

## EX77900 系列

IEC 61850-3/IEEE 1613 Lite L3 強固級網管型 24 埠 Gigabit + 4 埠 1G/10G SFP+ 乙太網路交換器



### 產品介紹

益網科技 EX77900 系列，為一款強固等級設計、Full-gigabit 並結合 Layer3 路由協定功能之交換器。支援靜態路由、路由信息協議 (RIP) V1/V2 和虛擬路由備援協定(VRRP)，擁有高擴充性、高安全性並符合成本效益。

EX77900 系列依需求挑選 28 個 Gigabit 埠，或 24 個網路埠搭配 4 個 10G SFP+ 組合，支援上傳連接至核心網路。1U 機架式安裝，內建益網科技獨家 Alpha-Ring Self-healing 自癒技術，提供網路斷線回覆時間小於 15 毫秒，可完美應用於嚴苛的網路架構環境。

完整的管理功能: Port Security, IGMP Snooping, Port-based VLAN, GARP 協定, Link Aggregation 及 ACL, 網路瀏覽介面, Telnet, SSH, SNMP, RMON, TFTP, 和 RS-232 管理介面。強固等級設計，可於 -40 到 75°C 之寬溫環境下穩定運作，並符合 IEC 61850 & IEEE 1613 認證規範，可抗高電磁波環境之干擾。

EtherWAN — "When Connectivity is Crucial."

## 產品亮點

### + 強固等級設計

寬溫操作 (耐受環境溫度從 -40 到 75°C)  
無風扇設計  
抗高衝擊和抗電磁波干擾

### + 10 GbE 網路介面

提供 4 埠 10G SFP+ 介面，可上傳連接核心網路交換器

### + 簡配第 3 層路由功能

支援靜態路由、RIP v1/v2 和 OSPF  
最多可支援路由 (硬體) 數量 : 64 entries  
支援虛擬路由備援協定 (VRRP)

## 產品特色

### + Interface

CLI, Telnet and Web Browser  
SNMP v1/v2c/v3

### + Management

Firmware and configuration upgrade and backup via TFTP  
Supports DHCP Server/Client  
RMON (Remote Monitoring)  
Port mirroring: TX/RX and both  
NTP (Network Time Protocol) time 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  
ACL

### + Quality of Service (QoS)

Priority Queues: 4 queues per port  
Traffic classification based on IEEE 802.1p CoS, DSCP, 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 Protocol

IEEE 802.1D Spanning Tree Protocol (STP)  
IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)  
IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)  
EtherWAN's Alpha-Ring network fault recovery (<15ms) and Alpha-Chain

#### VLANs

IEEE 802.1Q Tag VLANs (128 groups, 4096 VID)  
GVRP (GARP VLAN Registration Protocol)  
GMRP (GARP Multicast Registration Protocol)

#### Link Aggregation

Static Trunk (4 groups, support MAC base)  
IEEE 802.3ad Link Aggregation Control Protocol

#### IGMP Snooping

IGMP Snooping v1/v2/v3

### + Layer 3 Features

#### Routing Protocols

Maximum number of routes in hardware: 64 entries  
Static routing  
RIP v1/v2  
OSPF v2

#### Routing Redundancy

VRRP

## 產品規格

### + 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 Port-based Network Access Control

#### Forward and Filtering Rate

14,880pps for 10Mbps  
148,810pps for 100Mbps  
1,488,100pps for 1000Mbps  
14,880,952pps for 10Gbps

#### 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

#### Address Table Size

16K MAC addresses

### + Power

#### Input

Power input can be configured as:

- $\pm 48$ VDC (Terminal Block)
- 88-300VDC or 100-240VAC (Terminal Block)
- 100-240VAC (AC Inlet)
- $\pm 48$ VDC Redundant (Terminal Block)
- 88-300VDC or 100-240VAC Redundant (Terminal Block)
- 100-240VAC Redundant (AC Inlet)

#### Power Consumption

31.08W

### + Mechanical

#### Casing

Metal Case  
IP30

#### Dimensions

430 x 375 x 44.2mm (W x D x H)  
(16.9" x 14.7" x 1.74")

Weight  
5.27kg

Installation  
Rack mounting

## + Interface

### Ethernet Port

10/100/1000BASE-TX: 16 or 24 ports  
100/1000BASE-SX/LX/BX/SFP: 8 ports  
10G SFP+: 4 ports

### Console Port

One DB9 RS-232 port

### USB Port

One USB Port (Type A connector)

