

# EX78900H Series

Hardened Managed 12-Port Gigabit PoE and 4-Port 1G SFP Ethernet Switch



## Highlights

### + High Bandwidth and Versatility

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

### + 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

### + Lite Layer 3 Functionality

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

### + PoE Features

- IEEE 802.3bt with up to 90W per port; 360W total power budget
- PoE watchdog monitors status of connected PoE devices

### + Management/Security Features

- Port control, SFTP
- 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 and notifications
- Limited lifetime warranty

## Overview

EtherWAN's EX78900H series is a hardened DIN-rail mounted managed PoE Ethernet switch platform. Equipped with up to 12 gigabit PoE ports along with 90W power and IEEE 802.3.bt protocol support and 4 dual-rate gigabit SFP ports, the EX78900H 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."

## Features

### + Interface

CLI, Telnet, Web GUI

### + Management

SFTP (Secured FTP) support

Configuration backup / restore

DHCP Server/Client

RMON (Remote Monitoring)

Port Mirroring

NTP (Network Time Protocol) synchronization

PoE Watchdog

LLDP (Link Layer Discovery Protocol)

IPv4/IPv6

SNMP v1/v2c/v3

Modbus TCP

### + Security

MAC Address filtering

Enable/Disable port

Storm Control and Detection

DoS (Denial of Service) Attack

Port Security

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

TLS and HTTPS for web security

ACL (Access Control List, up to 4096 entries)

