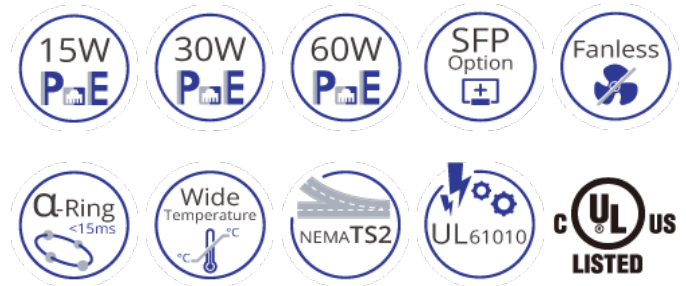


## EX78000 シリーズ

広範囲動作温度対応産業用/管理型 10ポート 10/100BASE (8 x PoE) + 2ポート ギガビット イーサネット スイッチ



## 特長

### + Hardened-Grade for Non-Ventilated & Harsh Environments

Wide operating temperature range -40 to 75°C (-40 to 167°F)  
 Fanless operation  
 High impact, thermal shock, and electrical noise resistance

### + PoE Features

Up to 60W/port with 240W total power budget  
 Long distance PoE up to 250m (820ft)  
 PoE watchdog monitors status of connected PoE devices

### + Management/Security Features

Port control  
 802.1x port-based network access control and remote authentication through RADIUS  
 Configure and monitor with eVue™ and eLite™

### + Support

Complimentary Technical Support  
 Free Firmware Upgrades  
 Limited Lifetime Warranty

## 概要

EtherWANのEX78000は8個の10/100BASE PoEポートと2個の100BASE光ポート、そして2個のギガ光ポートを装備する最大12ポート運用が可能な産業用イーサネットスイッチです。その上、SX/LX/BX/WDM光ポートとSFPも選択でき、60WのPoEを搭載しており、様々な端末設備(PTZカメラ、無線アクセスポイント、通信デバイスなど)も備えています。

冗長化機能(STP/RSTP/MSTP)に対応し、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EtherWAN独自リングプロトコルを搭載。IPv4/IPv6プロトコルやポートセキュリティ、IGMPスヌーピング、VLANs、GARPプロトコルとリンク集合などの管理機能をブラウザ経由で設定可能。

Telnet、SNMP、RMON、TFTP、RS-232コンソールなどにも接続でき、過酷な環境でも中断なしの通信を提供できる堅牢な管理機能を備えています。また動作温度は-40~75°C広範囲に対応し、高い静電気(ESD)、ショックと振動及び電磁妨害(EMI)などの過酷な環境でもご使用いただけます。

EtherWAN — "When Connectivity is Crucial."

## 機能

### + Interface

CLI, Telnet, Web Browser  
SNMP v1/v2c/v3

### + Management

Firmware and configuration upgrade and backup via TFTP  
Supports DHCP Server/Client  
RMON (Remote Monitoring): group 1, 2, 3, 9  
Port Mirroring: TX/RX and both  
NTP (Network Time Protocol) 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+  
Multi-user login and privileged access management  
SSH for CLI and Telnet security  
SSL for web security  
System log (Remote/Local)  
ACL

### + Quality of Service (QoS)

Priority Queues: 4 queues per port  
Traffic classification based on IEEE 802.1p CoS, DSCP, WRR 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 Protocols

IEEE 802.1D STP  
IEEE 802.1w RSTP  
IEEE 802.1s MSTP  
EtherWAN's Alpha-Ring network fault recovery (<15ms)

#### VLANs

IEEE 802.1Q Tag VLANs (128 groups, 4096 VID)  
GVRP  
GMRP

#### Link Aggregation

Static Trunk (2 groups, support MAC base)  
IEEE 802.3ad LACP

IGMP Snooping v1/v2/v3

## 仕様

### + Interface

#### Ethernet

4 or 8 x 10/100BASE-T(X) (PoE)

0, 2 or 4 x 100BASE FX

2 x 100/1000BASE SFP Slot

2 x Gigabit

#### Console

1 x DB9 RS-232

#### Alarm Contact

1 x Relay output, current capacity 0.5A/48VDC

#### LED Indicators

Per Unit: Power 1, Power 2, Alarm

Per Port: Link/Activity (Green)

Per PoE Port: (Orange)

### + 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 PNAC

IEEE 802.3af/at Power over Ethernet

#### Forward/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

52-57VDC Redundant (Terminal block)

Power Consumption  
10.4W Max (without PoE)

Power Power Budget  
240W Max.

