

EX78000 Series

Hardened Managed 4 to 10-port 10/100BASE (8 x PoE) and 2-port Gigabit Ethernet Switch



Highlights

+ 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

Overview

EtherWAN's EX78000 Series is a hardened DIN-rail mounted managed PoE Ethernet switch platform. Equipped with 8 10/100BASE-TX PoE ports along with 60W power and 2 gigabit fiber ports, the EX78000 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."

Features

+ 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

Specifications

+ 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/bt 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

+ 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

+ 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

+ Warranty

Length

Limited Lifetime

Details

www.etherwan.com/support/warranty-policy

+ What's Included

Device

Ethernet Switch

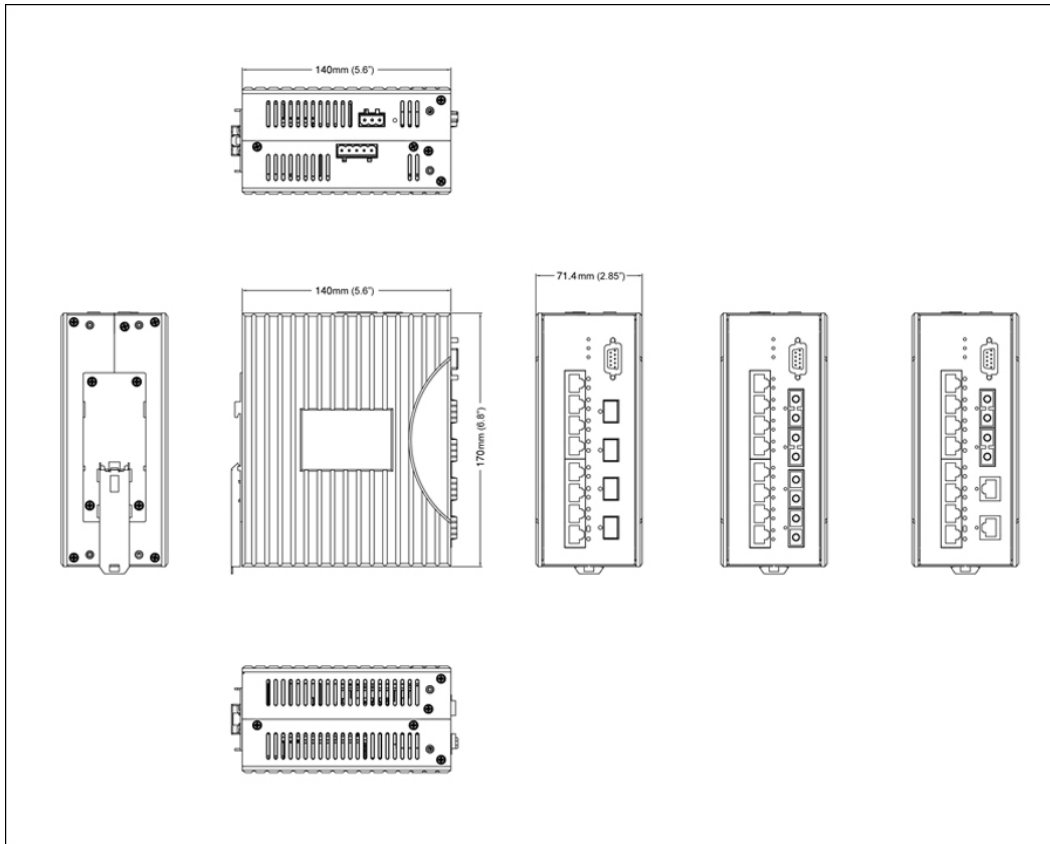
Cables

1 Console Cable

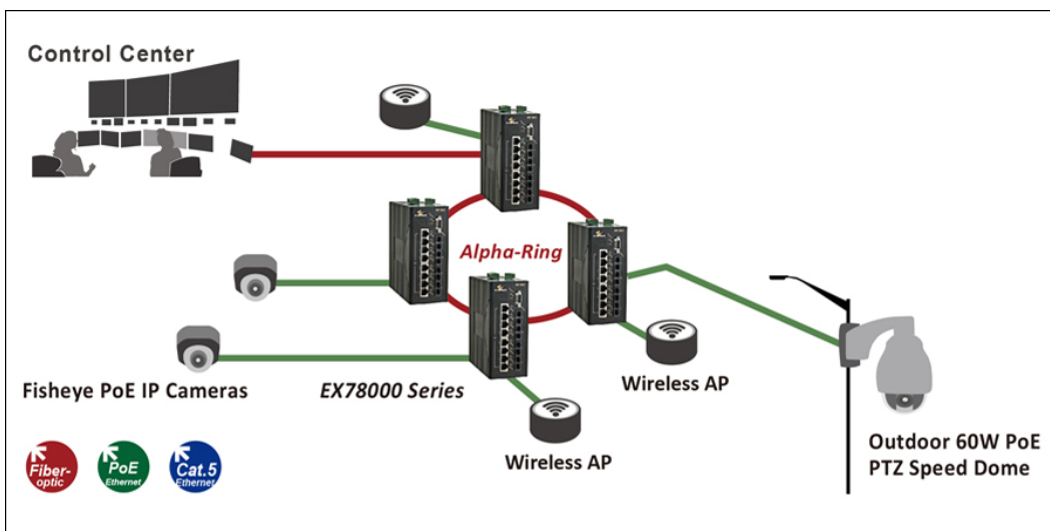
Documentation

Quick Install Guide

Dimensions



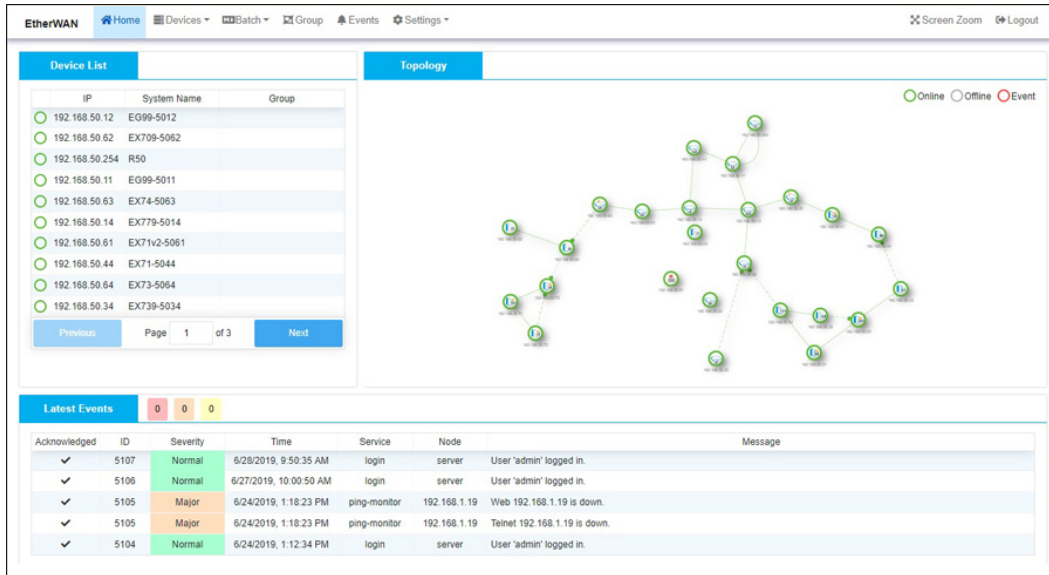
Application



Software

