

ER58000 Series

Hardened Managed 8-port 10/100BASE M12 PoE with 2-port Gigabit M12 Ethernet Switch



Overview

EtherWAN's ER58000 Series provides a hardened 10-port switching platform supporting IEEE802.3at Power over Ethernet, high performance switching with robust management features required for railway transportation application.

The ER58000 Series is equipped with 8 x 10/100BASE-TX PoE with M12 connector, in combination with two Gigabit M12 ports. Compliant with EN50155 standard, the ER58000 Series is designed for rolling stock applications.

The IEEE802.3at PoE ports provide up to 30W/port with a total power budget of 120W, making the switch truly versatile for connecting with PoE Powered Devices (PD) with different bandwidth and power consumption requirements such as; outdoor PTZ dome cameras, wireless access points, and way-side communication devices.

Wall mountable, the ER58000 Series is equipped with EtherWAN's Alpha-Ring self-healing ring technology providing less than 15ms fault recovery time. Users are able to access management features such as port security, IGMP snooping, port-based VLAN, GARP protocols, link aggregation, via web browser, telnet, SSH, SNMP, RMON, TFTP, and RS-232 console interfaces. With the hardened specifications, the ER58000 Series is designed to operate at -40°C to 75°C in harsh environments, where high ESD, shock, and vibration may be present.

EtherWAN — "When Connectivity is Crucial."

Spotlight

• Railway Oriented

- Compliant with EN50155/EN50121-3-2/EN50121-4 railway applications

• M12 Connectors

- Built-in 8-port 10/100BASE M12 plus 2-port Gigabit M12/LC connectors

• Power over Ethernet (PoE)

- Provides 8-port PoE function with IEEE802.3at up to 30W per port

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Вологда (8172)26-41-59
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Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
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Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41

Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78

Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Software Features

Management

- Interface
 - CLI, Telnet and Web Browser
 - SNMP v1/v2c/v3
- Firmware and configuration upgrade and backup via TFTP
- Supports DHCP Server/Client
- RMON (Remote monitoring): group 1, 2, 3, 9
- Port mirroring: TX/RX and both
- NTP (Network Time Protocol) time synchronization
- IEEE802.1ab LLDP (Link Layer Discovery Protocol)

Security

- MAC address filtering
- Enable/disable port
- Storm control (broadcast and multicast types)
- IEEE802.1x LAN access control
- Remote authentication through RADIUS
- SSH for CLI and Telnet security
- SSL for web security
- Multi-level user account/password against unauthorized configuration

Quality of Service (QoS)

- Priority Queues: 4 queues per port
- Traffic classification based on IEEE802.1p CoS, DSCP, WRR (Weighted round robin) and strict mode
- Rate Limiting (Ingress/Egress)

Layer 2 Features

- Auto-negotiation for port speed and duplex mode
- Flow Control
 - IEEE802.3x full duplex mode
 - Back-Pressure half duplex mode
- Redundant Protocol
 - IEEE802.1D Spanning Tree Protocol (STP)
 - IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
 - IEEE802.1s Multiple Spanning Tree Protocol (MSTP)
 - EtherWAN's α -Ring network fault recovery (<15ms) and α -Chain
- VLANs
 - Port-based VLANs
 - IEEE802.1Q Tag VLANs (128 groups, 4096 VID)
 - GVRP (GARP VLAN Registration Protocol)
 - GMRP (GARP Multicast Registration Protocol)
- Link Aggregation
 - Static Trunk (2 groups, support MAC base)
 - IEEE802.3ad Link Aggregation Control Protocol
- IGMP Snooping
 - IGMP snooping v1/v2/v3

Performance

- Switching Capability: 5.6 Gbps
- Packet Buffer Size: 2M bits
- MAC Address Table: 8K

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex and flow control
- IEEE802.1p QoS
- IEEE802.1Q Tag VLANs
- IEEE802.1w RSTP
- IEEE802.1x Port-based Network Access Control
- IEEE802.1s MSTP
- IEEE802.3ad LACP
- IEEE802.3af/at Power over Ethernet (PoE)

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory

- 2M bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 8192 MAC addresses

Power

Input

- Redundant power inputs:
M23: 24 - 48VDC

Power Consumption

- Device: Max. 11W (without PoE)
- PoE power budget (depends on power input): 120W Max.

PoE Power Output

- Port 1 to 8: IEEE802.3at, up to 30W/port

Protection

- Overload current protection

Mechanical

Casing

- Metal Case
- IP50

Dimensions

- 288mm (W) x 161.5mm (D) x 64mm (H)
(11.3" (W) x 6.4" (D) x 2.5" (H))

Weight

- 2.3Kg (5.07lbs)

Installation

- Wall mounting

Interface

Ethernet Port

- 10/100BASE-M12 D-Code 4-pin Female: 8 ports
- Gigabit-M12 A-Code 8-pin Female/LC: 2 ports

Console Port

- One M12 port

LED Indicators

- Per Unit: Power 1 (Green)
Power 2 (Green)
- Per Port: Link/Activity (Green)

Alarm Contact

- One relay M12 A-Code 4-Pin Female output with current
1A @ 250 VAC

Environment

Operating Temperature

- -40°C to 75°C (-40°F to 167°F)
Tested @ -40°C to 85°C (-40°F to 185°F)

Storage Temperature

- -45°C to 85°C (-49°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

EMI

FCC Part 15B, Class A

EN61000-6-4

EN55022

EN55011 (for EN50155)

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)
- EN61000-4-9 (Pulsed magnetic field)

Environmental Test Compliance

IEC61373 (Vibration) for EN50155

IEC61373 (Shock) for EN50155

IEC600680-2-32 Ed (Free fall)

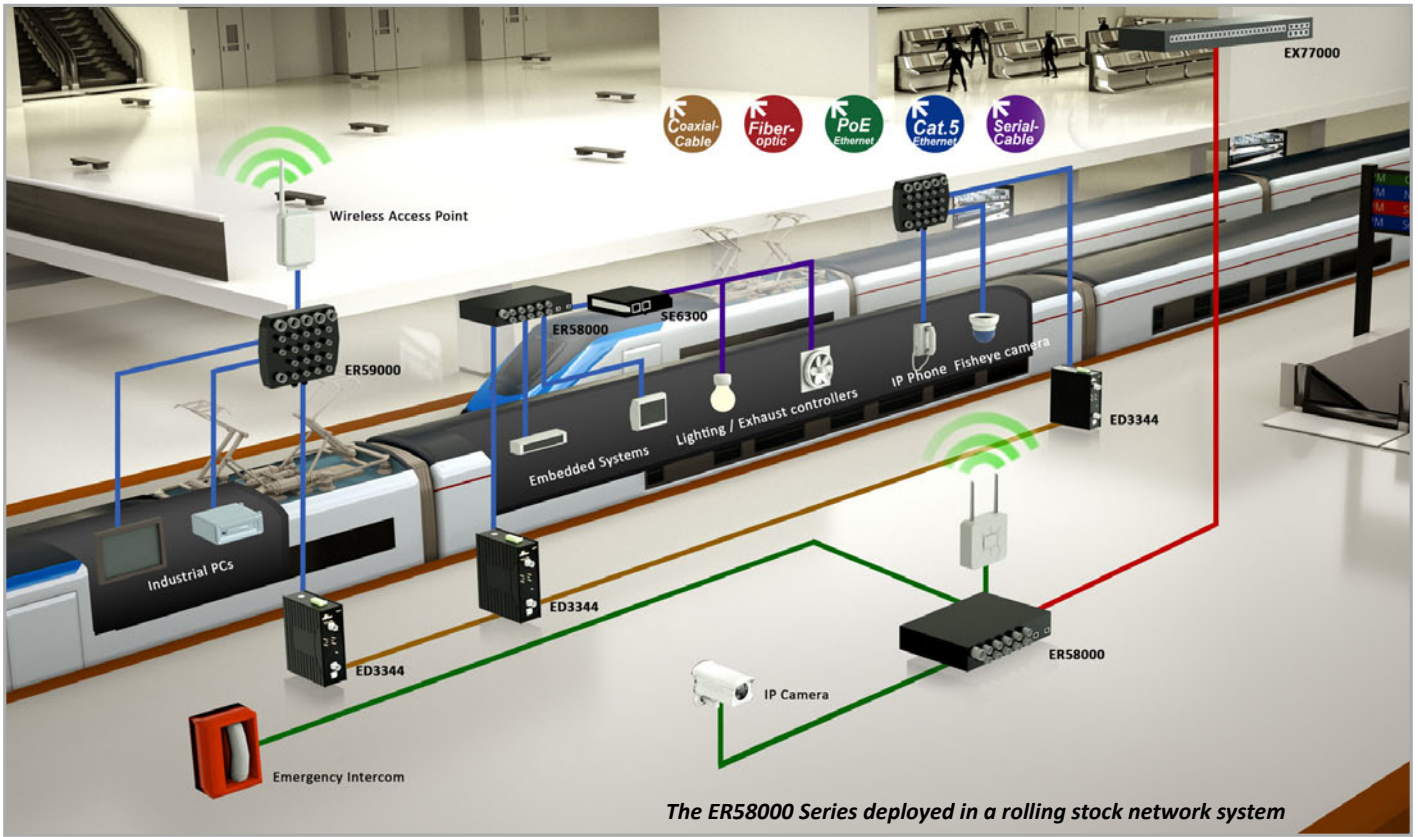
Industrial Compliance

EN50155

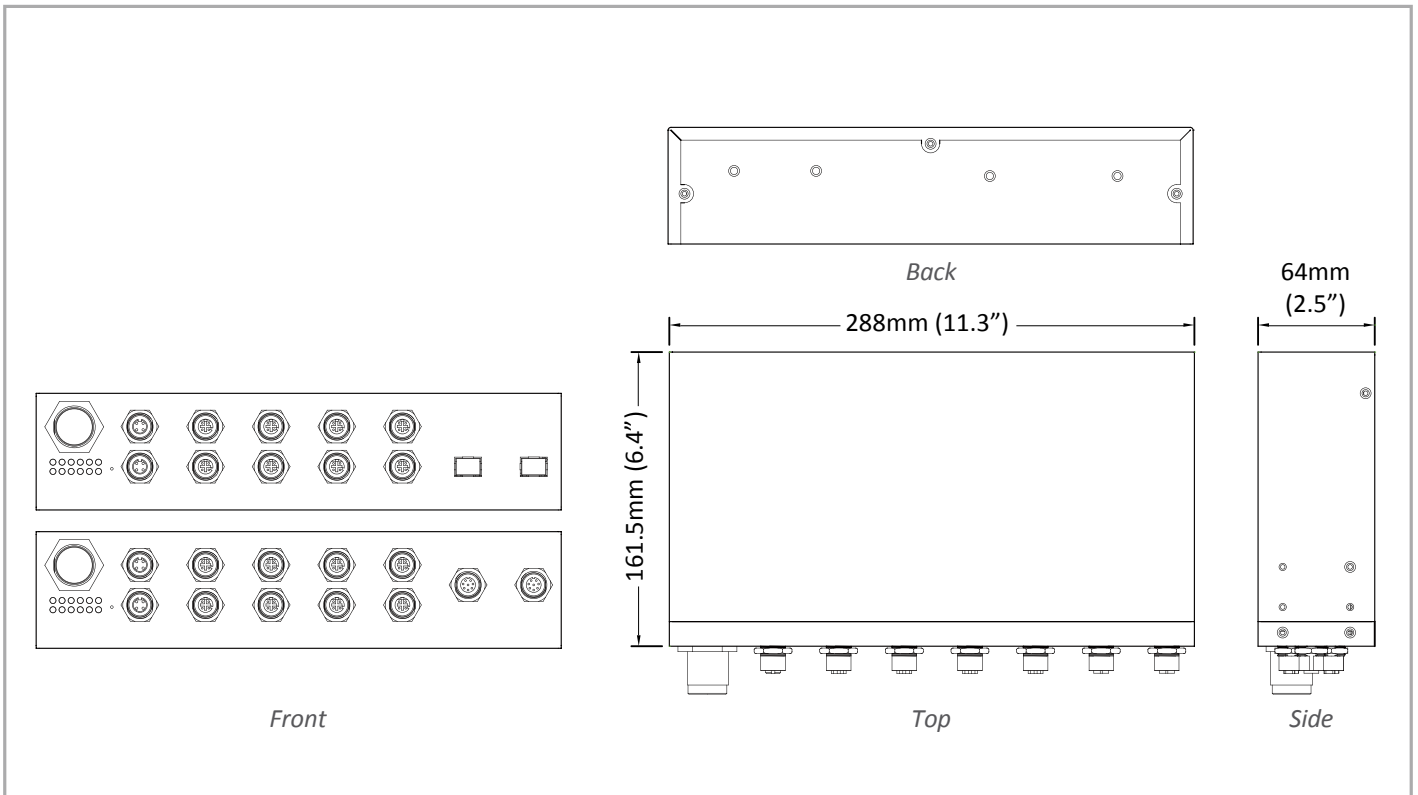
EN50121-3-2

EN50121-4

Application Diagram



Dimensions



Ordering Information

Model

ER58802-20YHT	8-port 10/100BASE-M12 PoE + 2-port Gigabit Hardened Managed Ethernet Switch
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* Panel mounting kit included

Gigabit Port Options (Y)

1	10/100/1000BASE-TX
E	1000BASE-SX (LC) - 550m
M	1000BASE-SX (LC) - 10Km
N	1000BASE-LX (LC) - 20Km

* More Gigabit options also available upon request

Optional Accessories

96G-S1N8A80WW		M23 Power Connector
96G-1618957XX		Power cable with 6-pin female M23 connector, 2-meter cable
ER58000-RJ454P		4-pin M12 D-code male to 10/100BASE-TX RJ45 interface, 3-meter cable
ER58000-RJ458P		8-pin M12 A-code male to 10/100/1000BASE-TX RJ45 interface, 3-meter cable

EX16900 Series

Unmanaged 5/8-port 10/100/1000BASE Ethernet Switch



Overview

EtherWAN's EX16900 Series is a compact Unmanaged Gigabit switching platform, designed for easy deployment in enterprise and small office/branch office environments

The EX16900 Series is equipped with five or eight Gigabit Ethernet ports, or a combination of Gigabit copper ports and one Gigabit fiber port for long distance connectivity. Although unmanaged, the EX16900 is feature rich with Jumbo Frame support, full wire speed Gigabit throughput, QoS support and eco-friendly IEEE802.3az EEE (Energy Efficient Ethernet) compliant, making the EX16900 Series a powerful yet energy efficient network switch.

EtherWAN — "When Connectivity is Crucial."

Spotlight

• Jumbo Frame Support

- Up to 9K bytes (EX16905/EX16914 Series)
- Up to 9720 bytes (EX16908/EX16917 Series)

• Fiber Connectivity

- Up to one 1000BASE-SX port with SC, ST and SFP options

• Compact Size

- Easy to place on the desktop with the dimensions of 160mm (W) x 80.5mm (D) x 28mm (H)

• High Reliability

- Fanless Design
- No moving parts

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u, 100BASE-TX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex flow control
- IEEE802.3az Energy Efficient Ethernet
- IEEE802.3p Quality of Service (QoS)

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory

- EX16905/EX16914: 1M bits
- EX16908/EX16917: 192 KB

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Jumbo Frame

- EX16905/EX16914: 9K
- EX16908/EX16917: 9720 bytes

Address Table Size

- EX16905/EX16914: 2048 MAC addresses
- EX16908/EX16917: 4K MAC addresses

Power

Input Voltage

- 5VDC

Power Consumption

- EX16905/EX16914: 3.5W Max.
- EX16908/EX16917: 4W Max.

Mechanical

Casing

- Metal Case

Dimensions

- 160mm (W) x 80.5mm (D) x 28mm (H)
(6.3" (W) x 3.17" (D) x 1.1" (H))

Weight

- 0.42Kg (0.92lb.)

Installation

- Wall or Desktop Mounting

Interface

Ethernet Port

- EX16905/EX16914:
10/100/1000BASE-T: 5 or 4 ports
1000BASE-SX/LX/SFP: 0 or 1 port
- EX16908/EX16917:
10/100/1000BASE-T: 8 or 7 ports
1000BASE-SX/LX/SFP: 0 or 1 port

LED Indicators

- Per Unit: Power (Green)
- Per Port: 10/100M (Green);
1000Mbps (Amber)

Environment

Operating Temperature

- 0°C to 45°C (32°F to 113°F)

Storage Temperature

- -10°C to 70°C (14°F to 158°F)

Ambient Relative Humidity

- 10% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

Safety

UL60950

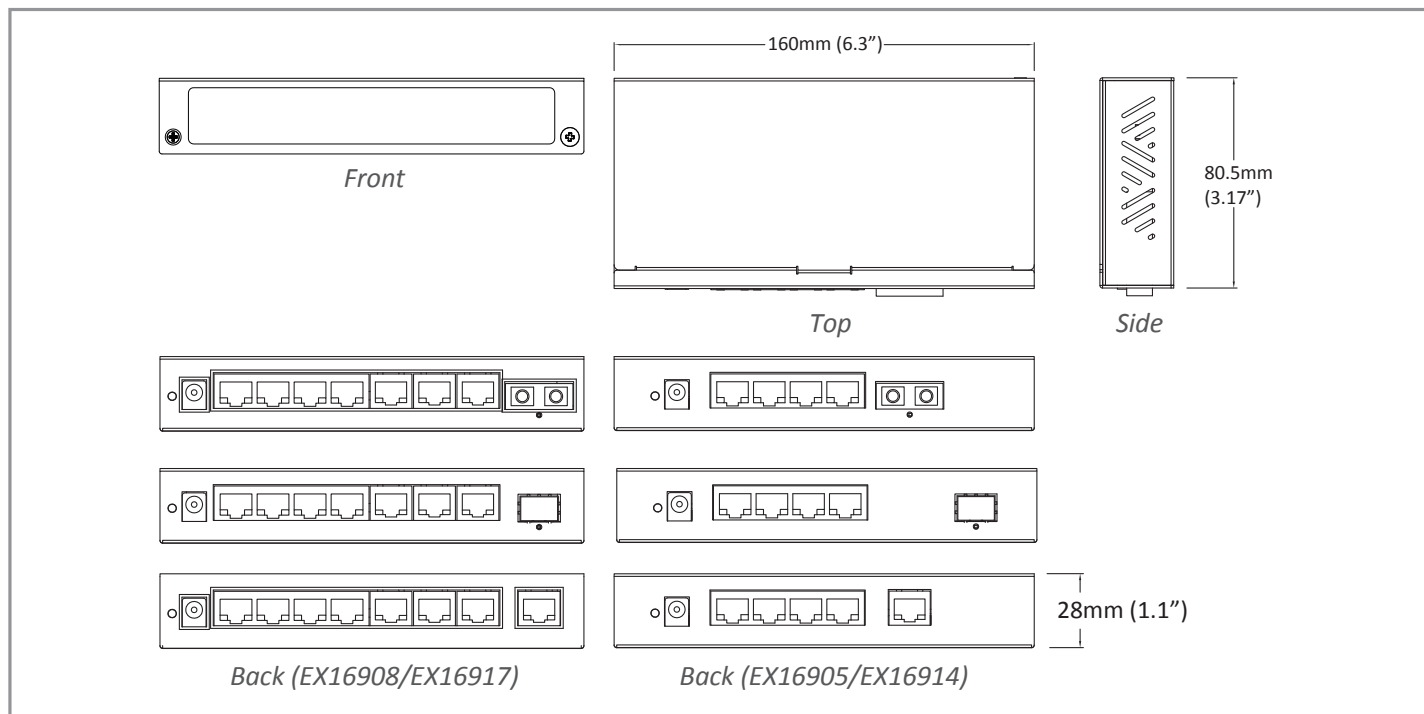
Emission Compliance

CE Mark Class A

FCC Part 15B ClassA,

VCCI Class A

Dimensions



Ordering Information

Model

EX16905	Unmanaged 5-port 10/100/1000BASE-TX Gigabit Ethernet Switch
EX16914-X	Unmanaged 4-port 10/100/1000BASE-TX + 1-port 1000BASE-X Gigabit Ethernet Switch
EX16908	Unmanaged 8-port 10/100/1000BASE-TX Gigabit Ethernet Switch
EX16917-X	Unmanaged 7-port 10/100/1000BASE-TX + 1-port 1000BASE-X Gigabit Ethernet Switch

1000FX Fiber Options(X)

3	1000BASE-SX(SC)-550m
5	1000BASE-SX(ST)-550m
V	1000BASE SFP

EX17008A

Unmanaged 8-port 10/100BASE-TX PoE Ethernet Switch



Overview

EtherWAN's EX17008A provides a 8-port switching platform supporting IEEE802.3af Power over Ethernet, high performance switching with features required for enterprise environments.

The EX17008A is equipped with 8 10/100BASE-TX PoE ports. The EX17008A is feature rich with full wire speed throughput, making the EX17008A Series a powerful network switch.

The IEEE802.3af PoE ports provide up to 15.4W/port with a total power budget of 123.2W, making the switch truly versatile for connecting with PoE Powered Devices (PD) with different bandwidth and power consumption requirements.

EtherWAN — "When Connectivity is Crucial."

Spotlight

- **Power over Ethernet**

- Supports 8-port IEEE802.3af Power over Ethernet (PoE) and Power Sourcing Equipment (PSE)

- **Easy to Install**

- Plug-and-play operation

Ordering Information

Model

EX17008A	Unmanaged 8-port 10/100BASE-TX PoE Ethernet Switch
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Optional Accessories

KR-BK17		Rack mounting kit (black)
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Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3x, Full duplex and flow control
- IEEE802.3af, Power over Ethernet

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory

- 512K bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 1024 MAC addresses

Power

Input

- 100 to 240VAC, 50/60Hz

Power Consumption

- Device: Max. 8.8W (without PoE)
- PoE power budget: 123.2W Max.

PoE Power Output

- IEEE802.3af: up to 15.4W/port, 47 - 55VDC, 350mA Max..

Mechanical

Casing

- Metal Case

Dimensions

- 266mm (W) x 160mm (D) x 44mm (H)
(10.47" (W) x 6.30" (D) x 1.73" (H))

Weight

- 1.4Kg (3.08lbs.)

Installation

- Desktop, Rack Mounting

Interface

Ethernet Port

- 10/100BASE-TX: 8 PoE ports

LED Indicators

- Per Unit: Power Status
- Per Port: Link/Activity, PoE Act/status

Environment

Operating Temperature

- 0°C to 45°C (32°F to 113°F)

Storage Temperature

- -10°C to 70°C (14°F to 158°F)

Ambient Relative Humidity

- 10% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

Emission Compliance

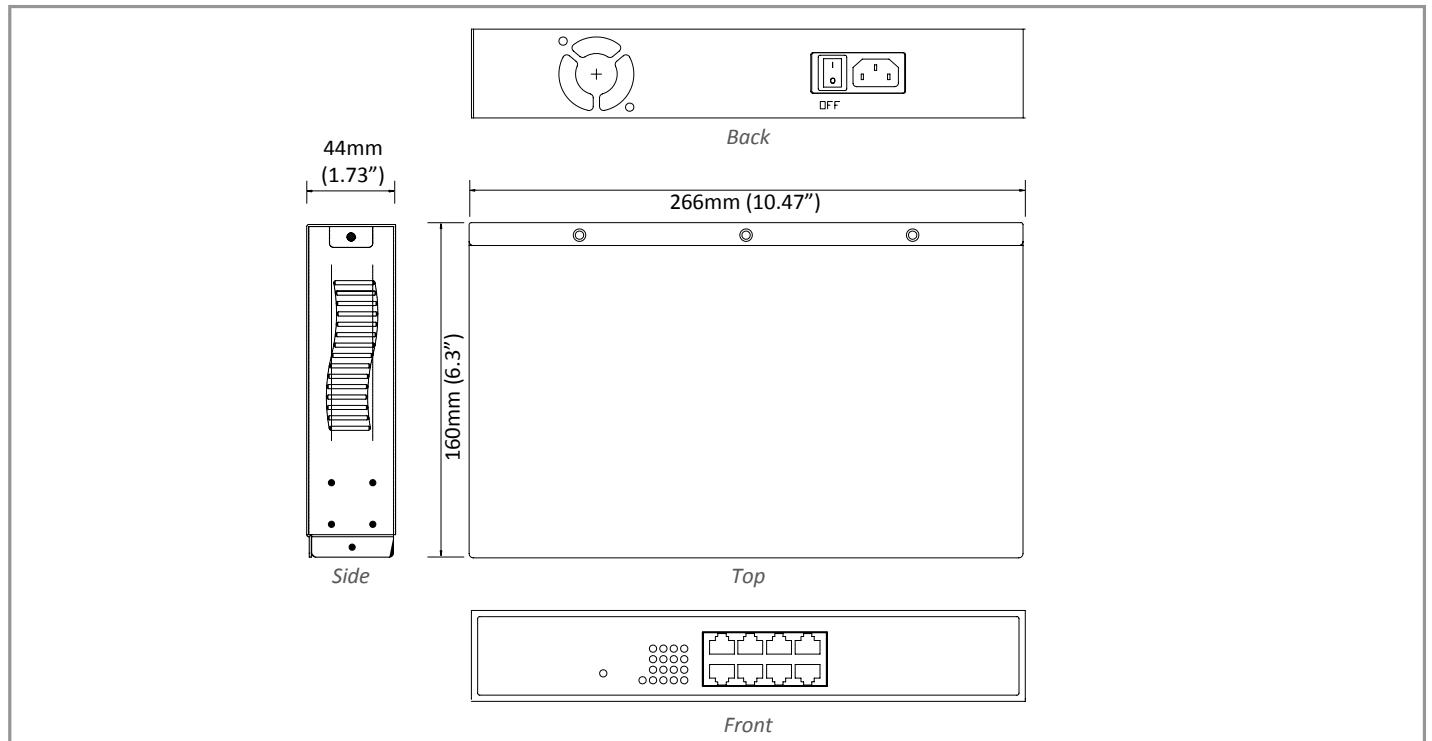
FCC Part 15, Class B

CE mark Class B

Safety

UL60950-1, EN60950-1, IEC60950-1

Dimensions



EX27000 Series

IEC61850-3/IEEE1613 Managed 24-port 10/100BASE and 4-port Gigabit Ethernet Switch with SFP options



Overview

EtherWAN's EX27000 Series provides an Industrial Fully Managed 28-port switching platform combining high performance switching backbone with robust and secure management features required for mission critical and industrial environments where sustained connectivity is crucial.

The EX27000 Series is equipped with twenty-four 10/100BASE Fast Ethernet ports, in combination with up to four Gigabit, Fixed Fiber, or SFP Combo port options. Mountable on a 1U rack, the EX27000 Series is equipped with EtherWAN's Alpha-Ring self-healing technology, providing less than 15ms fault recovery time making it ideal for applications intolerant to interruption.

Users are able to access management features such as; port security, IGMP snooping, VLANs, GARP protocols, LACP to name a few, via web browser, Telnet, SNMP, RMON, TFTP, and RS-232 console interfaces.

EtherWAN – "When Connectivity is Crucial."

Spotlight

- **Certified for applications in electric power substations and railway managements**
 - Compliant with IEC61850-3 & IEEE1613, and EN50121-4 standards
- **Redundant power inputs**
 - Supports AC Inlet and DC Terminal Block
- **SFP Options**
 - Supports a list of SFP modules, and the user can flexibly configure each port via SFP module management
- **Fan-less Metal Casing**
 - For easy maintenance with -10°C to 60°C wide operating temperature

Software Features

Management

- Interface
 - CLI, Telnet and Web Browser
 - SNMP v1/v2c/v3
- Firmware and configuration upgrade and backup via TFTP
- Supports DHCP Server/Client
- RMON (Remote monitoring): group 1, 2, 3, 9
- Port mirroring: TX/RX and both
- NTP (Network Time Protocol) time synchronization
- IEEE802.1ab LLDP (Link Layer Discovery Protocol)

Security

- MAC Address by port security
- Enable/disable port
- Storm control (broadcast and multicast types)
- IEEE802.1x LAN access control
- Remote authentication through RADIUS
- SSH for CLI and Telnet security
- SSL for web security
- ACL

Quality of Service (QoS)

- Priority Queues: 4 queues per port
- Traffic classification based on IEEE802.1p CoS, DSCP, WRR (Weighted round robin) and strict mode
- Rate Limiting (Ingress/Egress)

Layer 2 Features

- Auto-negotiation for port speed and duplex mode
- Flow Control
 - IEEE802.3x full duplex mode
 - Back-Pressure half duplex mode
- Redundant Protocol
 - IEEE802.1D Spanning Tree Protocol (STP)
 - IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
 - IEEE802.1s Multiple Spanning Tree Protocol (MSTP)
 - EtherWAN's Alpha-Ring network fault recovery (<15ms) and Alpha-Chain
- VLANs
 - Port-based VLANs
 - IEEE802.1Q Tag VLANs (128 groups, 4096 VID)
 - GVRP (GARP VLAN Registration Protocol)
 - GMRP (GARP Multicast Registration Protocol)
- Link Aggregation
 - Static Trunk (8 groups, support MAC base)
 - IEEE802.3ad Link Aggregation Control Protocol
- IGMP Snooping
 - IGMP snooping v1/v2/v3

Performance

- Switching Capability: 12.8Gbps
- Packet Buffer Size: 3Mbits
- MAC Address Table: 8192

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex and flow control
- IEEE802.1p QoS
- IEEE802.1Q Tag VLANs
- IEEE802.1w RSTP
- IEEE802.1x Port-based Network Access Control

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory

- 3M bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 8192 MAC addresses

Power

Input

- (T) : + / - 48VDC (36 - 75VDC) Internal Universal PSU
- (W) : 88 - 370VDC and 90 - 264VAC Internal Universal PSU
- (C) : 90 - 264VAC, 50 - 60Hz Internal Universal PSU

Power Consumption

- 42.7W Max.

