

# EG97000 Series

28-Port Hardened Managed Layer 3 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 and the IEEE1588v2 Precision Time Protocol (PTP) that uses network packets and time stamps for network time synchronization. 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™

## 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)

### 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 x 10/100/1000BASE-T  
16 x 100/1000BASE SFP  
4 x 1G/10G SFP+

### Console

1 x RJ45

### Config Backup

1 x USB (Type A Connector)

### Alarm Contact

Relay output, current capacity 0.6A/30VDC

### LED Indicators

Per Unit: Power 1, Power 2, Alarm  
Per Port: Link/Activity

## + 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

### Forward/Filtering Rate

14,880pps for 10Mbps  
148,810pps for 100Mbps  
1,488,100pps for 1000Mbps  
14,881,000pps for 10Gbps

### Processing Type

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

### System Memory

4Gb DDR3 SDRAM

### Flash Storage

2GB

## + 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

1,143,890 hours

## + Regulatory

### ISO

Manufactured in ISO-9001 facility

### EMC

EN 55032

### EMI

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

### EMS

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 62368

### 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

## + Power

### Input

VTR:  $\pm 48$ VDC Redundant (Terminal block)  
VWR: 100-240VAC Redundant (Terminal block)  
VCR: 100-240VAC Redundant (AC Inlet)

### Power Consumption

75W Max

## + Physical

### Casing Material

Aluminum

### Dimensions

442 x 325 x 44mm (W x D x H)  
17.4" x 12.8" x 1.73"

### Weight

5.6kg (12.3lbs)

### Installation Type

Rack 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

### Power

1 AC Power Cord

### Installation

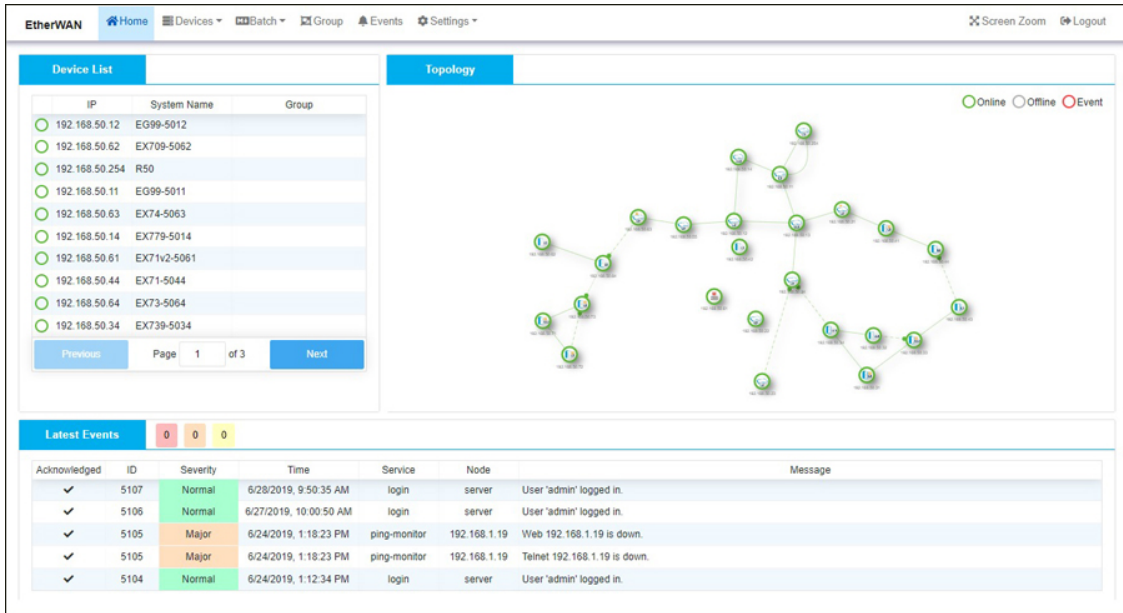
Mounting brackets, screws

### Documentation

Quick install guide

# 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. At the top, there are navigation tabs: Home, Devices, Batch, Group, Events, and Settings. On the right, there are options for Screen Zoom and Logout. The main content area is divided into two sections: 'Device List' and 'Topology'.

