

# EX78602 Series

Hardened Managed 6-port 10/100BASE (4 x PoE + 2 x 60W PoE) and 2-port Gigabit Ethernet Switch



## Overview

EtherWAN's EX78602 Series provides a hardened 8-port switching platform with 60W and IEEE802.3at/af Power over Ethernet combining high performance switching with robust management features required for mission-critical and harsh environments where sustained connectivity is crucial.

The EX78602 Series is equipped with 6 10/100BASE-TX PoE (4 x PoE 30W + 2 x 60W ports), in combination with two Gigabit SX/LX/BX/WDM Fiber ports with SFP options.

The Ultra PoE ports provide up to 60W/port with a total power budget of 180W, 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.

Din Rail mountable, the EX78602 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 EX78602 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 High-Power PoE Switch

- Up to 2 ports with 60W PoE, 4-port PoE with IEEE802.3af/at, and 2 Gigabit (SX/LX/SFP) ports for high-bandwidth communication

### • Intelligent Management

- Optimize network performance with QoS, VLAN, and PoE scheduling, etc. Network redundancy is secured by EtherWAN's α-Ring, with fault recovery time < 15ms

### • Remote Secure Access

- IEEE802.1x, and RADIUS support

# Software Features

## Management

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- 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

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- 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)

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- 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

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- 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

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- Switching Capability: 5.2Gbps
- Packet Buffer Size: 2M bits
- MAC Address Table: 8K

# Hardware Specifications

## Technology

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### 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

- 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

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### Input

- Redundant power inputs:  
Terminal block: 55 (52 - 57) VDC  
DC Jack: 55 (52 - 57) VDC

### Power Consumption

- Device: Max. 15W without PoE
- Total PoE power budget: 180W Max. depending on power input

### Protection

- Reverse polarity protection

## Mechanical

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### Casing

- Aluminum Case
- IP30

### Dimensions

- 71.4mm (W) x 140mm (D) x 170mm (H)  
(2.85" (W) x 5.6" (D) x 6.8" (H))

### Weight

- 1.7Kg (3.74lbs.)

### Installation

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

## Interface

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### Ethernet Port

- 10/100BASE-TX (PoE): 6 ports  
Port 1 to port 4: Up to 30W/ea  
Port 5 to port 6: Up to 60W/ea
- Gigabit: 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 (Green)  
Power 2 (Green)  
Power 3 (Green)
- Per Port: Link/Activity (Green)
- Per PoE Port: PoE Status (Orange)

## Environment

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### 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

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### ISO

- Manufactured in an ISO9001 facility

### EMI

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#### FCC Part 15B, Class A

#### EN61000-6-4

#### EN55022

#### EN61000-3-2

#### EN61000-3-3

### EMS

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#### 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

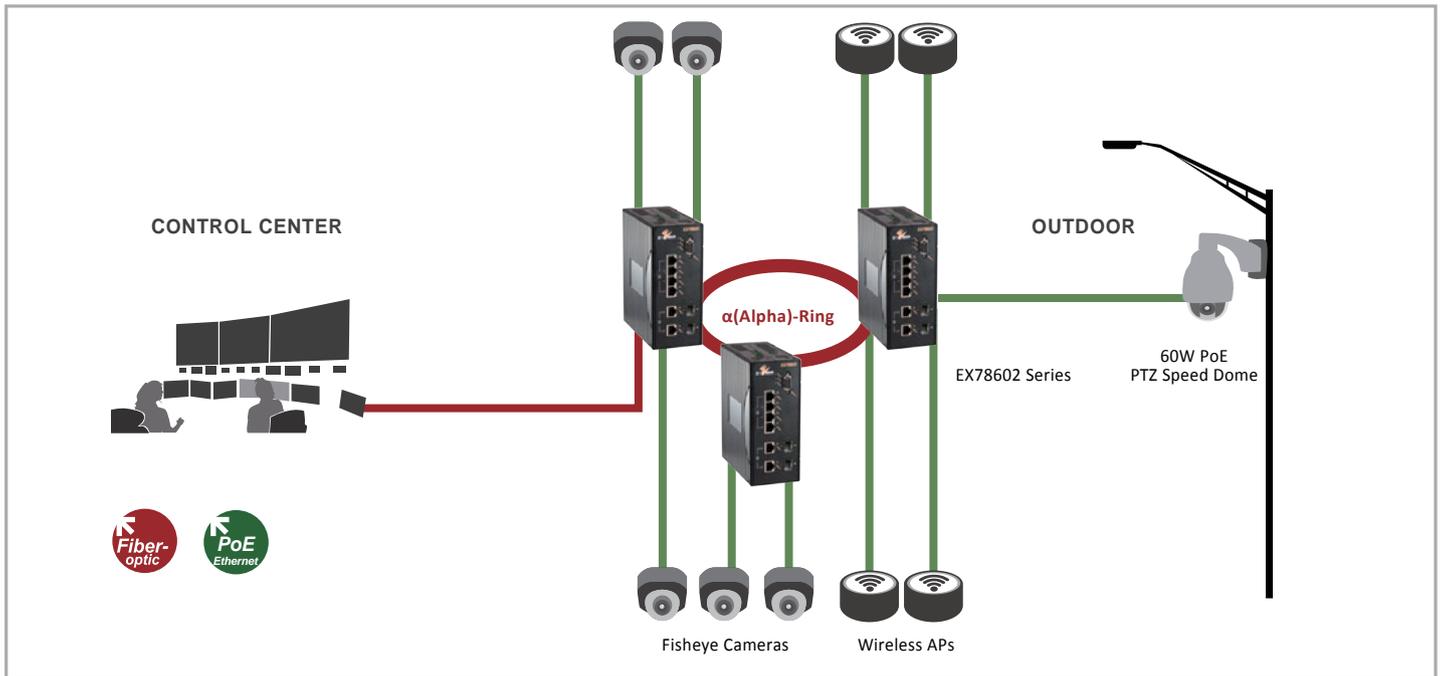
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#### IEC60068-2-6 Fc (Vibration)

