EX72000 Series

8 to 14 ports 10/100Base-TX with up to 2-port 100Base-FX or Gigabit Hardened Managed Ethernet Switches

Overview

Designed for rugged environments, the EtherWAN Hardened EX72000 Series Switch comes with twelve 10/100Mbps RJ45 ports and two 100Base-FX or Gigabit ports in a package that offers several mounting options. The EX72000 functions at temperatures ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional operation @ -40°C to 85°C (-40°F to 185°F). Fully managed via SNMP, Web Browser, Telnet or Console port. The EX72000 is designed to integrate 10/100 Mbps networks into100Base-FX or Gigabit backbones. The Gigabit ports can be copper or fiber optic ports. The Hardened EX72000 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 NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- IEEE802.1w RSTP, IEEE802.1S MSTP and IEEE802.1D STP compatible
- IP Multicast Filtering through IGMP Snooping
- 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, V2 & 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 DIN-Rail, Panel, Rack Mounting installation

Ordering Information

EX72140-00Z	14-port 10/100Base-TX Hardened Managed Ethernet switch
EX72141-X0Z	13-port 10/100Base-TX + 1-port 100Base-FX Hardened Managed Ethernet switch
EX72142-X0Z	12-port 10/100Base-TX + 2-port 100Base-FX Hardened Managed Ethernet switch
EX72102-X0Z	8-port 10/100Base-TX + 2-port 100Base-FX Hardened Managed Ethernet switch
EX72128-0YZ	12-port 10/100Base-TX + 1-port Gigabit Hardened Managed Ethernet Switch
EX72129-0YZ	12-port 10/100Base-TX + 2-port Gigabit Hardened Managed Ethernet Switch
EX72088-0YZ	8-port 10/100Base-TX + 1-port Gigabit Hardened Managed Ethernet Switch
EX72089-0YZ	8-port 10/100Base-TX + 2-port Gigabit Hardened Managed Ethernet Switch

100FX Fiber Options:

(X) = 1 : Multi Mode (SC)
2 : Multi Mode (ST)
A : Single Mode (SC) -20Km
B : Single Mode (SC) -40Km
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

*More 100FX Fiber options also available upon request.

Gigabit Options:

(Y) = 1 : 10/100/1000Base-TX
3 : 1000Base-SX (SC)
A : 1000Base-LX (SC) -10Km
B : 1000Base-LX (SC) -20Km
R : 1000Base-LX (SC) WDM -TX:1310nm/RX:1550nm -20Km
S : 1000Base-LX (SC) WDM -TX:1550nm/RX:1310nm -20Km

*More Gigabit options also available upon request.

Power Input Interface:

(Z) = B : DC Jack & Terminal Block

Power Supply: (Optional)

*Options A - Terminal Block power supply(s), part numbers: DR-30-24, DR-60-24, DR-75-24, DR-120-24 or 41-136046-X X=1,2,3,4,5
**Options B - DC Jack power supplies kit(s), part numbers: 41-136044-X X=1,2,3,4,5

*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)

Installation Type: Optional Din Rail/Panel Mount/Rack Mount kits ordered separately.

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

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: 12 to 32VDC (Terminal Block); 12VDC (DC Jack)

Power Consumption:
- 15W Max. 1.25A@12VDC, 0.625A@24VDC

Power Supply References:
- Terminal Block: 12 to 24VDC, 1.5A
- DC Jack: 12VDC, 3A

Overload Current Protection:
- Present

Reverse Polarity Protection:
- Present

Mechanical

Casing:
- Metal case
- IP 20

Dimensions:
- 235mm (W) x 125mm (D) x 50mm (H)
  (9.25" (W) x 4.92" (D) x 1.97" (H))

Weight:
- 1.5Kg (3.3lbs.)

Installation:
- DIN-Rail, Panel, Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 14, 13, 12 or 8 port
- 100Base-FX: 0, 1 or 2 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: 10/100TX, 100FX: Link/Activity, Speed
  10/100/1000TX, 1000SX/LX: Link/Activity, Speed

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

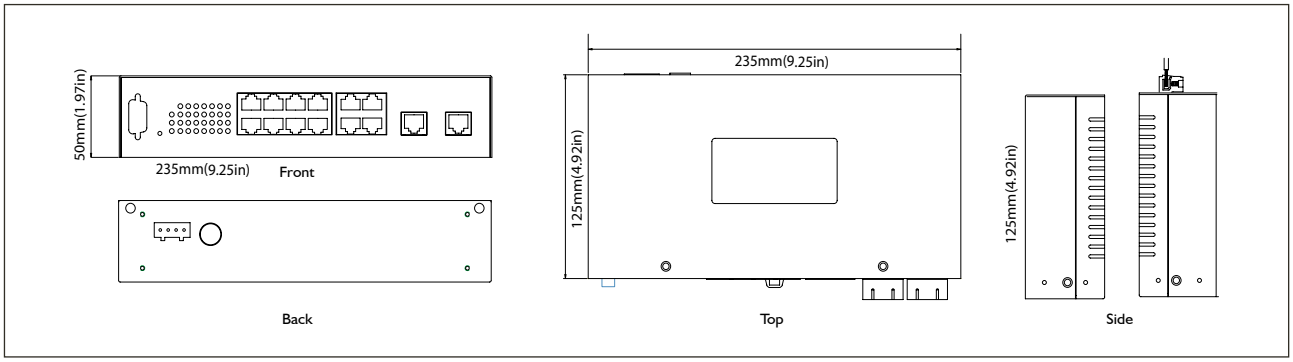
EMI:
- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

EMS:
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)
    Contact: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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.)

NEMA TS1/2 Environmental requirements for Traffic control equipment

Diagrams



EX73000 Series

16-port 10/100Base Fast Ethernet with up to 2-port combo Gigabit Hardened Managed Ethernet Switches

coming soon

Overview

Designed for rugged environments, the EtherWAN Hardened EX73000 Series Gigabit Switch comes with sixteen 10/100BASE-TX/FX ports and two combo Gigabit ports in a package that offers several mounting options. The EX73000 functions at temperatures ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional operation @ -40°C to 85°C (-40°F to 185°F). Fully manageable via SNMP, Web Browser, Telnet or Console port. The EX73000 is designed to integrate 10/100 Mbps networks into fiber optic Gigabit backbones. The 2 combo Gigabit ports can be copper or fiber optic ports. The Hardened EX73000 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 NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- IEEE802.1w RSTP, IEEE802.1S MSTP and IEEE802.1D STP compatible
- IP Multicast Filtering through IGMP Snooping
- Supports port-based VLAN and IEEE802.1Q VLANTagging and GVRP
- IEEE802.1p QoS with four priority queues
- MAC-based trunking with automatic link fail-over
- RS-232 console, Telnet, SNMP V1& V2 & 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
- Alarms for power and port link failure by relay output
- Redundant power inputs with Terminal Block and DC Jack
- -40°C to 75°C (-40°F to 167°F) operating temperature range
- Hardened aluminum case
- Supports DIN-Rail, Panel Mounting installation

Ordering Information

EX73400-00Z	16-port 10/100Base-TX Hardened Managed Ethernet Switch
EX73401-0YZ	16-port 10/100Base-TX + 1-port Gigabit Hardened Managed Ethernet Switch
EX73402-0YZ	16-port 10/100Base-TX + 2-port Gigabit Hardened Managed Ethernet Switch
EX73310-00Z	12-port 10/100Base-TX + 1-port 100Base-FX Hardened Managed Ethernet Switch
EX73311-0YZ	12-port 10/100Base-TX + 1-port 100Base-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX73312-0YZ	12-port 10/100Base-TX + 1-port 100Base-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX73320-X0Z	12-port 10/100Base-TX + 2-port 100Base-FX Hardened Managed Ethernet Switch
EX73321-XYZ	12-port 10/100Base-TX + 2-port 100Base-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX73322-XYZ	12-port 10/100Base-TX + 2-port 100Base-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX73200-00Z	8-port 10/100Base-TX Hardened Managed Ethernet Switch
EX73201-0YZ	8-port 10/100Base-TX + 1-port Gigabit Hardened Managed Ethernet Switch
EX73202-0YZ	8-port 10/100Base-TX + 2-port Gigabit Hardened Managed Ethernet Switch
EX73210-X0Z	8-port 10/100Base-TX + 1-port 100Base-FX Hardened Managed Ethernet Switch
EX73211-XYZ	8-port 10/100Base-TX + 1-port 100Base-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX73212-XYZ	8-port 10/100Base-TX + 1-port 100Base-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX73220-X0Z	8-port 10/100Base-TX + 2-port 100Base-FX Hardened Managed Ethernet Switch
EX73221-XYZ	8-port 10/100Base-TX + 2-port 100Base-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX73222-XYZ	8-port 10/100Base-TX + 2-port 100Base-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX73240-X0Z	8-port 10/100Base-TX + 4-port 100Base-FX Hardened Managed Ethernet Switch
EX73241-XYZ	8-port 10/100Base-TX + 4-port 100Base-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX73242-XYZ	8-port 10/100Base-TX + 4-port 100Base-FX + 2-port Gigabit Hardened Managed Ethernet Switch

100FX Options: (X) =
1 : Multi Mode (SC)
2 : Multi Mode (ST)
A : Single Mode (SC) -20Km
B : Single Mode (SC) -40Km
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

*More 100FX Fiber options also available upon request.

Gigabit Options: (Y) =
1 : 10/100/1000Base-TX
3 : 1000Base-SX (SC)
A : 1000Base-LX (SC) -10Km
B : 1000Base-LX (SC) -20Km
R : 1000Base-LX (SC) WDM -TX:1310nm/RX:1550nm -20Km
S : 1000Base-LX (SC) WDM -TX:1550nm/RX:1310nm -20Km

*More Gigabit options also available upon request.
*Get Gigabit Fiber options with bonus Copper support.

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

Power Supply: (Optional):

*Options A - Terminal Block power supply(s), part numbers: DR-30-24, DR-60-24, DR-75-24, DR-120-24 or 41-136046-X X=1,2,3,4,5
**Options B - DC Jack power supplies kit(s), part numbers: 41-136044-X X=1,2,3,4,5

*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)

Installation Type : DIN Rail (mounting kit is included), Optional Panel Mount/Rack Mount kits ordered separately.

Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-SX/1000Base-LX, IEEE802.3x, IEEE802.1p, IEEE802.1Q, IEEE802.1w, IEEE802.1x

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: 12 to 32VDC (Terminal Block); 12VDC (DC Jack)

Power Consumption:
- 15W Max. 1.25A@12VDC, 0.625A@24VDC

Power Supply References:
- Terminal Block: 12 to 24VDC, 1.5A
- DC Jack: 12VDC, 3A

Overload Current Protection:
- Present

Reverse Polarity Protection:
- Present

Mechanical

Casing:
- Aluminum case
- IP20

Dimensions:
- 65mm (W) x 125mm (D) x145mm (H)
  (2.56" (W) x 4.92" (D) x 5.71" (H))

Weight:
- 1Kg (2.2lbs.)

Installation:
- DIN-Rail, Panel Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 16, 12 or 8 ports
- 100Base-FX: 0, 1, 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: 10/100Base: Link/Activity
  1000Base: Link/Activity (Green: Copper, Amber: Fiber)

Alarm Contact:
- One relay output with current 1A @ 24VDC

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:
- -45°C to 85°C (-49°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

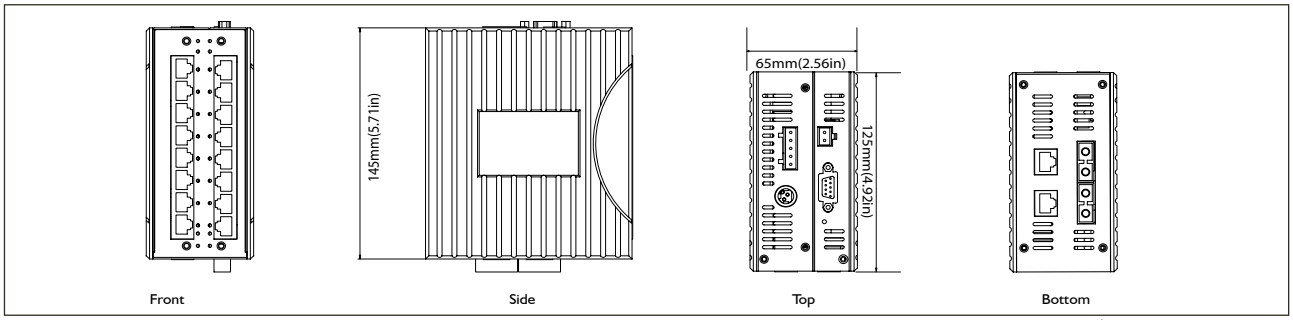
EMI:
- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

EMS:
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)
    Contact: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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.)

NEMA TS1/2 Environmental requirements for Traffic control equipment

Diagrams



EX96000 Series

8-port 10/100Base Fast Ethernet with up to 1-port Gigabit Hardened Managed Ethernet Switches

Overview

The EX96000 series, managed, Ethernet switches are designed to operate in the harsh environments at the edge of the network. The EX96000 functions at temperatures ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional oparation @ -40°C to 85°C (-40°F to 185°F). Whether on the factory floor or the street corner, the EX96000 will provide flawless communications when you need it most. The EX96000 is a managed switch with the flexibility of eight 10/100 Ethernet ports that may be configured in various combinations of copper and fiber optic interfaces. To increase its flexibility a 9th port may be added that is a Gigabit Ethernet interface, configured with copper or fiber optics. Flexibility is a main feature of the EX96000 series product and it will fit any application that requires a tough, environmentally hardened Ethernet switch.

