

## 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

### 強固等級設計

- » 寬溫操作(-40 到75°C)
- » 無風扇和堅固的金屬外殼設計，可有效避免高溫及高濕度環境導致材質老化
- » 抗震動及抗電磁波干擾

### KEMA認證

» 通過KEMA、IEC 61850-3和IEEE 1613標準測試

## 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."

## 產品特色

### 管理

#### » 介面

- CLI, Telnet and Web Browser
  - SNMP v1/v2c/v3
  - » 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 TACAS+
  - » 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: 8 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 mode
- » 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

### 技術

#### 標準

- 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

#### 緩衝記憶體封包

- 12M bits

#### 傳輸型式

- Store-and-Forward
- Auto-Negotiation
- Half-duplex back-pressure and IEEE 802.3x full-duplex flow control
- Auto MDI/MDIX

#### MAC地址表

- 16K MAC addresses
- 

### 電源

#### 輸入電壓

- (T):  $\pm 48$ VDC Internal Universal PSU
- (W): 88-300VDC or 100-240VAC Internal Universal PSU

- (C): 100-240VAC, 50-60Hz Internal Universal PSU

### 電力功耗

- For models with all copper ports: EX87604 Series: 21.9W@230VAC
  - For models with all fiber ports: EX87064 Series: 40.6W@230VAC
- 

## 機構

### 機殼

- 金屬材質
- IP30

### 尺寸

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

### 重量

- 5Kg (11lbs.)

### 安裝方式

- Rack mounting
- 

## 介面

### 乙太網路埠

- 10/100BASE-TX: 0, 8, 16 or 24 ports
- 100BASE-FX: 0, 8, 16 or 24 ports
- Gigabit: 4 ports

### Console Port

- Port: One DB9 RS-232 port

### Alarm Contact

- One relay output with current 0.6A/30VDC

### LED 指示燈號

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

- Per SFP Slot: Selected (Green)
- 

## 環境

### 工作溫度

- -40 to 75°C (-40 to 167°F)
- Tested @ -40 to 85°C (-40 to 185°F)

### 儲存溫度

- -45 to 85°C (-49 to 185°F)