Mechanical

Casing

- Metal Case
- IP30

Dimensions

- Single Power:
442mm (W) x 284mm (D) x 44.2mm (H)
(17.4" (W) x 11.1" (D) x 1.74" (H))
- Redundant Power:
442mm (W) x 360mm (D) x 44.2mm (H)
(17.4" (W) x 14.1" (D) x 1.74" (H))

Weight

- 6.2Kg (13.7lbs)

Installation

- Rack mounting

Interface

Ethernet Port

- 10/100BASE-TX: 24, 20, 16, 12, 8, 4 or 0 port
- 100BASE-FX: 0, 4, 8, 12, 16, 20 or 24 ports
- 100BASE-SFP:0 or 24 ports
- Gigabit: 0, 2 or 4 ports
- Gigabit-SFP Combo: 0 or 4 ports

Console Port

- Port: One DB9 RS-232 port LED Indicators
- Per Unit: Power Status
- Per port 10/100TX and 100FX: Link/Activity (Green)
- Per port 10/100/1000TX, 1000SX/LX: Link/Activity (Green)

LED Indicators

- Port Unit: Power
- Per Port: Link/Act (Green)

Environment

Operating Temperature

- -10°C to 60°C (14°F to 140°F)
Tested @ -20°C to 70°C (-4°F to 158°F)

Storage Temperature

- -40°C to 85°C (-40°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

EMI

FCC Part 15B, Class A

EN61000-6-4

EN55022

EN61000-3-2

EN61000-3-3

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)
- IEC61000-4-10 (Oscillatory wave magnetic field test)
- IEC61000-4-16 (Power frequency immunity test)
- IEC61000-4-18 (Oscillatory wave immunity test)

Environmental Test Compliance

IEC60068-2-6 Fc (Vibration)

IEC60068-2-27 Ea (Shock)

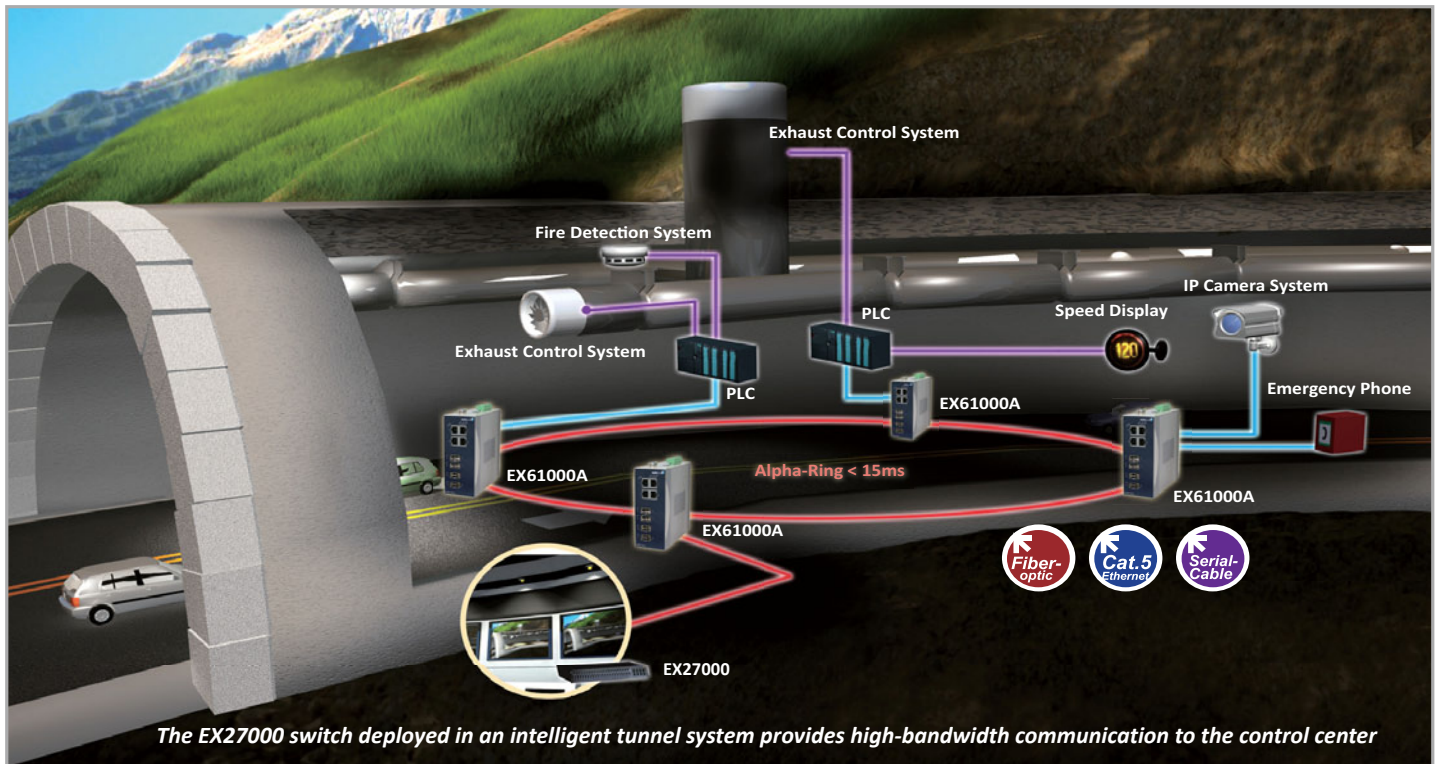
FED STD 101C Method 5007.1 (Free fall w/ package)

Industrial Compliance

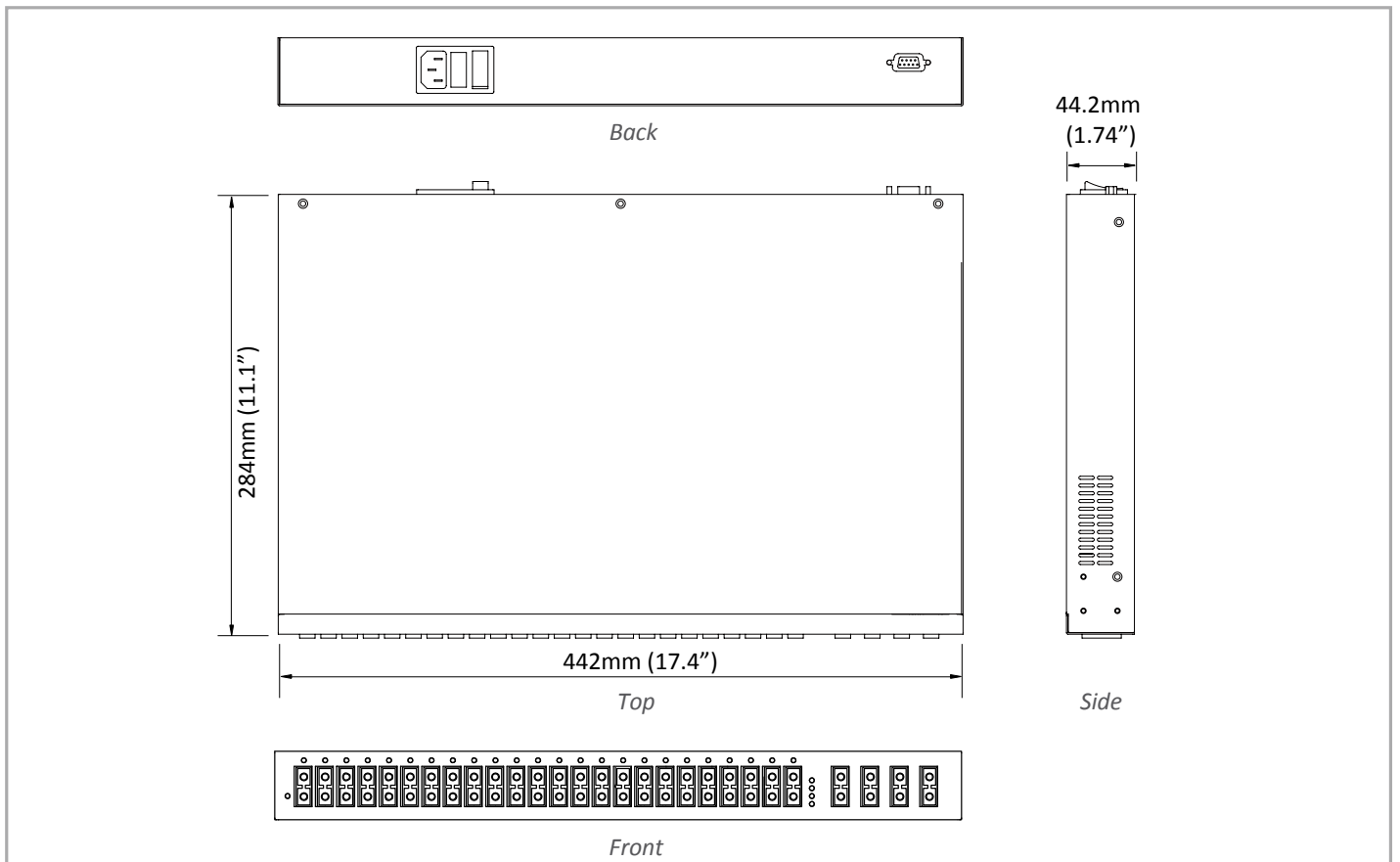
IEC61850-3 / IEEE1613

EN50121-4

Application Diagram



Dimensions



Ordering Information

Model

EX27604-0XYZ	24-port 10/100BASE-TX + 4-port Gigabit Managed Ethernet Switch
EX27424-WXYZ	16-port 10/100BASE-TX + 8-port 100BASE-FX + 4-port Gigabit Managed Ethernet Switch
EX27244-WXYZ	8-port 10/100BASE-TX + 16-port 100BASE-FX + 4-port Gigabit Managed Ethernet Switch
EX27064-WXYZ	24-port 100BASE-FX + 4-port Gigabit Managed Ethernet Switch
EX27064-V0VZ	24-port 100BASE-SFP + 4-port Gigabit SFP Combo Managed Ethernet Switch

* Rack mounting kit included

100FX Fiber Options (W)

1	Multi Mode (SC) - 2Km
2	Multi Mode (ST) - 2Km
6	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 2Km
7	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 2Km
8	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km
9	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km
A	Single Mode (SC) - 20Km
B	Single Mode (SC) - 40Km
F	Single Mode (FC) - 20Km
H	Single Mode (ST) - 20Km
P	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 20Km
Q	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 20Km
R	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 40Km
S	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 40Km

Number of Fixed Gigabit Fibers (X)

0	None
1	One Gigabit fiber port
2	Two Gigabit fiber ports
3	Three Gigabit fiber ports
4	Four Gigabit fiber ports

Gigabit Port Options (Y)

1	10/100/1000BASE-TX
3	1000BASE-SX(SC) - 550m
4	1000BASE-SX (SC) - 2Km
A	1000BASE-LX (SC) - 10Km
B	1000BASE-LX (SC) - 20Km
R	1000BASE-BX (SC) WDM-TX:1310nm/RX:1550nm - 20Km
S	1000BASE-BX (SC) WDM-TX:1550nm/RX:1310nm - 20Km
V	4-port 1000BASE SFP Combo with 10/100/1000BASE-TX

*More Gigabit options also available upon request.

Ordering Information - continued

Power Input Interface (Z)

T	± 48VDC (Terminal Block)
W	88 - 370VDC and 90 - 264VAC (Terminal Block)
C	90 - 264VAC (AC Inlet)
TR	± 48VDC Redundant (Terminal Block)
WR	88 - 370VDC and 90 - 264VAC Redundant (Terminal Block)
CR	90 - 264VAC Redundant (AC Inlet)

EX32900 Series

Industrial Unmanaged 5/8-port 10/100/1000BASE Gigabit Ethernet Switch



Overview

EtherWAN's EX32900 Series is a compact industrial Unmanaged Gigabit switching platform, designed for easy deployment in harsh environments.

The EX32900 Series is equipped with five or eight Gigabit Ethernet ports, or a combination of Gigabit copper ports and one Gigabit fiber port for long distance connectivity. Although unmanaged, the EX32900 is feature-rich with Jumbo Frame support, full wire speed Gigabit throughput, QoS support and eco-friendly IEEE802.3az EEE (Energy Efficient Ethernet) compliant, making the EX32900 Series a powerful yet energy efficient network switch.

EtherWAN—"When Connectivity is Crucial."

Spotlight

• Industrial Grade

- Supports -10°C to 60°C (14°F to 140°F) operating temperature
- Supports DIN-Rail mounting

• Jumbo Frame Support

- Up to 10K bytes (EX32905/EX32914 Series)
- Up to 9720 bytes (EX32908/EX32917 Series)

• Fiber Connectivity

- Up to one 1000BASE-SX port with SC and ST options

• High Reliability

- Fanless Design
- No moving parts

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x, Full duplex flow control
- IEEE802.3az Energy Efficient Ethernet
- IEEE802.1p Quality of Service (QoS)

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory

- EX31905/EX32914: 1M bits
- EX32908/EX32917: 192KB

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Jumbo Frame

- EX32905/EX32914: 10K bytes
- EX32908/EX32917: 9720 bytes

Address Table Size

- EX32905/EX32914: 8K MAC addresses
- EX32908/EX32917: 4K MAC addresses

Power

Input Voltage

- 12 to 48VDC

Power Consumption

- 6.5W Max. 0.25A @ 24VDC

Protection

- Reverse polarity protection

Mechanical

Casing

- Plastic case
- IP30

Dimensions

- EX32905/EX32914:
26mm (W) x 76.5mm (D) x 114mm (H)
(1.02" (W) x 3.06" (D) x 4.33" (H))
- EX32908/EX32917:
35mm (W) x 86mm (D) x 149mm (H)
(1.4" (W) x 3.44" (D) x 5.96" (H))

Weight

- EX32905/EX32914: 0.2Kg (0.44lb.)
- EX32908/EX32917: 0.3Kg (0.66lb.)

Installation

- DIN-Rail (Top hat type 35mm)

Interface

Ethernet Ports

- EX32905/EX32914:
10/100/1000BASE-T: 5 or 4 ports
1000BASE-X: 0 or 1 ports
- EX32908/EX32917:
10/100/1000BASE-T: 8 or 7 ports
1000BASE-X: 0 or 1 ports

LED Indicators

- EX32905/EX32914:
Per Unit: Power (Green)
Per Port: 10/100M(Green),
1000M (Yellow)
- EX32908/EX32917:
Per Unit: Power 1 (Green),
Power 2 (Green),
Alarm (Red)
Per Port: 10/100M(Green),
1000M (Yellow)

Alarm Contact (EX32908/EX32917 only)

- One relay output with current 1A@250VAC
- Supports normal close and normal open

Environment

Operating Temperature

- -10°C to 60°C (14°F to 140°F)
Tested @ -20°C to 70°C (-4°F to 158°F)

Storage Temperature

- -40°C to 85°C (-40°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

Safety

UL60950 (EX32905/EX32914 Series only)

EMI

FCC Part 15B, Class A

VCCI Class A

EN61000-6-4

EN55022 Class A

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

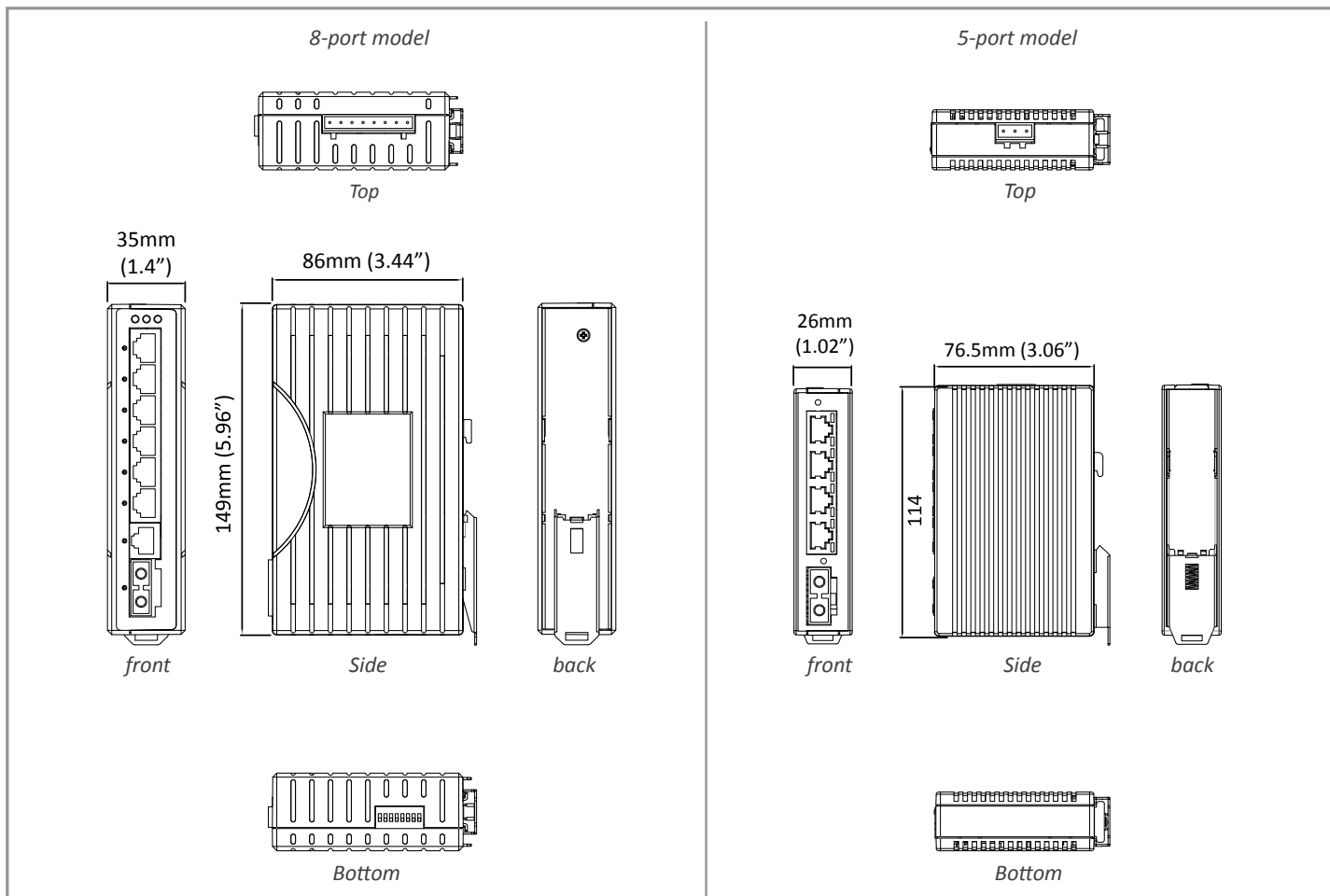
Environmental Test Compliances

IEC60068-2-6 Fc (Vibration)

IEC60068-2-27 Ea (Shock)

FED STD 101C Method 5007.1 (Free fall w/ package)

Dimensions



Ordering Information

Model

EX32905	Industrial Unmanaged 5-port 10/100/1000BASE-T Gigabit Ethernet Switch
EX32914-X	Industrial Unmanaged 4-port 10/100/1000BASE-T+ 1-port 1000BASE-X Gigabit Ethernet Switch
EX32908	Industrial Unmanaged 8-port 10/100/1000BASE-T Gigabit Ethernet Switch
EX32917-X	Industrial Unmanaged 7-port 10/100/1000BASE-T+ 1-port 1000BASE-X Gigabit Ethernet Switch

* DIN-Rail mounting kit included

Optical Port Options (X)

3	1000BASE-SX(SC)-550m
5	1000BASE-SX(ST)-550m
A	1000BASE-LX(SC)-10km
R	1000BASE-BX(SC) WDM-TX:1310nm/RX:1550nm-20Km
S	1000BASE-BX(SC) WDM-TX:1550nm/RX:1310nm-20Km

Optional Accessories

DR-30-24	30W/1.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-60-24	60W/2.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-75-24	75W/3.2A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-120-24	120W/5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
41-136046-X	36W/3A 12VDC hardened power adapter with open wire in aluminum housing (for Terminal Block) (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA

EX34000 Series

Industrial Unmanaged 8-port 10/100BASE PoE (4 x PoE)
Ethernet Switch



Overview

EtherWAN's EX34000 Series provides an industrial 8-port switching platform supporting IEEE802.3af Power over Ethernet, high performance switching with robust features required for mission-critical and harsh environments where sustained connectivity is crucial.

The EX34000 Series is equipped with 4 10/100BASE-TX PoE ports, in combination with two 100FX Fiber options.

The IEEE802.3af PoE ports provide up to 15.4W/port with a total power budget of 61.6W, making the switch truly versatile for connecting with PoE Powered Devices (PD) with different bandwidth and power consumption requirements.

EtherWAN—"When Connectivity is Crucial."

Spotlight

- **Industrial Grade**
 - Supports -10°C to 60°C (14°F to 140°F) operating temperature
- **PoE Connectivity**
 - Port 1 to 4 supports IEEE802.3af Power over Ethernet
- **Fiber Connectivity**
 - Up to two 100BASE-FX ports with SC and ST options

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3af Power over Ethernet
- IEEE802.3x Full duplex and flow control

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory

- 1M bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 1024 MAC addresses

Power

Input

- Redundant power inputs:
Terminal Block: 47 - 55VDC
DC Jack: 47 - 55VDC

Power Consumption

- Device: Max. 10W (without PoE)
- PoE power budget (depends on power input): 61.6W Max.

PoE Power Output

- Port 1 to 4
- IEEE802.3af: up to 15.4W/port, 47 - 55VDC, 350mA Max.

Protection

- Reverse polarity protection

Mechanical

Casing

- Aluminum case
- IP30

Dimensions

- 62mm (W) x 110mm (D) x 135mm (H)
(2.44" (W) x 4.33" (D) x 5.31" (H))

Weight

- 1Kg (2.2lbs.)

Installation

- DIN-Rail (Top hat type 35mm), Panel, or Rack mounting

Interface

Ethernet Ports

- 10/100BASE-TX: 8, 7 or 6 ports
- 100BASE-FX: 0, 1 or 2 ports

LED Indicators

- Per Unit: Power 1 (Green),
Power 2 (Green),
Power 3 (Green)
- Per Port: Link/Activity (Green)

Alarm Contact

- One relay output with current 1A @ 24VDC

Environment

Operating Temperature

- -10°C to 60°C (14°F to 140°F)
Tested @ -20°C to 70°C (-4°F to 158°F)

Storage Temperature

- -40°C to 85°C (-40°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

EMI

FCC Part 15B, Class A

VCCI, Class A

EN61000-6-4

EN55022 Class A

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

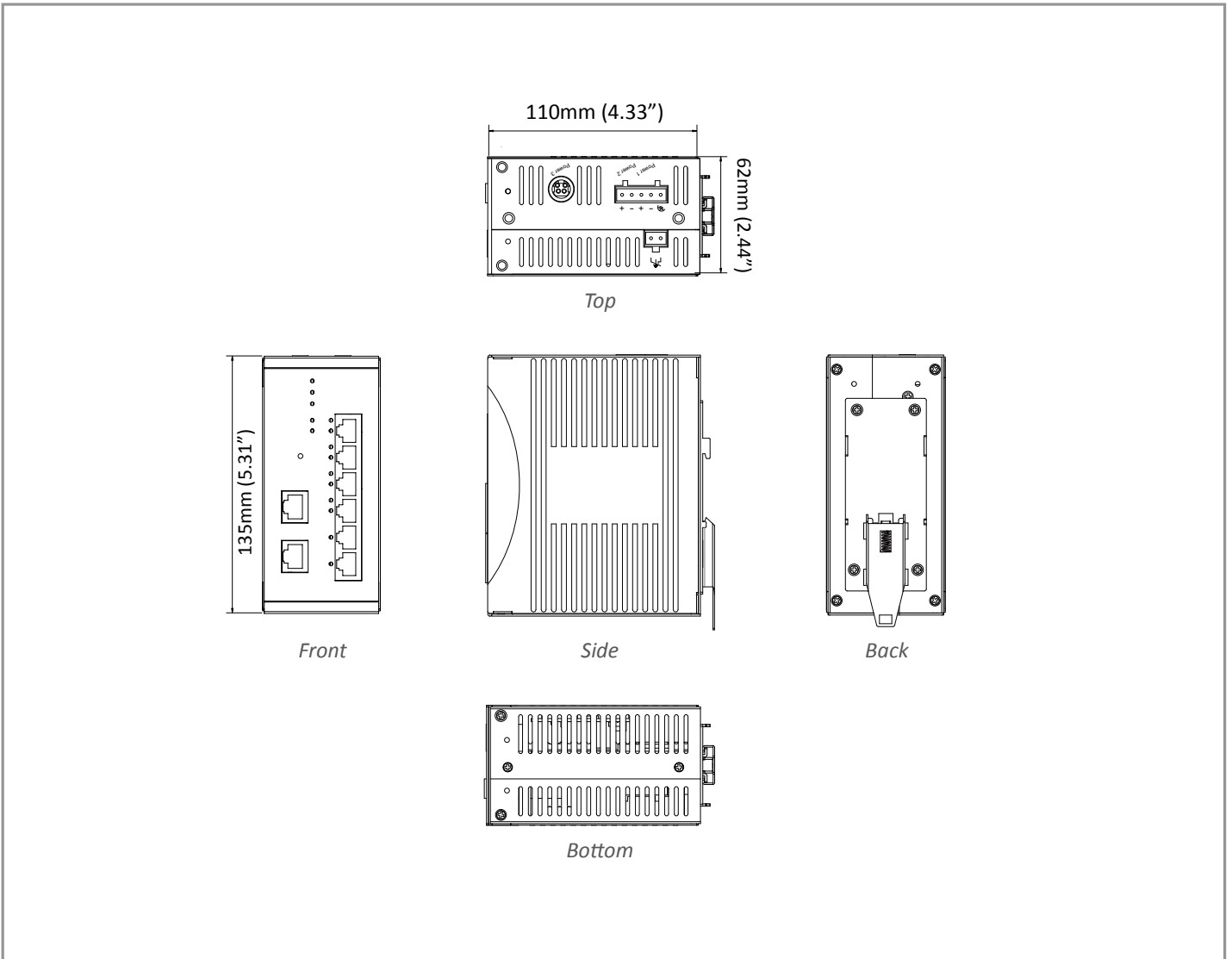
Environmental Test Compliances

IEC60068-2-6 Fc (Vibration)

IEC60068-2-27 Ea (Shock)

FED STD 101C Method 5007.1 (Free fall w/ package)

Dimensions



Ordering Information

Model

EX34080-00B	Industrial Unmanaged 8-port 10/100BASE-TX PoE Ethernet Switch
EX34071-X0B	Industrial Unmanaged 7-port 10/100BASE-TX + 1-port 100BASE-FX PoE Ethernet Switch
EX34062-X0B	Industrial Unmanaged 6-port 10/100BASE-TX + 2-port 100BASE-FX PoE Ethernet Switch

* DIN-Rail mounting kit included

Ordering Information - continued

100FX Fiber Options (X)

1	Multi Mode (SC) - 2Km
2	Multi Mode (ST) - 2Km
6	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 2Km
7	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 2Km
8	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km
9	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km
A	Single Mode (SC) - 20Km
B	Single Mode (SC) - 40Km
H	Single Mode (ST) - 20Km
P	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 20Km
Q	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 20Km
R	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 40Km
S	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 40Km

**More 100FX Fiber options also available upon request.*

Optional Accessories

KP-AA96-480	Panel Mounting Kit
KR-BK-43-400	Rack Mounting Kit
GS120A-48	120W/2.5A 48VDC Power Adapter with Latched DC Jack in Plastic Housing (for DC Jack)
DR-120-48	120W/2.5A DIN-Rail 48VDC Industrial Power Supply (for Terminal Block)

EX42000 Series

Industrial Unmanaged 5-port 10/100BASE Ethernet Switch



Overview

EtherWAN's EX42000 Series is a compact Industrial Unmanaged Fast Ethernet switching platform, designed for easy deployment in harsh environments.

The EX42000 Series is equipped with 5 Fast Ethernet copper ports, or a combination of 4 Fast Ethernet copper ports and 1 Fast Ethernet fiber port for long distance connectivity. This versatile switch features 10/100Mbps transfer speeds, full/half-duplex auto-negotiation and auto MDI/MDIX operation allowing you to connect your network devices without hassles.

Although unmanaged, the EX42000 is feature-rich with full wire speed Fast Ethernet throughput, QoS (Quality of Service), and IEEE802.3az EEE (Energy Efficient Ethernet). The EX42000 can be DIN rail mounted and features a compact casing that can be an ideal solution for factory floors, warehouses, and outdoor locations without temperature control.

EtherWAN – “When Connectivity is Crucial.”

Spotlight

• Industrial Grade

- Supports -10°C to 60°C (14°F to 140°F) operating temperature
- Supports DIN-Rail mounting

• Fiber Connectivity

- Up to one 100BASE-FX port with SC and ST options

Hardware Specifications

Technology

Standards

- IEEE802.3u 100BASE-TX/FX
- IEEE802.3x full-duplex flow control
- IEEE802.3az Energy Efficient Ethernet
- IEEE802.1p Quality of Service (QoS)

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory

- 448K bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 1K MAC addresses

Power

Input Voltage

- Terminal block: 12 to 48VDC

Power Consumption

- 2.12W Max. 0.17A @ 12VDC, 0.08A @ 24VDC, 0.04A @ 48VDC

Protection

- Reverse polarity protection

Mechanical

Casing

- Plastic case
- IP30

Dimensions

- 26mm (W) x 70mm (D) x 110mm (H)
(1.02" (W) x 2.76" (D) x 4.33" (H))

Weight

- 0.2Kg (0.44lbs.)

Installation

- DIN-Rail (Top hat type 35mm)

Interface

Ethernet Ports

- 10/100BASE-TX: 5 or 4 ports
- 100BASE-FX: 0 or 1 port

LED Indicators

- Per Unit: Power (Green)
- Per Port: Link/Activity (Green), Speed (Yellow)

Environment

Operating Temperature

- -10°C to 60°C (14°F to 140°F)
Tested @ -20°C to 70°C (-4°F to 158°F)

Storage Temperature

- -40°C to 85°C (-40°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

Safety

UL60950

EMI

FCC Part 15B, Class A

VCCI Class A

EN61000-6-4

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

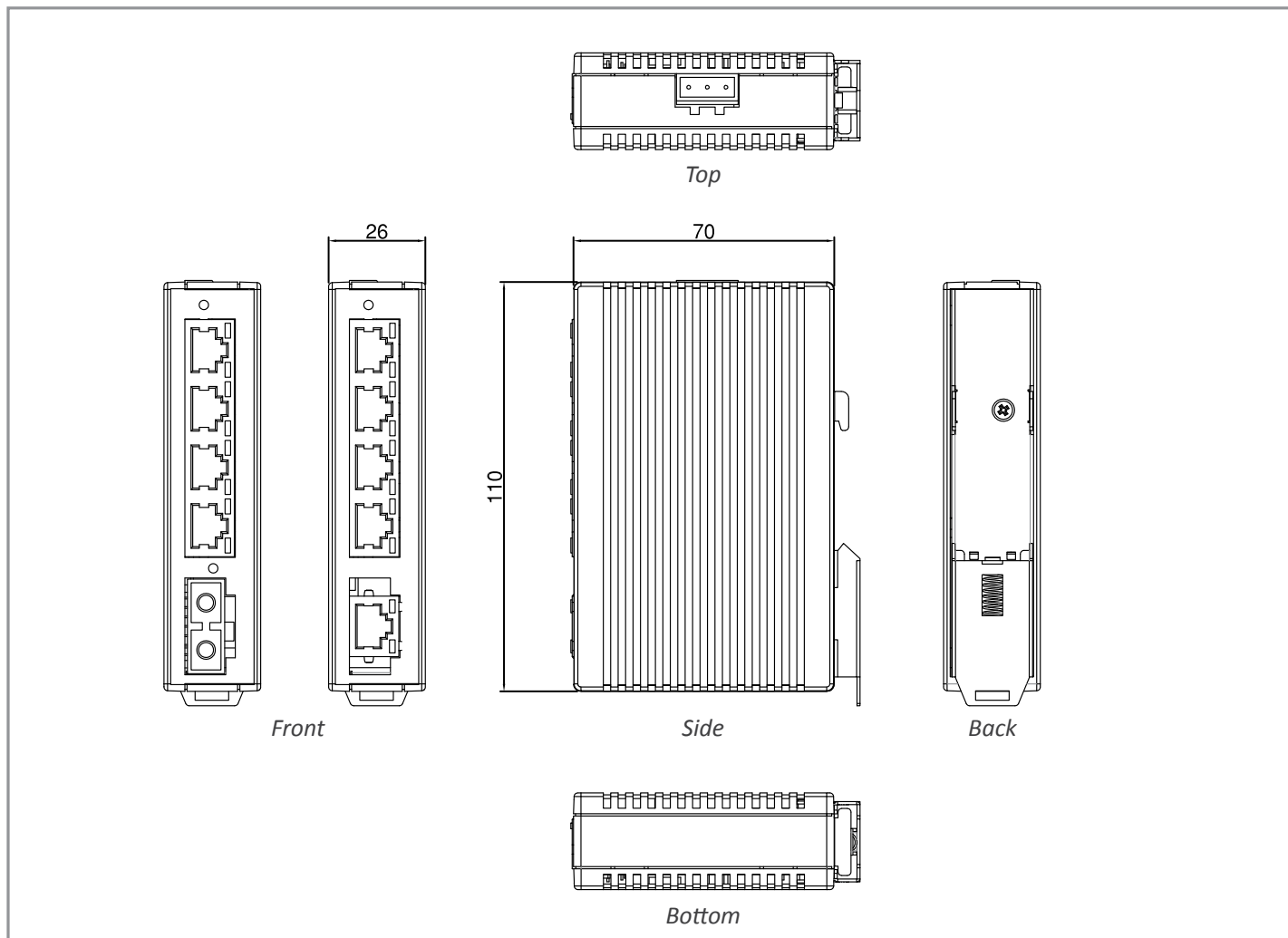
Environmental Test Compliances

IEC60068-2-6 Fc (Vibration)

IEC60068-2-27 Ea (Shock)

FED STD 101C Method 5007.1 (Free fall w/ package)

Dimensions



Ordering Information

Model

EX42005-00-1-A	Industrial Unmanaged 5-port 10/100BASE-TX Ethernet Switch
EX42014-XY-1-A	Industrial Unmanaged 4-port 10/100BASE-TX + 1-port 100BASE-FX Ethernet Switch

* DIN-Rail mounting kit included

100FX Fiber Options (XY)

1A	Multi Mode (SC) - 2Km
1B	Multi Mode (ST) - 2Km
2A	Single Mode (SC) - 20Km
2D	Single Mode (ST) - 20Km
2E	Single Mode (SC) WDM-TX: 1310nm/RX:1550nm - 20Km
2G	Single Mode (SC) WDM-TX: 1550nm/RX:1310nm - 20Km

* More 100FX fiber options also available upon request

Ordering Information - continued

Optional Accessories

DR-30-24	30W/1.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-60-24	60W/2.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-75-24	75W/3.2A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-120-24	120W/5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
41-136046-X	36W/3A 12VDC hardened power adapter with open wire in aluminum housing (for Terminal Block) (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA

EX43000 Series

Industrial Unmanaged 8-port 10/100BASE Ethernet Switch



Overview

EtherWAN's EX43000 Series is an industrial unmanaged Fast Ethernet switching platform, designed for easy deployment in industrial environments.

