

### RuggedNet® 10G/Mi

#### Managed Industrial 6 and 10 Port 10Gigabit Ethernet Switch

The RuggedNet 10G/Mi is a ruggedized managed industrial Ethernet switch that features two 1/10G uplink ports and four or eight 10/100/1000 RJ-45 user ports. The RuggedNet 10G/Mi enables industrial network distance extension with fiber or copper cabling.

The RuggedNet 10G/Mi is a Layer 2 Ethernet switch that forwards 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.

The switches support redundant uplinks, industrial ring Media Redundancy Protocol (MRP), Spanning Tree protocol and daisy-chain configurations for high availability industrial network applications.

The switches support Dual Device mode that enables the 10G/Mi to operate as two independent and isolated Ethernet switches. In Dual Device mode, the 10G/Mi provides separate and independent data traffic paths between each uplink port and a group of user ports.

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 switches are available with Small Form Pluggable (SFP) transceiver receptacle ports. The SFP ports support 10/100/1000BASE-T, 1000BASE-T and 10GBASE-T copper transceivers. They also support 1G and 10G multimode or single-mode fiber, dual or single-fiber and standard, CWDM and DWDM wavelengths.

The RuggedNet compact industrial Ethernet switches can be wall or rack mounted using a wall mount bracket and shelf or DIN-rail mounted using the included DIN-rail mounting clip. They are available with dual DC input power.



SFPs not included

### KEY FEATURES

- Managed Industrial 1/10G Ethernet Switch with dual DC power
- Two 1/10G SFP/SFP+ transceiver uplink ports
- Supports copper and fiber SFP transceivers
- Supports 10M, 100M, 1G and 10Gbps copper SFP/SFP+ transceivers
- Four or eight 10/100/1000 copper user ports
- Supports jumbo frames up to 10,240 bytes
- 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 addressing
- 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
- Rapid and Multiple Spanning Tree Protocol
- IEC 62439-2 Industrial Ring Media Redundancy
- IEEE 802.1ax LAG and LACP; Active/Active and Active/Standby
- Dual Device mode for operating as two separate switches
- Directed Switch mode AKA Camera mode to prevent port flooding
- Industrial (-40 to 75° C) operating temperature
- Made in the USA
- Free 24/7/365 Technical Support

## ADDITIONAL FEATURES

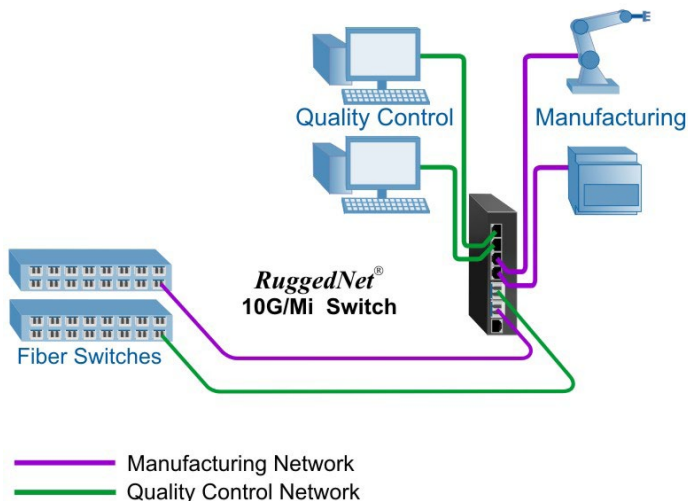
- IEEE 802.1Q VLAN tagging and IEEE 802.1ad Q-in-Q
- Port Access Control for enhanced security
- Broadcast / Multicast / Unicast Storm Prevention
- DHCP Relay Option 82
- IPv4 Internet Group Management (IGMP) and IPv6 Multicast Listener Discovery (MLD) snooping
- Rate Limiting, Queue prioritization and Class of Service
- IEEE 802.1ab Link Layer Discovery Protocol
- Static MAC configuration and blocking of unknown Unicast/Multicast addresses
- SNTP / NTP and time of day
- Wall, Rack and DIN-rail mountable
- Fan-less design

