EX77964

Lite L3 Hardened Managed 24-port Gigabit and 4-port 1G/10G SFP+ Ethernet Switch

Reduced depth of 254mm

Overview

EtherWAN's EX77964 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 EX77964 is equipped with twenty-eight Gigabit ports, or a combination of twenty-four Gigabit copper ports and four 10G SFP+ for connecting the switch to the core network. A special form factor with reduced depth of only 254mm allows for installation in smaller enclosures.

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 EX77964 Series delivers reliable performance in an operating temperature range from -40 to 75°C (-40 to 167°F).

EtherWAN – "When Connectivity is Crucial."

Spotlight

- **Lite Layer 3 Routing Features**
  - Supports static route, RIP v1/v2 and OSPF
  - Maximum number of routes in hardware: 64 entries
  - Supports Virtual Router Redundancy Protocol (VRRP)

- **10GbE Connectivity**
  - Four 10G SFP+ for connecting the switch to the core network

- **19" Short Rack Mount Case**
  - Depth of 254mm allows for installation in smaller enclosures

Software 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
- 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
- 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 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 (4 groups, support MAC base)
  - IEEE 802.3ad Link Aggregation Control Protocol
- IGMP Snooping
  - IGMP Snooping v1/v2/v3

Layer 3 Features

- IP Packet Routing
  - Maximum number of routes in hardware: 64 entries
  - Static Routing
  - RIP v1/v2
  - OSPF v2
- Routing Redundancy
  - VRRP

Hardware 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

Power

Input
- Redundant power inputs:
  Terminal Block: 12-24VDC

Power Consumption
- 31.08W

Mechanical

Casing
- Metal Case
- IP30

Dimensions
- 430 x 254 x 44.2mm (W x D x H)
  (16.9" x 10" x 1.74")

Weight
- 3.29kg (7.25lbs)

Installation
- Rack mounting

Interface

Ethernet Ports
- 10/100/1000BASE-TX: 16 or 24 ports
- 100/1000BASE SFP: 8 ports
- 10G SFP+: 4 ports

Console Port
- One RJ-45 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
- 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)

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

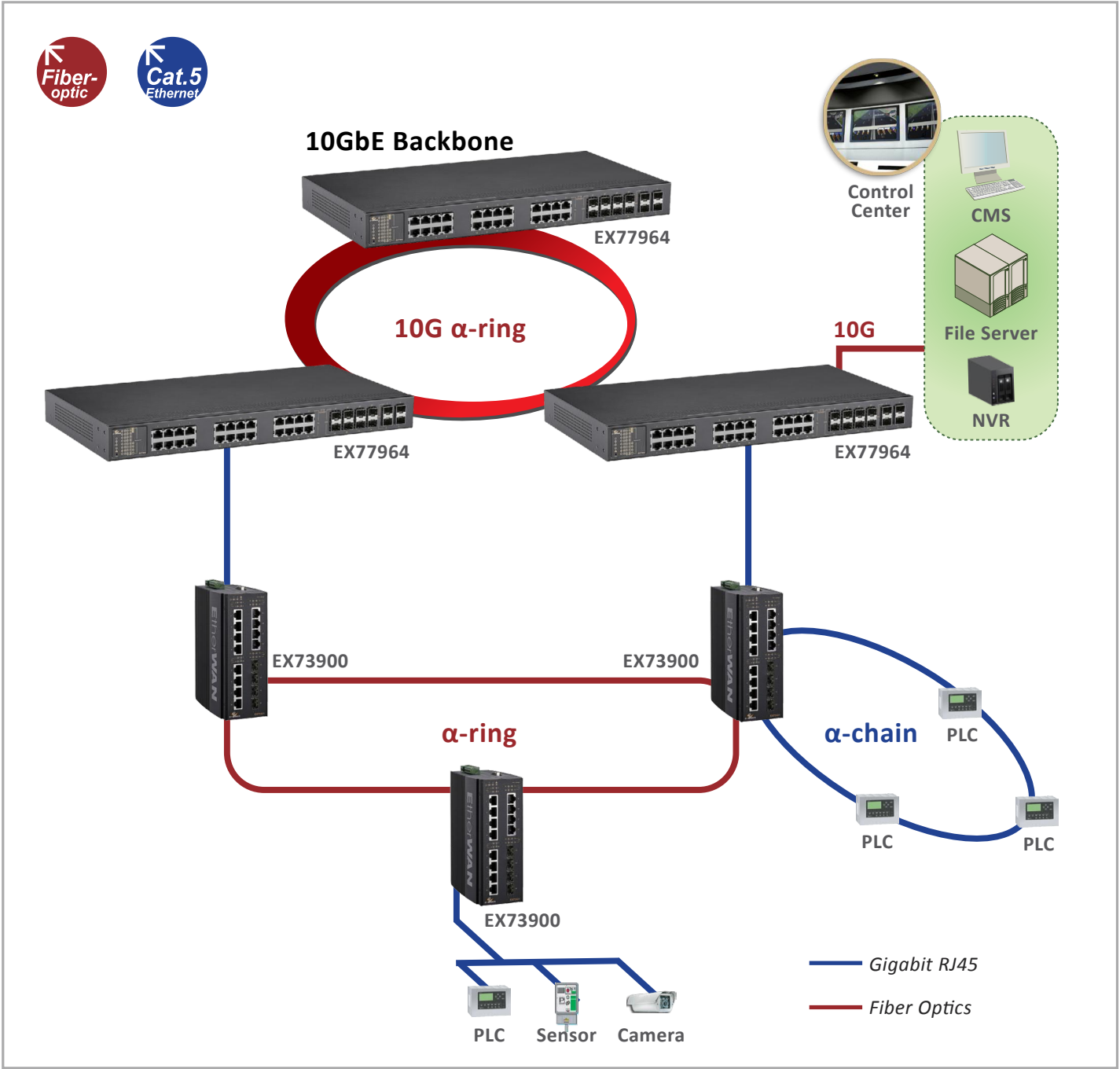**IEC 60068-2-6 Fc (Vibration Resistance)**

