

## EX76000 Series

Hardened Managed 8 to 16-port 10/100BASE PoE with 2-port Gigabit combo Ethernet Switch



## Overview

**This product is discontinued as of 13th Sep 2018. [click here](#) for alternative product.**

EtherWAN's EX76000 Series provides a hardened 18-port switching platform supporting IEEE 802.3at 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 IEEE 802.3at PoE ports provide up to 30W per port with a total power budget of 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 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 IEEE 802.3at Power over Ethernet ports
- » Two Gigabit-SX/LX/BX combo ports

### Hardened Grade

- » Wide operating temperature range from -40 to 75°C (-40 to 167°F) for extreme environments
- » Fanless and ruggedized housing
- » High shock and electric noise immunity
- » Complies with UL 508 safety requirements for industrial control devices

## 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
  - » IEEE 802.1ab LLDP (Link Layer Discovery Protocol)
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### Security

- » MAC address filtering
  - » Enable/disable port
  - » Storm control (broadcast and multicast types)
  - » IEEE 802.1x 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)
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### Quality of Service (QoS)

- » Priority Queues: 4 queues per port
  - » Traffic classification based on IEEE 802.1p CoS, DSCP, WRR (Weighted round robin) and strict mode
  - » Rate Limiting (Ingress/Egress)
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### Layer 2 Features

- » Auto-negotiation for port speed and duplex mode
- » Flow Control
  - IEEE 802.3x full duplex mode
  - Back-Pressure half duplex mode
- » Redundant Protocol

- IEEE 802.1D Spanning Tree Protocol (STP)
- IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
- IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
- Supports EtherWAN's Alpha-Ring topology for less than 15ms fault recovery time

» VLANs

- Port-based VLANs
- IEEE 802.1Q 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)
- IEEE 802.3ad Link Aggregation Control Protocol

» IGMP Snooping

- IGMP snooping v1/v2/v3
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## Performance

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

## Technology

### Standards

- IEEE 802.3 10BASE-T
- IEEE 802.3u 100BASE-TX/100BASE-FX
- IEEE 802.3ab 1000BASE-T
- IEEE 802.3z 1000BASE-SX/1000BASE-LX
- IEEE 802.3x Full duplex and flow control
- IEEE 802.1p QoS
- IEEE 802.1Q Tag VLANs
- IEEE 802.1w RSTP
- IEEE 802.1x Port-based Network Access Control
- IEEE 802.3af/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 IEEE 802.3x full-duplex flow control
- Auto MDI/MDIX

### Address Table Size

- 8192 MAC addresses
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## Power

### Input

- Redundant power inputs:  
Terminal Block: 47-57VDC

## Power Consumption

- Max. 12W (without PoE)
- PoE Power Budget (depends on power input): 480W Max.

## PoE Technology

- Alternative B  
Pins 7/8(-), 4/5(+)

## PoE Power Output

- Port 1 to 16
- IEEE 802.3af: up to 15.4W/port, 47-55VDC, 350mA Max.
- IEEE 802.3at: up to 30W/port, 52-57VDC, 600mA Max.

## Protection

- Reverse polarity protection
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## Mechanical

### Casing

- Metal Case
- IP30

### Dimensions

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

### Weight

- 3.5Kg (7.7lbs.)

### Installation

- Rack mounting
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## Interface

### Ethernet Port

- 10/100BASE-TX: 8, 12 or 16 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)
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## Environment

### Operating Temperature

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

### Storage Temperature

- -45 to 85°C (-49 to 185°F)

### Ambient Relative Humidity

- 5% to 95% (non-condensing)
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## Regulatory Approvals

### ISO

- Manufactured in an ISO 9001 facility

### Safety

UL 508

### EMI

FCC Part 15B Class A

EN 55022

EN 61000-3-2

EN 61000-3-3

EN 61000-6-4

### EMS

EN 61000-6-2

- EN 61000-4-2 (ESD Standards)
- EN 61000-4-3 (Radiated RFI Standards)
- EN 61000-4-4 (Burst Standards)