Features

- Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- UL 1604 Class 1, Division 2 Classified for use in hazardous locations(applicable to versions with terminal block power option)
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- IEEE802.1w RSTP and IEEE802.1D STP compatible
- IP Multicast Filtering through IGMP Snooping
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- IEEE802.1p QoS classification based on: Port-based priority; VLAN priority field in VLAN tagged frame; DS/TOS field in IP packet; UDP/TCP logical ports
- Eight port-based trunking groups with up to 8 ports per group
- Bandwidth Rate Control
- RS-232 console, Telnet, SNMP V1 & V2, RMON, Web Browser, and TFTP Management
- Packet Filtering and Port Security: Destination MAC; Static MAC address not subject to aging; Secure mode freezes MAC address learning
- Port mirroring
- 4096 MAC addresses
- 2M bits buffer memory
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- Alarms for power failure by relay output
- Redundant power inputs with Terminal Block or DC Jack
- -40°C to 75°C (-40°F to 167°F) operating temperature range
- Metal case
- Supports DIN-Rail, Panel or Rack Mounting installation

Ordering Information

EX96008-00-I-P	8-port 10/100Base-TX Hardened Managed Ethernet Switch
EX96018-XY-I-P	8-port 10/100Base-TX + 1-port 100Base-FX Hardened Managed Ethernet Switch
EX96026-XY-I-P	6-port 10/100Base-TX + 2-port 100Base-FX Hardened Managed Ethernet Switch
EX96044-XY-I-P	4-port 10/100Base-TX + 4-port 100Base-FX Hardened Managed Ethernet Switch
EX96208-00-I-P	8-port 10/100Base-TX + 1-port 10/100/1000Base-TX Hardened Managed Ethernet Switch
EX96308-00-I-P	8-port 10/100Base-TX + 1-port 1000Base-SX Hardened Managed Ethernet Switch
EX96408-00-I-P	8-port 10/100Base-TX + 1-port 1000Base-LX -10Km Hardened Managed Ethernet Switch
EX96508-00-I-P	8-port 10/100Base-TX + 1-port 1000Base-LX -20Km Hardened Managed Ethernet Switch

100FX Fiber Options:

(XY) = 1A : Multi Mode (SC)
1B : Multi Mode (ST)
2A : Single Mode (SC) -20Km
2B : Single Mode (SC) -40Km
2D : Single Mode (ST) -20Km
2E : Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km
2F : Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km
2G : Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km
2H : Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km

*More 100FX Fiber options also available upon request.

Installation Type :

(I) = 1 : DIN Rail (mounting kit is included)
Optional Panel mount kit, ordered separately, part number: KP-AA96-480

Optional Rack mount kit, ordered separately, part number: KR-BK43-400

Power Connector Options :

(P) = A : Terminal Block* / B : DC Jack**

*Options A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: DR-30-24, DR-60-24, DR-75-24, DR-120-24 or 41-136046-X X=1,2,3,4,5

**Options B - The external power adapter and power cord are not included. Please order the following part numbers, as required: 41-136044-X X=1,2,3,4,5

*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)

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, IEEE802.1Q, IEEE802.1p, IEEE802.1w

Protocols:
- IGMP, GVRP, SNMP V1/V2, RMON, TFTP

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:
- 4096 MAC addresses

Latency:
- Less than 9.6μs

Power

Input:
- Input Voltage: 12 to 32VDC (Terminal Block); 12VDC (DC Jack)

Power Consumption:
- 18.48W Max. 1.54A@12VDC, 0.77A@24VDC

Power Supply References:
- Terminal Block: 12 to 24VDC, 1.5A
- DC Jack: 12VDC, 3A

Overload Current Protection:
- Present

Reverse Polarity Protection:
- Present

Mechanical

Casing:
- Metal case
- IP20

Dimensions:
- 50mm (W) x 125mm (D) x 135mm (H)
  (1.97" (W) x 4.92" (D) x 5.31" (H))

Weight:
- 0.8Kg (1.76lbs.)

Installation:
- DIN-Rail, Panel, Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 8, 6 or 4 ports
- 100Base-FX: 0, 1, 2 or 4 ports
- Gigabit: 0 or 1 port

Console Port:
- Port: One DB9 RS-232 port

LED Indicators:
- Per Unit: Power Status (Power 1, Power 2)
- Per Port: 10/100TX, 100FX: Link/Activity (Green), Speed (Yellow)
  10/100/1000TX, 1000SX/LX: Link (Green), Activity (Yellow)

Alarm Contact:
- One relay output with current 1A @ 24VDC

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:
- Hazardous locations: Class 1, Division 2 group A,B,C&D
- UL60950-1, EN60950-1, IEC60950-1

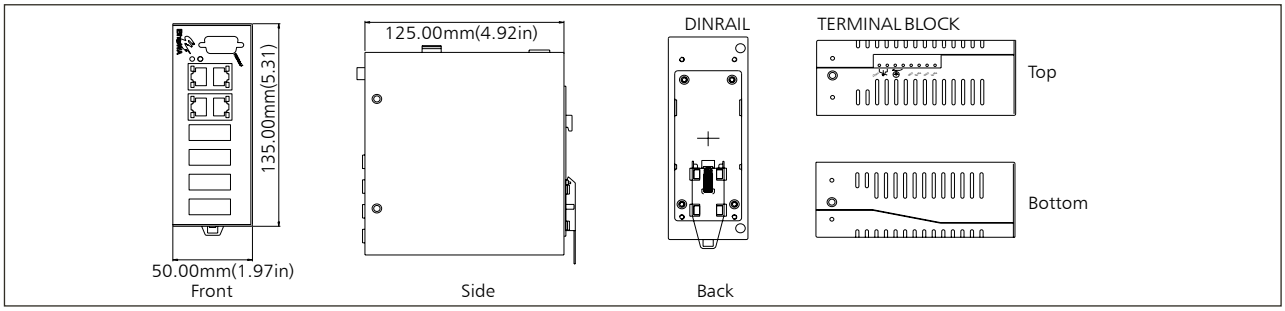
EMI:
- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

EMS:
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)
    Contact: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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.)

NEMA TS1/2 Environmental requirements for Traffic control equipment

Diagrams



EX61000 Series

8-port 10/100Base Fast Ethernet with up to 1-port Gigabit Industrial Managed Ethernet Switches

Overview

The EX61000 series, managed, Ethernet switches are designed to operate in the harsh environments on the factory floor. The EX61000 functions at temperatures ranging from -10°C to 60°C (14°F to 140°F). The EX61000 will provide flawless communications when you need it most. The EX61000 is a managed switch with the flexibility of eight 10/100 Ethernet ports that may be configured in various combinations of copper and fiber optic interfaces. To increase its flexibility a 9th port may be added that is a Gigabit Ethernet interface, configured with copper or fiber optics. Flexibility is a main feature of the EX61000 series product and it will fit any application that requires a tough, environmentally hardened Ethernet switch.

Features

- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- IEEE802.1w RSTP and IEEE802.1D STP compatible
- IP Multicast Filtering through IGMP Snooping
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- IEEE802.1p QoS classification based on: Port-based priority; VLAN priority field in VLAN tagged frame; DS/TOS field in IP packet; UDP/TCP logical ports
- Eight port-based trunking groups with up to 8 ports per group Bandwidth Rate Control
- RS-232 console, Telnet, SNMP V1 & V2, RMON, Web Browser, and TFTP Management
- Packet Filtering and Port Security: Destination MAC; Static MAC address not subject to aging; Secure mode freezes MAC address learning
- Port mirroring
- 4096 MAC addresses
- 2M bits buffer memory
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- Alarms for power failure by relay output
- Redundant power inputs with Terminal Block or DC Jack
- -10°C to 60°C (14°F to 140°F). operating temperature range
- Metal case
- Supports DIN-Rail, Panel or Rack Mounting installation

Ordering Information

EX61008-00Z	8-port 10/100Base-TX Industrial Managed Ethernet Switch
EX61018-X0Z	8-port 10/100Base-TX + 1-port 100Base-FX Industrial Managed Ethernet Switch
EX61026-X0Z	6-port 10/100Base-TX + 2-port 100Base-FX Industrial Managed Ethernet Switch
EX61044-X0Z	4-port 10/100Base-TX + 4-port 100Base-FX Industrial Managed Ethernet Switch
EX61108-0YZ	8-port 10/100Base-TX + 1-port Gigabit Industrial Managed Ethernet Switch

100FX Fiber Options:

(X) = 1 : Multi Mode (SC)
2 : Multi Mode (ST)
A : Single Mode (SC) -20Km
B : Single Mode (SC) -40Km
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

*More 100FX Fiber options also available upon request.

Gigabit Options:

(Y) = 1 : 10/100/1000Base-TX
3 : 1000Base-SX (SC)
A : 1000Base-LX (SC) -10Km
B : 1000Base-LX (SC) -20Km
R : 1000Base-LX (SC) WDM -TX:1310nm/RX:1550nm -20Km
S : 1000Base-LX (SC) WDM -TX:1550nm/RX:1310nm -20Km

*More Gigabit options also available upon request.

Power Input Interface:

(Z) = T : Terminal Block
D : DC Jack

Power Supply: (Optional)

*Options A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: DR-30-24, DR-60-24, DR-75-24, DR-120-24 or 41-136046-X X=1,2,3,4,5

**Options B - The external power adapter and power cord are not included. Please order the following part numbers, as required: 41-136044-X X=1,2,3,4,5

*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)

Installation Type: DIN Rail (mounting kit is included)

Optional Panel mount kit, ordered separately, part number: KP-AA96-480

Optional Rack mount kit, ordered separately, part number: KR-BK43-400

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, IEEE802.1Q, IEEE802.1p, IEEE802.1w

Protocols:
- IGMP, GVRP, SNMP V1/V2, RMON, TFTP

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:
- 4096 MAC addresses

Latency:
- Less than 9.6μs

Power

Input:
- Input Voltage: 12 to 32VDC (Terminal Block); 12VDC (DC Jack)

Power Consumption:
- 18.48W Max. 1.54A@12VDC, 0.77A@24VDC

Power Supply References:
- Terminal Block: 12 to 24VDC, 1.5A
- DC Jack: 12VDC, 3A

Overload Current Protection:
- Present

Reverse Polarity Protection:
- Present

Mechanical

Casing:
- Metal case
- IP20

Dimensions:
- 50mm (W) x 125mm (D) x 135mm (H)
  (1.97" (W) x 4.92" (D) x 5.31" (H))

Weight:
- 0.8Kg (1.76lbs.)

Installation:
- DIN-Rail, Panel, Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 8, 6 or 4 ports
- 100Base-FX: 0, 1, 2 or 4 ports
- Gigabit: 0 or 1 port

Console Port:
- Port: One DB9 RS-232 port

LED Indicators:
- Per Unit: Power Status (Power 1, Power 2)
- Per Port: 10/100TX, 100FX: Link/Activity (Green), Speed (Yellow)
  10/100/1000TX, 1000SX/LX: Link (Green), Activity (Yellow)

Alarm Contact:
- One relay output with current 1A @ 24VDC

Environment

Operating Temperature:
- -10°C to 60°C (14°F to 140°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

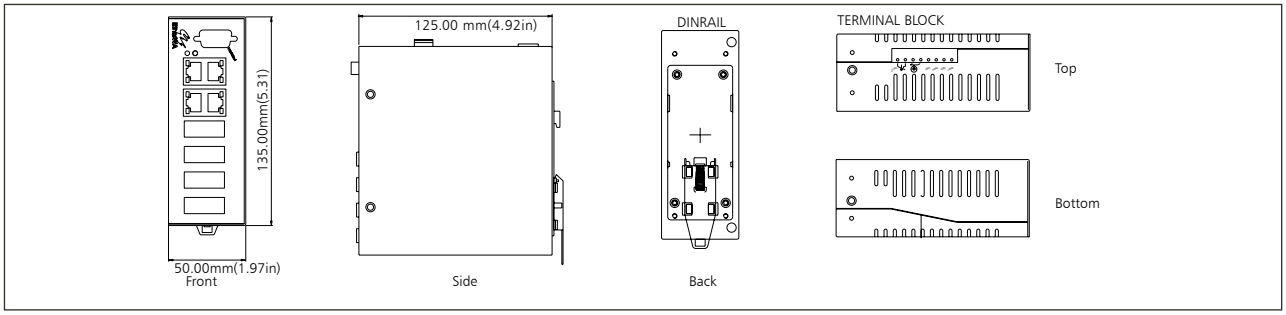
Safety:
- UL60950-1, EN60950-1, IEC60950-1

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: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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



EX9224SF Series

24-port 100Base-FX with up to 2-port Gigabit Hardened Managed Ethernet Switches

Overview

Designed for rugged environments, the EtherWAN Hardened Switch EX9224SF Fiber Series comes with 24 100Mbps Fiber ports and up to 2 Gigabit ports. The EX9224SF functions at temperatures ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional operation @ -40°C to 85°C (-40°F to 185°F). EX9224SF can be equipped with redundant power supplies that makes EX9224SF more flexible for rugged environments. Fully manageable via SNMP, the EX9224SF Series switches are designed to integrate 100 Base networks into fiber optic Gigabit backbones with flexible options. 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. The EX9224SF is fully compatible with EtherWAN's media converter and terminal server products to provide a total solution for connecting legacy serial devices (RS232, RS422 & RS485) to an Ethernet based network.

