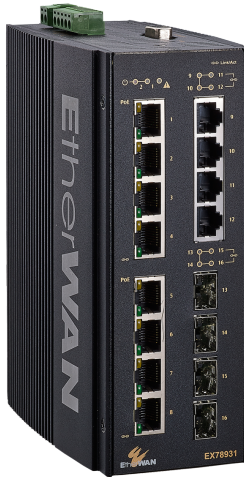


# EX78900 Series

Lite L3 Hardened Managed 16-port (8 x PoE) Gigabit Ethernet Switch



## Highlights

### + High Bandwidth and Versatility

- 8 or 12 10/100/1000BASE-T(X) ports for high bandwidth connections
- Up to 4 gigabit 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

- 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

## Overview

### [When should you use an Industrial Layer 3 switch?](#)

EtherWAN's EX78900 Series is a hardened DIN-rail mounted managed PoE Ethernet switch platform. Equipped with up to 12 gigabit ports with 8-port PoE that provides up to 60W/port and 4 fiber ports, the EX78900 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  
SNMP v1/v2c/v3

### + Management

Firmware and configuration upgrade and backup via TFTP  
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+  
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  
GVRP  
GMRP

#### Link Aggregation

Static Trunk (4 groups, support MAC base)  
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

## Specifications

### + Interface

#### Ethernet

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

#### 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  
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 802.3z 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 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

#### Jumbo Frame

9216 bytes

#### Address Table Size

16K MAC Addresses

### + Power

Input

52-57VDC Redundant (Terminal block)

Power Consumption  
20W Max (without PoE)

PoE Technology  
Alternative A & B  
Pins 1/2(+), 3/6(-), Pins 7/8(-), 4/5(+)

PoE Power Output  
PoE can be configured as:  
1. 6-port 15.4W PoE and 2-port 60W PoE  
2. 8-port 30W PoE  
3. 4-port 10/100/1000-TX and 4-port 60W PoE  
4. Other PoE power level configuration can be done through firmware  
Power Budget: 240W

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)  
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  
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)  
EN 61000-4-6 (Induced RFI)  
EN 61000-4-8 (Magnetic Field)

