

## EX73900 シリーズ

IEC 61850-3/IEEE 1613 Lite L3 広範囲動作温度対応/管理型 16ポート ギガビット イーサネット スイッチ



## 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

### + 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 support  
Redundancy with VRRP  
Reduces amount of broadcast traffic

### + Compliance

IEC 61850-3/IEEE 1613 certified for power substations  
NEMA TS2 rated  
UL certified for safety

### + Management/Security Features

Port control  
RADIUS remote authentication  
Configure and monitor with eVue™ and eLite™

### + Support

Complimentary Technical Support  
Free Firmware Upgrades  
Limited Lifetime Warranty

## 概要

### [When should you use an Industrial Layer 3 switch?](#)

EtherWAN の EX73900 シリーズは広範囲動作温度対応、DINレール型、最大16ポート運用が可能なイーサネットスイッチで、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。

EX73900 シリーズは 10/100/1000BASE-TX 12ポートまで装備でき、またギガビット光ポート4個を選択できます。EX73900 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、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。

過酷な環境向けに設計され、動作温度は -40~75°C と広範囲温度に対応した上、IEC 61850 & IEEE 1613 準拠し、high EMI の環境での稼動に最適な選択です。

EtherWAN — "When Connectivity is Crucial."

## 機能

### + Interface

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

### + Management

Firmware upgrade  
Configuration 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 (Access Control List, up to 4096 entries)

### + 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

#### VLANs

IEEE 802.1Q Tag VLANs (128 groups, 4096 VID)  
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 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 0.6A/30VDC

#### LED Indicators

Per Unit: Power 1, Power 2

Per Port: Link/Activity (Green)

### + 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

#### 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

12-48VDC Redundant (Terminal block)

#### Power Consumption

17.28W Max. 1.44A@12VDC, 0.72A@24VDC

#### 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  
1.4kg (3.09lbs)

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  
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)

**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**  
IEC 61850-3/IEEE 1613  
NEMA TS2

## + Warranty

**Length**  
Limited Lifetime

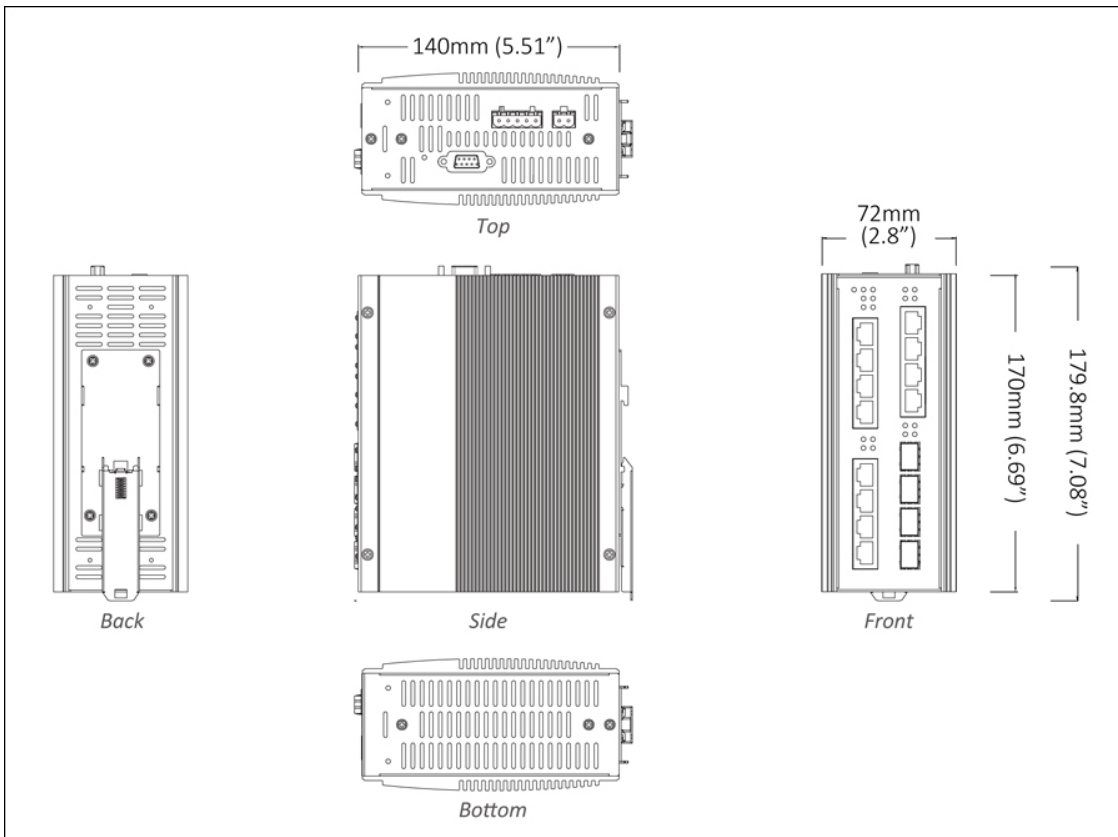
**Details**  
[www.etherwan.com/support/warranty-policy](http://www.etherwan.com/support/warranty-policy)

