

## EX87000 系列

IEC 61850-3/IEEE 1613 強固級網管型 24 埠10/100BASE + 4 埠 Gigabit 乙太網路交換器 ( SFP 選擇組合)



## 產品介紹

EX87000系列為1U機架式安裝設計，提供24個10/100BASE乙太網路連接埠及四個Gigabit光纖埠(可彈性搭配固定式光纖或SFP光纖插槽)，確保各類應用的組合需求。EX87000系列符合IEC 61850 & IEEE 1613標準，工業等級設計，可耐受高EMI干擾環境並在-40 到 75°C環境下穩定運作，與週邊各種設備相互連接，是絕佳的電力網路管理專用機。

EX87000系列可搭配益網獨家技術α-Ring環狀網路備援機制，在網路發生斷線時迅速啟動備援，於15毫秒內便可快速恢復連線通。具備完整管理功能，包含port security，IGMP snooping，VLANs，GARP 協定，LACP和GOOSE；使用者可透過網頁瀏覽，telnet，SNMP，RMON，TFTP,和RS-232 console 管理介面，使複雜的專案規劃事半功倍。

EtherWAN — "When Connectivity is Crucial."

## 產品亮點

### + 多元彈性介面組合

24個10/100base-TX/FX/BX/SFP加4埠Gigabit，光纖埠-SX/LX/BX/SFP

### + KEMA認證

通過KEMA、IEC 61850-3和IEEE 1613標準測試

### + 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  
金屬外殼設計，可有效避免高溫及高濕度環境導致材質老化  
高衝擊、耐熱和電氣干擾抵抗力

## 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  
Multi-level user account/password against unauthorized configuration

### + 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 (8 groups, support MAC base)  
IEEE 802.3ad Link Aggregation Control Protocol

**IGMP Snooping**  
IGMP Snooping v1/v2/v3

### + Performance

Switching Capability: 12.8Gbps  
Jumbo Frame: 9K bytes

## 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

#### 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:

- ±48VDC (Terminal Block)
- 88-300VDC or 100-240VAC (Terminal Block)
- 100-240VAC (AC Inlet)

#### Power Consumption

For models with all copper ports: EX87604 Series:

21.9W@230VAC

For models with all fiber ports: EX87064 Series:

40.6W@230VAC

### + Mechanical

#### Casing

Metal Case  
IP30

#### Dimensions

442 x 375 x 44mm (W x D x H)  
(17.4" x 14.7" x 1.73")

Weight  
5Kg (11lbs.)  
Installation  
Rack mounting

## + Interface

### Ethernet Port

10/100BASE-TX: 0, 8, 16 or 24 ports

100BASE-FX: 0, 8, 16 or 24 ports

Gigabit: 4 ports

### Console Port

One DB9 RS-232 port

### Alarm Contact

One relay output with current 0.6A/30VDC

### LED Indicators

Per Unit: Power 1, Power 2, Alarm

Per Port: Link/Activity (Green)

Per SFP Slot: Selected (Green)

## + Environment

### Operating Temperature

-40 to 75°C (-40 to 167°F)

Tested @ -40 to 85°C (-40 to 185°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
- EN 61000-6-4

### 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)
- IEC 61000-4-10 (Oscillatory wave magnetic field test)
- IEC 61000-4-16 (Power frequency immunity test)

### Environmental Test Compliance

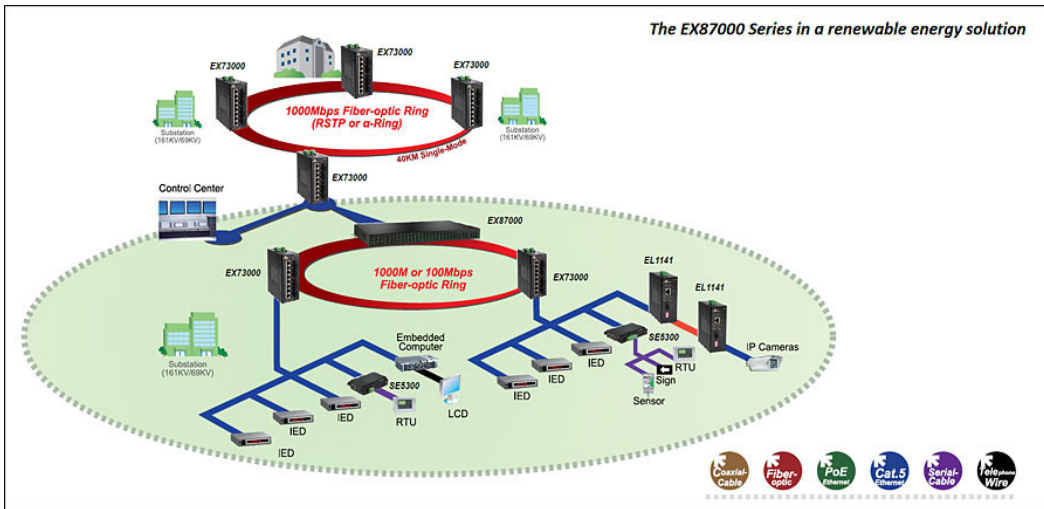
- IEC 60068-2-6 Fc (Vibration Resistance)
- IEC 60068-2-27 Ea (Shock)
- FED STD 101C Method 5007.1 (Free fall w/package)