PoE Technology  
Alternative A & B  
Pins 1/2(+), 3/6(-), Pins 7/8(-), 4/5(+)

Power Power Output  
Port 1 to 8 support PoE+ (15.4W/30W/60W)  
IEEE 802.3af: up to 15.4W/port, 47-57VDC  
IEEE 802.3at: up to 30W/port, 52-57VDC;  
60W/port, 52-57VDC

Protection  
Reverse Polarity Protection

## + Physical

**Casing Material**  
Metal

**IP Rating**  
IP30

**Dimensions**  
71.4 x 140 x 170mm (W x D x H)  
2.85" x 5.6" x 6.8"

**Weight**  
1.7kg (3.74lbs)

**Installation Type**  
DIN-rail mounting

## + Environmental

**Operating Temp.**  
-40 to 75°C (-40 to 167°F)  
Tested @ -40 to 85°C (-40 to 185°F)

**Storage Temp.**  
-45 to 85°C (-49 to 185°F)

**Relative Humidity**  
5% to 95% (non-condensing)

## + Regulatory

**ISO**  
Manufactured in ISO-9001 facility

**EMI**  
FCC Part 15B Class A  
VCCI Class A  
EN 61000-6-4

**EMS**  
EN 61000-6-2  
EN 61000-4-2 (ESD)  
EN 61000-4-3 (Radiated RFI)  
EN 61000-4-4 (Burst)  
EN 61000-4-5 (Surge)  
EN 61000-4-6 (Induced RFI)  
EN 61000-4-8 (Magnetic Field)

**Safety**  
UL 61010

**Vibration**  
IEC 60068-2-6 Fc

**Shock**  
IEC 60068-2-27 Ea

**Free Fall**  
FED STD 101C Method 5007.1

**Industrial Compliance**  
NEMA TS2

## + Warranty

Length  
Limited Lifetime

Details  
[www.etherwan.com/support/warranty-policy](http://www.etherwan.com/support/warranty-policy)

