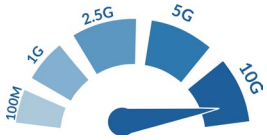
OmniConverter®

POWER OVER ETHERNET

OmniConverter® 10GMGPoE+/M and 10GMGPoEBT/M

Managed Multi-Gigabit/Multi-Rate 100M, 1G, 2.5G, 5G, 10G PoE Ethernet Switch



The OmniConverter 10GMGPoE+/M and 10GMGPoEBT/M are managed multi-gigabit Ethernet switches featuring one 1/10G SFP/SFP+ or multi-gigabit/multi-rate RJ-45 uplink port and two multi-gigabit/multi-rate RJ-45 and two 10/100/1000 RJ-45 Power-over-Ethernet downlink/access ports. They support PoE, PoE+ and PoEBT up to 100 watts depending on the model.

The RJ-45 user ports support multi-gigabit/multi-rate speeds of 100Mbps, 1Gbps, 2.5Gbps, 5Gbps and 10Gbps, supporting frame sizes up to 10,240 bytes.

The 10GMGPoE+/M supports IEEE 802.3at (15 and 30W) and the 10GMGPoEBT/M supports IEEE 802.3bt (60 and 100W) per user port depending on the model.

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.

The switches feature a PoE Power Reset function that enables the user to remotely power-cycle and reset each attached PD, such as a camera or access point. 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 Power Reset and the Heartbeat Reset functions save time and expense by eliminating the need to dispatch manpower to remote network sites.

The switches feature a Small Form Pluggable (SFP) transceiver receptacle port supporting a variety of copper and fiber transceivers. It supports 10/100/1000BASE-T, 1000BASE-T, 100M/1G/2.5G/5G/10GBASE-T multi-gigabit copper transceivers and 1G and 10G multimode or single-mode fiber, dual or single-fiber transceivers in standard, CWDM and DWDM wavelengths.

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 notification and alarm reporting is provided.

All models can be wall mounted, rack mounted using a shelf or DIN-rail mounted using DIN-rail mounting clips. They are available with an external 100 to 240V AC power adapter or with a DC terminal connector.

SFPs not included

KEY FEATURES

- Managed 10G multi-gigabit/multi-rate PoE Ethernet Switch
- Models support IEEE 802.3af, IEEE 802.3at and IEEE 802.3bt (60W and 100W)
- Modbus Industrial Protocol for device management and monitoring
- Supports IPv4 and IPv6
- IEEE 802.1x, RADIUS, TACACS+ and ACL
- Email Notification
- IEEE 802.1Q VLAN tagging and IEEE 802.1ad Q-in-Q
- Broadcast / Multicast / Unicast Storm Prevention
- DHCP Relay Option 82, DHCPv6 and DHCPv6 Relay
- IPv4 IGMP and IPv6 MLD snooping
- Rate Limiting, Queue prioritization and Class of Service
- IEEE 802.1ab Link Layer Discovery Protocol
- Static MAC configuration and blocking of unknown Unicast/Multicast addresses
- Heartbeat signal to verify connectivity to the PD and 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
- Easy to use Hierarchical Command Line Interface
- SNMP management via Omnitron's NetOutlook® management software, or third-party SNMP software
- Directed Switch mode prevents flooding of multicast video traffic
- Free 24/7/365 Technical Support

Omnitron Systems

ADDITIONAL FEATURES

- One SFP/SFP+ transceiver uplink port or multi-gigabit/multi-rate copper port
- 1/10G SFP/SFP+ standard/CWDM/DWDM fiber transceiver uplink port
- Uplink port supports copper and fiber SFP/SFP+ transceivers
- Multi-gigabit/multi-rate ports supports speeds of 100Mbps, 1Gbps, 2.5Gbps, 5Gbps and 10Gbps
- Two multi-gigabit/multi-rate RJ-45 PoE and two 10/100/1000 RJ-45 PoE user ports
- 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
- TAA, BAA and NDAA compliant, and Made in the USA