## + What's Included

**Device**  
Ethernet Switch

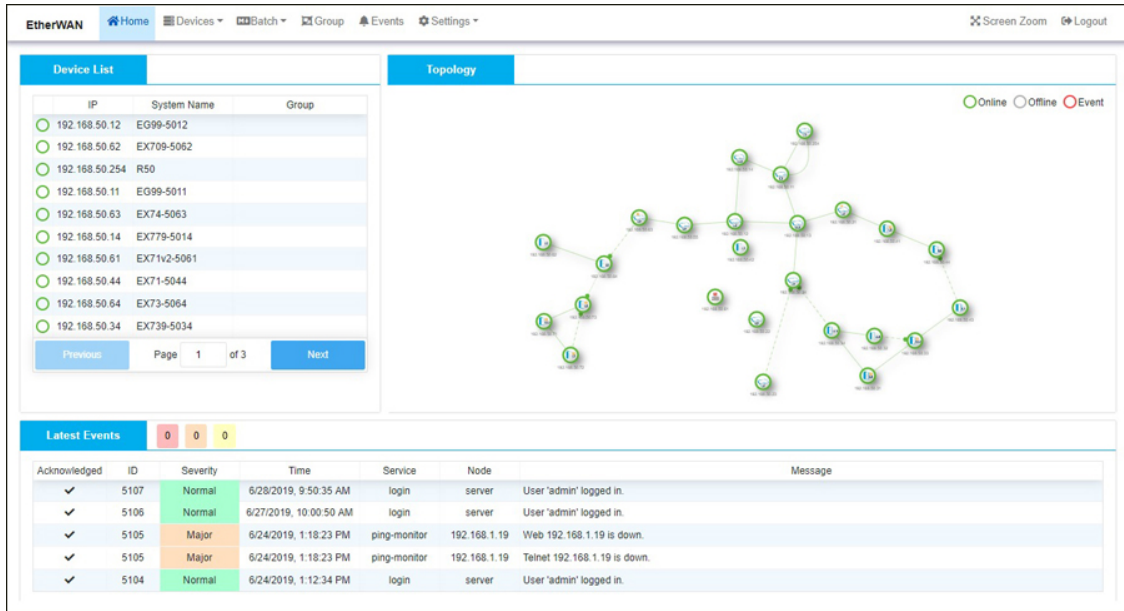
**Cables**

## 寸法図



# 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. On the right, there are links for Screen Zoom and Logout. The main content area is divided into two sections: 'Device List' and 'Topology'.

