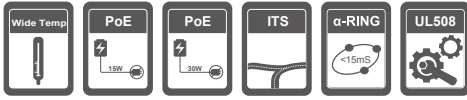


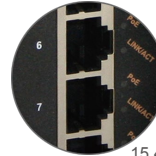
# EX78000 Series

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



### Value

- ▶ Provides flexibility of 10-port 10/100BASE-TX/FX/BX/SFP plus 2-port Gigabit-TX/SX/LX/SFP
- ▶ Port 1 to 8 supports PoE function
- ▶ IEEE802.3af/ IEEE802.3at Power over Ethernet(PoE) support for 8 or 4 10/100BASE-TX ports
- ▶ Wide temp range for extreme environments



15.4 W/ea  
or 30 W/ea



### Features

- ▶ Supports PoE Power Sourcing Equipment (PSE)
- ▶ PoE control and Scheduling
- ▶ Supports α-ring and RSTP/MSTP/STP for Ethernet redundancy
- ▶ 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 and LACP
- ▶ IEEE802.1x Security
- ▶ Bandwidth Rate Control
- ▶ Per-port programmable MAC address locking
- ▶ SFP transceivers support digital diagnostics monitoring (DDM)
- ▶ Up to 24 Static Secure MAC addresses per port
- ▶ Port mirroring
- ▶ Supports NTP
- ▶ DHCP Client/Server
- ▶ 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-negotiation, Auto-MDI/MDIX
- ▶ RS-232 console, Telnet, SNMP V1, V2c & V3, RMON, Web Browser, and TFTP Management
- ▶ Full wire-speed forwarding rate
- ▶ -40°C to 75°C (-40°F to 167°F) operating temperature range, tested for functional operation @ -40°C to 85°C (-40°F to 185°F)

### Ordering Information

EX78400-00Z-P	4-port 10/100BASE-TX PoE Hardened Managed Ethernet Switch
EX78401-0YZ-P	4-port 10/100BASE-TX PoE + 1-port Gigabit Hardened Managed Ethernet Switch
EX78402-0YZ-P	4-port 10/100BASE-TX PoE + 2-port Gigabit Hardened Managed Ethernet Switch
EX78440-X0Z-P	4-port 10/100BASE-TX PoE + 4-port 100BASE-FX Hardened Managed Ethernet Switch
EX78441-XYZ-P	4-port 10/100BASE-TX PoE + 4-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX78442-XYZ-P	4-port 10/100BASE-TX PoE + 4-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX78800-00Z-P	8-port 10/100BASE-TX PoE Hardened Managed Ethernet Switch
EX78801-0YZ-P	8-port 10/100BASE-TX PoE + 1-port Gigabit Hardened Managed Ethernet Switch
EX78802-0YZ-P	8-port 10/100BASE-TX PoE + 2-port Gigabit Hardened Managed Ethernet Switch
EX78820-X0Z-P	8-port 10/100BASE-TX PoE + 2-port 100BASE-FX Hardened Managed Ethernet Switch
EX78821-XYZ-P	8-port 10/100BASE-TX PoE + 2-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX78822-XYZ-P	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) - 2Km  
 2 : Multi Mode (ST) - 2Km  
 6 : Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 2Km  
 7 : Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 2Km  
 8 : Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km  
 9 : Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km  
 A : Single Mode (SC) - 20Km  
 \*More 100FX Fiber options also available upon request.

- B : Single Mode (SC) - 40Km  
 F : Single Mode (FC) - 20Km  
 H : Single Mode (ST) - 20Km  
 P : Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 20Km  
 Q : Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 20Km  
 R : Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 40Km  
 S : Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 40Km  
 V : Support 2-port 100BASE SFP (DDM)

#### Gigabit Port Options :

- (Y) = 1 : 10/100/1000BASE-TX  
 3 : 1000BASE-SX (SC) - 550m  
 4 : 1000 BASE-SX(SC) - 2Km  
 5 : 1000 BASE-SX(ST) - 550m  
 \*More Gigabit options also available upon request.

- A : 1000BASE-LX (SC) - 10Km  
 B : 1000BASE-LX (SC) - 20Km  
 R : 1000BASE-BX (SC) WDM-TX:1310nm/RX:1550nm - 20Km  
 S : 1000BASE-BX (SC) WDM-TX:1550nm/RX:1310nm - 20Km  
 V : Support 2-port 1000BASE SFP (DDM)

#### Power Input Interface :

(Z) = B : DC Jack & Terminal Block

PoE Type: (P) = T : 4 ports IEEE802.3at & 4 ports IEEE802.3af

T6 : 6 ports IEEE802.3at only without IEEE802.3af on others

\*If no alphabet specified, the model has 8 ports IEEE802.3af

#### Power Supply : (Optional)

- \*Option A - Terminal Block power supply(s), part numbers:  
 15.4W 802.3af: DD-85-48, DR-75-48, DR-120-48, SDR-240-4838  
 30W 802.3at high power: DD-85-55, DR-75-48, DR-120-48, SDR-240-48  
 \*\*Option B - DC Jack power supplies kit(s), part numbers: AS-120P-48

#### Installation Type : DIN Rail (mounting kit is included),

Optional Panel Mount kits (KP-AA96-480) are available for ordering.

