

## EX77000 シリーズ

広範囲動作温度対応産業用/管理型 24ポート 10/100BASE +4ポート ギガビット 光オプション  
 イーサネット スイッチ



## 概要

EtherWAN の EX77000 シリーズは広範囲動作温度対応 管理型 最大28ポート運用が可能なイーサネットスイッチです。安定した通信が必要不可欠な過酷な環境にも対応する堅牢な管理機能を備えたハイパフォーマンスな製品です。

EX77000 シリーズは 10/100BASEファスト イーサネット 24ポートを標準装備し、ギガビット SX/LX/BX/WDM 光ポートとSFP コンボポート4個を選択できます。1U ラックに対応した EX77000 シリーズは リング構成の1ルートが遮断されても15ms以内で自動復帰する Alpha-Ring という独自リングプロトコルを搭載していて、高度な接続信頼性が必要な環境に柔軟に対応します。

ポートセキュリティやIGMP、VLAN、GARP プロトコル、LACPなどの管理機能はブラウザ経由で設定可能です。Telnet、SNMP、RMON、TFTP、RS-232 コンソール接続などにも対応します。

EtherWAN — "When Connectivity is Crucial."

## 特長

### + 多様な接続の応用に適合

24ポート 10/100BASE-TX/FX/BX/SFP +ギガビット-TX/SX/LX/BX/SFP 4ポートを装備でき、組み合わせの柔軟性を提供します。

### + 安全なリモートアクセス

IEEE 802.1x, ACL (Access Control List) と RADIUS をサポートします。

### + 広範囲動作温度対応

-40~75°C (-40~167°F) までの過酷な環境に問題なく、動作します。

ファンレス&堅牢な筐体。

ハイショックと電磁ノイズの耐性。

## 機能

### + 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  
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

## 仕様

### + 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, 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:

- (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

## + 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)

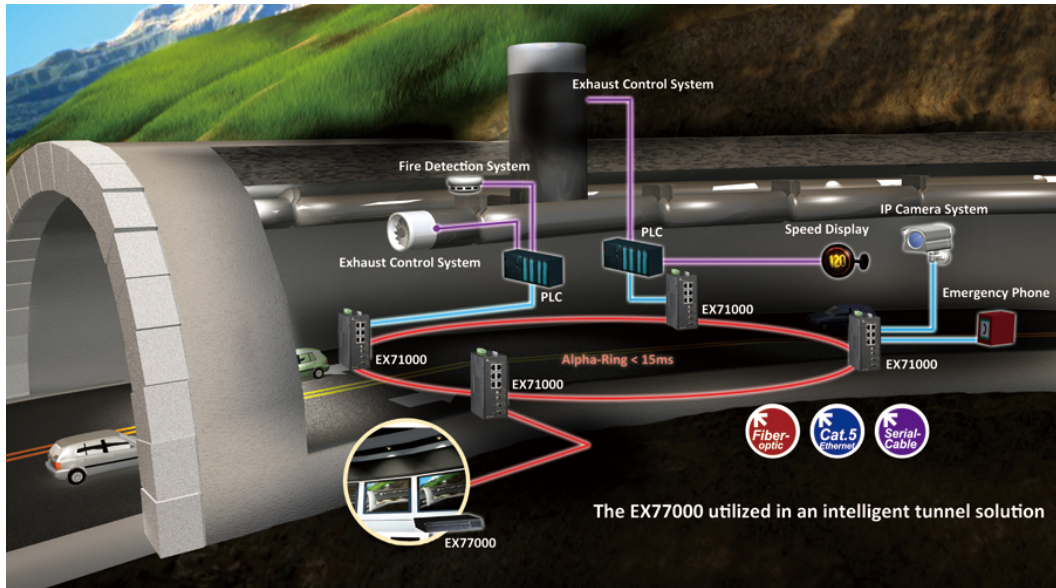
