EX77900 Series

IEC 61850-3/IEEE 1613 Hardened Managed 24-port Gigabit and 4-port 1G/10G SFP+ Ethernet Switch

Overview

When should you use an Industrial Layer 3 switch?

EtherWAN's EX77900 Series provides a Hardened Full-Gigabit Managed 28-port switching platform that combines the advantages of Layer 3 routing protocols with robust management features and hardened specifications. With support for static routing, Routing Information Protocol (RIP) V1/V2, and Virtual Router Redundancy Protocol (VRRP), these switches deliver outstanding flexibility and security in a high performance and cost-effective package.

The EX77900 Series is equipped with twenty-eight gigabit ports, or a combination of twenty-four Gigabit copper ports and four10G SFP+ for connecting the switch to the core network. Mountable on a 1U rack, the switches are equipped with EtherWAN's Alpha-Ring self-healing technology, providing less than 15ms fault recovery time making it ideal for applications intolerant to interruption.

A broad range of management features and options includes port security, IGMP snooping, port-based VLAN, GARP protocols, link aggregation and ACL, via web browser, telnet, SSH, SNMP, RMON, TFTP, and RS-232 console interfaces. With the hardened specifications, the EX77900 Series is designed to operate at -40 to 75°C in harsh environments, and is IEC 61850 & IEEE 1613 compliant, capable of operating under high EMI environments, making it an ideal choice for mission-critical applications.

EtherWAN — "**When Connectivity is Crucial.**"

Spotlight

✚ Hardened Grade

Wide operating temperature range for extreme environments

Fanless and ruggedized housing

High shock and electric noise immunity

✚ 10GbE Connectivity

Four 10G SFP+ for connecting the switch to the core network

✚ L2/L3 Routing Features

Supports static route, RIP v1/v2 and OSPF

Maximum number of routes in hardware: 64 entries

Supports Virtual Router Redundancy Protocol (VRRP)

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+
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

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
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

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)

➕ Power

Input
Power input can be configured as:
- ±48VDC (Terminal Block)
- 88-300VDC or 100-240VAC (Terminal Block)
- 100–240VAC (AC Inlet)
- ±48VDC 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

➕ 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)
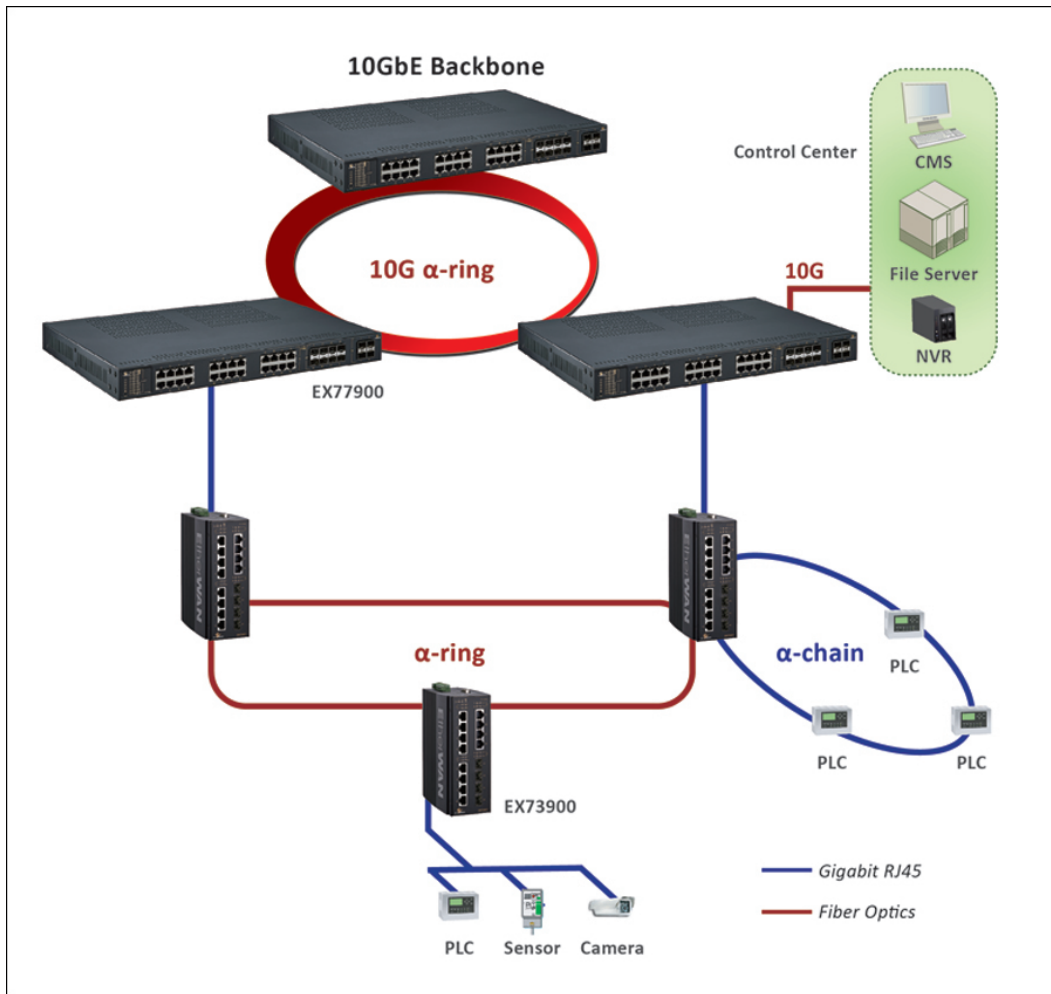- EN 61000-4-8 (Magnetic Field Standards)