# Specifications

Technology	
Standards	<ul style="list-style-type: none"> <li>• IEEE802.3, 10BASE-T</li> <li>• IEEE802.3u, 100BASE-TX/100BASE-FX</li> <li>• IEEE802.3ab, 1000BASE-T</li> <li>• IEEE802.3z, 1000BASE-SX/1000BASE-LX</li> <li>• IEEE802.3x, Full duplex and flow control</li> <li>• IEEE802.1p, QoS</li> <li>• IEEE802.1Q, Tag VLANs</li> <li>• IEEE802.1w, RSTP</li> <li>• IEEE802.1x, Port-based network access control</li> <li>• IEEE802.3af, Power over Ethernet</li> </ul>
Forward and Filtering Rate	<ul style="list-style-type: none"> <li>• 14,880pps for 10Mbps</li> <li>• 148,810pps for 100Mbps</li> <li>• 1,488,100pps for 1000Mbps</li> </ul>
Packet Buffer memory	• 2M bits
Processing Type	<ul style="list-style-type: none"> <li>• Store-and-Forward</li> <li>• Half-duplex back-pressure and IEEE802.3x full-duplex flow control</li> </ul>
Address Table Size	• 8192 MAC addresses

Power	
Power Input	<ul style="list-style-type: none"> <li>• Redundant power inputs:</li> <li>Terminal Block: 47 - 57VDC</li> <li>DC Jack: 47 - 57VDC</li> </ul>
Power Consumption	<ul style="list-style-type: none"> <li>• Device: Max. 15W (without PoE)</li> <li>• PoE power budget (depends on power input): 181.6W Max.</li> </ul>
PoE Power Output	<ul style="list-style-type: none"> <li>• Port 1 to 8</li> <li>• IEEE802.3af: up to 15.4W/port, 47 - 57VDC.</li> <li>• IEEE802.3at: up to 30W/port, 50 - 57VDC</li> </ul>
<ul style="list-style-type: none"> <li>• Supports overload current protection</li> <li>• Supports reverse polarity protection</li> </ul>	

Mechanical	
Casing	<ul style="list-style-type: none"> <li>• Metal case</li> <li>• IP30</li> </ul>
Dimensions	• 71.4mm (W) x 140mm (D) x 170mm (H) (2.85" (W) x 5.6" (D) x 6.8" (H))
Weight	• 1.7Kg (3.74lbs.)
Installation	• Din-Rail (Top hat type35mm), Wall Mount

Interface	
Ethernet Port	<ul style="list-style-type: none"> <li>• 10/100BASE-TX (PoE): 8 or 4 ports</li> <li>• 100BASE-FX: 0, 2 or 4 ports</li> <li>• Gigabit: 0, 1 or 2 ports</li> </ul>
Console Port	• Port: One DB9 RS-232 port
LED Indicators	<ul style="list-style-type: none"> <li>• Per Unit: Power Status (Power 1, Power 2, Power 3)</li> <li>• Per Port: PoE (Orange) for 10/100TX, 10/100TX, 100FX: Link/Activity (Green), Gigabit: Link/Activity (Green)</li> </ul>

Environment	
Operating Temperature	<ul style="list-style-type: none"> <li>• -40°C to 75°C (-40°F to 167°F)</li> <li>Tested @ -40°C to 85°C (-40°F to 185°F)</li> </ul>
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

EMI	
FCC Part 15, Class A	

EN61000-6-4	<ul style="list-style-type: none"> <li>• EN55022</li> <li>• EN61000-3-2</li> <li>• EN61000-3-3</li> </ul>
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Safety	
UL508	• Compliant

EMS	
EN61000-6-2	

EN61000-4-2 (ESD Standards)	<ul style="list-style-type: none"> <li>• Contact: + / - 6KV</li> <li>• Air: + / - 8KV</li> </ul>
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EN61000-4-3 (Radiated RFI Standards)	• 10V/m, 80 to 1000MHz ; 80% AM
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EN61000-4-4 (Burst Standards)	<ul style="list-style-type: none"> <li>• Signal Ports: + / - 4KV</li> <li>• A.C./D.C. Power Ports: + / -4KV</li> </ul>
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EN61000-4-5 (Surge Standards)	<ul style="list-style-type: none"> <li>• Signal Ports: + / - 1KV; Line-to-Line</li> <li>• D.C. Power Ports: + / - 0.5KV; Line-to-Earth</li> </ul>
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EN61000-4-6 (Induced RFI Standards)	<ul style="list-style-type: none"> <li>• Signal Ports: 10Vrms @ 0.15-80MHz; 80% AM</li> <li>• D.C. Power Ports: 10Vrms @ 0.15 - 80MHz; 80% AM</li> </ul>
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EN61000-4-8 (Magnetic Field Standards)	• 30A/m @ 50, 60Hz
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Environmental Test Compliance	
IEC60068-2-6 Fc (Vibration)	• Operation/Storage/Transport: 5g@10 - 150Hz, Amplitude 0.35mm

IEC60068-2-27 Ea (Shock)	<ul style="list-style-type: none"> <li>• Operation: 25g @11ms period ; Half-Sine Shock Pulse</li> <li>• Storage/Transport: 50g @11ms Period ; Half-Sine Shock Pulse</li> </ul>
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IEC60068-2-32 Ed (Free fall)	• Tested with Cross Weight and Drop High standard table
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# Diagrams

Unit: mm