APPLICATIONS

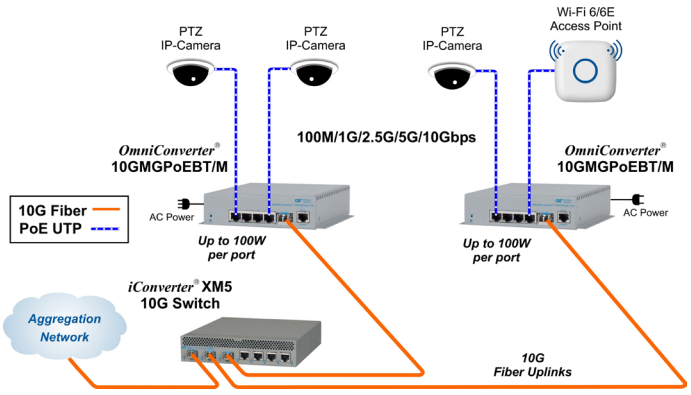
Security and Wireless

In this application example, outdoor IP surveillance cameras and Wi-Fi 6/6E Access Points are installed throughout a large facility. An iConverter® XM5 aggregation fiber switch is used to distribute a fiber link from a control room to OmniConverter switches with fiber SFP ports.

The OmniConverter 10GMGPoEBT/M provides up to 100W of Power-over-Ethernet (PoE) to an IP camera and Wireless Access Point at each location, each of which can be located up to 100 meters from the switches.

When less power is required the OmniConverter 10GMGPoE+/M can be used to deliver 30 watt of power per port.

The camera and access point have full bandwidth capability utilizing the 10G fiber uplink port on each 10GMGPoEBT/M switch.

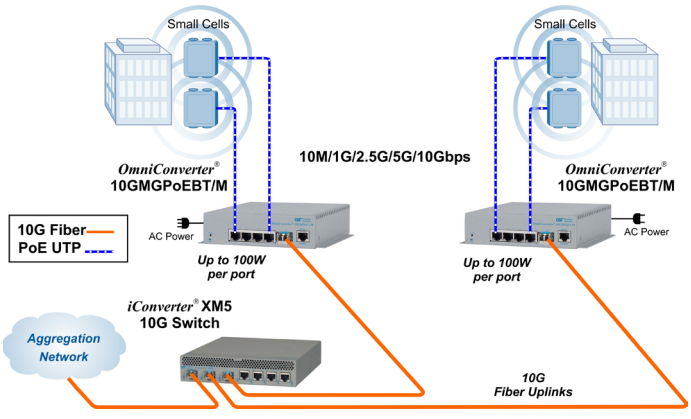


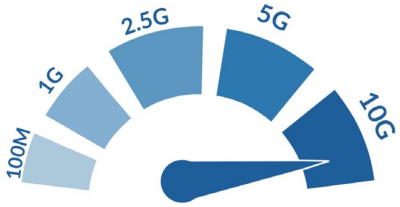
Small Cell

Small cell devices are increasing their demand on both power and bandwidth requirements. Speeds of 10Gbps and 100W is common with today's small cell devices.

In this application example, high-speed small cell devices requiring up to 10Gbps bandwidth are deployed inside several buildings. An iConverter® XM5 aggregation fiber switch is used to distribute a fiber link to each OmniConverter switch.

The OmniConverter 10GMGPoEBT/M switches provide up to 100 watts and speeds up to 10Gbps on the RJ-45 user ports.