**Device List:** A table with columns for IP, System Name, and Group. It lists 13 devices, all with green status indicators.

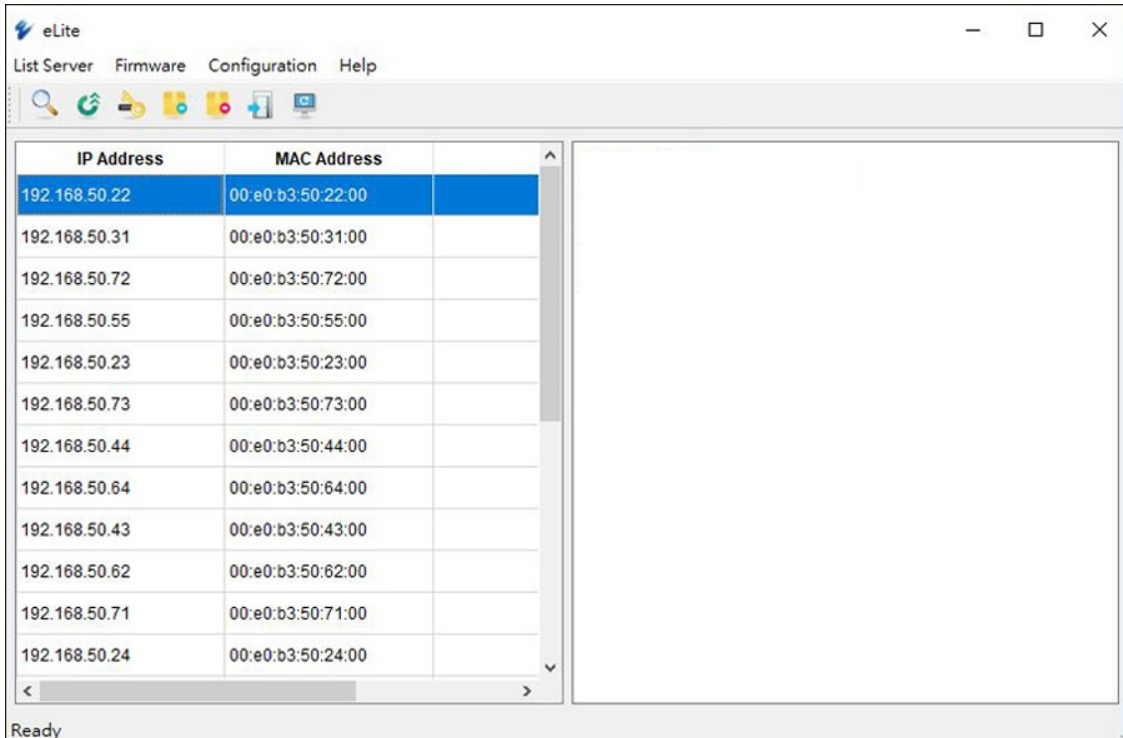
IP	System Name	Group
192.168.50.12	EG99-5012	
192.168.50.62	EX709-5062	
192.168.50.254	R50	
192.168.50.11	EG99-5011	
192.168.50.63	EX74-5063	
192.168.50.14	EX779-5014	
192.168.50.61	EX71v2-5061	
192.168.50.44	EX71-5044	
192.168.50.64	EX73-5064	
192.168.50.34	EX739-5034	

Below the table are 'Previous', 'Page 1 of 3', and 'Next' buttons.

**Topology:** A network diagram showing various nodes connected in a mesh-like structure. A legend indicates Online (green circle), Offline (grey circle), and Event (red circle).

**Latest Events:** A table with columns for Acknowledged, ID, Severity, Time, Service, Node, and Message.

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.



The screenshot shows the eLite application window. The title bar reads 'eLite'. The menu bar includes 'List Server', 'Firmware', 'Configuration', and 'Help'. Below the menu bar is a toolbar with several icons. The main area contains a table with two columns: 'IP Address' and 'MAC Address'.