The EX43000 Series is equipped with eight Fast Ethernet ports, or a combination of Fast Ethernet copper ports and two 100FX ports for long distance connectivity. This versatile switch features 10/100Mbps transfer speeds, full/half-duplex auto-negotiation and auto MDI/MDIX operation allowing you to connect your network devices without hassles.

The EX43000 is feature-rich with full wire speed Fast Ethernet throughput, QoS (Quality of Service), IEEE802.3az EEE (Energy Efficient Ethernet) and Broadcast storm protection. The EX43000 Series is built with relay alarm to notify users when power fails or link down occurs. It also supports Broadcast storm protection by enabling the DIP switch. The EX43000 Series is housed with a DIN rail mountable metal compact case which is an ideal solution for network applications in harsh environments.

EtherWAN – "When Connectivity is Crucial."

Spotlight

• Industrial Grade

- Supports -20°C to 60°C (-4°F to 140°F) operating temperature

• Port Failure Alarm and Broadcast Storm Protection

- Provide relay alarm to notify users when power fails or link down occurs by DIP switch
- Selectable DIP switch to set a threshold level to prevent from performance degradation or network choking

• Fiber Connectivity

- Up to two 100BASE-FX ports with SC, ST, WDM and SFP options

• Energy Efficient Ethernet (EEE)

- Supports IEEE802.3az standard

• High Reliability

- Fanless design
- No moving parts

Hardware Specifications

Technology

Standards

- IEEE802.3u 100BASE-TX/FX
- IEEE802.3x full-duplex flow control
- IEEE802.3az Energy Efficient Ethernet
- IEEE802.1p Quality of Service (QoS)

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory

- 448K bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 1K MAC addresses

Power

Input Voltage

- 12 to 48VDC (Terminal Block)

Power Consumption

- 2.47W@24VDC

Protection

- Reverse polarity protection

Mechanical

Casing

- Aluminum case
- IP30

Dimensions

43.6mm (W) x 110mm (D) x 135mm (H)
(1.74" (W) x 4.33" (D) x 5.31" (H))

Weight

- 0.51Kg (1.12lbs)

Installation

- DIN-Rail (Top hat type 35mm) or Panel mounting

Interface

Ethernet Ports

- 10/100BASE-TX: 8 or 6 ports
- 100BASE-FX: 0 or 2 ports

LED Indicators

- Per Unit: Power 1 (Green),
Power 2 (Green)
- Per Port: Link/Activity (Green)

Alarm Contact

- One relay output with current 1A @ 250VAC
- Supports normal close and normal open

Environment

Operating Temperature

- -20°C to 60°C (-4°F to 140°F)
Tested @ -30°C to 70°C (-22°F to 158°F)

Storage Temperature

- -40°C to 85°C (-40°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

Safety

UL60950-1 (Pending)

EMI

FCC Part 15B, Class A

VCCI Class A

EN61000-6-4

EN55022 Class A

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

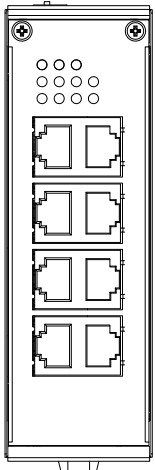
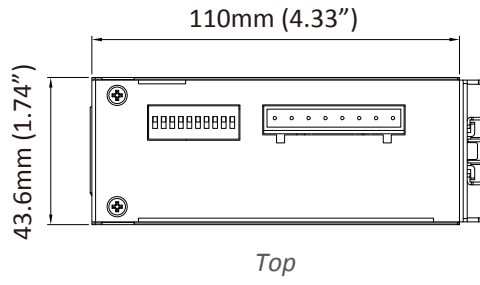
Environmental Test Compliances

IEC60068-2-6 Fc (Vibration)

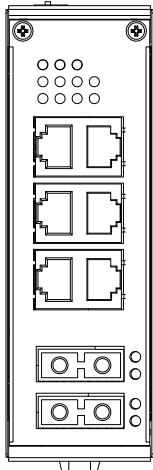
IEC60068-2-27 Ea (Shock)

FED STD 101C Method 5007.1 (Free fall w/ package)

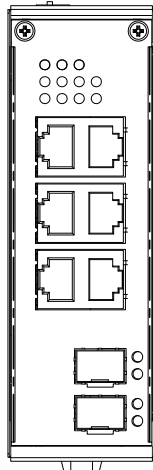
Dimensions



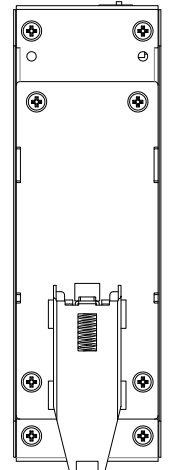
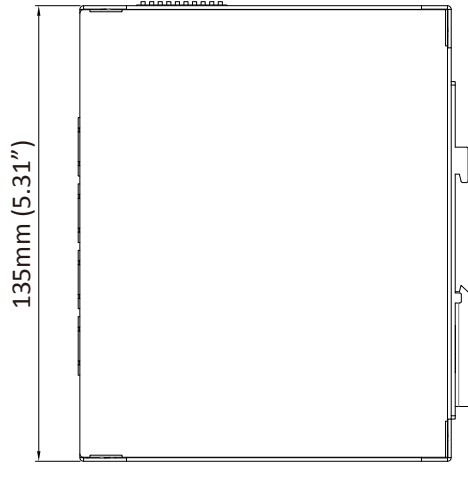
Front
EX43008



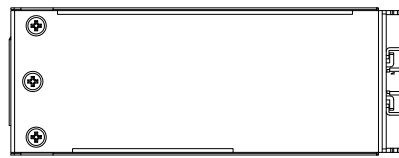
Front
EX43026



Front
EX43026



Back



Bottom

Ordering Information

Model

EX43008-00-1-AA	Industrial Unmanaged 8-port 10/100BASE-TX Ethernet Switch
EX43026-XY-1-AA	Industrial Unmanaged 6-port 10/100BASE-TX + 2-port 100BASE-FX Ethernet Switch

* DIN-Rail mounting kit included

100FX Fiber Options (XY)

1A	Multi Mode (SC) - 2Km
1B	Multi Mode (ST) - 2Km
2A	Single Mode (SC) - 20Km
2D	Single Mode (ST) - 20Km
2E	Single Mode (SC) WDM -TX:1310nm/RX:1550nm - 20Km
2G	Single Mode (SC) WDM -TX:1550nm/RX:1310nm - 20Km
V	100BASE SFP

* More 100FX Fiber options also available upon request.

Optional Accessories

KP-AA96-480	Panel Mounting Kit
KR-BKEL900	Rack Mounting Kit
DR-30-24	30W/1.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-60-24	60W/2.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-75-24	75W/3.2A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)

EX45000 Series

Hardened Unmanaged 8-port 10/100BASE PoE (4 x PoE)
Ethernet Switch



Overview

EtherWAN's EX45000 Series provides a hardened 8-port switching platform supporting IEEE802.3af Power over Ethernet, high performance switching with robust features required for mission-critical and harsh environments where sustained connectivity is crucial.

The EX45000 Series is equipped with 4 10/100BASE-TX PoE ports, in combination with two 100FX Fiber options.

The IEEE802.3af PoE ports provide up to 15.4W/port with a total power budget of 61.6W, making the switch truly versatile for connecting with PoE Powered Devices (PD) with different bandwidth and power consumption requirements.

The EX45000 Series is designed to operate at -40°C to 75°C in harsh environments, where high ESD, shock, and vibration may be present.

EtherWAN — "When Connectivity is Crucial."

Spotlight

• Hardened Grade

- Supports -40°C to 75°C (-40°F to 167°F) operating temperature

• PoE Connectivity

- Port 1 to 4 supports IEEE802.3af Power over Ethernet

• Fiber Connectivity

- Up to two 100BASE-FX ports with SC and ST options

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3x Full duplex and flow control
- IEEE802.3af Power over Ethernet

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory

- 1M bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 1024 MAC addresses

Power

Input

- Redundant power inputs:
Terminal Block: 47 - 55VDC
DC Jack: 47 - 55VDC

Power Consumption

- Device: Max. 10W (without PoE)
- PoE power budget (depends on power input):
61.6W Max.

PoE Power Output

- Port 1 to 4
- IEEE802.3af: up to 15.4W/port, 47 - 55VDC, 350mA Max.

Protection

- Reverse polarity protection

Mechanical

Casing

- Aluminum case
- IP30

Dimensions

- 68mm (W) x 110mm (D) x 135mm (H)
(2.68" (W) x 4.33" (D) x 5.31" (H))

Weight

- 1Kg (2.2lbs.)

Installation

- DIN-Rail (Top hat type 35mm), Panel, or Rack mounting

Interface

Ethernet Ports

- 10/100BASE-TX: 8, 7 or 6 ports
- 100BASE-FX: 0, 1 or 2 ports

LED Indicators

- Per Unit: Power 1 (Green)
Power 2 (Green)
Power 3 (Green)
- Per Port: Link/Activity (Green)

Alarm Contact

- One relay output with current 1A @ 24VDC

Environment

Operating Temperature

- -40°C to 75°C (-40°F to 167°F)
Tested @ -40°C to 85°C (-40°F to 185°F)

Storage Temperature

- -40°C to 85°C (-40°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

EMI

FCC Part 15B, Class A

VCCI Class A

EN61000-6-4

EN55022 Class A

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

Environmental Test Compliances

IEC60068-2-6 Fc (Vibration)

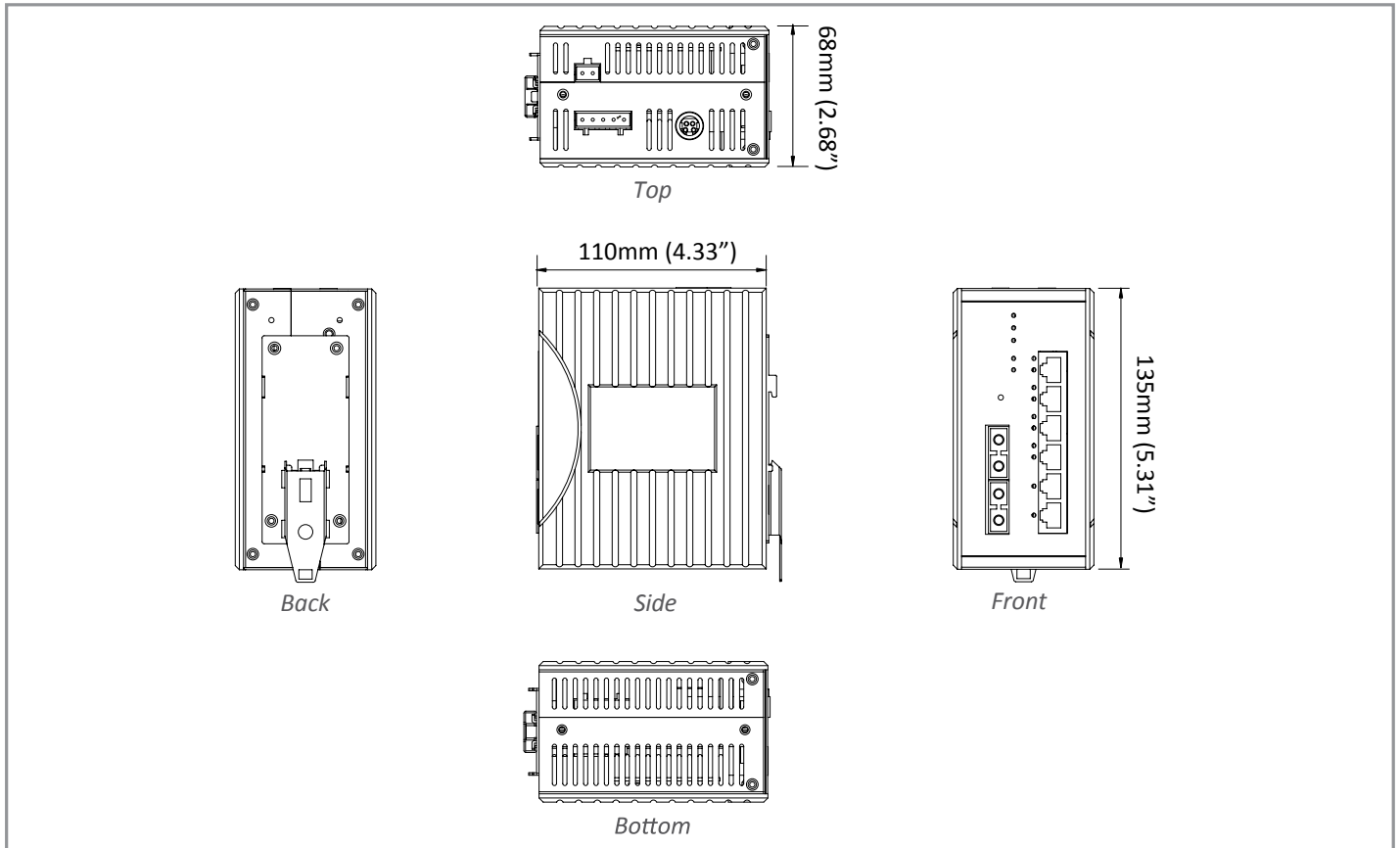
IEC60068-2-27 Ea (Shock)

FED STD 101C Method 5007.1 (Free fall w/ package)

Industrial Compliances

NEMA TS2

Dimensions



Ordering Information

Model

EX45080-00B	8-port 10/100BASE-TX Hardened Unmanaged PoE Ethernet Switch
EX45071-X0B	7-port 10/100BASE-TX + 1-port 100BASE-FX Hardened Unmanaged PoE Ethernet Switch
EX45062-X0B	6-port 10/100BASE-TX + 2-port 100BASE-FX Hardened Unmanaged PoE Ethernet Switch

* DIN-Rail mounting kit included

100FX Fiber Options (X)

1	Multi Mode (SC) - 2Km
2	Multi Mode (ST) - 2Km
6	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 2Km
7	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 2Km
8	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km
9	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km
A	Single Mode (SC) - 20Km
B	Single Mode (SC) - 40Km
H	Single Mode (ST) - 20Km
P	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 20Km
Q	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 20Km
R	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 40Km
S	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 40Km

*More 100FX Fiber options also available upon request.

EX45900 Series

Hardened Unmanaged 5-port 10/100/1000BASE (4 x PoE)
+ 1-port 1000BASE-X Gigabit Ethernet Switch



Overview

EtherWAN's EX45900 Series provides a hardened 5-port switching platform supporting IEEE802.3at Power over Ethernet, high performance switching with robust features required for mission-critical and harsh environments where sustained connectivity is crucial.

The EX45900 Series is equipped with 4 10/100/1000BASE-TX PoE ports, in combination with one Gigabit Fiber option. The EX45900 is feature rich with 10K Jumbo Frame support, full wire speed Gigabit throughput, QoS support and eco-friendly IEEE802.3az EEE (Energy Efficient Ethernet) compliant, making the EX45900 Series a powerful yet energy efficient network switch.

The IEEE802.3at PoE ports provide up to 30W/port with a total power budget of 120W, making the switch truly versatile for connecting with PoE Powered Devices (PD) with different bandwidth and power consumption requirements such as; outdoor PTZ dome cameras, wireless access points, and way-side communication devices.

EtherWAN – "When Connectivity is Crucial."

Spotlight

• Power over Ethernet

- Port 1-4 are PoE ports that provide power up to 30W

• Energy Efficient Ethernet (EEE)

- Supports IEEE802.3az standard

• Fiber Connectivity

- Up to one 1000BASE-SX ports with SC, ST and SFP options

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex flow control
- IEEE802.3az Energy Efficient Ethernet
- IEEE802.1p Quality of Service(QoS)
- IEEE802.3af/at Power over Ethernet (PoE)

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory

- 1M bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Jumbo Frame

- 10K bytes

Address Table Size

- 8192 MAC addresses

Power

Input Voltage

- 24/48VDC

Power Consumption

- Device: Max. 7W (without PoE)
- PoE Power budget: 120W

Protection

- Reverse polarity protection

Mechanical

Casing

- Metal case
- IP30

Dimensions

- 30mm (W) x 100mm (D) x 149mm (H)
(1.18" (W) x 4" (D) x 5.96" (H))

Weight

- 0.34Kg (0.75lb.)

Installation

- DIN-Rail

Interface

Ethernet Ports

- 10/100/1000BASE-T: 5 ports
- 1000BASE-X: 0 or 1 ports

LED Indicators

- Per Unit: Power 1 (Green)
Power 2 (Green)
Alarm (Red)
- Per Port: 10/100M (Green)
1000M (Amber)
- Per PoE Port: PoE status (Amber)

Alarm Contact

- One relay output with current 1A@250VAC
- Supports normal open

Environment

Operating Temperature

- -40°C to 75°C (-40°F to 167°F);
Tested @ -40°C to 85°C (-40°F to 185°F)

Storage Temperature

- -40°C to 85°C (-40°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

Safety

UL60950

EMI

FCC Part 15B, Class A

VCCI Class A

EN61000-6-4

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

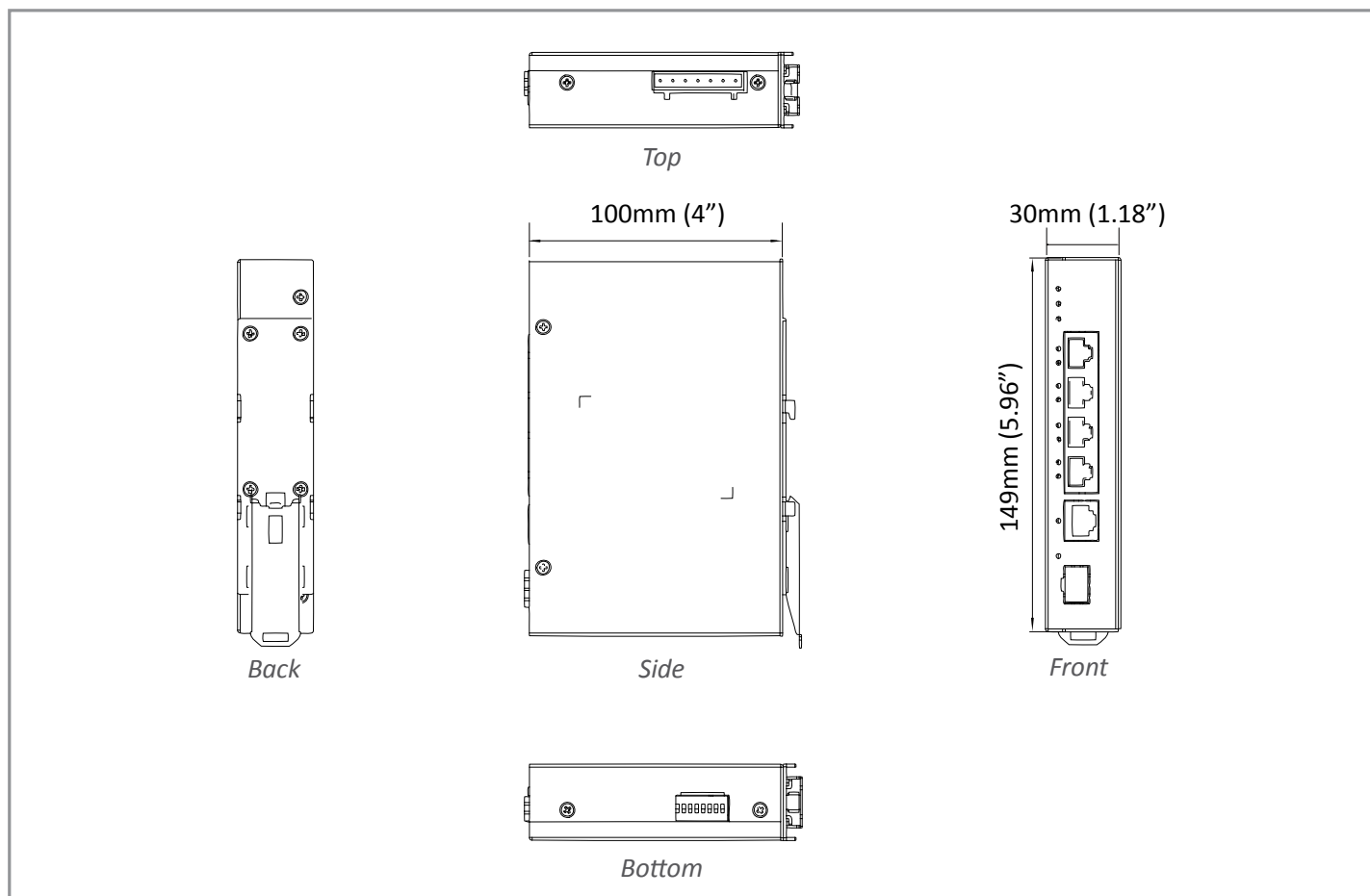
Environmental Test Compliances

IEC60068-2-6 Fc (Vibration)

IEC60068-2-27 Ea (Shock)

FED STD 101C Method 5007.1 (Free fall w/ package)

Dimensions



Ordering Information

Model

EX45905	Hardened Unmanaged 5-port 10/100/1000BASE-T (4 x PoE) Gigabit Ethernet Switch
EX45915-X	Hardened Unmanaged 5-port 10/100/1000BASE-T (4 x PoE) + 1-port 1000BASE-X Gigabit Ethernet Switch

* DIN-Rail mounting kit included

Optical Port Options (X)

3	1000BASE-SX(SC)-550m
5	1000BASE-SX(ST)-550m
A	1000BASE-LX(SC)-10km
R	1000BASE-BX(SC) WDM-TX:1310nm/RX:1550nm-20Km
S	1000BASE-BX(SC) WDM-TX:1550nm/RX:1310nm-20Km
V	1000BASE SFP

Optional Accessories

SDR-240-48	240W/5A DIN-Rail 48VDC Industrial Power Supply (for terminal block)
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EX63000 Series

Industrial Managed 16-port 10/100BASE with 2-port Gigabit combo Ethernet Switch



Overview

EtherWAN's EX63000 Series provides an industrial Fully Managed 18-port switching platform combining high performance switching backbone with robust and secure management features required for mission critical and harsh environments where sustained connectivity is crucial.

The EX63000 Series is equipped with sixteen 10/100BASE Fast Ethernet ports, in combination with up to two Gigabit combo ports with Fixed Fiber options. Mountable on a DIN-rail, the EX63000 Series is equipped with EtherWAN's Alpha-Ring self-healing technology, providing less than 15ms fault recovery time making it ideal for applications intolerant to interruption.

Users are able to access management features such as; port security, IGMP snooping, VLANs, GARP protocols, LACP, and via web browser, Telnet, SNMP, RMON, TFTP, and RS-232 console interfaces.

EtherWAN - "When Connectivity is Crucial."

Spotlight

• Versatile Connectivity

- Provides 16-port 10/100BASE-TX/FX/BX/SFP plus 2-port Gigabit-SX/LX/BX/SFP combo

• Hardened Grade

- Wide operating temperature range from -10°C to 60°C (-14°F to 140°F) for extreme environments
- Fanless and ruggedized housing

• Secure Remote Access

- IEEE802.1x, and RADIUS support

Software Features

Management

- Interface
 - CLI, Telnet and web browser
 - SNMP v1/v2c/v3
- Firmware and configuration upgrade and backup via TFTP
- Supports DHCP Server/Client
- RMON (Remote monitoring): group 1, 2, 3, 9
- Port mirroring: TX/RX and both
- NTP (Network Time Protocol) time synchronization
- IEEE802.1ab LLDP (Link Layer Discovery Protocol)

Security

- MAC address filtering
- Enable/disable port
- Storm control (broadcast and multicast types)
- IEEE802.1x LAN access control
- Remote authentication through RADIUS
- SSH for CLI and Telnet security
- SSL for web security
- Multi-level user account/password against unauthorized configuration
- System log (remote/local)

Quality of Service (QoS)

- Priority Queues: 4 queues per port
- Traffic classification based on IEEE802.1p CoS, DSCP, WRR (Weighted round robin) and strict mode
- Rate Limiting (Ingress/Egress)

Layer 2 Features

- Auto-negotiation for port speed and duplex mode
- Flow Control
 - IEEE802.3x full duplex mode
 - Back-Pressure half duplex mode
- Redundant Protocol
 - IEEE802.1D Spanning Tree Protocol (STP)
 - IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
 - IEEE802.1s Multiple Spanning Tree Protocol (MSTP)
- VLANs
 - Port-based VLANs
 - IEEE802.1Q Tag VLANs (128 groups, 4096 VID)
 - GVRP (GARP VLAN Registration Protocol)
 - GMRP (GARP Multicast Registration Protocol)
- Link Aggregation
 - Static Trunk (2 groups, support MAC base)
 - IEEE802.3ad Link Aggregation Control Protocol
- IGMP Snooping
 - IGMP snooping v1/v2/v3

Performance

- Switching Capability: 7.2Gbps
- Packet Buffer Size: 2M bits
- MAC Address Table: 8192

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex and flow control
- IEEE802.1p QoS
- IEEE802.1Q Tag VLANs
- IEEE802.1w RSTP
- IEEE802.1x Port-based Network Access Control

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory

- 2M bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 8192 MAC addresses

Power

Input

- Redundant power inputs:
 - 12 - 48VDC (Terminal Block) ,
 - 12VDC (DC Jack)

Power Consumption

- 15W Max. 1.25A @ 12VDC, 0.625A @ 24VDC

Protection

- Reverse polarity protection

Mechanical

Casing

- Metal Case
- IP30

Dimensions

- 59mm (W) x 125mm (D) x145mm (H)
(2.32" (W) x 4.92" (D) x 5.71" (H))

Weight

- 1Kg (2.2lbs.)