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

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



Device List

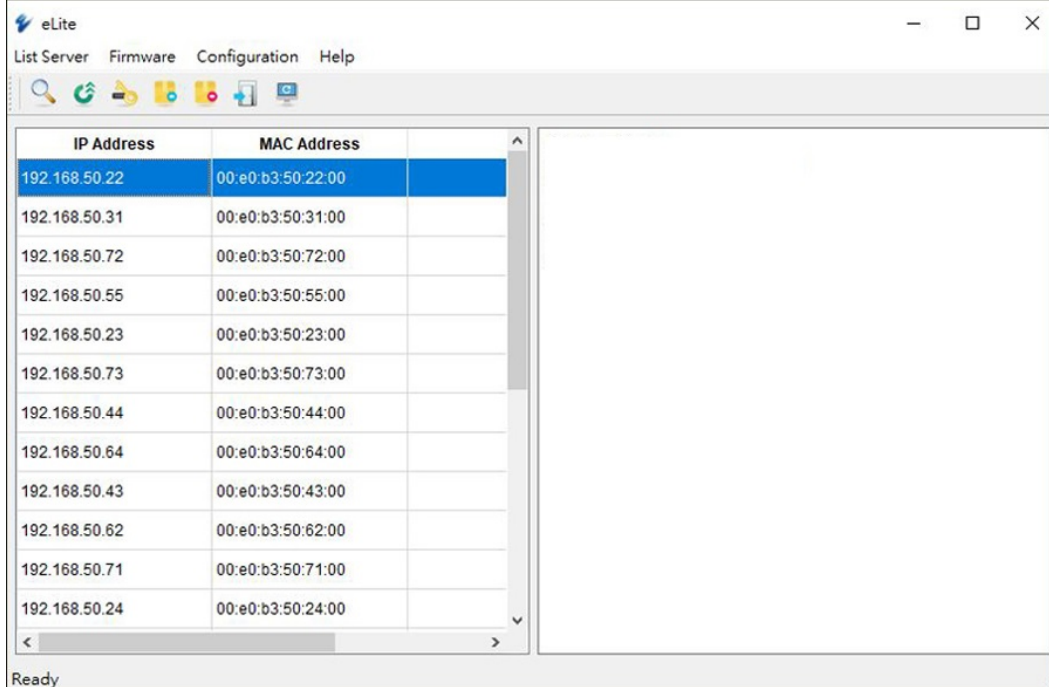
IP	System Name	Group
192.168.50.12	EG99-5012	
192.168.50.62	EX709-5062	
192.168.50.254	R50	
192.168.50.11	EG99-5011	
192.168.50.63	EX74-5063	
192.168.50.14	EX779-5014	
192.168.50.61	EX71v2-5061	
192.168.50.44	EX71-5044	
192.168.50.64	EX73-5064	
192.168.50.34	EX739-5034	

Topology

Legend: ● Online ○ Offline ○ Event

Latest Events

Acknowledged	ID	Severity	Time	Service	Node	Message
✓	5107	Normal	6/29/2019, 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.



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

Ordering Info

+ 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	www.etherwan.com/products/sfp-fiber-transceiver
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DIN-Rail Power Supplies

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

*Recommended Power Supply

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

EB-232

Configuration Backup and Restoration Tool



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