100M/1G/2.5G/5G/10Gbps

SPECIFICATIONS

Description	**OmniConverter® 10GMGPoE+/M** Managed IEEE 802.3at 10Gigabit Multi-Gigabit/Multi-Rate Ethernet Switch	**OmniConverter® 10GMGPoEBT/M** Managed IEEE 802.3bt 10Gigabit Multi-Gigabit/Multi-Rate Ethernet Switch
Standard Compliances	IEEE 802.3af (15.40 watts), IEEE 802.3at (30 watts)	IEEE 802.3af (15.40 watts), IEEE 802.3at (30 watts), IEEE 802.3bt (up to 100 watts)
	IEEE 802.3, IEEE 802.1Q, IEEE 802.1ad, IEEE 802.1ab, RFC 5424, RFC 4541, RFC 2710, IEC 624339-2, SMTP, SNTP, RADIUS, TACACS+, IEEE 802.1x,	
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, UKCA 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 ACT: TAA, BAA, NDAA	
Environmental	REACH, RoHS and WEEE	
Management	IPv4 and IPv6 address Web, Telnet, SSH, SNMPv1/v2c/v3 In-Band management via Ethernet port, Out-of-band management via serial port	
PoE Modes	IEEE Alternate A (Alt A)	
Frame Size	Up to 10,240 bytes	
Port Types	Copper: 100/1000BASE-T, 2.5GBASE-T/5GBASE-T/10GBASE-T (RJ-45) 10/100/1000BASE-T (RJ-45) SFP/SFP+: 10GBASE-X Fiber Transceivers, 10GBASE-T Copper Transceivers 1000BASE-X Fiber Transceivers, 1000BASE-T Copper Transceivers 10/100/1000BASE-T SGMII Copper Transceivers 100/1000/2.5G/5G/10GBASE-T Multi-rate Copper Transceivers Serial: RS-232 (RJ-45)	
Cable Types	Copper: Twisted-pair cable up to 100 meters 10BASE-T: 4-pair UTP Cat 3, 4, 5, 5e, 6, 6A, 100BASE-TX: 4-pair UTP Cat 5, 5e, 6, 6A 1G/2.5G: 4-pair UTP Cat 5e, 6, 6A, 7 5G: 4-pair UTP Cat 6, 6A, 7 10G: 4-pair UTP Cat 6A, 7 Fiber: Multimode: 50/125, 62.5/125µm Single-mode: 9/125µm	
AC Power Requirements (Models with AC/DC Adapters)	100 - 240VAC/50 - 60Hz 3.5A max at 115VAC 2.5A max at 230VAC Supplied adapter provides 250W	100 - 240VAC/50 - 60Hz 3.5A max at 115VAC 2.5A max at 230VAC Supplied adapter provides 250W
DC Power Requirements (Models with DC Terminals)	+46 to +57VDC; 2.37A @ 56VDC 2 Pin Terminal (isolated)	60 watt Models: +46 to +57VDC; 4.52A @ 56VDC 2 Pin Terminal (isolated) 100 watt Models: +46 to +57VDC; 7.40A @ 56VDC 2 Pin Terminal (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: 1.5 lbs. (680 grams) Module with AC/DC Adapter: 3.6 lbs. (1.63 kg)	Module Only: 1.6 lbs. (726 grams) Module with AC/DC Adapter: 3.7 lbs. (1.68 kg)
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 power adapter Storage: -40 to 80°C	
Humidity	5 to 95% (non-condensing)	
Altitude	-100m to 4,000m (operational)	
MTBF (hours)	Module Only: 235,000 AC/DC Adapter: 100,000	
Warranty	5 year product warranty with 24/7/365 free Technical Support and 2 year AC power adapter warranty	

Power / Voltage Requirements and Specifications per IEEE				
Description	**IEEE 802.3af PoE**	**IEEE 802.3at PoE+**	**IEEE 802.3.bt PoE (60W Type 3)**	**IEEE 802.3bt PoE (100W Type 4)**
Power Supply Voltage Range	46.0 to 57.0 VDC	51.0 to 57.0 VDC	51.0 to 57.0 VDC	53.0 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	52.0 to 56.0 VDC
Maximum Power from PoE/PSE port	15.4 watts	30 watts	60 watts	100 watts
Minimum Voltage at PoE/PD port input (at 100 meters using Cat5 Cable)	37.0 VDC	42.5 VDC	42.5 VDC	41.1 VDC
Minimum Power at PoE/PD port (at 100 meters using Cat5 Cable)	12.95 watts	25.5 watts	51 watts	71 watts

ORDERING INFORMATION

Step 1: Choose the Base Part Number (xxxx-x-xx-pt)

OmniConverter 10GMGPoE+/M Models	
Model Number	**Description**
9656-0-14-pt	10GMGPoE+/M - 1 x SFP+ + 2 x 100/1G/2.5G/5G/10G RJ-45 30W per port + 2 x 10/100/1000 RJ-45 30W per port
9656-1-14-pt	10GMGPoE+/M - 1 x 100/1G/2.5G/5G/10G RJ-45 + 2 x 100/1G/2.5G/5G/10G RJ-45 30W per port + 2 x 10/100/1000 RJ-45 30W per port
Contact Omnitron for other fiber options. Order the appropriate SFPs separately. Visit the Omnitron Optical Transceivers web page.	

