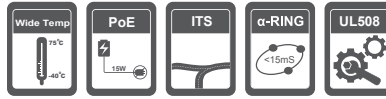


EX78000 Series

Managed Hardened 10-port 10/100BASE PoE Ethernet Switch with 2 Gigabit ports



Overview



The EX78000 Hardened Managed PoE Ethernet Switch series functions at temperatures ranging from -40°C to 75°C (-40°F to 167°F). The EX78000 is designed to operate

in the harsh environments at the edge of the network. EX78000 supports 4 to 8 IEEE802.3af Power over Ethernet (PoE) Power Sourcing Equipment (PSE) and can detect an IEEE802.3af compliant Powered Device (PD). Using external 48VDC power inputs through Terminal Block, data and power can be transmitted to a Powered Device (PD) over the same twisted-pair Ethernet cable. The Hardened EX78000 series supports advanced features such as 802.1Q VLAN, MAC-based Trunking, IP-Multicast IGMP Snooping, Rapid Spanning Tree for Redundancy, QoS for priority queuing, and port mirroring. Users may choose among SNMP/RMON, Web browser, or Telnet for remote monitoring and configuration. It also supports

rate control, which allows users to set the maximum bandwidth on each port individually. EtherWAN offers a line of products that provide a total solution for Ethernet applications in industrial and rugged environments.

Features

- ▶ Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- ▶ IEEE 802.3af Power over Ethernet (PoE), 8 or 4 ports
- ▶ Supports PoE Power Sourcing Equipment (PSE)
- ▶ EtherWAN proprietary "α-ring" support for network redundancy; recovery time <15ms
- ▶ IEEE802.1w RSTP, IEEE802.1S MSTP and IEEE802.1D STP compatible
- ▶ IP Multicast Filtering through IGMP Snooping V1, V2 & V3
- ▶ Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- ▶ IEEE802.1p QoS with four priority queues
- ▶ MAC-based trunking with automatic link fail-over
- ▶ RS-232 console, Telnet, SNMP V1, V2c & V3, RMON, Web Browser, and TFTP Management
- ▶ Supports Command Line Interface in RS-232 Console
- ▶ Supports IEEE802.1x Security
- ▶ Bandwidth Rate Control
- ▶ Per-port programmable MAC address locking
- ▶ Up to 24 Static Secure MAC addresses per port
- ▶ Port mirroring
- ▶ 8192 MAC addresses
- ▶ 2M bits buffer memory
- ▶ 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ Full wire-speed forwarding rate
- ▶ Redundant power inputs with Terminal Block and DC Jack
- ▶ -40°C to 75°C (-40°F to 167°F) operating temperature range
- ▶ Metal case
- ▶ Supports Rack Mounting installation
- ▶ Supports NTP

Ordering Information

EX78400-00Z	4-port 10/100BASE-TX PoE Hardened Managed Ethernet Switch
EX78401-0YZ	4-port 10/100BASE-TX PoE + 1-port Gigabit Hardened Managed Ethernet Switch
EX78402-0YZ	4-port 10/100BASE-TX PoE + 2-port Gigabit Hardened Managed Ethernet Switch
EX78440-XOZ	4-port 10/100BASE-TX PoE + 4-port 100BASE-FX Hardened Managed Ethernet Switch
EX78441-XYZ	4-port 10/100BASE-TX PoE + 4-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX78442-XYZ	4-port 10/100BASE-TX PoE + 4-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX78800-00Z	8-port 10/100BASE-TX PoE Hardened Managed Ethernet Switch
EX78801-0YZ	8-port 10/100BASE-TX PoE + 1-port Gigabit Hardened Managed Ethernet Switch
EX78802-0YZ	8-port 10/100BASE-TX PoE + 2-port Gigabit Hardened Managed Ethernet Switch
EX78820-XOZ	8-port 10/100BASE-TX PoE + 2-port 100BASE-FX Hardened Managed Ethernet Switch
EX78821-XYZ	8-port 10/100BASE-TX PoE + 2-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX78822-XYZ	8-port 10/100BASE-TX PoE + 2-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch

100FX Fiber Options:

- (X) = 1 : Multi Mode (SC) B: Single Mode (SC) -40Km
 2 : Multi Mode (ST) F: Single Mode (FC) -20Km
 6 : Multi Mode (SC) WDM-TX:1310nm/RX:1550nm-2Km H: Single Mode (ST) -20Km
 7 : Multi Mode (SC) WDM-TX:1550nm/RX:1310nm-2Km P: Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km
 8 : Multi Mode (SC) WDM-TX:1310nm/RX:1550nm-5Km Q: Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km
 9 : Multi Mode (SC) WDM-TX:1550nm/RX:1310nm-5Km R: Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km
 A : Single Mode (SC) -20Km S: Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km
- *More 100FX Fiber options also available upon request.