## + 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)

## + 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

## + 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)

## + 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 802.3bt 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

## **+ 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 Power Output**

Ports 1-12: Up to 90W/port

Power Budget: 360W

**Protection**

Reverse Polarity Protection

**+ 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**

1,399,701 hours

**+ 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

#### **Rail**

EN 50121-4

#### **Vibration**

IEC 60068-2-6

#### **Shock**

IEC 60068-2-27

#### **Free Fall**

FED STD 101C Method 5007.1

#### **Industrial**

EN 50121-4

## **+ 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

### Installation

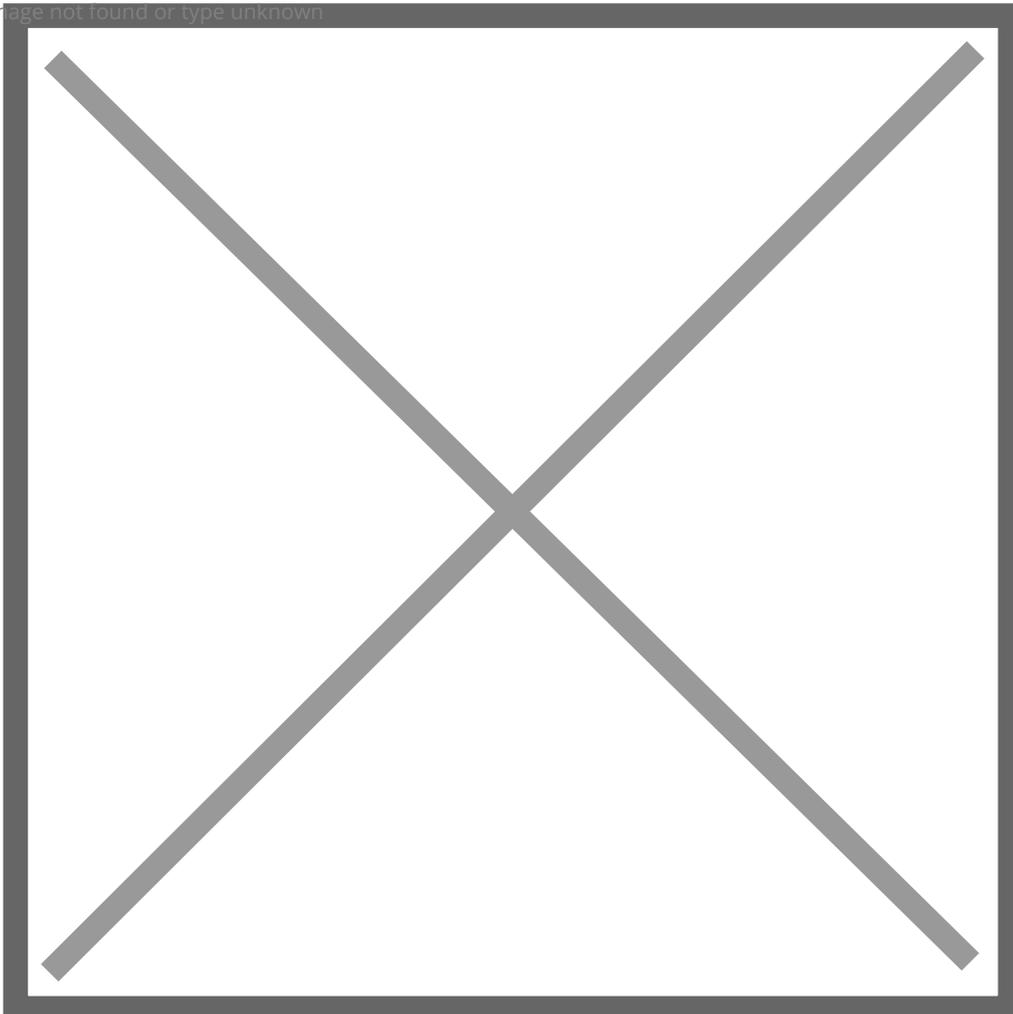
Mounting brackets, screws

### Documentation

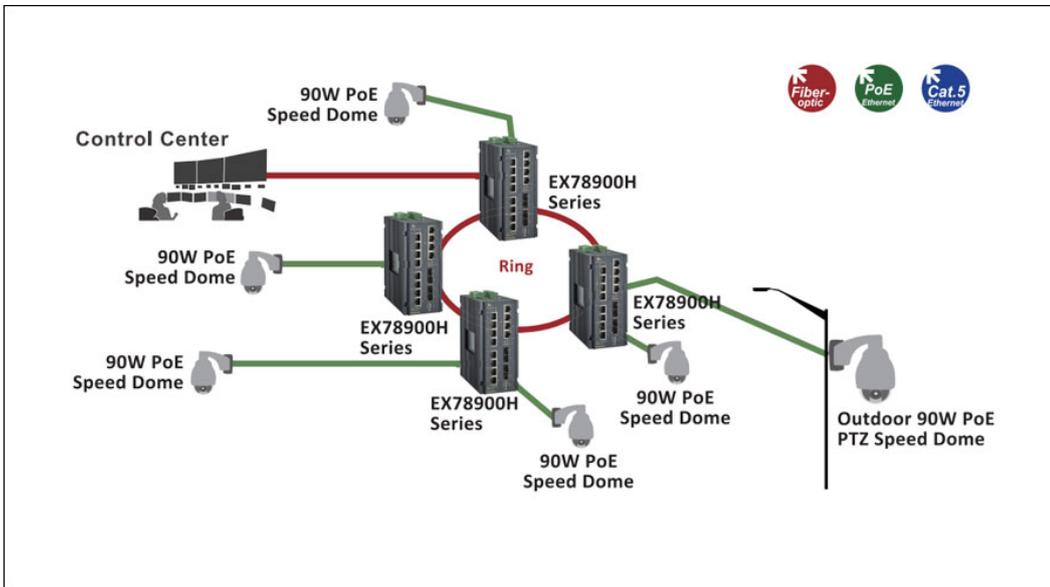
Quick Install Guide

## Dimensions

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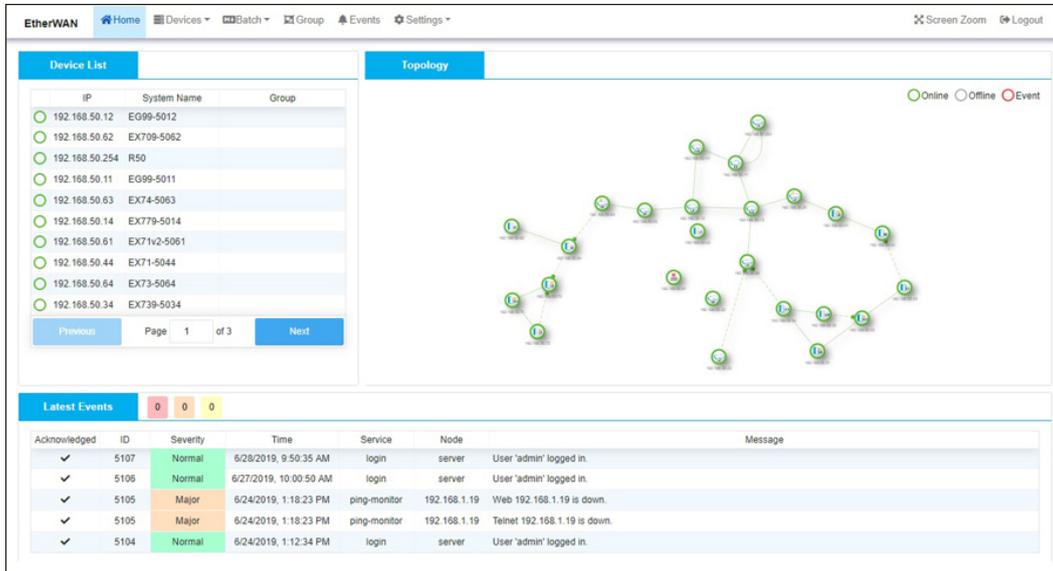