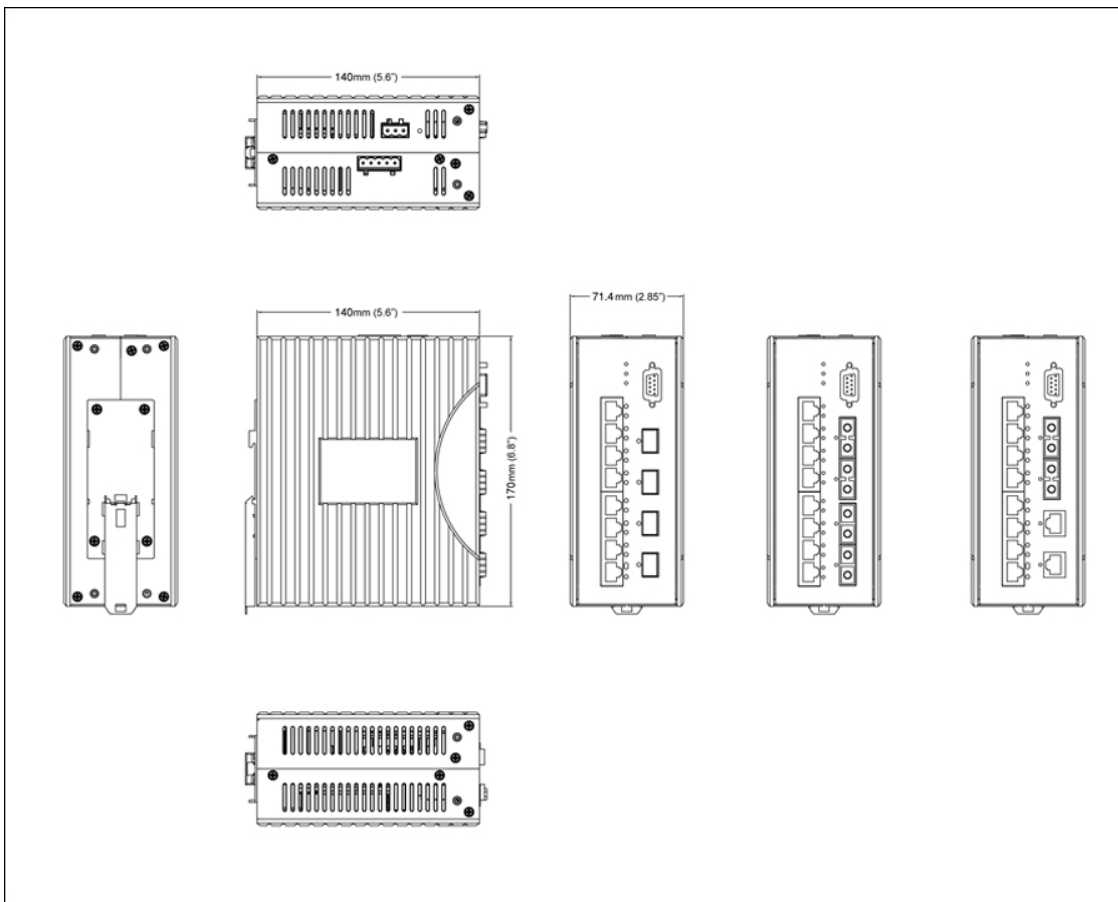
## + What's Included

**Device**  
Ethernet Switch

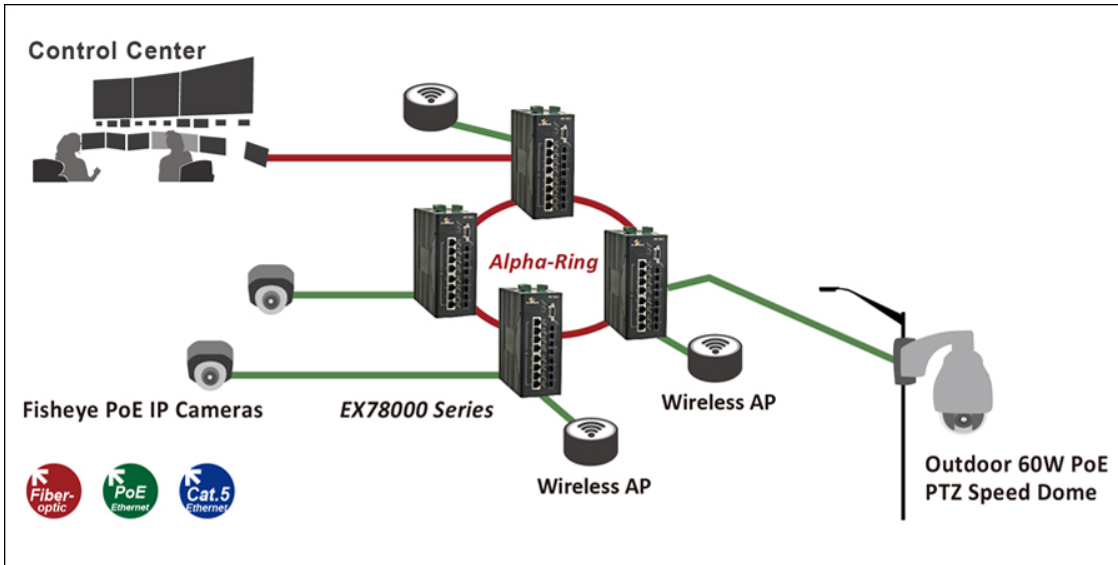
**Cables**  
1 Console Cable

**Documentation**  
Quick Install Guide

## 寸法図

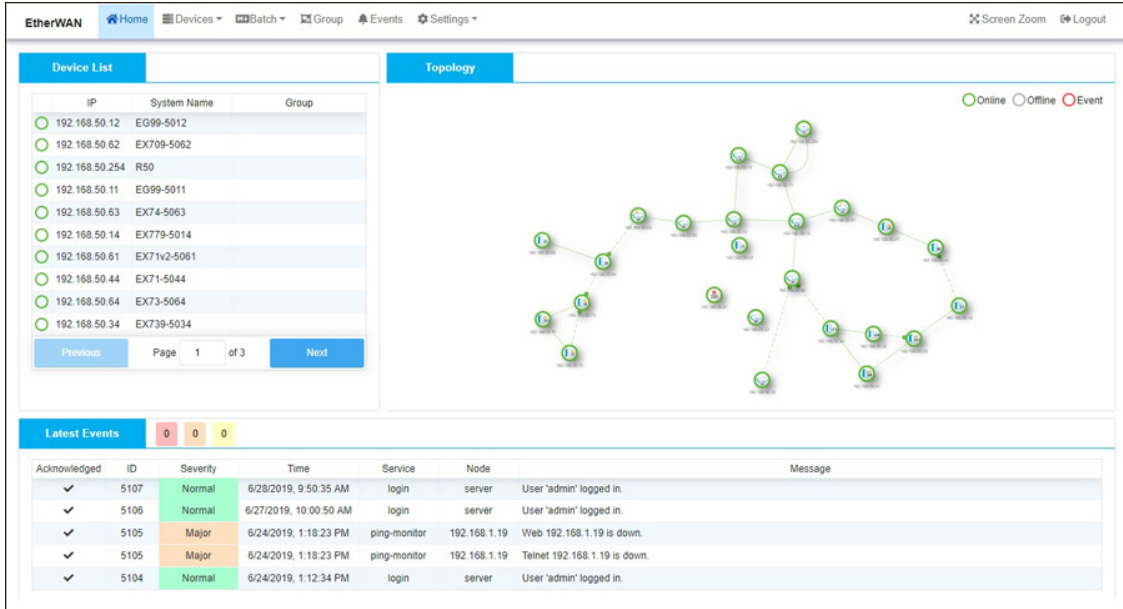


# 応用例



# ソフトウェア

Network Management [eVue™ Network Configuration and Monitoring Tool](#)  
 Network Discovery [eLite™ Network Discovery and IP Configuration Tool](#)



