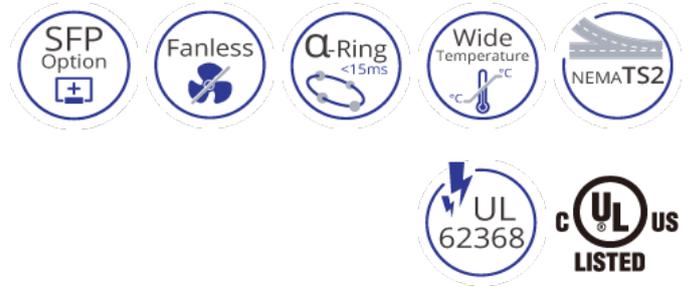# EX77000 Series

Hardened Managed 24-port 10/100BASE and 4-port Gigabit Ethernet Switch with SFP options

Overview

EtherWAN's EX77000 series provides a hardened-graded 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 EX77000 series equipped with 24 fast Ethernet ports and 4 gigabit uplink ports with fixed fiber or SFP options, allows for fan-less operation in high EMI and vibration environments with a temperature range from -40 to 75°C (-40 to 167°F).

Users are able to access EX77000 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.

EX77000 is also NEMA-TS2 certified for traffic applications, it can be mountable on a 1U rack, and 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.

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

✚ Secure Remote Access

IEEE 802.1x, ACL (Access Control List), and RADIUS support

✚ Hardened Grade

Wide operating temperature range for extreme environments
Fanless and ruggedized housing
High shock and electric noise immunity

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

System log (Remote/Local)

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
Port-based 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

➕ Power

Input

Power input can be configured as:

• (T): ±48VDC Internal Universal PSU

• (W): 88-300VDC or 100-240VAC Internal Universal PSU

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

Power Consumption
For models with all copper ports: EX77604 Series: 21.9W@230VAC
For models with all fiber ports: EX77064 Series: 40.6W@230VAC

+ Mechanical

Casing
Metal Case
IP30

Dimensions
Redundant Power:442 x 375 x 44mm (W x D x H)
  (17.4" x 14.7" x 1.73")
Single Power:442 x 250 x 44.2mm (W x D x H)
  (17.4" x 9.8" x 1.74")

Weight
5Kg (11lbs.)

Installation
Rack mounting

+ 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, 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)

+ 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)

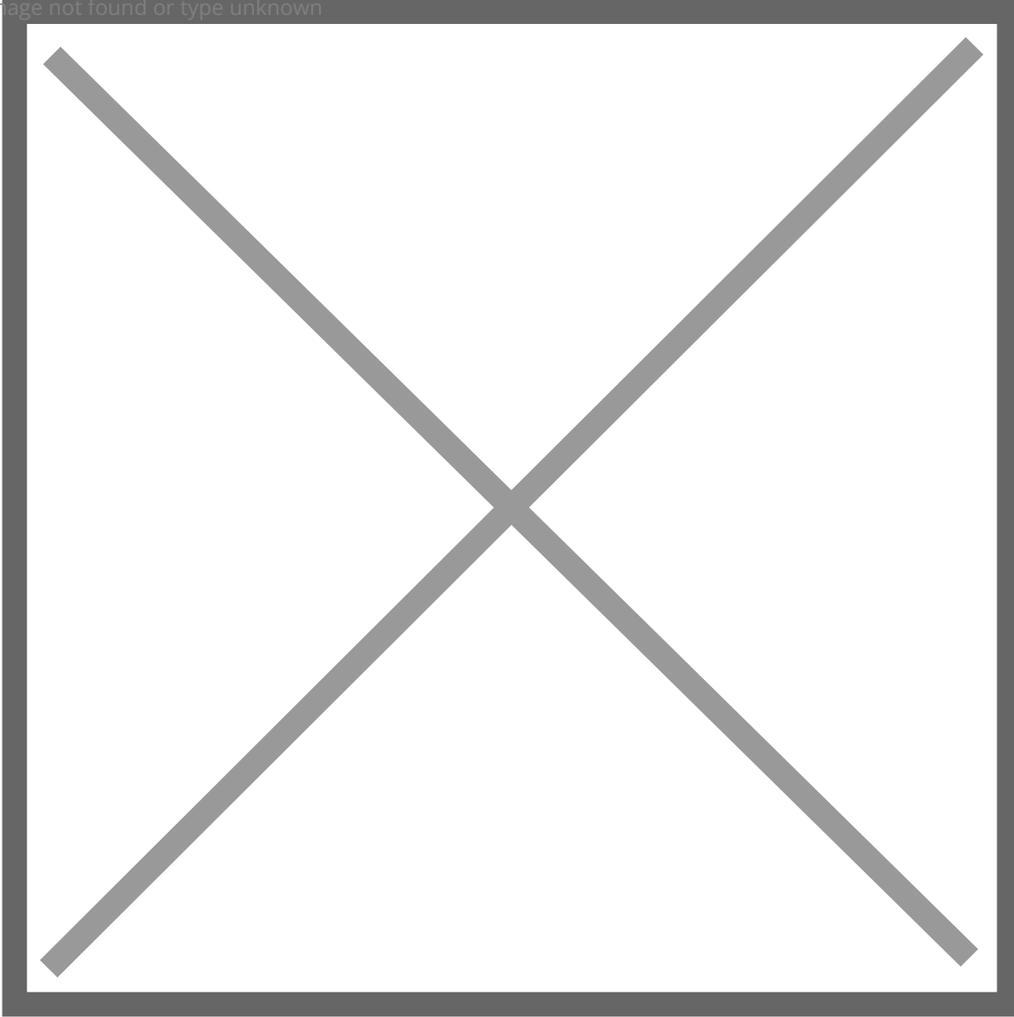• EN 61000-4-8 (Magnetic Field Standards)

