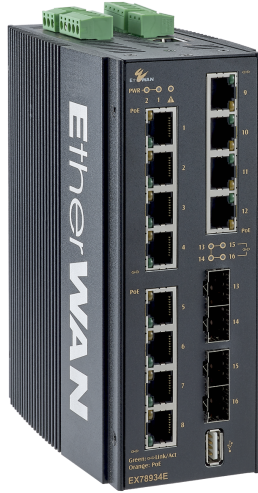


## EX78900E 系列

強固級網管型 10 - 16 埠 Gigabit PoE 乙太網路交換器



### 產品介紹

益網科技 EX78900E 系列是強固級網管型導軌式 PoE 乙太網交換機平台。配備多達 12 個 60W 功率的 Gigabit PoE 連接埠，支援 IEEE 802.3bt 標準協議以及 4 個雙速率 Gigabit SFP 連接埠，同時支援 IEEE 1588v2 標準的精確時間通訊協定，利用網路封包及時間戳記進行網路時間同步。為城市基礎設施、交通、安全和其他領域的重要網路連結、提供靈活、高速和可靠的通訊表現。

EtherWAN — "When Connectivity is Crucial."

### 產品亮點

#### + 高頻寬彈性配置

8 或 12 個 10/100/1000BASE-T(X) 高速連接埠  
 多達 4 個 1G/10G SFP+ 光纖上行鏈路連接埠  
 全雙工運行的全容量交換

#### + 強固等級適用於不通風的惡劣環境

-40 至 75°C (-40 至 167°F) 的寬工作溫度範圍  
 無風扇設計  
 高衝擊、耐熱和電氣干擾抵抗力

#### + 第三層網管功能

靜態路由、RIP v1/v2, 和 OSPF  
 VRRP 虛擬路由器備援協定  
 廣播流量減輕

#### + PoE 乙太網供電功能

IEEE 802.3bt 支援每埠最高 60W, 總輸出功率達 240W  
 PoE 看門狗監控設備的連接狀態與自訂排程

#### + 管理/安全功能

連接埠控制連接埠控制, SFTP 安全檔案傳輸協定  
 以 802.1x 連接埠基礎之網路登入控制以及透過  
 RADIUS 的遠端身份驗證  
 使用 eVue™ 和 eLite™ 設定和監控

#### + 服務支援

提供技術支援  
 免費韌體升級和通知  
 有限終身保固

## 軟體功能

### + 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

## 硬體規格

### + 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 802.3af/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

