

## EX78900 シリーズ

Lite L3 広範囲動作温度対応産業用/管理型 16ポート (8 x PoE) ギガビット イーサネット スイッチ



### 概要

**This product is discontinued as of 30 Dec. 2024. [click here](#) for alternative product.**

#### なぜ産業用レイヤ3スイッチは必要がありますか。

EtherWAN の EX78900 シリーズは広温度範囲対応 DIN レール型最大16 ギガビット ポート運用が可能な、イーサネット口スイッチです。IEEE 802.3at/af 準拠、60W の PoE を搭載しており、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。

EX78900 シリーズは 12ポート 10/100/1000 BASE-TX(8 x PoE ポート)と ギガビット SFP ポート 4個を搭載し、Ultra PoE ポートは1ポートあたり 60W、全ポート合計最大240W までの電力供給が可能で、屋外 PTZ ドーム カメラ、無線アクセス ポイントや路線脇の通信機器など、帯域幅と消費電力が異なる PoE 給電機器を問題なく接続します。ポートセキュリティやIGMP、VLAN、GARP プロトコル、リンク集合及びACLなどの管理機能はブラウザ経由で設定可能です。Telnet、SSH、SNMP、RMON、TFTP、RS-232 コンソール接続などにも対応します。

動作温度は-40~75°Cと広範囲に対応し、high ESD, ショックと振動などの過酷な環境でもご使用いただけます。

EtherWAN — "When Connectivity is Crucial."

## 特長

### + High Bandwidth and Versatility

- 8 or 12 10/100/1000BASE-T(X) ports for high bandwidth connections
- Up to 4 gigabit fiber connections
- Full capacity switching running at full duplex

### + 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

### + 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

### + Management/Security Features

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

### + L2/L3 Functionality

- Static routing, RIP v1/v2, and OSPF
- Redundancy with VRRP
- Reduces amount of broadcast traffic

### + Support

- Complimentary Technical Support
- Free Firmware Upgrades
- Limited Lifetime Warranty

## 機能

### + Interface

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

### + Management

Firmware and configuration upgrade and backup via TFTP  
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+  
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  
GVRP  
GMRP

#### Link Aggregation

Static Trunk (4 groups, support MAC base)  
IEEE 802.3ad LACP

#### 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

## 仕様

### + Interface

**Ethernet**

8 or 12 (8 PoE) x 10/100/1000BASE-T(X)  
4 x 1000BASE SX/LX/SFP

**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

Per Port: Link/Activity (Green)

Per PoE Port: PoE Status (Orange)

### + Physical

**Casing Material**

Aluminum

**IP Rating**

IP30

**Dimensions**

72 x 140 x 170mm (W x D x H)  
2.8" x 5.5" x 6.7"

**Weight**

1.5kg (3.3lbs)

**Installation Type**

DIN-rail mounting

## + 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

### Jumbo Frame

9216 bytes

### Address Table Size

16K MAC Addresses

## + 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  
EN 61000-3-2  
EN 61000-3-3

### 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)

### Vibration

IEC 60068-2-6 Fc

### Shock

IEC 60068-2-27 Ea

### Free Fall

FED STD 101C Method 5007.1

## + Power

### Input

52-57VDC Redundant (Terminal block)

### Power Consumption

20W Max (without PoE)

### PoE Technology

Alternative A & B

Pins 1/2(+), 3/6(-), Pins 7/8(-), 4/5(+)

### PoE Power Output

PoE can be configured as:

1. 6-port 15.4W PoE and 2-port 60W PoE
2. 8-port 30W PoE
3. 4-port 10/100/1000-TX and 4-port 60W PoE
4. Other PoE power level configuration can be done through firmware