Environmental Test Compliance

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

• IEC 60068-2-27 Ea (Shock)

• FED STD 101C Method 5007.1 (Free fall
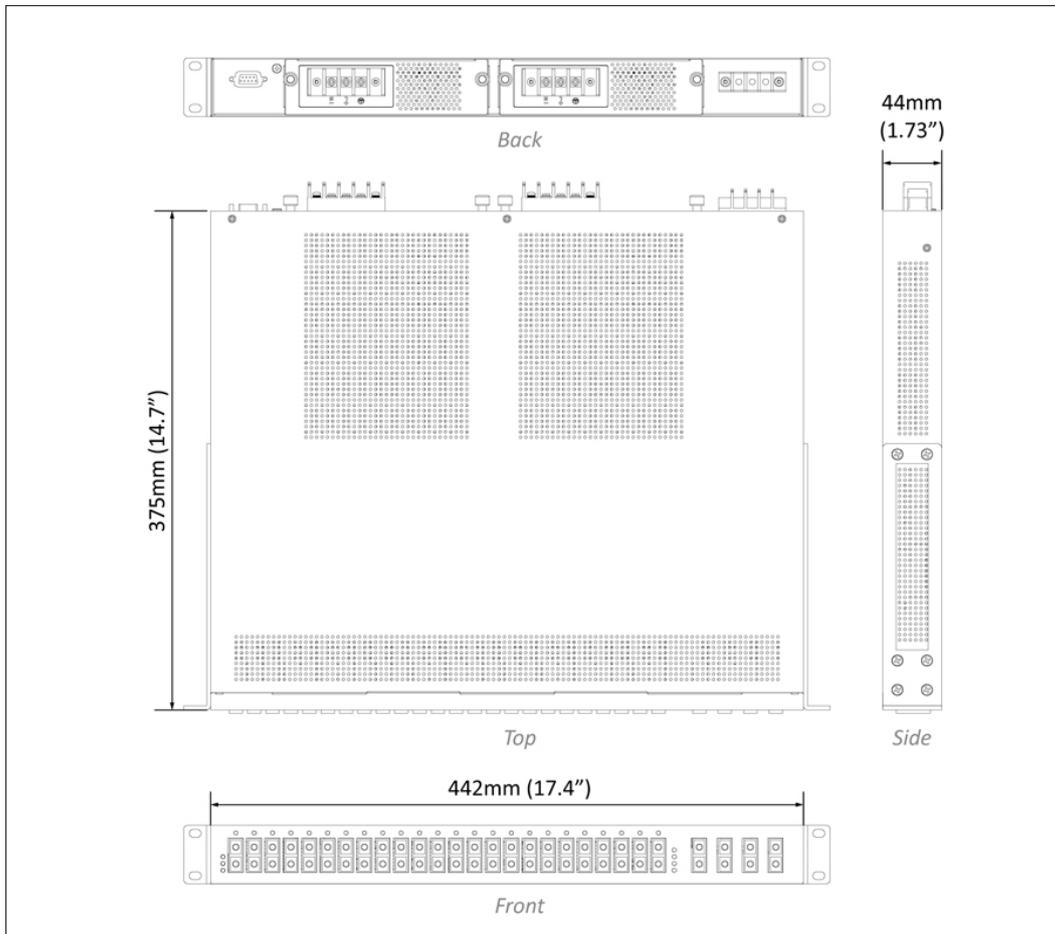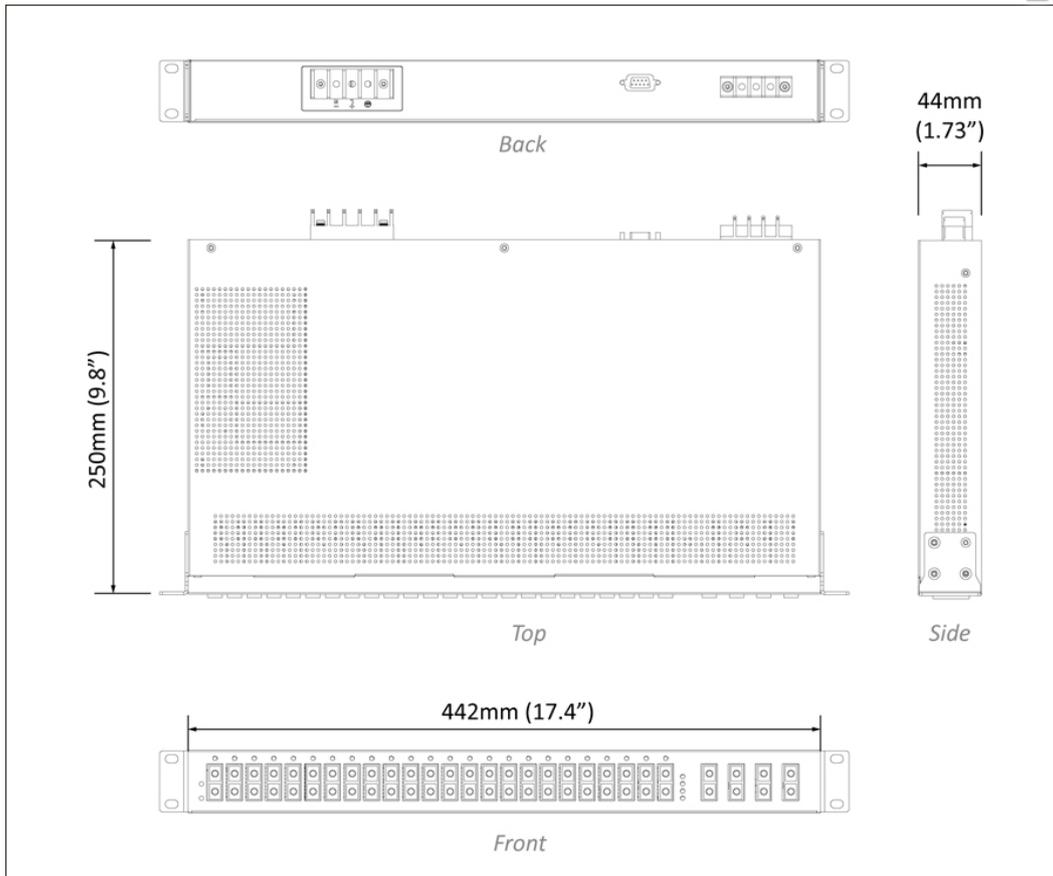
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Industrial Compliance

• NEMA TS2

Application

Dimensions

Back

44mm (1.73")

375mm (14.7")

Top

Side

442mm (17.4")

Front

Back

44mm
(1.73”)

250mm (9.8”)

Top

Side

442mm (17.4”)

Front

Ordering Info

Model

EX77604-0XYZ	24-port 10/100BASE-TX +4-port Gigabit Managed Ethernet Switch
EX77424-WXYZ	16-port 10/100BASE-TX +8-port 100BASE-FX +4-port Gigabit Managed Ethernet Switch
EX77244-WXYZ	8-port 10/100BASE-TX +16-port 100BASE-FX +4-port Gigabit Managed Ethernet Switch
EX77064-WXYZ	24-port 100BASE-FX +4-port Gigabit Managed Ethernet Switch
EX77064-V0VZ	24-port 100BASE-SFP +4-port Gigabit SFP Combo Managed Ethernet Switch

* 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	SFP

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

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)