EX89000 Series

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



Overview

This product is discontinued as of 26th May 2020. Click here for alternative product.

EtherWAN's EX89000 Series provides a Hardened Fully Managed 28-port switching platform combining high performanceswitching backbone with robust and secure management features required for mission critical and harsh environments where sustained connectivity is crucial.

Highly modularized, the EX89000 switch supports up to 28 electrical and/or optical interfaces with data transfer rates of 10/100 Mbits and up to four Gigabit, Fixed Fiber, or SFP Combo port options. Mountable on a 1U rack, the EX89000 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, LACP, and GOOSE messaging to name a few, via web browser, Telnet, SNMP, RMON, TFTP, and RS-232 console interfaces. With its hardened-grade specifications and IEC61850 & IEEE1613 certifications, the EX89000 Series is capable of operating under high EMI environments at the temperatures ranging from -40°C to 75°C, making it an ideal choice for harsh applications.

EtherWAN — "When Connectivity is Crucial."

Spotlight

Versatile Connectivity

» Modularized 24-port 10/100BASE-TX/FX/BX and 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

IEC61850-3 & IEEE1613 Certified

» Meets the standards for operating in power substation zones

Features

Management

» Interface
  • 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

Security

» MAC Address by port security
» Enable/disable port
» Storm control (broadcast and multicast types)
» IEEE802.1x LAN access control
» Remote authentication through RADIUS

Quality of Service (QoS)

» Priority Queues: 4 queues per port
» Traffic classification based on IEEE802.1p 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
  • IEEE802.3x full duplex mode
  • Back-Pressure half duplex mode
» Redundant Protocol
  • IEEE802.1D Spanning Tree Protocol (STP)
  • IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
  • IEEE802.1s Multiple Spanning Tree Protocol (MSTP)
  • Supports EtherWAN's Alpha-Ring topology for less than 15ms fault recovery time
» VLANs
  • Port-based VLANs
  • IEEE802.1Q 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)
- IEEE802.3ad Link Aggregation Control Protocol

» IGMP Snooping
- IGMP snooping v1/v2/v3

Performance

» Switching Capability: 12.8Gbps

» Packet Buffer Size: 3M bits

» MAC Address Table: 8192

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

- 3M 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

- 8192 MAC addresses

Power

Input

- (T): ±48VDC (36–75VDC) Internal Universal PSU
- (W): 88–370VDC and 90–264VAC Internal Universal PSU
- (C): 90–264VAC, 50–60Hz Internal Universal PSU
- (TR): ±48VDC Redundant (Terminal Block)
- (WR): 88–370VDC and 90-264VAC Redundant (Terminal Block)
- (CR): 90–264VAC Redundant (AC Inlet)

Power Consumption

• 42.7W Max.

Mechanical

Casing

• Metal Case
• IP30

Dimensions

• Single Power:
442 x343 x 44.2mm (W x D x H)
(17.4" x 13.5" x 1.74")
• Redundant Power:
442 x 404 x 44.2mm (W x D x H)
(17.4" x 15.9" x 1.74")

Weight

• Single Power: 4.5Kg (9.9lbs.)
• Redundant Power: 4.6 kg (10.1 lbs.)

Installation

• Rack mounting

Interface

Ethernet Port

• 10/100BASE-TX: 24, 16, 8 or 0 port
• 100BASE-FX: 0 to 18 ports
• Gigabit: 0, 2 or 4 ports

Console Port

• Port: One DB9 RS-232 port

Alarm Contact

• One relay output with current 1A@24VDC

LED Indicators

• Per Unit: Power
• Per Port: Link/Activity (Green)
• Per SFP slot: Selected/Unselected (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

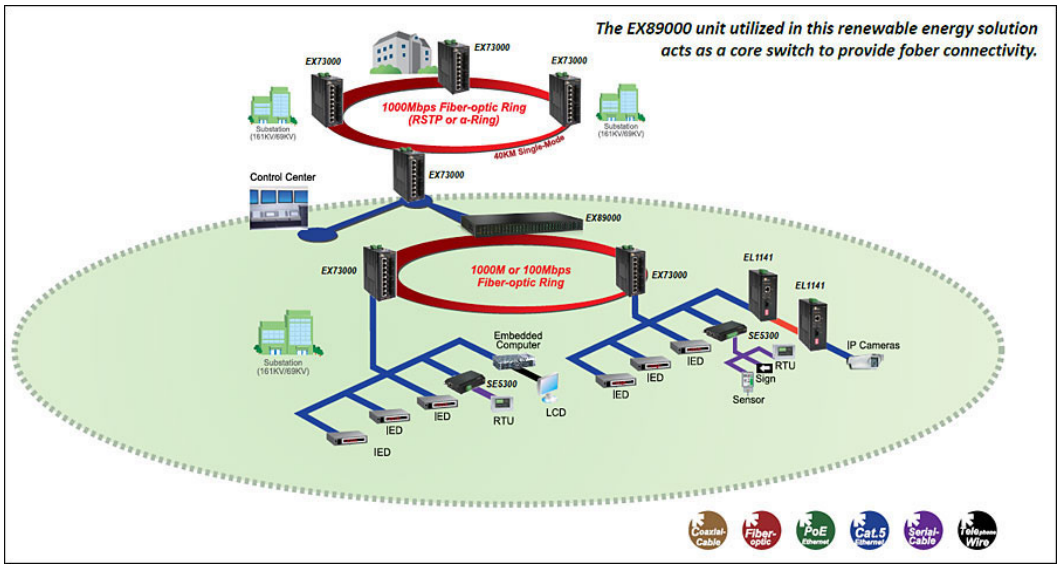
EMI
FCC Part 15B Class A
EN 61000-6-4
EN 55022
EN 61000-3-2
EN 61000-3-3