Features

- Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- IEEE802.1w RSTP and IEEE802.1D STP compatible
- IP Multicast Filtering through IGMP Snooping
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- IEEE802.1p QoS classification based on: Port-based priority; VLAN priority field in VLAN tagged frame; DS/TOS field in IP packet; UDP/TCP logical ports
- Port-based trunking, up to three groups and maximum of four ports each group, load sharing based on source and destination MAC addresses
- RS-232 console, Telnet, SNMP V1 & V2, RMON, Web Browser, and TFTP Management
- Bandwitdth Rate Control
- Port Security by MAC addresses filtering, limit number of MAC addresses learned per port, static MAC addresses stay in the filtering table
- Port mirroring
- 12288 MAC addresses
- 16M bits buffer memory
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- Support Redundant power supplies for flexiable application
- -40°C to 75°C (-40°F to 167°F) operating temperature range
- Hardened metal case
- Supports Rack Mount installation

Ordering Information

EX9224SFT-XX*	24-port 100Base-FX Multi Mode (ST) -2Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9224SFC-XX*	24-port 100Base-FX Multi Mode (SC) -2Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9224SFCS-XX*	24-port 100Base-FX Single Mode (SC) -15Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9224SFCM-XX*	24-port 100Base-FX Single Mode (SC) -40Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9024SFT	24-port 100Base-FX Multi Mode (ST) -2Km Hardened Managed Ethernet Switch
EX9024SFC	24-port 100Base-FX Multi Mode (SC) -2Km Hardened Managed Ethernet Switch
EX9024SFCS	24-port 100Base-FX Single Mode (SC) -15Km Hardened Managed Ethernet Switch
EX9024SFCM	24-port 100Base-FX Single Mode (SC) -40Km Hardened Managed Ethernet Switch

*XX can be substituted by the following codes for Gigabit ports:
- GT: 10/100/1000Base-TX
- SX: 1000Base-SX (SC)
- L1: 1000Base-LX (SC) -10Km
- L2: 1000Base-LX (SC) -20Km
- L5: 1000Base-LX (SC) -50Km

*100Base-FX SC fiber also available in Single Mode WDM Type A and Type B, 20/40Km
*1000Base-LX SC fiber also available in WDM Type A and Type B, 10/20Km

*Redundant power supply optional model also available upon request
**All items include Rackmounting bracket (black)

Optional Accessories:
- **KR-AE612-400:** Rack mount kit (black)

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, IEEE802.1Q, IEEE802.1p, IEEE802.1w

Protocols:
- IGMP, GVRP, SNMP V1/V2, RMON, TFTP

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory:
- 16M bits

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

Address Table Size:
- 12288 MAC addresses

Latency:
- Less than 151.5μs

Power

Input:
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

Power Consumption:
- 34.8W Max.

Overload Current Protection:
- Present

Mechanical

Casing:
- Metal case
- IP20

Dimensions:
- Single Power: 443.6mm (W) x 284.1mm (D) x 44mm (H)
  (17.47" (W) x 11.19" (D) x 1.73" (H))
- Redundant Power: 443.6mm (W) x 403mm (D) x 44mm (H)
  (17.47" (W) x 15.87" (D) x 1.73" (H))
- Standard 19" rack-mount size, one-unit-height

Weight:
- 3.4Kg (7.5lbs.)

Installation:
- Rack Mounting

Interface

Ethernet Port:
- 100Base-FX: 24 ports
- Gigabit: 0, 1 or 2 ports

Console Port:
- Port: One DB9 RS-232 port

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 100FX: Link/Activity, Full-duplex/Collision
  10/100/1000TX, 1000SX/LX: Link, Activity

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:
- UL60950-1, EN60950-1, IEC60950-1

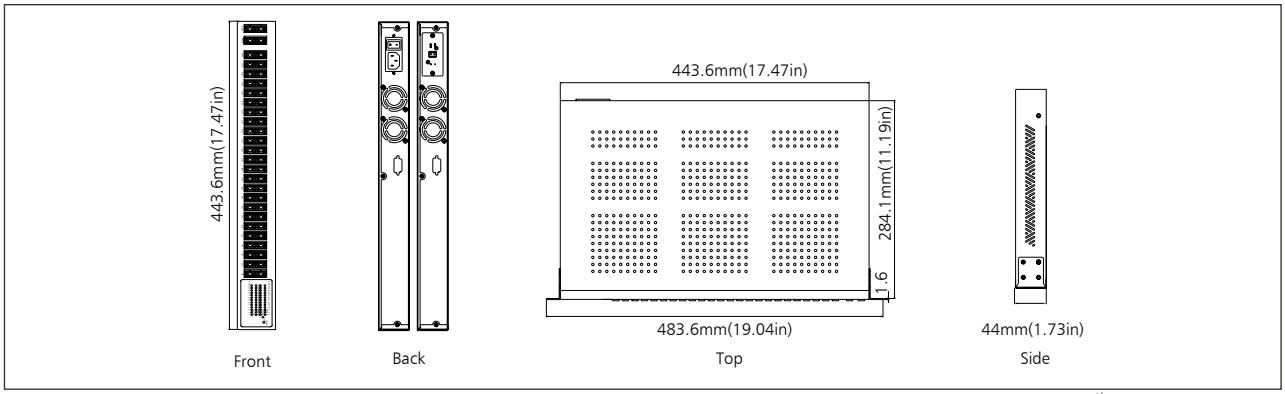
EMI:
- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

EMS:
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)
    Contact: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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.)

NEMA TS1/2 Environmental requirements for Traffic control equipment

Diagrams



EX9224S Series

24-port 10/100Base-TX with up to 2-port Gigabit Hardened Managed Ethernet Switches

Overview

Designed for rugged environments, the EtherWAN Hardened EX9224S Series Gigabit Switch with up to two Gigabit ports functions at temperature extremes of -40°C to 75°C (-40°F to 167°F) and is tested for functional operation @ -40°C to 85°C (-40°F to 185°F). EX9224S can be equipped with redundant power supplies that makes EX9224S more flexible for rugged environments. Fully manageable via SNMP, the EX9224S is specifically designed to satisfy the demand for many Fast Ethernet connections and Gigabit Ethernet uplinks or backbones.

The EX9224S comes with 24 10/100TX copper ports and up to two ports of copper or fiber Gigabits. It supports IEEE802.1Q VLAN, port-based Trunking, IP-Multicast IGMP Snooping, Spanning Tree and Rapid Spanning Tree for redundant designs, adjustable bandwidth on all 10/100Mbps ports, and QoS for priority queuing. The switch can be managed via SNMP/RMON, Web browser, Telnet, and Console Port. It also supports rate control which allows users to set the maximum bandwidth on each port individually.

The EX9224S is fully compatible with EtherWAN's media converter and terminal server products to provide a total solution for connecting legacy serial devices (RS232, RS422& RS485) to an Ethernet based network.

Features

- Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- IEEE802.1w RSTP and IEEE802.1D STP compatible
- IP Multicast Filtering through IGMP Snooping
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- IEEE802.1p QoS classification based on: Port-based priority; VLAN priority field in VLAN tagged frame; DS/TOS field in IP packet; UDP/TCP logical ports
- Port-based trunking, up to three groups and maximum of four ports each group, load sharing based on source and destination MAC addresses
- RS-232 console, Telnet, SNMP V1 & V2, RMON, Web Browser, and TFTP Management
- Bandwidth Rate Control
- Port Security by MAC addresses filtering, limit number of MAC, addresses learned per port, static MAC addresses stay in the filtering table
- Port mirroring
- 12288 MAC addresses
- 16M bits buffer memory
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- Support Redundant power supplies for flexiable application
- -40°C to 75°C (-40°F to 167°F) operating temperature range
- Hardened metal case
- Supports Rack Mount installation

Ordering Information

EX9224S-XX*	24-port 10/100Base-TX + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9024S	24-port 10/100Base-TX Hardened Managed Ethernet Switch

*XX can be substituted by the following codes for Gigabit ports:
- GT: 10/100/1000Base-TX
- SX: 1000Base-SX (SC)
- L1: 1000Base-LX (SC) -10Km
- L2: 1000Base-LX (SC) -20Km
- L5: 1000Base-LX (SC) -50Km

*1000Base-LX SC fiber also available in WDM Type A and Type B, 10/20Km

*Redundant power supply optional model also available upon request
**All items include Rackmounting bracket (black)

Optional Accessories:
- **KR-AE612-400:** Rack mount kit (black)

Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-SX/1000Base-LX, IEEE802.3x, IEEE802.1Q, IEEE802.1p, IEEE802.1w

Protocols:
- IGMP, GVRP, SNMP v1/v2, RMON, TFTP

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory:
- 16M bits

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

Address Table Size:
- 12288 MAC addresses

Latency:
- Less than 151.5μs

Power

Input:
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

Power Consumption:
- 23.1W Max.

Overload Current Protection:
- Present

Mechanical

Casing:
- Metal case
- IP20

Dimensions:
- Single Power: 443.6mm (W) x 284.1mm (D) x 44mm (H)
  (17.47" (W) x 11.19" (D) x 1.73" (H))
- Redundant Power: 443.6mm (W) x 403mm (D) x 44mm (H)
  (17.47" (W) x 15.87" (D) x 1.73" (H))
- Standard 19" rack-mount size, one-unit-height

Weight:
- 3.4Kg (7.5lbs.)

Installation:
- Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 24 ports
- Gigabit: 0, 1 or 2 ports

Console Port:
- Port: One DB9 RS-232 port

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 10/100TX, Link/Activity, Full-duplex/Collision
  10/100/1000TX, 1000SX/LX: Link, Activity

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:
- UL60950-1, EN60950-1, IEC60950-1

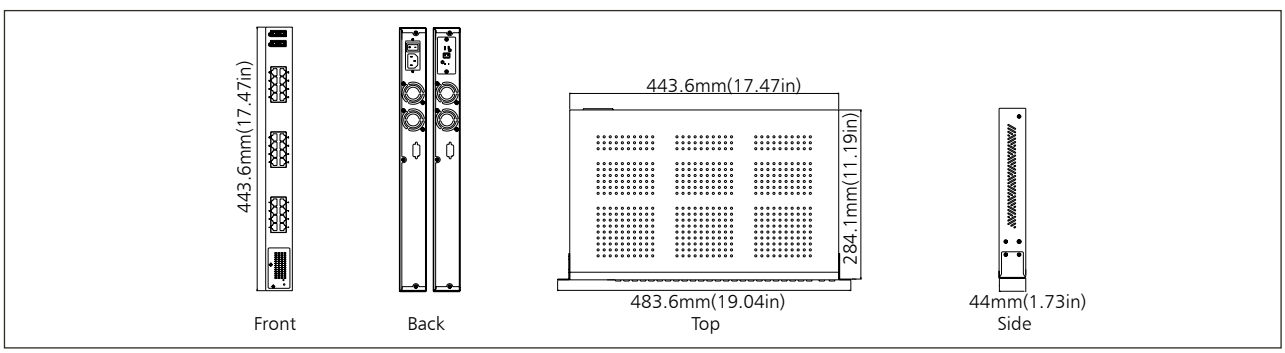
EMI:
- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

EMS:
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)
    Contact: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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.)

NEMA TS1/2 Environmental requirements for Traffic control equipment

Diagrams



EX9200 Series

24-port 10/100Base Fast Ethernet with up to 2-port Gigabit Hardened Managed Ethernet Switches

Overview

Designed for rugged environments, the EtherWAN Hardened Switch EX9200 Fiber Series comes with 8, 12, 16 or 24 100Mbps Fiber ports and up to 2 Gigabit ports. The EX9200 functions at temperatures ranging from -40°C to 75°C (-40°F to 167° F) and is tested for functional operation @ -40°C to 85°C (-40°F to 185°F). EX9200 can be equipped with redundant power supplies that makes EX9200 more flexible for rugged environments. Fully manageable via SNMP, the EX9200 Series switches are designed to integrate 100 Base networks into fiber optic Gigabit backbones with flexible options. 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. The EX9200 is fully compatible with EtherWAN's media converter and terminal server products to provide a total solution for connecting legacy serial devices (RS232, RS422 & RS485) to an Ethernet based network.

Features

- Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- IEEE802.1w RSTP and IEEE802.1D STP compatible
- IP Multicast Filtering through IGMP Snooping
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- IEEE802.1p QoS classification based on: Port-based priority; VLAN priority field in VLAN tagged frame; DS/TOS field in IP packet; UDP/TCP logical ports
- Port-based trunking, up to three groups and maximum of four ports each group, load sharing based on source and destination MAC addresses
- RS-232 console, Telnet, SNMP V1 & V2, RMON, Web Browser, and TFTP Management
- Bandwidth Rate Control
- Port Security by MAC addresses filtering, limit number of MAC addresses learned per port, static MAC addresses stay in the filtering table
- Port mirroring
- 12288 MAC addresses
- 16M bits buffer memory
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- Support Redundant power supplies for flexiable application
- -40°C to 75°C (-40°F to 167°F) operating temperature range
- Hardened metal case
- Supports Rack Mount installation

Ordering Information

EX9224SFT16-XX*	8-port 10/100Base-TX + 16-port 100Base-FX Multi Mode (ST) -2Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9224SFC16-XX*	8-port 10/100Base-TX + 16-port 100Base-FX Multi Mode (SC) -2Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9224SFCS16-XX*	8-port 10/100Base-TX + 16-port 100Base-FX Single Mode (SC) -20Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9224SFCM16-XX*	8-port 10/100Base-TX + 16-port 100Base-FX Single Mode (SC) -40Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9224SFT18-XX*	6-port 10/100Base-TX + 18-port 100Base-FX Multi Mode (ST) -2Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9224SFC18-XX*	6-port 10/100Base-TX + 18-port 100Base-FX Multi Mode (SC) -2Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9224SFCS18-XX*	6-port 10/100Base-TX + 18-port 100Base-FX Single Mode (SC) -20Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9224SFCM18-XX*	6-port 10/100Base-TX + 18-port 100Base-FX Single Mode (SC) -40Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9216SFT-XX*	16-port 100Base-FX Multi Mode (ST) -2Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9216SFC-XX*	16-port 100Base-FX Multi Mode (SC) -2Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9216SFCS-XX*	16-port 100Base-FX Single Mode (SC) -20Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9216SFCM-XX*	16-port 100Base-FX Single Mode (SC) -40Km + 2-port Gigabit* Hardened Managed Ethernet Switch
EX9016SFT2	16-port 10/100Base-TX + 2-port 100Base-FX Multi Mode (ST) -2Km Hardened Managed Ethernet Switch
EX9016SFC2	16-port 10/100Base-TX + 2-port 100Base-FX Multi Mode (SC) -2Km Hardened Managed Ethernet Switch
EX9016SFCS2	16-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) -20Km Hardened Managed Ethernet Switch
EX9016SFCM2	16-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) -40Km Hardened Managed Ethernet Switch

*XX can be substituted by the following codes for Gigabit ports:
- GT: 10/100/1000Base-TX
- SX: 1000Base-SX (SC)
- L1: 1000Base-LX (SC) -10Km
- L2: 1000Base-LX (SC) -20Km
- L5: 1000Base-LX (SC) -50Km

*100Base-FX SC fiber also available in Single Mode WDM Type A and Type B, 20/40Km
*1000Base-LX SC fiber also available in WDM Type A and Type B, 10/20Km

*Redundant power supply optional model also available upon request
**All items include Rackmounting bracket (black)

Optional Accessories:
- **KR-AE612-400:** Rack mount kit (black)

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, IEEE802.1Q, IEEE802.1p, IEEE802.1w

Protocols:
- IGMP, GVRP, SNMP V1/V2, RMON, TFTP

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory:
- 16M bits

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

Address Table Size:
- 12288 MAC addresses

Latency:
- Less than 151.5μs

Power

Input:
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

Power Consumption:
- 34.8W Max.