## APPLICATIONS

### Dual Device Mode Application

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

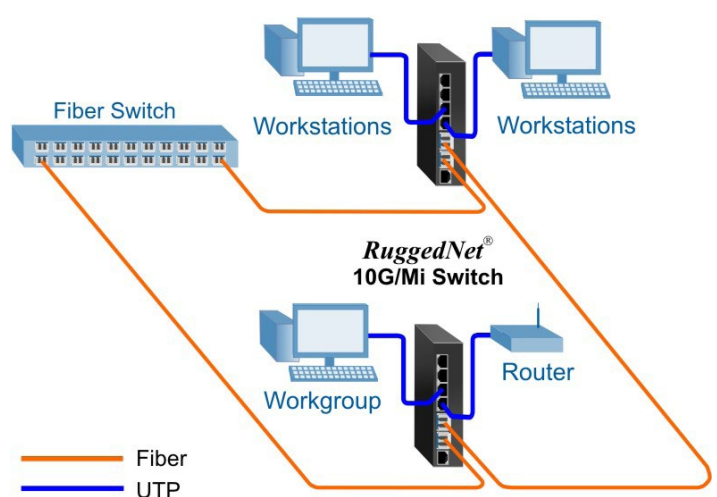
The example below depicts a scenario where the Quality Control (green) network and the Manufacturing (purple) network are sharing a single hub distribution location. Using the two uplinks and the Dual Switch mode facilitates using a single switch driving both the Quality Control and the Manufacturing devices 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. The RuggedNet switches are providing connectivity between the workstations and the router.

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.



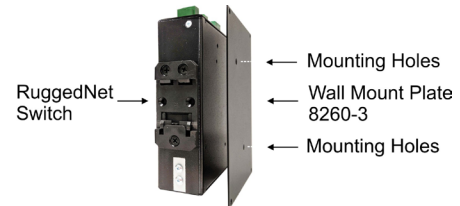
# SPECIFICATIONS

<b>Description</b>	<b>RuggedNet® 10G/Mi</b> 10/100/1000BASE-T with 1/10G Uplink Ports Ruggedized Managed 6 and 10 Port 10Gigabit Ethernet Switch	
<b>Standard Compliances</b>	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	
<b>Regulatory Compliances (*Pending)</b>	<p>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</p> <p>EMC: EN 55032/24 CE Emissions/Immunity, IEC 61000-6-4 Industrial Emissions, IEC 61000-6-2 Industrial Immunity</p> <p>EMI: CISPR 32, FCC 47 Part 15 Subpart B Class A</p> <p>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)</p> <p>IP Rating: IP40 Protection</p>	
<b>Environmental</b>	REACH, RoHS and WEEE	
<b>Management</b>	IPv4 and IPv6 address Web, Telnet, SSH, SNMPv1/v2c/v3 In-Band management via Ethernet port Out-of-band management via serial port	
<b>Frame Size</b>	Up to 10,240 bytes	
<b>Port Types</b>	<p>Copper: 10/100/1000BASE-T (RJ-45)</p> <p>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</p> <p>Serial: RS232 (RJ-45)</p>	
<b>Cable Types</b>	<p>Copper: EIA/TIA 568A/B, Cat 5 UTP and higher</p> <p>Fiber: Multimode: 50/125, 62.5/125µm Single-mode: 9/125µm</p> <p>Serial: Category 3 and higher</p>	
<b>DC Power Requirements</b>	4 RJ-45 Ports: +12 to +57VDC; 0.86A @ 12VDC 0.22A @ 48VDC 2 Pin Terminal (non-isolated)	8 RJ-45 Ports: +12 to +57VDC; 0.94A @ 12VDC 0.24A @ 48VDC 2 Pin Terminal (non-isolated)
<b>Dimensions (W x D x H)</b>	1.5" x 5.5" x 5.5" (38.1 mm x 139.7 mm x 139.7 mm)	
<b>Weight</b>	4 RJ-45 Ports: 1.70 lb. (772 grams)	8 RJ-45 Ports: 1.77 lb. (803 grams)
<b>Operating Temperature</b>	Industrial: -40 to 75°C Storage: -40 to 80°C	
<b>Humidity</b>	5 to 95% (non-condensing)	
<b>Altitude</b>	-100m to 4,000m (operational)	
<b>MTBF (hours)</b>	285,000	
<b>Warranty</b>	5 year product warranty with 24/7/365 free Technical Support	

# ORDERING INFORMATION

RuggedNet 10G/Mi Models	
Model Number	Description
2902-0-24-2Z	RuggedNet 10G/Mi 2 x SFP/SFP+ uplink port and 4 x RJ-45 user ports, Dual DC Terminal Connectors, Industrial Temperature
2902-0-28-2Z	RuggedNet 10G/Mi 2 x SFP/SFP+ uplink port and 8 x RJ-45 user ports, Dual DC Terminal Connectors, Industrial Temperature
Contact Omnitron for other fiber options. Order the appropriate SFPs separately. <a href="#">Visit the Omnitron Optical Transceivers web page.</a>	

Accessories	
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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