

# EX78900E Series

Hardened Managed 10 to 16-Port Gigabit PoE Ethernet Switch



## Overview

EtherWAN's EX78900E series is a hardened DIN-rail mounted managed PoE Ethernet switch platform. Equipped with up to 12 gigabit PoE ports along with 60W power and IEEE 802.3bt protocol support and 4 dual-rate gigabit SFP ports, the EX78900E 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

### + High Bandwidth and Versatility

8 or 12 10/100/1000BASE-T(X) ports for High bandwidth connections  
Up to 4 Dual-rate 1/10G SFP+ uplink ports for fiber connections  
Full capacity switching running at full duplex

### + PoE Features

IEEE 802.3bt with 60W; 240W Power budget  
PoE watchdog monitors status of connected PoE devices

### + 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

### + Management/Security Features

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

### + Lite Layer 3 Functionality

Static routing, RIP v1/v2, and OSPF  
Redundancy with VRRP  
Reduces amount of broadcast traffic

### + Support

Complimentary technical support  
Free firmware upgrades and notifications  
Limited lifetime warranty

## Features

### + Interface

CLI, Telnet, Web GUI

### + Management

Firmware upgrade  
Configuration backup  
DHCP Server/Client  
RMON (Remote Monitoring)  
Port Mirroring  
NTP (Network Time Protocol) synchronization  
LLDP (Link Layer Discovery Protocol)  
IPv4/IPv6  
SNMP v1/v2c/v3  
Modbus TCP

### + Security

MAC Address filtering  
Enable/Disable port  
Storm control  
System logging  
IEEE 802.1x LAN Access control  
Remote authentication through RADIUS and TACACS+  
Complex password support  
Multi-user login and privileged access management  
SSH for CLI and Telnet security  
SSL and HTTPS for web security  
ACL (Access Control List, up to 4096 entries)

### + Layer 2 Features

**Auto-negotiation for port speed and duplex**  
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

#### **VLANs**

IEEE 802.1Q Tag VLANs  
GVRP  
GMRP

#### **Link Aggregation**

Static Trunk (4 groups)  
IEEE 802.3ad LACP

#### **IGMP Snooping v1/v2/v3**

### + Layer 3 Features

#### **IP Packet Routing**

Maximum number of routes in hardware: 64 entries  
Static Routing  
RIP v1/v2  
OSPF v2

#### **Routing Redundancy**

VRRP

## + Quality of Service (QoS)

Priority Queues: 8 queues per port  
Traffic classification based on IEEE 802.1p CoS (Cost of Service), DSCP (Differentiated Services Code Point), WRR (Weighted Round Robin), and strict mode  
Rate Limiting (Ingress/Egress)

## + Software Properties and Performance

**Switching Fabric**  
32Gbps

**Forwarding Rate**  
23.5Mpps

**Max VLANs**  
256 (4096 VID)

**Jumbo Frame Size**  
9KB

**MAC Table Size**  
16K

**Packet Buffer Memory**  
12M bits

# Specifications

## + Interface

### Ethernet

8 or 12 x 10/100/1000BASE-T(X)  
2 or 4 x 100/1000BASE SFP

### Console

1 x RJ45

### Config Backup

1 x USB (Type A Connector)

### Digital Input

2 x Digital Input  
Wet Contact: 0-3V for State 0; 13-30V for State 1;  
Max Input Current: 8mA  
Dry Contact: Logic Level 1-Close to GND; Logic  
Level 0-Open

### Alarm Contact

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

### LED Indicators

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

## + Physical

### Casing Material

Aluminum

### IP Rating

IP30

### Dimensions

72 x 140 x 170mm (W x D x H)  
2.8" x 5.5" x 6.7"

### Weight

1.5kg (3.3lbs)

### Installation Type

DIN-rail mounting

## + Environmental

### Operating Temp.

-40 to 75°C (-40 to 167°F)

### Storage Temp.

-45 to 85°C (-49 to 185°F)

### Relative Humidity

5% to 95% (non-condensing)

### MTBF

1,108,382 hours

## + Technology

### Standards

IEEE 802.3 10BASE-T  
IEEE 802.3u 100BASE-TX/100BASE-FX  
IEEE 802.3ab 1000BASE-T  
IEEE 802.3ad link aggregation control  
IEEE 802.3z 1000BASE-SX/1000BASE-LX  
IEEE 802.3x full duplex and flow control  
IEEE 802.1D STP  
IEEE 802.1p QoS  
IEEE 802.1Q Tag VLANs  
IEEE 802.1s MSTP  
IEEE 802.1w RSTP  
IEEE 802.1x PNAC  
IEEE 802.1ab LLDP  
IEEE 802.3az EEE  
IEEE 802.3af/at/bt Power over Ethernet  
IEEE 1588v2 PTP

