

### RuggedNet® GL/Si

#### Unmanaged Industrial Single Pair Ethernet Switch

The RuggedNet GL/Si is an unmanaged industrial gigabit Ethernet switch that features copper or fiber uplink ports and four single-pair 10BASE-T1L Ethernet copper user ports.

The Single Pair Ethernet switch features four IEEE 802.3cg compliant 10BASE-T1L 3-pin SPE terminal ports or IEC 63171-2 SPE ports and two 10/100/1000 RJ-45 or 100/1000 fiber uplink ports.

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

The switch supports Dual Device mode, Directed Switch mode and Redundant Uplinks.

Dual Device mode that enables the module to operate as two independent and isolated Ethernet switches. In Dual Device mode, the GL/Si provides separate and independent data traffic paths between the two uplink ports and four user ports.

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

Redundant fiber or copper uplinks provide protection and restoration for critical applications. In the event of a failure on the primary uplink port, the switch will failover to the secondary uplink port. Once the failed uplink port has been restored, the switch will return to the primary uplink port.

For daisy-chain applications, the second uplink port can be used to cascade multiple switches.

The GL/Si modes of operation can be configured using easily accessible DIP-switches. Each DIP-switch function is labeled on the side of the switch for ease of identification and use.

The switch is available with Small Form Pluggable (SFP) transceiver receptacle ports or 10/100/1000 RJ-45 copper ports. The SFP ports support 10/100/1000BASE-T and 1000BASE-T copper transceivers and 100Mbps and 1000Mbps standard, CWDM and DWDM fiber transceivers in a variety of distances and fiber types.

The switch can be wall or rack mounted using a wall mount bracket (8260-3) and shelf (8260-0) or DIN-rail mounted using the included DIN-rail mounting clip. The switch is available with dual DC input power.



SFPs not included

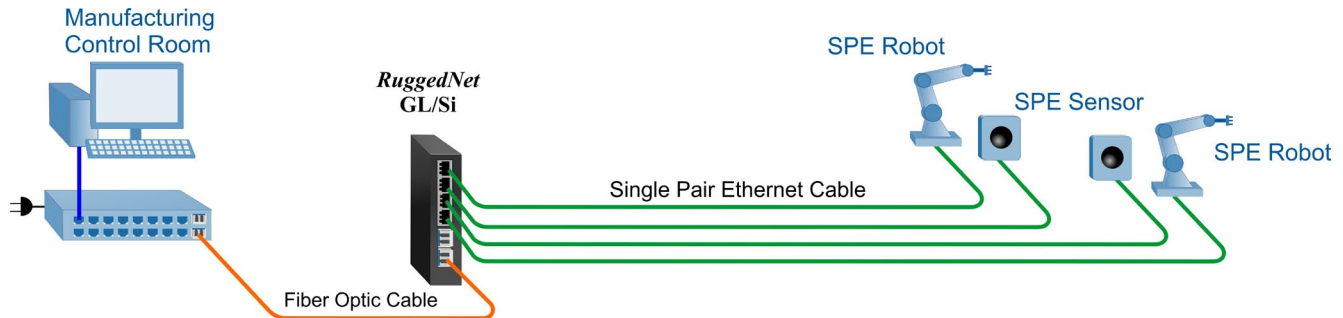
### KEY FEATURES

- Unmanaged Industrial Single-Pair Ethernet switch
- Dual Device mode for operating as two separate switches
- Directed Switch mode prevents flooding of multicast traffic
- Uplink redundancy
- Four IEEE 802.3cg Single-Pair Ethernet user ports
- Supports 3-Pin SPE Terminal connector or IEC 63171-2 SPE connector
- Two SFP or two 10/100/1000 RJ-45 uplink ports
- Supports 10/100/1000 and 1G copper SFP transceivers
- Supports 100Mbps and 1000Mbps fiber SFPs
- Dual DC power for redundancy
- Wall, Rack and DIN-rail mountable
- Fan-less design for long life
- Industrial (-40° to 75°C) operating temperature
- TAA, BAA and NDAA compliant, and Made in the USA
- Free 24/7/365 Technical Support

# APPLICATIONS

## Industrial Manufacturing Application

This application example illustrates how industrial devices, that exceeds the standard 100 meter distance of Ethernet, can be connected to a remote Manufacturing Control Room using the SPE cabling. Each SPE device is connected to a RuggedNet GL/Si Single Pair Ethernet switch using SPE cabling. The RuggedNet switch is connected to the Control Room using fiber optic cabling.