Power Budget: 240W

### Protection

Reverse Polarity Protection

## + Warranty

### Length

Limited Lifetime

### Details

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

## + What's Included

### Device

Ethernet Switch

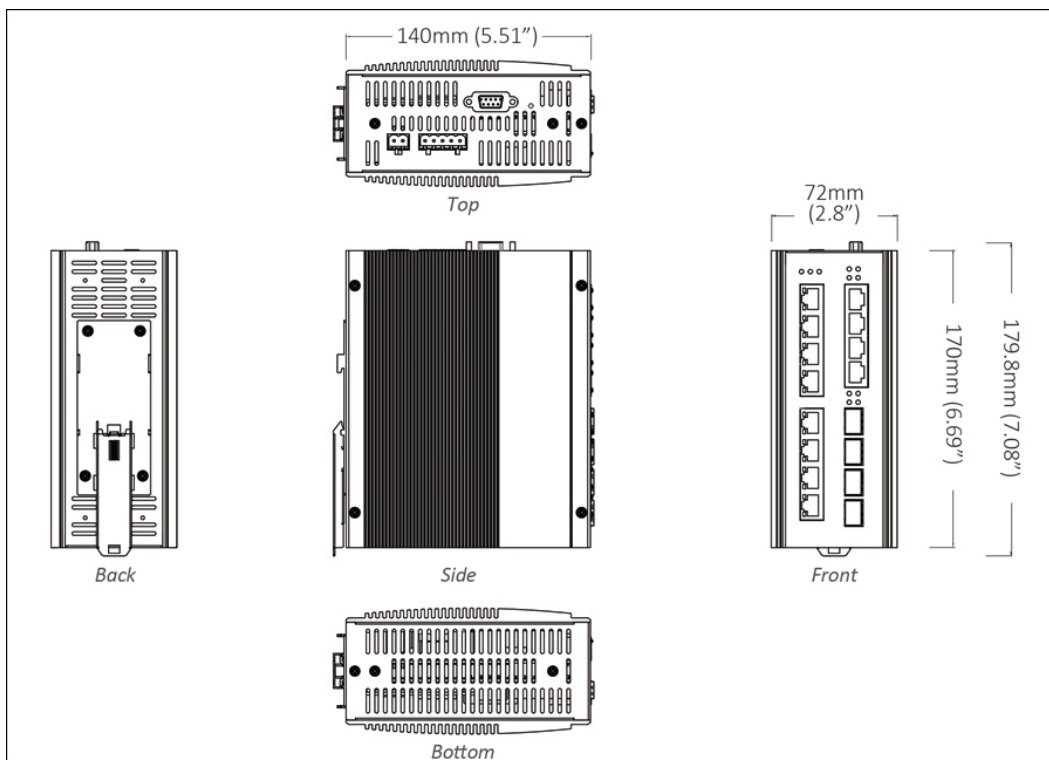
### Cables

1 Console Cable

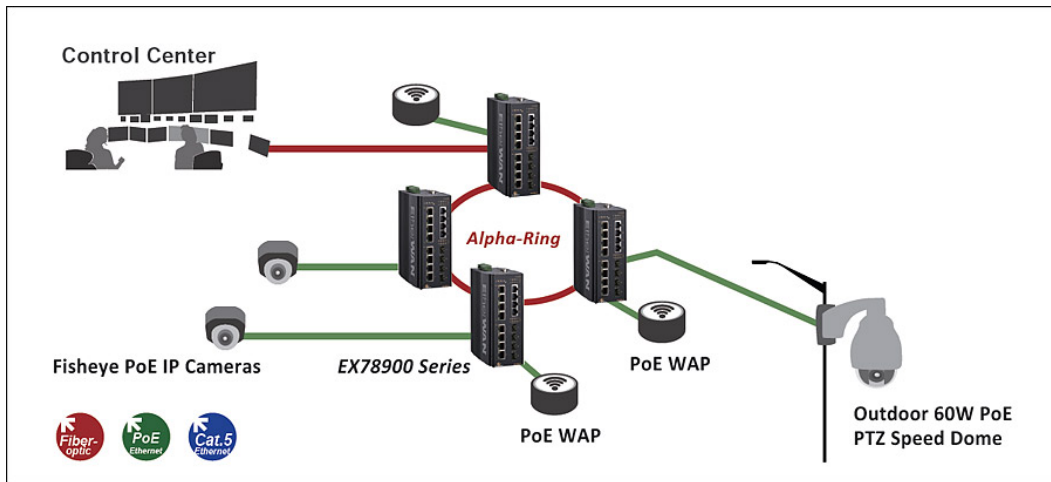
### Documentation

Quick Install Guide

## 寸法図

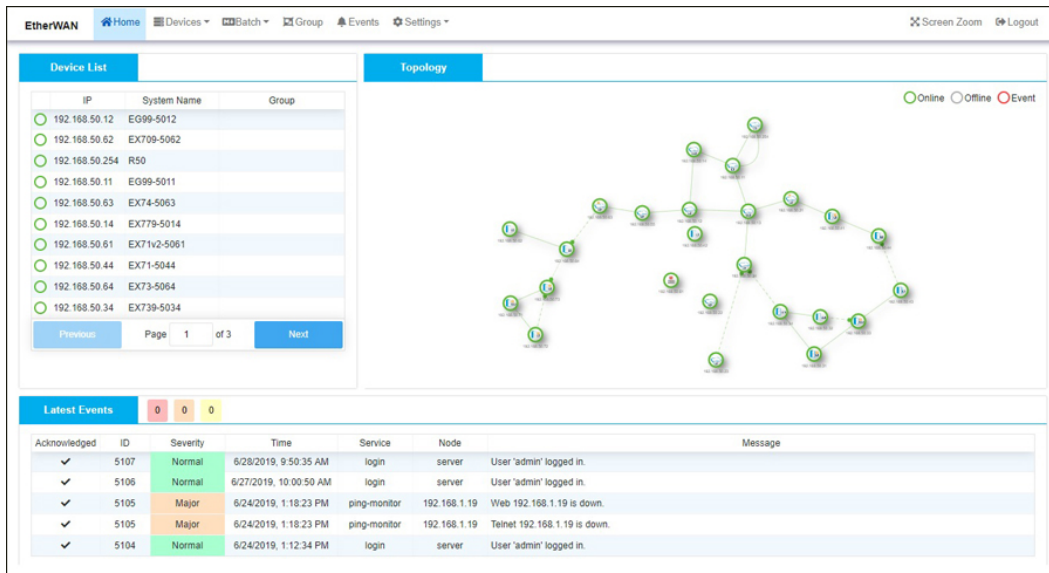


# 応用例



# ソフトウェア

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



**Device List**

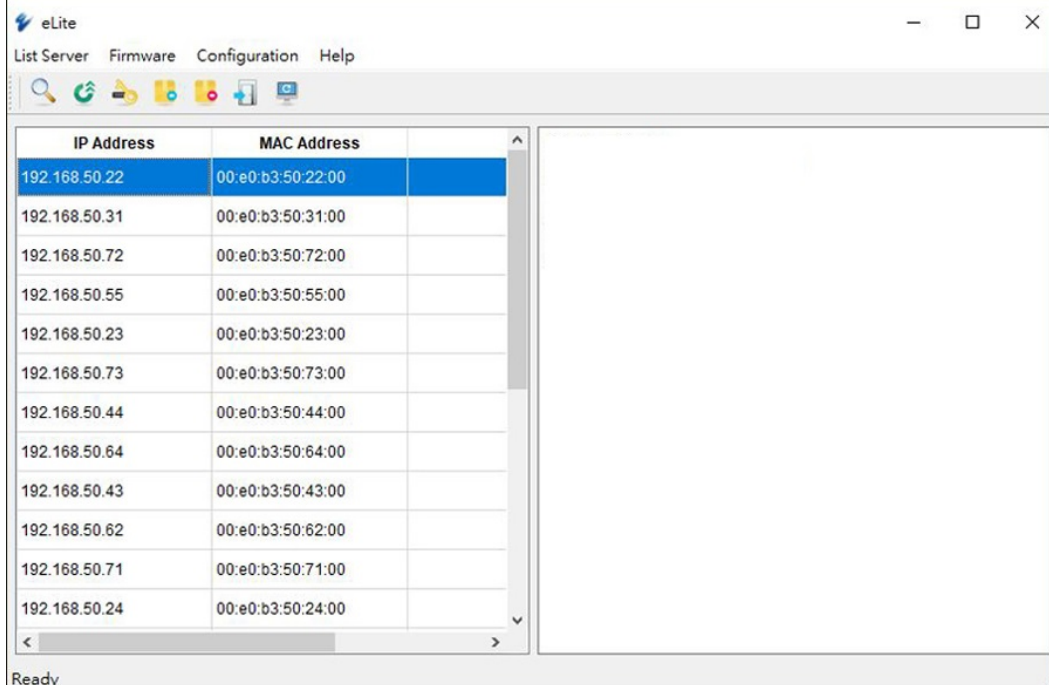
IP	System Name	Group
192.168.50.12	EG99-5012	
192.168.50.62	EX709-5062	
192.168.50.254	R50	
192.168.50.11	EG99-5011	
192.168.50.63	EX74-5063	
192.168.50.14	EX779-5014	
192.168.50.61	EX71v2-5061	
192.168.50.44	EX71-5044	
192.168.50.64	EX73-5064	
192.168.50.34	EX739-5034	

**Topology**

Legend: ● Online ○ Offline ○ Event

**Latest 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.



**eLite**

List Server Firmware Configuration Help