# Application



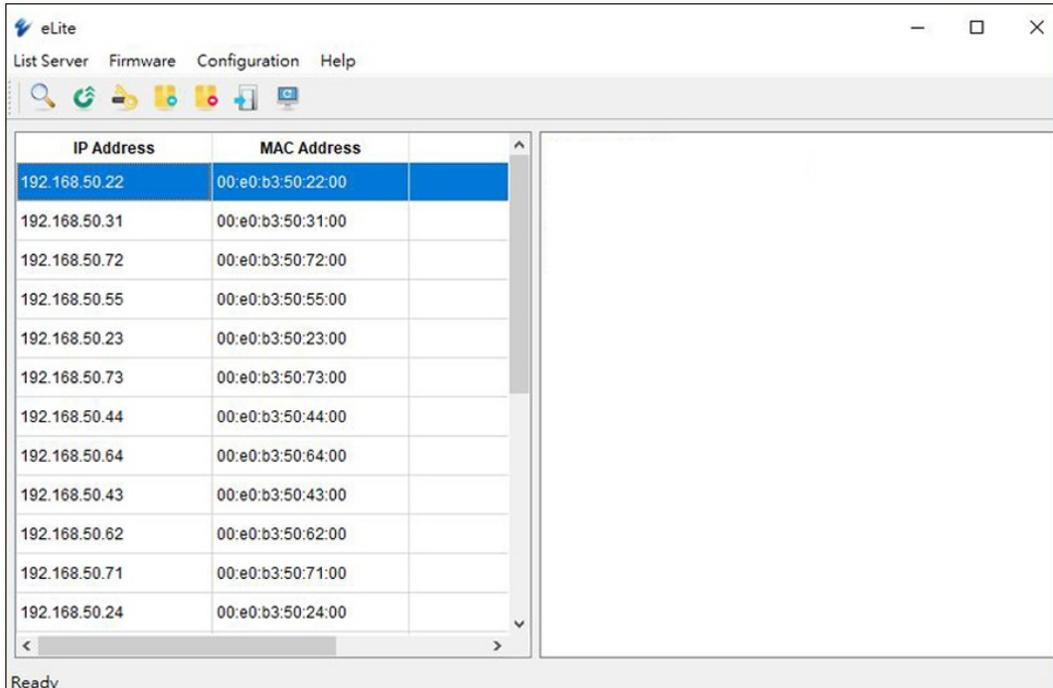
# Software

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



The screenshot shows the EtherWAN web interface. On the left, there is a 'Device List' table with columns for IP, System Name, and Group. On the right, there is a 'Topology' diagram showing a network of interconnected nodes. Below these, there is a 'Latest Events' section with a table of recent system events.

Acknowledged	ID	Severity	Time	Service	Node	Message
✓	5107	Normal	6/28/2019, 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.



The screenshot shows the eLite application window. It features a menu bar with 'List Server', 'Firmware', 'Configuration', and 'Help'. Below the menu is a toolbar with various icons. The main area contains a table with IP addresses and MAC addresses.

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

## Ordering Info

### + Model

EX78934H-0VB	12-port 10/100/1000BASE-T(X) PoE + 4-port 100/1000BASE SFP
EX78924H-0VB	8-port 10/100/1000BASE-T(X) PoE + 4-port 100/1000BASE SFP
EX78922H-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

