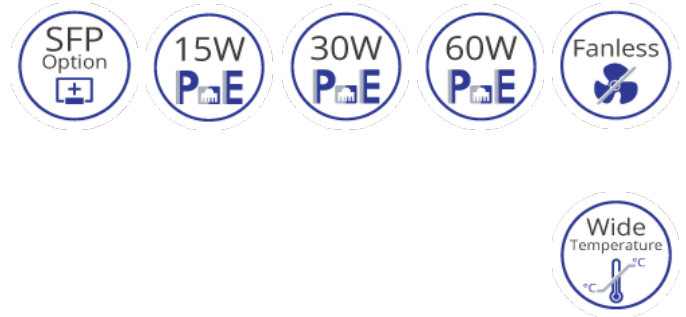


## EX78900R Series

Hardened Managed 16-Port Gigabit PoE Ethernet Switch



### Overview

EtherWAN's EX78900R series is a hardened managed PoE Ethernet switch platform. Equipped with 12 gigabit PoE ports along with 60W power and IEEE 802.3.bt protocol support and 4 dual-rate gigabit SFP ports, the EX78900R 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."

## Highlights

### + High Bandwidth and Versatility

- 12 10/100/1000BASE-T(X) ports for high bandwidth connections
- 4 Dual-rate 100/1000BASE 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 60W; 240W 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 and notifications
- Limited Lifetime Warranty

## Features

### + Interface

CLI, Telnet, Web GUI

### + Management

Firmware upgrade  
Configuration backup  
DHCP Server/Client  
RMON (Remote Monitoring)  
Port Mirroring  
NTP (Network Time Protocol) synchronization  
LLDP (Link Layer Discovery Protocol)  
IPv4/IPv6  
SNMP v1/v2c/v3

### + Security

MAC Address filtering  
Enable/Disable port  
Storm control  
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  
SSL 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**  
32Gbps

**Forwarding Rate**  
23.5Mpps

**Max VLANs**  
256 (4096 VID)

**Jumbo Frame Size**  
9KB

**MAC Table Size**  
16K

**Packet Buffer Memory**  
12M bits

# Specifications

## + 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 802.3af/at/bt Power over Ethernet\*

### Forward/Filtering Rate

14,800pps for 10Mbps  
148,810pps for 100Mbps  
1,488,100pps for 1000Mbps

### 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

52-57VDC Redundant (Terminal block)

### Power Consumption

20W Max (without PoE)

### PoE Modes

802.3af/at Mode A: Pins 1/2(+), 3/6(-)  
802.3af/at Mode B: Pins 4/5(+), 7/8(-)  
802.3bt (60W): Mode A & B, Pins 1/2(+), 3/6(-), 4/5(+), 7/8(-)

### PoE Power Output

Ports 1-4, 9-12: Up to 30W/port  
Ports 5-8: Up to 60W/port  
Power Budget: 240W

### Protection

Reverse Polarity Protection

## + Interface

### Ethernet

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

### Console

1 x RS232

### Config Backup

1 x USB (Type A Connector)

### LED Indicators

Per Unit: Power 1, Power 2  
Per Port: Link/Activity (Green)  
Per PoE Port: PoE Status (Orange)

## + 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 61000-4-2 (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)

### Vibration

IEC 60068-2-6

### Shock

IEC 60068-2-27

### Free Fall

FED STD 101C Method 5007.1

## + 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)

## + Warranty

### Length

Limited Lifetime

### Details

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

## + Environmental

### Operating Temp.

-40 to 70°C (-40 to 158°F)

### Storage Temp.

-45 to 85°C (-49 to 185°F)

### Relative Humidity

5% to 95% (non-condensing)

## + What's Included

### Device

Ethernet Switch

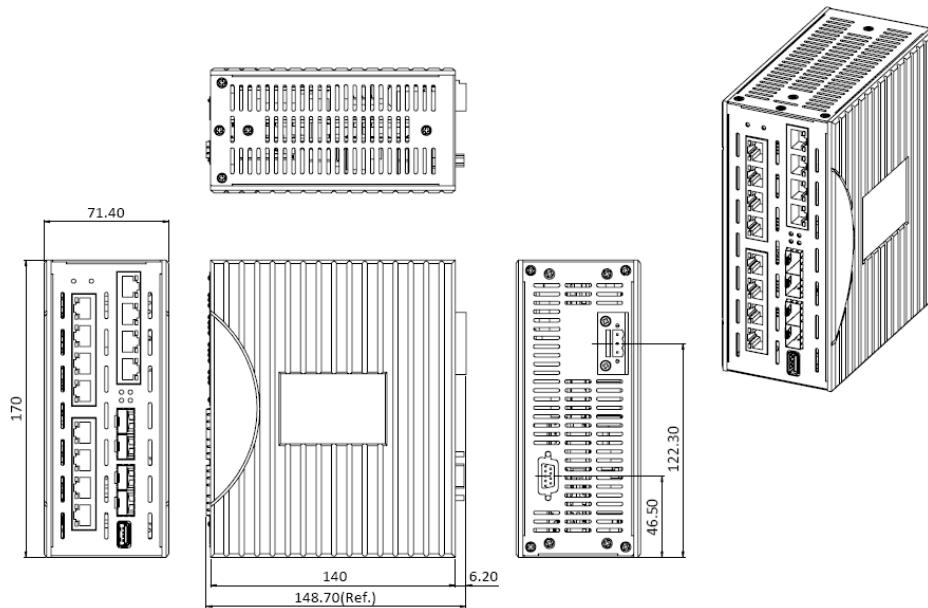
### Cables

1 Console Cable

### Documentation

Quick install guide

## Dimensions



## Ordering Info

### + Model

**EX78934R-0VB** 12-port 10/100/1000BASE-T(X) PoE + 4-port 100/1000BASE SFP

### + 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 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> |