Overload Current Protection:
- Present

Mechanical

Casing:
- Metal case
- IP20

Dimensions:
- Single Power: 443.6mm (W) x 284.1mm (D) x 44mm (H)
  (17.47" (W) x 11.19" (D) x 1.73" (H))
- Redundant Power: 443.6mm (W) x 403mm (D) x 44mm (H)
  (17.47" (W) x 15.87" (D) x 1.73" (H))
- Standard 19" rack-mount size, one-unit-height

Weight:
- 3.4Kg (7.5lbs.)

Installation:
- Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 24, 16, 8, 6 or 0 ports
- 100Base-FX: 0, 8, 16, 18 or 24 ports
- Gigabit: 0, 1 or 2 ports

Console Port:
- Port: One DB9 RS-232 port

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 10/100TX, 100FX: Link/Activity, Full-duplex/Collision
  10/100/1000TX, 1000SX/LX: Link, Activity

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:
- UL60950-1, EN60950-1, IEC60950-1

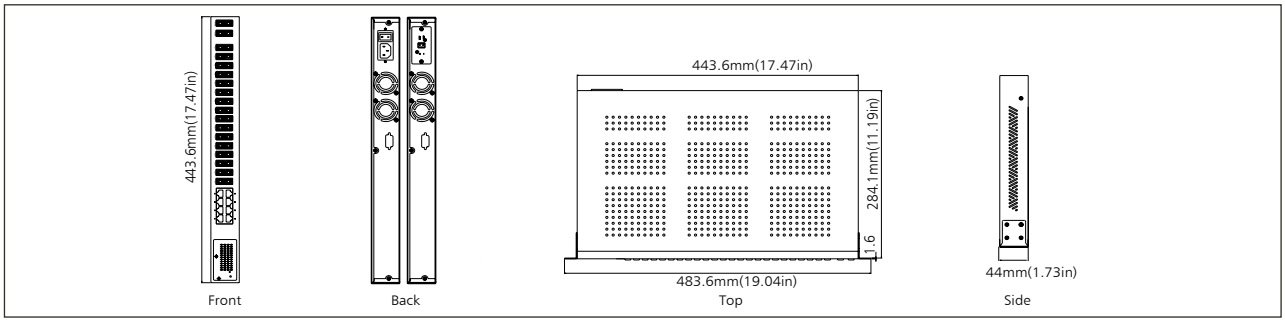
EMI:
- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

EMS:
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)
    Contact: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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.)

NEMA TS1/2 Environmental requirements for Traffic control equipment

Diagrams



EX9808C Series

8-port 10/100Base Fast Ethernet Hardened Managed Ethernet Switches

Overview

A member of the growing family of ruggedized switches from EtherWAN Systems, the EX9808C series addresses a requirement for a smaller switch than the other Rack Mount size. The EX9808C provides an affordable switch for rugged, outdoor environment, industrial factory floor, multi-tenant dwellings or Fiber To The Home (FTTH) applications.

Managed Switch:

The EX9808C series is a managed Fast Ethernet Switch in compact size, providing eight 10/100Mbps copper ports, or seven 10/100Mbps copper ports and one 100Mbps fiber port, or six 10/100Mbps copper ports and two 100Mbps fiber ports.

Low-Cost of Ownership:

Featuring full SNMP management capabilities as well as RMON support, the EX9808C is a very sophisticated switch for its price range. Also included are features such as port trunking and VLAN tagging. The EX9808C functions at temperatures ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional operation @ -40°C to 85°C (-40°F to 185°F), this is the switch of choice for environments constrained by space.

Features

- Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- IEEE802.1w RSTP and IEEE802.1D STP compatible
- IP Multicast Filtering through IGMP Snooping
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- IEEE802.1p QOS classification based on: Port-based priority; VLAN priority field in VLAN tagged frame; DS/TOS field in IP packet; UDP/TCP logical ports
- Eight port-based trunking groups with up to 8 ports per group
- RS-232 console, Telnet, SNMP V1 & V2, RMON, Web Browser, and TFTP Management
- Rate Control
- Packet Filtering and Port Security: Destination MAC; Static MAC address not subject to aging; Secure mode freezes MAC address learning
- Port mirroring
- 4096 MAC addresses
- 2M bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 0.6A 12VDC external universal PSU
- -40°C to 75°C (-40°F to 167°F) operating temperature range
- Hardened metal case
- Supports Wall Mounting installation

Ordering Information

EX9808C	8-port 10/100Base-TX Hardened Managed Ethernet Switch
EX9808CFT1	7-port 10/100Base-TX + 1-port 100Base-FX Multi Mode (ST) -2Km Hardened Managed Ethernet Switch
EX9808CFT2	6-port 10/100Base-TX + 2-port 100Base-FX Multi Mode (ST) -2Km Hardened Managed Ethernet Switch
EX9808CFC1	7-port 10/100Base-TX + 1-port 100Base-FX Multi Mode (SC) -2Km Hardened Managed Ethernet Switch
EX9808CFC2	6-port 10/100Base-TX + 2-port 100Base-FX Multi Mode (SC) -2Km Hardened Managed Ethernet Switch
EX9808CFC1-15	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) -15Km Hardened Managed Ethernet Switch
EX9808CFC2-15	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) -15Km Hardened Managed Ethernet Switch
EX9808CFC1-40	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) -40Km Hardened Managed Ethernet Switch
EX9808CFC2-40	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) -40Km Hardened Managed Ethernet Switch
EX9808CFCA1-20	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX :1310nm/RX:1550nm -20Km Hardened Managed Ethernet Switch
EX9808CFCB1-20	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX :1550nm/RX:1310nm -20Km Hardened Managed Ethernet Switch
EX9808CFCA1-40	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX :1310nm/RX:1550nm -40Km Hardened Managed Ethernet Switch
EX9808CFCB1-40	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX :1550nm/RX:1310nm -40Km Hardened Managed Ethernet Switch
EX9808CFCA2-20	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) WDM -TX :1310nm/RX:1550nm -20Km Hardened Managed Ethernet Switch
EX9808CFCB2-20	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) WDM -TX :1550nm/RX:1310nm -20Km Hardened Managed Ethernet Switch
EX9808CFCA2-40	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) WDM -TX :1310nm/RX:1550nm -40Km Hardened Managed Ethernet Switch
EX9808CFCB2-40	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) WDM -TX :1550nm/RX:1310nm -40Km Hardened Managed Ethernet Switch

Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x, IEEE802.1Q, IEEE802.1p, IEEE802.1w

Protocols:
- IGMP, GVRP, SNMP V1/V2, RMON, TFTP

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 2M bits

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

Address Table Size:
- 4096 MAC addresses

Latency:
- Less than 9.6μs

Power

Input:
- Input Voltage: 12VDC

Power Consumption:
- 7.2W Max. 0.6A@12VDC

Overload Current Protection:
- Present

Mechanical

Casing:
- Metal case
- IP30

Dimensions:
- 200mm (W) x 134.3mm (D) x 35mm (H)
  (7.87" (W) x 5.29" (D) x 1.38" (H))

Weight:
- 0.8Kg (1.76lbs.)

Installation:
- Wall Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 8, 7 or 6 ports
- 100Base-FX: 0, 1 or 2 ports

Console Port:
- Port: One DB9 RS-232 port

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 10/100TX, 100FX: Link/Activity, Speed, Full-duplex/Collision

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:
- UL60950-1, EN60950-1, IEC60950-1

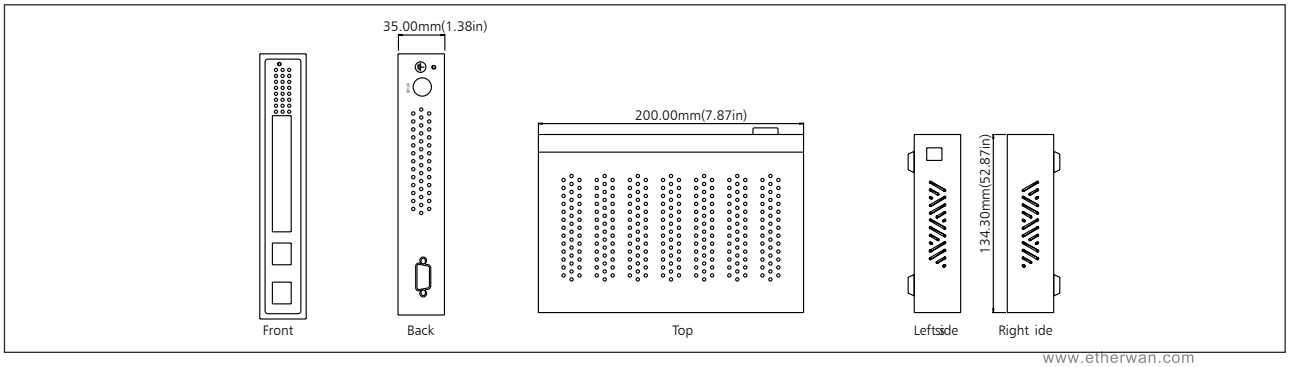
EMI:
- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

EMS:
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)
    Contact: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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.)

NEMA TS1/2 Environmental requirements for Traffic control equipment

Diagrams



EX95000 Series

16-port 10/100Base Fast Ethernet Hardened Unmanaged Ethernet Switches

Overview

The EX95000 series Ethernet switches are designed to operate in the harsh environments at the edge of the network. The EX95000 functions at temperatures ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional operation @ -40°C to 85°C (-40°F to 185°F), whether on the factory floor or the street corner, the EX95000 will provide flawless communications when you need it most. The EX95000 is a switch with the flexibility of sixteen 10/100Base-TX Ethernet ports that may be configured in various combinations of copper and fiber optic interfaces. It provides fourteen 10/100Base-TX copper ports plus two 100Base-FX ports. The EX95000 may be DIN rail or panel mounted, and comes with power options to match the applications that require a tough, environmentally hardened, Ethernet switch, environmentally hardened Ethernet switch.

Features

- Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- 4096 MAC addresses
- 1.625M bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- Alarms for power failure by relay output
- Redundant power inputs with Terminal Block and DC Jack
- -40°C to 75°C (-40°F to 167°F) operating temperature range
- Hardened aluminum case
- Supports DIN-Rail, Panel Mounting installation

Ordering Information

EX95160-00Z	16-port 10/100Base-TX Hardened Unmanaged Ethernet Switch
EX95151-X0Z	15-port 10/100Base-TX + 1-port 100Base-FX Hardened Unmanaged Ethernet Switch
EX95142-X0Z	14-port 10/100Base-TX + 2-port 100Base-FX Hardened Unmanaged Ethernet Switch

100FX Fiber Options:

(X) =1: Multi Mode (SC)
2: Multi Mode (ST)
A: Single Mode (SC)-20Km
B: Single Mode (SC)-40Km
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

*More 100FX Fiber options also available upon request.

Power Input Interface:

(Z) =B : Terminal Block & DC Jack

Power Supply: (Optional)

*Option A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: DR-30-24, DR-60-24, DR-75-24, DR-120-24 or 41-136046-X X=1,2,3,4,5

**Option B - The external power adapter and power cord are not included. Please order the following part numbers, as required: 41-136044-X X=1,2,3,4,5

*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)

Installation Type: DIN Rail (mounting kit is included)
Optional Panel mount kit, ordered separately, part number: KP-AA96-480

Specifications

Technology
Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 1.625M bits

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

Address Table Size:
- 4096 MAC addresses

Power
Input:
- Input Voltage: 12 to 48VDC(Terminal Block); 12VDC (DC Jack)

Power Consumption:
- 8.4W Max , 0.7A@12VDC, 0.35A@24VDC, 0.175A@48VDC

Power Supply References:
- Terminal Block: 12 to 24VDC, 1.5A
- DC Jack: 12VDC, 3A

Overload Current Protection:
- Present

Reverse Polarity Protection:
- Present

Mechanical
Casing:
- Aluminum case
- IP20

Dimensions:
- 75.5mm (W) x 110mm (D) x 135mm (H)
  (2.98" (W) x 4.33" (D) x 5.31" (H))

Weight:
- 0.87Kg(1.92lbs.)

Installation:
- DIN-Rail, Panel Mounting

Interface
Ethernet Port:
- 10/100Base-TX: 16, 15 or 14 ports
- 100Base-FX: 0, 1 or 2 ports

LED Indicators:
- Per Unit: Power Status (Power 1, Power 2, Power 3)
- Per Port: 10/100TX, 100FX: Link/Activity

Alarm Contact:
- One relay output with current 1A @ 24VDC

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

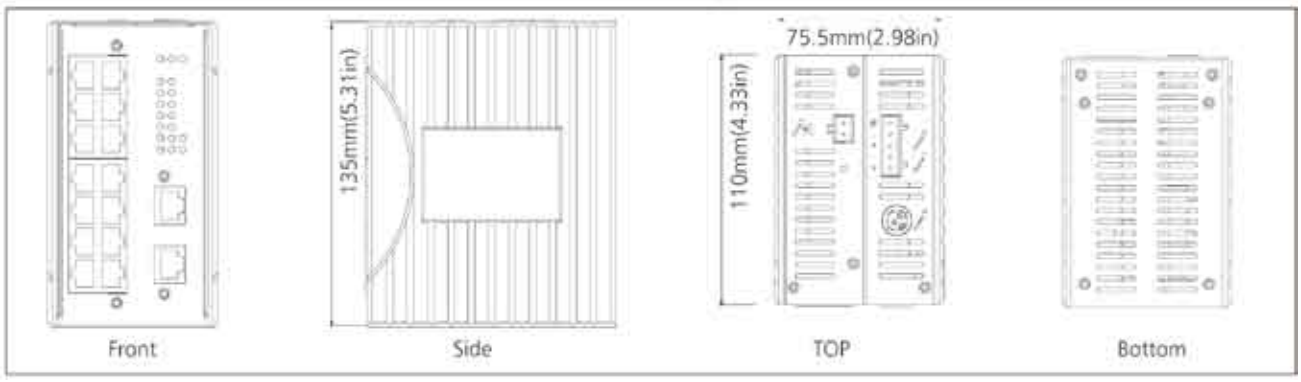
EMI:
- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

EMS:
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)
    Contact: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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.)

