

EX78900X Series

Hardened Managed 12-Port Gigabit PoE and 4-Port 10G SFP+ Ethernet Switch



Overview

EtherWAN's EX78900X series is a hardened DIN-rail mounted managed PoE Ethernet switch platform. Equipped with up to 12 gigabit PoE ports along with 90W power and IEEE 802.3bt protocol support and 4 dual-rate 10 gigabit SFP+ ports, and the IEEE1588v2 Precision Time Protocol (PTP) that uses network packets and time stamps for network time synchronization. The EX78900X series provides flexibility, speed, and reliability for networks in urban infrastructure, transportation, security, and other areas where connectivity is crucial.

EtherWAN — **"When Connectivity is Crucial."**

Highlight

+ 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

Features

+ 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)

Specifications

+ 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

+ 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

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

+ What's Included

Device

Ethernet switch

Cables

1 Console cable

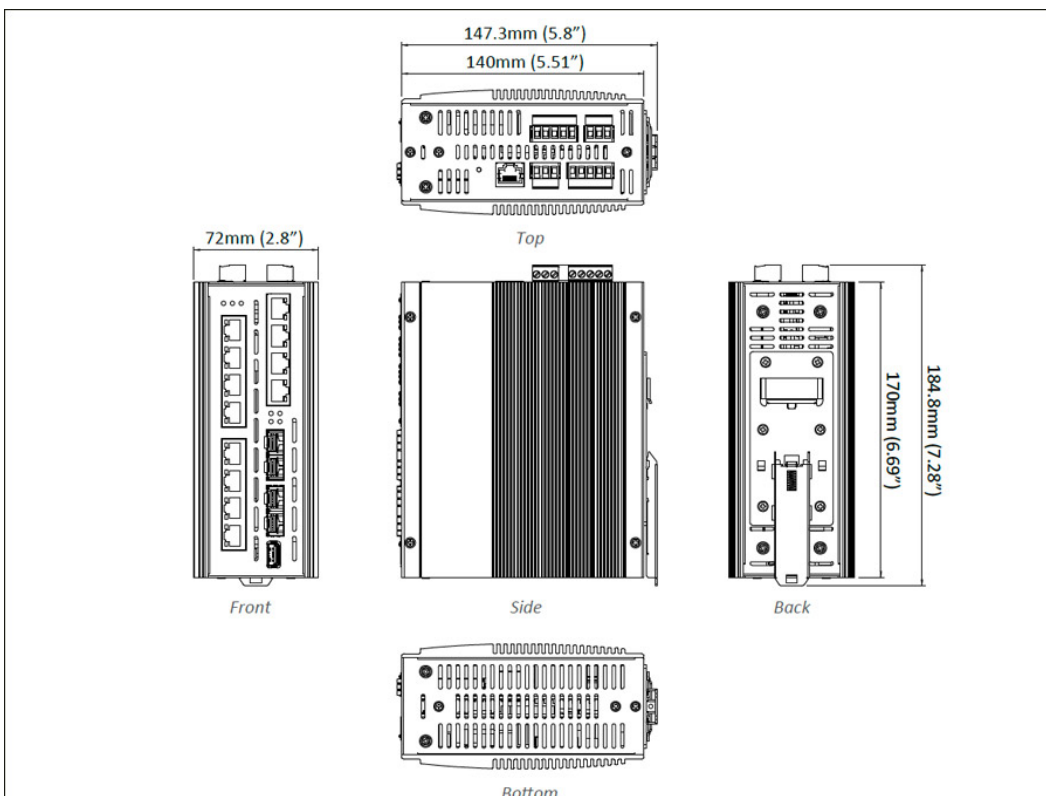
Installation

Mounting brackets, screws

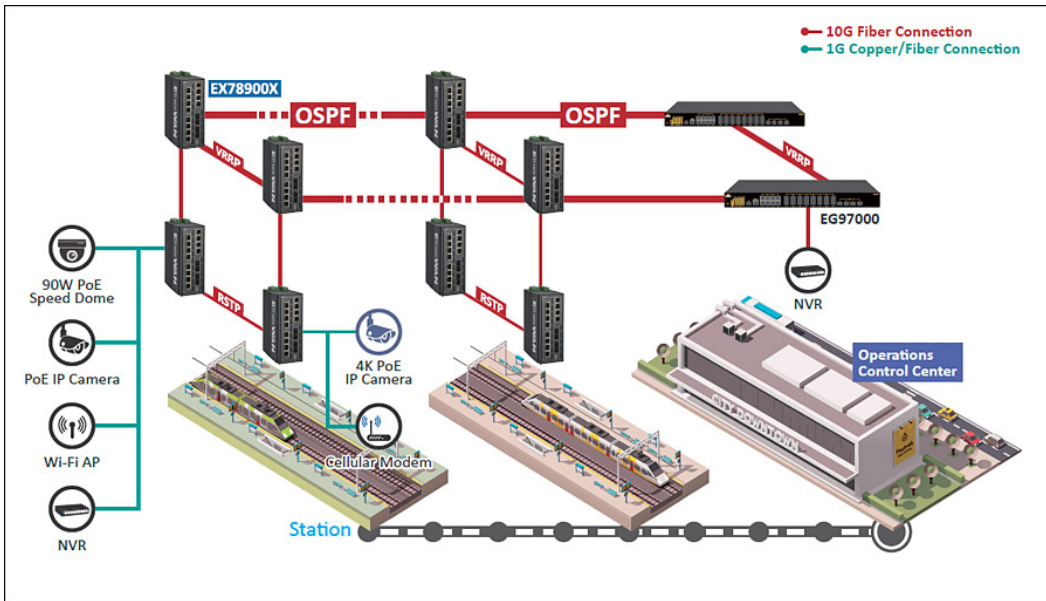
Documentation

Quick install guide

Dimensions

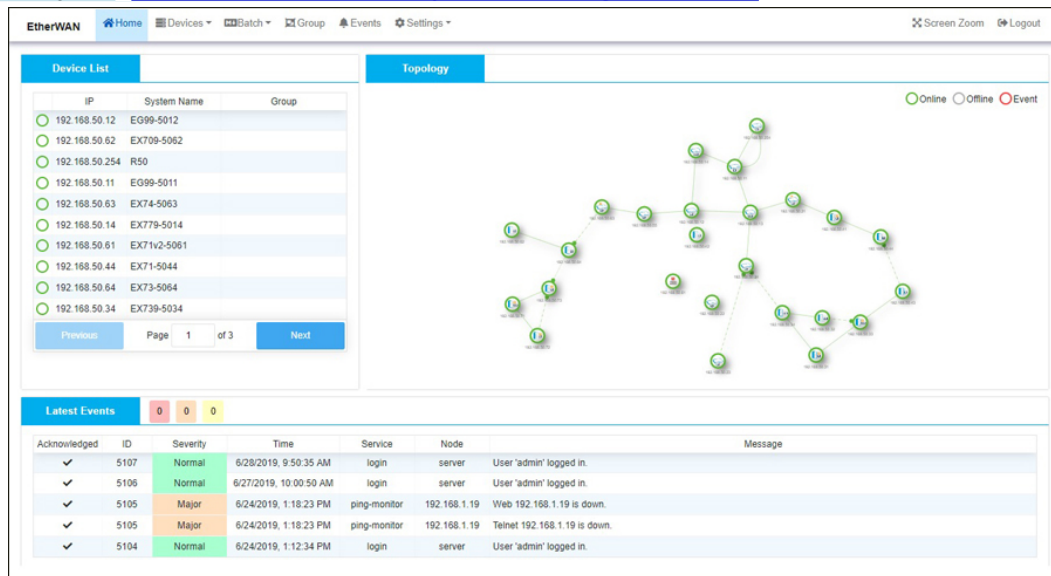


Application



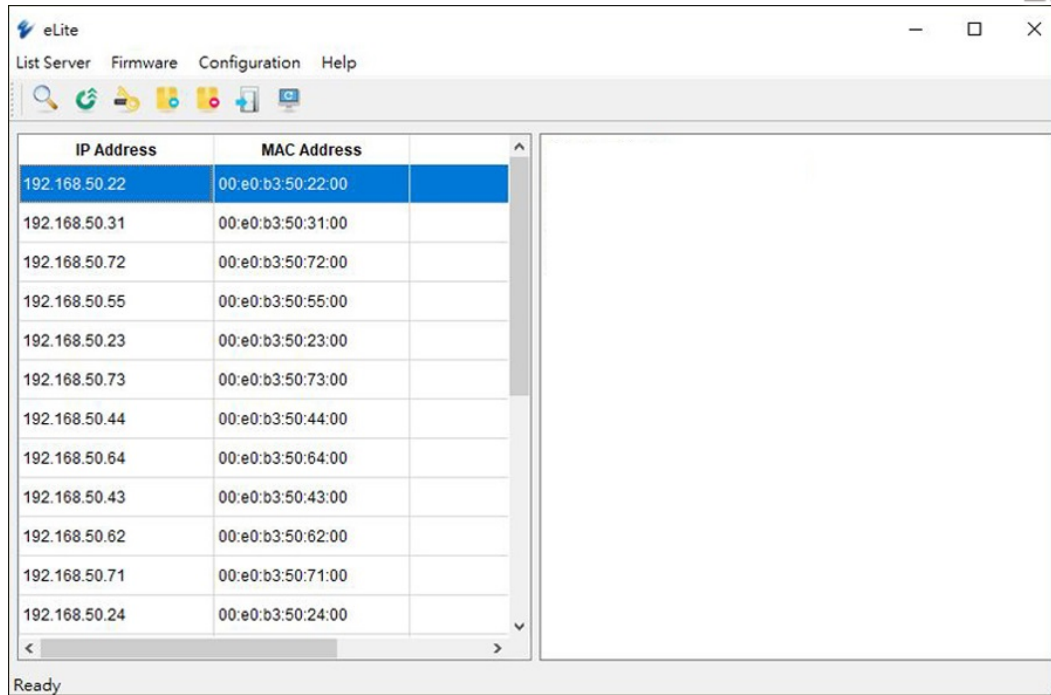
Software

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



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	Teinet 192.168.1.19 is down.
✓	5104	Normal	6/24/2019, 1:12:34 PM	login	server	User 'admin' logged in.



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

Ordering Info

+ Model

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

+ Accessories

Hardened Gigabit & 10 Gigabit SFP Modules
DIN-Rail Power Supplies

***Recommended Power Supply**

www.etherwan.com/products/sfp-fiber-transceiver

www.etherwan.com/products/din-rail-power-supply (*)

NDR-480-48 480W 48VDC DIN-Rail Power Supply

