

# EX78000 Series

Hardened Managed 4 to 10-port 10/100BASE (8 x PoE) and 2-port Gigabit Ethernet Switch



## Overview

EtherWAN's EX78000 Series is a hardened DIN-rail mounted managed PoE Ethernet switch platform. Equipped with 8 10/100BASE-TX PoE ports along with 60W power and 2 gigabit fiber ports, the EX78000 Series provides flexibility, speed, and reliability for networks in urban infrastructure, transportation, security, and other areas where connectivity is crucial.

EtherWAN — "When Connectivity is Crucial."

## Highlights

### + Hardened-Grade for Non-Ventilated & Harsh Environments

- Wide operating temperature range -40 to 75°C (-40 to 167°F)
- Fanless operation
- High impact, thermal shock, and electrical noise resistance

### + PoE Features

- Up to 60W/port with 240W total power budget
- Long distance PoE up to 250m (820ft)
- PoE watchdog monitors status of connected PoE devices

### + Management/Security Features

- Port control
- 802.1x port-based network access control and remote authentication through RADIUS
- Configure and monitor with eVue™ and eLite™

### + Support

- Complimentary Technical Support
- Free Firmware Upgrades
- Limited Lifetime Warranty

## Features

### + Interface

CLI, Telnet, Web Browser  
SNMP v1/v2c/v3

### + Management

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) synchronization  
IEEE 802.1ab LLDP (Link Layer Discovery Protocol)  
IPv4/IPv6

### + Security

MAC Address Filtering  
Enable/Disable port  
Storm control (Broadcast and multicast types)  
IEEE 802.1x LAN Access control  
Remote authentication through RADIUS and TACACS+  
Multi-user login and privileged access management  
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 IEEE 802.1p CoS, DSCP, WRR 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 Protocols

IEEE 802.1D STP  
IEEE 802.1w RSTP  
IEEE 802.1s MSTP  
EtherWAN's Alpha-Ring network fault recovery (<15ms)

#### VLANs

IEEE 802.1Q Tag VLANs (128 groups, 4096 VID)  
GVRP  
GMRP

#### Link Aggregation

Static Trunk (2 groups, support MAC base)  
IEEE 802.3ad LACP

#### IGMP Snooping v1/v2/v3

## Specifications

### + Interface

#### Ethernet

4 or 8 x 10/100BASE-T(X) (PoE)  
0, 2 or 4 x 100BASE FX  
2 x 100/1000BASE SFP Slot  
2 x Gigabit

#### Console

1 x DB9 RS-232

#### Alarm Contact

1 x Relay output, current capacity 0.5A/48VDC

#### LED Indicators

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

### + 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 PNAC  
IEEE 802.3af/at/bt Power over Ethernet

#### Forward/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

### + Environmental

#### Operating Temp.

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

#### Storage Temp.

-45 to 85°C (-49 to 185°F)

#### Relative Humidity

5% to 95% (non-condensing)

### + Regulatory

#### ISO

Manufactured in ISO-9001 facility

#### EMI

FCC Part 15B Class A  
VCCI Class A  
EN 61000-6-4

#### EMS

EN 61000-6-2  
EN 61000-4-2 (ESD)  
EN 61000-4-3 (Radiated RFI)  
EN 61000-4-4 (Burst)  
EN 61000-4-5 (Surge)  
EN 61000-4-6 (Induced RFI)  
EN 61000-4-8 (Magnetic Field)

#### Safety

UL 61010

#### Vibration

IEC 60068-2-6 Fc

#### Shock

IEC 60068-2-27 Ea

#### Free Fall

FED STD 101C Method 5007.1

#### Industrial Compliance

NEMA TS2

## + Power

### Input

52-57VDC Redundant (Terminal block)

### Power Consumption

10.4W Max (without PoE)

### Power Power Budget

240W Max.

### PoE Technology

Alternative A & B

Pins 1/2(+), 3/6(-), Pins 7/8(-), 4/5(+)

### Power Power Output

Port 1 to 8 support PoE+ (15.4W/30W/60W)

IEEE 802.3af: up to 15.4W/port, 47-57VDC

IEEE 802.3at: up to 30W/port, 52-57VDC; 60W/port, 52-57VDC

### Protection

Reverse Polarity Protection

## + Physical

### Casing Material

Metal

### IP Rating

IP30

### Dimensions

71.4 x 140 x 170mm (W x D x H)

2.85" x 5.6" x 6.8"

### Weight

1.7kg (3.74lbs)