## + 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

## + 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

## + 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  
NEMA TS2

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

## + Warranty

**Length**  
Limited Lifetime

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

## + What's Included

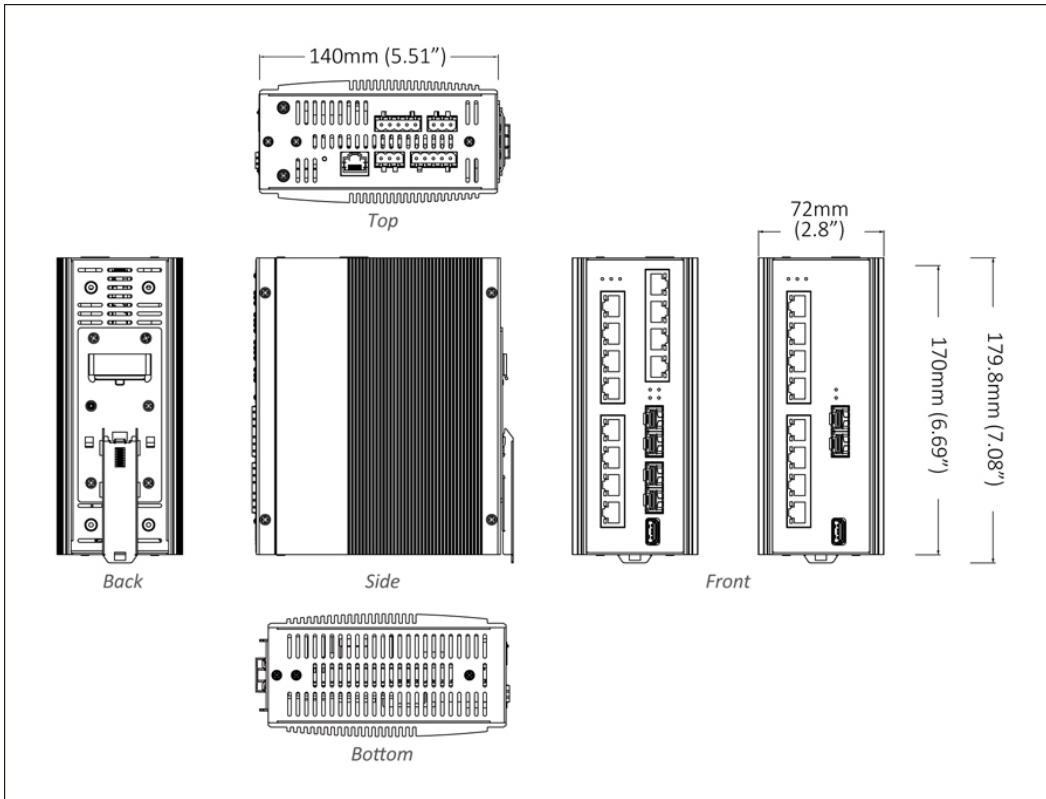
**Device**  
Ethernet Switch

**Cables**  
1 Console Cable

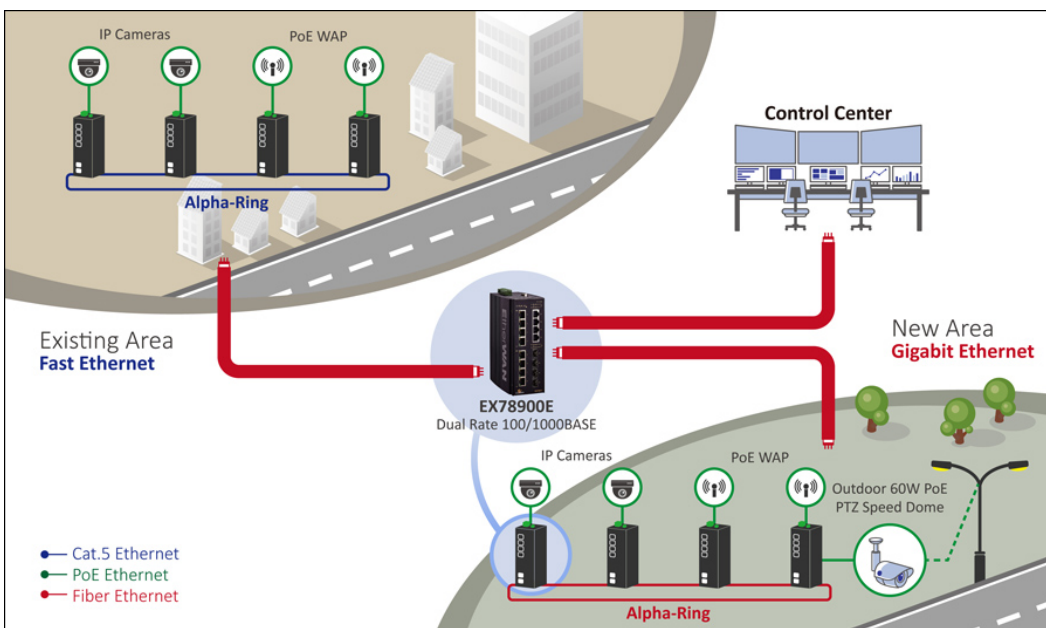
**Installation**  
Mounting brackets, screws

