

## EX78900X シリーズ

広範囲動作温度対応産業用/管理型 12ポート 10/100/1000BASE-T(X) +4ポート 1G/10G SFP+ PoE  
ギガビット イーサネットスイッチ



## 概要

EtherWAN の EX78900X シリーズはDINレールに取り付けられた産業用マネージド PoE イーサネットスイッチです。最大12ギガビットPoEポート、90W電力および IEEE 802.3bt 準拠対応、4つのデュアルレート 1G/10G SFP ポートを備えた EX78900X シリーズは、都市インフラ、交通、セキュリティなどのネットワークに柔軟性と信頼性を提供します。

EtherWAN — "When Connectivity is Crucial."

## 特長

### + High Bandwidth and Versatility

12 10/100/1000BASE-T(X) ports for high bandwidth connections  
Up to 4 Dual-rate 1/10G SFP+ uplink ports for fiber connections  
Full capacity switching running at full duplex

### + 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

### + Lite Layer 3 Functionality

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

### + PoE Features

IEEE 802.3bt with up to 90W per port; 360W total power budget  
PoE watchdog monitors status of connected PoE devices

### + Management/Security Features

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

### + Support

Complimentary technical support  
Free firmware upgrades and notifications  
Limited lifetime warranty

## 機能

### + Interface

CLI, Telnet, Web GUI, SSH

### + Management

SFTP (Secured FTP) support  
Configuration backup  
DHCP Server/Client  
RMON (Remote Monitoring)  
Port Mirroring  
NTP (Network Time Protocol) synchronization  
PoE Watchdog  
LLDP (Link Layer Discovery Protocol)  
IPv4/IPv6  
SNMP v1/v2c/v3  
Modbus TCP

### + Security

MAC Address filtering  
Enable/Disable port  
Storm Control and Detection  
System logging  
IEEE 802.1x LAN Access control  
Remote authentication through RADIUS and TACACS+  
Complex password support  
Multi-user login and privileged access management  
SSH for CLI and Telnet security  
TLS and HTTPS for web security  
ACL (Access Control List, up to 4096 entries)

### + Quality of Service (QoS)

Priority Queues: 8 queues per port  
Traffic classification based on IEEE 802.1p CoS (Cost of Service), DSCP (Differentiated Services Code Point), 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 Protocols**  
IEEE 802.1D STP  
IEEE 802.1w RSTP  
IEEE 802.1s MSTP  
EtherWAN's Alpha-Ring network fault recovery

**VLANs**  
IEEE 802.1Q Tag VLANs  
GVRP  
GMRP

**Link Aggregation**  
Static Trunk (4 groups)  
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

### + Software Properties and Performance

**Switching Fabric**  
104Gbps

**Forwarding Rate**  
75.29Mpps

**Max VLANs**  
256 (4096 VID)

**Jumbo Frame Size**  
9KB

**MAC Table Size**  
16K

**Packet Buffer Memory**  
12M bits

## 仕様

### + Interface

#### Ethernet

12 x 10/100/1000BASE-T(X)

4 x 1/10G SFP+

#### Console

1 x RJ45

#### Config Backup

1 x USB (Type A Connector)

#### Digital Input

2 x Digital Input

Wet Contact: 0-3V for State 0; 13-30V for State 1;  
max input current: 8mA

Dry Contact: Logic Level 1-Close to GND; Logic  
Level 0-Open

#### Alarm Contact

2 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)

### + Technology

#### Standards

IEEE 802.3 10BASE-T

IEEE 802.3u 100BASE-TX/100BASE-FX

IEEE 802.3ab 1000BASE-T

IEEE 802.3ad link aggregation control

IEEE 802.3z 1000BASE-SX/1000BASE-LX

IEEE 802.3x full duplex and flow control

IEEE 802.1D STP

IEEE 802.1p QoS

IEEE 802.1Q Tag VLANs

IEEE 802.1s MSTP

IEEE 802.1w RSTP

IEEE 802.1x PNAC

IEEE 802.1ab LLDP

IEEE 802.3az EEE

IEEE 802.3af/at/bt Power over Ethernet

IEEE 1588v2 PTP

#### Forward/Filtering Rate

14,880pps for 10Mbps

148,810pps for 100Mbps

1,488,100pps for 1000Mbps

14,881,000pps for 10Gbps

#### Processing Type

Store-and-forward

Auto-negotiation  
Half-duplex back-pressure and full-duplex flow control  
Auto MDI/MDIX