### Installation Type

DIN-rail mounting

## + Warranty

### Length

Limited Lifetime

### Details

[www.etherwan.com/support/warranty-policy](http://www.etherwan.com/support/warranty-policy)

## + What's Included

### Device

Ethernet Switch

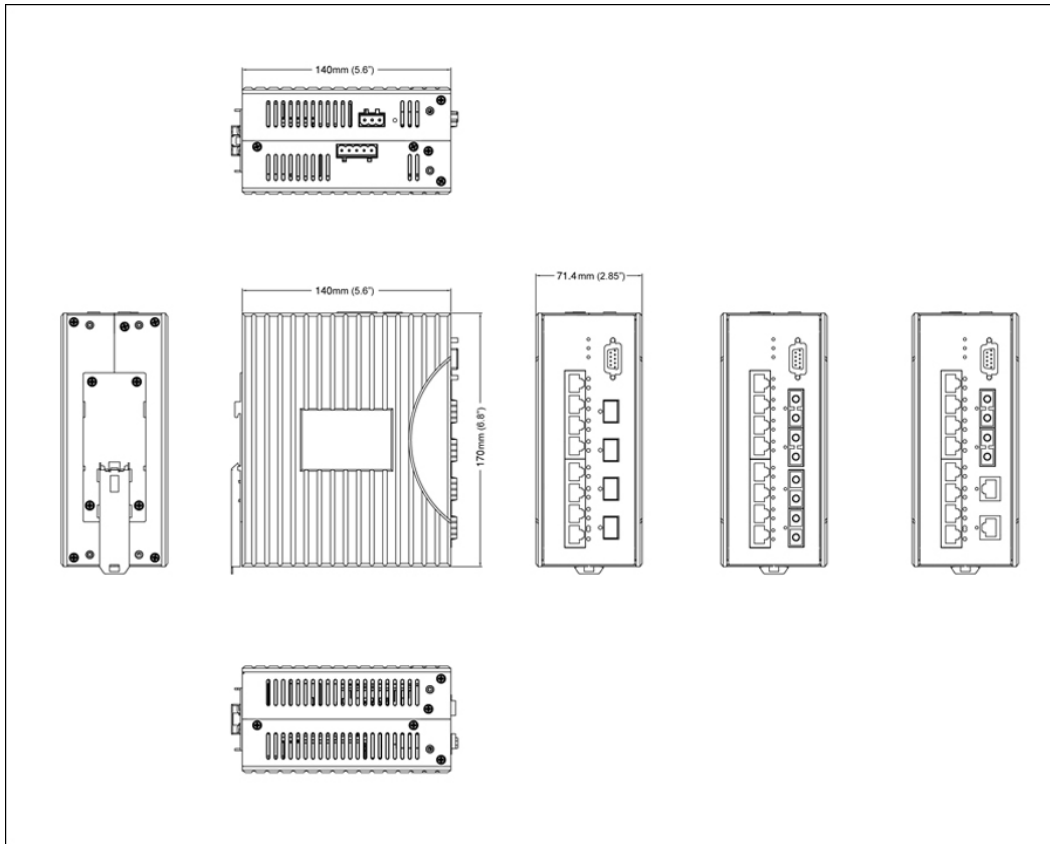
### Cables

1 Console Cable

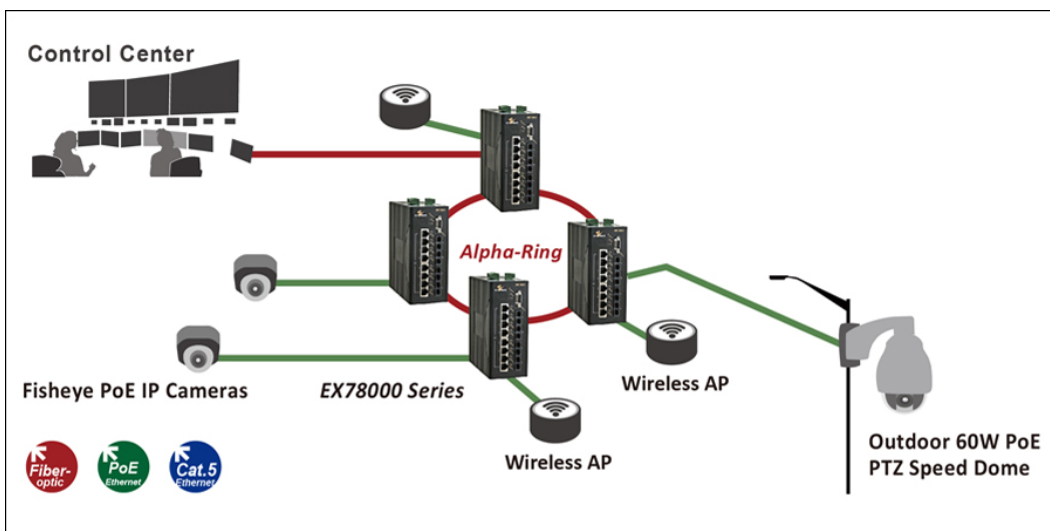
### Documentation

Quick Install Guide

## Dimensions



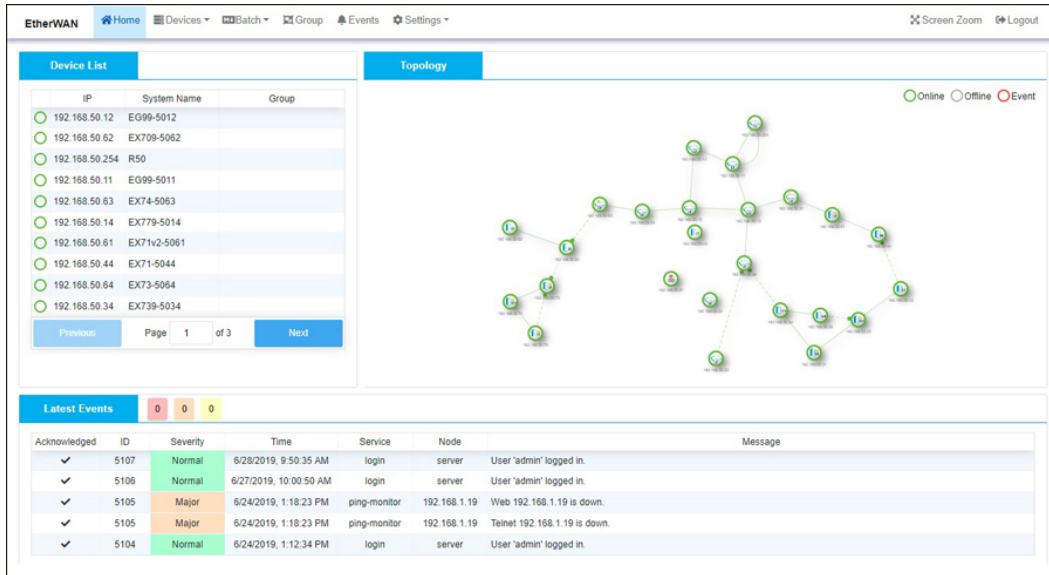
