

## EX27000 Series

IEC 61850-3/IEEE 1613 Managed 24-port 10/100BASE and 4-port Gigabit Ethernet Switch with SFP options



## Overview

EtherWAN's EX27000 series provides an industrial-grade 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 24 fast Ethernet ports and 4 gigabit uplink ports with fixed fiber or SFP options. Industrial-grade allows for fan-less operation in high EMI and vibration environments with a temperature range from -10 to 60°C (14 to 140°F).

Users are able to access EX27000 management features such as port security, IGMP snooping, VLANs, GARP protocols, and LACP via web browser, Telnet, SNMP, RMON, TFTP, and RS-232 console interfaces.

EX27000 is also comply with IEC 61850-3 and IEEE 1613 certified for power substations and EN 50121-4 certified for railway applications, it can be mountable on a 1U rack, and 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.

EtherWAN — "When Connectivity is Crucial."

## Highlights

### + Certified for applications in electric power substations and railway managements

Compliant with IEC 61850-3 & IEEE 1613, and EN 50121-4 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 to 60°C (14 to 140°F) wide operating temperature

## 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)  
IPv4/IPv6

### + Security

MAC Address by port security  
Enable/Disable port  
Storm control (Broadcast and multicast types)  
IEEE 802.1x LAN access control  
Remote authentication through RADIUS and TACAS+  
SSH for CLI and Telnet security  
SSL for web security  
ACL  
Multi-level user account/password against unauthorized configuration

### + Quality of Service (QoS)

Priority Queues: 8 queues per port  
Traffic classification based on IEEE 802.1p 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

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)  
EtherWAN's Alpha-Ring network fault recovery (<15ms) and Alpha-Chain

#### 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 (8 groups, support MAC base)  
IEEE 802.3ad Link Aggregation Control Protocol

### **IGMP Snooping**

IGMP Snooping v1/v2/v3

### **+ Performance**

Switching Capability: 12.8Gbps

Jumbo Frame: 9K bytes

# 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

### 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 IEEE 802.3x full-duplex flow control  
Auto MDI/MDIX

### Address Table Size

16K MAC addresses

## + Power

### Input

(T):  $\pm 48$ VDC Internal Universal PSU  
(W): 88-300VDC or 100-240VAC Internal Universal PSU  
(C): 100-240VAC, 50-60Hz Internal Universal PSU

### Power Consumption

For models with all copper ports: EX27604 Series: 21.9W@230VAC  
For models with all fiber ports: EX27064 Series: 40.6W@230VAC

## + Mechanical

### Casing

Metal Case  
IP30

### Dimensions

Redundant Power:  
442 x 375 x 44mm (W x D x H)  
(17.4" x 14.7" x 1.73")  
Single Power:  
- 442 x 284 x 44.2mm (W x D x H)

- (17.4" x 11.1" x 1.74")

**Weight**

5Kg (11lbs)

**Installation**

Rack mounting

## + Interface

**Ethernet Port**

10/100BASE-TX: 0, 8, 16 or 24 ports

100BASE-FX: 0, 8, 16 or 24 ports

Gigabit: 4 ports

**Console Port**

Port: One DB9 RS-232 port

**Alarm Contact**

One relay output with current 0.6A/30VDC

**LED Indicators**

Per Unit: Power, Alarm

Per Port: Link/Activity (Green)

Per SFP Port: Selected (Green)

## + Environment

**Operating Temperature**

-10 to 60°C (14 to 140°F)

Tested @ -20 to 70°C (-4 to 158°F)

**Storage Temperature**

-40 to 85°C (-40 to 185°F)

**Ambient Relative Humidity**

5% to 95% (non-condensing)

## + Regulatory Approvals

**ISO**

Manufactured in an ISO 9001 facility

**Safety**

UL 62368

**EMI**

FCC Part 15B Class A

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)

- IEC 61000-4-10 (Oscillatory wave magnetic field test)
- IEC 61000-4-16 (Power frequency immunity test)