Installation

- DIN-Rail (Top hat type 35mm) or Wall mounting

Interface

Ethernet Port

- 10/100BASE-TX: 16, 12 or 8 ports
- 100BASE-FX: 0, 1, 2 or 4 ports
- Gigabit: 0, 1 or 2 ports

Console Port

- Port: One DB9 RS-232 port

LED Indicators

- Per Unit: Power 1, Power 2, Power 3
- Per Port: Link/Activity
(Green: Copper; Orange: Fiber)

Alarm Contact

- One relay output with current 1A @ 24VDC

Environment

Operating Temperature

- -10°C to 60°C (-14°F to 140°F)
Tested @ -20°C to 70°C (-4°F to 158°F)

Storage Temperature

- -45°C to 85°C (-49°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

EMI

FCC Part 15B, Class A

EN61000-6-4

EN55022

EN61000-3-2

EN61000-3-3

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

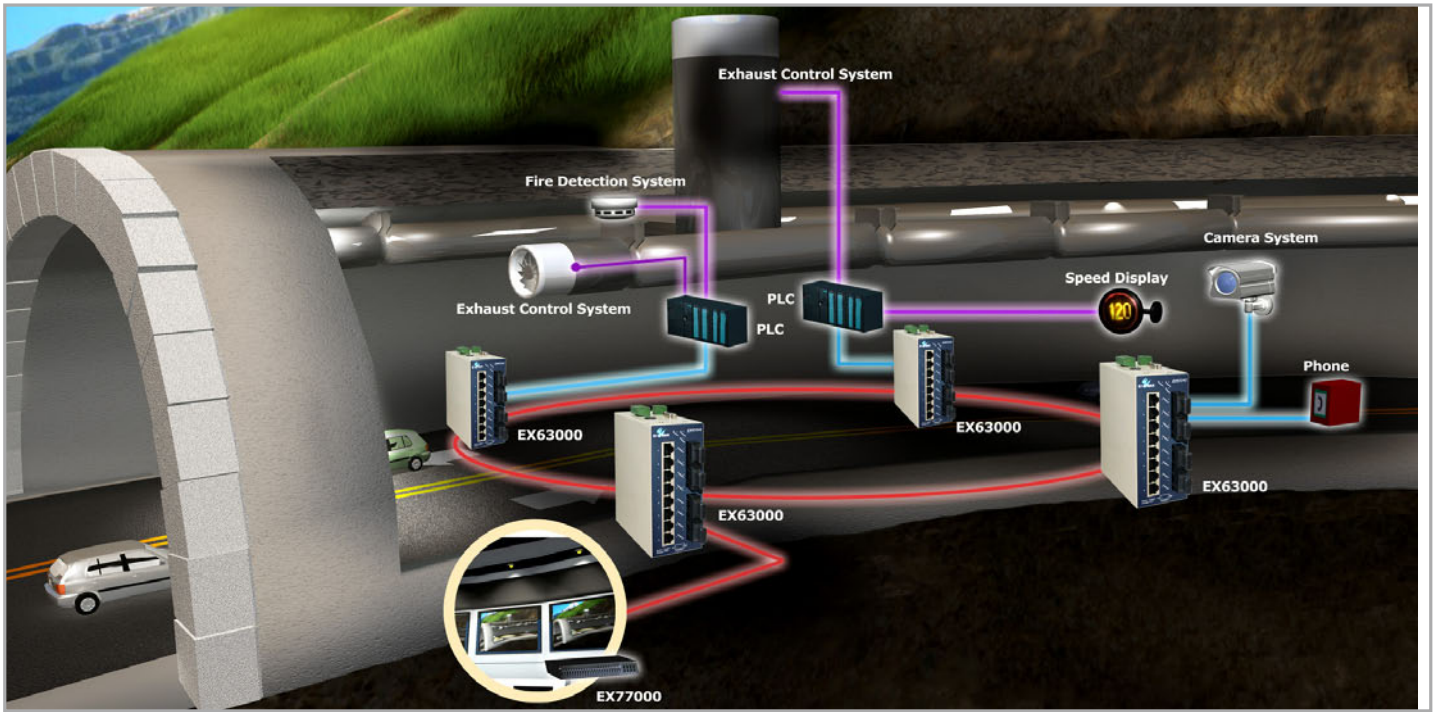
Environmental Test Compliances

IEC60068-2-6 Fc (Vibration Resistance)

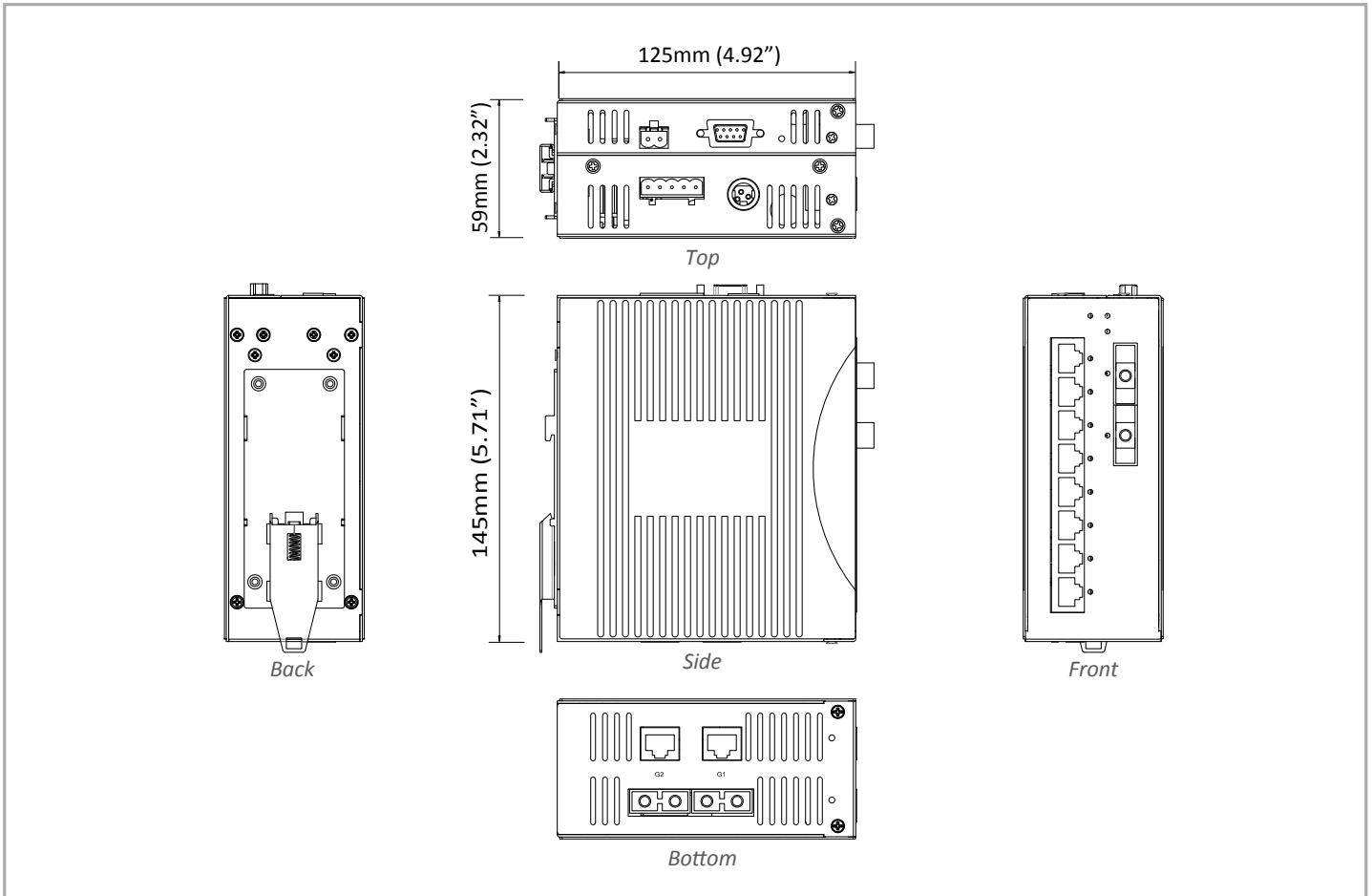
IEC60068-2-27 Ea (Shock)

FED STD 101C Method 5007.1 (Free fall w/ package)

Application Diagram



Dimensions



Ordering Information

Model

EX63400-00B	16-port 10/100BASE-TX Industrial Managed Ethernet Switch
EX63401-0YB	16-port 10/100BASE-TX + 1-port Gigabit Industrial Managed Ethernet Switch
EX63402-0YB	16-port 10/100BASE-TX + 2-port Gigabit Industrial Managed Ethernet Switch
EX63310-X0B	12-port 10/100BASE-TX + 1-port 100BASE-FX Industrial Managed Ethernet Switch
EX63311-XYB	12-port 10/100BASE-TX + 1-port 100BASE-FX + 1-port Gigabit Industrial Managed Ethernet Switch
EX63312-XYB	12-port 10/100BASE-TX + 1-port 100BASE-FX + 2-port Gigabit Industrial Managed Ethernet Switch
EX63320-X0B	12-port 10/100BASE-TX + 2-port 100BASE-FX Industrial Managed Ethernet Switch
EX63321-XYB	12-port 10/100BASE-TX + 2-port 100BASE-FX + 1-port Gigabit Industrial Managed Ethernet Switch
EX63322-XYB	12-port 10/100BASE-TX + 2-port 100BASE-FX + 2-port Gigabit Industrial Managed Ethernet Switch
EX63200-00B	8-port 10/100BASE-TX Industrial Managed Ethernet Switch
EX63201-0YB	8-port 10/100BASE-TX + 1-port Gigabit Industrial Managed Ethernet Switch
EX63202-0YB	8-port 10/100BASE-TX + 2-port Gigabit Industrial Managed Ethernet Switch
EX63210-X0B	8-port 10/100BASE-TX + 1-port 100BASE-FX Industrial Managed Ethernet Switch
EX63211-XYB	8-port 10/100BASE-TX + 1-port 100BASE-FX + 1-port Gigabit Industrial Managed Ethernet Switch
EX63212-XYB	8-port 10/100BASE-TX + 1-port 100BASE-FX + 2-port Gigabit Industrial Managed Ethernet Switch
EX63220-X0B	8-port 10/100BASE-TX + 2-port 100BASE-FX Industrial Managed Ethernet Switch
EX63221-XYB	8-port 10/100BASE-TX + 2-port 100BASE-FX + 1-port Gigabit Industrial Managed Ethernet Switch
EX63222-XYB	8-port 10/100BASE-TX + 2-port 100BASE-FX + 2-port Gigabit Industrial Managed Ethernet Switch
EX63240-X0B	8-port 10/100BASE-TX + 4-port 100BASE-FX Industrial Managed Ethernet Switch
EX63241-XYB	8-port 10/100BASE-TX + 4-port 100BASE-FX + 1-port Gigabit Industrial Managed Ethernet Switch
EX63242-XYB	8-port 10/100BASE-TX + 4-port 100BASE-FX + 2-port Gigabit Industrial Managed Ethernet Switch

* DIN-Rail mounting kit included

100FX Fiber Options (X)

1	Multi Mode (SC) - 2Km
2	Multi Mode (ST) - 2Km
6	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 2Km
7	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 2Km
8	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km
9	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km
A	Single Mode (SC) - 20Km
B	Single Mode (SC) - 40Km
H	Single Mode (ST) - 20Km
P	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 20Km
Q	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 20Km
R	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 40Km
S	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 40Km

Ordering Information - continued

Gigabit Port Options (Y)

1	10/100/1000BASE-TX (No Gigabit Fiber port supported)
3	Combo port: 10/100/1000BASE-TX with 1000BASE-SX (SC) - 550m
4	Combo port: 10/100/1000BASE-TX with 1000BASE-SX (SC) - 2Km
5	Combo port: 10/100/1000BASE-TX with 1000BASE-SX (ST) - 550m
A	Combo port: 10/100/1000BASE-TX with 1000BASE-LX (SC) - 10Km
B	Combo port: 10/100/1000BASE-TX with 1000BASE-LX (SC) - 20Km
R	Combo port: 10/100/1000BASE-TX with 1000BASE-BX (SC) WDM-TX:1310nm/RX:1550nm - 20Km
S	Combo port : 10/100/1000BASE-TX with 1000BASE-LX (SC) WDM-TX:1550nm/RX: 1310nm - 20Km

Optional Accessories

KP-AA96-480	Panel Mounting Kits
DR-30-24	30W/1.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-60--24	60W/2.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-120-24	120W/5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
41-136046-X	36W/3A 12VDC hardened power adapter with open wire in aluminum housing (for Terminal Block); (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA
41-136044-X	36W/3A 12VDC hardened power adapter with latched DC Jack in aluminum housing (for DC Jack); (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA

EX70900 Series

Hardened Managed 8-port Gigabit Ethernet Switch



Overview

EtherWAN's EX70900 Series provides a Hardened Fully Managed 8-port switching platform combining high performance switching backbone with robust and secure management features required for mission critical and harsh environments where sustained connectivity is crucial.

Mountable on a DIN-Rail, the EX70900 Series is a full Gigabit hardened managed switch, featured with 6 ports of 10/100/1000BASE-TX, in combination with up to two SFP Combo port options.

Users are able to access management features such as; port security, IGMP snooping, VLANs, GARP protocols, LACP to name a few, via web browser, Telnet, SNMP, RMON, TFTP, and RS-232 console interfaces. With its hardened-grade specifications and IEC61850 certifications, the EX70900 Series is capable of operating under high EMI environments at the temperatures ranging from -40°C to 75°C, making it an ideal choice for harsh applications.

EtherWAN – "When Connectivity is Crucial."

Spotlight

• Full Gigabit Connectivity

- Managed Hardened 8-port Gigabit Ethernet switch with either copper, SC, ST or LC connectors available

• Intelligent Data Management

- Optimize network performance with QoS, VLAN etc.

• Compliance with IEC61850-3/IEEE1613

- For installations with high EMS requirements

• Energy Efficient Ethernet (EEE)

- Supports IEEE802.3az standard

Software Features

Management

- Interface
 - CLI, Telnet and Web Browser
 - SNMP v1/v2c/v3
- Firmware and configuration upgrade and backup via TFTP
- Supports DHCP Server/Client
- RMON (Remote monitoring): group 1, 2, 3, 9
- Port mirroring: TX/RX and both
- SFP transceivers support Digital Diagnostics Monitoring (DDM)
- NTP (Network Time Protocol) time synchronization
- IEEE802.1ab LLDP (Link Layer Discovery Protocol)

Security

- MAC address filtering
 - Enable/disable port
- Storm control (broadcast and multicast types)
- IEEE802.1x LAN access control
- Remote authentication through RADIUS
- SSH for CLI and Telnet security
- SSL for web security
- Multi-level user account/password against unauthorized configuration
- System log (remote/local)

Quality of Service (QoS)

- Priority Queues: 4 queues per port
- Traffic classification based on IEEE802.1p CoS, DSCP, WRR (Weighted round robin) and strict mode
- Rate Limiting (Ingress/Egress)

Layer 2 Features

- Auto-negotiation for port speed and duplex mode
- Flow Control
 - IEEE802.3x full duplex mode
 - Back-Pressure half duplex mode
- Redundant Protocol
 - IEEE802.1D Spanning Tree Protocol (STP)
 - IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
 - IEEE802.1s Multiple Spanning Tree Protocol (MSTP)
- VLANs
 - Port-based VLANs
 - IEEE802.1Q Tag VLANs (128 groups, 4096 VID)
 - GVRP (GARP VLAN Registration Protocol)
 - GMRP (GARP Multicast Registration Protocol)
- Link Aggregation
 - Static Trunk (2 groups, support MAC base)
 - IEEE802.3ad Link Aggregation Control Protocol
- IGMP Snooping
 - IGMP snooping v1/v2/v3

Performance

- Switching Capability: 16Gbps
- Packet Buffer Size: 1.5M bits
- MAC Address Table: 4K

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3az EEE
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex and flow control
- IEEE802.1p QoS
- IEEE802.1Q Tag VLANs
- IEEE802.1w RSTP
- IEEE802.1x Port-based Network Access Control

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory

- 1.5M bits

Processing Type

- Store-and-Forward
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control

Address Table Size

- 4096 MAC addresses

Power

Input

- Redundant power inputs:
 - 12 - 48VDC (Terminal Block)
 - 12VDC (DC Jack)

Power Consumption

- 10.2W Max., 0.85A @ 12VDC

Protection

- Reverse polarity protection

Mechanical

Casing

- Aluminum Case
- IP30

Dimensions

- 66mm (W) x 125mm (D) x 145mm (H)
(2.64" (W) x 4.92" (D) x 5.7" (H))

Weight

- 1.1Kg (2.42lbs.)

Installation

- DIN-Rail (Top hat type35mm) or Wall mounting

Interface

Ethernet Port

- 10/100/1000BASE-TX: 8, 7, or 6 ports
- 1000BASE-SX/LX/SFP: 0, 1, or 2 ports

Console Port

- Port: One DB9 RS-232 port

LED Indicators

- Per Unit:
 - Power Status (Power 1, Power 2, Power 3)
 - Alarm
- Per Port: Link/Activity

Alarm Contact

- One relay output with current 1A @ 24VDC

Environment

Operating Temperature

- -40°C to 75°C (14°F to 167°F)
Tested @ -40°C to 85°C (-40°F to 185°F)

Storage Temperature

- -40°C to 85°C (-40°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

Safety

UL508

EMI

FCC Part 15B, Class A

EN61000-6-4

EN61000-3-2

EN61000-3-3

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

Environmental Test Compliance

IEC60068-2-6 Fc (Vibration Resistance)

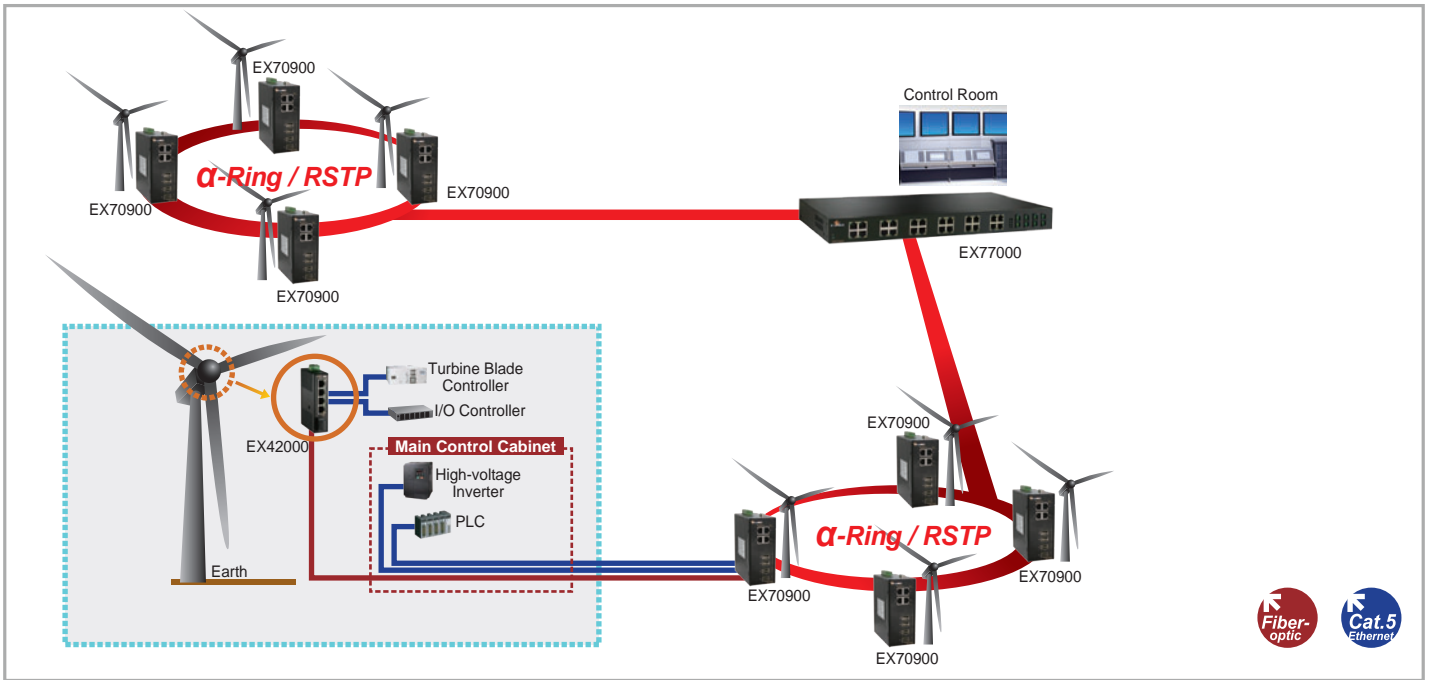
IEC60068-2-27 Ea (Shock)

FED STD 101C Method 5007.1 (Free fall w/ package)

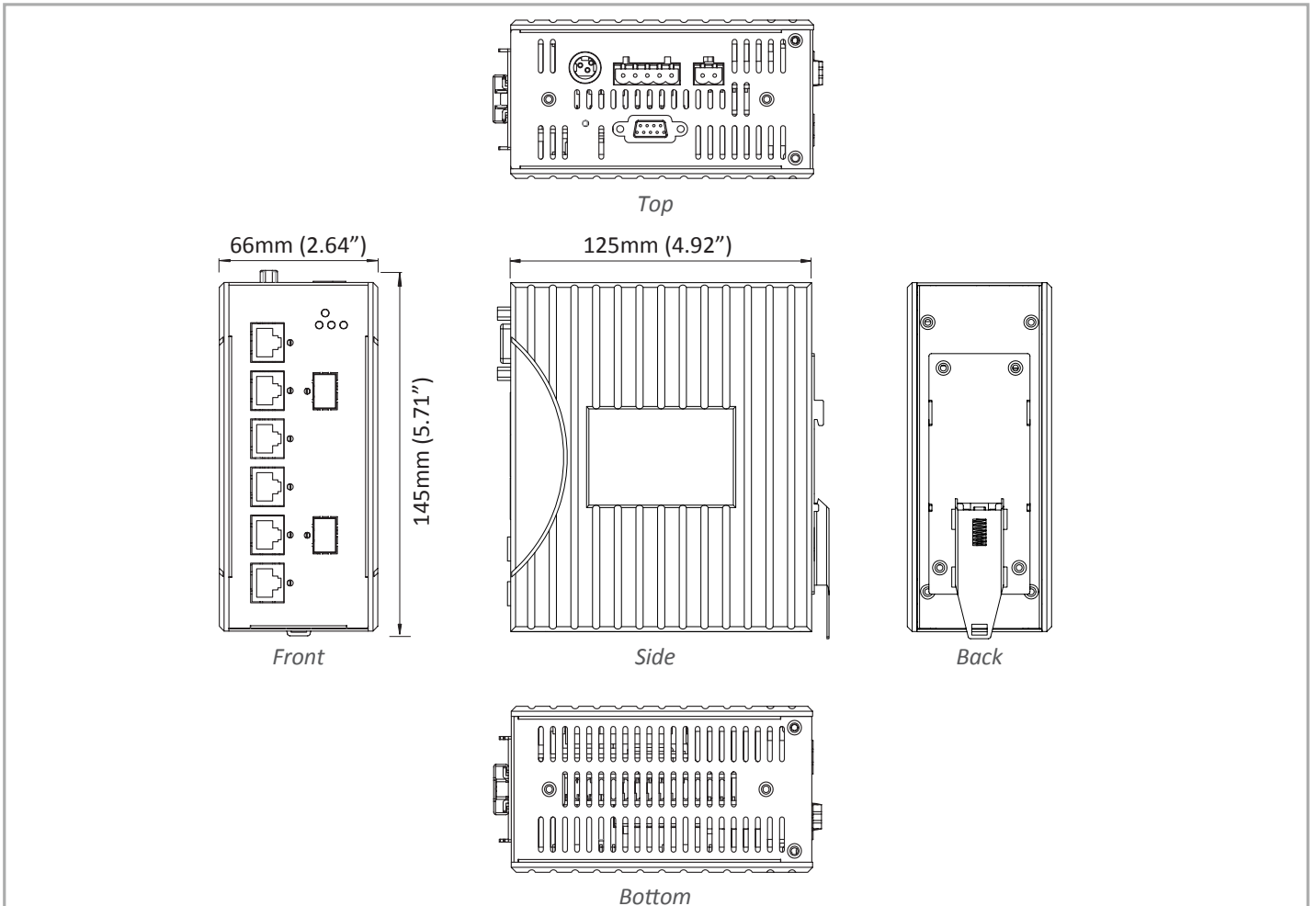
Industrial Compliance

IEC61850-3/IEEE1613

Application Diagram



Dimensions



Ordering Information

Model

EX70980-00B	8-Port 10/100/1000BASE-TX Managed Hardened Ethernet Switch
EX70971-0VB	7-Port 10/100/1000BASE-TX + 1-Port Gigabit SFP Hardened Managed Ethernet Switch
EX70962-0VB	6-Port 10/100/1000BASE-TX + 2-Port Gigabit SFP Hardened Managed Ethernet Switch
EX70962-0XB	6-Port 10/100/1000BASE-TX +2-Port Gigabit Fiber Hardened Managed Ethernet Switch

* DIN-Rail mounting kit included

Gigabit Port Options (X)

3	1000BASE-SX(SC) - 550m
4	1000BASE-SX (SC) - 2Km
5	1000BASE-SX (ST) - 550m
A	1000BASE-LX (SC) - 10Km
B	1000BASE-LX (SC) - 20Km
R	1000BASE-BX (SC) WDM-TX:1310nm/RX:1550nm - 20Km
S	1000BASE-BX (SC) WDM-TX:1550nm/RX:1310nm - 20Km

* More Gigabit options are also available upon request

Optional Accessories

DR-30-24	30W/1.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-60-24	60W/2.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-75-24	75W/3.2A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-120-24	120W/5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
41-136046-X	36W/3A 12VDC hardened power adapter with open wire in aluminum housing (for Terminal Block) (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA
41-136044-X	36W/3A 12VDC hardened power adapter with latched DC Jack in aluminum housing (for DC Jack) (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA

EX71000 Series

Hardened Managed 8-port 10/100BASE and 2-port Gigabit Ethernet Switch with SFP options



Overview

EtherWAN's EX71000 Series provides a Hardened Fully Managed 10-port switching platform combining high performance switching backbone with robust and secure management features required for mission critical and harsh environments where sustained connectivity is crucial.

The EX71000 Series is equipped with Ten 10/100BASE Fast Ethernet ports, in combination with up to Two Gigabit, Fixed Fiber, or SFP port options. Mountable on a DIN-rail. The EX71000 Series is equipped with EtherWAN's Alpha-Ring self-healing technology, providing less than 15ms fault recovery time making it ideal for applications intolerant to interruption.

Users are able to access management features such as; port security, IGMP snooping, VLANs, GARP protocols, LACP, via web browser, Telnet, SNMP, RMON, TFTP, and RS-232 console interfaces.

EtherWAN — "When Connectivity is Crucial."

Spotlight

• Versatile Connectivity

- Provides 8-port 10/100BASE-TX/FX/BX/SFP plus 2-port Gigabit-SX/LX/BX/SFP

• Hardened Grade

- Wide operating temperature range from -40°C to 75°C (-40°F to 167°F) for extreme environments
- Fanless and ruggedized housing

• Secure Remote Access

- IEEE802.1x, ACL (Access Control List), and RADIUS support

Software Features

Management

- Interface
 - CLI, Telnet and Web Browser
 - SNMP v1/v2c/v3
- Firmware and configuration upgrade and backup via TFTP
- Supports DHCP Server/Client
- RMON (Remote monitoring): group 1, 2, 3, 9
- Port mirroring: TX/RX and both
- NTP (Network Time Protocol) time synchronization
- IEEE802.1ab LLDP (Link Layer Discovery Protocol)

Security

- MAC address filtering
- Enable/disable port
- Storm control (broadcast and multicast types)
- IEEE802.1x LAN access control
- Remote authentication through RADIUS
- SSH for CLI and Telnet security
- SSL for web security
- Multi-level user account/password against unauthorized configuration
- System log (remote/local)

Quality of Service (QoS)

- Priority Queues: 4 queues per port
- Traffic classification based on IEEE802.1p CoS, DSCP, WRR
- (Weighted round robin) and strict mode
- Rate Limiting (Ingress/Egress)

Layer 2 Features

- Auto-negotiation for port speed and duplex mode
- Flow Control
 - IEEE802.3x full duplex mode
 - Back-Pressure half duplex mode
- Redundant Protocol
 - IEEE802.1D Spanning Tree Protocol (STP)
 - IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
 - IEEE802.1s Multiple Spanning Tree Protocol (MSTP)
 - EtherWAN's Alpha-Ring network fault recovery (<15ms)
- VLANs
 - Port-based VLANs
 - IEEE802.1Q Tag VLANs (128 groups, 4096 VID)
 - GVRP (GARP VLAN Registration Protocol)
 - GMRP (GARP Multicast Registration Protocol)
- Link Aggregation
 - Static Trunk (2 groups, support MAC base)
 - IEEE802.3ad Link Aggregation Control Protocol
- IGMP Snooping
 - IGMP snooping v1/v2/v3

Performance

- Switching Capability: 6.8Gbps
- Packet Buffer Size: 2M bits
- MAC Address Table: 8192

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex and flow control
- IEEE802.1p QoS
- IEEE802.1Q Tag VLANs
- IEEE802.1w RSTP
- IEEE802.1x Port-based Network Access Control

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory

- 2M bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 8192 MAC addresses

Power

Input

- Redundant power inputs:
 - 12 - 48VDC (Terminal Block)
 - 12VDC (DC Jack)

Power Consumption

- 11W Max. 0.92A @ 12VDC, 0.46A @ 24VDC

Protection

- Reverse polarity protection

Mechanical

Casing

- Aluminum Case
- IP30

Dimensions

- 60mm (W) x 125mm (D) x 145mm (H)
(2.36" (W) x 4.92" (D) x 5.7" (H))

Weight

- 1.1Kg (2.42lbs.)

