RuggedNet ® **GPoE+/Mi**
Managed Industrial 6 and 10 Port PoE/PoE+ Gigabit Ethernet Switch

The RuggedNet GPoE+/Mi is a ruggedized managed PoE and PoE+ industrial Ethernet switch that features fiber or copper uplink ports and four or eight 10/100/1000 RJ-45 copper Power Sourcing Power-over-Ethernet user ports.

The RuggedNet GPoE+/Mi is a standard Layer 2 Ethernet switch that forwards frames to any port based on their MAC address.

The RuggedNet GPoE+/Mi supports Directed Switch mode, which directs multicast traffic (such as video) only to the appropriate uplink port, preventing the multicast video traffic from flooding other network ports.

Models with two fiber or two copper uplink ports support redundant uplinks, industrial ring Media Redundancy Protocol (MRP), Spanning Tree protocol 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 GPoE+/Mi 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 RuggedNet GPoE+/Mi is available with fixed ST, SC, and LC connectors or Small Form Pluggable (SFP) transceivers. 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. These functions save time and expense by eliminating the need to dispatch manpower to remote network sites.

An alarm relay is available to detect user configured events. The relay contact can be configured for normally open or normally closed operation. One alarm input is available for detecting external events such as door open or closed.

SFPs not included

KEY FEATURES

- Managed Industrial Gigabit PoE/PoE+ Ethernet switch with single or dual DC power
- Two 10/100/1000 copper or Gigabit fiber uplink ports
- Four or eight 10/100/1000 copper PoE+ user ports
- ST, SC and LC fixed fiber ports or standard, CWDM or DWDM Gigabit SFP transceivers
- 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
- Alarm contacts and sensors
- Wall, Rack and DIN-rail mountable
- Industrial (-40 to 75ºC) operating temperature
- Made in the USA
- Free 24/7/365 Technical Support

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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
- Port Access Control for enhanced security
- Broadcast / Multicast / Unicast Storm Prevention
- SNTP / NTP and time of day

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 (purple) network and a Wi-Fi (green) 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.
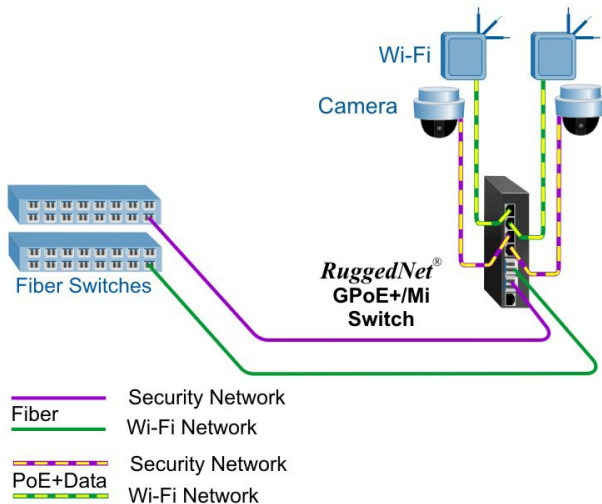
Daisy-Chain and Ring Topology Network Application

This example demonstrates the daisy chaining and ring capabilities of the RuggedNet. In this application each RuggedNet 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.
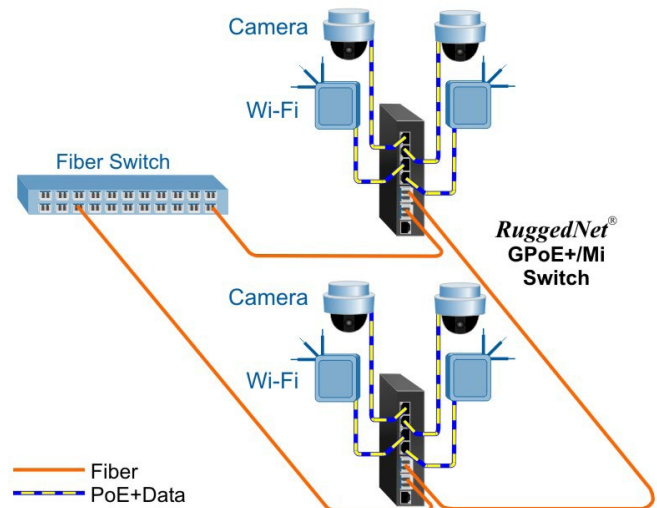
Power / Voltage Requirements and Specifications per IEEE

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		

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SPECIFICATIONS

Description	**RuggedNet® GPoE+/Mi** 10/100/1000BASE-T with Gigabit Fiber or Copper Uplinks Ruggedized Managed 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 max) and IEEE 802.3at (30 watts max)

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 (on UTP cabling) and 20 V/m (on STP cabling)
	              IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV,
	              IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV,
	              IEC 61000-4-6 CS: Signal: 10 V,
	              IEC 61000-4-8 (Magnetic Field), 30A/m,
	              IEC 61000-4-11 (General Immunity in Industrial Environments)
	IP Rating: IP40 Protection