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

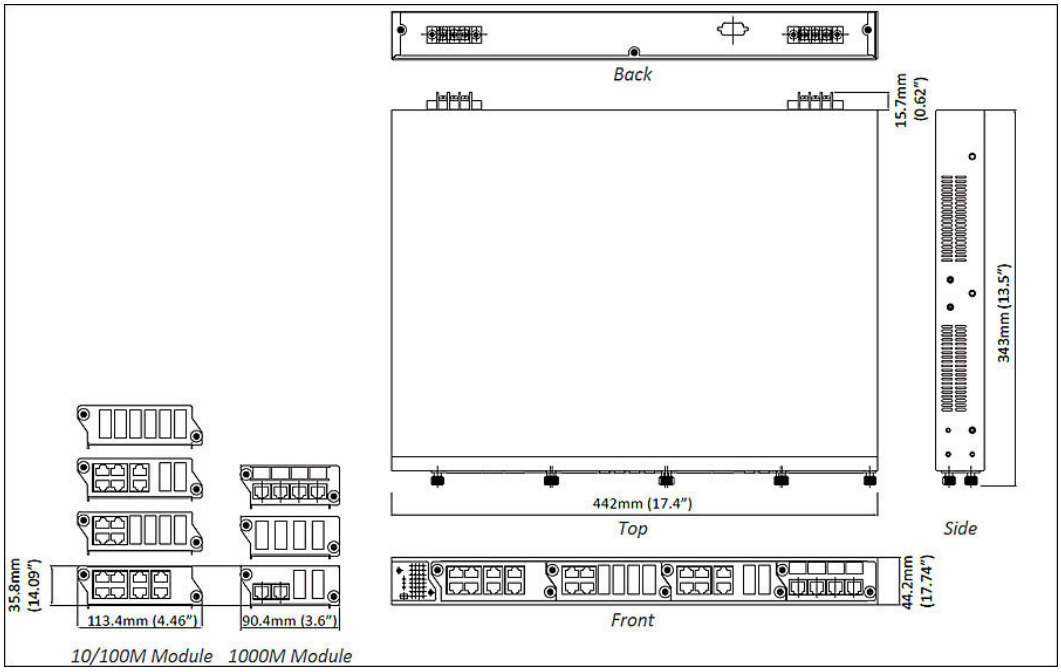
Environmental Test Compliance
IEC 60068-2-6 Fc (Vibration Resistance)
FED STD 101C Method 5007.1 (Free fall w/package)

Industrial Compliance
IEEE 61850-3/IEEE 1613
EN 50121-4

Application



Dimensions



Ordering Info

Model

EX89000-00Z	Rack mount chassis with integrated power supply for four M89000 modules

* Rack mounting kit included.

Modules for EX89000 Series

Model	Description	Slot 1	Slot 2	Slot 3	Slot 4
M89800-000	8-Port 10/100BASE TX	YES	YES	YES	
M89620-W00	6-Port 10/100BASE TX + 2-Port 100BASE FX	YES	YES	YES	
M89420-W00	4-Port 10/100BASE TX + 2-Port 100BASE FX	YES	YES	YES	
M89060-W00	6-Port 10/100BASE FX	YES	YES	YES	
M89240-W00	2-Port 10/100BASE TX + 4-Port 100BASE FX	YES	YES	YES	
M89440-W00	4-Port 10/100BASE TX + 4-Port 100BASE FX	YES	YES	YES	
M89004-0XY	4-Port Gigabit				YES

100FX Fiber Options (W)

1	Multi Mode (SC) - 2Km
2	Multi Mode (ST) - 2Km
6	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 2Km

7	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 2Km
8	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km
9	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km
A	Single Mode (SC) - 20Km
B	Single Mode (SC) - 40Km
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
R	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 40Km
S	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 40Km

* More 100FX Fiber options also available upon request.

Number of Fixed Gigabit Fibers (X)

0	None
4	Four Gigabit fibrt ports

* More Gigabit options also available upon request.

Gigabit Port Options (Y)

1	10/100/1000BASE-TX
3	1000BASE-SX (SC) - 550m
4	1000BASE-SX (SC) - 2Km
5	1000BASE-SX (ST) - 550m
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 1000BASE SFP Combo with 10/100/1000BASE-TX

* More Gigabit options also available upon request.

Power Input Interface (Z)

T	± 48VDC (Terminal Block)
W	88 - 370VDC and 90 - 264VAC (Terminal Block)

C	90 - 264VAC (AC Inlet)
TR	± 48VDC Redundant (Terminal Block)
WR	88 - 370VDC and 90 - 264VAC Redundant (Terminal Block)
CR	90 - 264VAC Redundant (AC Inlet)

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