### Forward/Filtering Rate

14,880pps for 10Mbps  
148,810pps for 100Mbps  
1,488,100pps for 1000Mbps

### Processing Type

Store-and-forward  
Auto-negotiation  
Half-duplex back-pressure and full-duplex flow control  
Auto MDI/MDIX

### System Memory

2Gb DDR3 SDRAM

### Flash Storage

1Gb

## + Regulatory

### ISO

Manufactured in ISO-9001 facility

### EMI

FCC Part 15B Class A  
VCCI Class A  
EN 61000-6-4  
EN 61000-3-2  
EN 61000-3-3

### 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)  
PoE Ports: line to earth 6kV Surge  
EN 61000-4-6 (Induced RFI)  
EN 61000-4-8 (Magnetic field)

### Safety

UL 61010

### Traffic

NEMA TS2

### Vibration

IEC 60068-2-6

### Shock

IEC 60068-2-27

### Free Fall

FED STD 101C Method 5007.1

### Industrial

EN 50121-4

## + Power

### Input

46-57VDC Redundant (Terminal block)\*\*

\*\* 46-57VDC for IEEE 802.3af type 1, ≤15.4W PD devices.

52-57VDC for IEEE 802.3at/bt type 2/3, 30W, 60W PD devices.

54-57VDC for IEEE 802.3bt, type 4, 90W PD devices

### Power Consumption

20W Max (without PoE)

### PoE Modes

802.3af/at Mode A: Pins 1/2(-), 3/6(+)

802.3bt (60W): Mode A & B, Pins 1/2(-), 3/6(+), 4/5(+), 7/8(-)