The screenshot shows the EtherWAN web interface. At the top, there are navigation tabs: Home, Devices, Batch, Group, Events, and Settings. The main content area is divided into two sections: 'Device List' and 'Topology'.

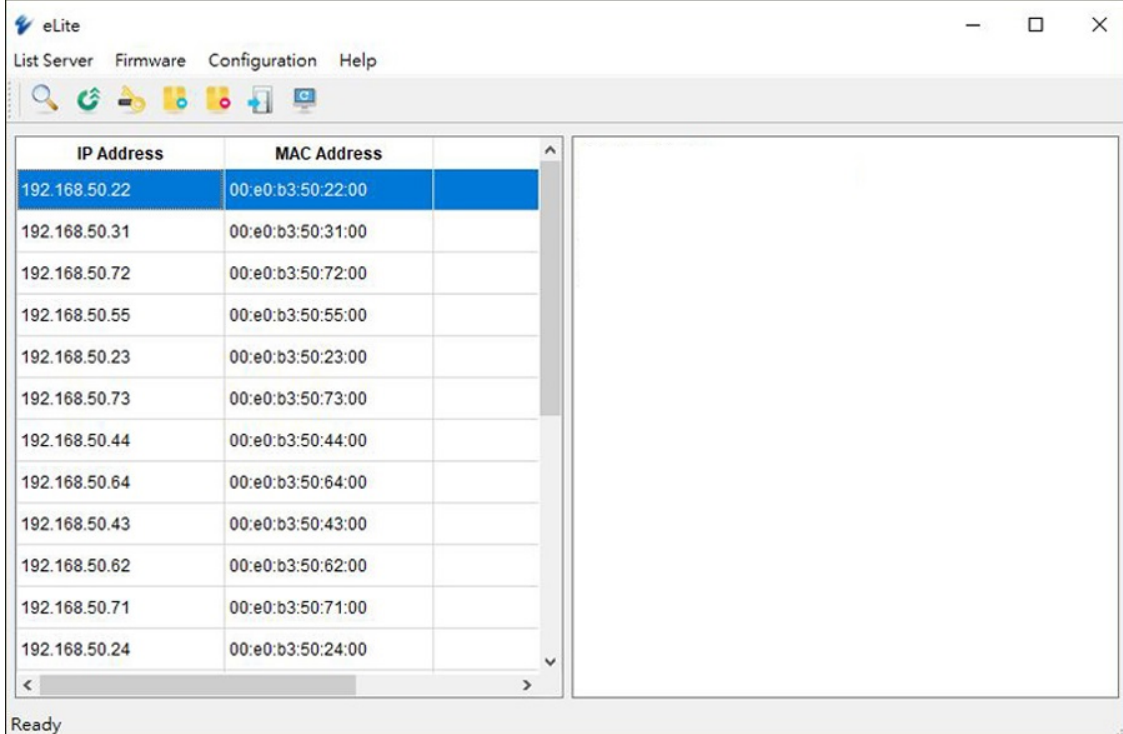
**Device List:** A table with columns for IP, System Name, and Group. It lists 12 devices, all with green status indicators.

