

# EX78900H 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 EX78900H 系列是強固級網管型導軌式 PoE 太網交換機平台。配備多達 12 個 90W 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 100M/1000M SFP+ 光纖上行鏈路連接埠  
全雙工運行的全容量交換

### + PoE 乙太網供電功能

IEEE 802.3bt 支援每埠最高 90W，總輸出功率達 360W  
PoE 看門狗監控設備的連接狀態與自訂排程

### + 適用於不通風和惡劣環境的強固等級

-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

### + 管理/安全功能

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

### + 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

### + 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

## 產品特色

### + 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

### + 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**

## + 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 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

## 產品規格

### + 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)

### + 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

## + 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

## + 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

## + 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

## + 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

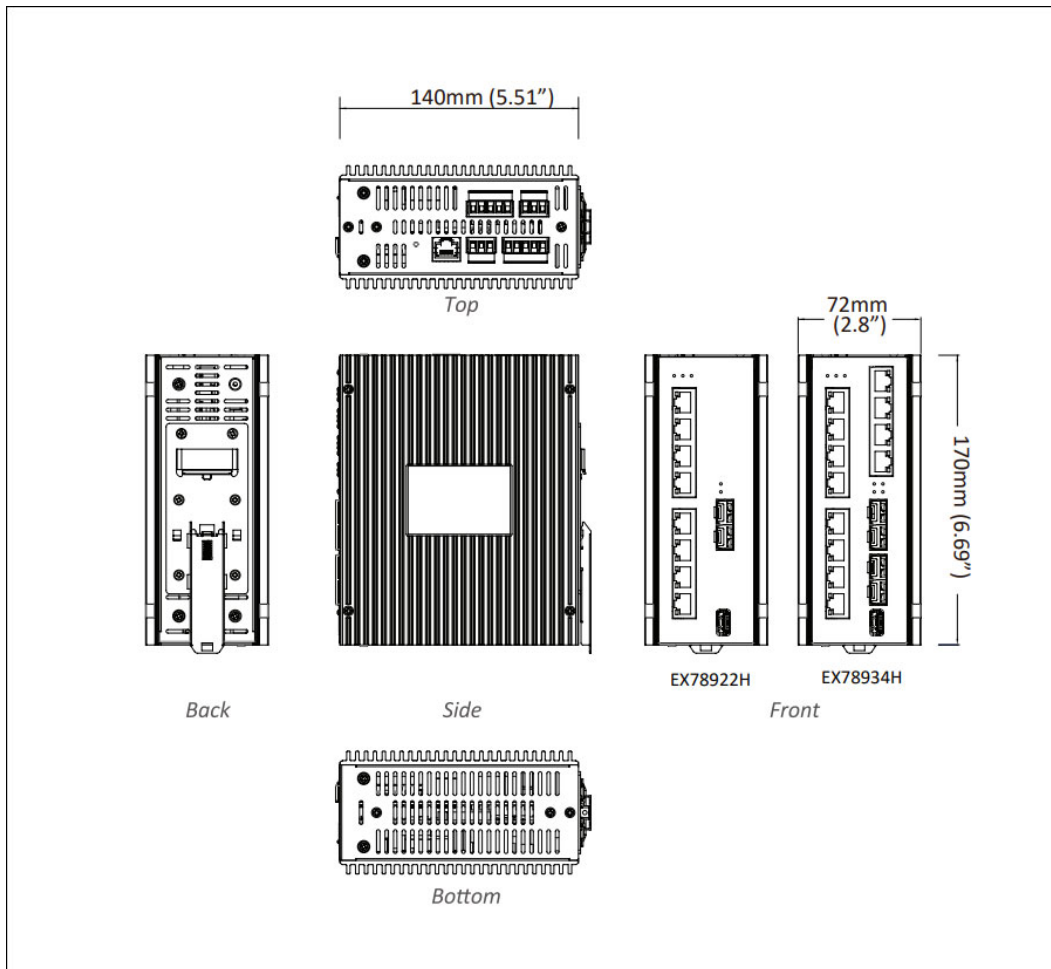