Installation

- DIN-Rail (Top hat type35mm), Rack or Wall mounting

Interface

Ethernet Port

- 10/100BASE-TX: 8, 6 or 4 port
- 100BASE-FX: 0 to 4 ports
- Gigabit: 0, 1 or 2 ports

Console Port

- Port: One DB9 RS-232 port

LED Indicators

- Per Unit: Power 1, Power 2, Power 3
- Per Port: Link/Activity, Speed

Alarm Contact

- One relay output with current 1A @ 24VDC

Environment

Operating Temperature

- -40°C to 75°C (-40°F to 167°F)
Tested @ -40°C to 85°C (-40°F to 185°F)

Storage Temperature

- -40°C to 85°C (-40°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

Safety

UL508

EMI

FCC Part 15B, Class A

EN61000-6-4

EN55022

EN61000-3-2

EN61000-3-3

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

Environmental Test Compliance

IEC60068-2-6 Fc (Vibration Resistance)

IEC60068-2-27 Ea (Shock)

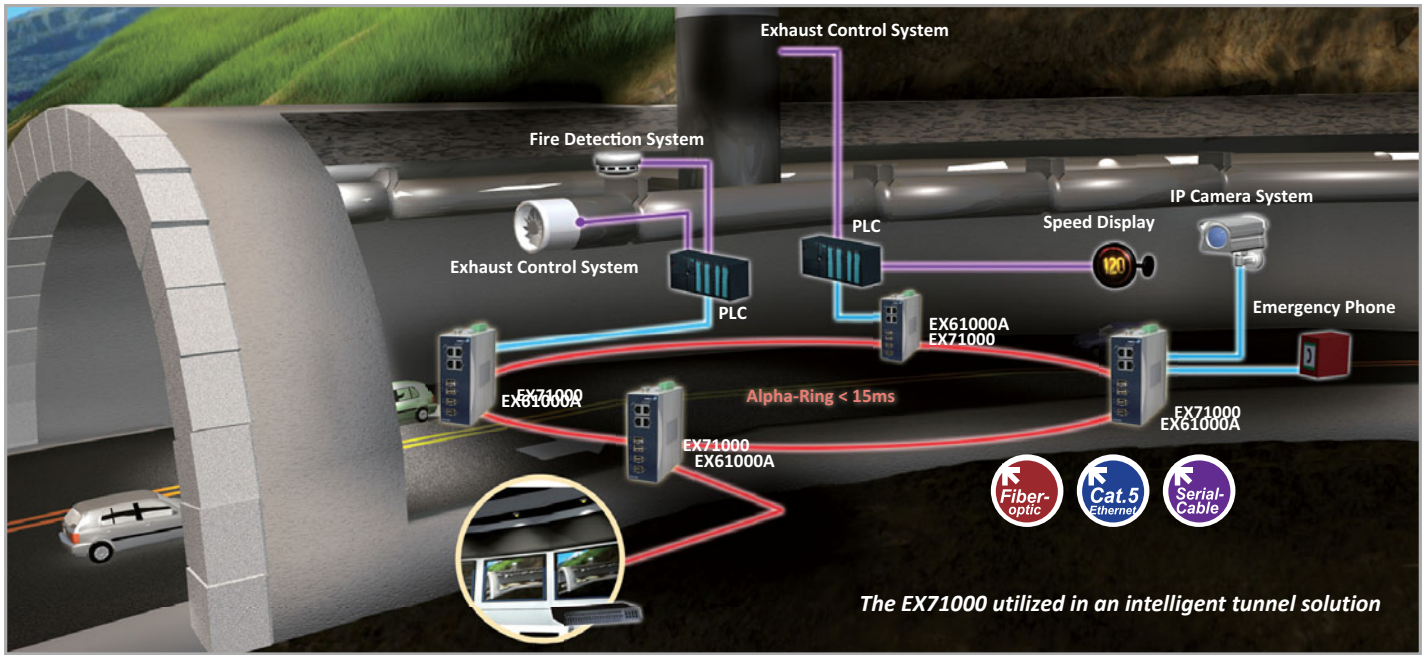
FED STD 101C Method 5007.1 (Free fall w/ package)

Industrial Compliance

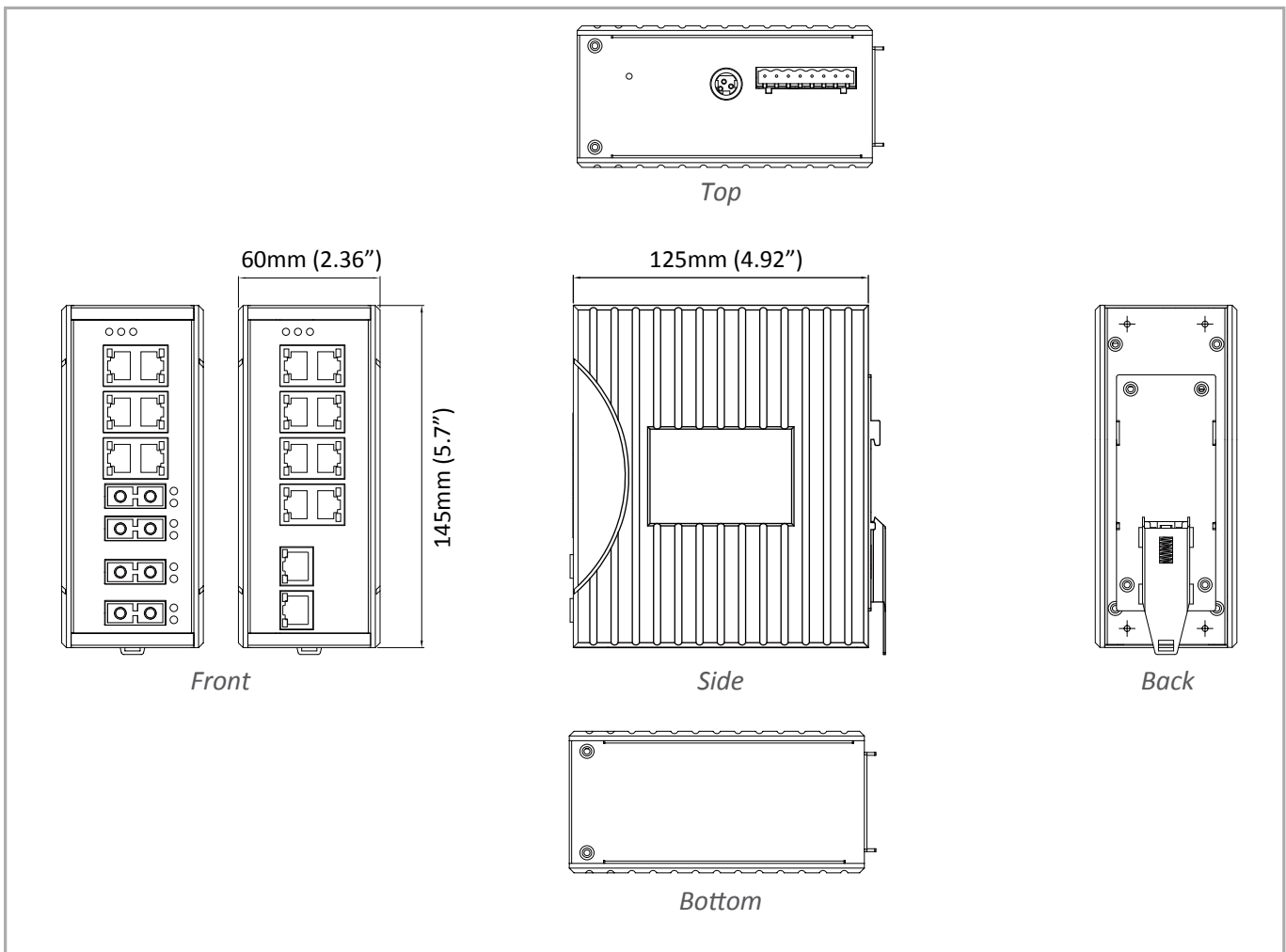
NEMA TS2

EN50121-4

Application Diagram



Dimensions



Ordering Information

Model

EX71800-00B	8-port 10/100BASE-TX Hardened Managed Ethernet Switch
EX71801-0YB	8-port 10/100BASE-TX + 1-port Gigabit Hardened Managed Ethernet Switch
EX71802-0YB	8-port 10/100BASE-TX + 2-port Gigabit Hardened Managed Ethernet Switch
EX71802-02B	8-port 10/100BASE-TX + 2-port 10/100/1000BASE-TX LAN Bypass
EX71610-X0B	6-port 10/100BASE-TX + 1-port 100BASE-FX Hardened Managed Ethernet Switch
EX71620-X0B	6-port 10/100BASE-TX + 2-port 100BASE-FX Hardened Managed Ethernet Switch
EX71621-XYB	6-port 10/100BASE-TX + 2-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX71622-XYB	6-port 10/100BASE-TX + 2-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX71420-X0B	4-port 10/100BASE-TX + 2-port 100BASE-FX Hardened Managed Ethernet Switch
EX71422-XYB	4-port 10/100BASE-TX + 2-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX71440-X0B	4-port 10/100BASE-TX + 4-port 100BASE-FX Hardened Managed Ethernet Switch

* DIN-Rail mounting kit included

100FX Fiber Options (X)

1	Multi Mode (SC) - 2Km
2	Multi Mode (ST) - 2Km
6	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 2Km
7	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 2Km
8	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km
9	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km
A	Single Mode (SC) - 20Km
B	Single Mode (SC) - 40Km
H	Single Mode (ST) - 20Km
P	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 20Km
Q	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 20Km
R	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 40Km
S	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 40Km
V	100BASE SFP

Gigabit Port Options (Y)

1	10/100/1000BASE-TX
3	1000BASE-SX(SC) - 550m
4	1000BASE-SX (SC) - 2Km
5	1000BASE-SX (ST) - 550m
A	1000BASE-LX (SC) - 10Km
B	1000BASE-LX (SC) - 20Km
R	1000BASE-BX (SC) WDM-TX:1310nm/RX:1550nm - 20Km
S	1000BASE-BX (SC) WDM-TX: 1550nm/RX: 1310nm - 20Km
V	1000BASE SFP

Optional Accessories

KP-AA96-480	Panel mounting Kits
KR-BK71000	Rack mounting Kits
DR-30-24	30W/1.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-60--24	60W/2.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-75-24	75W/3.2A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-120-24	120W/5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
41-136046-X	36W/3A 12VDC hardened power adapter with open wire in aluminum housing (for Terminal Block) (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA
41-136044-X	36W/3A 12VDC hardened power adapter with latched DC Jack in aluminum housing (for DC Jack) (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA

EX73000 Series

Hardened Managed 16-port 10/100BASE with 2-port Gigabit combo Ethernet Switch



Overview

EtherWAN's EX73000 Series provides a Hardened Fully Managed 18-port switching platform combining high performance switching backbone with robust and secure management features required for mission critical and harsh environments where sustained connectivity is crucial.

The EX73000 Series is equipped with sixteen 10/100BASE Fast Ethernet ports, in combination with up to two Gigabit combo ports with fixed Fiber options. Mountable on a DIN-rail, the EX73000 Series is equipped with EtherWAN's Alpha-Ring self-healing technology, providing less than 15ms fault recovery time making it ideal for applications intolerant to interruption.

Users are able to access management features such as port security, IGMP snooping, VLANs, GARP protocols, LACP to name a few, and via web browser, Telnet, SNMP, RMON, TFTP, and RS-232 console interfaces.

EtherWAN — "When Connectivity is Crucial."

Spotlight

• Versatile Connectivity

- Provides 16-port 10/100BASE-TX/FX/BX/SFP plus 2-port Gigabit-SX/LX/BX/SFP combo

• Hardened Grade

- Wide operating temperature range from -40°C to 75°C (-40°F to 167°F) for extreme environments
- Fanless and ruggedized housing

• Secure Remote Access

- IEEE802.1x, and RADIUS support

• ISA12.12.01 Certification

- Highly qualified for explosive environmental applications and certified by UL with ISA12.12.01 Class I, Division 2 classified for use in hazardous locations

Software Features

Management

- Interface
 - CLI, Telnet and Web Browser
 - SNMP v1/v2c/v3
- Firmware and configuration upgrade and backup via TFTP
- Supports DHCP Server/Client
- RMON (Remote monitoring): group 1, 2, 3, 9
- Port mirroring: TX/RX and both
- NTP (Network Time Protocol) time synchronization
- IEEE802.1ab LLDP (Link Layer Discovery Protocol)

Security

- MAC address filtering
- Enable/disable port
- Storm control (broadcast and multicast types)
- IEEE802.1x LAN access control
- Remote authentication through RADIUS
- SSH for CLI and Telnet security
- SSL for web security
- Multi-level user account/password against unauthorized configuration
- System log (remote/local)

Quality of Service (QoS)

- Priority Queues: 4 queues per port
- Traffic classification based on IEEE802.1p CoS, DSCP, WRR (Weighted round robin) and strict mode
- Rate Limiting (Ingress/Egress)

Layer 2 Features

- Auto-negotiation for port speed and duplex mode
- Flow Control
 - IEEE802.3x full duplex mode
 - Back-Pressure half duplex mode
- Redundant Protocol
 - IEEE802.1D Spanning Tree Protocol (STP)
 - IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
 - IEEE802.1s Multiple Spanning Tree Protocol (MSTP)
 - EtherWAN's α -Ring network fault recovery (<15ms)
- VLANs
 - Port-based VLANs
 - IEEE802.1Q Tag VLANs (128 groups, 4096 VID)
 - GVRP (GARP VLAN Registration Protocol)
 - GMRP (GARP Multicast Registration Protocol)
- Link Aggregation
 - Static Trunk (2 groups, support MAC base)
 - IEEE802.3ad Link Aggregation Control Protocol
- IGMP Snooping
 - IGMP snooping v1/v2/v3

Performance

- Switching Capability: 7.2Gbps
- Packet Buffer Size: 2M bits
- MAC Address Table: 8192

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex and flow control
- IEEE802.1p Quality of Service (QoS)
- IEEE802.1Q Tag VLANs
- IEEE802.1w RSTP
- IEEE802.1x Port-based Network Access Control

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory

- 2M bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 8192 MAC addresses

Power

Input

- Redundant power inputs:
 - 12 - 48VDC (Terminal Block),
 - 12VDC (DC Jack)

Power Consumption

- 15W Max. 1.25A @ 12VDC, 0.625A @ 24VDC

Protection

- Reverse polarity protection

Mechanical

Casing

- Aluminum Case
- IP30

Dimensions

- 65mm (W) x 125mm (D) x 145mm (H)
(2.56" (W) x 4.92" (D) x 5.71" (H))

Weight

- 1Kg (2.2lbs.)

Installation

- DIN-Rail (Top hat type 35mm) or Wall mounting

Interface

Ethernet Port

- 10/100BASE-TX: 16, 12 or 8 ports
- 100BASE-FX: 0, 1, 2 or 4 ports
- Gigabit: 0, 1 or 2 ports

Console Port

- Port: One DB9 RS-232 port

LED Indicators

- Per Unit: Power 1, Power 2, Power 3
- Per Port: Link/Activity
(Green: Copper, Orange: Fiber)

Alarm Contact

- One relay output with current 1A @ 24VDC

Environment

Operating Temperature

- -40°C to 75°C (-40°F to 167°F)
Tested @ -40°C to 85°C (-40°F to 185°F)

Storage Temperature

- -45°C to 85°C (-49°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

Safety

UL508

ISA 12.12.01

EMI

FCC Part 15B, Class A

EN61000-6-4

EN55022

EN61000-3-2

EN61000-3-3

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

Environmental Test Compliances

IEC60068-2-6 Fc (Vibration Resistance)

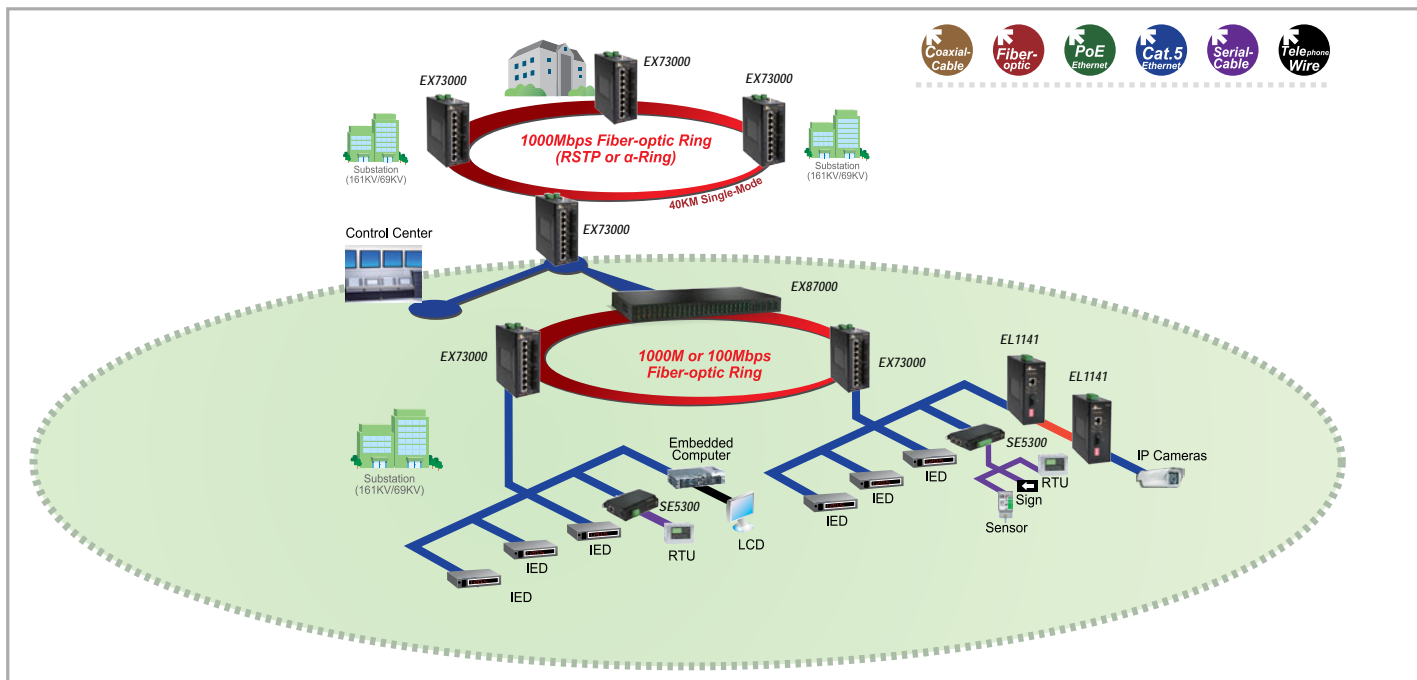
IEC60068-2-27 Ea (Shock)

FED STD 101C Method 5007.1 (Free fall w/ package)

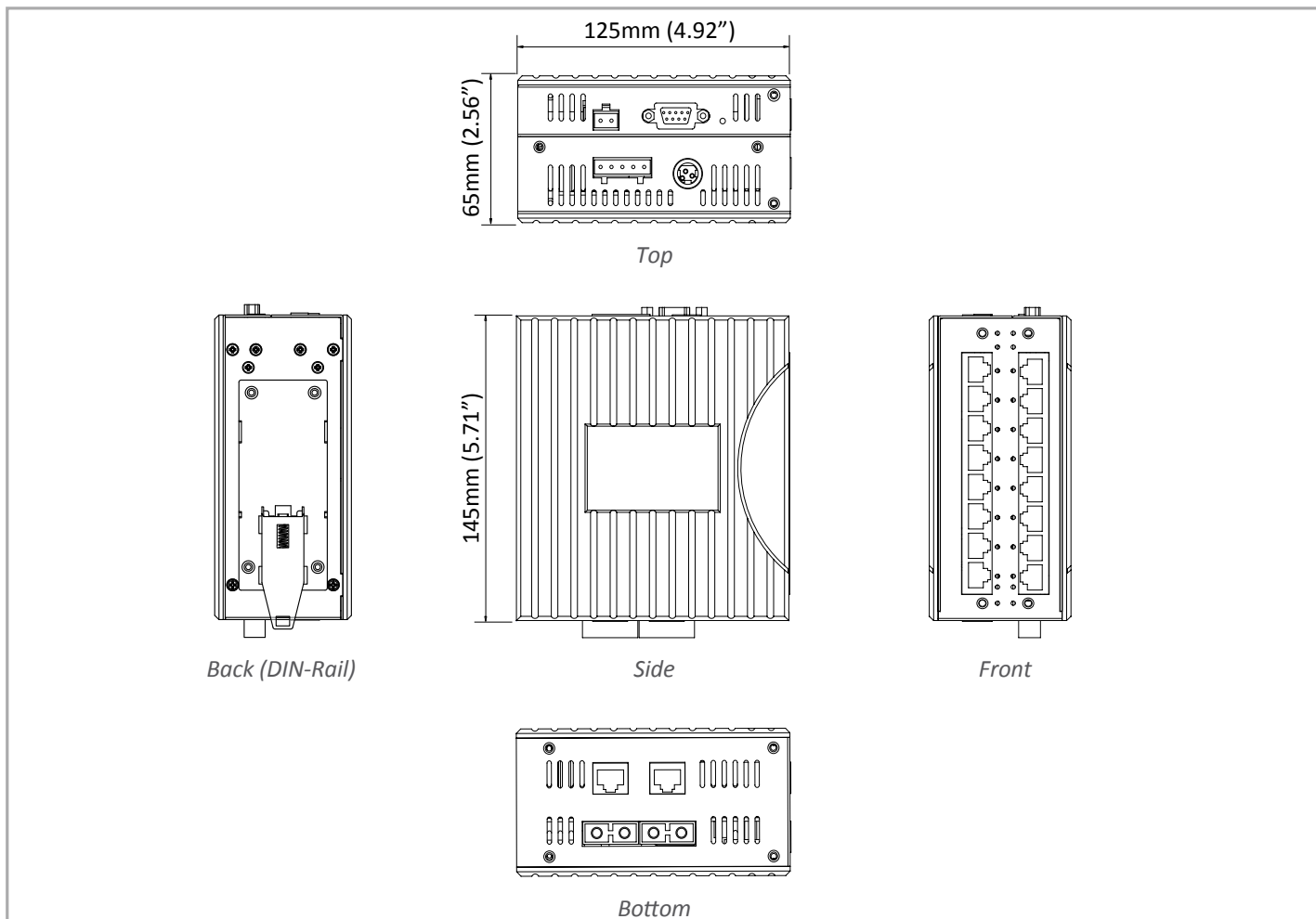
Industrial Compliance

NEMA TS2

Application Diagram



Dimensions



Ordering Information

Model

EX73400-00B	16-port 10/100BASE-TX Hardened Managed Ethernet Switch
EX73401-0YB	16-port 10/100BASE-TX + 1-port Gigabit Hardened Managed Ethernet Switch
EX73402-0YB	16-port 10/100BASE-TX + 2-port Gigabit Hardened Managed Ethernet Switch
EX73302-0YB	12-port 10/100BASE-TX + 2-port Gigabit Hardened Managed Ethernet Switch
EX73310-X0B	12-port 10/100BASE-TX + 1-port 100BASE-FX Hardened Managed Ethernet Switch
EX73311-XYB	12-port 10/100BASE-TX + 1-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX73312-XYB	12-port 10/100BASE-TX + 1-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX73320-X0B	12-port 10/100BASE-TX + 2-port 100BASE-FX Hardened Managed Ethernet Switch
EX73321-XYB	12-port 10/100BASE-TX + 2-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX73322-XYB	12-port 10/100BASE-TX + 2-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX73200-00B	8-port 10/100BASE-TX Hardened Managed Ethernet Switch
EX73201-0YB	8-port 10/100BASE-TX + 1-port Gigabit Hardened Managed Ethernet Switch
EX73202-0YB	8-port 10/100BASE-TX + 2-port Gigabit Hardened Managed Ethernet Switch
EX73210-X0B	8-port 10/100BASE-TX + 1-port 100BASE-FX Hardened Managed Ethernet Switch
EX73211-XYB	8-port 10/100BASE-TX + 1-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX73212-XYB	8-port 10/100BASE-TX + 1-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX73220-X0B	8-port 10/100BASE-TX + 2-port 100BASE-FX Hardened Managed Ethernet Switch
EX73221-XYB	8-port 10/100BASE-TX + 2-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX73222-XYB	8-port 10/100BASE-TX + 2-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX73240-X0B	8-port 10/100BASE-TX + 4-port 100BASE-FX Hardened Managed Ethernet Switch
EX73241-XYB	8-port 10/100BASE-TX + 4-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX73242-XYB	8-port 10/100BASE-TX + 4-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch

* DIN-Rail mounting kit included

100FX Fiber Options (X)

1	Multi Mode (SC) - 2Km
2	Multi Mode (ST) - 2Km
6	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 2Km
7	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 2Km
8	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km
9	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km
A	Single Mode (SC) - 20Km
B	Single Mode (SC) - 40Km
H	Single Mode (ST) - 20Km
P	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 20Km
Q	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 20Km
R	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 40Km
S	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 40Km

Gigabit Port Options (Y)

1	10/100/1000BASE-TX (No Gigabit Fiber port supported)
3	Combo port: 10/100/1000BASE-TX with 1000BASE-SX(SC) - 550m
4	Combo port: 10/100/1000BASE-TX with 1000BASE-SX (SC) - 2Km
5	Combo port: 10/100/1000BASE-TX with 1000BASE-SX (ST) - 550m
A	Combo port: 10/100/1000BASE-TX with 1000BASE-LX (SC) - 10Km
B	Combo port: 10/100/1000BASE-TX with 1000BASE-LX (SC) - 20Km
R	Combo port: 10/100/1000BASE-TX with 1000BASE-BX (SC) WDM-TX:1310nm/RX:1550nm - 20Km
S	Combo port : 10/100/1000BASE-TX with 1000BASE-LX (SC) WDM-TX:1550nm/RX: 1310nm - 20Km

Optional Accessories

KP-AA96-480	Panel mounting Kits
DR-30-24	30W/1.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-60--24	60W/2.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-120-24	120W/5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
41-136046-X	36W/3A 12VDC hardened power adapter with open wire in aluminum housing (for Terminal Block); (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA
41-136044-X	36W/3A 12VDC hardened power adapter with latched DC Jack in aluminum housing; (for DC Jack) (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA

EX74000 Series

Hardened Managed 6-port 10/100BASE (4 x PoE) with 2-port SFP (DDM) Gigabit combo Ethernet Switch



Overview

EtherWAN's EX74000 Series provides a hardened 8-port switching platform supporting IEEE802.3af+ Power over Ethernet, high performance switching with robust management features required for mission-critical and harsh environments where sustained connectivity is crucial.

The EX74000 Series is equipped with four 10/100BASE-TX PoE ports plus two 10/100BASE-TX/Gigabit SFP combo ports. The high-power PoE ports provide up to 30W/port with a total power budget of 120W, making the switch truly versatile for connecting with PoE Powered Devices (PD) with different bandwidth and power consumption requirements such as outdoor PTZ dome cameras, wireless access points, and way-side communication devices.

The EX74000 Series is equipped with EtherWAN's Alpha-Ring self-healing ring technology providing less than 15ms fault recovery time. Users are able to access management features such as port security, IGMP snooping, port-based VLAN, GARP protocols, link aggregation via web browser, telnet, SSH, SNMP, RMON, TFTP, and RS-232 console interfaces. With the hardened specifications, the EX74000 Series is designed to operate at -40°C to 75°C in harsh environments, where high ESD, shock, and vibration may be present.

EtherWAN — "When Connectivity is Crucial."

Spotlight

• Hardened Grade

- Wide operating temperature range from -40°C to 75°C (-40°F to 167°F) for extreme environments
- Fanless and ruggedized housing
- High shock and electric noise immunity
- Complies with UL508 safety requirements for industrial control devices

• Power over Ethernet

- Port 1 to 4 supports IEEE802.3af+ with 30W max.

• SFP Connectivity

- Provides two Gigabit-SFP combo ports for uplink

Software Features

Management

- Interface
 - CLI, Telnet and Web Browser
 - SNMP v1/v2c/v3
- Firmware and configuration upgrade and backup via TFTP
- Supports DHCP Server/Client
- RMON (Remote monitoring): group 1, 2, 3, 9
- Port mirroring: TX/RX and both
- SFP transceivers support Digital Diagnostics Monitoring (DDM)
- NTP (Network Time Protocol) time synchronization
- IEEE802.1ab LLDP (Link Layer Discovery Protocol)

Security

- MAC address filtering
- Enable/disable port
- Storm control (broadcast and multicast types)
- IEEE802.1x LAN access control
- Remote authentication through RADIUS
- SSH for CLI and Telnet security
- SSL for web security
- Multi-level user account/password against unauthorized configuration
- System log (remote/local)

Quality of Service (QoS)

- Priority Queues: 4 queues per port
- Traffic classification based on IEEE802.1p CoS, DSCP, WRR (Weighted round robin) and strict mode
- Rate Limiting (Ingress/Egress)

Layer 2 Features

- Auto-negotiation for port speed and duplex mode
- Flow Control
 - IEEE802.3x full duplex mode
 - Back-Pressure half duplex mode
- Redundant Protocol
 - IEEE802.1D Spanning Tree Protocol (STP)
 - IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
 - IEEE802.1s Multiple Spanning Tree Protocol (MSTP)
 - EtherWAN's Alpha-Ring network fault recovery (<15ms)
- VLANs
 - Port-based VLANs
 - IEEE802.1Q Tag VLANs (128 groups, 4096 VID)
 - GVRP (GARP VLAN Registration Protocol)
 - GMRP (GARP Multicast Registration Protocol)
- Link Aggregation
 - Static Trunk (2 groups, support MAC base)
 - IEEE802.3ad Link Aggregation Control Protocol
- IGMP Snooping
 - IGMP snooping v1/v2/v3

Performance

- Switching Capability: 5.2Gbps
- Packet Buffer Size: 2M bits
- MAC Address Table: 8192

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex and flow control
- IEEE802.1p QoS
- IEEE802.1Q Tag VLANs
- IEEE802.1w RSTP
- IEEE802.1x Port-based Network Access Control
- IEEE802.3af Power over Ethernet (PoE)

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory

- 2M bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 8192 MAC addresses

Power

Input Voltage

- Terminal Block: 47 to 57VDC

Power Consumption

- Device: Max. 17.7W (without PoE)
- PoE power budget (depends on power input): 120W Max.

PoE Power Output

- Port 1 to 4
- IEEE802.3af: up to 15.4W/port, 47 - 57VDC
- IEEE802.3af+: up to 30W/port, 50 - 57VDC

Protection

- Reverse polarity protection

Mechanical

Casing

- Metal Case
- IP30

Dimensions

- 200mm (W) x 134mm (D) x 50mm (H)
(7.87" (W) x 5.2" (D) x 1.97" (H))

Weight

- 1.5Kg (7.7lbs.)

Installation

- Panel or Rack mounting

Interface

Ethernet Port

- 10/100BASE-TX: 6 ports
- Gigabit SFP (DDM): 2 ports

Console Port

- Port: One DB9 RS-232 port

LED Indicators

- Per Unit: Power Status
- Per port 10/100TX PoE (Orange)
- Per port 10/100TX, 100FX: Link/Activity (Green)
- Per port Gigabit/SFP: Link/Activity (Green)

Environment

Operating Temperature

- -40°C to 75°C (-40°F to 167°F)
Tested @ -40°C to 85°C (-40°F to 185°F)

Storage Temperature

- -45°C to 85°C (-49°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

EMI

FCC Part 15B, Class A

EN61000-6-4

EN55022

EN61000-3-2

EN61000-3-3

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

Environmental Test Compliance

IEC60068-2-6 Fc (Vibration)

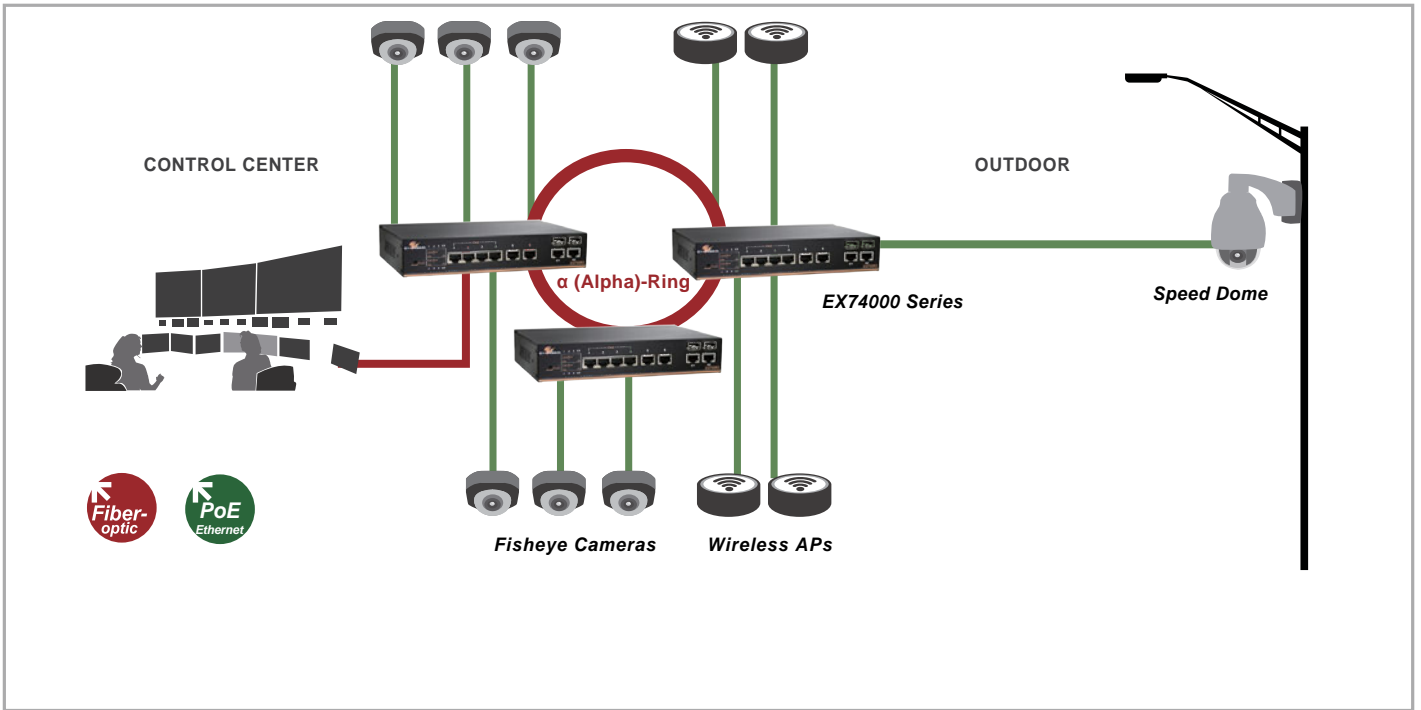
IEC60068-2-27 Ea (Shock)

IEC60068-2-32 Ed (Free fall)

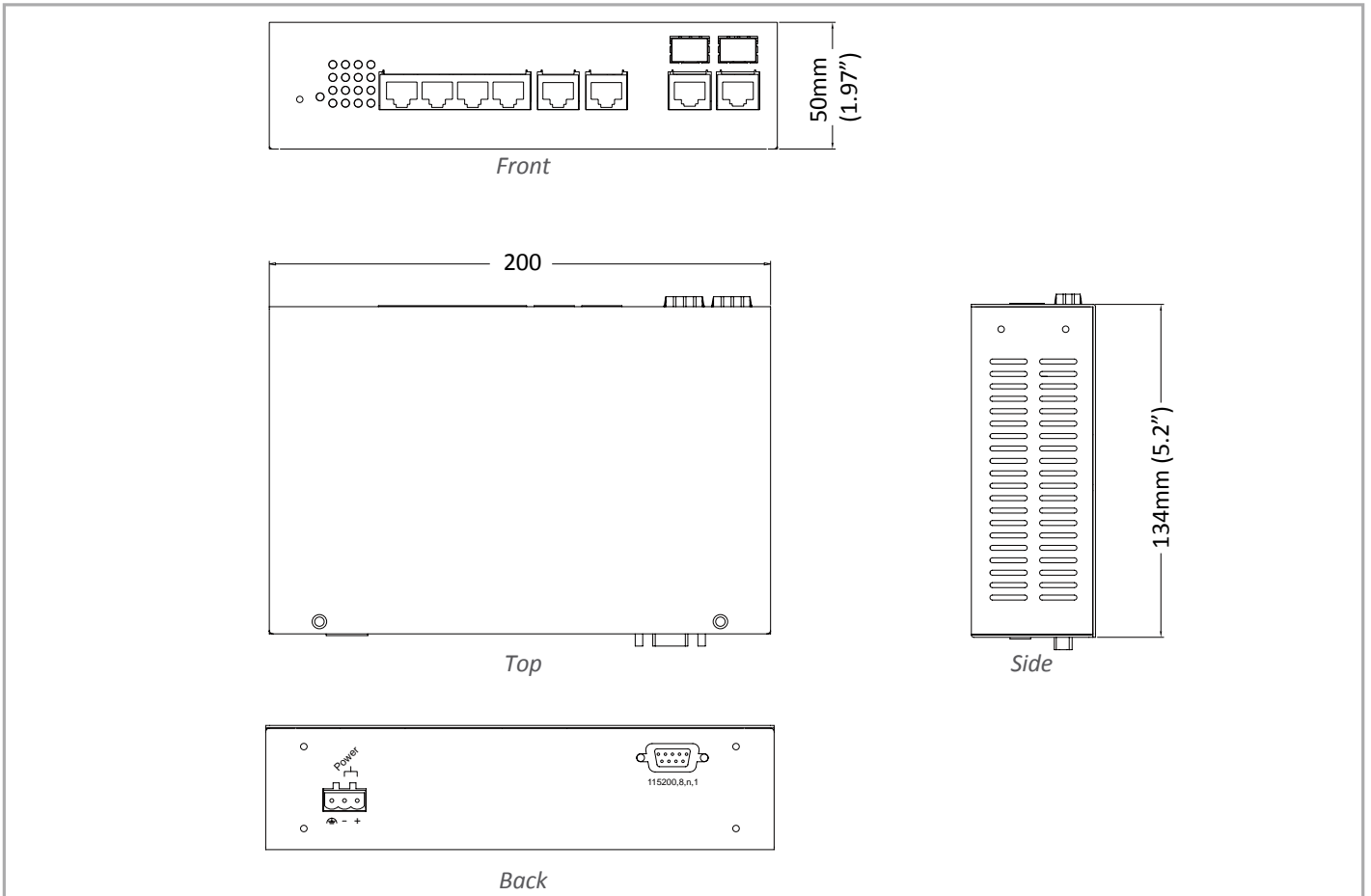
Industrial Compliance

NEMA TS2

Application Diagram



Dimensions



Ordering Information

Model

EX74X62-0VT	6-port 10/100BASE-TX + 2-port Gigabit SFP (DDM) combo Hardened Managed Ethernet Switch (Terminal Block Input)
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PoE Options (X)

0	Non-PoE
1	15.4W (4-port 802.3af)
2	30W (4-port 802.3af+ 30W)

Optional Accessories

KP-BK6212	Panel mounting kit
DD-85-48	85W/1.78A 48VDC Industrial Power Supply (<i>for 15.4W 802.3af</i>)
DR-75-48	75W/1.6A DIN-Rail 48VDC Industrial Power Supply (<i>for 15.4W 802.3af</i>)
DR-120-48	120W/2.5A DIN-Rail 48VDC Industrial Power Supply (<i>for 15.4W 802.3af</i>)
SDR-240-48	240W/5A DIN-Rail 48VDC Industrial Power Supply (<i>for 30W 802.3af+</i>)

EX76000 Series

Hardened Managed 16-port 10/100BASE PoE with 2-port Gigabit combo Ethernet Switch



Overview

EtherWAN's EX76000 Series provides a hardened 18-port switching platform supporting IEEE802.3af/at Power over Ethernet, high performance switching with robust management features required for mission-critical and harsh environments where sustained connectivity is crucial.

