EX87000 Series

IEC 61850-3/IEEE 1613 Hardened Managed 24-port 10/100BASE and 4-port Gigabit Ethernet Switch with SFP options



Overview

EtherWAN's EX87000 Series provides a hardened fully managed 28-port switching platform combining high performance switching backbone with robust and secure management features required for mission critical and harsh environments where sustained connectivity is crucial.

The EX87000 Series is equipped with 24 fast Ethernet ports, in combination with up to 4 Gigabit, fixed fiber, or SFP combo port options. Mountable on a 1U rack, the EX87000 Series is equipped with EtherWAN's Alpha-Ring self-healing technology, providing less than 15ms fault recovery time making it ideal for applications intolerant to interruption.

Users are able to access management features such as port security, IGMP snooping, VLANs, GARP protocols, and LACP via web browser, Telnet, SNMP, RMON, TFTP, and RS-232 console interfaces. The EX87000 allows GOOSE messages to be passed through without modifying the frame contents.

With its IEC 61850-3 and IEEE 1613 certified for power substations, EN 50121-4 certified for railway applications, and NEMA-TS2 certification for traffic applications, the EX87000 Series is capable of operating under high EMI environments at the temperatures ranging from -40 to 75°C (-40 to 167°F), making it an ideal choice for harsh environment applications.

EtherWAN — "When Connectivity is Crucial."

Spotlight

Versatile Connectivity

Provides flexibility of 24-port 10/100BASE-TX/FX/BX/SFP
plus 4-port Gigabit-TX/SX/LX/BX/SFP

Hardened Grade

Wide operating temperature range for extreme environments

Fanless and ruggedized housing

High shock and electric noise immunity

KEMA-Certified

IEC 61850-3 and IEEE 1613 performance tests conducted by KEMA

Features

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+

SSHv1/v2 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

Specifications

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

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)

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

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)

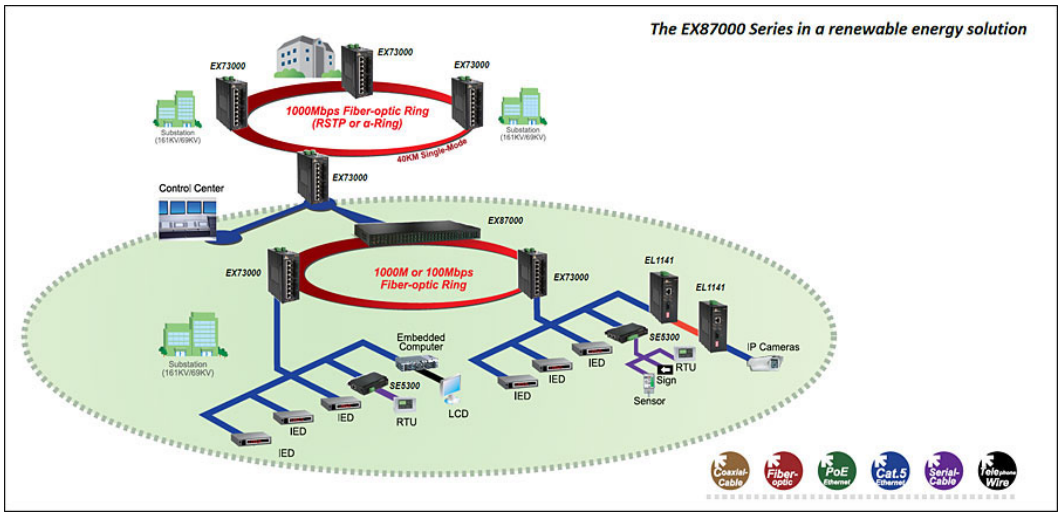
Industrial Compliance

• IEC 61850-3/IEEE 1613/IEC 60255-27

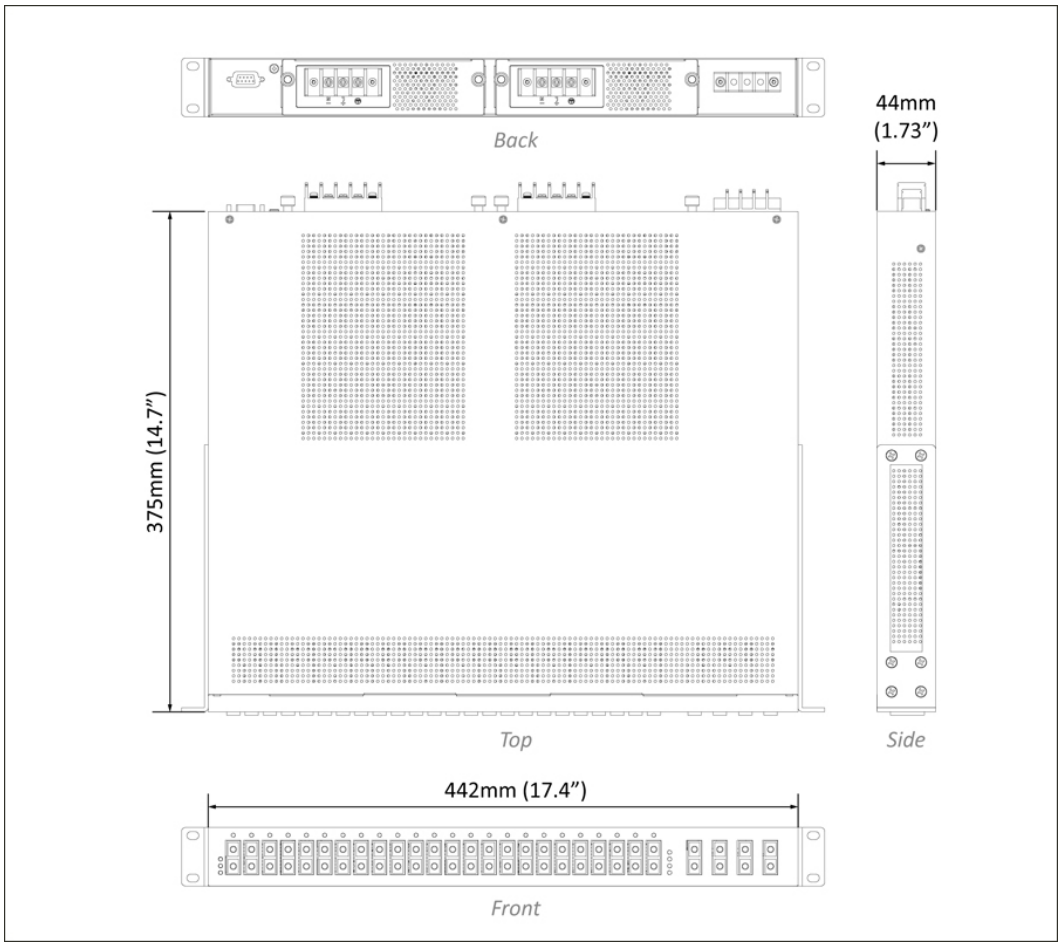
• EN 50121-4

• NEMA TS2

Application



Dimensions



Ordering Info

Model

				
	EX87604-0XYZ	**EX87424-WXYZ**	**EX87244-WXYZ**	**EX87064-WXYZ**
10/100BASE-TX	24	16	8	-
100BASE-FX	-	8	16	24
Gigabit Ports	4	4	4	4
Gigabit SFP Combo	-	-	-	-
	Quote	Quote	Quote	Quote

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

* More Gigabit options also available upon request.

Power Input Interface (Z)

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

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