

**NEW** ER59000 Series

IP-67 Grade M12 Managed Hardened 16-port 10/100BASE-TX (8 x PoE) + 2-port Gigabit Ethernet Switch (Compliant with EN50155/50121-3-2 environmental requirements)



Preliminary

**Value**

- ▶ Provide 16-port 10/100BASE-M12 plus 2-port Gigabit-TX waterproof connector/LC Fiber waterproof connector
- ▶ Port 1 to 8 supports PoE function 802.3at 30W max
- ▶ Compliant with EN50155/50121-3-2 environmental requirements



M12 connectors: are designed for "rolling stock" railway transportation applications



Gore-Tex Vent provides pressure and humidity equalization, preventing water permeating

**Features**

- ▶ Supports PoE Power Sourcing Equipment (PSE)
- ▶ PoE control and scheduling
- ▶ Supports α-ring and STP/RSTP for Ethernet redundancy
- ▶ Supports Port-base VLAN, IEEE802.1Q VLAN Tagging and GVRP
- ▶ Supports STP/RSTP and EtherWAN α-ring for Ethernet redundancy
- ▶ IP multicast filtering through IGMP Snooping V1, V2 and V3
- ▶ IEEE802.1p QoS with four priority queues
- ▶ MAC-based trunking and LACP
- ▶ Supports IEEE802.1x port-security
- ▶ Bandwidth rate control
- ▶ Port-lock for authorized MAC address access only
- ▶ Port mirroring
- ▶ NTP synchronization
- ▶ Support SSH/SSL
- ▶ Front panel port status LEDs
- ▶ Support Wall Mount installation
- ▶ Management through console, Telnet, SNMP V1, V2c & V3, RMON, Web Browser and TFTP
- ▶ -40°C to 75°C operating temperature range

**Ordering Information**

ER59402-WXYZP - 16-port 10/100BASE-M12 + 2-port 10/100/1000BASE Managed Hardened Ethernet Switch

**TX ports Options:**

(W) = 2 : M12 (4pins D-code Female)

**100FX port Options:**

(X) = 0 : non-100FX Fiber

**Gigabit Port Options :**

(Y) = 1 : 10/100/1000BASE-TX

E : 1000BASE-SX (LC) - 550m

M : 1000BASE-LX (LC) - 10Km

N : 1000BASE-LX (LC) - 20Km

\*More Gigabit options also available upon request.

**Power Input Options :**

(Z) = T : 12 to 48VDC, 18 to 30VAC (for non-PoE model)

G : 55VDC (47 to 57 VDC) (for PoE model)

**PoE type :**

(P) = 0 : non-PoE

T : PoE 802.3at

**M23 Power Connector:** (Option)

SF-5ES1N8A80WW

**Installation Type :**

Panel Mount (mounting kit is included)

# Specifications

Technology	
Standards	<ul style="list-style-type: none"> <li>IEEE802.3 10BASE-T, IEEE802.3u 100BASE-TX/FX, IEEE802.3x, IEEE802.3ab 1000BASE-T, IEEE802.3z 1000, IEEE802.1p CoS, IEEE802.1D STP, IEEE802.1w RSTP</li> </ul>
Forward and Filtering Rate	<ul style="list-style-type: none"> <li>14,880pps for 10Mbps</li> <li>148,810pps for 100Mbps</li> <li>1,488,100pps for 1000Mbps</li> </ul>
Processing Type	<ul style="list-style-type: none"> <li>Store-and-Forward</li> <li>Half-duplex back-pressure and IEEE802.3x full-duplex flow control</li> </ul>
Address Table Size	<ul style="list-style-type: none"> <li>8K MAC addresses</li> </ul>

Power	
Power Input	<ul style="list-style-type: none"> <li>Redundant power inputs: M23: 12 - 48VDC, 18 - 30VAC (for non-PoE model) M23: 47 - 57VDC (for PoE model)</li> </ul>
Power Consumption	<ul style="list-style-type: none"> <li>Device: Max. 11W (without PoE)</li> <li>PoE power budget (depends on power input): 240W Max.</li> </ul>
PoE Power Output	<ul style="list-style-type: none"> <li>Port 1 to 8</li> <li>IEEE802.3at: up to 30W/port, 50 - 57VDC</li> </ul>

- Supports overload current protection
- Supports reverse polarity protection

Mechanical	
Casing	<ul style="list-style-type: none"> <li>Metal case</li> <li>IP67</li> </ul>
Dimensions	<ul style="list-style-type: none"> <li>258mm(W) x 117mm(D) x 228mm(H)</li> <li>(10.15" (W) x 4.6"(D) x 8.97"(H))</li> </ul>
Weight	<ul style="list-style-type: none"> <li>3Kg(6.6lbs.)</li> </ul>
Installation	<ul style="list-style-type: none"> <li>Wall mount</li> </ul>

