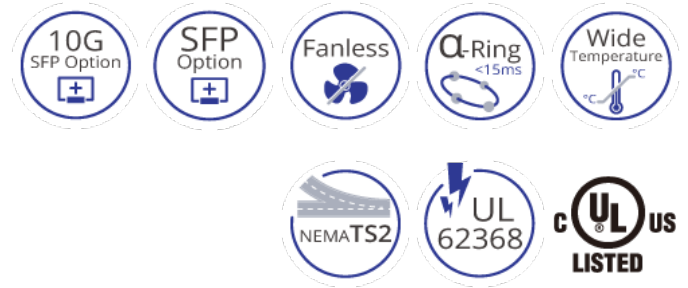


# EX77964

Hardened Managed 24-port Gigabit and 4-port 10G SFP+ Ethernet Switch



## Overview

EtherWAN's EX77964 is a 28-Port gigabit hardened rack mounted managed Ethernet switch platform. Equipped with 16 gigabit copper, 8 gigabit copper/SFP combo and 4 10-gigabit SFP+ ports, the EX77964 provides flexibility, speed, and reliability to support networks for urban infrastructure, transportation, security, power substations, and other areas where connectivity is crucial.

EtherWAN — "When Connectivity is Crucial."

## 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

### + High Bandwidth and Versatility

- Up to 24 10/100/1000BASE-T(X) ports
- Up to 8 dual-rate 100/1000BASE SFP ports
- 4 1G/10G SFP+ uplink ports

### + L2/L3 Functionality

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

### + Support

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

## Features

### + Interface

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

### + Management

Firmware upgrade  
Configuration backup via TFTP  
DHCP Server/Client  
RMON (Remote Monitoring)  
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  
ACL (Access Control List)

### + 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) and Alpha-Chain

#### 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

# Specifications

## + Interface

### Ethernet

16 or 24 x 10/100/1000BASE-T(X)  
8 x 100/1000BASE SFP  
4 x 10G SFP+

### Console

1 x RJ45 RS-232

### Config Backup

1 x USB (Type A Connector)

### Alarm Contact

1 x Relay output, current capacity 0.6A/30VDC

### LED Indicators

Per Unit: Power  
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  
14,881,000pps for 10Gbps