The EX76000 Series is equipped with 16 10/100BASE-TX PoE ports, in combination with two Gigabit SX/LX/BX/WDM combo port options. The IEEE802.3af/at PoE ports provide up to 15.4W/30W per port with a total power budget of 246W/480W, making the switch truly versatile for connecting with PoE Powered Devices (PD) with different bandwidth and power consumption requirements such as; outdoor PTZ dome cameras, wireless access points, and way-side communication devices.

1U rack mountable, the EX76000 Series is equipped with EtherWAN's Alpha-Ring self-healing ring technology providing less than 15ms fault recovery time. Users are able to access management features such as port security, IGMP snooping, port-based VLAN, GARP protocols, link aggregation, via web browser, telnet, SSH, SNMP, RMON, TFTP, and RS-232 console interfaces. With the hardened specifications, the EX76000 Series is designed to operate at -40°C to 75°C in harsh environments, where high ESD, shock, and vibration may be present.

EtherWAN – "When Connectivity is Crucial."

Spotlight

• PoE Connectivity

- Sixteen 10/100BASE IEEE802.3af/at Power over Ethernet ports
- Two Gigabit-SX/LX/BX combo ports

• Hardened Grade

- Wide operating temperature range from -40°C to 75°C (-40°F to 167°F) for extreme environments
- Fanless and ruggedized housing
- High shock and electric noise immunity
- Complies with UL508 safety requirements for industrial control devices

Software Features

Management

- Interface
 - CLI, Telnet and Web Browser
 - SNMP v1/v2c/v3
- Firmware and configuration upgrade and backup via TFTP
- Supports DHCP Server/Client
- RMON (Remote monitoring): group 1, 2, 3, 9
- Port mirroring: TX/RX and both
- NTP (Network Time Protocol) time synchronization
- IEEE802.1ab LLDP (Link Layer Discovery Protocol)

Security

- MAC address filtering
- Enable/disable port
- Storm control (broadcast and multicast types)
- IEEE802.1x LAN access control
- Remote authentication through RADIUS
- SSH for CLI and Telnet security
- SSL for web security
- Multi-level user account/password against unauthorized configuration
- System log (remote/local)

Quality of Service (QoS)

- Priority Queues: 4 queues per port
- Traffic classification based on IEEE802.1p CoS, DSCP, WRR (Weighted round robin) and strict mode
- Rate Limiting (Ingress/Egress)

Layer 2 Features

- Auto-negotiation for port speed and duplex mode
- Flow Control
 - IEEE802.3x full duplex mode
 - Back-Pressure half duplex mode
- Redundant Protocol
 - IEEE802.1D Spanning Tree Protocol (STP)
 - IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
 - IEEE802.1s Multiple Spanning Tree Protocol (MSTP)
 - Supports EtherWAN's Alpha-Ring topology for less than 15ms fault recovery time
- VLANs
 - Port-based VLANs
 - IEEE802.1Q Tag VLANs (128 groups, 4096 VID)
 - GVRP (GARP VLAN Registration Protocol)
 - GMRP (GARP Multicast Registration Protocol)
- Link Aggregation
 - Static Trunk (2 groups, support MAC base)
 - IEEE802.3ad Link Aggregation Control Protocol
- IGMP Snooping
 - IGMP snooping v1/v2/v3

Performance

- Switching Capability: 7.2Gbps
- Packet Buffer Size: 2M bits
- MAC Address Table: 8192

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex and flow control
- IEEE802.1p QoS
- IEEE802.1Q Tag VLANs
- IEEE802.1w RSTP
- IEEE802.1x Port-based Network Access Control
- IEEE802.3af/at Power over Ethernet (PoE)

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory

- 2M bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 8192 MAC addresses

Power

Input

- Redundant power inputs:
Terminal Block: 47 - 55VDC (IEEE802.3af version)
Terminal Block: 52 - 57VDC (IEEE802.3at version)

Power Consumption

- Max. 12W (without PoE)
- PoE power budget (depends on power input):
246.4W (IEEE802.3af version)
480W Max. (IEEE802.3at version)

PoE Power Output

- IEEE802.3af: up to 15.4W/port
- IEEE802.3at: up to 30W/port

Protection

- Reverse polarity protection

Mechanical

Casing

- Metal Case
- IP30

Dimensions

- 442mm (W) x 205mm (D) x 44mm (H)
17.40" (W) x 8.07" (D) x 1.73" (H)

Weight

- 3.5Kg (7.7lbs.)

Installation

- Rack mounting

Interface

Ethernet Port

- 10/100BASE-TX: 16, 12 or 8 ports
- 100BASE-FX: 0, 2 or 4 ports
- Gigabit: 0, 1 or 2 ports

Console Port

- Port: One DB9 RS-232 port

Alarm Contact

- One relay output with current 1A @ 24VDC

LED Indicators

- Per Unit: Power 1, Power 2
- Per PoE Port: PoE (Amber)
- Per Port: Link/Activity (Green), Speed (Green)

Environment

Operating Temperature

- -40°C to 75°C (-40°F to 167°F)
Tested @ -40°C to 85°C (-40°F to 185°F)

Storage Temperature

- -45°C to 85°C (-49°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

Safety

UL508

EMI

FCC Part 15B, Class A

EN61000-6-4

EN55022

EN61000-3-2

EN61000-3-3

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

Environmental Test Compliance

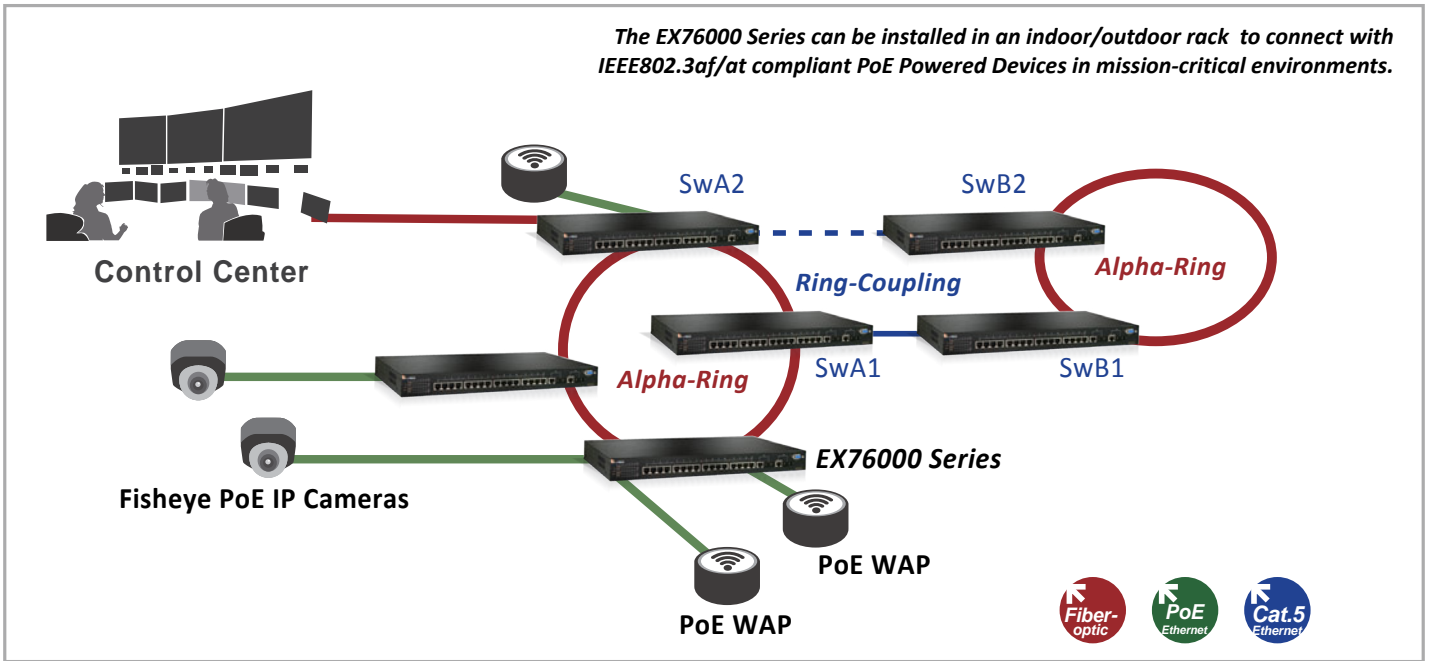
IEC60068-2-6 Fc (Vibration Resistance)

IEC60068-2-27 Ea (Shock)

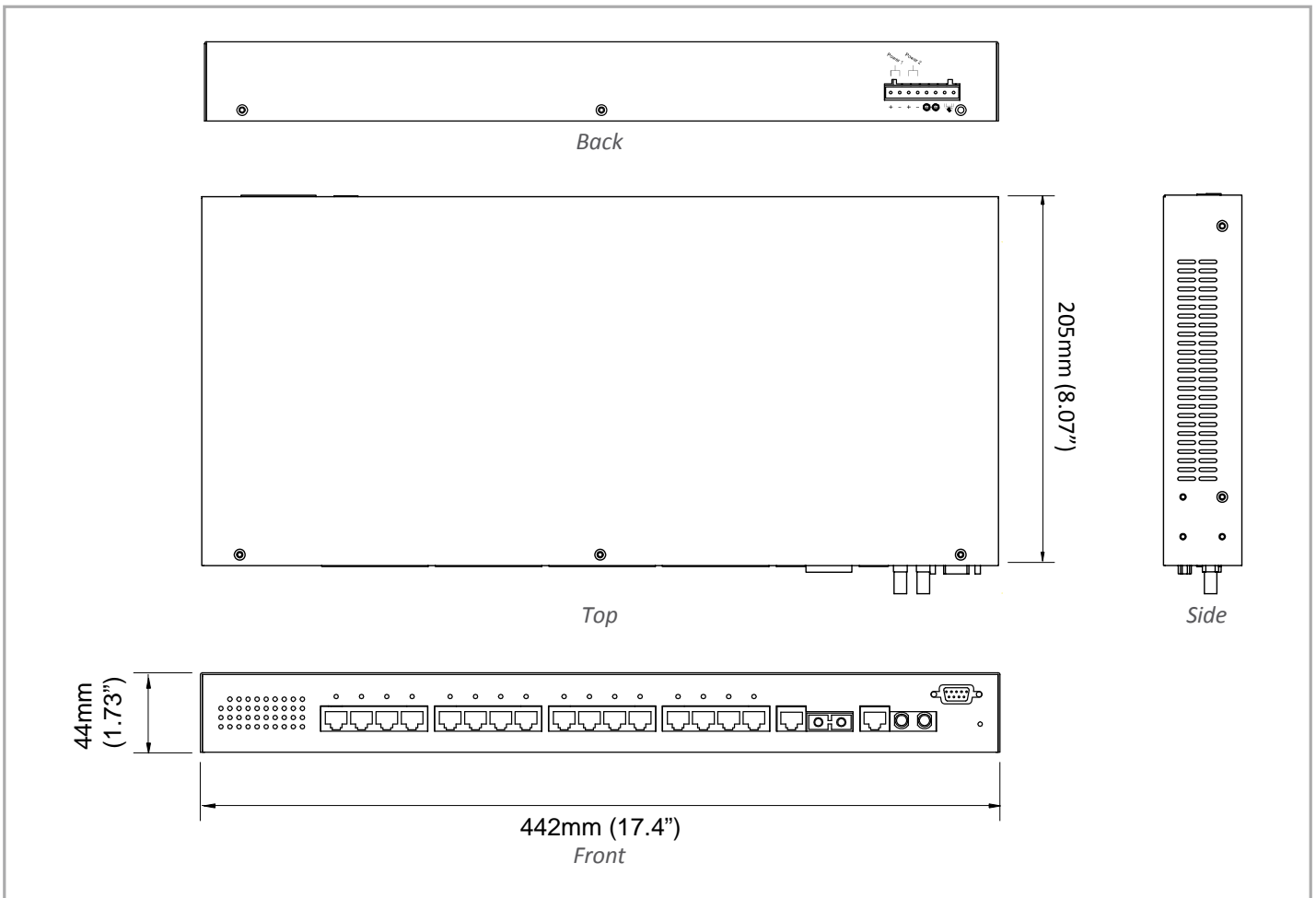
FED STD 101C Method 5007.1 (Free fall w/package)

Application Diagram

The EX76000 Series can be installed in an indoor/outdoor rack to connect with IEEE802.3af/at compliant PoE Powered Devices in mission-critical environments.



Dimensions



Ordering Information

Model

EX76400-00TP	16-port 10/100BASE-TX PoE Hardened Managed Ethernet Switch
EX76401-0YTP	16-port 10/100BASE-TX PoE + 1-port combo Gigabit Hardened Managed Ethernet Switch
EX76402-0YTP	16-port 10/100BASE-TX PoE + 2-port combo Gigabit Hardened Managed Ethernet Switch
EX76300-00TP	12-port 10/100BASE-TX PoE Hardened Managed Ethernet Switch
EX76301-0YTP	12-port 10/100BASE-TX PoE + 1-port combo Gigabit Hardened Managed Ethernet Switch
EX76302-0YTP	12-port 10/100BASE-TX PoE + 2-port combo Gigabit Hardened Managed Ethernet Switch
EX76320-X0TP	12-port 10/100BASE-TX PoE + 2-port 100BASE-FX Hardened Managed Ethernet Switch
EX76321-XYTP	12-port 10/100BASE-TX PoE + 2-port 100BASE-FX + 1-port combo Gigabit Hardened Managed Ethernet Switch
EX76322-XYTP	12-port 10/100BASE-TX PoE + 2-port 100BASE-FX + 2-port combo Gigabit Hardened Managed Ethernet Switch
EX76200-00TP	8-port 10/100BASE-TX PoE Hardened Managed Ethernet Switch
EX76201-0YTP	8-port 10/100BASE-TX PoE + 1-port combo Gigabit Hardened Managed Ethernet Switch
EX76202-0YTP	8-port 10/100BASE-TX PoE + 2-port combo Gigabit Hardened Managed Ethernet Switch
EX76220-X0TP	8-port 10/100BASE-TX PoE + 2-port 100BASE-FX Hardened Managed Ethernet Switch
EX76221-XYTP	8-port 10/100BASE-TX PoE + 2-port 100BASE-FX + 1-port combo Gigabit Hardened Managed Ethernet Switch
EX76222-XYTP	8-port 10/100BASE-TX PoE + 2-port 100BASE-FX + 2-port combo Gigabit Hardened Managed Ethernet Switch
EX76240-X0TP	8-port 10/100BASE-TX PoE + 4-port 100BASE-FX Hardened Managed Ethernet Switch
EX76241-XYTP	8-port 10/100BASE-TX PoE + 4-port 100BASE-FX + 1-port combo Gigabit Hardened Managed Ethernet Switch
EX76242-XYTP	8-port 10/100BASE-TX PoE + 4-port 100BASE-FX + 2-port combo Gigabit Hardened Managed Ethernet Switch

* Rack mounting kit included

100FX Fiber Options (X)

1	Multi Mode (SC) - 2Km
2	Multi Mode (ST) - 2Km
6	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 2Km
7	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 2Km
8	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km
9	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km
A	Single Mode (SC) - 20Km
B	Single Mode (SC) - 40Km
H	Single Mode (ST) - 20Km
P	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 20Km
Q	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 20Km
R	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 40Km
S	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 40Km

*More 100FX Fiber options also available upon request.

Ordering Information - continued

Gigabit Port Options (Y)

1	10/100/1000BASE-TX (No Gigabit Fiber port supported)
3	Combo port: 10/100/1000BASE-TX with 1000BASE-SX(SC) - 550m
4	Combo port: 10/100/1000BASE-TX with 1000BASE-SX (SC) - 2Km
5	Combo port: 10/100/1000BASE-TX with 1000BASE-SX (ST) - 550m
A	Combo port: 10/100/1000BASE-TX with 1000BASE-LX (SC) - 10Km
B	Combo port: 10/100/1000BASE-TX with 1000BASE-LX (SC) - 20Km
R	Combo port: 10/100/1000BASE-TX with 1000BASE-BX (SC) WDM-TX:1310nm/RX:1550nm - 20Km
S	Combo port: 10/100/1000BASE-TX with 1000BASE-BX (SC) WDM-TX:1550nm/RX:1310nm - 20Km

* More Gigabit options also available upon request.

PoE Type (P)

T	16 ports of IEEE802.3at
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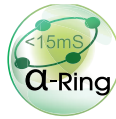
* If no alphabet specified, the model has 16 ports of IEEE802.3af

Optional Accessories

DR-120-48	120W/2.5A DIN-Rail 48VDC industrial power supply
SDR-240-48	240W/5A DIN-rail 48VDC industrial power supply
SDR-480-48	480W/10A DIN-Rail 48VDC industrial power supply

EX77000 Series

Hardened Managed 24-port 10/100BASE and 4-port Gigabit Ethernet Switch with SFP options



Overview

EtherWAN's EX77000 Series provides a Hardened Fully Managed 28-port switching platform combining high performance switching backbone with robust and secure management features required for mission critical and harsh environments where sustained connectivity is crucial.

The EX77000 Series is equipped with twenty-four 10/100BASE Fast Ethernet ports, in combination with up to four Gigabit, Fixed Fiber, or SFP Combo port options. Mountable on a 1U rack, the EX77000 Series is equipped with EtherWAN's Alpha-Ring self-healing technology, providing less than 15ms fault recovery time making it ideal for applications intolerant to interruption.

Users are able to access management features such as port security, IGMP snooping, VLANs, GARP protocols, LACP, and via web browser, Telnet, SNMP, RMON, TFTP, and RS-232 console interfaces.

EtherWAN — "When Connectivity is Crucial."

Spotlight

• Versatile Connectivity

- Provides flexibility of 24-port 10/100BASE-TX/FX/BX/SFP plus 4-port Gigabit-TX/SX/LX/BX/SFP

• Hardened Grade

- Wide operating temperature range for extreme environments
- Fanless and ruggedized housing
- High shock and electric noise immunity

• Secure Remote Access

- IEEE802.1x, ACL(Access Control List), and RADIUS support

Software Features

Management

- Interface
 - CLI, Telnet and Web Browser
 - SNMP v1/v2c/v3
- Firmware and configuration upgrade and backup via TFTP
- Supports DHCP Server/Client
- RMON (Remote monitoring)
- Port mirroring: TX/RX and both
- NTP (Network Time Protocol) time synchronization
- IEEE802.1ab LLDP (Link Layer Discovery Protocol)

Security

- MAC address filtering
- Enable/disable port
- Storm control (broadcast and multicast types)
- IEEE802.1x LAN access control
- Remote authentication through RADIUS
- SSH for CLI and Telnet security
- SSL for web security
- Multi-level user account/password against unauthorized configuration
- System log (remote/local)
- ACL

Quality of Service (QoS)

- Priority Queues: 4 queues per port
- Traffic classification based on IEEE802.1p CoS, DSCP, WRR (Weighted round robin) and strict mode
- Rate Limiting (Ingress/Egress)

Layer 2 Features

- Auto-negotiation for port speed and duplex mode
- Flow Control
 - IEEE802.3x full duplex mode
 - Back-Pressure half duplex mode
- Redundant Protocol
 - IEEE802.1D Spanning Tree Protocol (STP)
 - IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
 - IEEE802.1s Multiple Spanning Tree Protocol (MSTP)
 - EtherWAN's Alpha-Ring with network fault recovery (<15ms)
- VLANs
 - Port-based VLANs
 - IEEE802.1Q Tag VLANs (128 groups, 4096 VID)
 - GVRP (GARP VLAN Registration Protocol)
 - GMRP (GARP Multicast Registration Protocol)
- Link Aggregation
 - Static Trunk (8 groups, support MAC base)
 - IEEE802.3ad Link Aggregation Control Protocol
- IGMP Snooping
 - IGMP snooping v1/v2/v3

Performance

- Switching Capability: 12.8Gbps
- Packet Buffer Size: 3M bit
- MAC Address Table: 8192

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex and flow control
- IEEE802.1p QoS
- IEEE802.1Q Tag VLANs
- IEEE802.1w RSTP
- IEEE802.1x Port-based Network Access Control

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory

- 3M bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 8192 MAC addresses

Power

Input

- (T): + / - 48VDC (36 - 75VDC) Internal Universal PSU
- (W): 88 - 370VDC and 90 - 264VAC Internal Universal PSU
- (C): 90 - 264VAC, 50 - 60Hz Internal Universal PSU

Power Consumption

- 42.7W Max.

Mechanical

Casing

- Metal Case
- IP30

Dimensions

- Single Power:
442mm (W) x 250mm (D) x 44.2mm (H)
(7.4" (W) x 9.8" (D) x 1.74" (H))
- Redundant Power:
442mm (W) x 375mm (D) x 44.2mm (H)
17.4"(W) x 14.7" (D) x 1.74"(H)

Weight

- 6.2Kg (13.7lbs)

Installation

- Rack mounting

Interface

Ethernet Port

- 10/100BASE-TX: 24, 20, 16, 12, 8, 4 or 0 port
- 100BASE-FX: 0, 4, 8, 12, 16, 20 or 24 ports
- 100BASE-SFP: 0 or 24 ports
- 10/100/1000BASE TX or 1000BASE SX/LX: 0, 2 or 4 ports
- Gigabit-SFP Combo: 0 or 4 ports

Console Port

- Port: One DB9 RS-232 port

LED Indicators

- Per Unit: Power
- Per Port: Link/Activity (Green)
- Per SFP port: Selected (Green)

Environment

Operating Temperature

- -40°C to 75°C (-40°F to 167°F)
- Tested @ -40°C to 85°C (-40°F to 185°F)

Storage Temperature

- -45°C to 85°C (-49°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

EMI

FCC Part 15B, Class A

EN61000-6-4

EN55022

EN61000-3-2

EN61000-3-3

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

Environmental Test Compliance

IEC60068-2-6 Fc (Vibration Resistance)

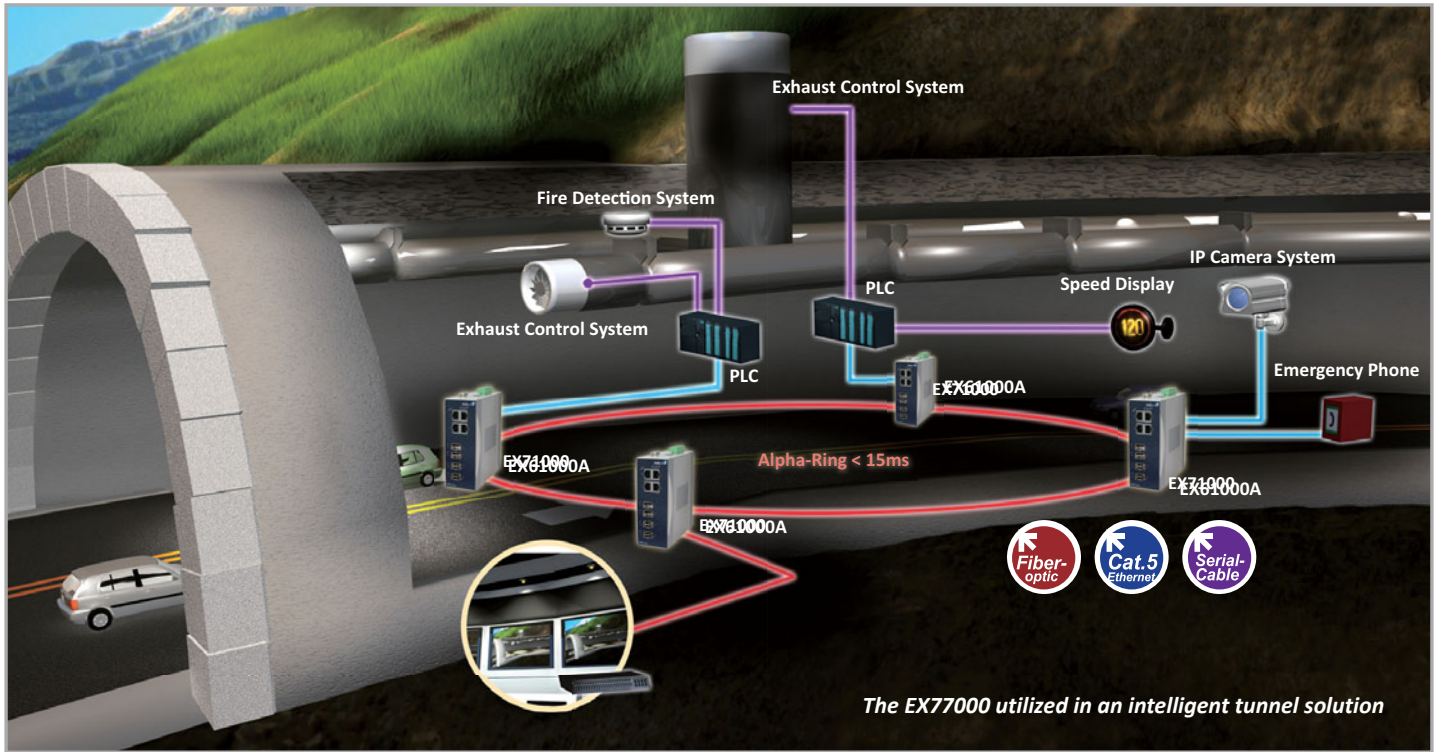
IEC60068-2-27 Ea (Shock)

FED STD 101C Method 5007.1 (Free fall w/ package)