### Alarm Contact

One relay output with current 0.6A/30VDC

### LED Indicators

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

## + Environment

### Operating Temperature

-40 to 75°C (-40 to 167°F)

### Storage Temperature

-45 to 85°C (-49 to 185°F)

### Ambient Relative Humidity

5% to 95% (non-condensing)

## + Regulatory Approvals

### ISO

Manufactured in an ISO 9001 facility

### Safety

- UL 62368

### 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 Standards)
- EN 61000-4-3 (Radiated RFI Standards)
- EN 61000-4-4 (Burst Standards)
- EN 61000-4-5 (Surge Standards)
- EN 61000-4-6 (Induced RFI Standards)
- EN 61000-4-8 (Magnetic Field Standards)

### Environmental Test Compliance

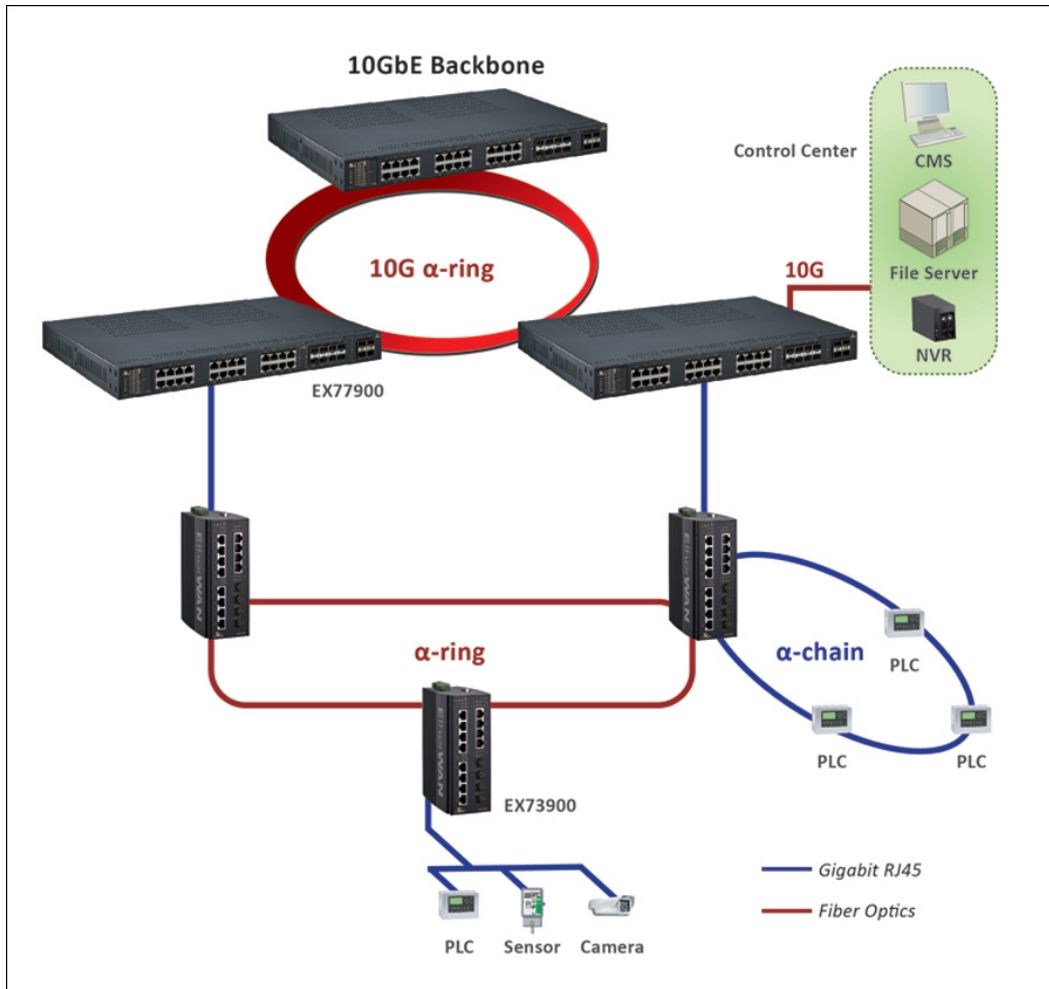
- IEC 60068-2-6 Fc (Vibration Resistance)
- IEC 60068-2-27 Ea (Shock)
- FED STD 101C Method 5007.1 (Free fall w/package)