### Installation

Mounting brackets, screws

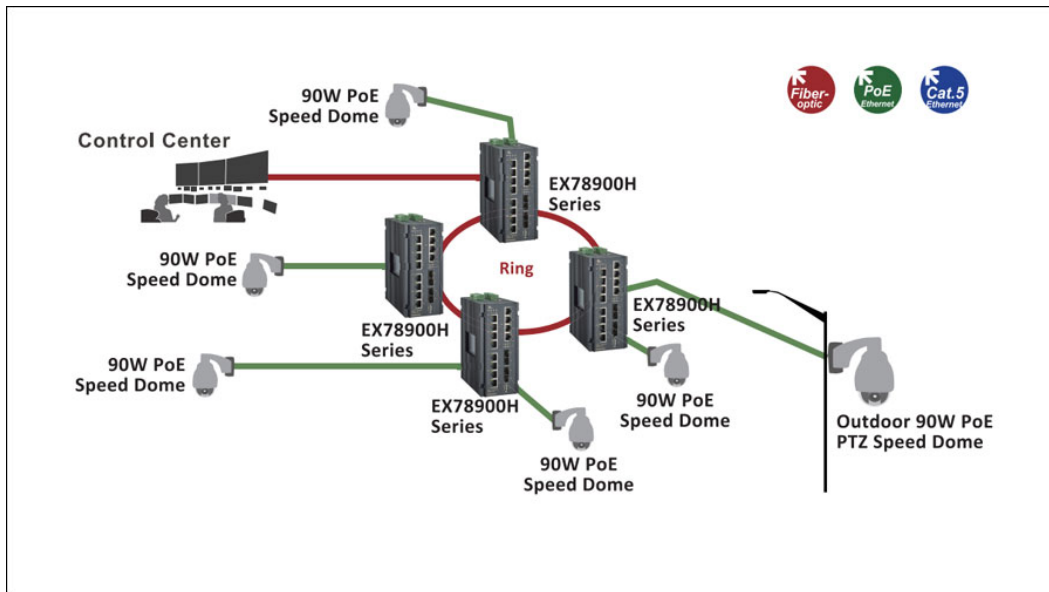
### Documentation

Quick Install Guide

# 產品尺寸圖



# 應用圖





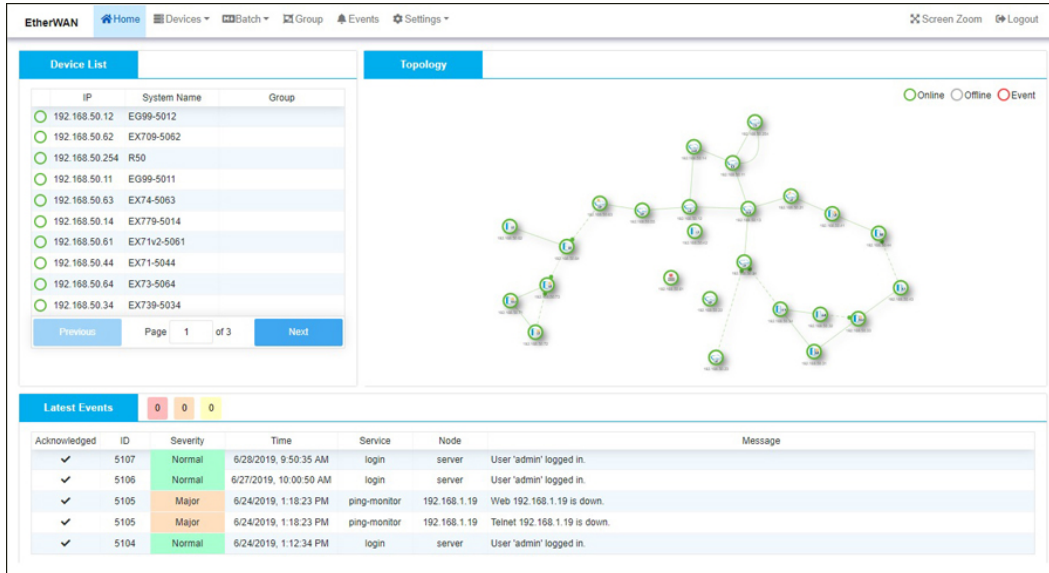
# 管理軟體

網路管理

[eVue™ 網路配置和監控工具](#)

網路探索

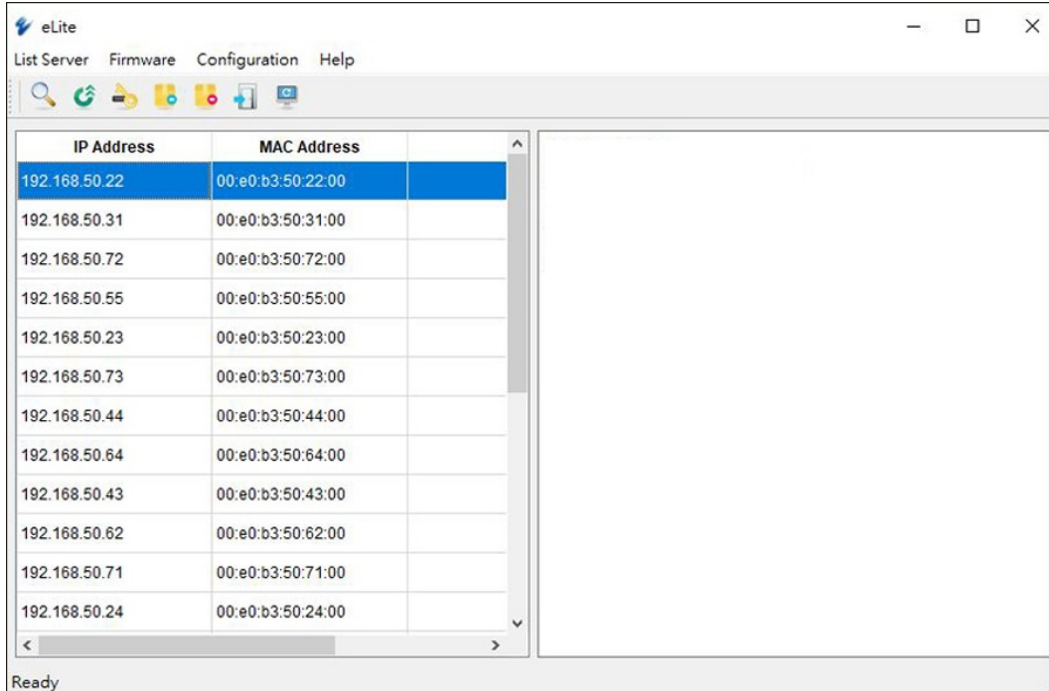
[eLite™ 網路偵測 IP 配置工具](#)



The screenshot shows the eVue™ interface with a 'Device List' table and a 'Topology' diagram.

| 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  |       |

The 'Topology' section shows a network diagram with nodes and connections. A legend indicates Online (green circle), Offline (grey circle), and Event (red circle).



The screenshot shows the eLite™ interface with a table of discovered IP 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 |

The interface also includes a menu with 'List Server', 'Firmware', 'Configuration', and 'Help' options.

## 訂購型號

### + 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><br>(* ) |
| *Recommended Power Supply    | NDR-480-48 480W 48VDC DIN-Rail Power Supply  |