NEMA TS1/2 Environmental requirements for Traffic control equipment

Diagrams



EX94000 Series

5/8 ports 10/100Base Fast Ethernet Hardened Unmanaged Ethernet Switches

Overview

The EX94000 series Ethernet switches are designed to operate in the harsh environments at the edge of the network. The EX94000 functions at temperatures ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional operation @ -40°C to 85°C (-40°F to 185°F). Whether on the factory floor or the street corner, the EX94000 will provide flawless communications when you most need it most. The EX94000 is a switch with the flexibility of five or eight Ethernet ports that may be configured in various combinations of copper and fiber optic interfaces. The EX94000 may be DIN rail or Panel mounted, and comes with power options to match the applications that require a tough, environmentally hardened, Ethernet switch.

Features

- Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- UL1604 Class 1, Division 2 Classified for use in hazardous locations
- 2048 MAC addresses
- 768K bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- Alarms for power and port link failure by relay output
- Redundant power inputs with Terminal Block or DC Jack
- -40°C to 75°C (-40°F to 167°F) operating temperature range
- Hardened aluminum case
- Supports DIN-Rail, Panel Mounting installation

Ordering Information

EX94008-00-I-P	8-port 10/100Base-TX Hardened Unmanaged Ethernet Switch
EX94018-XY-I-P	8-port 10/100Base-TX + 1-port 100Base-FX Hardened Unmanaged Ethernet Switch
EX94026-XY-I-P	6-port 10/100Base-TX + 2-port 100Base-FX Hardened Unmanaged Ethernet Switch
EX94044-XY-I-P	4-port 10/100Base-TX + 4-port 100Base-FX Hardened Unmanaged Ethernet Switch
EX94005-00-I-P	5-port 10/100Base-TX Hardened Unmanaged Ethernet Switch
EX94014-XY-I-P	4-port 10/100Base-TX + 1-port 100Base-FX Hardened Unmanaged Ethernet Switch
EX94024-XY-I-P	4-port 10/100Base-TX + 2-port 100Base-FX Hardened Unmanaged Ethernet Switch

100FX Fiber Options:

(XY) = 1A : Multi Mode (SC)
1B : Multi Mode (ST)
2A : Single Mode (SC) -20Km
2B : Single Mode (SC) -40Km
2D : Single Mode (ST) -20Km
2E : Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km
2F : Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km
2G : Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km
2H : Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km

*More 100FX Fiber options also available upon request.

Installation Type:

(I) = 1 : DIN Rail (mounting kit is included)
Optional Panel mount kit, ordered separately, part number: KP-AA96-480

Power Connector Options :

(P) = A : Terminal Block* / B : DC Jack**

*Option A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: DR-30-24, DR-60-24, DR-75-24, DR-120-24 or 41-136046-X X=1,2,3,4,

**Option B - The external power adapter and power cord are not included. Please order the following part numbers, as required: 41-136044-X X=1,2,3,4,5

*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)

Specifications

Technology
Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 768K bits

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

Address Table Size:
- 2048 MAC addresses

Latency:
- Less than 7.1μs

Power
Input:
- Input Voltage: 12 to 48VDC(Terminal Block); 12VDC (DC Jack)

Power Consumption:
- 9.12W Max. 0.76A@12VDC, 0.38A@24VDC, 0.19A@48VDC

Power Supply References:
- Terminal Block: 12 to 24VDC, 1.5A
- DC Jack: 12VDC, 3A

Overload Current Protection:
- Present

Reverse Polarity Protection:
- Present

Mechanical
Casing:
- Aluminum case
- IP20

Dimensions:
- 50mm (W) x 110mm (D) x 135mm (H)
  (1.97" (W) x 4.33" (D) x 5.31" (H))

Weight:
- 0.8Kg (1.76lbs.)

Installation:
- DIN-Rail, Panel Mounting

Interface
Ethernet Port:
- 10/100Base-TX: 8, 6, 5 or 4 ports
- 100Base-FX: 0, 1, 2 or 4 ports

LED Indicators:
- Per Unit: Power Status (Power 1, Power 2, Fault)
- Per Port: 10/100TX, 100FX: Link/Activity (Green), Speed (Yellow)

Alarm Contact:
- One relay output with current 1A @ 24VDC

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:
- Hazardous locations: Class 1, Division 2 group A,B,C&D
- UL60950-1, EN60950-1, IEC60950-1

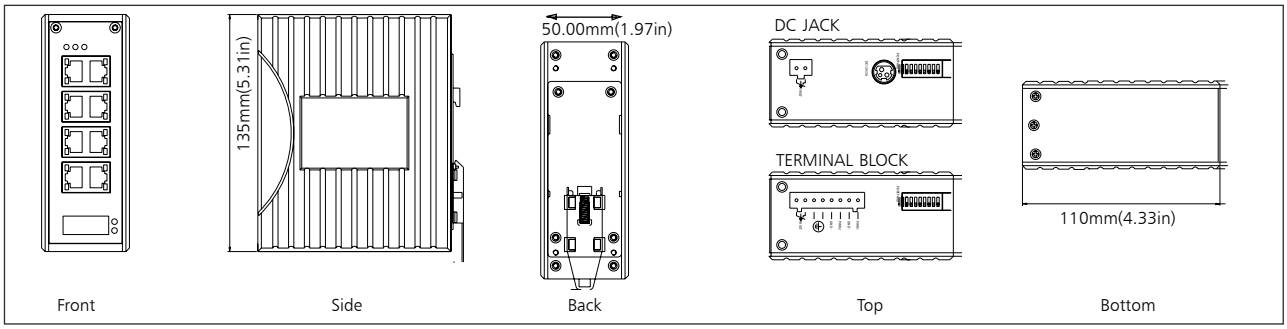
EMI:
- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

EMS:
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)
    Contact: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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.)

NEMA TS1/2 Environmental requirements for Traffic control equipment

Diagrams



EX93000 Series

8-port 10/100Base Fast Ethernet Hardened Unmanaged Ethernet Switches

Overview

The EX93000 series Ethernet switches are designed to operate in the harsh environments at the edge of the network. The EX93000 functions at temperatures ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional oparation @-40°C to 85°C (-40°F to 185°F). Whether on the factory floor or the street corner, the EX93000 will provide flawless communications when you need it most. The EX93000 is a switch with the flexibility of eight Ethernet ports that may be configured in various combinations of copper and fiber optic interfaces. Flexibility is the main feature of the EX93000, it may be DIN rail, shelf or wall mounted, and comes with power options to match the applications that require a tough, environmentally hardened, Ethernet switch.

Features

- Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- 2048 MAC addresses
- 768K bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- Alarms for power failure by relay output
- Redundant power inputs with Terminal Block or DC Jack
- -40°C to 75°C (-40°F to 167°F) operating temperature range
- Hardened aluminum case
- Supports DIN-Rail, Panel or Rack Mounting installation

Ordering Information

EX93008-00-I-P	8-port 10/100Base-TX Hardened Unmanaged Ethernet Switch
EX93018-XY-I-P	8-port 10/100Base-TX + 1-port 100Base-FX Hardened Unmanaged Ethernet Switch
EX93026-XY-I-P	6-port 10/100Base-TX + 2-port 100Base-FX Hardened Unmanaged Ethernet Switch
EX93044-XY-I-P	4-port 10/100Base-TX + 4-port 100Base-FX Hardened Unmanaged Ethernet Switch

100FX Fiber Options:

(XY) = 1A : Multi Mode (SC)
1B : Multi Mode (ST)
2A : Single Mode (SC) -20Km
2B : Single Mode (SC) -40Km
2D : Single Mode (ST) -20Km
2E : Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km
2F : Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km
2G : Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km
2H : Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km

*More 100FX Fiber options also available upon request.

Installation Type:

(I) = 1 : DIN Rail (mounting kit is included)
Optional Panel mount kit, ordered separately, part number: KP-AA96-480

Optional Rack mount kit, ordered separately, part number: KR-BK43-400

Power Connector Options :

(P) = A : Terminal Block* / B : DC Jack**
*Option A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: DR-30-24, DR-60-24, DR-75-24, DR-120-24 or 41-136046-X X=1,2,3,4,5
**Option B - The external power adapter and power cord are not included. Please order the following part numbers, as required: 41-136044-X X=1,2,3,4,5

*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)

Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 768K bits

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

Address Table Size:
- 2048 MAC addresses

Latency:
- Less than 7.1μs

Power

Input:
- Input Voltage: 12 to 30VDC (Terminal Block); 12VDC (DC Jack)

Power Consumption:
- 13.2W Max. 1.1A@12VDC, 0.55A@24VDC

Power Supply References:
- Terminal Block: 12 to 24VDC, 1.5A
- DC Jack: 12VDC, 3A

Reverse Polarity Protection:
- Present

Mechanical

Casing:
- Aluminum case
- IP20

Dimensions:
- 50mm (W) x 125mm (D) x 135mm (H)
  (1.97" (W) x 4.92" (D) x 5.31" (H))

Weight:
- 0.8Kg (1.76lbs.)

Installation:
- DIN-Rail, Panel, Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 8, 6 or 4 ports
- 100Base-FX: 0, 1, 2 or 4 ports

LED Indicators:
- Per Unit: Power Status (Power 1, Power 2)
- Per Port: 10/100TX, 100FX: Link/Activity (Green), Speed (Yellow)

Alarm Contact:
- One relay output with current 1A @ 24VDC

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:
- UL60950-1, EN60950-1, IEC60950-1

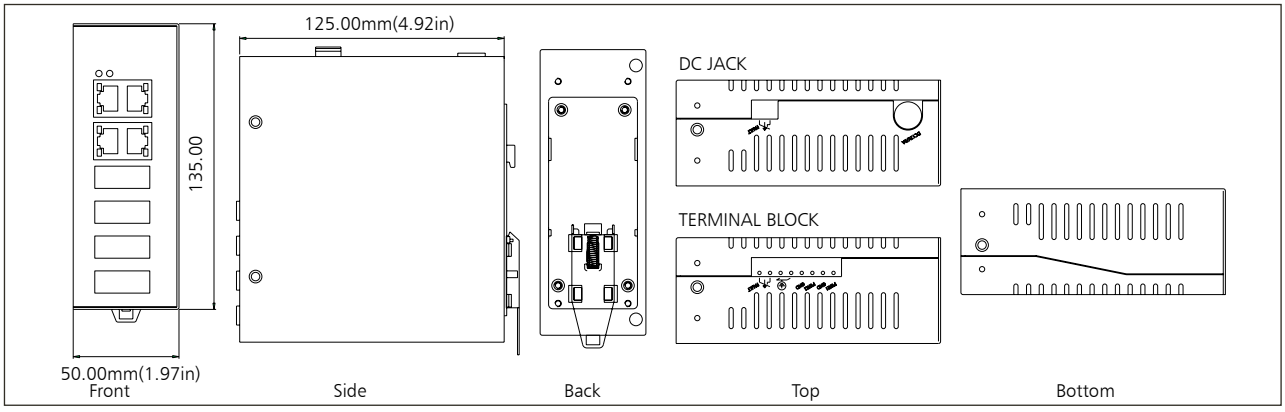
EMI:
- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

EMS:
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)
    Contact: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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.)

NEMA TS1/2 Environmental requirements for Traffic control equipment

Diagrams



EX46000 Series

8-port 10/100Base Fast Ethernet Hardened Web-Smart PoE Ethernet Switches

coming soon

Overview

The EX46000 Hardened PoE Smart Ethernet Switch series is designed to operate in the harsh environments at the edge of the network. The EX46000 functions at temperature ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional operation @-40°C to 85°C (-40°F to 185°F). Whether on the factory floor or the street corner, the EX46000 will provide flawless communications when you need it most. The EX46000 is a Switch with the flexibility of eight Ethernet ports that may be configured in various combinations of copper and fiber optic interfaces. The EX46000 may be DIN- Rail, Panel, or Rack mounted, and comes with Terminal Block and Power Jack power inputs to match the applications that require a tough, environmentally Hardened Ethernet Switch.
Port 1 ~ port 4 on EX46000 supports 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 or Power Jack, data and power can be transmitted to a Powered Device (PD) over the same twisted-pair Ethernet cable through port 1 ~ port 4 on EX46000.
The EX46000 provides a Web browser interface that allows the user to configure IP settings, Port based VLAN, QoS settings, and load default settings as well as indicate the status of the switch such as PoE conditions, Link status and Alarm conditions.

Features

- Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- Supports IEEE802.3af Power over Ethernet (PoE) Power Sourcing Equipment (PSE)
- power status, PoE status, Link status, and Alarm condition of relay through the Web browser Interface
- System, IP Configuration, Port-based VLAN, QoS Mode, QoS Priority, and Load Default setting through the Web browser Interface
- 1024 MAC addresses
- 1M bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- Alarms for power and port link failure by relay output
- Redundant power inputs with Terminal Block and DC Jack
- -40°C to 75°C (-40°F to 167°F) operating temperature range
- Hardened aluminum case
- Supports DIN-Rail, Panel Mounting installation

Ordering Information

EX46080-00Z	8-port 10/100Base-TX Hardened Web-Smart PoE Ethernet Switch
EX46071-X0Z	7-port 10/100Base-TX +1-port 100Base-FX Hardened Web-Smart PoE Ethernet Switch
EX46062-X0Z	6-port 10/100Base-TX +2-port 100Base-FX Hardened Web-Smart PoE Ethernet Switch

100FX Fiber Options:

(X) =1: Multi Mode (SC)
2: Multi Mode (ST)
A: Single Mode (SC)-20Km
B: Single Mode (SC)-40Km
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

*More 100FX Fiber options also available upon request.