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

The status bar at the bottom left shows '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

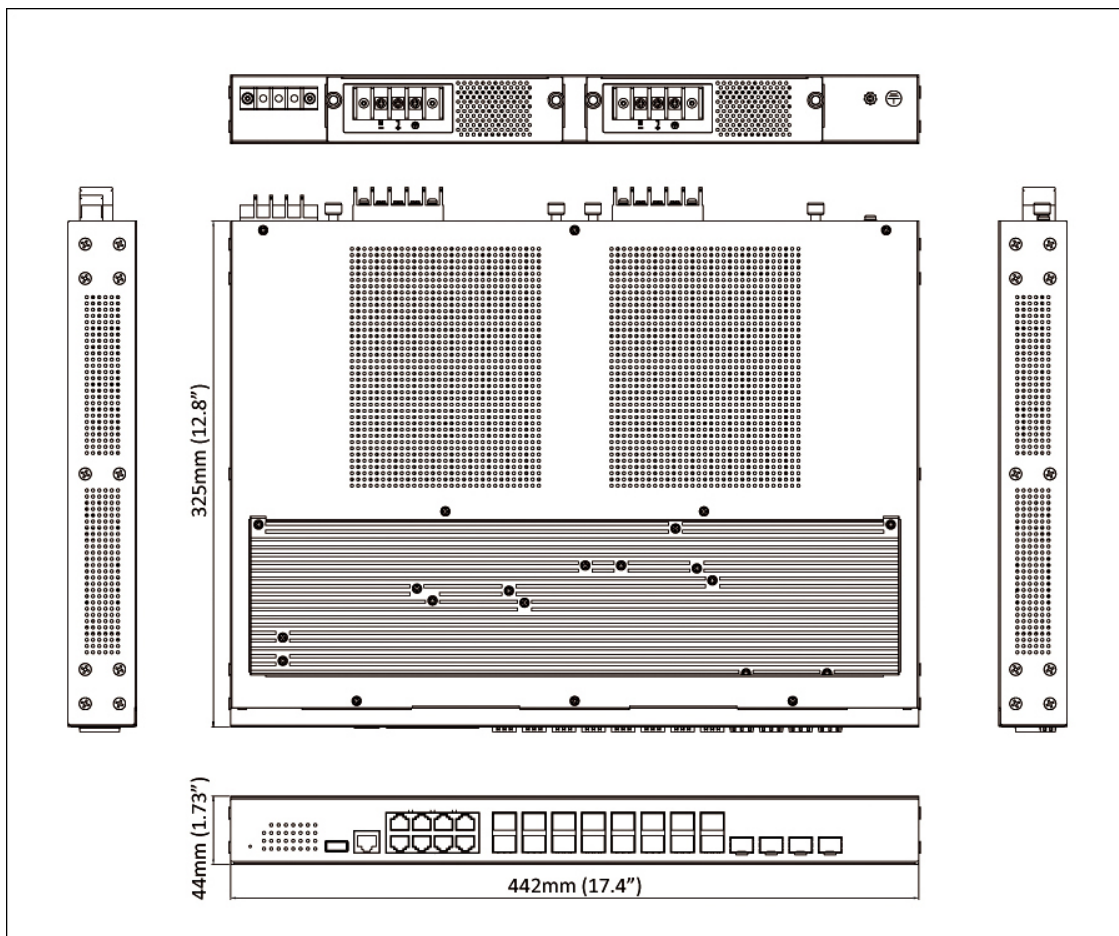
Hardened 100BASE SFP Modules [www.etherwan.com/products/sfp-fiber-transceiver](http://www.etherwan.com/products/sfp-fiber-transceiver)

Hardened Gigabit SFP Modules [www.etherwan.com/products/sfp-fiber-transceiver](http://www.etherwan.com/products/sfp-fiber-transceiver)

DIN-Rail Power Supplies [www.etherwan.com/products/din-rail-power-supply](http://www.etherwan.com/products/din-rail-power-supply) (\*)

\*Recommended Power Supply NDR-480-48 480W 48VDC DIN-Rail Power Supply

## Dimensions





# Application