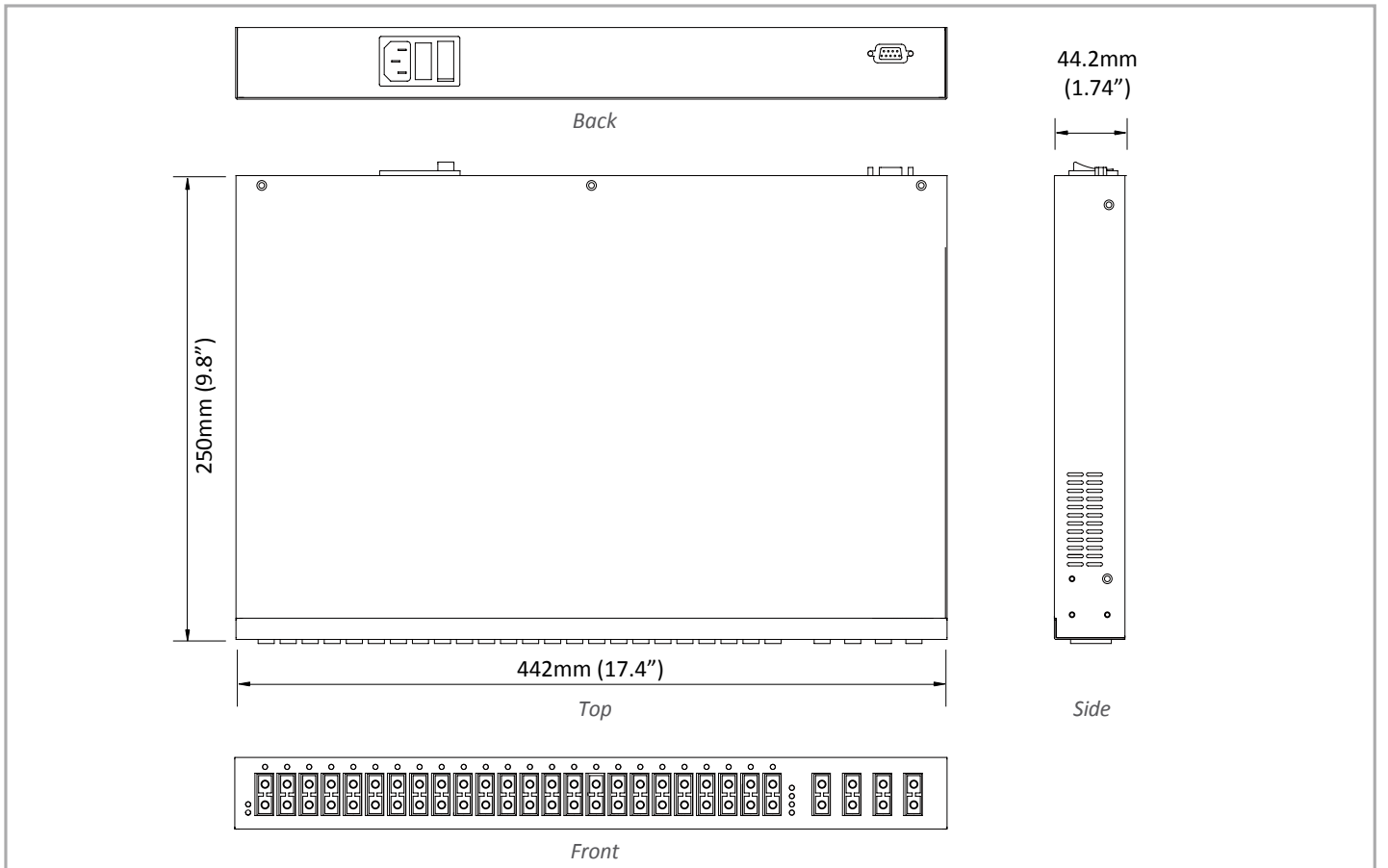
Industrial Compliance

NEMA TS2

Application Diagram



Dimensions



Ordering Information

Model

EX77604-0XYZ	24-port 10/100BASE-TX + 4-port Gigabit Managed Ethernet Switch
EX77424-WXYZ	16-port 10/100BASE-TX + 8-port 100BASE-FX + 4-port Gigabit Managed Ethernet Switch
EX77244-WXYZ	8-port 10/100BASE-TX + 16-port 100BASE-FX + 4-port Gigabit Managed Ethernet Switch
EX77064-WXYZ	24-port 100BASE-FX + 4-port Gigabit Managed Ethernet Switch
EX77064-V0VZ	24-port 100BASE-SFP + 4-port Gigabit SFP Combo Managed Ethernet Switch

* Rack mounting kit included

100FX Fiber Options (W)

1	Multi Mode (SC) - 2Km
2	Multi Mode (ST) - 2Km
6	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 2Km
7	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 2Km
8	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km
9	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km
A	Single Mode (SC) - 20Km
B	Single Mode (SC) - 40Km
F	Single Mode (FC) - 20Km
H	Single Mode (ST) - 20Km
P	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 20Km
Q	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 20Km
R	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 40Km
S	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 40Km
V	SFP

Numbers of fixed Gigabit Fiber (X)

0	None
1	One Gigabit Fiber Port
2	Two Gigabit Fiber Ports
3	Three Gigabit Fiber Ports
4	Four Gigabit Fiber Ports

Gigabit Port Options (Y)

1	10/100/1000BASE-TX
3	1000BASE-SX(SC) - 550m
4	1000BASE-SX (SC) - 2Km
A	1000BASE-LX (SC) - 10Km
B	1000BASE-LX (SC) - 20Km
R	1000BASE-BX (SC) WDM-TX:1310nm/RX:1550nm - 20Km
S	1000BASE-BX (SC) WDM-TX:1550nm/RX:1310nm - 20Km
V	4-port 1000 BASE SFP Combo with 10/100/1000BASE-TX

Ordering Information - continued

Power Input Interface (Z)

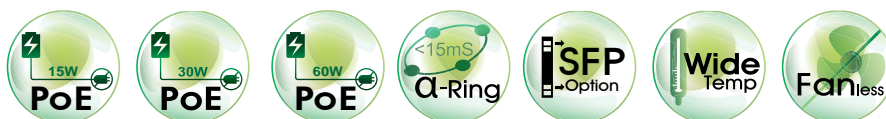
T	± 48VDC (Terminal Block)
W	88 - 370VDC and 90 - 264VAC (Terminal Block)
C	90 - 264VAC (AC Inlet)
TR	± 48VDC Redundant (Terminal Block)
WR	88 - 370VDC and 90 - 264VAC Redundant (Terminal Block)
CR	90 - 264VAC Redundant (AC Inlet)

EX78900 Series

Hardened Managed 16-port (8 x PoE) Gigabit Ethernet Switch



- 8 X PoE — provides 60 watt Ultra PoE ports
- Power Budget: 240W



Overview

EtherWAN's EX78900 Series is a hardened DIN-rail mounted 16-port Gigabit switching platform. It features with 60W and IEEE802.3at/af Power over Ethernet combining with robust management features required for mission-critical and harsh environments where sustained connectivity is crucial.

The EX78900 Series is equipped with 12 x 10/100/1000 BASE-TX (8 x PoE port), in combination with 4 Gigabit SFP ports. The Ultra PoE ports provide up to 60W/port with a total power budget of 240W, making the switch truly versatile to connect with PoE Powered Devices (PD) with different bandwidth and power consumption requirements such as outdoor PTZ dome cameras, wireless access points, and way-side communication devices. The EX78900 Series is equipped with EtherWAN's Alpha-Ring self-healing technology, providing less than 15ms fault recovery time making it ideal for applications intolerant to interruption. Users are able to access management features such as port security, IGMP snooping, port-based VLAN, GARP protocols, link aggregation and ACL, via web browser, telnet, SSH, SNMP, RMON, TFTP, and RS-232 console interfaces.

With the hardened specifications, the EX78900 Series is designed to operate at -40°C to 75°C in harsh environments, where high ESD, shock, and vibration may be present.

EtherWAN — "When Connectivity is Crucial."

Spotlight

• Ultra PoE Switch

- Up to 12 ports with 8 Ports PoE, support 60W/ IEEE802.3af/at, and 4 Gigabit SFP ports for high-bandwidth communication

• Intelligent Management

- Optimize network performance with QoS, VLAN, and PoE scheduling, etc.

• Remote Secure Access

- IEEE802.1x, ACL and RADIUS support

Software Features

Management

- Interface
 - CLI, Telnet and Web Browser
 - SNMP v1/v2c/v3
- Firmware and configuration upgrade and backup via TFTP
- Supports DHCP Server/Client
- RMON (Remote monitoring): group 1, 2, 3, 9
- Port mirroring: TX/RX and both
- NTP (Network Time Protocol) time synchronization
- IEEE802.1ab LLDP (Link Layer Discovery Protocol)

Security

- MAC address filtering
- Enable/disable port
- Storm control (broadcast and multicast types)
- IEEE802.1x LAN access control
- Remote authentication through RADIUS
- SSH for CLI and Telnet security
- SSL for web security
- System log (remote/local)
- ACL

Quality of Service (QoS)

- Priority Queues: 4 queues per port
- Traffic classification based on IEEE802.1p CoS, DSCP, WRR (Weighted round robin) and strict mode
- Rate Limiting (Ingress/Egress)

Layer 2 Features

- Auto-negotiation for port speed and duplex mode
 - Flow Control
 - IEEE802.3x full duplex mode
 - Back-Pressure half duplex mode
- Redundant Protocol
 - IEEE802.1D Spanning Tree Protocol (STP)
 - IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
 - IEEE802.1s Multiple Spanning Tree Protocol (MSTP)
 - EtherWAN's α -Ring network fault recovery <15ms
- VLANs
 - Port-based VLANs
 - IEEE802.1Q Tag VLANs (128 groups, 4096 VID)
 - GVRP (GARP VLAN Registration Protocol)
 - GMRP (GARP Multicast Registration Protocol)
- Link Aggregation
 - Static Trunk (4 groups, support MAC base)
 - IEEE802.3ad Link Aggregation Control Protocol
- IGMP Snooping
 - IGMP snooping v1/v2/v3

Performance

- Switching Capability: 16Gbps
- Packet Buffer Size: 12M bits
- MAC Address Table: 16K
- Jumbo Frame: 9216 bytes

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex and flow control
- IEEE802.1p QoS
- IEEE802.1Q Tag VLANs
- IEEE802.1w RSTP
- IEEE802.1x Port-based Network Access Control
- IEEE802.3af/at Power over Ethernet

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory

- 12M bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Jumbo Frame

- 9216 bytes

Address Table Size

- 16K MAC addresses

Power

Input

- Redundant power inputs:
Terminal Block: 52 - 57VDC

Power Consumption

- Device: Max. 20W (without PoE)

PoE Power Output

- PoE can be configured as:
 1. 6-port 15.4 W PoE and 2- port 60 watt PoE
 2. 8-port 30W PoE
 3. 4-port 10/100/1000 TX and 4-port 60 watt PoE
 4. Other PoE power level configuration can be done through firmware
- PoE power budget: 240W

Protection

- Reverse polarity protection

Mechanical

Casing

- Aluminum Case
- IP30

Dimensions

- 72mm (W) x 140mm (D) x 170mm (H)
(2.8"(W) x 5.5"(D)x 6.7"(H))

Weight

- 1.1Kg (2.42lbs.)

Installation

- DIN-Rail (Top hat type35mm), Rack, or Wall mounting

Interface

Ethernet Port

- 10/100/1000BASE-TX (PoE): 8 or 12 ports
- 1000BASE-SX/LX/SFP: 4 ports

Console Port

- Port: One DB9 RS-232 port

Alarm Contact

- One relay output with current 1A @ 24VDC

LED Indicators

- Per Unit: Power 1, Power 2
- Per PoE Port: PoE Status (Orange)
- Per Port: Link/Activity (Green)

Environment

Operating Temperature

- -40°C to 75°C (-40°F to 167°F)
Tested @ -40°C to 85°C (-40°F to 185°F)

Storage Temperature

- -40°C to 85°C (-40°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

EMI

FCC Part 15B, Class A

EN61000-6-4

EN55022

EN61000-3-2

EN61000-3-3

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

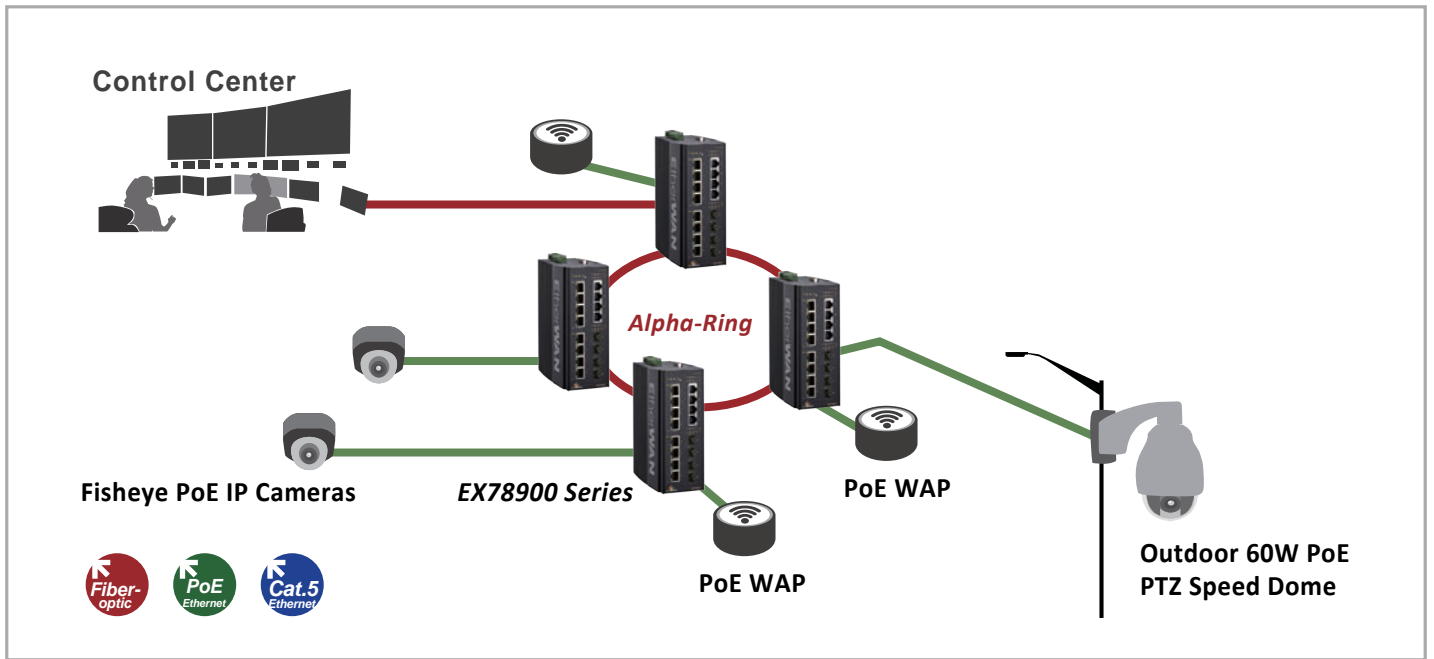
Environmental Test Compliances

IEC60068-2-6 Fc (Vibration)

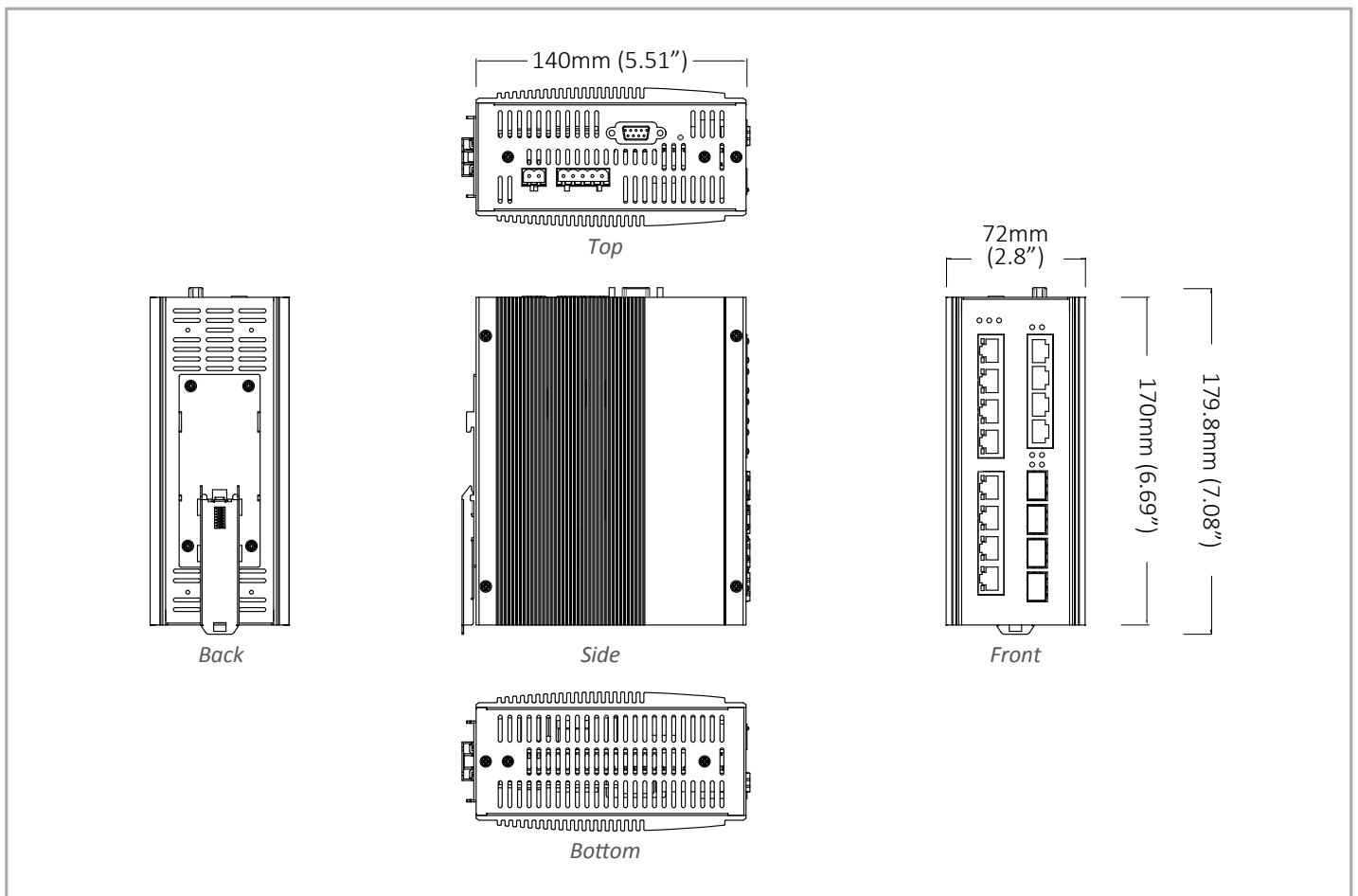
IEC60068-2-27 Ea (Shock)

IEC60068-2-32 Ed (Free fall)

Application Diagram



Dimensions



Ordering Information

Models

EX78931-0VB	12-Port 10/100/1000BASE-TX with 8-port PoE + 4-port Gigabit SFP Hardened Managed Ethernet Switch
EX78921-0VB	8-Port 10/100/1000BASE-TX PoE + 4-Port Gigabit SFP Hardened Managed Ethernet Switch
EX78921-0XB	8-Port 10/100/1000BASE-TX PoE + 4-Port Gigabit Fiber Hardened Managed Ethernet Switch

* DIN-Rail mounting kit included

Gigabit Port Options (X)

3	1000BASE-SX(SC) - 550m
4	1000BASE-SX (SC) - 2Km
5	1000BASE-SX (ST) - 550m
A	1000BASE-LX (SC) - 10Km
B	1000BASE-LX (SC) - 20Km
R	1000BASE-BX (SC) WDM-TX:1310nm/RX:1550nm - 20Km
S	1000BASE-BX (SC) WDM-TX:1550nm/RX:1310nm - 20Km

Optional Accessories

SDR-480-48	480W/10A DIN-Rail 48VDC Industrial Power Supply (for terminal block)
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EX87000 Series

IEC61850-3/IEEE1613 Hardened Managed 24-port 10/100BASE and 4-port Gigabit Ethernet Switch with SFP options



Overview

EtherWAN's EX87000 Series provides a Hardened Fully Managed 28-port switching platform combining high performance switching backbone with robust and secure management features required for mission critical and harsh environments where sustained connectivity is crucial.

The EX87000 Series is equipped with twenty-four 10/100BASE Fast Ethernet ports, in combination with up to four Gigabit, Fixed Fiber, or SFP Combo port options. Mountable on a 1U rack, the EX87000 Series is equipped with EtherWAN's Alpha-Ring self-healing technology, providing less than 15ms fault recovery time making it ideal for applications intolerant to interruption.

Users are able to access management features such as port security, IGMP snooping, VLANs, GARP protocols, LACP, and GOOSE messaging to name a few, via web browser, Telnet, SNMP, RMON, TFTP, and RS-232 console interfaces. With its hardened-grade specifications and IEC61850 & IEEE1613 certifications, the EX87000 Series is capable of operating under high EMI environments at the temperatures ranging from -40°C to 75°C , making it an ideal choice for harsh applications.

EtherWAN – "When Connectivity is Crucial."

Spotlight

• Versatile Connectivity

- Provides flexibility of 24-port 10/100BASE-TX/FX/BX/SFP plus 4-port Gigabit-TX/SX/LX/BX/SFP

• Hardened Grade

- Wide operating temperature range for extreme environments
- Fanless and ruggedized housing
- High shock and electric noise immunity

• KEMA-Certified

- IEC61850-3 and IEEE1613 performance tests conducted by KEMA

Software Features

Management

- Interface
 - CLI, Telnet and Web Browser
 - SNMP v1/v2c/v3
- Firmware and configuration upgrade and backup via TFTP
- Supports DHCP Server/Client
- RMON (Remote monitoring)
- Port mirroring: TX/RX and both
- NTP (Network Time Protocol) time synchronization
- IEEE802.1ab LLDP (Link Layer Discovery Protocol)

Security

- MAC address filtering
- Enable/disable port
- Storm control (broadcast and multicast types)
- IEEE802.1x LAN access control
- Remote authentication through RADIUS
- SSH for CLI and Telnet security
- SSL for web security
- ACL

Quality of Service (QoS)

- Priority Queues: 4 queues per port
- Traffic classification based on IEEE802.1p CoS, DSCP, WRR (Weighted round robin) and strict mode
- Rate Limiting (Ingress/Egress)

Layer 2 Features

- Auto-negotiation for port speed and duplex mode
- Flow Control
 - IEEE802.3x full duplex mode
 - Back-Pressure half duplex mode
- Redundant Protocol
 - IEEE802.1D Spanning Tree Protocol (STP)
 - IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
 - IEEE802.1s Multiple Spanning Tree Protocol (MSTP)
 - EtherWAN's α -Ring network fault recovery (<15ms) and α -Chain
- VLANs
 - Port-based VLANs
 - IEEE802.1Q Tag VLANs (128 groups, 4096 VID)
 - GVRP (GARP VLAN Registration Protocol)
 - GMRP (GARP Multicast Registration Protocol)
- Link Aggregation
 - Static Trunk (8 groups, support MAC base)
 - IEEE802.3ad Link Aggregation Control Protocol
- IGMP Snooping
 - IGMP snooping v1/v2/v3

Performance

- Switching Capability: 12.8Gbps
- Packet Buffer Size: 3M bits
- MAC Address Table: 4K

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex and flow control
- IEEE802.1p QoS
- IEEE802.1Q Tag VLANs
- IEEE802.1w RSTP
- IEEE802.1x Port-based Network Access Control

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory

- 3M bits

Processing Type

- Store-and-Forward
- Auto-Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 8192 MAC addresses

Power

Input

- (T): + / - 48VDC (36 - 75VDC) Internal Universal PSU
- (W): 88 - 370VDC and 90 - 264VAC Internal Universal PSU
- (C): 90 - 264VAC, 50 - 60Hz Internal Universal PSU

Power Consumption

- 42.7W Max.

Mechanical

Casing

- Metal Case
- IP30

Dimensions

- Single Power:
442mm (W) x 284mm (D) x 44.2mm (H);
17.4" (W) x 11.1" (D) x 1.74" (H)
- Redundant Power:
442mm (W) x 375mm (D) x 44.2mm (H);
17.4"(W) x 14.7" (D) x 1.74"(H)

Weight

- Single Power: 5.1Kg (11.2lbs.)
- Redundant Power: 6.2Kg (13.7lbs.)

Installation

- Rack mounting

Interface

Ethernet Port

- 10/100BASE-TX: 24, 16, 8 or 0 port
- 100BASE-FX: 0, 4, 8, 12, 16, 20 or 24 ports
- Gigabit: 0, 2 or 4 ports

Console Port

- Port: One DB9 RS-232 port

LED Indicators

- Per Unit: Power
- Per Port: Link/Activity (Green)
- Per SFP slot: Selected (Green)

Environment

Operating Temperature

- -40°C to 75°C (-40°F to 167°F)
- Tested @ -40°C to 85°C (-40°F to 185°F)

Storage Temperature

- -45°C to 85°C (-49°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

EMI

FCC Part 15B, Class A

EN61000-6-4

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)
- IEC61000-4-10 (Oscillatory wave magnetic field test)
- IEC61000-4-16 (Power frequency immunity test)
- IEC61000-4-18 (Oscillatory wave immunity test)

Environmental Test Compliance

IEC60068-2-6 Fc (Vibration Resistance)

IEC60068-2-27 Ea (Shock)

FED STD 101C Method 5007.1 (Free fall w/ package)

Industrial Compliance

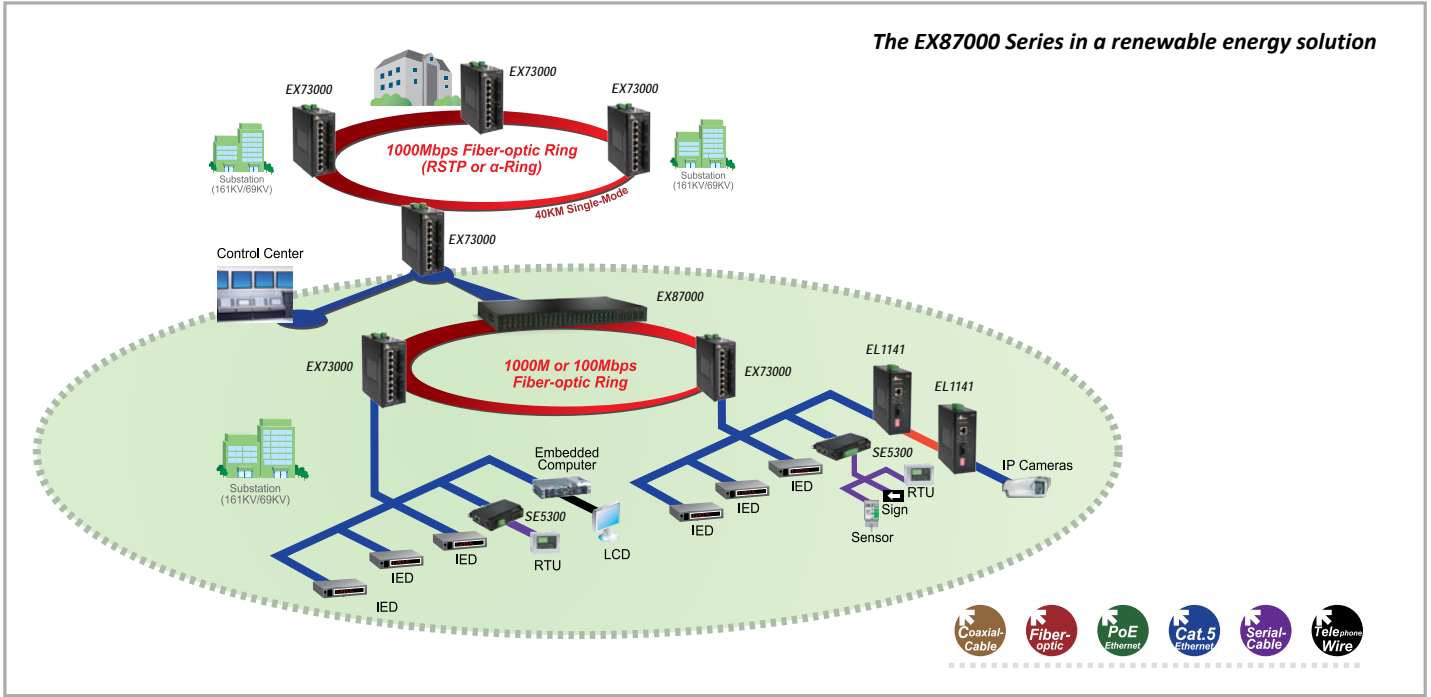
IEC61850-3 / IEEE1613

EN50121-4

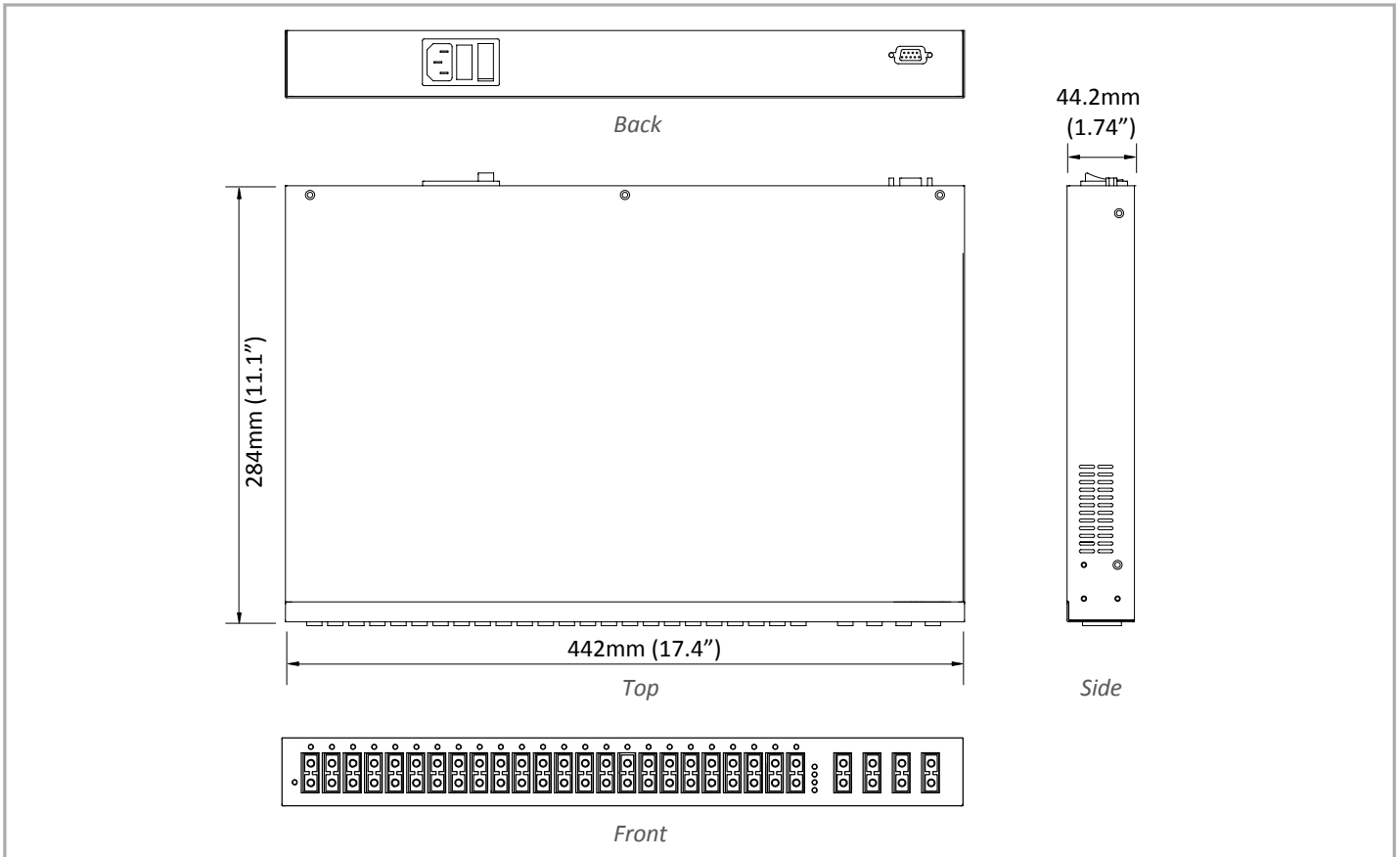
IEC60870-2-1

Application Diagram

The EX87000 Series in a renewable energy solution



Dimension



Ordering Information

Model

EX87604-0XYZ	Hardened Managed 24-port 10/100BASE-TX + 4-port Gigabit Ethernet Switch
EX87424-WXYZ	Hardened Managed 16-port 10/100BASE-TX + 8-port 100BASE-FX + 4-port Gigabit Ethernet Switch
EX87412-WXYZ	Hardened Managed 16-port 10/100BASE-TX + 4-port 100BASE-FX + 4-port Gigabit Ethernet Switch
EX87244-WXYZ	Hardened Managed 8-port 10/100BASE-TX + 16-port 100BASE-FX + 4-port Gigabit Ethernet Switch
EX87064-WXYZ	Hardened Managed 24-port 100BASE-FX + 4-port Gigabit Ethernet Switch
EX87064-V0VZ	Hardened Managed 24-port 100BASE-SFP + 4-port Gigabit SFP Combo Ethernet Switch

* Rack mounting kit included

100FX Fiber Options (W)

1	Multi Mode (SC) - 2Km
2	Multi Mode (ST) - 2Km
6	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 2Km
7	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 2Km
8	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km
9	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km
A	Single Mode (SC) - 20Km
B	Single Mode (SC) - 40Km
F	Single Mode (FC) - 20Km
H	Single Mode (ST) - 20Km
P	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 20Km
Q	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 20Km
R	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 40Km
S	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 40Km
V	100BASE SFP

*More 100FX Fiber options also available upon request.