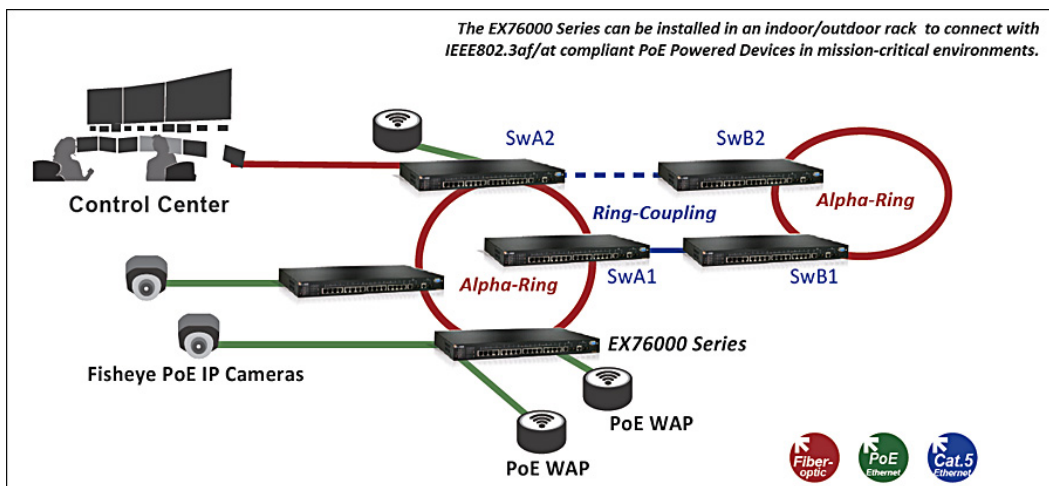
- EN 61000-4-5 (Surge Standards)
- EN 61000-4-6 (Induced RFI Standards)
- EN 61000-4-8 (Magnetic Field Standards)

## Environmental Test Compliance

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

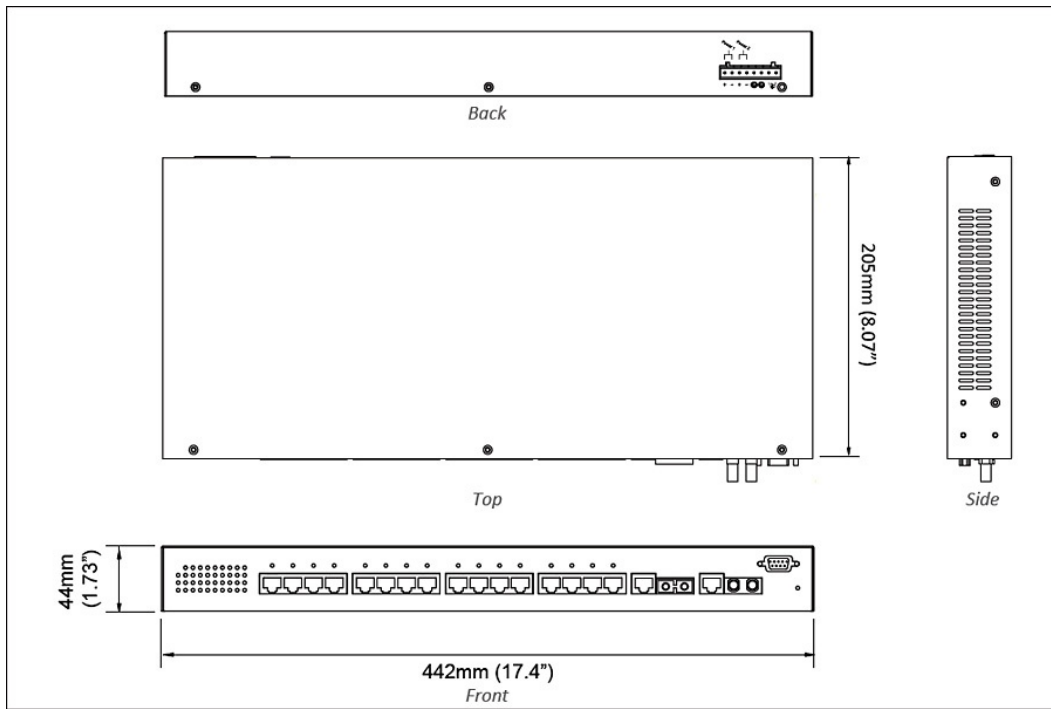
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## Application





# Dimensions



## Ordering Info

### Model

EX76400-00TT	16-port 10/100BASE-TX PoE Hardened Managed Ethernet Switch
EX76402-0YTT	16-port 10/100BASE-TX PoE +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.

### 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

<b>A</b>	Combo port: 10/100/1000BASE-TX with 1000BASE-LX (SC) - 10Km
<b>B</b>	Combo port: 10/100/1000BASE-TX with 1000BASE-LX (SC) - 20Km
<b>R</b>	Combo port: 10/100/1000BASE-TX with 1000BASE-BX (SC) WDM-TX: 1310nm/RX: 1550nm-20Km
<b>S</b>	Combo port: 10/100/1000BASE-TX with 1000BASE-BX (SC) WDM-TX: 1550nm/RX: 1310nm-20Km

\* More Gigabit options also available upon request.

## Optional Accessories

<b>EDR-120-48</b>	120W/2.5A DIN-Rail 48VDC Industrial Power Supply
<b>NDR-240-48</b>	240W/5A DIN-Rail 48VDC Industrial Power Supply
<b>SDR-480-48</b>	480W/10A DIN-Rail 48VDC Industrial Power Supply