Step 2: Choose the Power Option (xxxx-x-xx-pt)

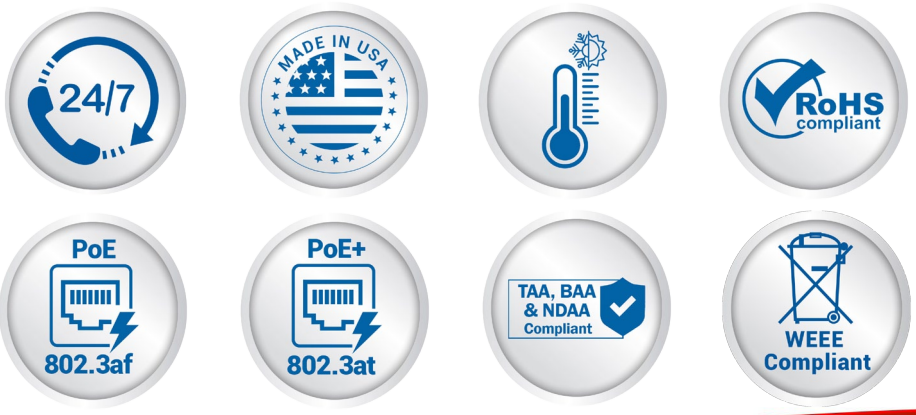
1 = External AC/DC Adapter, 100 - 240 VAC included, with US Power Cord
2 = External AC/DC Adapter, 100 - 240 VAC included, No Power Cord
8 = External AC/DC Adapter, 100 - 240 VAC included, PS JET/PSE Certified, with Japanese Power Cord
9 = Direct DC 2 pin terminal connector, no AC/DC power adapter

Step 3: Choose the Operating Temperature Range Option (xxxx-x-xx-pt)

<leave blank> = Commercial temperature (0 to 50°C)
W = Wide temperature (-40 to 60°C)
Z = Extended temperature (-40 to 75°C) **- not available for models with AC/DC power adapter**

AC/DC Adapter Temperature Derating - Total Available Wattage to RJ-45 Ports				
Model	Watts Required	Watts Available @ 40°C	Watts Available @ 50°C	Watts Available @ 60°C
10GMGPoE+/M	120 watts	Full Power	Full Power	110 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 tables.				

Accessories			
Model Number	**Description**	**Model Number**	**Description**
8251-0	DIN-Rail Mounting Clip	8260-0	19” rack mount shelf (up to 2 switches)



ORDERING INFORMATION

Step 1: Choose the Base Part Number (xxxx-x-xx-pt)

OmniConverter 10GMGPoEBT/M Models	
Model Number	**Description**
9657-0-14-pt	10GMGPoEBT/M 60W - 1 x SFP+ + 2 x 100/1G/2.5G/5G/10G RJ-45 60W per port + 2 x 10/100/1000 RJ-45 60W per port
9657-1-14-pt	10GMGPoEBT/M 60W - 1 x 100/1G/2.5G/5G/10G RJ-45 + 2 x 100/1G/2.5G/5G/10G RJ-45 60W per port + 2 x 10/100/1000 RJ-45 60W per port
9658-0-14-pt	10GMGPoEBT/M 100W - 1 x SFP+ + 2 x 100/1G/2.5G/5G/10G RJ-45 100W per port + 2 x 10/100/1000 RJ-45 100W per port
9658-1-14-pt	10GMGPoEBT/M 100W - 1 x 100/1G/2.5G/5G/10G RJ-45 + 2 x 100/1G/2.5G/5G/10G RJ-45 100W per port + 2 x 10/100/1000 RJ-45 100W per port
Contact Omnitron for other fiber options. Order the appropriate SFPs separately. Visit the Omnitron Optical Transceivers web page.	

Step 2: Choose the Power Option (xxxx-x-xx-pt)

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

Step 3: Choose the Operating Temperature Range Option (xxxx-x-xx-pt)

<leave blank> = Commercial temperature (0 to 50°C)
W = Wide temperature (-40 to 60°C)
Z = Extended temperature (-40 to 75°C) - **not available for models with AC/DC power adapter**

AC/DC Adapter Temperature Derating - Total Available Wattage to RJ-45 Ports				
Model	Watts Required	Watts Available @ 40°C	Watts Available @ 50°C	Watts Available @ 60°C
10GMGPoEBT/M 60W	240 watts	235 watts	170 watts	110 watts
10GMGPoEBT/M 100W	400 watts	235 watts	170 watts	110 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 tables.				

Accessories			
Model Number	**Description**	**Model Number**	**Description**
8251-0	DIN-Rail Mounting Clip	8260-0	19" rack mount shelf (up to 2 switches)