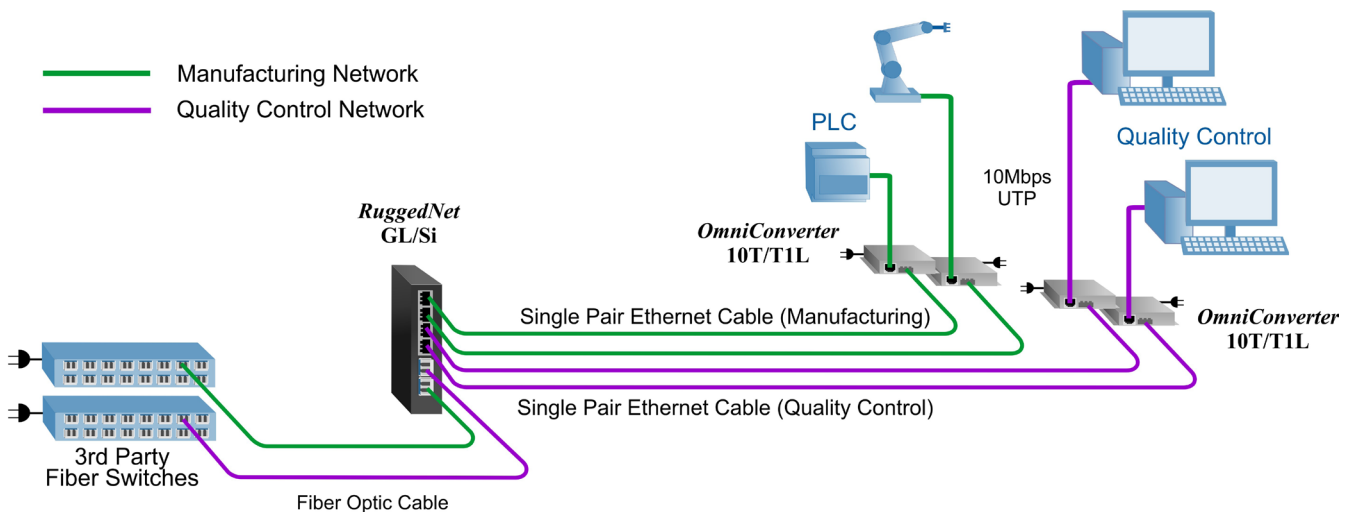


The RuggedNet switch, SPE robots and sensors will require an external power source.

## 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 Manufacturing (green) network and the Quality Control (purple) network are sharing a single hub distribution location. Using the two uplinks and the Dual Device mode facilitates using a single switch driving both the Manufacturing and the Quality Control devices across SPE cabling while maintaining isolation between the networks. At the far end, OmniConverter 10T/T1L modules are used to convert the T1L network back to Ethernet.



The RuggedNet switch, PLC, robot and computers will require an external power source.

# SPECIFICATIONS

<b>Description</b>	<b>RuggedNet® GL/Si</b> 10T/T1L to 100/1000 Fiber or 10/100/1000 Copper Uplinks Unmanaged Industrial Ethernet Switch
<b>Standard Compliances</b>	IEEE 802.3, 802.3cg
<b>Regulatory Compliances (Pending)</b>	<p><b>Safety:</b> 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</p> <p><b>EMC:</b> EN 55032/24 CE Emissions/Immunity, IEC 61000-6-4 Industrial Emissions, IEC 61000-6-2 Industrial Immunity</p> <p><b>EMI:</b> CISPR 32, FCC 47 Part 15 Subpart B Class A</p> <p><b>EMS:</b> 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><b>IP Rating:</b> IP40 Protection</p> <p><b>ACT:</b> TAA, BAA, NDAA</p>
<b>Environmental</b>	REACH, RoHS and WEEE
<b>Frame Size</b>	<p>10BASE-T1L: Up to 2,048 bytes</p> <p>RJ-45: Up to 10,240 bytes</p> <p>SFP: 100M - up to 2,048 bytes 1000M - up to 10,240 bytes</p>
<b>Port Types</b>	<p>10BASE-T1L: 3-Pin SPE Terminal connector or IEC 63171-2 SPE connector</p> <p>RJ-45: 10/100/1000BASE-T</p> <p>SFP: 10/100/1000BASE-T SGMII or 1000BASE-T SERDES Copper Transceiver, 100BASE-X or 1000BASE-X Fiber Transceiver</p>
<b>Cable Types</b>	<p>10BASE-T1L: Single-Pair Ethernet (SPE) cable, IEC 61156-13 (fixed) or IEC 61156-14 (flexible) 18AWG cable or better</p> <p>RJ-45: EIA/TIA 568A/B, Cat 5 UTP and higher</p> <p>Fiber: Multimode: 50/125, 62.5/125µm Single-mode: 9/125µm</p>
<b>DC Power Requirements</b>	+12 to +58VDC; 0.55A @ 12VDC; 2 Pin Terminal (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>	1.70 lb. (772 grams)
<b>Operating Temperature</b>	Extended: -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>	216,000
<b>Warranty</b>	5 year product warranty with 24/7/365 free Technical Support



## ORDERING INFORMATION

### Step 1: Choose a Base Part Number (2913-x-4c-2Z)

Model Number	Description
2913-0-4c-2Z	4 x 10BASE-T1L + 2 x 100/1000 SFP Ports
2913-1-4c-2Z	4 x 10BASE-T1L + 2 x 10/100/1000 RJ-45 Ports

### Step 2: Choose a SPE Connector Type (2913-x-4c-2Z)

0 = 3-pin SPE Terminal Connector
2 = IEC 63171-2 SPE Connector

### Power Option (2913-x-4c-2Z)

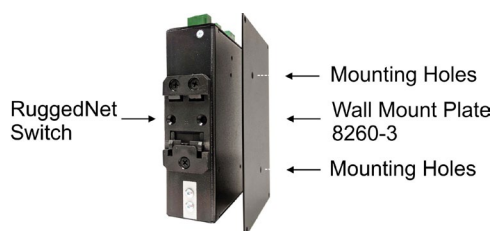
2 = Dual DC 2-Pin Terminal Power Connectors
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### Operating Temperature Range (2913-x-4c-2Z)

Z = Extended temperature (-40 to 75°C)
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## ACCESSORIES

Model Number	Description
8260-3	Wall Mounting Plate
8260-0	19" rack mount shelf (up to 2 modules)



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

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