**Documentation**  
Quick Install Guide

## 產品尺寸圖



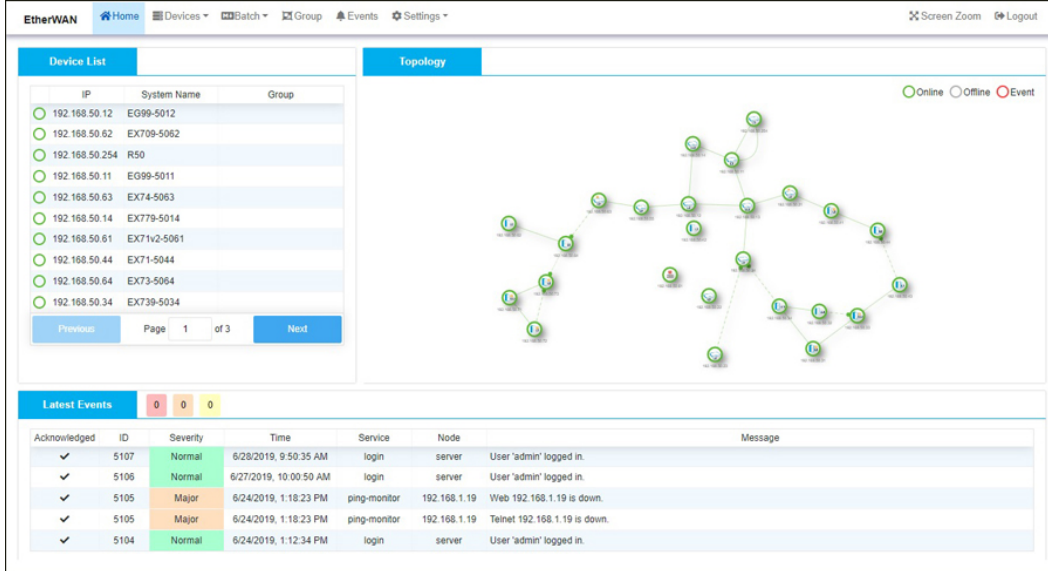
## 應用圖



# 軟體工具

網路管理  
網路探索

eVue™ 網路配置和監控工具  
eLite™ 網路偵測和 IP 配置工具

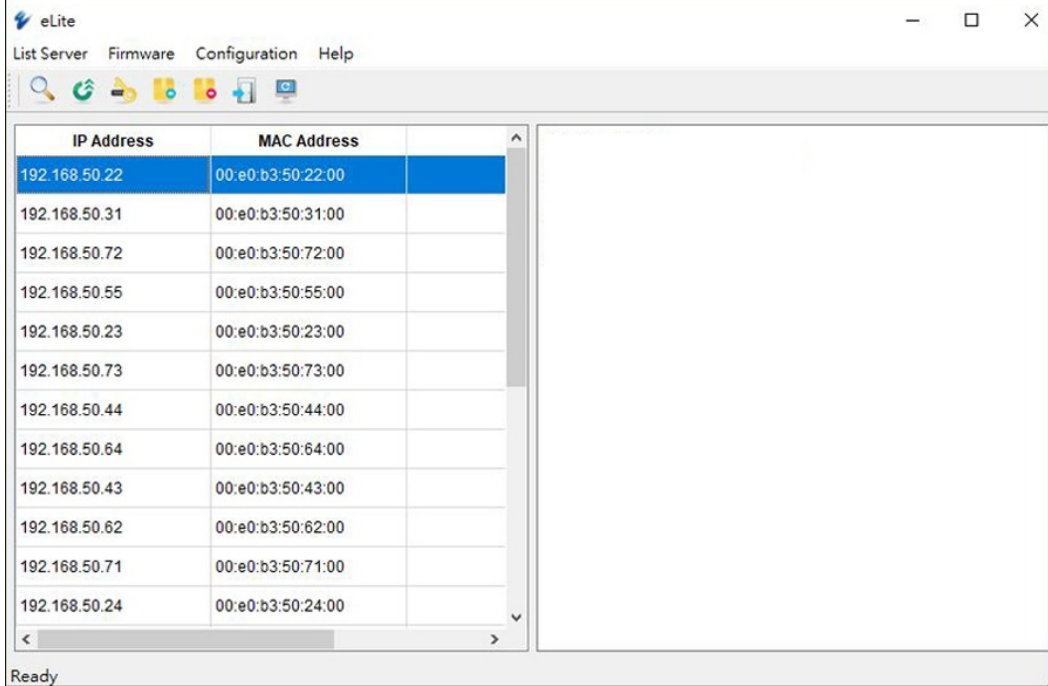


The screenshot shows the EtherWAN web interface. On the left, there is a 'Device List' table with columns for IP, System Name, and Group. On the right, there is a 'Topology' diagram showing a network of interconnected devices. Below these, there is a 'Latest Events' section with a table of system events.

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

## 訂購型號

### + Model

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

### + 配件選購

強固級 100BASE SFP 模組	<a href="http://www.etherwan.com/tw/products/sfp-fiber-transceiver">www.etherwan.com/tw/products/sfp-fiber-transceiver</a>
強固級 Gigabit SFP 模組	<a href="http://www.etherwan.com/tw/products/sfp-fiber-transceiver">www.etherwan.com/tw/products/sfp-fiber-transceiver</a>
*DIN 導軌式電源供應器	<a href="http://www.etherwan.com/tw/products/din-rail-power-supply">www.etherwan.com/tw/products/din-rail-power-supply</a>
*推薦電源供應器	NDR-480-48 480W 48VDC DIN-Rail Power Supply

