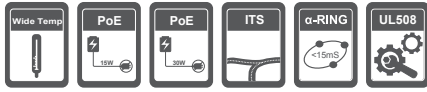


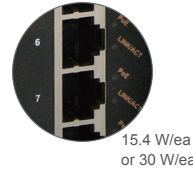
# EX78000 Series

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



## 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
- > 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

### 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

### 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, 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</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       | <ul style="list-style-type: none"> <li>2M bits</li> </ul>   |
| 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         | <ul style="list-style-type: none"> <li>8192 MAC addresses</li> </ul>  |

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

| 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   | <ul style="list-style-type: none"> <li>Port: One DB9 RS-232 port</li> </ul>  |
| LED Indicators | <ul style="list-style-type: none"> <li>Per Unit: Power Status (Power 1, Power 2, Power 3)</li> <li>Per Port: PoE (Amber) 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       | <ul style="list-style-type: none"> <li>-40°C to 85°C (-40°F to 185°F)</li> </ul>  |
| Ambient Relative Humidity | <ul style="list-style-type: none"> <li>5% to 95% (non-condensing)</li> </ul>  |

| Regulatory Approvals          |  |
|-------------------------------|--|
| ISO                           | <ul style="list-style-type: none"> <li>Manufactured in an ISO9001 facility</li> </ul>  |
| Safety                        | <ul style="list-style-type: none"> <li>UL508</li> </ul>  |
| EMI                           | <ul style="list-style-type: none"> <li>FCC Part 15, Class A</li> <li>EN61000-6-4</li> <li>EN55022</li> <li>EN61000-3-2</li> <li>EN61000-3-3</li> </ul>   |
| EMS                           | <ul style="list-style-type: none"> <li>EN61000-6-2</li> <li>EN61000-4-2 (ESD Standards)</li> <li>Contact: +/- 6KV</li> <li>Air: +/- 8KV</li> <li>EN61000-4-3 (Radiated RFI Standards)</li> <li>10V/m, 80 to 1000MHz; 80% AM</li> <li>EN61000-4-4 (Burst Standards)</li> <li>Signal Ports: +/- 4KV</li> <li>D.C. Power Ports: +/- 4KV</li> <li>EN61000-4-5 (Surge Standards)</li> <li>Signal Ports: +/- 1KV; Line-to-Line</li> <li>D.C. Power Ports: +/- 0.5KV; Line-to-Earth</li> <li>EN61000-4-6 (Induced RFI Standards)</li> <li>Signal Ports: 10Vrms @ 0.15 - 80MHz; 80% AM</li> <li>D.C. Power Ports: 10Vrms @ 0.15 - 80MHz; 80% AM</li> <li>EN61000-4-8 (Magnetic Field Standards)</li> <li>30A/m @ 50, 60Hz</li> </ul> |
| Environmental Test Compliance | <ul style="list-style-type: none"> <li>IEC60068-2-6 Fc (Vibration Resistance)</li> <li>5g @ 10 - 150Hz, Amplitude 0.35mm (Operation/Storage/Transport)</li> <li>IEC60068-2-27 Ea (Shock)</li> <li>25g @ 11ms (Half-Sine Shock Pulse; Operation)</li> <li>50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)</li> <li>FED STD 101C Method 5007.1 (Free fall w/ package)</li> <li>-Tested with Cross Weight and Drop High standard table</li> </ul>   |

## Diagrams

Unit: mm

