

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

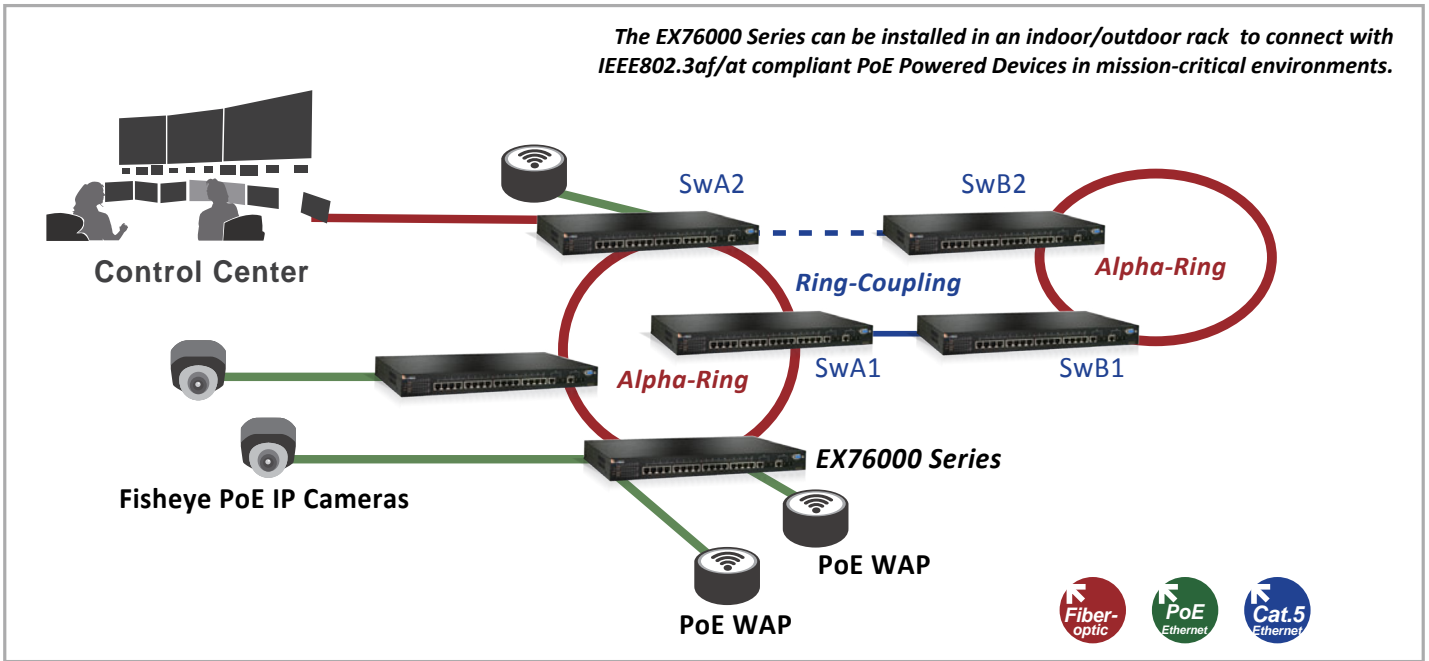
IEC60068-2-6 Fc (Vibration Resistance)

IEC60068-2-27 Ea (Shock)

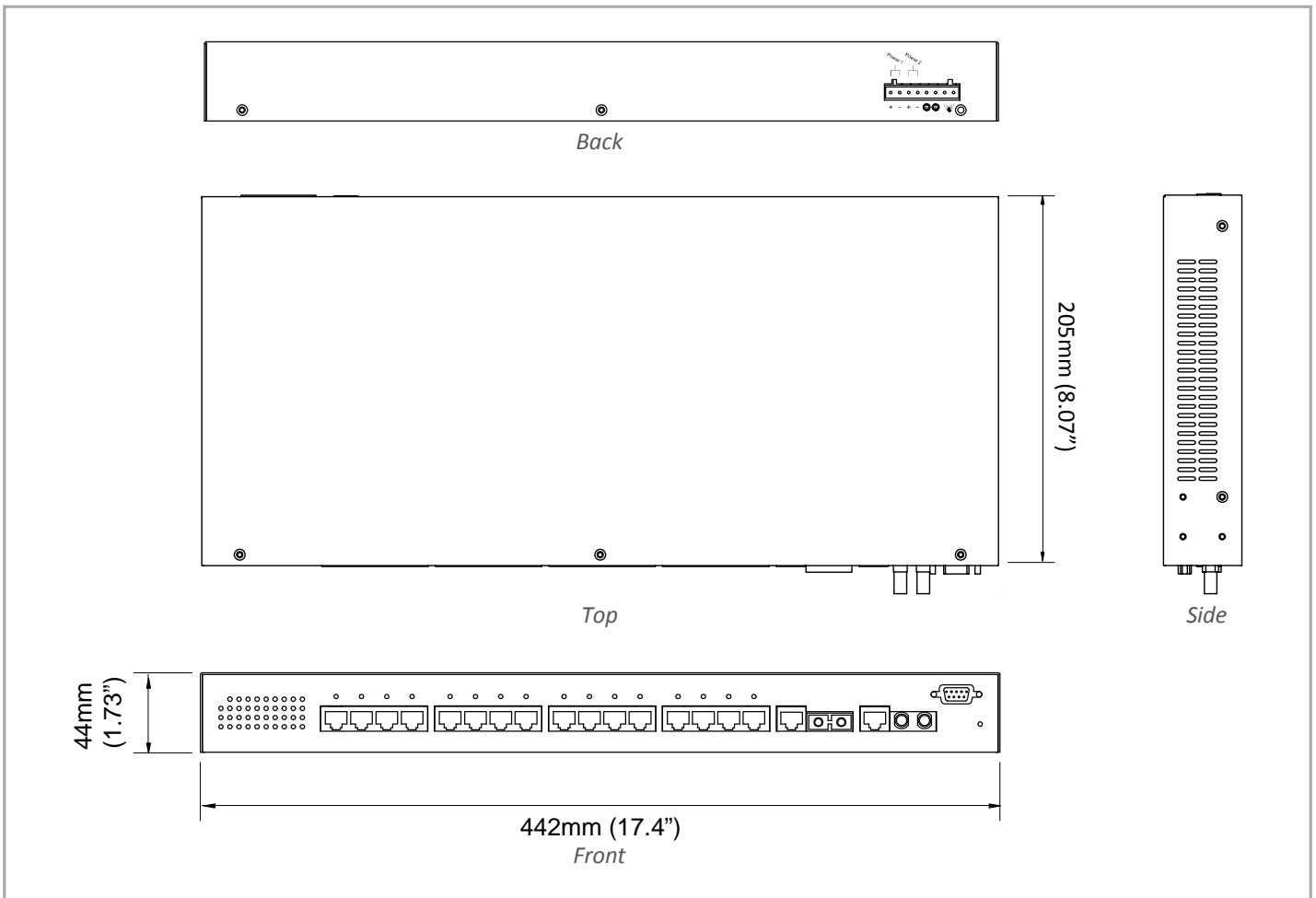
FED STD 101C Method 5007.1 (Free fall w/package)

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 |
|----------|-------------------------|

* 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 |