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

Ready



## 製品型番

### + Model

<b>EX78931-0VB</b>	12-Port 10/100/1000BASE-TX with 8-port PoE + 4-port Gigabit SFP
<b>EX78921-0VB</b>	8-Port 10/100/1000BASE-TX PoE + 4-Port Gigabit SFP
<b>EX78921-0XB</b>	8-Port 10/100/1000BASE-TX PoE + 4-Port Gigabit Fiber

\* DIN-Rail mounting kit included.

### + Gigabit Port Options (X)

<b>3</b>	1000BASE-SX (SC) - 550m
<b>4</b>	1000BASE-SX (SC) - 2Km
<b>5</b>	1000BASE-SX (ST) - 550m
<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

\* More Gigabit options also available upon request.

### + Accessories

<b>Hardened Gigabit SFP Modules</b>	<a href="http://www.etherwan.com/products/sfp-fiber-transceiver">www.etherwan.com/products/sfp-fiber-transceiver</a>
<b>DIN-Rail Power Supplies</b>	<a href="http://www.etherwan.com/products/din-rail-power-supply">www.etherwan.com/products/din-rail-power-supply</a> (* )
<b>*Recommended Power Supply</b>	HDR-30-24 30W 24VDC DIN-Rail Power Supply
<b>EB-232</b>	Configuration Backup and Restoration Tool

