the Wi-Fi Access Points while maintaining isolation between the networks.



Power / Voltage Requirements and Specifications per IEEE

Description	IEEE 802.3af 15W PoE	IEEE 802.3at 30W PoE+	60W PoE
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			

SPECIFICATIONS

Description	**OmniConverter® GHPoE/M (60W Pre-BT)** 10/100/1000BASE-T with Gigabit Fiber or Copper Uplinks Managed 6 Port High-Power PoE Ethernet Switch
Standard Compliances	IEEE 802.3, IEEE 802.1Q, IEEE 802.1ad, IEEE 802.1ab, IEEE 802.1ax, IEEE 802.1w RSTP/MSTP, RFC 5424, RFC 4541, RFC 2710, IEC 624339-2, SMTP, SMS, SNTP, RADIUS, TACACS+, IEEE 802.1x, IEEE 802.3af (15.40 watts), IEEE 802.3at (30 watts) and High Power 60W PoE
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) 30A/m, IEC 61000-4-11 (Voltage Dips, interrupts) IP Rating: IP20 Protection
Environmental	REACH, RoHS and WEEE
PoE Modes	IEEE Alternate A (Alt A) 4-Pair
Management	IPv4 and IPv6 address Web, Telnet, SSH, SNMPv1/v2c/v3 In-Band management via Ethernet port Out-of-band management via serial port
Frame Size	Up to 10,240 bytes
Port Types	Copper: RJ-45: 10/100/1000BASE-T Fiber: Fixed: ST, SC, LC 1000BASE-X Fiber SFP: 10/100/1000BASE-T SGMII Copper Transceiver or 1000BASE-X Fiber Transceiver Serial: RJ-45: RS-232
Cable Types	Copper: EIA/TIA 568A/B, Cat 5 UTP and higher Fiber: Multimode: 50/125, 62.5/125µm Single-mode: 9/125µm Serial: Category 3 and higher
AC Power Requirements (Models with AC/DC Adapters)	100 - 240VAC 50/60Hz 3.5A max at 115VAC 2.5A max at 230VAC
DC Power Requirements (Models with DC Terminals)	+46 to +57VDC; 4.46A @ 56VDC 2 Pin Terminal (non-isolated)
Dimensions (W x D x H)	6.28” x 5.2” x 1.5” (159.5 mm x 132.1 mm x 38.1 mm)
Weight	Module Only: 1.6 lbs.; 735 grams Module with AC/DC Adapter: 3.7 lbs.; 1703 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 - not available for models with AC/DC Adapters Storage: -40 to 80°C
Humidity	5 to 95% (non-condensing)
Altitude	-100m to 4,000m (operational)
MTBF (hours)	Module Only: 266,000 AC/DC Adapter: 100,000
Warranty	5 year product warranty with 24/7/365 free Technical Support and 2 year AC power adapter warranty

ORDERING INFORMATION

OmniConverter GHPoE/M 60W Pre-BT Models													
Fiber Type	Distance	Connector Type					Tx/Rx Lambda (nm)	Min. Tx Power (dBm)	Max. Tx Power (dBm)	Min. Rx Power (dBm)	Max. Rx Power (dBm)	Min Atten (dB)	Link Budget (dB)
		ST	SC	LC	SFP	RJ-45							
MM/DF	220/550m[1]	3100-0-14-pt	3102-0-14-pt	3106-0-14-pt	-	-	850/850	-10	-4	-17	-3	-	7
MM/DF (x2)	220/550m[1]	-	-	3106-0-24-pt	-	-	850/850	-10	-4	-17	-3	-	7
MM/DF	2km	-	3102-6-14-pt	-	-	-	1310/1310	-9.5	-3	-19.5	-3	-	10
SM/DF	12km	3101-1-14-pt	3103-1-14-pt	3107-1-14-pt	-	-	1310/1310	-9.5	-3	-19.5	-3	-	10
SM/DF (x2)	12km	-	-	3107-1-24-pt	-	-	1310/1310	-9.5	-3	-19.5	-3	-	10
SM/DF	34km	-	3103-2-14-pt	-	-	-	1310/1310	-5	0	-23	-3	3	18
SM/DF	80km	-	3103-3-14-pt	-	-	-	1550/1550	-5	0	-23	-3	3	18
SM/DF	110km	-	3103-4-14-pt	-	-	-	1550/1550	0	5	-24	-3	8	24
SM/DF	140km	-	3103-5-14-pt	-	-	-	1550.1550	2	5	-28	-8	13	30
MM/SF[2]	220/550m[1]	-	3110-0-14-pt	-	-	-	1310/1550	-9	-3	-18	-3	-	9
MM/SF[2]	220/550m[1]	-	3111-0-14-pt	-	-	-	1550/1310	-9	-3	-18	-3	-	9
SM/SF[2]	20km	-	3110-1-14-pt	-	-	-	1310/1550	-9.5	-3	-20	-3	-	10.5
SM/SF[2]	20km	-	3111-1-14-pt	-	-	-	1550/1310	-9.5	-3	-20	-3	-	10.5
SM/SF[2]	40km	-	3110-2-14-pt	-	-	-	1310/1550	-3	0	-20	-3	3	17
SM/SF[2]	40km	-	3111-2-14-pt	-	-	-	1550/1310	-3	0	-20	-3	3	17
SFP (x1)	-	-	-	-	3119-0-14-pt	-	-	-	-	-	-	-	-
SFP (x2)	-	-	-	-	3119-0-24-pt	-	-	-	-	-	-	-	-
RJ-45 (x2)	100m	-	-	-	-	3119-1-24-pt	-	-	-	-	-	-	-

[1] 62.5/125µm, 100/140µm multimode fiber up to 220m. 50/125µm multimode fiber up to 550m.
[2] When using single-fiber (SF) models, the Tx wavelength on one end has to match the Rx wavelength on the other.
MM = Multimode, SM = Single-mode, DF = Dual Fiber, SF = Single-fiber

Base Model Number: 31xx-x-x4-pt

Select the model from ordering table above.

Add the power option (**p**) and operating temperature range (**t**) to the base model number.

Power Options (p):

1 = External AC/DC Adapter, 100 - 240 VAC included, with US Power Cord	**8** = External AC/DC Adapter, 100 - 240 VAC included, with Japanese Power Cord
2 = External AC/DC Adapter, 100 - 240 VAC included, No Power Cord	**9** = Direct DC input, 2 pin terminal connector, no AC/DC power adapter

See AC/DC Adapter Temperature table below when ordering AC Powered models (power option 1, 2 or 8)

Operating Temperature Options (t):

<leave blank> = Commercial temperature (0 to 50°C)	**W** = Wide temperature (-40 to 60°C)
Z = Extended temperature (-40 to 75°C)	

Contact Omnitron for other fiber options. Order the appropriate SFPs separately. Visit the Omnitron Optical Transceivers web page.

AC/DC Adapter Temperature Derating Total Available Wattage to RJ-45 Ports				
Model	Watts Required	40°C	50°C	60°C
GHPoE/M	240 watts	Full Power	175 watts	115 watts

The AC/DC Adapter Temperature derating table is not applicable to models with DC Terminal (see Ordering table for Direct DC power option 9). 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 on page 3.

Accessories	
Model Number	**Description**
8251-0	DIN-Rail Mounting Clip
8260-0	19" rack mount shelf