### 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)

### 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 62368

### 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**  
12-24VDC Redundant (Terminal block)

**Power Consumption**  
31.08W

## + Warranty

**Length**  
Limited Lifetime

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

## + Physical

**Casing Material**  
Metal

**IP Rating**  
IP30

**Dimensions**  
430 x 254 x 44.2mm (W x D x H)  
16.9" x 10" x 1.74"

**Weight**  
3.29Kg (7.25lbs)

**Installation Type**  
Rack mounting

## + What's Included

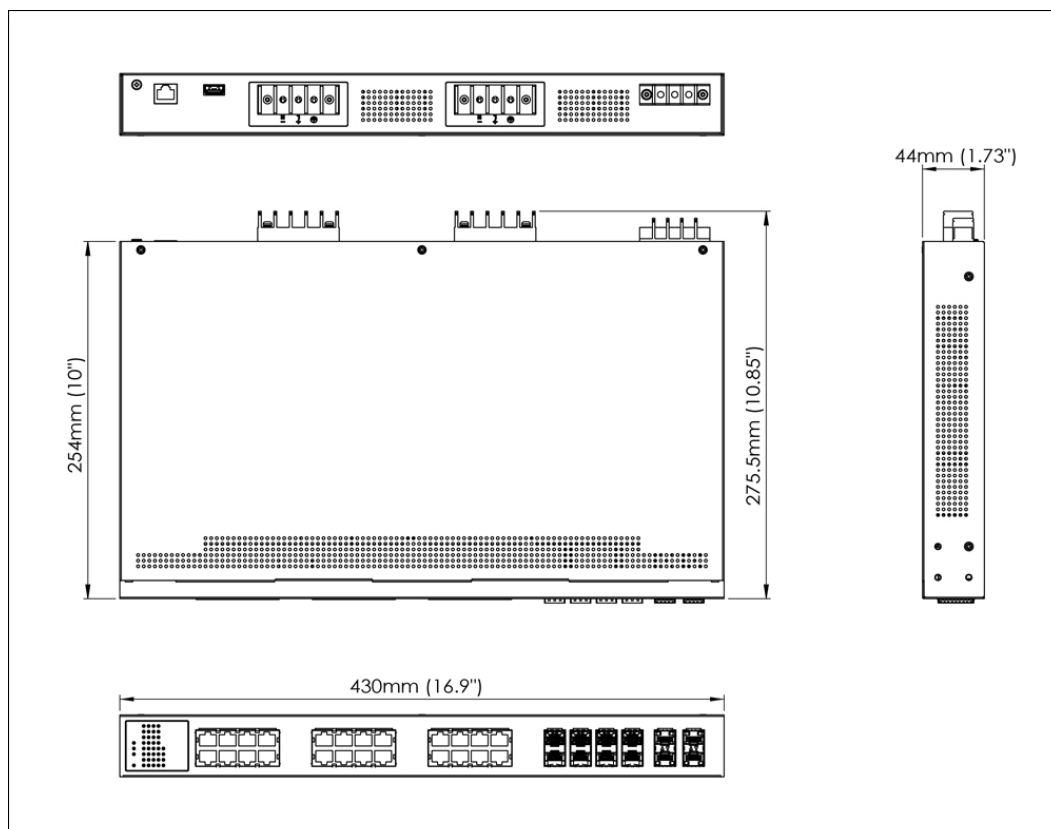
**Device**  
Ethernet Switch

**Cables**  
1 Console Cable

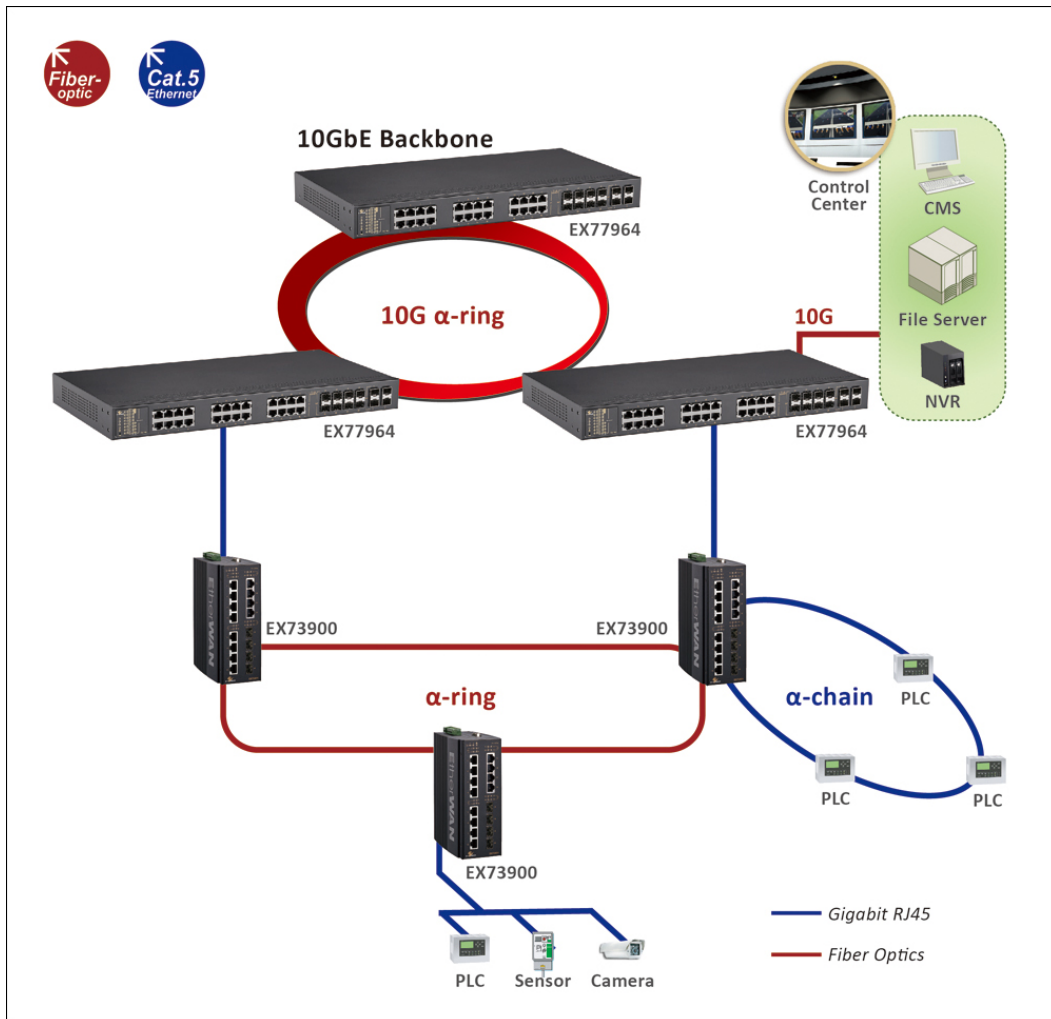
**Installation**  
Mounting brackets

**Documentation**  
Quick Install Guide

## Dimensions



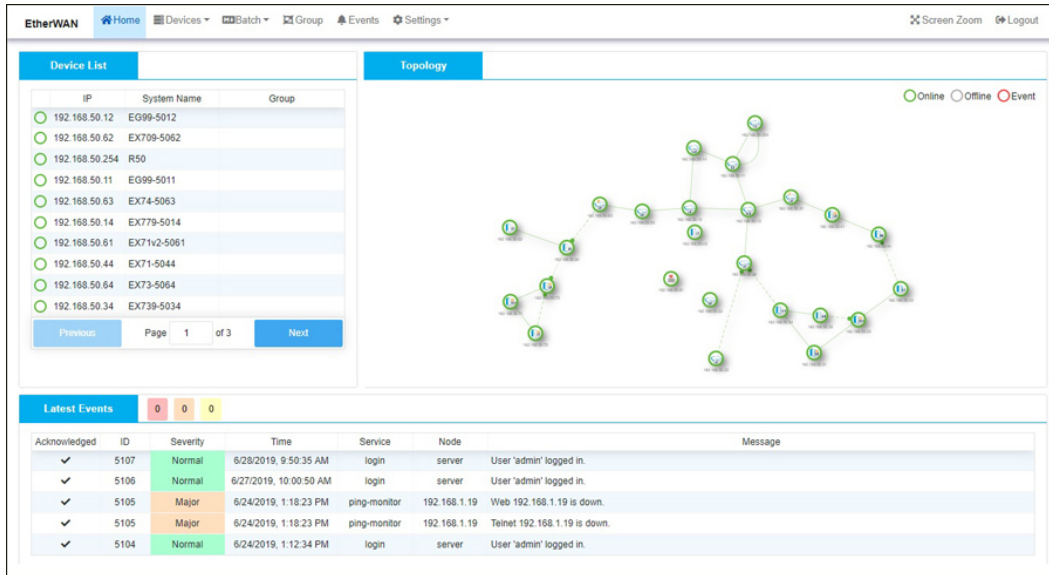
# Application



# Software

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