IP	System Name	Group
192.168.50.12	EG99-5012	
192.168.50.62	EX709-5062	
192.168.50.254	R50	
192.168.50.11	EG99-5011	
192.168.50.63	EX74-5063	
192.168.50.14	EX779-5014	
192.168.50.61	EX71v2-5061	
192.168.50.44	EX71-5044	
192.168.50.64	EX73-5064	
192.168.50.34	EX739-5034	

**Topology:** A network diagram showing various nodes connected in a mesh-like structure. A legend indicates Online (green circle), Offline (grey circle), and Event (red circle).

**Latest Events:** A table showing recent system events.

Acknowledged	ID	Severity	Time	Service	Node	Message
✓	5107	Normal	6/28/2019, 9:50:35 AM	login	server	User 'admin' logged in.
✓	5106	Normal	6/27/2019, 10:00:50 AM	login	server	User 'admin' logged in.
✓	5105	Major	6/24/2019, 1:18:23 PM	ping-monitor	192.168.1.19	Web 192.168.1.19 is down.
✓	5105	Major	6/24/2019, 1:18:23 PM	ping-monitor	192.168.1.19	Teinet 192.168.1.19 is down.
✓	5104	Normal	6/24/2019, 1:12:34 PM	login	server	User 'admin' logged in.



The screenshot shows the eLite web interface. At the top, there are navigation tabs: List Server, Firmware, Configuration, and Help. The main content area displays a table of IP addresses and MAC addresses.

IP Address	MAC Address
192.168.50.22	00:e0:b3:50:22:00
192.168.50.31	00:e0:b3:50:31:00
192.168.50.72	00:e0:b3:50:72:00
192.168.50.55	00:e0:b3:50:55:00
192.168.50.23	00:e0:b3:50:23:00
192.168.50.73	00:e0:b3:50:73:00
192.168.50.44	00:e0:b3:50:44:00
192.168.50.64	00:e0:b3:50:64:00
192.168.50.43	00:e0:b3:50:43:00
192.168.50.62	00:e0:b3:50:62:00
192.168.50.71	00:e0:b3:50:71:00
192.168.50.24	00:e0:b3:50:24:00

The interface also includes a search bar and a 'Ready' status indicator at the bottom.



## 製品型番

### + Model

EX78402-0YBT	4-port 10/100BASE-TX PoE + 2-port Gigabit
EX78802-0YBT	8-port 10/100BASE-TX PoE + 2-port Gigabit
EX78822-XZBT	8-port 10/100BASE-TX PoE + 2-port 100BASE-FX +2-port Gigabit
EX78822-VVBT	8-port 10/100BASE-TX PoE + 2-port 100BASE-SFP +2-port 100/1000BASE-SFP

\* DIN-Rail mounting kit included.

### + 100FX Fiber Options (X)

1	Multi Mode (SC) - 2Km
2	Multi Mode (ST) - 2Km
A	Single Mode (SC) - 20Km

\* More 100FX Fiber 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
R	1000BASE-BX (SC) WDM-TX: 1310nm/RX: 1550nm-20Km
S	1000BASE-BX (SC) WDM-TX: 1550nm/RX: 1310nm-20Km
V	Support 2-port 100/1000BASE SFP (DDM)

\* More Gigabit options also available upon request.

### + Gigabit Port Options (Z)

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
R	1000BASE-BX (SC) WDM-TX: 1310nm/RX: 1550nm-20Km
S	1000BASE-BX (SC) WDM-TX: 1550nm/RX: 1310nm-20Km

\* More Gigabit options also available upon request.

### + Accessories

Hardened Gigabit SFP Module	<a href="http://www.etherwan.com/products/sfp-fiber-transceiver">www.etherwan.com/products/sfp-fiber-transceiver</a>
DIN-Rail Power Supplies	<a href="http://www.etherwan.com/products/din-rail-power-supply">www.etherwan.com/products/din-rail-power-supply</a> (*)
*Recommended Power Supply	NDR-480-48 480W 48VDC DIN-Rail Power Supply
EB-232	Configuration Backup and Restoration Tool