### PoE Power Output

Ports 1-4, 9-12: Up to 30W/port

Ports 5-8: Up to 60W/port

Power Budget: 240W

### Protection

Reverse Polarity Protection

## + What's Included

### Device

Ethernet Switch

### Cables

1 Console Cable

### Installation

Mounting brackets, screws

### Documentation

Quick Install Guide

## + Warranty

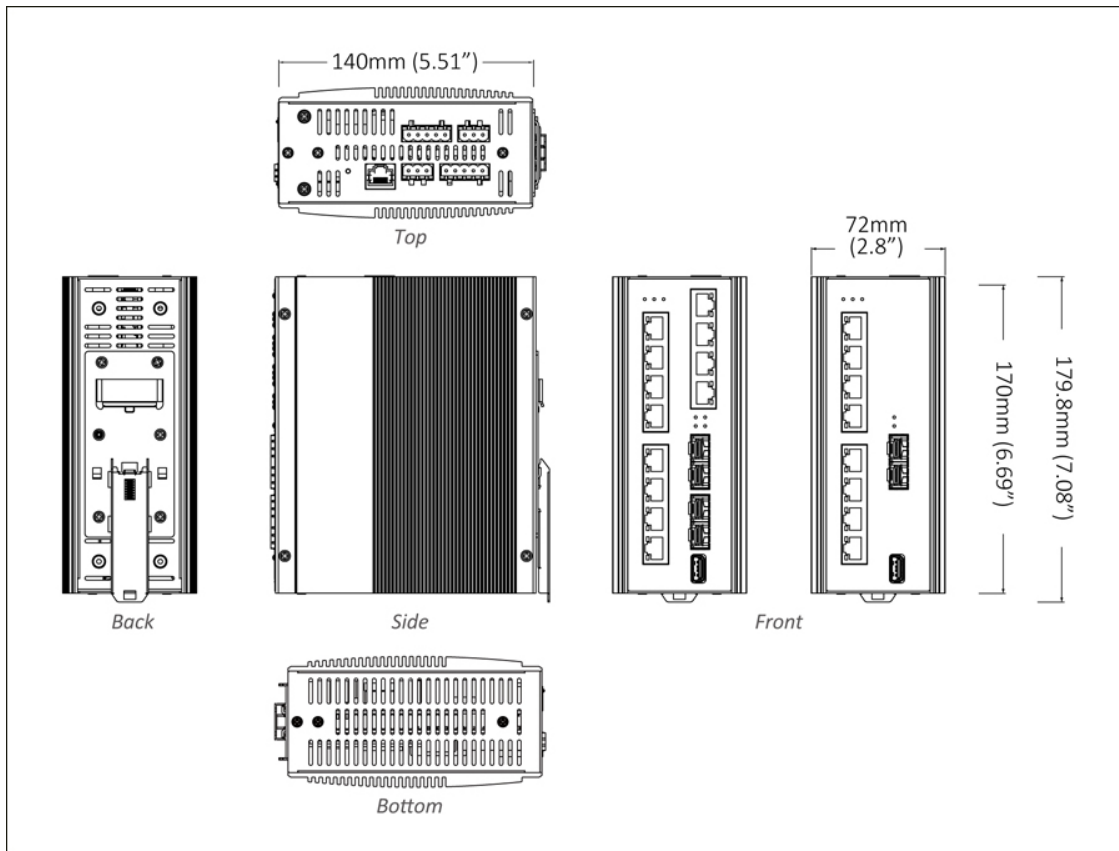
### Length

Limited Lifetime

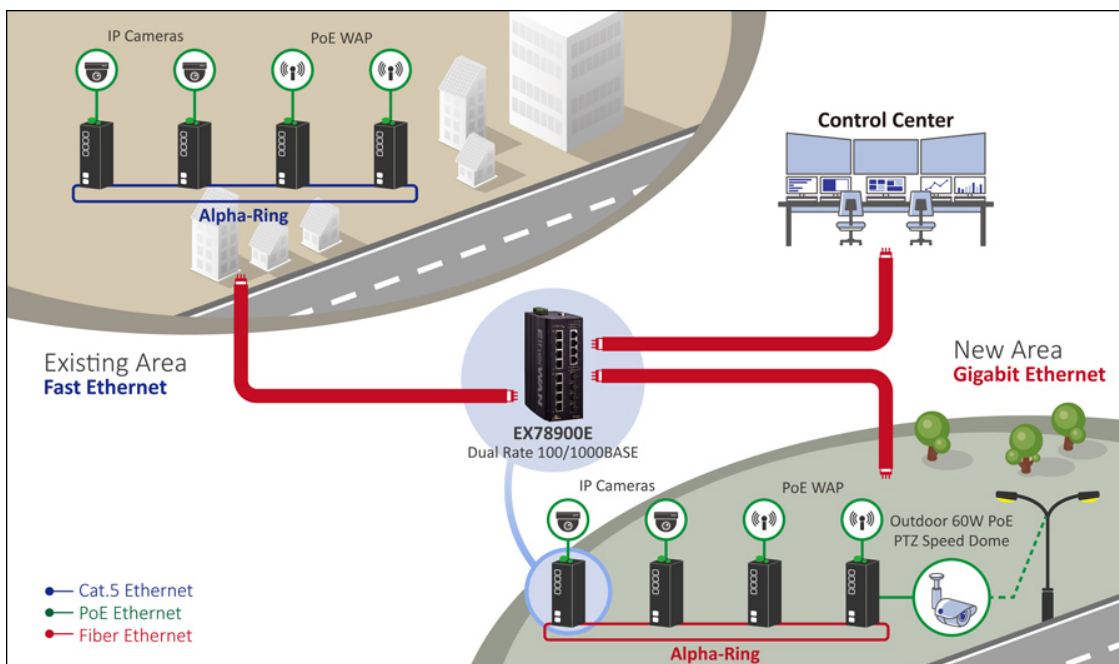
### Details

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

## Dimensions



## Application

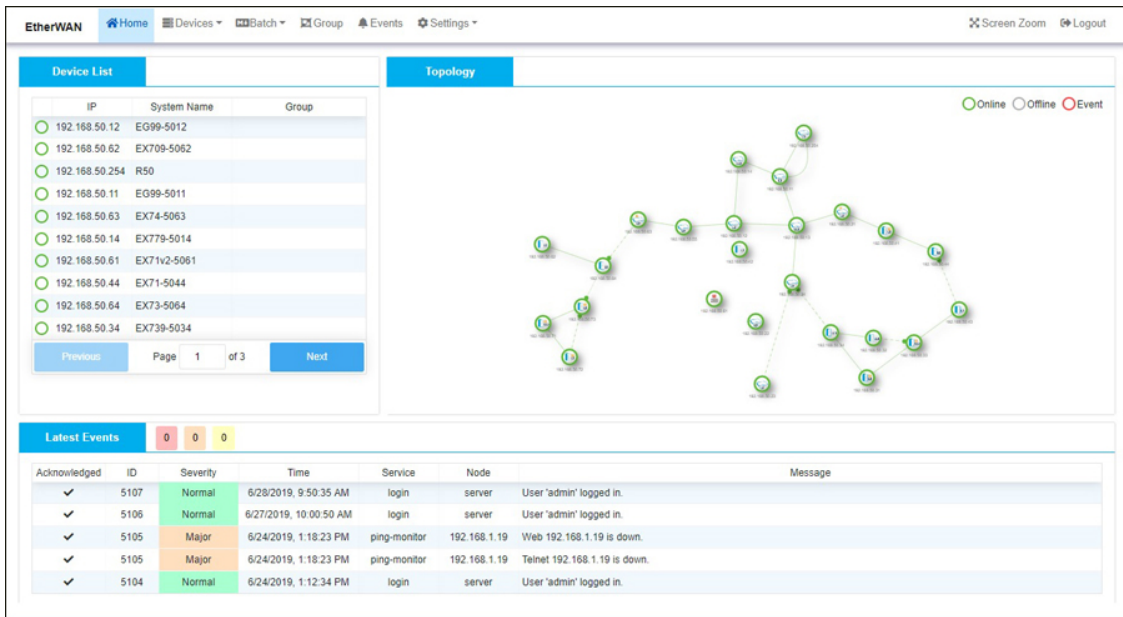




# Software

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

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



**Device List**

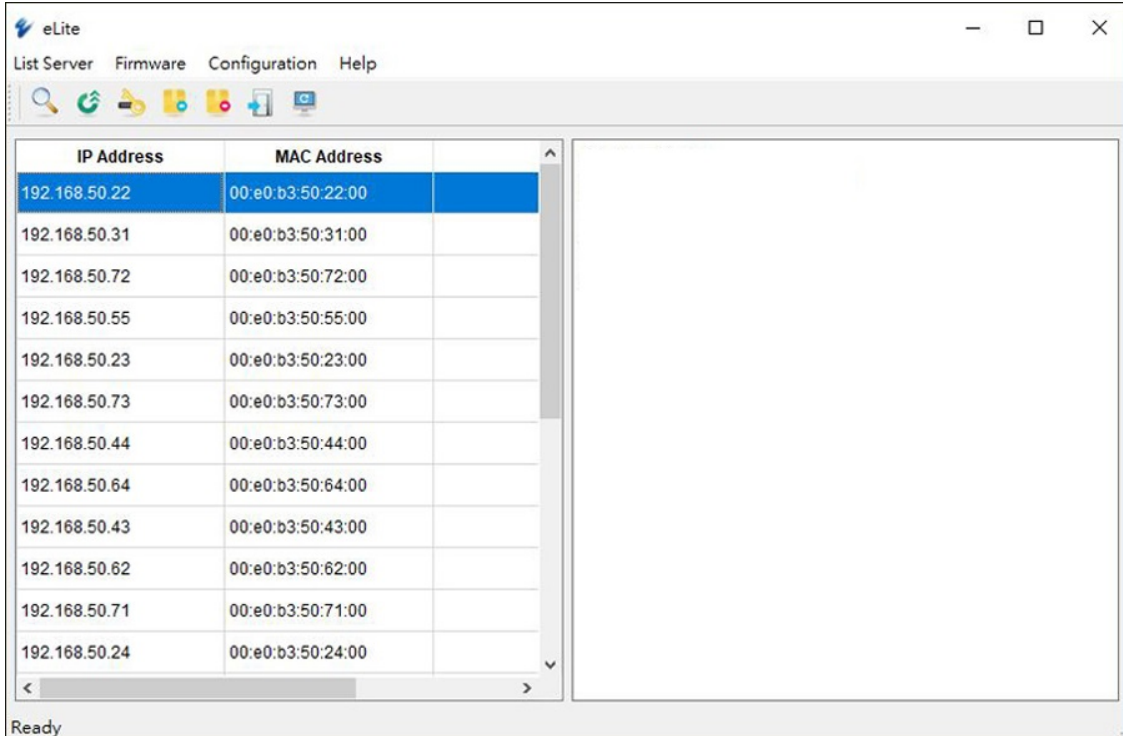
IP	System Name	Group
192.168.50.12	EG99-5012	
192.168.50.62	EX709-5062	
192.168.50.254	R50	
192.168.50.11	EG99-5011	
192.168.50.63	EX74-5063	
192.168.50.14	EX779-5014	
192.168.50.61	EX71v2-5061	
192.168.50.44	EX71-5044	
192.168.50.64	EX73-5064	
192.168.50.34	EX739-5034	

**Topology**

Legend: Online (Green), Offline (Grey), Event (Red)

**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

EX78934E-0VB	12-port 10/100/1000BASE-T(X) PoE + 4-port 100/1000BASE SFP
EX78924E-0VB	8-port 10/100/1000BASE-T(X) PoE + 4-port 100/1000BASE SFP
EX78922E-0VB	8-port 10/100/1000BASE-T(X) PoE + 2-port 100/1000BASE SFP

### + Accessories

Hardened 100BASE SFP Modules	<a href="http://www.etherwan.com/products/sfp-fiber-transceiver">www.etherwan.com/products/sfp-fiber-transceiver</a>
Hardened Gigabit SFP Modules	<a href="http://www.etherwan.com/products/sfp-fiber-transceiver">www.etherwan.com/products/sfp-fiber-transceiver</a>
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