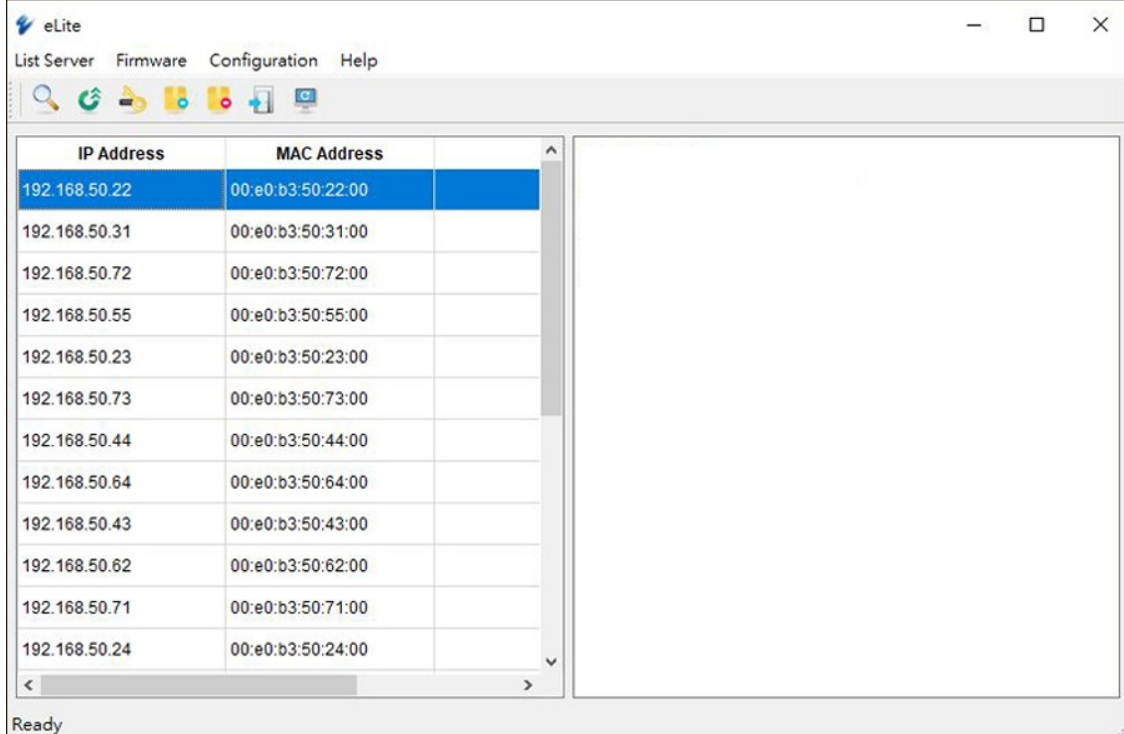
**Device List:** A table with columns for IP, System Name, and Group. It lists 12 devices, all with green status indicators.

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 with columns for Acknowledged, ID, Severity, Time, Service, Node, and Message.

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. The title bar reads 'eLite'. The menu bar includes 'List Server', 'Firmware', 'Configuration', and 'Help'. Below the menu bar is a toolbar with several icons. The main area contains a table with two columns: 'IP Address' and 'MAC Address'.

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 status bar at the bottom left shows 'Ready'.

## 製品型番

### + Model

EX73931-0VB 12-Port 10/100/1000BASE-TX + 4-port Gigabit SFP  
 EX73921-0VB 8-Port 10/100/1000BASE-TX + 4-Port Gigabit SFP  
 EX73921-0XB 8-Port 10/100/1000BASE-TX + 4-Port Gigabit Fiber

\* DIN-Rail mounting kit included.

### + Gigabit Fiber Options (X)

3 1000BASE-SX (SC) - 550m  
 4 1000BASE-SX (SC) - 2Km  
 5 1000BASE-SX (ST) - 550m  
 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

\* More Gigabit options are also available upon request.

### + Accessories

Hardened 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	HDR-30-24 30W 24VDC DIN-Rail Power Supply
EB-232	Configuration Backup and Restoration Tool