Interface	
Ethernet Port	<ul style="list-style-type: none"> <li>10/100BASE-M12 D-Code 4-Pin Female: 16 ports</li> <li>Gigabit-TX/LC: 2 ports</li> </ul>
Console Port	<ul style="list-style-type: none"> <li>Port: One M12 RS-232 port</li> </ul>
LED Indicators	<ul style="list-style-type: none"> <li>Per Unit: Power Status: Power 1 (Green), Power 2 (Green)</li> <li>Per Port: 10/100BASE: Link/Activity (Green) Gigabit: Link/Activity (Green) PoE: PoE (Port 1 to 8) (Green) (for PoE model)</li> </ul>
Alarm Contact	<ul style="list-style-type: none"> <li>One relay M12 A-Code 4-Pin Female output with current 1A @ 250VAC</li> </ul>

Environment	
Operating Temperature	<ul style="list-style-type: none"> <li>-40°C to 75°C (-40°F to 158°F)</li> </ul>
Storage Temperature	<ul style="list-style-type: none"> <li>-40°C to 85°C (-40°F to 168°F)</li> </ul>
Ambient Relative Humidity	<ul style="list-style-type: none"> <li>5% to 95% (non-condensing)</li> </ul>

Regulatory Approvals	
ISO	<ul style="list-style-type: none"> <li>Manufactured in an ISO9001 facility</li> </ul>
EMI	<ul style="list-style-type: none"> <li>FCC Part 15, Class A</li> <li>EN61000-6-4                             <ul style="list-style-type: none"> <li>EN55022</li> <li>EN61000-3-2</li> <li>EN61000-3-3</li> </ul> </li> </ul>
EMS	<ul style="list-style-type: none"> <li>EN50121-3-2</li> <li>EN61000-6-2</li> <li>EN61000-4-2 (ESD Standards)                             <ul style="list-style-type: none"> <li>Contact: +/- 6KV</li> <li>Air: +/- 8KV</li> </ul> </li> <li>EN61000-4-3 (Radiated RFI Standards)                             <ul style="list-style-type: none"> <li>20V/m, 800 to 1000MHz; 80% AM, 1kHz</li> <li>10V/m, 1400 to 2100MHz; 80% AM, 1kHz</li> <li>5V/m, 2100 to 2500MHz; 80% AM, 1kHz</li> </ul> </li> <li>EN61000-4-4 (Burst Standards)                             <ul style="list-style-type: none"> <li>Signal Ports: +/- 2KV; Criteria A, +/- 4KV</li> <li>D.C. Power Ports: +/- 2KV; Criteria A, +/- 4KV</li> </ul> </li> <li>EN61000-4-5 (Surge Standards)                             <ul style="list-style-type: none"> <li>Signal Ports: +/- 2KV; Line-to-Line</li> <li>D.C. Power Ports: +/- 0.5KV; Line-to-Earth</li> </ul> </li> <li>EN61000-4-6 (Induced RFI Standards)                             <ul style="list-style-type: none"> <li>Signal Ports: 10Vrms @ 0.15 - 80MHz; 80% AM</li> <li>D.C. Power Ports: 10Vrms @ 0.15 - 80MHz; 80% AM</li> </ul> </li> <li>EN61000-4-8 (Magnetic Field Standards)                             <ul style="list-style-type: none"> <li>30A/m @ 50, 60Hz</li> </ul> </li> </ul>
Environmental Test Compliance	<p><b>Vibration Resistance</b></p> <ul style="list-style-type: none"> <li>EN61373: X 0.07grms, Y 0.046grms, Z 0.1grms (Operating) X 0.56grms, Y 0.375grms, Z 0.8grms (Storage/Transport)</li> <li>IEC60068-2-6 Fc: 5g @ 10 - 150Hz, Amplitude 0.35mm (Operation/Storage/Transport)</li> </ul> <p><b>Shock</b></p> <ul style="list-style-type: none"> <li>EN61373: X 5g, Y, Z 3g</li> <li>IEC60068-2-27 Ea                             <ul style="list-style-type: none"> <li>25g @ 11ms (Half-Sine Shock Pulse; Operation)</li> <li>50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)</li> </ul> </li> </ul> <p><b>Free Fall</b></p> <ul style="list-style-type: none"> <li>IEC60068-2-32 Ed : 1M (3.281ft.)</li> </ul>

Ethernet Switches  
Media Converters  
Ethernet Extenders  
Wireless Devices  
Serial Device Servers  
Accessories

# Diagrams