### 工作濕度

- 5% to 95% (無凝結)
- 

## 通過認證

### 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)

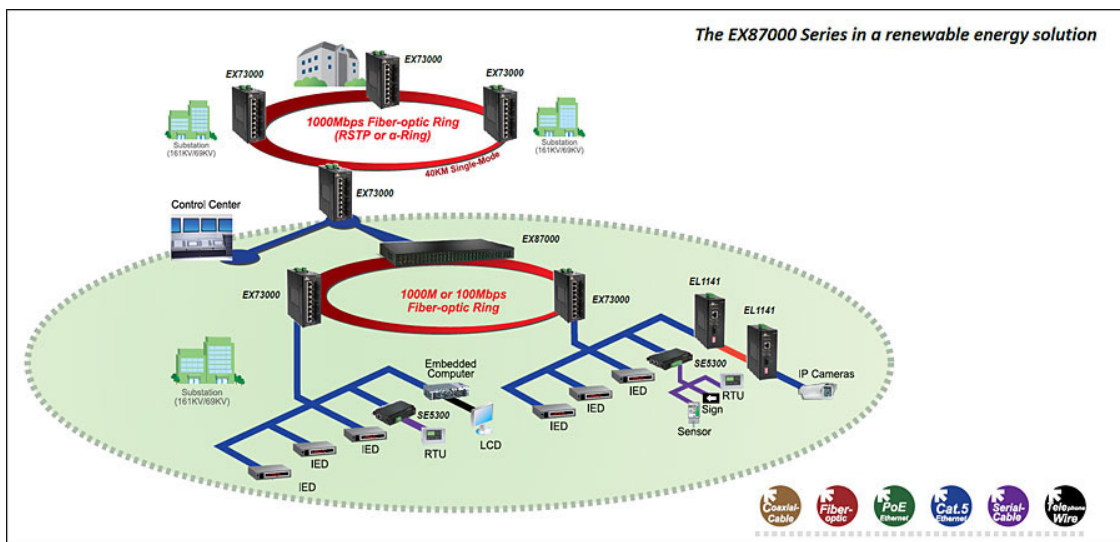
### Environmental Test Compliance

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

### Industrial Compliance

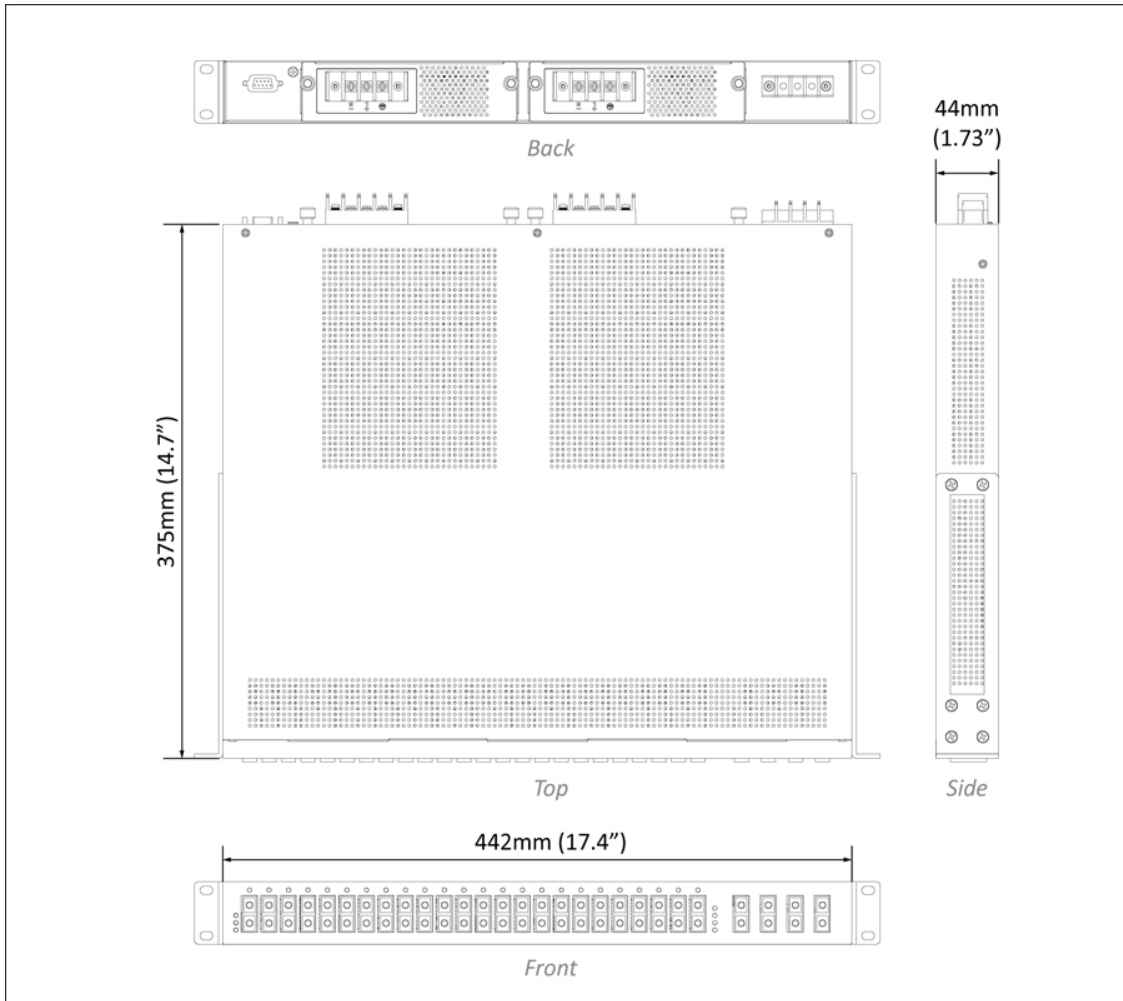
IEC 61850-3/IEEE 1613  
 EN 50121-4  
 NEMA TS2

## 產品應用圖





# 產品尺寸圖



## 訂購型號

### 型號

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

\* Rack mounting kit included.

### 100FX Fiber Options (W)

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

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

### Numbers of fixed Gigabit Fiber (X)

<b>0</b>	None
<b>4</b>	Four Gigabit Fiber Ports

### Gigabit Port Options (Y)

<b>3</b>	1000BASE-SX (SC) - 550m
<b>4</b>	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)