### Industrial Compliance

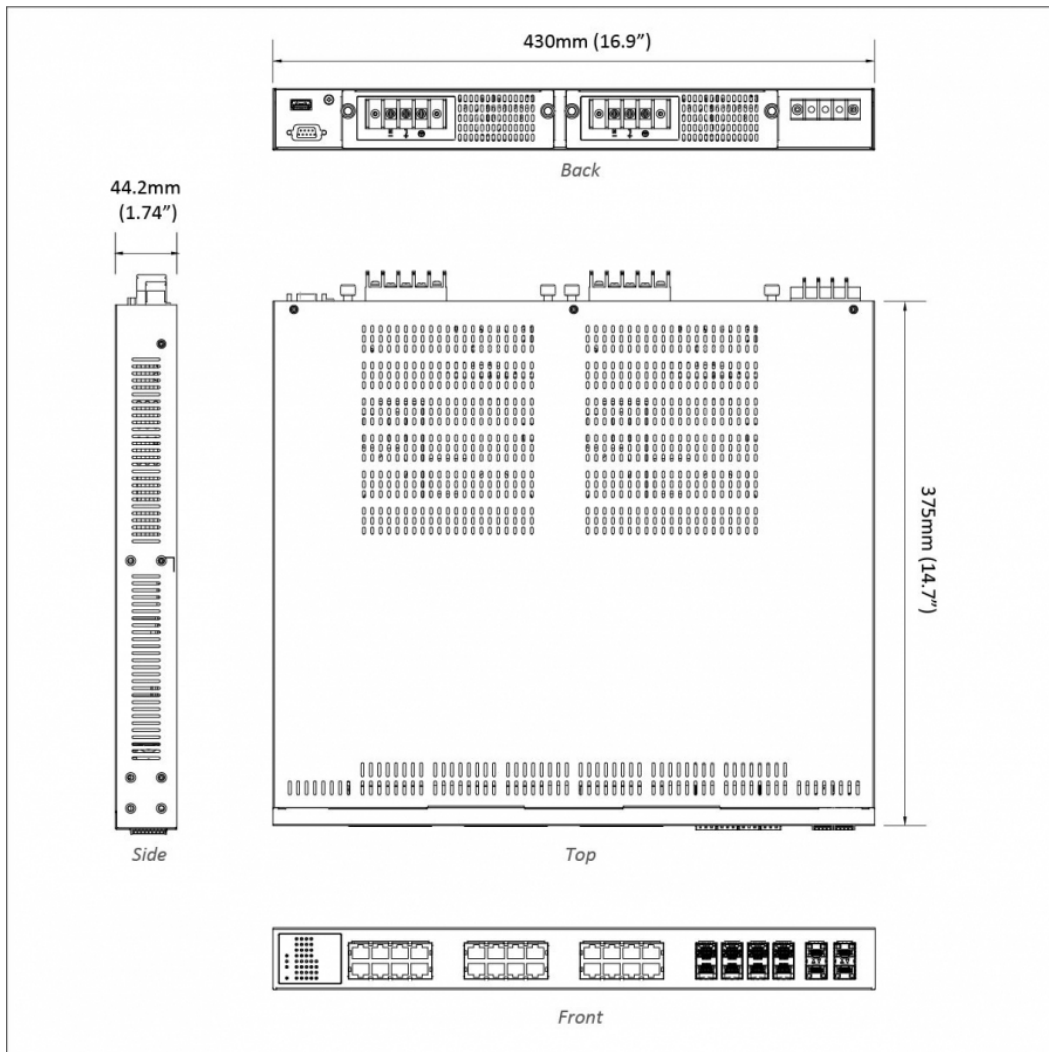
- IEC 61850-3/IEEE 1613

- EN 50121-4
- NEMA TS2

## 產品應用圖



# 產品尺寸圖



## 訂購型號

### 型號

<b>EX77964-8VZ</b>	16-port 10/100/1000BASE-TX +8-port 100/1000BASE SFP Combo +4-port 1G/10G SFP+ Hardened Managed Ethernet Switch
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### Power Input Interface (Z)

<b>T</b>	±48VDC (Terminal Block)
<b>W</b>	88-300VDC or 100-240VAC (Terminal Block)
<b>C</b>	100-240VAC (AC Inlet)
<b>TR</b>	±48VDC Redundant (Terminal Block)
<b>WR</b>	88-300VDC or 100-240VAC Redundant (Terminal Block)
<b>CR</b>	100-240VAC Redundant (AC Inlet)

### Optional Accessory

<b>EB-232</b>	Configuration Backup and Restoration Tool for EtherWAN switch with firmware 2.01.1 or above
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