System Memory  
2Gb DDR3 SDRAM

Flash Storage  
1Gb

## + Power

Input  
46-57VDC Redundant (Terminal block)\*\*  
\*\* 46-57VDC for IEEE 802.3af type 1, ≤15.4W PD devices.

52-57VDC for IEEE 802.3at/bt type 2/3, 30W, 60W PD devices.

54-57VDC for IEEE 802.3bt, type 4, 90W PD devices

Power Consumption  
20W Max (without PoE)

PoE Power Output  
Ports 1-12: Up to 90W/port; Power Budget: 360W

Protection  
Reverse Polarity Protection

## + 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

## + Environmental

Operating Temp.  
-40 to 75°C (-40 to 167°F)

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

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

MTBF  
1,496,987 hours

## + 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)  
PoE Ports: line to earth 6kV Surge  
EN 61000-4-6 (Induced RFI)  
EN 61000-4-8 (Magnetic field)

Safety  
UL 61010

Traffic  
NEMA TS2

Rail  
EN 50121-4

Vibration

IEC 60068-2-6

Shock

IEC 60068-2-27

Free Fall

FED STD 101C Method 5007.1

## + 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

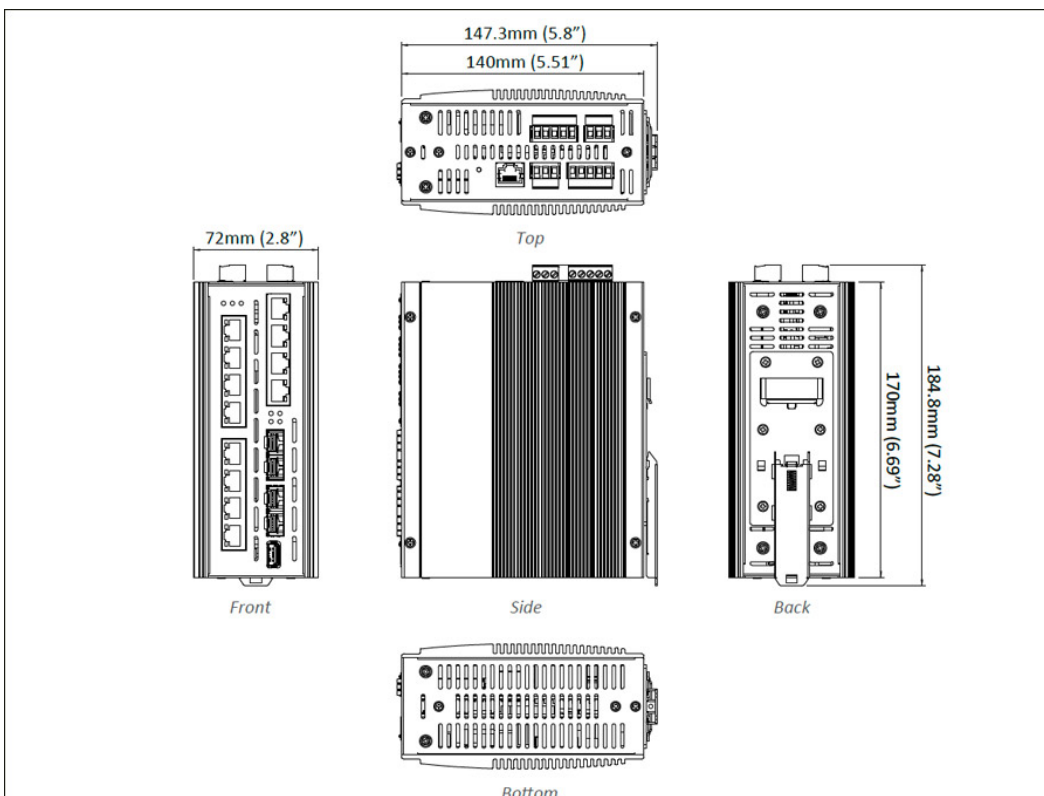
Installation

Mounting brackets, screws

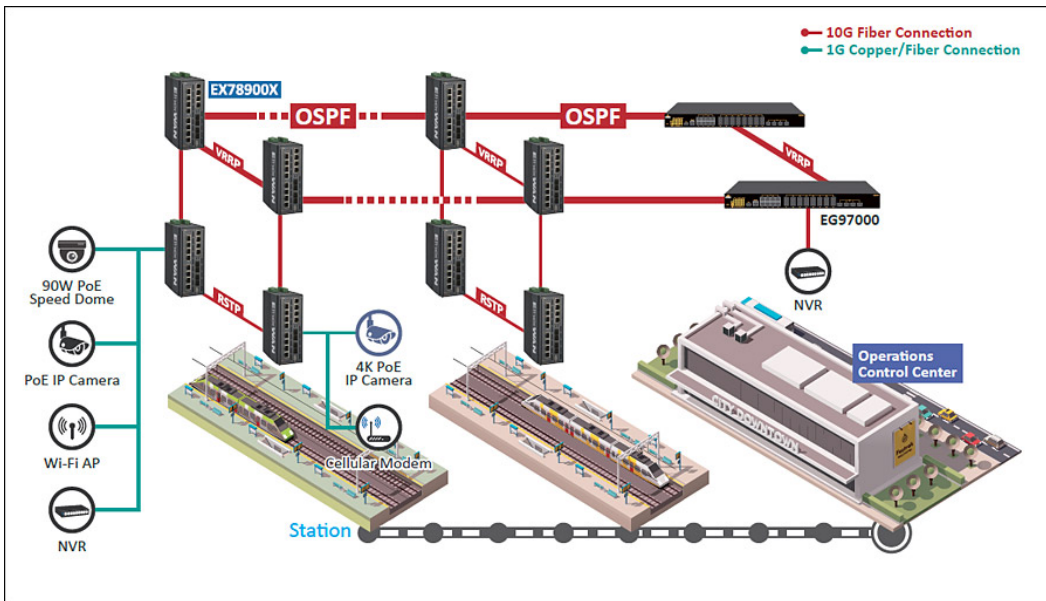
Documentation

Quick install guide

## 寸法図

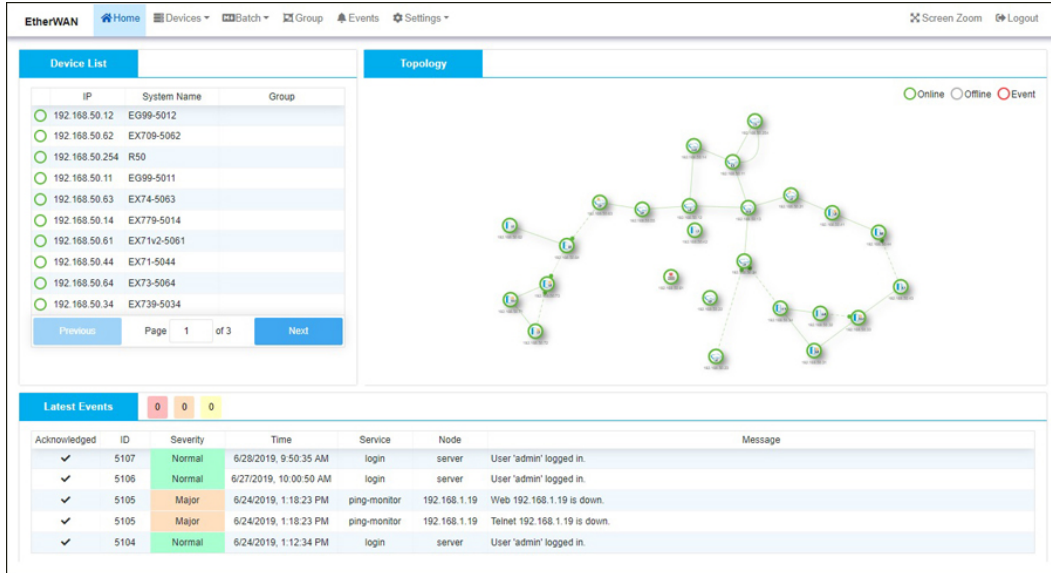


# 応用例



# ソフトウェア

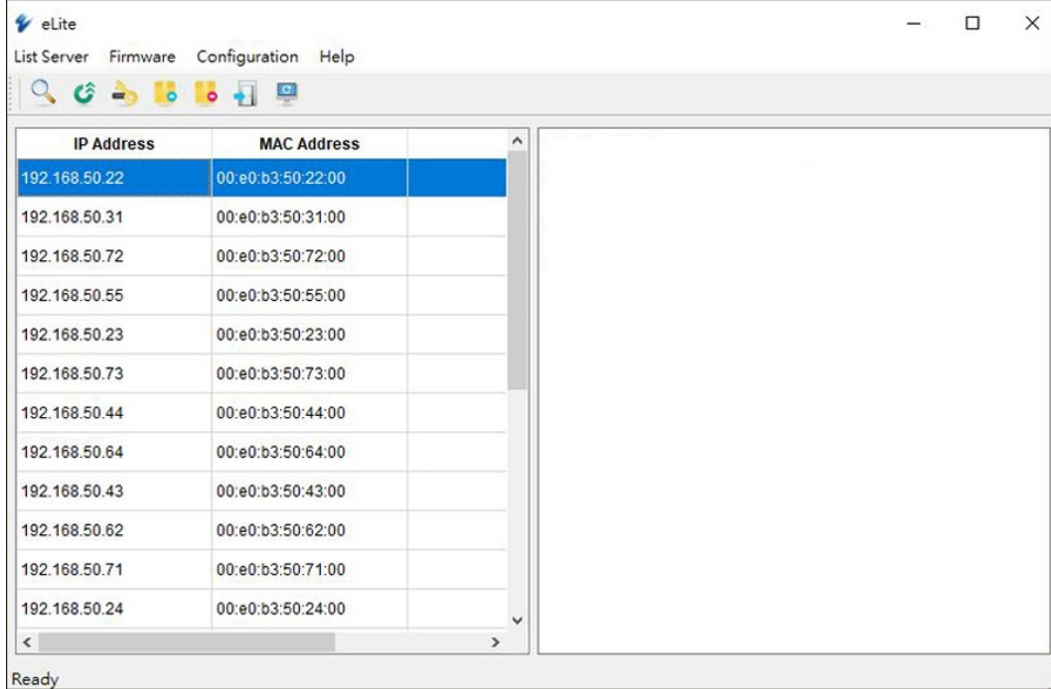
Network Management [eVue™ Network Configuration and Monitoring Tool](#)  
 Network Discovery [eLite™ Network Discovery and IP Configuration Tool](#)



The screenshot shows the EtherWAN web interface. On the left, there is a 'Device List' table with columns for IP, System Name, and Group. On the right, there is a 'Topology' diagram showing a network of interconnected nodes. Below these, there is a 'Latest Events' section with a table of system events.

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	

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	Telnet 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 application window. It has a menu bar with 'List Server', 'Firmware', 'Configuration', and 'Help'. Below the menu is a toolbar with various icons. The main area contains a table with 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



## 製品型番

### + Model

EX78934X-0VB 12-port 10/100/1000BASE-T(X) PoE + 4-port 1/10G SFP+

### + Accessories

Hardened Gigabit & 10 Gigabit SFP Modules	<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