## Application



# Software

Network Management [eVue™ Network Configuration and Monitoring Tool](#)

Network Discovery [eLite™ Network Discovery and IP Configuration Tool](#)



**Device List**

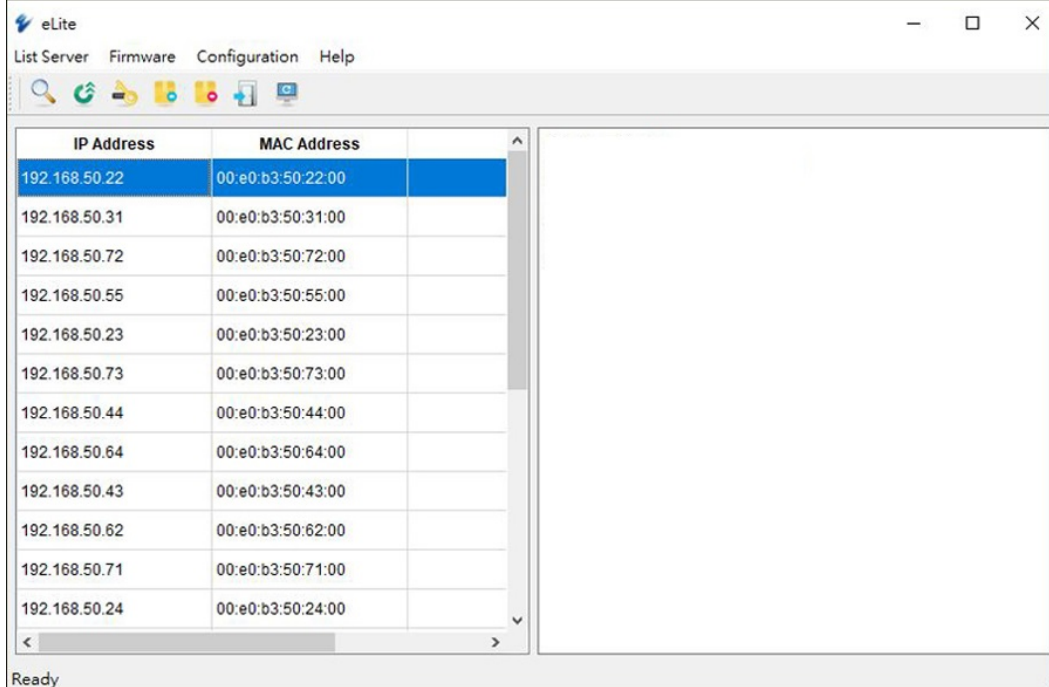
IP	System Name	Group
192.168.50.12	EG99-5012	
192.168.50.62	EX709-5062	
192.168.50.254	R50	
192.168.50.11	EG99-5011	
192.168.50.63	EX74-5063	
192.168.50.14	EX779-5014	
192.168.50.61	EX71v2-5061	
192.168.50.44	EX71-5044	
192.168.50.64	EX73-5064	
192.168.50.34	EX739-5034	