### Environmental Test Compliance

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

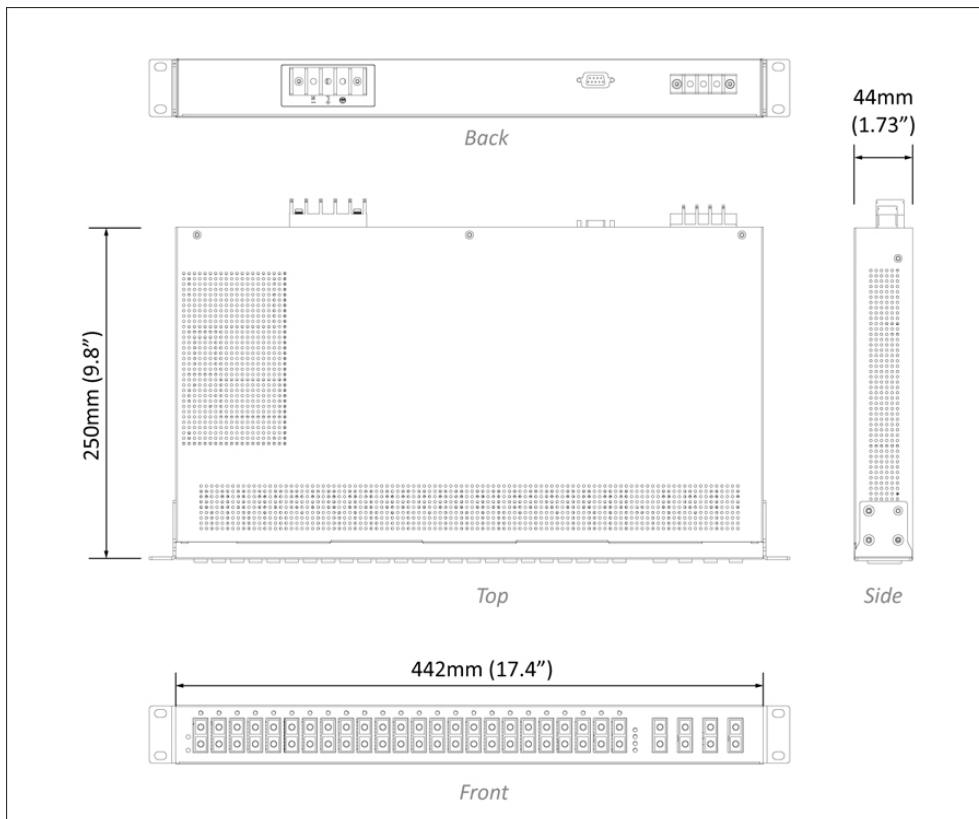
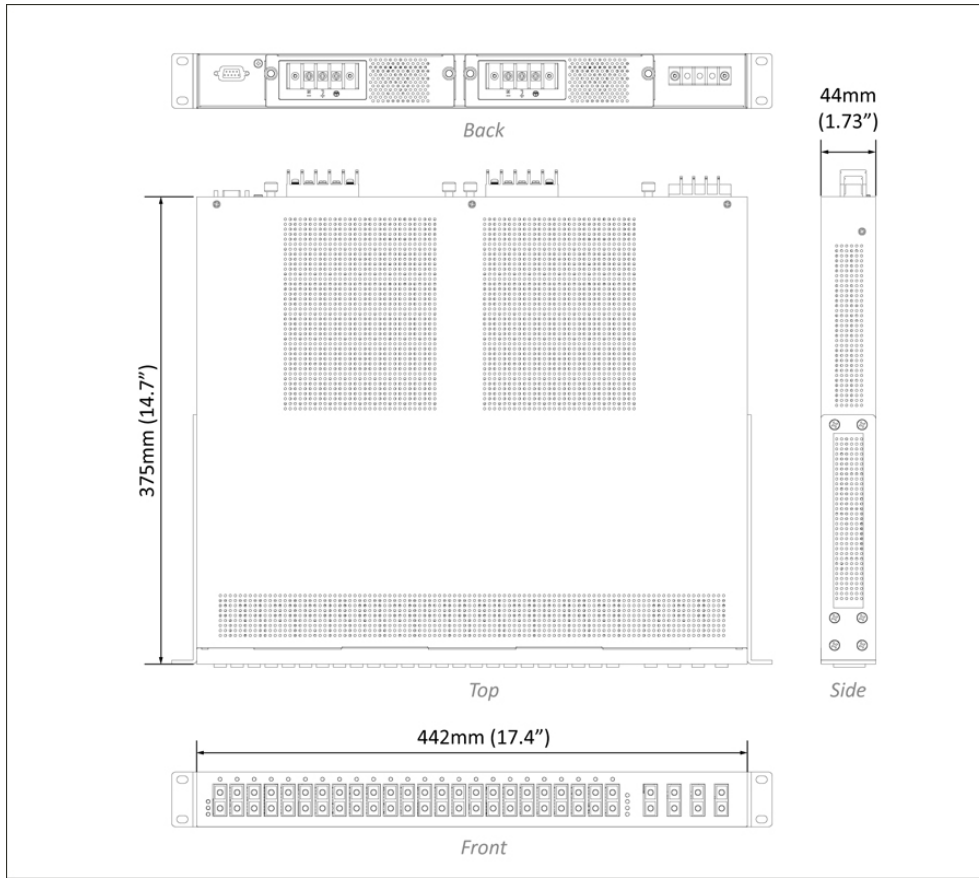
### Industrial Compliance

- NEMA TS2

# 応用例



# 寸法図



## 製品型番

### + Model

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

\* Rack mounting kit included.

### + 100FX Fiber Options (W)

<b>1</b>	Multi Mode (SC) - 2Km
<b>2</b>	Multi Mode (ST) - 2Km
<b>A</b>	Single Mode (SC) - 20Km
<b>H</b>	Single Mode (ST) - 20Km
<b>P</b>	Single Mode (SC) WDM-TX: 1310nm/RX: 1550nm-20Km
<b>Q</b>	Single Mode (SC) WDM-TX: 1550nm/RX: 1310nm-20Km
<b>V</b>	SFP

### + Numbers of fixed Gigabit Fiber (X)

<b>0</b>	None
<b>4</b>	Four Gigabit Fiber Ports

### + Gigabit Port Options (Y)

<b>3</b>	1000BASE-SX (SC) - 550m
<b>4</b>	1000BASE-SX (SC) - 2Km
<b>A</b>	1000BASE-LX (SC) - 10Km
<b>B</b>	1000BASE-LX (SC) - 20Km
<b>R</b>	1000BASE-BX (SC) WDM-TX: 1310nm/RX: 1550nm-20Km
<b>S</b>	1000BASE-BX (SC) WDM-TX: 1550nm/RX: 1310nm-20Km
<b>V</b>	4-port 100/1000BASE SFP Combo with 10/100/1000BASE-TX

### + Power Input Interface (Z)

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



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