**Vibration**  
IEC 60068-2-6 Fc

**Shock**  
IEC 60068-2-27 Ea

**Free Fall**  
FED STD 101C Method 5007.1

## + Warranty

**Length**

Limited Lifetime

Details

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

## + What's Included

**Device**

Ethernet Switch

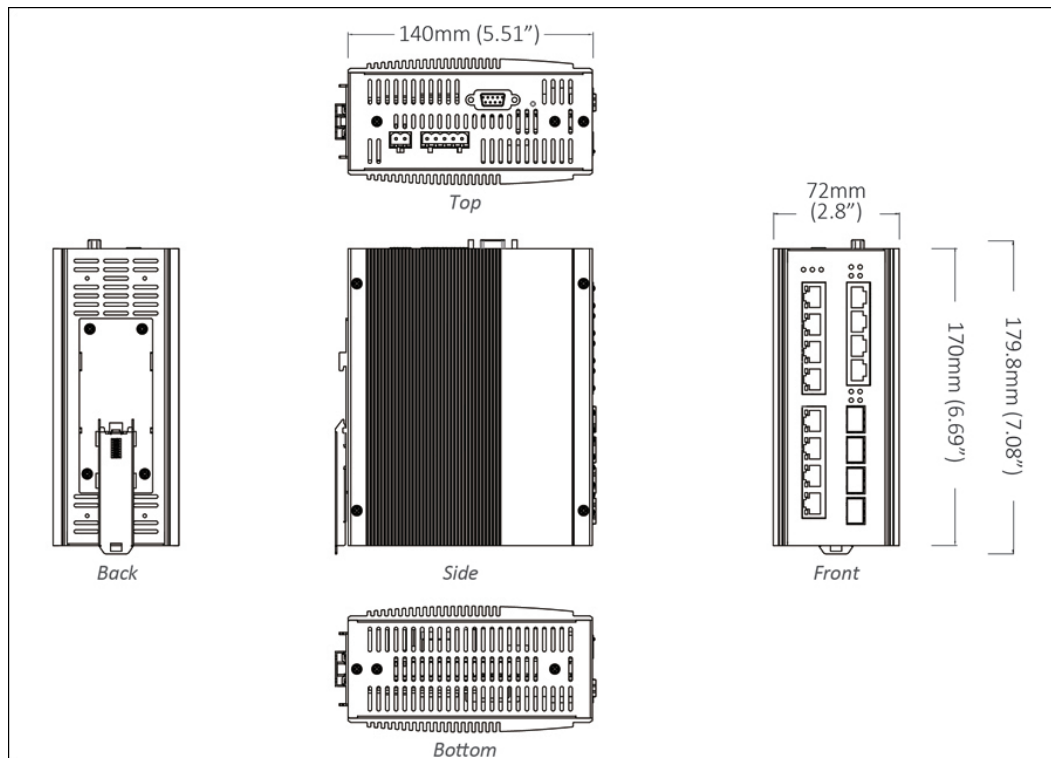
**Cables**

1 Console Cable

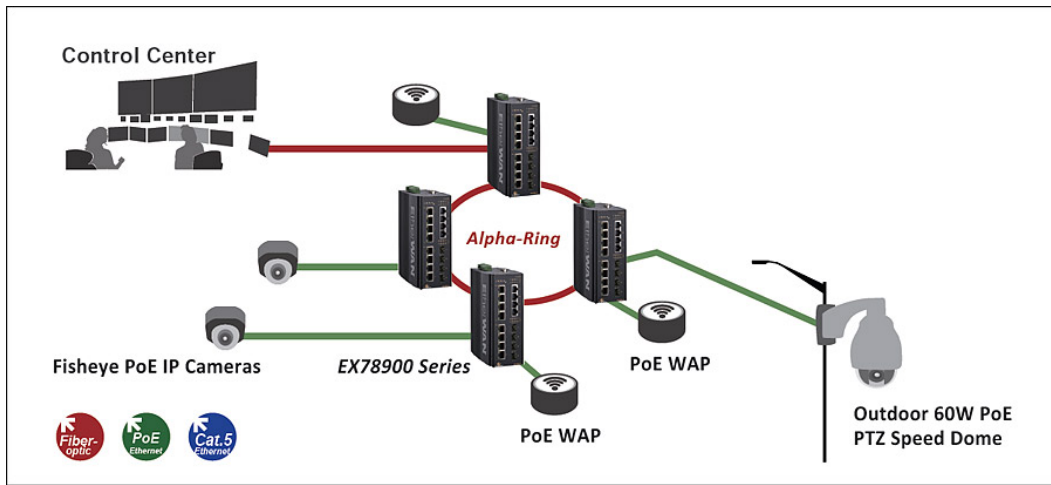
**Documentation**

Quick Install Guide

## Dimensions



# Application



# Software

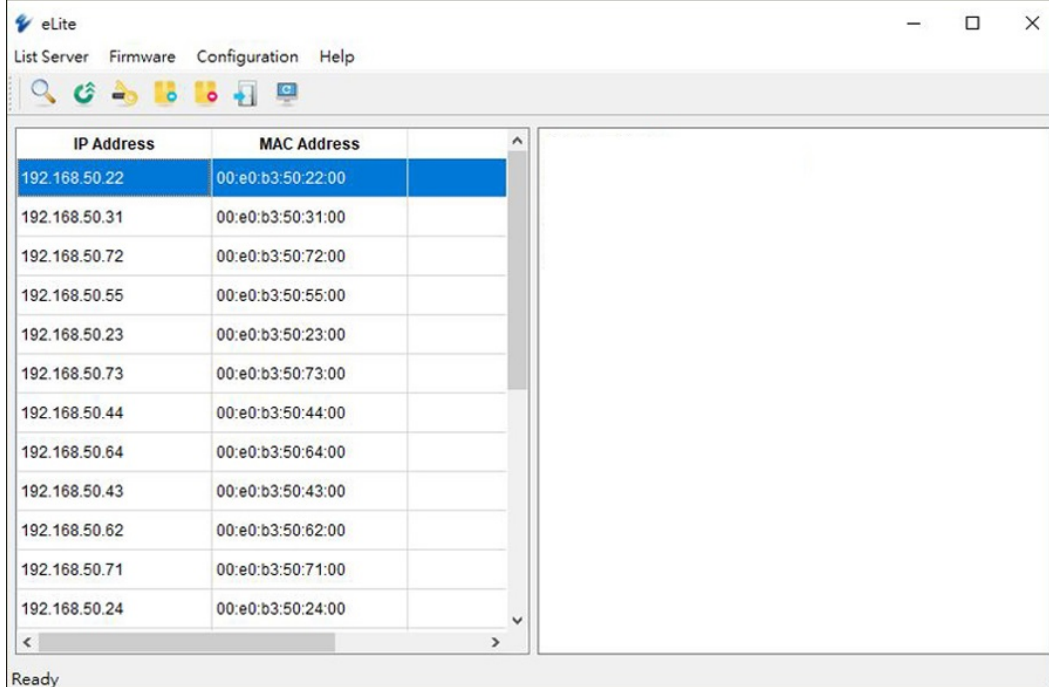
[Network Management eVue™ Network Configuration and Monitoring Tool](#)  
[Network Discovery eLite™ Network Discovery and IP Configuration Tool](#)



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 devices. Below these, there is a 'Latest Events' section with a table of system events.

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	

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 has 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

<b>EX78931-0VB</b>	12-Port 10/100/1000BASE-TX with 8-port PoE + 4-port Gigabit SFP
<b>EX78921-0VB</b>	8-Port 10/100/1000BASE-TX PoE + 4-Port Gigabit SFP
<b>EX78921-0XB</b>	8-Port 10/100/1000BASE-TX PoE + 4-Port Gigabit Fiber

\* DIN-Rail mounting kit included.

### + Gigabit Port Options (X)

<b>3</b>	1000BASE-SX (SC) - 550m
<b>4</b>	1000BASE-SX (SC) - 2Km
<b>5</b>	1000BASE-SX (ST) - 550m
<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

\* More Gigabit options also available upon request.

### + Accessories

<b>Hardened Gigabit SFP Modules</b>	<a href="http://www.etherwan.com/products/sfp-fiber-transceiver">www.etherwan.com/products/sfp-fiber-transceiver</a>
<b>DIN-Rail Power Supplies</b>	<a href="http://www.etherwan.com/products/din-rail-power-supply">www.etherwan.com/products/din-rail-power-supply</a> (* )
<b>*Recommended Power Supply</b>	HDR-30-24 30W 24VDC DIN-Rail Power Supply
<b>EB-232</b>	Configuration Backup and Restoration Tool