Environmental	REACH, RoHS and WEEE
PoE Modes	IEEE Alternate A (Alt A)
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: 10/100/1000BASE-T (RJ-45) Fiber: 1000BASE-X (ST, SC, LC, SFP) 10/100/1000BASE-T SGMII (SFP) Serial: RJ-45
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
DC Power Requirements	4 RJ-45 Ports: +46 to +57VDC; 2.31A @ 56VDC 2 Pin Terminal (non-isolated) 8 RJ-45 Ports: +46 to +57VDC; 4.47A @ 56VDC 2 Pin Terminal (non-isolated)
Alarm Contact (Output)	2 form C Relay for Normally Open and Normally Closed Operation 110VDC/125VAC Maximum Voltage 2A Maximum Current
Alarm Sensor (Input)	2.0ma @ 3.3VDC Closure Detection
Dimensions (W x D x H)	1.5" x 5.5" x 5.5" (38.1 mm x 139.7 mm x 139.7 mm)
Weight	4 RJ-45 Ports: 1.70 lb. (772 grams) 8 RJ-45 Ports: 1.77 lb. (803 grams)
Operating Temperature	Extended: -40 to 75°C Storage: -40 to 80°C
Humidity	5 to 95% (non-condensing)
Altitude	-100m to 4,000m (operational)
MTBF (hours)	260,000
Warranty	5 year product warranty with 24/7/365 free Technical Support

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ORDERING INFORMATION

RuggedNet GPoE+/Mi 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]	9540-0-1y-pZ	9542-0-1y-pZ	9546-0-1y-pZ	-	-	850 / 850	-10	-4	-17	-3	-	7
MM/DF (x2)	220/550m[1]	-	-	9546-0-2y-pZ	-	-	850 / 850	-10	-4	-17	-3	-	7
MM/DF	2km	-	9542-6-1y-pZ	-	-	-	1310 / 1310	-9.5	-3	-19.5	-3	-	10
SM/DF	12km	9541-1-1y-pZ	9543-1-1y-pZ	9547-1-1y-pZ	-	-	1310 / 1310	-9.5	-3	-19.5	-3	-	10
SM/DF (x2)	12km	-	-	9547-1-2y-pZ	-	-	1310 / 1310	-9.5	-3	-19.5	-3	-	10
SM/DF	34km	-	9543-2-1y-pZ	-	-	-	1310 / 1310	-5	0	-23	-3	3	18
SM/DF	80km	-	9543-3-1y-pZ	-	-	-	1550 / 1550	-5	0	-23	-3	3	18
SM/DF	110km	-	9543-4-1y-pZ	-	-	-	1550 / 1550	0	5	-24	-3	8	24
SM/DF	140km	-	9543-5-1y-pZ	-	-	-	1550 / 1550	2	5	-28	-8	13	30
MM/SF[2]	220/550m[1]	-	9550-0-1y-pZ	-	-	-	1310 / 1550	-9	-3	-18	-3	-	9
MM/SF[2]	220/550m[1]	-	9551-0-1y-pZ	-	-	-	1550 / 1310	-9	-3	-18	-3	-	9
SM/SF[2]	20km	-	9550-1-1y-pZ	-	-	-	1310 / 1550	-9.5	-3	-20	-3	-	10.5
SM/SF[2]	20km	-	9551-1-1y-pZ	-	-	-	1550 / 1310	-9.5	-3	-20	-3	-	10.5
SM/SF[2]	40km	-	9550-2-1y-pZ	-	-	-	1310 / 1550	-3	0	-20	-3	3	17
SM/SF[2]	40km	-	9551-2-1y-pZ	-	-	-	1550 / 1310	-3	0	-20	-3	3	17
SFP (x1)	-	-	-	-	9559-0-1y-pZ	-	-	-	-	-	-	-	-
SFP (x2)	-	-	-	-	9559-0-2y-pZ	-	-	-	-	-	-	-	-
RJ-45 (x2)	100m	-	-	-	-	9559-1-2y-pZ	-	-	-	-	-	-	-

[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: 95xx-x-xy-pZ

Select the model from ordering table above.

Add # of RJ-45 ports (**y**) and power option (**p**) to the model selected.

Number of RJ-45 PoE/PoE+ Ports (y):

4 = Four RJ-45 Ports	**8** = Eight RJ-45 Ports

Power Options (p):

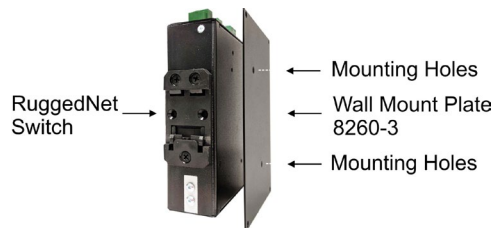| **1** = Single DC 2-Pin Terminal Connector	**2** = Dual DC 2-Pin Terminal Connectors

Operating Temperature:

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.

Model Number	Description
8260-3	Wall Mounting Plate
8260-0	19" rack mount shelf

Wall Mount Plate used to wall or rack mount the RuggedNet switch

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