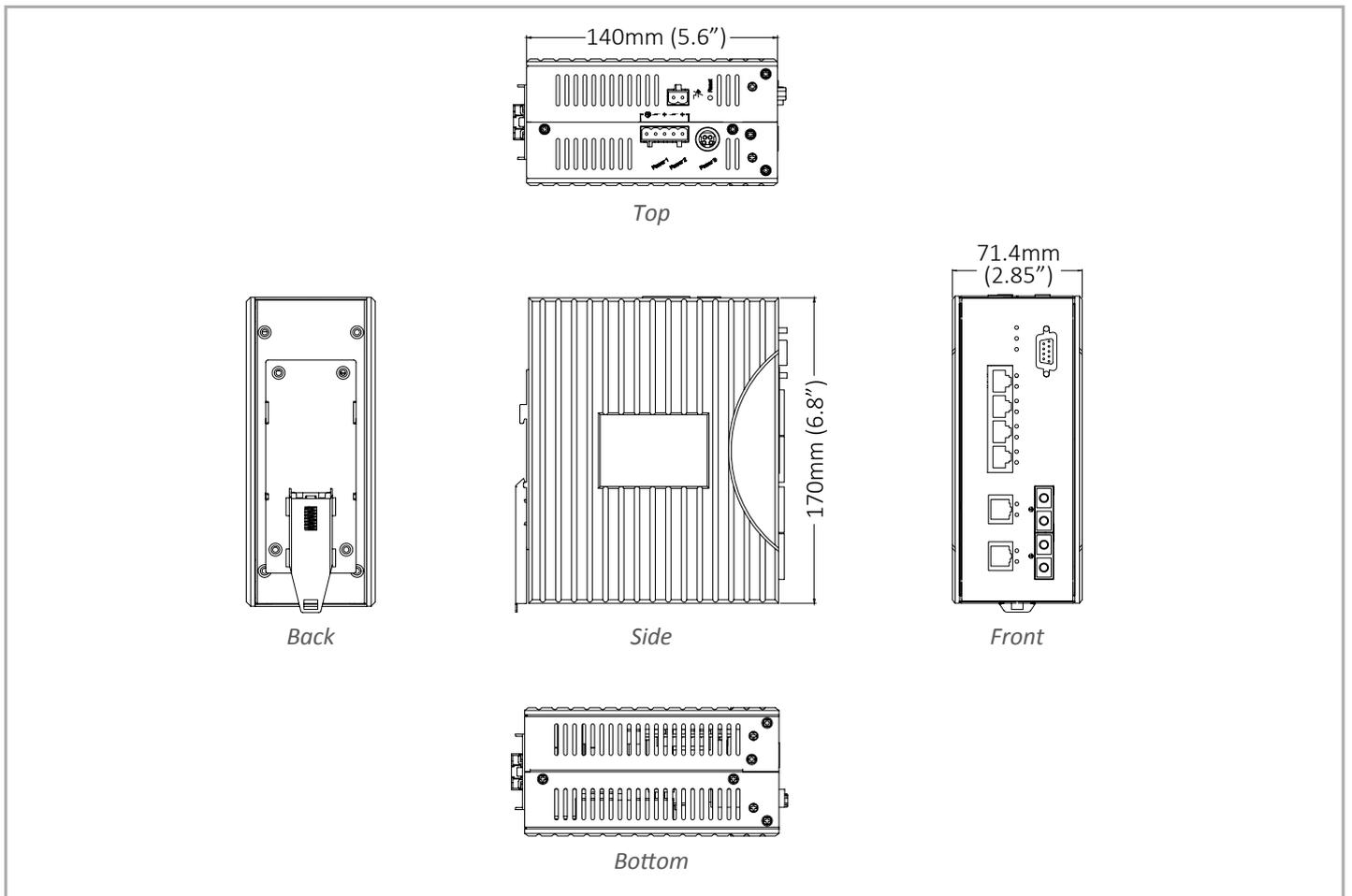
#### IEC60068-2-27 Ea (Shock)

#### IEC60068-2-32 Ed (Free fall)

# Application Diagram



# Dimensions



# Ordering Information

## Model

<b>EX78602-01B</b>	6-port 10/100BASE-TX PoE (4 x 30W + 2 x 60W) and 2-port 10/100/1000BASE-T Hardened Managed Ethernet Switch
<b>EX78602-0VB</b>	6-port 10/100BASE-TX PoE (4 x 30W + 2 x 60W) and 2-port Gigabit SFP Hardened Managed Ethernet Switch
<b>EX78602-0YB</b>	6-port 10/100BASE-TX PoE (4 x 30W + 2 x 60W) and 2-port Gigabit Hardened Managed Ethernet Switch

\* DIN-Rail mounting kit included

## Gigabit Port Options (Y)

<b>1</b>	10/100/1000BASE-TX
<b>3</b>	1000BASE-SX(SC) - 550m
<b>4</b>	1000BASE-SX (SC) - 2Km
<b>5</b>	1000BASE-SX (ST) - 550m
<b>8</b>	1000BASE-SX (ST) - 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>	1000BASE SFP (DDM)

## Optional Accessories

<b>KP-AA96-480</b>	Panel Mounting Kits
<b>SDR-240-48</b>	240W/5A DIN-Rail 48VDC Industrial Power Supply (for terminal block)