Power Input Interface:

(Z) =B : Terminal Block & DC Jack

Power Supply: (Optional)

*Option A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: DR-120-48
**Option B - The external power adapter and power cord are not included. Please order the following part numbers, recommend for indoor use, as required: AS-120P-48

*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)

Installation Type: DIN Rail (mounting kit is included)
Optional Panel mount kit, ordered separately, part number: KP-AA96-480

Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/FX, IEEE802.3x, IEEE802.3af

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 1M bits

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

Address Table Size:
- 1024 MAC addresses

Power

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

Power Consumption:
- 72W Max. 1.5A@48VDC

Power Supply References:
- Terminal Block: 48VDC, 2.5A
- DC Jack: 48VDC, 2.5A

Overload Current Protection:
- Present

Reverse Polarity Protection:
- Present

Mechanical

Casing:
- Aluminum case
- IP20

Dimensions:
- 68mm (W) x 110mm (D) x 135mm (H)
  (2.68" (W) x 4.33" (D) x 5.31" (H))

Weight:
- 1Kg (2.2lbs.)

Installation:
- DIN-Rail, Panel Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 8, 7 or 6 ports
- 100Base-FX: 0, 1 or 2 ports

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

Alarm Contact:
- One relay output with current 0.1A @ 24VDC

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

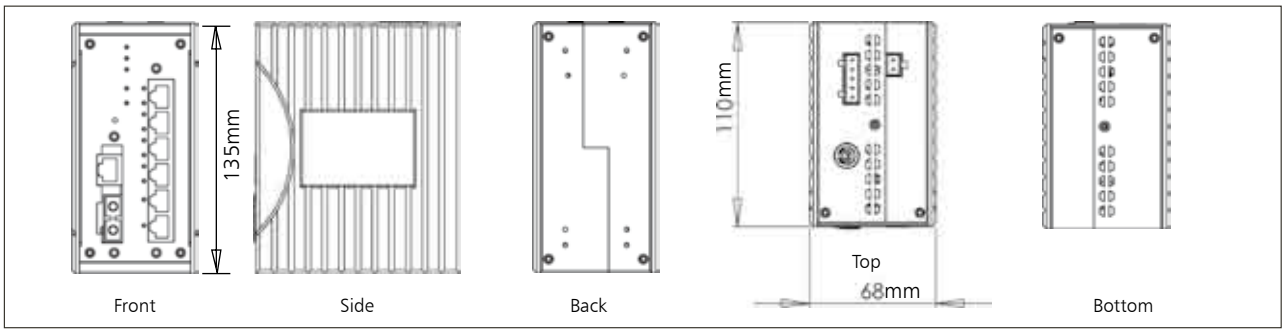
EMI:
- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

EMS:
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)
    Contact: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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.)

NEMA TS1/2 Environmental requirements for Traffic control equipment

Diagrams



EX45000 Series

8-port 10/100Base Fast Ethernet Hardened Unmanaged PoE Ethernet Switches

Overview

The EX45000 Hardened PoE Ethernet Switch series is a PoE switch, designed to operate in the harsh environments at the edge of the network. The EX45000 functions at temperatures ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional operation @ -40°C to 85°C (-40°F to 185°F). Whether on the factory floor or the street corner, the EX45000 will provide flawless communications when you need it most. The EX45000 is a Switch with the flexibility of eight Ethernet ports , 4 of which are PoE, that may be configured in various combinations of copper and fiber optic interfaces. Flexibility is the main feature of the EX45000, it may be DIN- Rail, Panel, or Rack mounted, and comes with Terminal Block and Power Jack power inputs to match the applications that require a tough, environmentally Hardened Ethernet Switch.
Port 1 ~ port 4 on EX45000 supports 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 or Power Jack, data and power can be transmitted to a Powered Device (PD) over the same twisted-pair Ethernet cable through port 1 ~ port 4 on EX45000.

Features

- Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- Supports IEEE802.3af Power over Ethernet (PoE) Power Sourcing Equipment (PSE)
- 1024 MAC addresses
- 1M bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- Alarms for power and port link failure by relay output
- Redundant power inputs with Terminal Block and DC Jack
- -40°C to 75°C (-40°F to 167°F) operating temperature range
- Hardened aluminum case
- Supports DIN-Rail, Panel Mounting installation

Ordering Information

EX45080-00Z	8-port 10/100Base-TX Hardened Unmanaged PoE Ethernet Switch
EX45071-X0Z	7-port 10/100Base-TX +1-port 100Base-FX Hardened Unmanaged PoE Ethernet Switch
EX45062-X0Z	6-port 10/100Base-TX +2-port 100Base-FX Hardened Unmanaged PoE Ethernet Switch

100FX Fiber Options:

(X) =1: Multi Mode (SC)
2: Multi Mode (ST)
A: Single Mode (SC)-20Km
B: Single Mode (SC)-40Km
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

*More 100FX Fiber options also available upon request.

Power Input Interface:

(Z) =B : Terminal Block & DC Jack

Power Supply: (Optional)

*Option A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: DR-120-48

**Option B - The external power adapter and power cord are not included. Please order the following part numbers, recommend for indoor use, as required: AS-120P-48

*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)

Installation Type: DIN Rail (mounting kit is included)
Optional Panel mount kit, ordered separately, part number: KP-AA96-480

Specifications

Technology
Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/FX, IEEE802.3x, IEEE802.3af

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 1M bits

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

Address Table Size:
- 1024 MAC addresses

Power
Input:
- Input Voltage: 48VDC (Terminal Block; DC Jack)

Power Consumption:
- 72W Max. 1.5A@48VDC

Power Supply References:
- Terminal Block: 48VDC, 2.5A
- DC Jack: 48VDC, 2.5A

Overload Current Protection:
- Present

Reverse Polarity Protection:
- Present

Mechanical
Casing:
- Aluminum case
- IP20

Dimensions:
- 68mm (W) x 110mm (D) x 135mm (H)
  (2.68" (W) x 4.33" (D) x 5.31" (H))

Weight:
- 1Kg (2.2lbs.)

Installation:
- DIN-Rail, Panel Mounting

Interface
Ethernet Port:
- 10/100Base-TX: 8, 7 or 6 ports
- 100Base-FX: 0, 1 or 2 ports

LED Indicators:
- Per Unit: Power Status (Power 1, Power 2, Power 3)
- Per Port: 10/100TX, 100FX: Link/Activity

Alarm Contact:
- One relay output with current 0.1A @ 24VDC

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

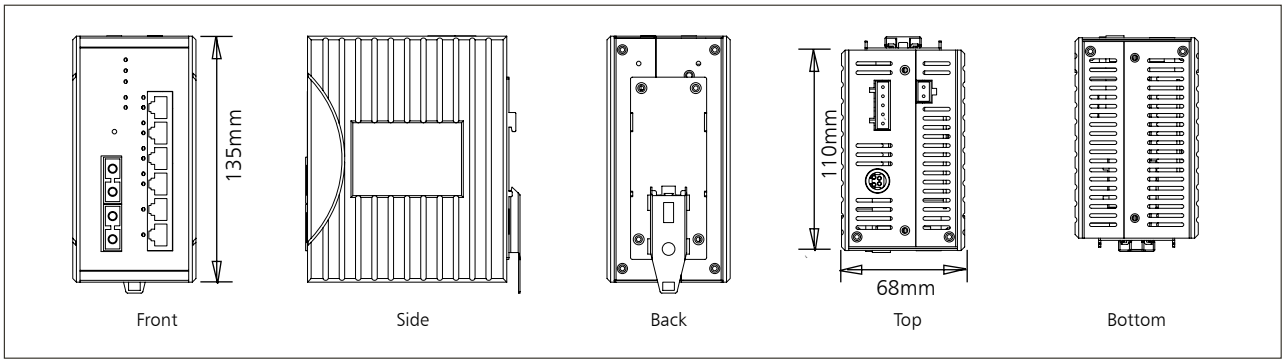
EMI:
- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

EMS:
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)
    Contact: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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.)

NEMA TS1/2 Environmental requirements for Traffic control equipment

Diagrams



EX43000 Series

8-port 10/100Base Fast Ethernet Industrial Unmanaged Ethernet Switches

Overview

The EX43000 series Ethernet switches are designed to operate in industrial environments at the edge of the network. On the factory floor, the EX43000 will provide flawless communications when you need it most. The EX43000 is a switch with the flexibility of eight Ethernet ports that may be configured in various combinations of copper and fiber optic interfaces. Flexibility is the main feature of the EX43000, it may be DIN rail, shelf or wall mounted, and comes with power options to match the applications that require a tough, industrial, Ethernet switch.

Features

- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- 2048 MAC addresses
- 768K bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- Alarms for power failure by relay output
- Redundant power inputs with Terminal Block or DC Jack
- -20°C to 60°C (-4°F to 140°F) operating temperature range
- Industrial aluminum case
- Supports DIN-Rail, Panel or Rack Mounting installation

Ordering Information

EX43008-00-I-P	8-port 10/100Base-TX Hardened Unmanaged Ethernet Switch
EX43018-XY-I-P	8-port 10/100Base-TX + 1-port 100Base-FX Hardened Unmanaged Ethernet Switch
EX43026-XY-I-P	6-port 10/100Base-TX + 2-port 100Base-FX Hardened Unmanaged Ethernet Switch
EX43044-XY-I-P	4-port 10/100Base-TX + 4-port 100Base-FX Hardened Unmanaged Ethernet Switch

100FX Fiber Options:

(XY) = 1A : Multi Mode (SC)
1B : Multi Mode (ST)
2A : Single Mode (SC) -20Km
2B : Single Mode (SC) -40Km
2D : Single Mode (ST) -20Km
2E : Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km
2F : Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km
2G : Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km
2H : Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km

*More 100FX Fiber options also available upon request.

Installation Type :

(I) = 1 : DIN Rail (mounting kit is included)
Optional Panel mount kit, ordered separately, part number: KP-AA96-480

Optional Rack mount kit, ordered separately, part number: KR-BK43-400

Power Connector Options :

(P) = A : Terminal Block* / B : DC Jack**
*Options A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: DR-30-24, DR-60-24, DR-75-24, DR-120-24 or 41-136046-X X=1,2,3,4,5
**Options B - The external power adapter and power cord are not included. Please order the following part numbers, as required: 41-136044-X X=1,2,3,4,5

*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)

Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 768K bits

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

Address Table Size:
- 2048 MAC addresses

Latency:
- Less than 7.1μs

Power

Input:
- Input Voltage: 12 to 30VDC (Terminal Block); 12VDC (DC Jack)

Power Consumption:
- 13.2W Max. 1.1A@12VDC, 0.55A@24VDC

Power Supply References:
- Terminal Block: 12 to 24VDC, 1.5A
- DC Jack: 12VDC, 3A

Reverse Polarity Protection:
- Present

Mechanical

Casing:
- Aluminum case
- IP20

Dimensions:
- 50mm (W) x 125mm (D) x 135mm (H)
- (1.97" (W) x 4.92" (D) x 5.31" (H))

Weight:
- 0.8Kg (1.76lbs.)

Installation:
- DIN-Rail, Panel, Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 8, 6 or 4 ports
- 100Base-FX: 0, 1, 2 or 4 ports

LED Indicators:
- Per Unit: Power Status (Power 1, Power 2)
- Per Port: 10/100TX, 100FX: Link/Activity (Green), Speed (Yellow)

Alarm Contact:
- One relay output with current 1A @ 24VDC

Environment

Operating Temperature:
- -20°C to 60°C (-4°F to 140°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

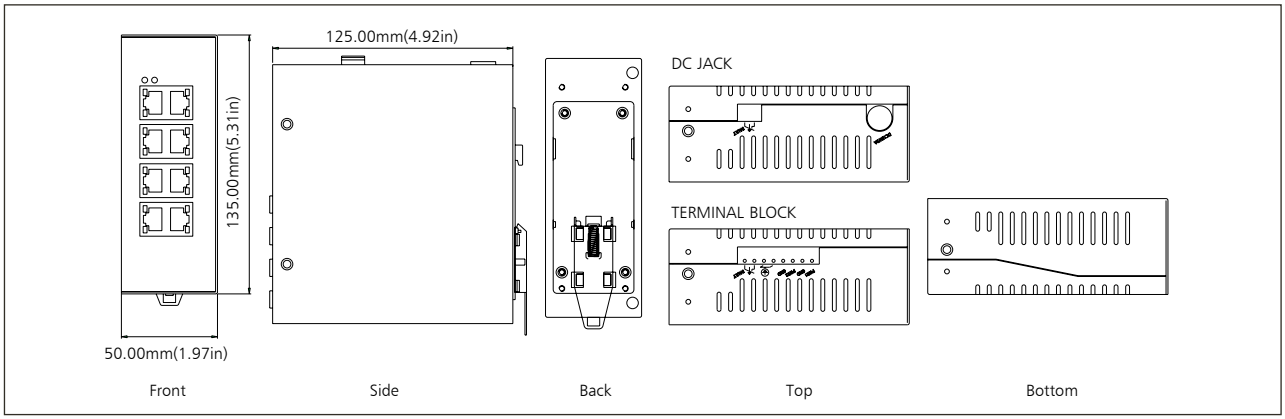
Safety:
- UL60950-1, EN60950-1, IEC60950-1

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: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
    EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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



EX42000 Series

5-port 10/100Base Fast Ethernet Industrial Unmanaged Ethernet Switches

Overview

The EX42000 series compact Fast Ethernet Switches are equipped with 5-port 10/100Base-TX or 4-port 10/100Base-TX plus 1-port 100Base-FX. By using standard auto-negotiation and the inclusion of auto-MDIX, EtherWAN provides a cost-effective way of integrating legacy 10Mbps networks with 100Mbps Fast Ethernet networks. The TX ports auto-negotiate for 10/100Mbps speed and auto-detect Full or Half-duplex mode. The fiber port on EX42014 is available with SC or ST with a fiber connection between two nodes that can reach up to 120Km (74.4miles). EX42000 series can be DIN-Rail mounted and is equipped with Terminal Block power input to match the industrial applications that require an Ethernet Switch.