**Topology**

Legend: ● Online ○ Offline ○ Event

**Latest Events**

Acknowledged	ID	Severity	Time	Service	Node	Message
✓	5107	Normal	6/29/2019, 9:50:35 AM	login	server	User 'admin' logged in.
✓	5106	Normal	6/27/2019, 10:00:50 AM	login	server	User 'admin' logged in.
✓	5105	Major	6/24/2019, 1:18:23 PM	ping-monitor	192.168.1.19	Web 192.168.1.19 is down.
✓	5105	Major	6/24/2019, 1:18:23 PM	ping-monitor	192.168.1.19	Telnet 192.168.1.19 is down.
✓	5104	Normal	6/24/2019, 1:12:34 PM	login	server	User 'admin' logged in.



**eLite**

List Server Firmware Configuration Help

IP Address	MAC Address
192.168.50.22	00:e0:b3:50:22:00
192.168.50.31	00:e0:b3:50:31:00
192.168.50.72	00:e0:b3:50:72:00
192.168.50.55	00:e0:b3:50:55:00
192.168.50.23	00:e0:b3:50:23:00
192.168.50.73	00:e0:b3:50:73:00
192.168.50.44	00:e0:b3:50:44:00
192.168.50.64	00:e0:b3:50:64:00
192.168.50.43	00:e0:b3:50:43:00
192.168.50.62	00:e0:b3:50:62:00
192.168.50.71	00:e0:b3:50:71:00
192.168.50.24	00:e0:b3:50:24:00

Ready

## Ordering Info

### + Model

EX78402-0YBT	4-port 10/100BASE-TX PoE + 2-port Gigabit
EX78802-0YBT	8-port 10/100BASE-TX PoE + 2-port Gigabit
EX78822-XZBT	8-port 10/100BASE-TX PoE + 2-port 100BASE-FX +2-port Gigabit
EX78822-VVBT	8-port 10/100BASE-TX PoE + 2-port 100BASE-SFP +2-port 100/1000BASE-SFP

\* DIN-Rail mounting kit included.

### + 100FX Fiber Options (X)

1	Multi Mode (SC) - 2Km
2	Multi Mode (ST) - 2Km
A	Single Mode (SC) - 20Km

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

### + 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
R	1000BASE-BX (SC) WDM-TX: 1310nm/RX: 1550nm-20Km
S	1000BASE-BX (SC) WDM-TX: 1550nm/RX: 1310nm-20Km
V	Support 2-port 100/1000BASE SFP (DDM)

\* More Gigabit options also available upon request.

### + Gigabit Port Options (Z)

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
R	1000BASE-BX (SC) WDM-TX: 1310nm/RX: 1550nm-20Km
S	1000BASE-BX (SC) WDM-TX: 1550nm/RX: 1310nm-20Km

\* More Gigabit options also available upon request.

### + Accessories

Hardened Gigabit SFP Module	<a href="http://www.etherwan.com/products/sfp-fiber-transceiver">www.etherwan.com/products/sfp-fiber-transceiver</a>
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DIN-Rail Power Supplies	<a href="http://www.etherwan.com/products/din-rail-power-supply">www.etherwan.com/products/din-rail-power-supply</a> (* )
*Recommended Power Supply	NDR-480-48 480W 48VDC DIN-Rail Power Supply
EB-232	Configuration Backup and Restoration Tool