### Industrial Compliance

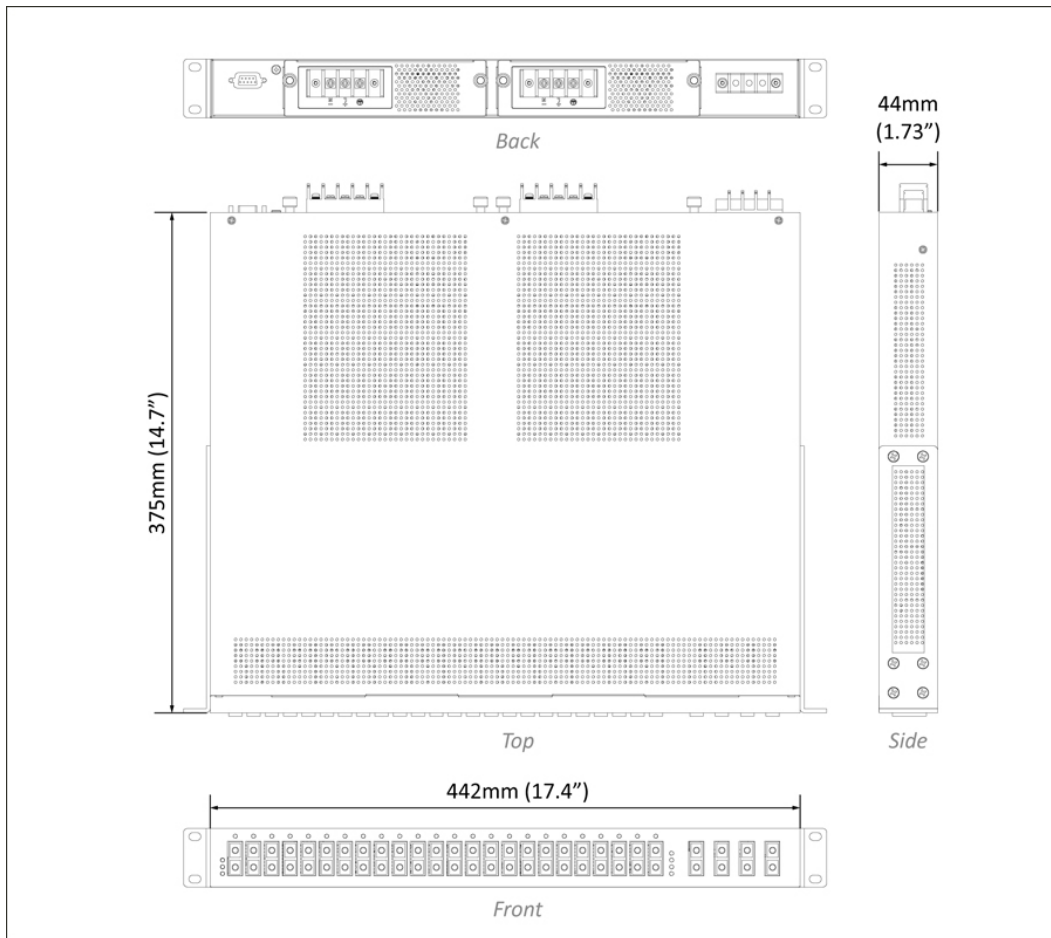
- IEC 61850-3/IEEE 1613

- EN 50121-4
- NEMA TS2

## 產品應用圖



# 產品尺寸圖



## 訂購型號

### 型號

EX87604-0XYZ	24-port 10/100BASE-TX +4-port Gigabit Hardened Managed Ethernet Switch
EX87424-WXYZ	16-port 10/100BASE-TX +8-port 100BASE-FX +4-port Gigabit Hardened Managed Ethernet Switch
EX87244-WXYZ	8-port 10/100BASE-TX +16-port 100BASE-FX +4-port Gigabit Hardened Managed Ethernet Switch
EX87064-W4YZ	24-port 100BASE-FX +4-port Gigabit Hardened Managed Ethernet Switch
EX87064-V0VZ	24-port 100BASE-SFP +4-port Gigabit SFP Combo Hardened Managed Ethernet Switch

\* Rack mounting kit included.

### 100FX Fiber Options (W)

1	Multi Mode (SC) - 2Km
2	Multi Mode (ST) - 2Km
A	Single Mode (SC) - 20Km
H	Single Mode (ST) - 20Km
P	Single Mode (SC) WDM-TX: 1310nm/RX: 1550nm-20Km
Q	Single Mode (SC) WDM-TX: 1550nm/RX: 1310nm-20Km
V	100BASE SFP

\* More 100FX Fiber options also available upon request.

### Numbers of fixed Gigabit Fiber (X)

0	None
4	Four Gigabit Fiber Ports

### Gigabit Port Options (Y)

3	1000BASE-SX (SC) - 550m
4	1000BASE-SX (SC) - 2Km



<b>A</b>	1000BASE-LX (SC) - 10Km
<b>B</b>	1000BASE-LX (SC) - 20Km
<b>R</b>	1000BASE-BX (SC) WDM-TX: 1310nm/RX: 1550nm-20Km
<b>S</b>	1000BASE-BX (SC) WDM-TX: 1550nm/RX: 1310nm-20Km
<b>V</b>	4-port 100/1000BASE SFP Combo with 10/100/1000BASE-TX

\* More Gigabit options also available upon request.

## Power Input Interface (Z)

<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)