Numbers of fixed Gigabit Fiber (X)

0	None
1	One Gigabit Fiber Port
2	Two Gigabit Fiber Ports
3	Three Gigabit Fiber Ports
4	Four Gigabit Fiber Ports

Gigabit Port Options (Y)

1	10/100/1000BASE-TX
3	1000BASE-SX(SC) - 550m
4	1000BASE-SX (SC) - 2Km
5	1000BASE-SX (ST) - 550m
A	1000BASE-LX (SC) - 10Km
B	1000BASE-LX (SC) - 20Km
R	1000BASE-BX (SC) WDM-TX:1310nm/RX:1550nm - 20Km
S	1000BASE-BX (SC) WDM-TX:1550nm/RX:1310nm - 20Km
V	4-port 1000BASE SFP Combo with 10/100/1000BASE-TX

* More Gigabit options also available upon request

Ordering Information - continued

Power Input Interface (Z)

T	± 48VDC (Terminal Block)
W	88 - 370VDC and 90 - 264VAC (Terminal Block)
C	90 - 264VAC (AC Inlet)
TR	± 48VDC Redundant (Terminal Block)
WR	88 - 370VDC and 90 - 264VAC Redundant (Terminal Block)
CR	90 - 264VAC Redundant (AC Inlet)

EX89000 Series

IEC61850-3/IEEE1613 Modulized Hardened Managed 24-port
10/100BASE and 4-port Gigabit Ethernet Switch with SFP options



Overview

EtherWAN's EX89000 Series provides a Hardened Fully Managed 28-port switching platform combining high performance switching backbone with robust and secure management features required for mission critical and harsh environments where sustained connectivity is crucial.

Highly modulized, the EX89000 switch supports up to 28 electrical and/or optical interfaces with data transfer rates of 10/100 Mbps and up to four Gigabit, Fixed Fiber, or SFP Combo port options. Mountable on a 1U rack, the EX89000 Series is equipped with EtherWAN's Alpha-Ring self-healing technology, providing less than 15ms fault recovery time making it ideal for applications intolerant to interruption.

Users are able to access management features such as port security, IGMP snooping, VLANs, GARP protocols, LACP, and GOOSE messaging to name a few, via web browser, Telnet, SNMP, RMON, TFTP, and RS-232 console interfaces. With its hardened-grade specifications and IEC61850 & IEEE1613 certifications, the EX89000 Series is capable of operating under high EMI environments at the temperatures ranging from -40°C to 75°C, making it an ideal choice for harsh applications.

EtherWAN—"When Connectivity is Crucial."

Spotlight

• Versatile Connectivity

- Modulized 24-port 10/100BASE-TX/FX/BX and 4-port Gigabit-TX/SX/LX/BX/SFP

• Hardened Grade

- Wide operating temperature range for extreme environments
- Fanless and ruggedized housing
- High shock and electric noise immunity

• IEC61850-3 & IEEE1613 Certified

- Meets the standards for operating in power substation zones

Software Features

Management

- Interface
 - CLI, Telnet and Web Browser
 - SNMP v1/v2c/v3
- Firmware and configuration upgrade and backup via TFTP
- Supports DHCP Server/Client
- RMON (Remote monitoring)
- Port mirroring: TX/RX and both
- NTP (Network Time Protocol) time synchronization

Security

- MAC Address by port security
- Enable/disable port
- Storm control (broadcast and multicast types)
- IEEE802.1x LAN access control
- Remote authentication through RADIUS

Quality of Service (QoS)

- Priority Queues: 4 queues per port
- Traffic classification based on IEEE802.1p CoS, DSCP, WRR (Weighted round robin) and strict mode
- Rate Limiting (Ingress/Egress)

Layer 2 Features

- Auto-negotiation for port speed and duplex mode
- Flow Control
 - IEEE802.3x full duplex mode
 - Back-Pressure half duplex mode
- Redundant Protocol
 - IEEE802.1D Spanning Tree Protocol (STP)
 - IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
 - IEEE802.1s Multiple Spanning Tree Protocol (MSTP)
 - Supports EtherWAN's Alpha-Ring topology for less than 15ms fault recovery time
- VLANs
 - Port-based VLANs
 - IEEE802.1Q Tag VLANs (128 groups, 4096 VID)
 - GVRP (GARP VLAN Registration Protocol)
 - GMRP (GARP Multicast Registration Protocol)
- Link Aggregation
 - Static Trunk (8 groups, support MAC base)
 - IEEE802.3ad Link Aggregation Control Protocol
- IGMP Snooping
 - IGMP snooping v1/v2/v3

Performance

- Switching Capability: 12.8Gbps
- Packet Buffer Size: 3M bits
- MAC Address Table: 8192

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex and flow control
- IEEE802.1p QoS
- IEEE802.1Q Tag VLANs
- IEEE802.1w RSTP
- IEEE802.1x Port-based Network Access Control

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory

- 3M bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 8192 MAC addresses

Power

Input

- (T) : ±48VDC (36–75VDC) Internal Universal PSU
- (W) : 88–370VDC and 90–264VAC Internal Universal PSU
- (C) : 90–264VAC, 50–60Hz Internal Universal PSU
- (TR) : ±48VDC Redundant (Terminal Block)
- (WR) : 88–370VDC and 90–264VAC Redundant (Terminal Block)
- (CR): 90–264VAC Redundant (AC Inlet)

Power Consumption

- 42.7W Max.

Mechanical

Casing

- Metal Case
- IP30

Dimensions

- Single Power:
442mm (W) x 343mm (D) x 44.2mm (H)
(17.4" (W) x 13.5"(D) x 1.74" (H))
- Redundant Power:
442mm (W) x 404mm (D) x 44.2mm (H)
(17.4" (W) x 15.9"(D) x 1.74" (H))

Weight

- Single Power: 4.5Kg (9.9lbs.)
- Redundant Power: 4.6 kg (10.1 lbs.)

Installation

- Rack mounting

Interface

Ethernet Port

- 10/100BASE-TX: 24, 16, 8 or 0 port
- 100BASE-FX: 0 to 18 ports
- Gigabit: 0, 2 or 4 ports

Console Port

- Port: One DB9 RS-232 port

Alarm Contact

- One relay output with current 1A @ 24VDC

LED Indicators

- Per Unit: Power
- Per Port: Link/Activity (Green)
- Per SFP slot: Selected/Unselected (Green)

Environment

Operating Temperature

- -40°C to 75°C (-40°F to 167°F)
Tested @ -40°C to 85°C (-40°F to 185°F)

Storage Temperature

- -45°C to 85°C (-49°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

EMI

FCC Part 15B, Class A

EN61000-6-4

EN55022

EN61000-3-2

EN61000-3-3

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)
- IEC61000-4-10 (Oscillatory wave magnetic field test)
- IEC61000-4-16 (Power frequency immunity test)
- IEC61000-4-18 (Oscillatory wave immunity test)

Environmental Test Compliance

IEC60068-2-6 Fc (Vibration Resistance)

IEC60068-2-27 Ea (Shock)

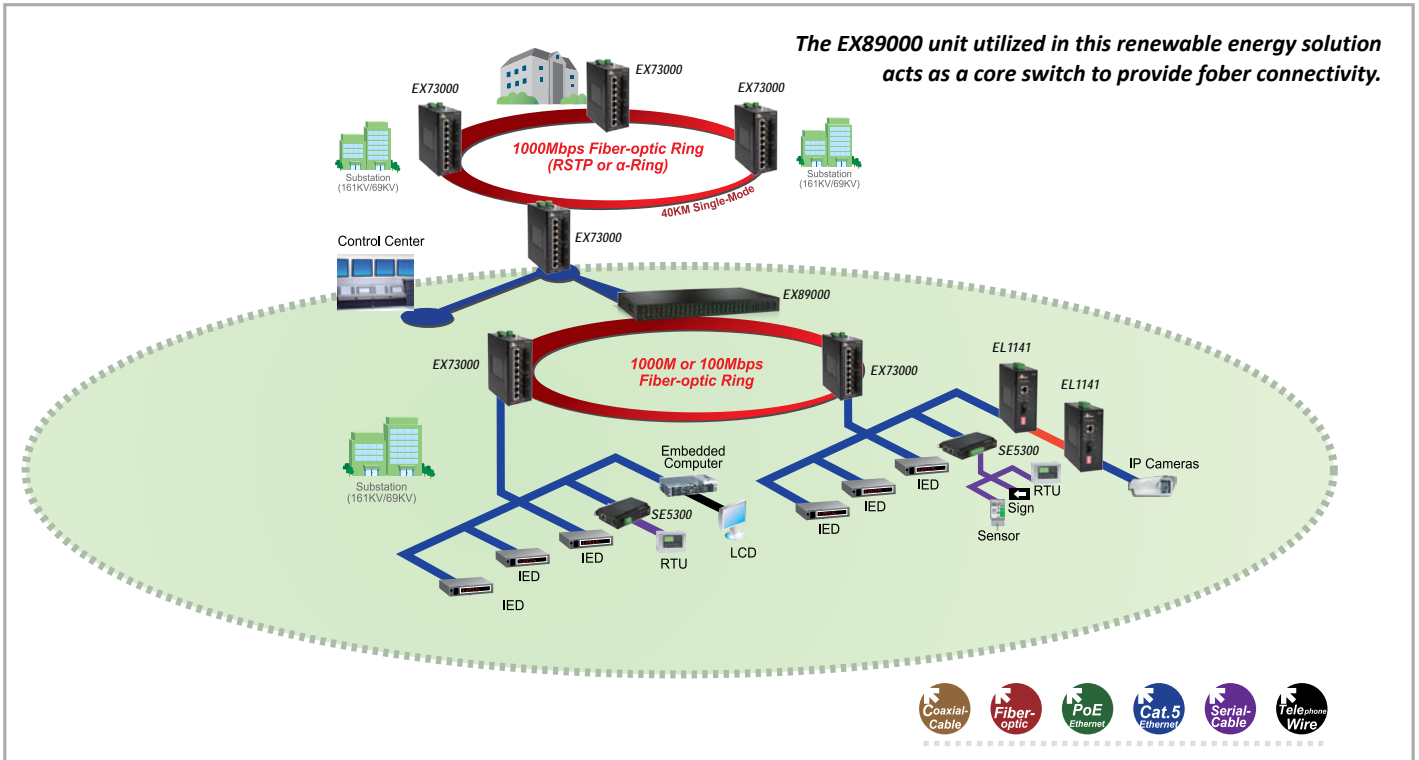
FED STD 101C Method 5007.1 (Free fall w/ package)

Industrial Compliance

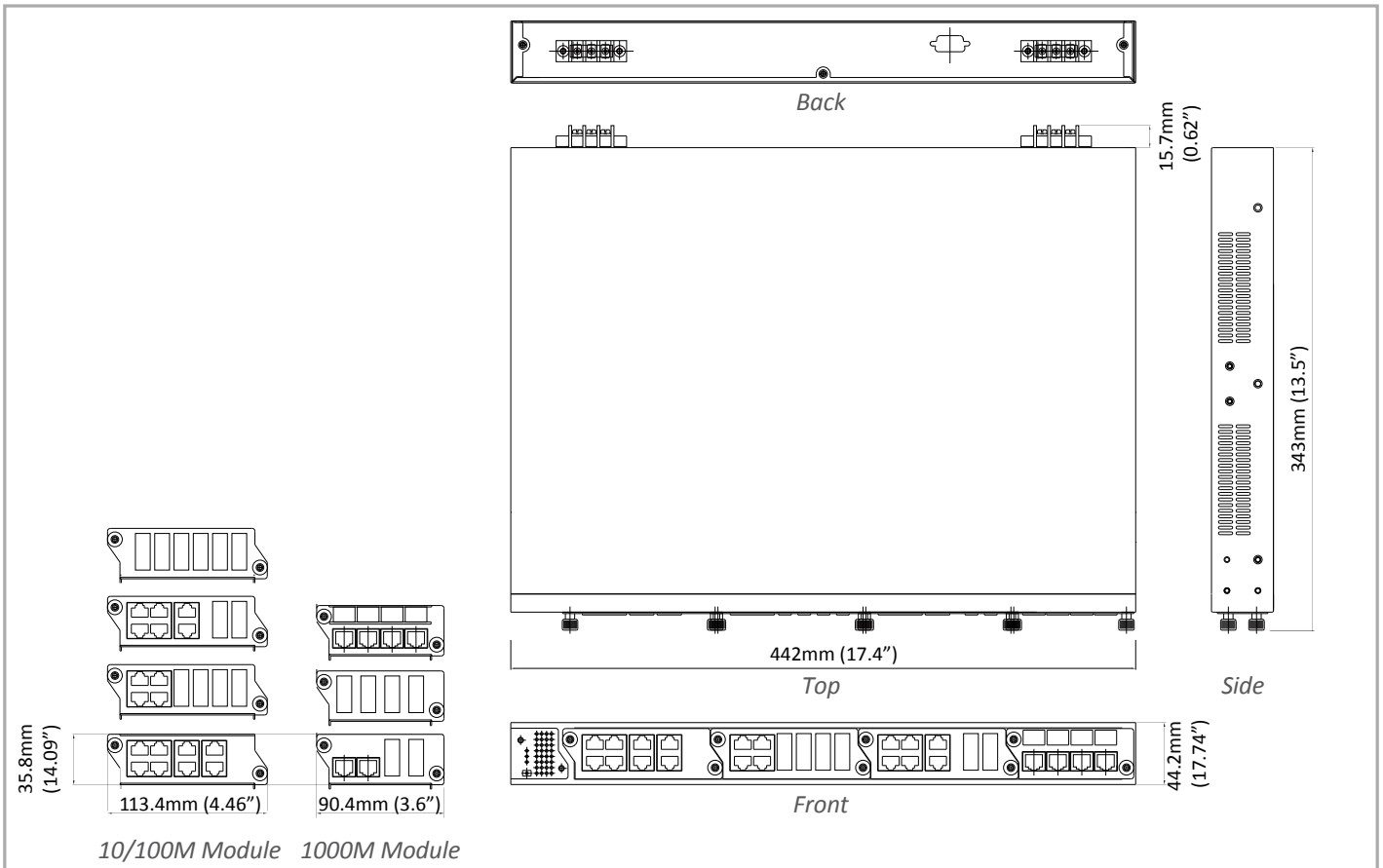
IEEE61850-3 / IEEE1613

EN50121-4

Application Diagram



Dimensions



Ordering Information

Model

EX89000-00Z	Rack mount chassis with integrated power supply for four M89000 modules
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* Rack mounting kit included

Modules for EX89000 Series

Model	Description	Slot 1	Slot 2	Slot 3	Slot 4
M89800-000	8-Port 10/100BASE TX	✓	✓	✓	
M89620-W00	6-Port 10/100BASE TX + 2-Port 100BASE FX	✓	✓	✓	
M89420-W00	4-Port 10/100BASE TX + 2-Port 100BASE FX	✓	✓	✓	
M89060-W00	6-Port 10/100BASE FX	✓	✓	✓	
M89240-W00	2-Port 10/100BASE TX + 4-Port 100BASE FX	✓	✓	✓	
M89440-W00	4-Port 10/100BASE TX + 4-Port 100BASE FX	✓	✓	✓	
M89004-0XY	4-Port Gigabit				✓

100FX Fiber Options (W)

1	Multi Mode (SC) - 2Km
2	Multi Mode (ST) - 2Km
6	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 2Km
7	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 2Km
8	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km
9	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km
A	Single Mode (SC) - 20Km
B	Single Mode (SC) - 40Km
F	Single Mode (FC) - 20Km
H	Single Mode (ST) - 20Km
P	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 20Km
Q	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 20Km
R	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 40Km
S	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 40Km

*More 100FX Fiber options also available upon request.

Numbers of fixed Gigabit Fiber (X)

0	None
4	Four Gigabit Fiber Ports

Gigabit Port Options (Y)

1	10/100/1000BASE-TX
3	1000BASE-SX (SC) - 550m
4	1000BASE-SX (SC) - 2Km
5	1000BASE-SX (ST) - 550m
A	1000BASE-LX (SC) - 10Km
B	1000BASE-LX (SC) - 20Km
R	1000BASE-BX (SC) WDM-TX:1310nm/RX: 1550nm - 20Km
S	1000BASE-BX (SC) WDM-TX:1550nm/RX: 1310nm - 20Km
V	4-port 1000BASE SFP Combo with 10/100/1000BASE-TX

* More Gigabit options also available upon request.

EX94000 Series

Hardened Unmanaged 8-port 10/100BASE Ethernet Switch



Overview

EtherWAN's EX94000 Series is a hardened unmanaged Fast Ethernet switching platform, designed for easy deployment in harsh environments. The EX94000 Series supports 12 to 48VDC redundant power input, and also provides relay alarm while power failure or port link down occur. The EX94000 provides 4kV surge protection, and is designed for hazardous locations (Class 1 Div.2 / ATEX Zone 2).

The EX94000 is equipped with eight Fast Ethernet ports, or a combination of Fast Ethernet copper ports and two 100FX ports for long distance connectivity. This versatile switch features 10/100Mbps transfer speeds, full/half-duplex auto-negotiation and auto MDI/MDIX operation allowing you to connect your network devices without hassles.

The EX94000 is feature-rich with full wire speed Fast Ethernet throughput, QoS (Quality of Service), IEEE802.3az EEE (Energy Efficient Ethernet) and Broadcast storm protection. The EX94000 Series is built with relay alarm to notify users when power fails or link down occurs. It also supports Broadcast storm protection by enabling the DIP switch. The 94000 Series is housed with DIN rail mountable metal compact case which is an ideal solution for applications in harsh environments.

EtherWAN – "When Connectivity is Crucial."

Spotlight

• Hardened Grade

- Supports -40°C to 75°C (-40°F to 167°F) operating temperature

• Broadcast Storm Protection

- Enable/disable broadcast storm protection by DIP switch that provide another level of flexibility on industrial applications

• Fiber Connectivity

- Up to two 100BASE-FX ports with SC, ST, WDM and SFP options

• High Surge Protection and Hazardous Location Certification

- Provides 4kV surge protection
- Designed for hazardous locations (Class 1 Div.2 / ATEX Zone 2)

• High Reliability

- Fanless design
- No moving parts

Hardware Specifications

Technology

Standards

- IEEE802.3u 100BASE-TX/FX
- IEEE802.3x full-duplex flow control
- IEEE802.3az Energy Efficient Ethernet
- IEEE802.1p Quality of Service (QoS)

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory

- 448K bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 1K MAC addresses

Power

Input Voltage

- 12 to 48VDC (Terminal Block)

Power Consumption

- 2.47W@24VDC

Protection

- Reverse polarity protection

Mechanical

Casing

- Aluminum Case
- IP30

Dimensions

- 50mm (W) x 110mm (D) x 135mm (H)
(1.97" (W) x 4.33" (D) x 5.31" (H))

Weight

- 0.62Kg (1.37lbs)

Installation

- DIN-Rail (Top hat type 35mm) or Panel mounting

Interface

Ethernet Ports

- 10/100BASE-TX: 8, 6 or 4 ports
- 100BASE-FX: 0, 2 or 1 ports

LED Indicators

- Per Unit: Power 1 (Green),
Power 2 (Green),
Fault (Red)
- Per Port: Link/Activity (Green)

Alarm Contact

- One relay output with current 1A @ 250VAC
- Supports normal close and normal open

Environment

Operating Temperature

- -40°C to 75°C (-40°F to 167°F)
Tested @ -40°C to 85°C (-40°F to 185°F)

Storage Temperature

- -40°C to 85°C (-40°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

Safety

UL60950-1 (Pending)

UL ISA12.12.01 Class I Div. 2 / ATEX Zone 2 for hazardous locations (Pending)

EMI

FCC Part 15B, Class A

VCCI Class A

EN61000-6-4

EN55022 Class A

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated FRI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
Signal ports: ±4kV line-to-earth
DC power ports: ±4kV line-to-earth
±2kV line-to-line
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

Environmental Test Compliance

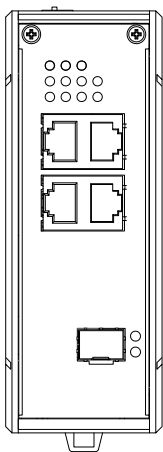
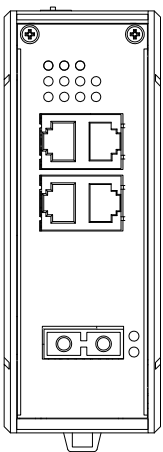
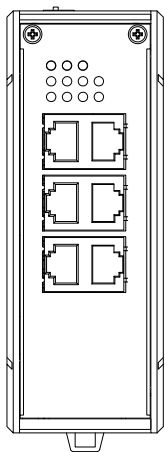
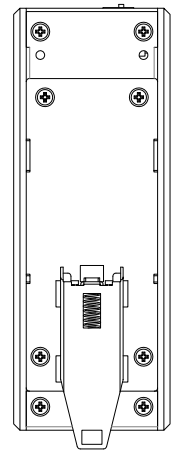
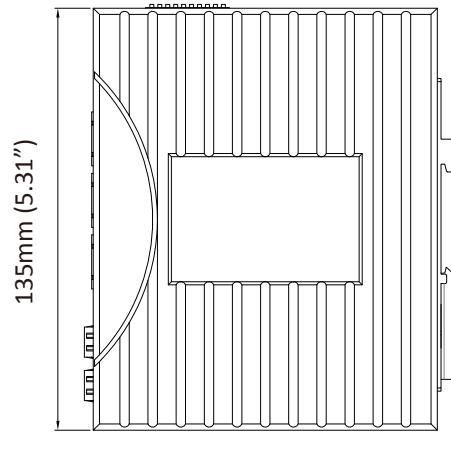
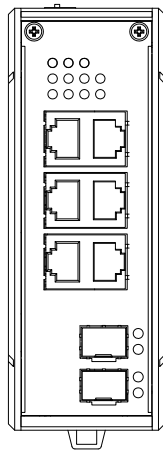
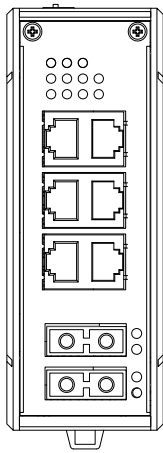
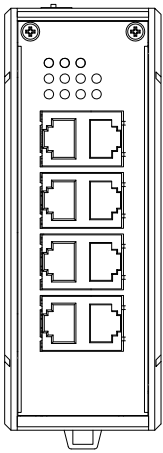
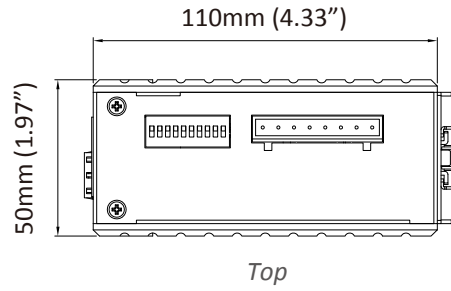
IEC60068-2-6 Fc (Vibration)

IEC60068-2-27 Ea (Shock)

FED STD 101C Method 5007.1 (Free fall w/ package)

- Tested with Cross Weight and Drop High standard table

Dimensions



Ordering Information

Model

EX94008-00-1-AA	Hardened Unmanaged 8-port 10/100BASE-TX Ethernet Switch
EX94006-00-1-AA	Hardened Unmanaged 6-port 10/100BASE-TX Ethernet Switch
EX94026-XY-1-AA	Hardened Unmanaged 6-port 10/100BASE-TX + 2-port 100BASE-FX Ethernet Switch
EX94014-XY-1-AA	Hardened Unmanaged 4-port 10/100BASE-TX + 1-port 100BASE-FX Ethernet Switch

* DIN-Rail mounting kit included

100FX Fiber Options (XY)

1A	Multi Mode (SC) -2Km
1B	Multi Mode (ST) -2Km
2A	Single Mode (SC) -20Km
2D	Single Mode (ST) -20Km
2E	Single Mode (SC) WDM-TX:1310nm/RX:1550nm -20Km
2G	Single Mode (SC) WDM-TX:1550nm/RX:1310nm -20Km
V	100BASE SFP

*More 100FX Fiber options also available upon request.

Optional Accessories

KP-AA96-480	Panel Mounting Kit
KR-BKEL900	Rack Mounting Kit
DR-30-24	30W/1.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-60-24	60W/2.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-75-24	75W/3.2A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)

EX95000 Series

Hardened Unmanaged 16-port 10/100BASE Ethernet Switch



Overview

EtherWAN's EX95000 Series is a hardened unmanaged Fast Ethernet switching platform, designed for easy deployment in harsh environments.

The EX95000 Series is equipped with sixteen Fast Ethernet ports, or a combination of Fast Ethernet copper ports and two 100FX ports for long distance connectivity. Although unmanaged, the EX95000 is feature-rich with full wire speed Fast Ethernet throughput, making the EX95000 Series a powerful network switch.

EtherWAN – "When Connectivity is Crucial."

Spotlight

• Hardened Grade

- Supports -40°C to 75°C (-40°F to 167°F) operating temperature

• Versatile mounting Options

- DIN-Rail, panel or rack mounting

• Fiber Connectivity

- Up to two 100BASE-FX ports with SC, ST and WDM options

Hardware Specifications

Technology

Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3x Full duplex and flow control

Forward and Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory

- 1.625M bits

Processing Type

- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Address Table Size

- 4096 MAC addresses

Latency

- Less than 10µs

Power

Input Voltage

- 12 to 48VDC (Terminal Block)
- 12VDC (DC Jack)

Power Consumption

- 7.4W Max. 0.6A @ 12VDC
- 0.3A @ 24VDC
- 0.15A @ 48VDC

Protection

- Overload current protection

Mechanical

Casing

- Aluminum Case
- IP30

Dimensions

- 75.5mm (W) x 110mm (D) x 135mm (H)
(2.98" (W) x 4.33" (D) x 5.31" (H))

Weight

- 0.87Kg (1.92lbs.)

Installation

- DIN-Rail (Top hat type 35mm), Panel, Rack mounting

Interface

Ethernet Ports

- 10/100BASE-TX: 16, 15 or 14 ports
- 100BASE-FX: 0, 1 or 2 ports

LED Indicators

- Per Unit: Power 1 (Green),
Power 2 (Green),
Power 3 (Green)
- Per Port: Link/Activity (Green)

Alarm Contact

- One relay output with current 1A @ 24VDC

Environment

Operating Temperature

- -40°C to 75°C (-40°F to 167°F)

Storage Temperature

- -40°C to 85°C (-40°F to 185°F)

Ambient Relative Humidity

- 5% to 95% (non-condensing)

Regulatory Approvals

ISO

- Manufactured in an ISO9001 facility

Safety

UL508

EMI

FCC Part 15B, Class A

VCCI Class A

EN61000-6-4

EN55022

EN61000-3-2

EN61000-3-3

EMS

EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

Environmental Test Compliance

IEC60068-2-6 Fc (Vibration)

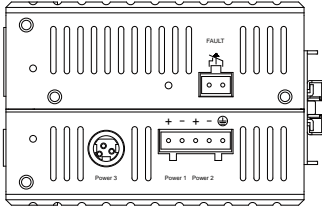
IEC60068-2-27 Ea (Shock)

FED STD 101C Method 5007.1 (Free fall w/ package)

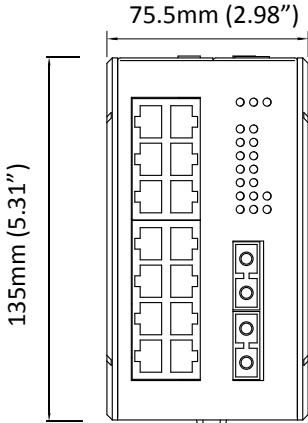
Industrial Compliance

NEMA TS2

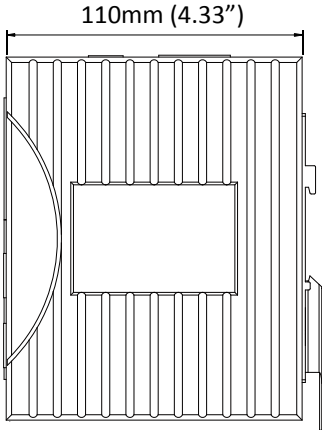
Dimensions



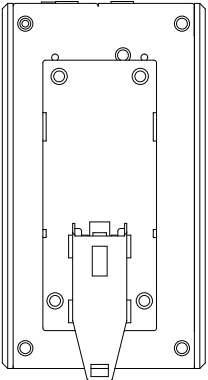
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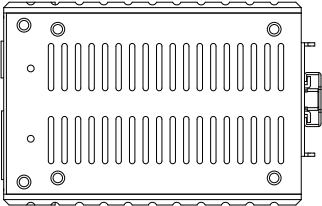
Front



Side



Back



Bottom

Ordering Information

Model

EX95160-00B	16-port 10/100BASE-TX Hardened Unmanaged Ethernet Switch
EX95151-X0B	15-port 10/100BASE-TX + 1-port 100BASE-FX Hardened Unmanaged Ethernet Switch
EX95142-X0B	14-port 10/100BASE-TX + 2-port 100BASE-FX Hardened Unmanaged Ethernet Switch

* DIN-Rail mounting kit included

100FX Fiber Options (X)

1	Multi Mode (SC) - 2Km
2	Multi Mode (ST) - 2Km
6	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 2Km
7	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 2Km
8	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km
9	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km
A	Single Mode (SC) - 20Km
B	Single Mode (SC) - 40Km
H	Single Mode (ST) - 20Km
P	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 20Km
Q	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 20Km
R	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 40Km
S	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 40Km

Optional Accessories

KP-AA96-480	Panel mounting kit
KR-BK-43-400	Rack mounting Kit
DR-30-24	30W/1.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-60-24	60W/2.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-75-24	75W/3.2A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
DR-120-24	120W/5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
41-136046-X	36W/3A 12VDC hardened power adapter with open wire in aluminum housing (for Terminal Block) (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA
41-136044-X	36W/3A 12VDC hardened power adapter with latched DC Jack in aluminum housing (for DC Jack) (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA

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