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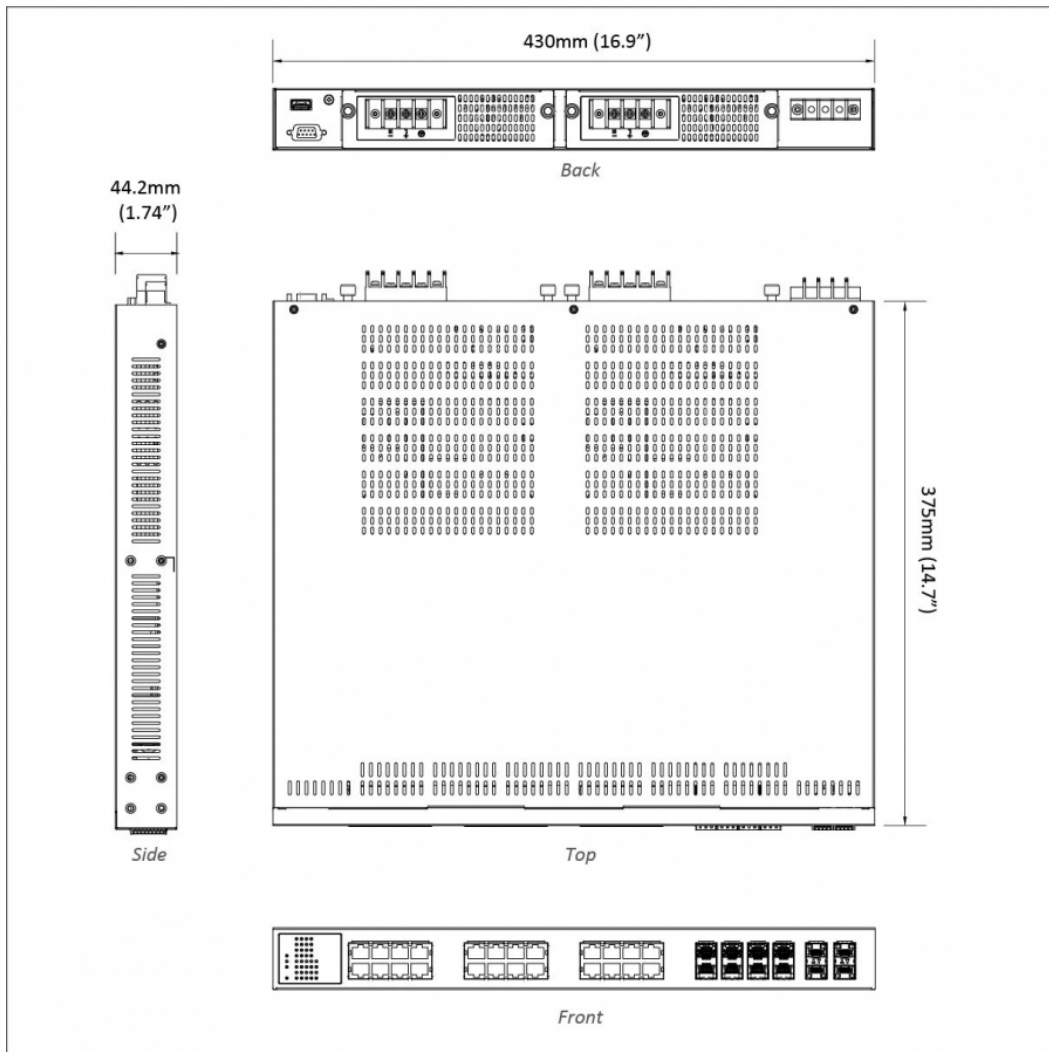- FED STD 101C Method 5007.1 (Free fall w/package)

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

Application

Dimensions

430mm (16.9")

Back

44.2mm (1.74")

375mm (14.7")

Side

Top

Front

Ordering Info

➕ Model

EX77964-8VZ	16-port 10/100/1000BASE-TX +8-port 100/1000BASE SFP Combo +4-port 1G/10G SFP+ Hardened Managed Ethernet Switch

➕ Power Input Interface (Z)

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

➕ Optional Accessory

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