Gigabit Options:

- (Y) = 1 : 10/100/1000BASE-TX R : 1000BASE-BX (SC) WDM -TX:1310nm/RX:1550nm -20Km
 3 : 1000BASE-SX (SC) S : 1000BASE-BX (SC) WDM -TX:1550nm/RX:1310nm -20Km
 A : 1000BASE-LX (SC) -10Km
 B : 1000BASE-LX (SC) -20Km
- *More Gigabit options also available upon request.

Power Input Interface: (Z) = B : DC Jack & Terminal Block

Specifications

Technology

Standards:

- IEEE802.3 10BASE-T, IEEE802.3u 100BASE-TX/100BASE-FX, IEEE802.3ab 1000BASE-T, IEEE802.3z 1000BASE-SX/1000BASE-LX, IEEE802.3x, IEEE802.1p, IEEE802.1Q, IEEE802.1w, IEEE802.1x, IEEE802.3af

Forward and Filtering Rate:

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory:

- 2M bits

Processing Type:

- Store-and-Forward
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control

Address Table Size:

- 8192 MAC addresses

Power

Input:

- Input Voltage: 48VDC (47 to 55VDC) (Terminal Block;DC Jack)

Power Consumption:

- 15W Max.

Overload Current Protection:

- Present

Reverse Polarity Protection:

- Present

Mechanical

Casing:

- Metal case
- IP 30

Dimensions:

- 65mm (W) x 145mm (D) x 165mm (H)
(2.56" (W) x 5.71" (D) x 6.5" (H))

Weight:

- 1Kg (2.2lbs.)

Installation:

- Rack Mounting

Interface

Ethernet Port:

- 10/100BASE-TX (PoE): 8 or 4 ports
- 100BASE-FX: 0, 2 or 4 ports
- Gigabit: 0, 1 or 2 ports

Console Port:

- Port: One DB9 RS-232 port

LED Indicators:

- Per Unit: Power Status (Power 1, Power 2, Power 3)
- Per Port: PoE (Amber) for 10/100TX, 10/100TX, 100FX: Link/Activity (Green), Gigabit: Link/Activity (Green)

Environment

Operating Temperature:

- -40°C to 75°C (-40°F to 167°F)
Tested @ -40°C to 85°C (-40°F to 185°F)

Storage Temperature:

- -40°C to 85°C (-40°F to 185°F)

Ambient Relative Humidity:

- 5% to 95% (non-condensing)

Regulatory Approvals:

ISO:

- Manufactured in an ISO9001 facility

Safety:

- UL508, EN60950-1, IEC60950-1

EMI:

- FCC Part 15, Class A

- EN61000-6-3

- ▣ EN55022

- ▣ EN61000-3-2

- ▣ EN61000-3-3

EMS:

- EN61000-6-2

- ▣ EN61000-4-2 (ESD Standards)

Contact: + / - 6KV; Criteria B

Air: + / - 8KV; Criteria B

- ▣ EN61000-4-3 (Radiated RFI Standards)

10V/m, 80 to 1000MHz; 80% AM Criteria A

- ▣ EN61000-4-4 (Burst Standards)

Signal Ports: + / - 4KV; Criteria B

D.C. Power Ports: + / - 4KV; Criteria B

- ▣ EN61000-4-5 (Surge Standards)

Signal Ports: + / - 1KV; Line-to-Line; Criteria B

D.C. Power Ports: + / - 0.5KV; Line-to-earth; Criteria B

- ▣ EN61000-4-6 (Induced RFI Standards)

Signal Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A

D.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A

- ▣ EN61000-4-8 (Magnetic Field Standards)

30A/m @ 50, 60Hz; Criteria A

Environmental Test Compliance:

- IEC60068-2-6 Fc (Vibration Resistance)
5g @ 10~150KHz, Amplitude 0.35mm (Operation/Storage/Transport)
- IEC60068-2-27 Ea (Shock)
25g @ 11ms (Half-Sine Shock Pulse; Operation)
50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)
- IEC60068-2-32 Ed (Free Fall)
1M (3.281ft.)

Diagrams