Features

- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- 2048 MAC addresses
- 384K bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- 12 to 48VDC Power inputs
- -10°C to 60°C (14°F to 140°F) operating temperature range
- Industrial plastic case
- Supports DIN-Rail Mounting installation
- Full wire-speed forwarding rate

Ordering Information

EX42005-00-I-P	5-port 10/100Base-TX Industrial Unmanaged Ethernet Switch
EX42014-XY-I-P	4-port 10/100Base-TX + 1-port 100Base-FX Industrial Unmanaged Ethernet Switch
EX42011-XY-I-P	1-port 10/100Base-TX + 1-port 100Base-FX Industrial Unmanaged Ethernet Switch

100FX Fiber Options:

(XY) = 1A : Multi Mode (SC)
1B : Multi Mode (ST)
2A : Single Mode (SC) -20Km
2B : Single Mode (SC) -40Km
2D : Single Mode (ST) -20Km
2E : Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km
2F : Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km
2G : Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km
2H : Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km

*More 100FX Fiber options also available upon request.

Installation Type:

(I) = 1 : DIN Rail (mounting kit is included)

Power Connector Options :

(P) = A : Terminal Block*

*Option A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: DR-30-24, DR-60-24, DR-75-24, DR-120-24 or 41-136046-X X=1,2,3,4,5

*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)

Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 384K bits

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

Address Table Size:
- 2048 MAC addresses

Latency:
- Less than 5.1μs

Power

Input:
- Input Voltage: 12 to 48VDC (Terminal Block)

Power Consumption:
- 2.4W Max. 0.2A@12VDC, 0.1A@24VDC, 0.05A@48VDC

Power Supply References:
- Terminal Block: 12 to 24VDC, 1.5A

Overload Current Protection:
- Present

Reverse Polarity Protection:
- Present

Mechanical

Casing:
- Plastic case
- IP30

Dimensions:
- 26mm (W) x 70mm (D) x 110mm (H)
  (1.02" (W) x 2.76" (D) x 4.33" (H))

Weight:
- 0.2Kg (0.44lb.)

Installation:
- DIN-Rail Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 5, 4 or 1 ports
- 100Base-FX: 0 or 1 ports

LED Indicators:
- Per Unit: Power Status (Power 1, Power 2)
- Per Port: 10/100TX, 100FX: Link/Activity (Green), Speed (Yellow)

Environment

Operating Temperature:
- -10°C to 60°C (14°F to 140°F)

Storage Temperature:
- -25°C to 85°C (-13°F to 185°F)

Ambient Relative Humidity:
- 5% to 95% (non-condensing)

Regulatory Approvals

ISO:
- Manufactured in an ISO9001 facility

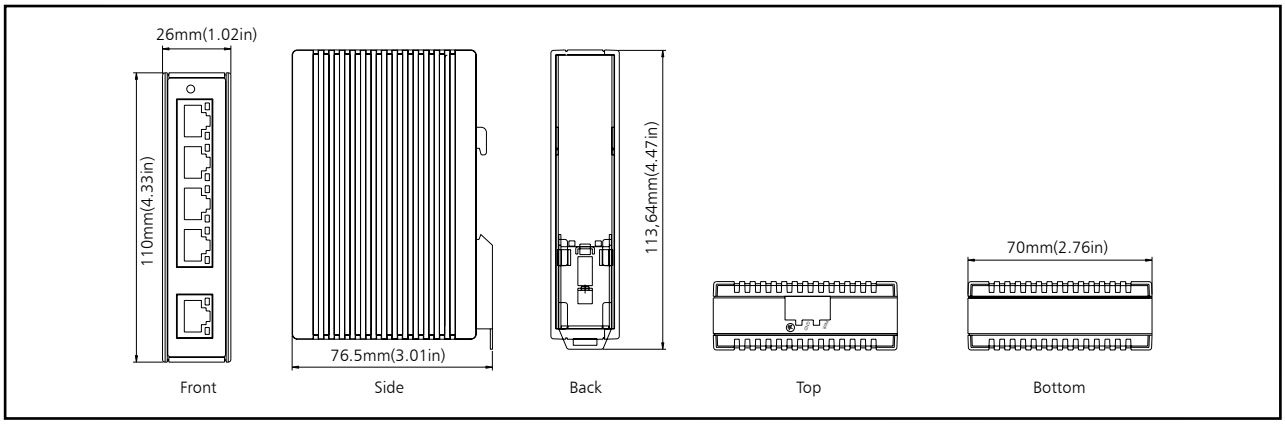
Safety:
- UL60950-1, EN60950-1, IEC60950-1

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: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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



EX35000 Series

8-port Gigabit Industrial Unmanaged Ethernet Switches

Overview

The EX35000 series Ethernet switches are designed to operate in industrial field environments at the edge of the network. Whether on the factory floor or the control room, the EX35000 will provide flawless communications when you most need it. The EX35000 is a switch with the flexibility of eight Gigabit Ethernet ports that may be configured in various combinations of copper and fiber optic interfaces. It provides six 10/100/1000Base-TX copper ports plus two Gigabit combo ports. This Gigabit combo port means that customers can choose to use either 1000Base-SX/LX interface or 10/100/1000Base-TX interface according to their need. The switch gives priority to the port that is connected or to the optical port if both are connected. Flexibility is the main feature of the EX35000, it may be DIN rail, panel mounted and comes with power options to match the applications that require a tough, environmentally hardened Ethernet switch.

Features

- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment.
- 8192 MAC addresses
- 1.125M bits buffer memory
- Supports jumbo frame up to 9KB
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- Alarms for power failure by relay output
- Redundant power inputs with Terminal Block and DC Jack
- -20°C to 60°C (-4°F to 140°F) operating temperature range
- Hardened aluminum case
- Supports DIN-Rail,Panel Mounted installation

Ordering Information

EX35080-00Z	8-port 10/100/1000Base-TX Industrial Unmanaged Ethernet Switch
EX35081-0YZ	7-port 10/100/1000Base-TX +1-port combo Gigabit Industrial Unmanaged Ethernet Switch
EX35082-0YZ	6-port 10/100/1000Base-TX +2-port combo Gigabit Industrial Unmanaged Ethernet Switch

Gigabit Options:

(Y) = 3 : 1000Base-SX (SC)
A : 1000Base-LX (SC) 10Km
B : 1000Base-LX (SC) 20Km
R : 1000Base-LX (SC) WDM RX:1310nm/RX:1550nm-20Km
S : 1000Base-LX (SC) WDM RX:1550nm/RX:1310nm-20Km

*More Gigabit Fiber options also available upon request.

Power Input Interface:

(Z) =B : Terminal Block & DC Jack

Power Supply: (Optional)

*Option A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: DR-30-24, DR-60-24, DR-75-24, DR-120-24 or 41-136046-X X=1,2,3,4,5

**Option B - The external power adapter and power cord are not included. Please order the following part numbers, as required: 41-136044-X X=1,2,3,4,5

*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)

Installation Type: DIN Rail (mounting kit is included)
Optional Panel mount kit, ordered separately, part number: KP-AA96-480

Specifications

Technology

Standards:
- IEEE802.3 10Base-T, 802.3u 100Base -TX/FX, 802.3ab 1000Base-T, 802.3z 1000Base-SX/LX
- IEEE802.3 x Flow Control:Flow control for full-duplex
- IEEE802.1p Queue Priority:Support four priority Queues

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory:
- 1.125M bits

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

Address Table Size:
- 8192 MAC addresses

Latency:
- 64 Bytes packet length less than 2.9μs
- 1518 Bytes packet length less than 7.9μs

Power

Input:
- Input Voltage: 12 to 32VDC (Terminal Block); 12VDC (DC Jack)

Power Consumption:
- 7.2W Max. 0.6A@12VDC, 0.3A@24VDC

Power Supply References:
- Terminal Block: 12 to 24VDC, 1.5A
- DC Jack: 12VDC, 3A

Overload Current Protection:
- Present

Reverse Polarity Protection:
- Present

Mechanical

Casing:
- Aluminum case
- IP20

Dimensions:
- 58mm (W) x 110mm (D) x 135mm (H)
  (2.29" (W) x 4.33" (D) x 5.31" (H))

Weight:
- 0.8Kg (1.761lbs.)

Installation:
- DIN-Rail, Panel Mounting

Interface

Ethernet Port:
- Gigabit: 8 ports (2 Fiber combo ports included)

LED Indicators:
- Per Unit: Power Status (Power 1, Power 2, Power 3)
- Per Port: Link/Activity (Green:10/100Mbps, Orange:1000Mbps)

Alarm Contact:
- One relay output with current 1A @ 24VDC

Environment

Operating Temperature:
- -20°C to 60°C (-4°F to 140°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

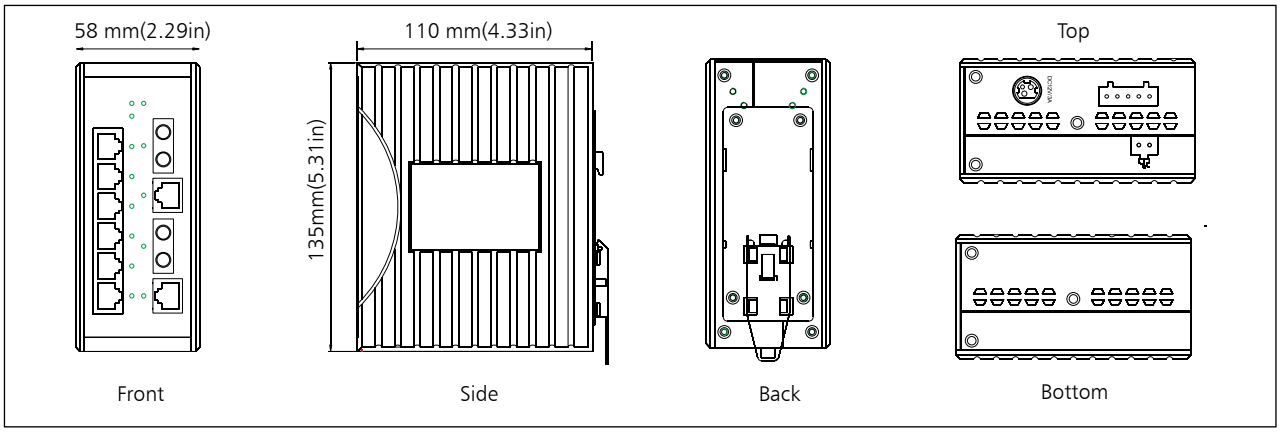
Safety:
- UL508, EN60950-1, IEC60950-1

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: + / - 4KV; 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
    A.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
    A.C. Power Ports: + / - 2KV; 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
    A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)
    30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)
    A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

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



EX3224SF Series

24-port 100Base-FX with up to 2-port Gigabit Managed Ethernet Switches

Overview

The EX3224SF Series is specifically designed to meet the requirements of high fiber-port counts plus Gigabit connectivity. With the aid of several advanced technological innovations and features, EX3224SF Series is the ultimate choice in today's Fiber Last Mile solution. Based on 8, 12, 16 or 24 fiber ports for 100Base-FX networks, either Multi-Mode (SC or ST) or Single-Mode (SC). EX3224SF Series is also built with 0, 1, or 2 Gigabit ports for 10/100/1000TX or 1000Base-SX/LX. EX3224SF Series supports several management functions ranging from web-based management, SNMP Management, RMON... etc. With these newly developed technologies, EX3224SF Series are by far the best choice for network managers.

Features

- IEEE802.1w RSTP and IEEE802.1D STP compatible
- IP Multicast Filtering through IGMP Snooping
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- IEEE802.1p QoS classification based on: Port-based priority; VLAN priority field in VLAN tagged frame; DS/TOS field in IP packet; UDP/TCP logical ports
- Port-based trunking, up to three groups and maximum of four ports each group, load sharing based on source and destination MAC addresses
- RS-232 console, Telnet, SNMP V1 & V2, RMON, Web Browser, and TFTP ManagementRate Control
- Bandwidth Rate Control
- Port Security by MAC addresses filtering, limit number of MAC addresses learned per port, static MAC addresses stay in the filtering table
- Port mirroring
- 12288 MAC addresses
- 16M Bits buffer memory
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Metal case
- Supports Rack Mounting installation

Ordering Information

EX3008SFC	8-port 100Base-FX Multi Mode (SC) Managed Ethernet Switch
EX3012SFC	12-port 100Base-FX Multi Mode (SC) Managed Ethernet Switch
EX3016SFC	16-port 100Base-FX Multi Mode (SC) Managed Ethernet Switch
EX3024SFC	24-port 100Base-FX Multi Mode (SC) Managed Ethernet Switch
EX3108SFC	8-port 100Base-FX Multi Mode (SC) + 1-port 1000Base-SX (SC) Managed Ethernet Switch
EX3112SFC	12-port 100Base-FX Multi Mode (SC) + 1-port 1000Base-SX (SC) Managed Ethernet Switch
EX3116SFC	16-port 100Base-FX Multi Mode (SC) + 1-port 1000Base-SX (SC) Managed Ethernet Switch
EX3124SFC	24-port 100Base-FX Multi Mode (SC) + 1-port 1000Base-SX (SC) Managed Ethernet Switch
EX3208SFC	8-port 100Base-FX Multi Mode (SC) + 2-port 1000Base-SX (SC) Managed Ethernet Switch
EX3212SFC	12-port 100Base-FX Multi Mode (SC) + 2-port 1000Base-SX (SC) Managed Ethernet Switch
EX3216SFC	16-port 100Base-FX Multi Mode (SC) + 2-port 1000Base-SX (SC) Managed Ethernet Switch
EX3224SFC	24-port 100Base-FX Multi Mode (SC) + 2-port 1000Base-SX (SC) Managed Ethernet Switch

*100Base-FX SC fiber also available in Single Mode, 20/40/75/100/120Km.
*100Base-FX SC fiber also available in Single Mode WDM Type A and Type B, 20/40Km.
*100Base-FX ST fiber also available in Multi Mode and Single Mode, 20Km.
*10/100/1000Base-TX also available.
*1000Base-LX SC fiber also available in 10/20/50Km.
*1000Base-LX SC fiber also available in WDM Type A and Type B, 10/20Km.

