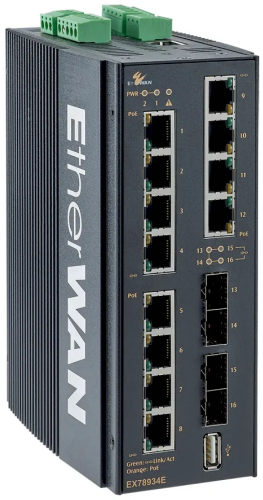
# EX78900E 系列

強固級網管型 10 - 16 埠 Gigabit PoE 乙太網路交換器



## 產品介紹

**什麼是第三層交換器 (Layer 3 Switch ) ?**

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 802.3.bt 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。

IEC 62443-4-2 認證 — 為關鍵工業與基礎設施應用打造更強大的資安韌性與營運可靠性。

**益網科技** - " **連結，制勝的關鍵** "

# 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 個雙速率 100/1000BASE SFP 光纖上行鏈路埠
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

## 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

## 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

## 第三層網管功能

靜態路由、RIP v1/v2 , 和 OSFP
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

# 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)
IPSG (IP Source guard)
DAI (Dynamic ARP Inspection)
DHCP Snooping

## 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

## 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)

## 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)

## 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

## 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

## 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

BSMI

### 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

### Cybersecurity

IEC 62443-4-1

IEC 62443-4-2

### Traffic

NEMA TS2

### Railway

EN 50121-4

### Vibration

IEC 60068-2-6

### Shock

IEC 60068-2-27

### Free Fall

FED STD 101C Method 5007.1

## 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.

**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

## What's Included

**Device**

Ethernet Switch

**Cables**

1 Console Cable

**Installation**

Mounting brackets, screws

**Documentation**

Quick Install Guide

## Warranty

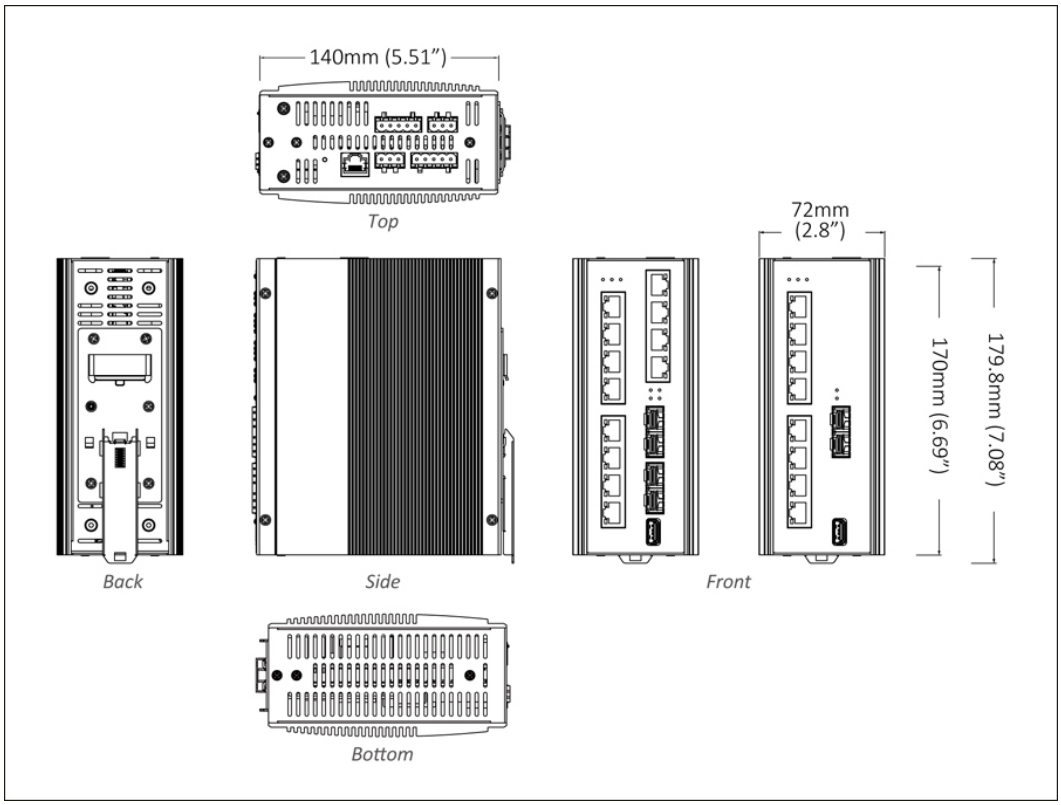
**Length**

Limited Lifetime

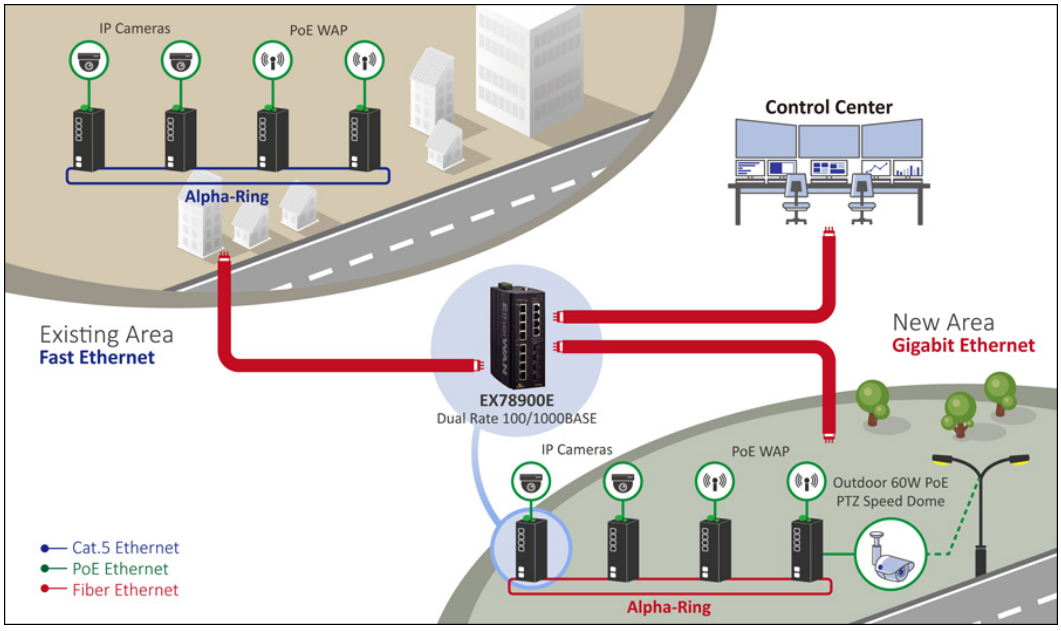
**Details**

www.etherwan.com/support/warranty-policy

# 產品尺寸圖

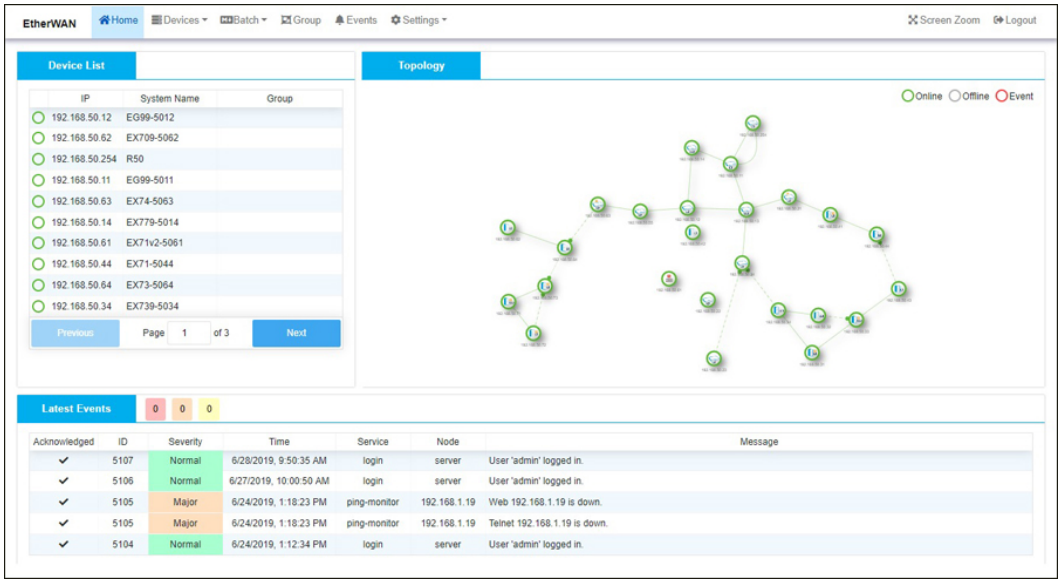

140mm (5.51")
Top
72mm
(2.8")
170mm (6.69")
179.8mm (7.08")
Back
Side
Front
Bottom