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



**Device List**

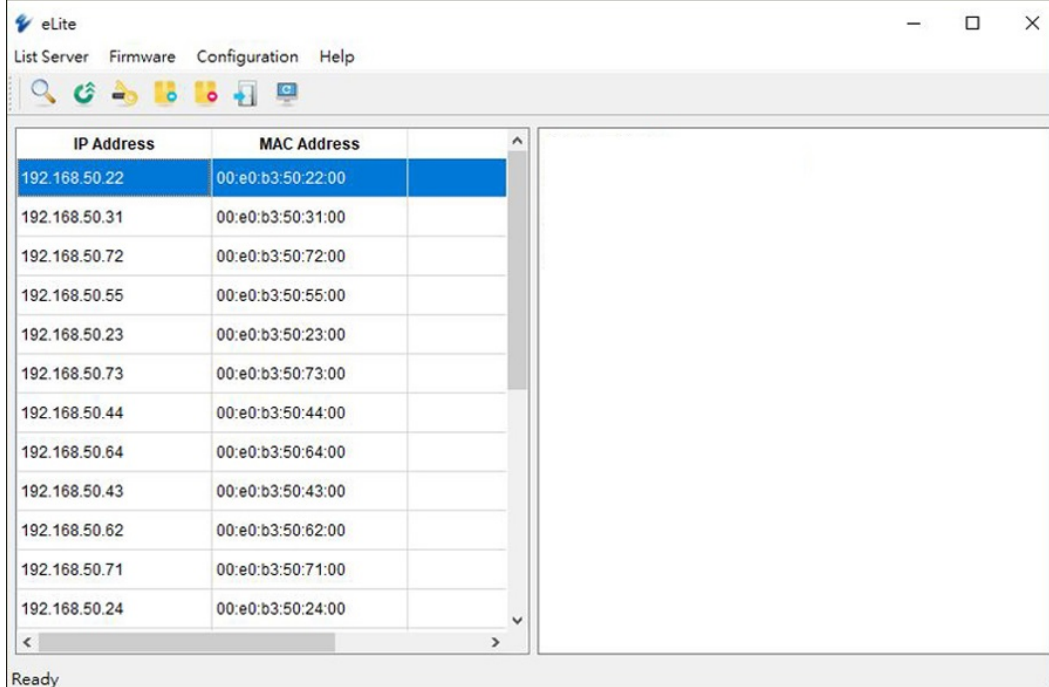
IP	System Name	Group
192.168.50.12	EG99-5012	
192.168.50.62	EX709-5062	
192.168.50.254	R50	
192.168.50.11	EG99-5011	
192.168.50.63	EX74-5063	
192.168.50.14	EX779-5014	
192.168.50.61	EX71v2-5061	
192.168.50.44	EX71-5044	
192.168.50.64	EX73-5064	
192.168.50.34	EX739-5034	

**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

EX77964-8VB	16-port 10/100/1000BASE-TX + 8-port 100/1000BASE SFP Combo + 4-port 1G/10G SFP+ (12-24VDC)
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### + Accessories

Hardened 100BASE SFP Modules	<a href="http://www.etherwan.com/products/sfp-fiber-transceiver">www.etherwan.com/products/sfp-fiber-transceiver</a>
Hardened Gigabit and 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	HDR-60-24 60W 24VDC DIN-Rail Power Supply
EB-232	Configuration Backup and Restoration Tool