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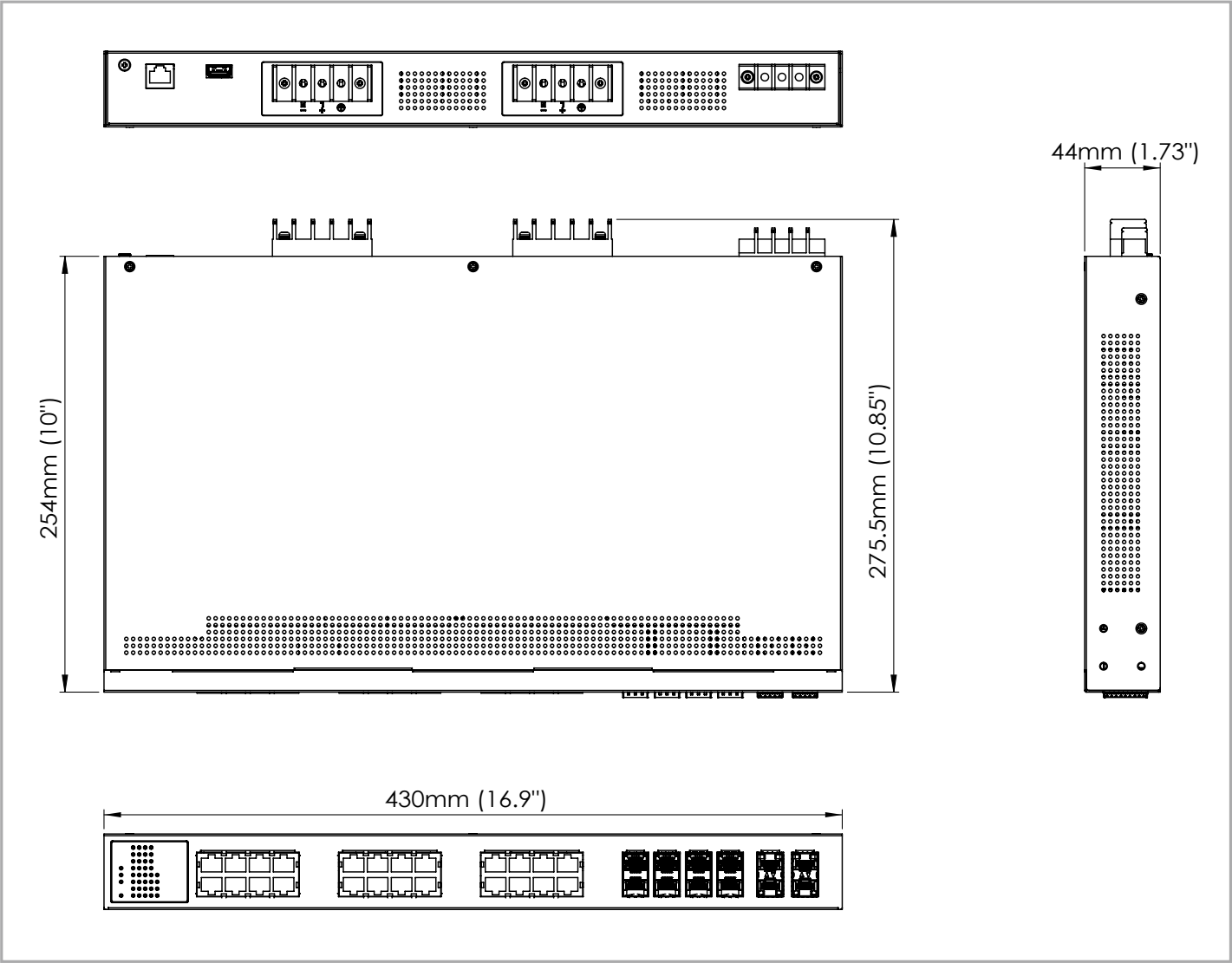
FED STD 101C Method 5007.1 (Free fall w/package)

Industrial Compliance

NEMA TS2

Application Diagram

Fiber-optic

Cat.5 Ethernet

10GbE Backbone

EX77964

10G α-ring

10G

EX77964

EX77964

Control Center

CMS

File Server

NVR

EX73900

EX73900

α-ring

α-chain

PLC

PLC

PLC

EX73900

PLC   Sensor   Camera

—— Gigabit RJ45

—— Fiber Optics

Dimensions

44mm (1.73")

254mm (10")

275.5mm (10.85")

430mm (16.9")

Ordering Information

Model

EX77964-8VB	16-port 10/100/1000BASE-TX +8-port 100/1000BASE SFP Combo +4-port 1G/10G SFP+ Hardened Managed Ethernet Switch (12-24VDC)