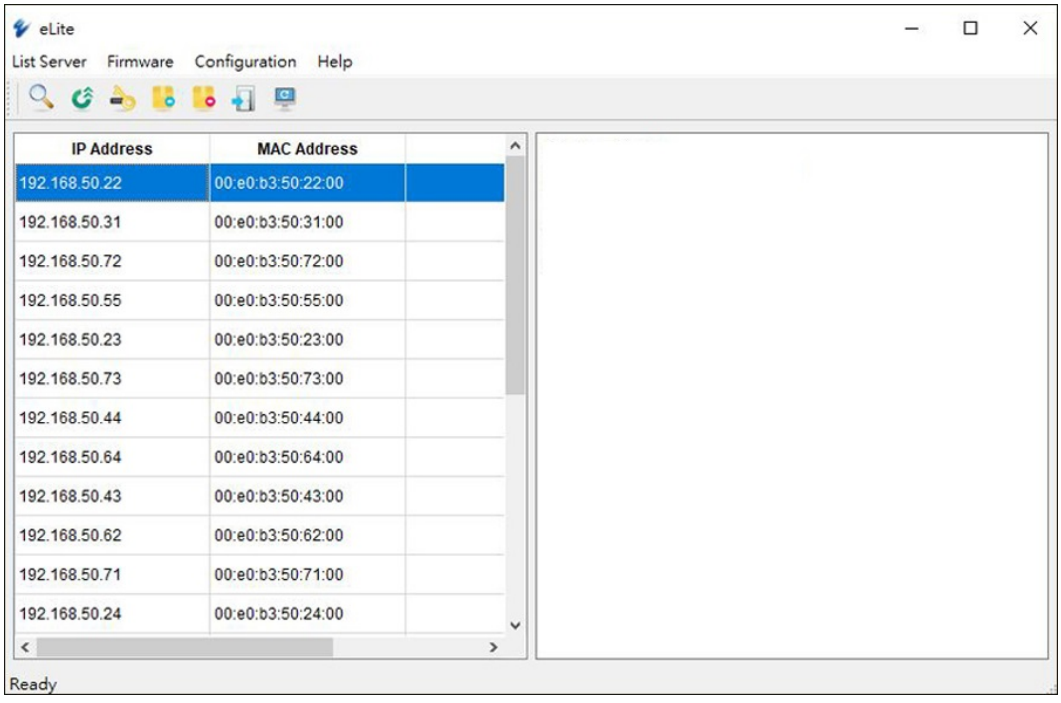
# 應用圖


IP Cameras
PoE WAP
Alpha-Ring
Control Center
Existing Area
Fast Ethernet
New Area
Gigabit Ethernet
EX78900E
Dual Rate 100/1000BASE
IP Cameras
PoE WAP
Outdoor 60W PoE
PTZ Speed Dome
Alpha-Ring
Cat.5 Ethernet
PoE Ethernet
Fiber Ethernet

# 軟體工具

| | |
|---|---|
| **Network Management** | eVue™ Network Configuration and Monitoring Tool |
| **Network Discovery** | eLite™ Network Discovery and IP Configuration Tool |



# 訂購型號

## Model

| |  |  |  |
|---|---|---|---|
| | **EX78934E-0VB** | **EX78924E-0VB** | **EX78922E-0VB** |
| **10/100/1000BASE TX** | 12 | 8 | 8 |
| **100/1000 BASE SFP** | 4 | 4 | 2 |
| **supports PoE++** | 12 | 8 | 8 |
| **PoE per port** | 最高支援60W | | |
| | 訂購諮詢 | 訂購諮詢 | 訂購諮詢 |

## Accessories

| | |
|---|---|
| **Hardened 100BASE SFP Modules** | www.etherwan.com/products/sfp-fiber-transceiver |
| **Hardened Gigabit SFP Modules** | www.etherwan.com/products/sfp-fiber-transceiver |
| **DIN-Rail Power Supplies** | www.etherwan.com/products/din-rail-power-supply (*) |
| ***Recommended Power Supply** | NDR-480-48 480W 48VDC DIN-Rail Power Supply |

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