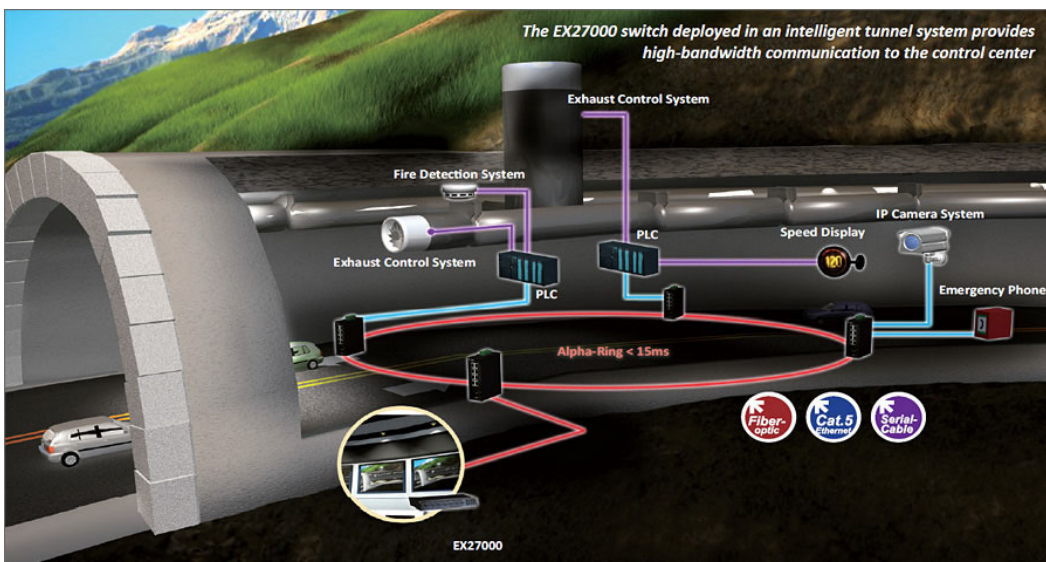
### Environmental Test Compliance

- FED STD 101C Method 5007.1 (Free fall w/package)
- IEC 60068-2-6 Fc (Vibration Resistance)
- IEC 60068-2-27 Ea (Shock)

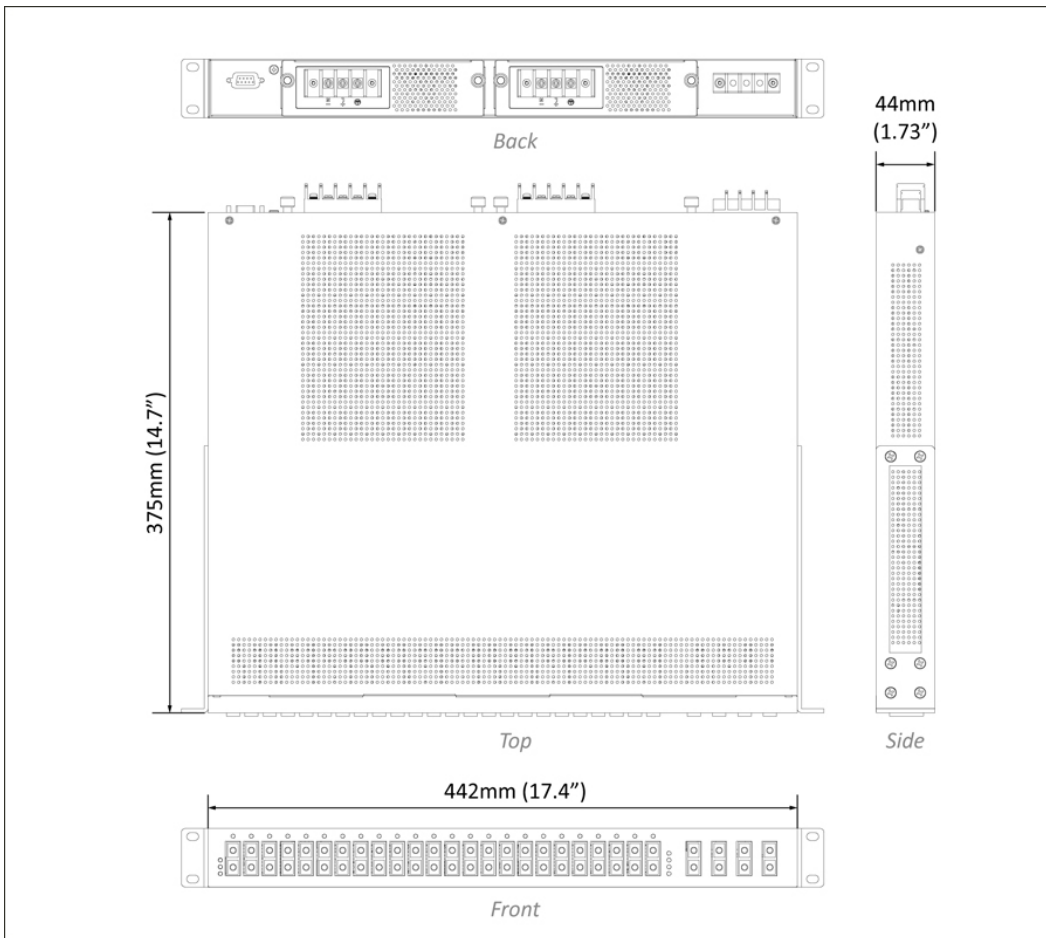
### Industrial Compliance

- IEC 61850-3/IEEE 1613
- EN 50121-4

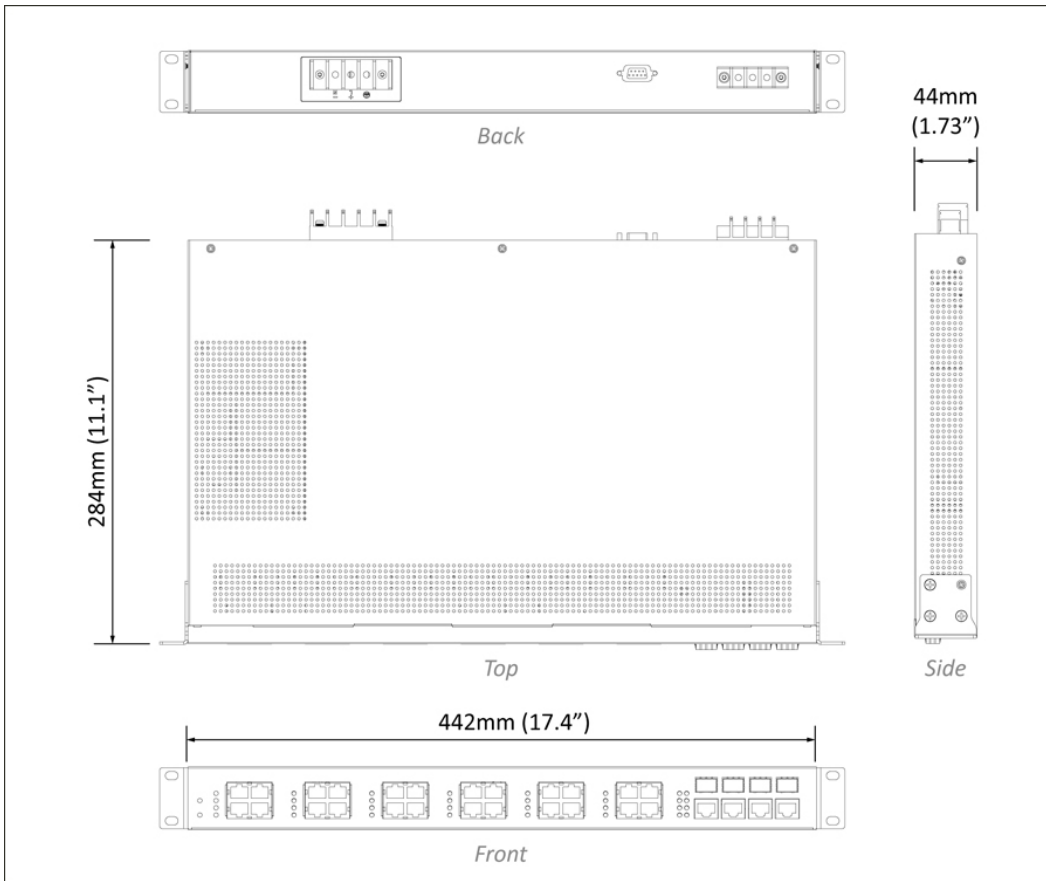
## Application



## Dimensions







## Ordering Info

### + Model

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

\* Rack mounting kit included.

### + 100FX Fiber Options (W)

<b>1</b>	Multi Mode (SC) - 2Km
<b>2</b>	Multi Mode (ST) - 2Km
<b>6</b>	Multi Mode (SC) WDM-TX: 1310nm/RX: 1550nm-2Km
<b>7</b>	Multi Mode (SC) WDM-TX: 1550nm/RX: 1310nm-2Km
<b>8</b>	Multi Mode (SC) WDM-TX: 1310nm/RX: 1550nm-5Km
<b>9</b>	Multi Mode (SC) WDM-TX: 1550nm/RX: 1310nm-5Km
<b>A</b>	Single Mode (SC) - 20Km
<b>P</b>	Single Mode (SC) WDM-TX: 1310nm/RX: 1550nm-20Km
<b>Q</b>	Single Mode (SC) WDM-TX: 1550nm/RX: 1310nm-20Km
<b>V</b>	SFP

### + Number of Fixed Gigabit Fibers (X)

<b>0</b>	None
<b>4</b>	Four Gigabit Fiber Ports

### + Gigabit Port Options (Y)

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

\* More Gigabit options also available upon request.

### + Power Input Interface (Z)

<b>T</b>	±48VDC (Terminal Block)
<b>W</b>	88-300VDC or 100-240VAC (Terminal Block)
<b>C</b>	100-240VAC (AC Inlet)
<b>TR</b>	±48VDC Redundant (Terminal Block)
<b>WR</b>	88-300VDC or 100-240VAC Redundant (Terminal Block)
<b>CR</b>	100-240VAC Redundant (AC Inlet)