**All items include Rackmounting bracket (black)

Optional Accessories:
- **KR-AE612-400:** Rack mount kit (black)

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, IEEE802.1Q, IEEE802.1p, IEEE802.1w

Protocols:
- IGMP, GVRP, SNMP V1/V2, RMON, TFTP

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory:
- 16M bits

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

Address Table Size:
- 12288 MAC addresses

Latency:
- 151.5μs

Power

Input:
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

Power Consumption:
- 34.8W Max.

Mechanical

Casing:
- Metal case

Dimensions:
- Single Power: 443.6mm (W) x 285.4mm (D) x 44mm (H) (17.47" (W) x 11.24" (D) x 1.73" (H))
- Redundant Powers: 443.6mm (W) x 403mm (D) x 44mm (H) (17.47" (W) x 15.87" (D) x 1.73" (H))

  Standard 19" rack-mount size, one-unit-height

Weight:
- 3.4Kg (7.5lbs.)

Installation:
- Rack Mounting

Interface

Ethernet Port:
- 100Base-FX: 24, 16, 12 or 8 ports
- Gigabit: 0, 1 or 2 ports

Console Port:
- Port: One DB9 RS-232 port

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 100FX: Link/Activity, Full-duplex/Collision
  10/100/1000TX, 1000SX/LX: Activity, Link

Environment

Operating Temperature:
- 0°C to 45°C (32°F to 113°F)

Storage Temperature:
- -10°C to 70°C (14°F to 158°F)

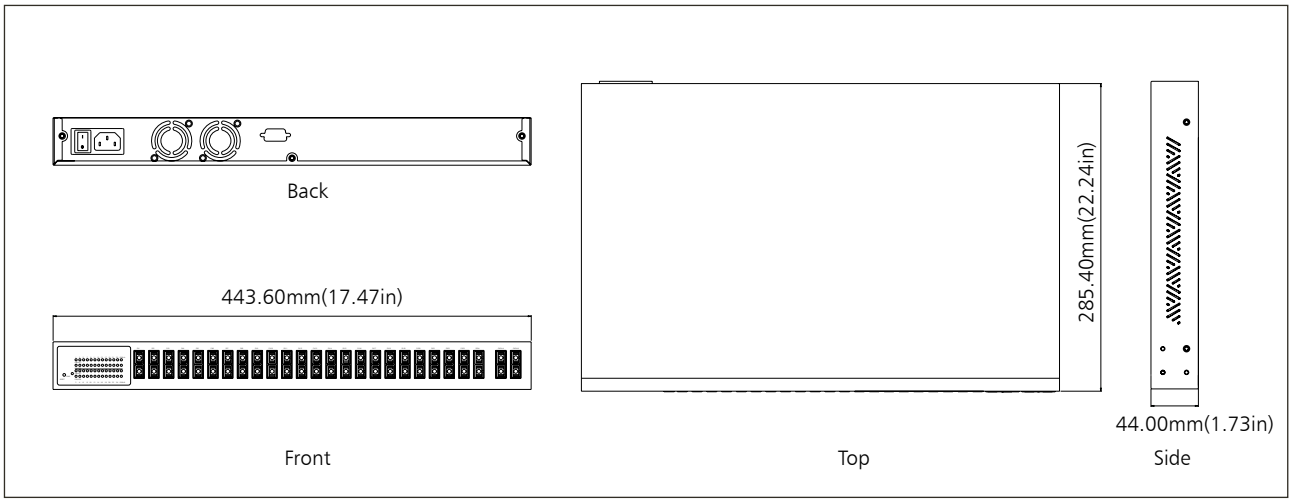
Ambient Relative Humidity:
- 5% to 95% (non-condensing)

Regulatory Approvals:

ISO:
- Manufactured in an ISO9001 facility

Emission Compliance:
- CE Mark Class A, FCC Part 15 Class A

Diagrams



EX3224S/SR Series

16 to 24 ports Modulized 10/100Base Fast Ethernet with up to 2-port Gigabit Managed Ethernet Switches

Overview

The EX3224S Series is equipped with advanced management functions and based on a Single-Chipset provides greater value than some competitive models.
The EX3224S provides 16 fixed TX ports and three slots for optional modules for more flexibility in fiber optic connectivity. One slot allows the use of M800S Series Fast Ethernet Modules and two other slots allow the use of M1000 Series Gigabit Modules. EX3224S features sophisticated Management functions such as Rate/Bandwidth Control allowing the user more flexibility in managing their network.

Features

- IEEE802.1w RSTP and IEEE802.1D STP compatible
- IP Multicast Filtering through IGMP Snooping
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- IEEE802.1p QoS classification based on: Port-based priority; VLAN priority field in VLAN tagged frame; DS/TOS field in IP packet; UDP/TCP logical ports
- Port-based trunking, up to three groups and maximum of four ports each group, load sharing based on source and destination MAC addresses
- RS-232 console, Telnet, SNMP V1 & V2, RMON, Web Browser, and TFTP Management
- Bandwidth Rate Control
- Port Security by MAC addresses filtering, limit number of MAC addresses learned per port, static MAC addresses stay in the filtering table
- Port mirroring
- 12288 MAC addresses
- 16M Bytes buffer memory
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Metal case
- Supports Rack Mounting installation

Ordering Information

Rackmount size Management Fast/Gigabit Ethernet Switch

EX3224S	16-port 10/100Base-TX + 1 slot for M800S Series Modules + 2 slots for M1000 Series Modules
EX3224SR	16-port 10/100Base-TX + 1 slot for M800S Series Modules + 2 slots for M1000 Series Modules with Redundant PSU

** All items include Rackmounting bracket (black)

M800S Series Module (Featuring Auto-MDIX on all TX ports)

	TX port	FX port
TX808S	8	0
FC826S	6	2, Multi Mode (SC)
FT826S	6	2, Multi Mode (ST)
FC844S	4	4, Multi Mode (SC)

	TX port	FX port
FT844S	4	4, Multi Mode (ST)
FC860S	0	6, Multi Mode (SC)
FT860S	0	6, Multi Mode (ST)

* SC fiber also available in Single Mode, 15/40/75/100/120Km
* SC fiber also available in Single Mode WDM Type A and Type B, 20/40Km
* ST fiber also available in Single Mode, 20Km

M1000 Series Module

TX1000	1-port 1000Base-T Gigabit Ethernet Module
SC1000	1-port 1000Base-SX (SC) Gigabit Ethernet Module
LC1000-10	1-port 1000Base-LX (SC) -10Km Gigabit Ethernet Module
LC1000-20	1-port 1000Base-LX (SC) -20Km Gigabit Ethernet Module
LC1000-50	1-port 1000Base-LX (SC) -50Km Gigabit Ethernet Module

* SC fiber also available in Single Mode WDM Type A and Type B, 10/20Km

Optional Accessories:
- **KR-AE612-400:** Rack mount kit (black)

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, IEEE802.1Q, IEEE802.1p, IEEE802.1w

Protocols:
- IGMP, GVRP, SNMP V1/V2, RMON, TFTP

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory:
- 16M bits

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

Address Table Size:
- 12288 MAC addresses

Latency:
- Less than 151.5μs

Power

Input:
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

Power Consumption:
- 18.75W Max.

Mechanical

Casing:
- Metal case

Dimensions:
- Single Power: 443.6mm (W) x 285.4mm (D) x 44mm (H) (17.47" (W) x 11.24" (D) x 1.73" (H))
- Redundant Powers: 443.6mm (W) x 403mm (D) x 44mm (H) (17.47" (W) x 15.87" (D) x 1.73" (H))

  Standard 19" rack-mount size, one-unit-height

Weight:
- 3.4Kg (7.5lbs.)

Installation:
- Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 24, 22, 20 or 16 ports
- 100Base-Fx: 0, 2, 4 or 6 ports
- Gigabit: 0, 1 or 2 ports

Console Port:
- Port: One DB9 RS-232 port

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 10/100TX, 100FX: Link/Activity, Full-duplex/Collision
  1000T/SX/LX: Activity, Link

Environment

Operating Temperature:
- 0°C to 45°C (32°F to 113°F)

Storage Temperature:
- -10°C to 70°C (14°F to 158°F)

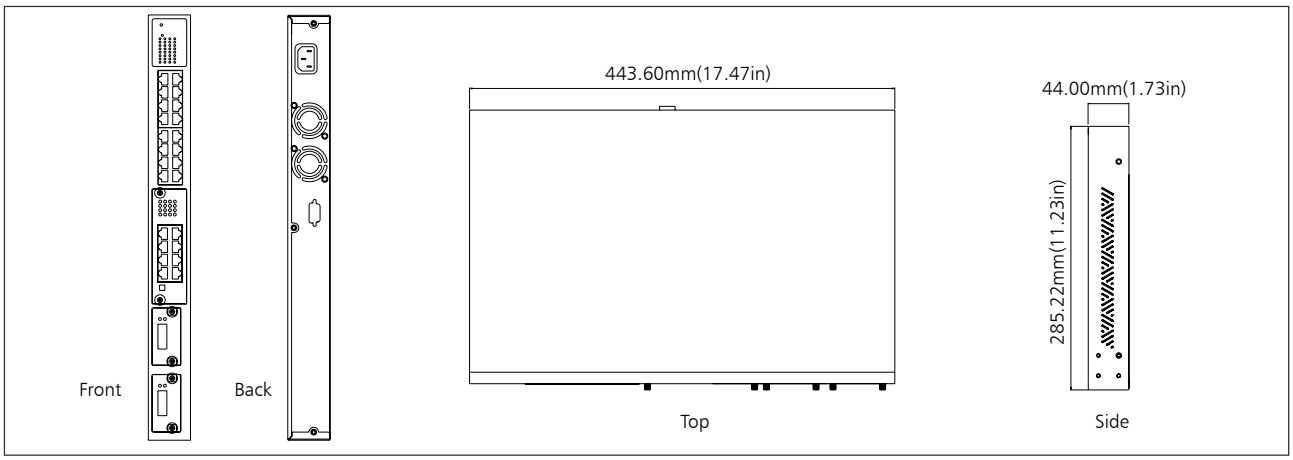
Ambient Relative Humidity:
- 5% to 95% (non-condensing)

Regulatory Approvals:

ISO:
- Manufactured in an ISO9001 facility

Emission Compliance:
- CE Mark Class A, FCC Part 15 Class A

Diagrams



EX2224S/SR Series

24-port 10/100Base-TX with up to 2-port Gigabit Managed Ethernet Switches

Overview

The EX2224S Series is equipped with advanced management functions and based on a Single-Chipset provides greater value than some competitive models. The EX2224S provides 24 fixed TX ports and two slots for single-port M1000 Series Gigabit Modules. EX2224S feature sophisticated Management functions such as Rate/Bandwidth Control allowing the user more flexibility in managing their network.

Features

- IEEE802.1w RSTP and IEEE802.1D STP compatible
- IP Multicast Filtering through IGMP Snooping
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- IEEE802.1p QoS classification based on: Port-based priority; VLAN priority field in VLAN tagged frame; DS/TOS field in IP packet; UDP/TCP logical ports
- Port-based trunking, up to three groups and maximum of four ports each group, load sharing based on source and destination MAC addresses
- RS-232 console, Telnet, SNMP V1 & V2, RMON, Web Browser, and TFTP ManagementRate Control
- Bandwidth Rate Control
- Port Security by MAC addresses filtering, limit number of MAC addresses learned per port, static MAC addresses stay in the filtering table
- Port mirroring
- 12288 MAC addresses
- 16M Bits buffer memory
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Metal case
- Supports Rack Mounting installation

Ordering Information

Rackmount size Management Fast/Gigabit Ethernet Switch

EX2224S	24-port 10/100Base-TX + 2 slots for M1000 Series Modules
EX2224SR	24-port 10/100Base-TX + 2 slots for M1000 Series Modules with Redundant PSUs

** All items include Rackmounting bracket (black)

M1000 Series Module

TX1000	1-port 1000Base-T Gigabit Ethernet Module
SC1000	1-port 1000Base-SX Gigabit Ethernet Module
LC1000-10	1-port 1000Base-LX Single Mode (SC) -10Km Gigabit Ethernet Module
LC1000-20	1-port 1000Base-LX Single Mode (SC) -20Km Gigabit Ethernet Module
LC1000-50	1-port 1000Base-LX Single Mode (SC) -50Km Gigabit Ethernet Module

* SC fiber also available in Single Mode WDM Type A and Type B, 10/20Km

Optional Accessories:

- **KR-AE612-400:** Rack mount kit (black)

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, IEEE802.1Q, IEEE802.1p, IEEE802.1w

Protocols:
- IGMP, GVRP, SNMP V1/V2, RMON, TFTP

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory:
- 16M bits

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

Address Table Size:
- 12288 MAC addresses

Latency:
- Less than 151.5μs

Power

Input:
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

Power Consumption:
- 18.75W Max.

Mechanical

Casing:
- Metal case

Dimensions:
- Single Power: 443.6mm (W) x 285.4mm (D) x 44mm (H) (17.47" (W) x 11.24" (D) x 1.73" (H))
- Redundant Powers: 443.6mm (W) x 403mm (D) x 44mm (H) (17.47" (W) x 15.87" (D) x 1.73" (H))
  Standard 19" rack-mount size, one-unit-height

Weight:
- 3.4Kg (7.5lbs.)

Installation:
- Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 24 ports
- Gigabit: 0, 1 or 2 ports

Console Port:
- Port: One DB9 RS-232 port

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 10/100TX: Link/Activity, Full-duplex/Collision
  1000T/SX/LX: Activity, Link

Environment

Operating Temperature:
- 0°C to 45°C (32°F to 113°F)

Storage Temperature:
- -10°C to 70°C (14°F to 158°F)

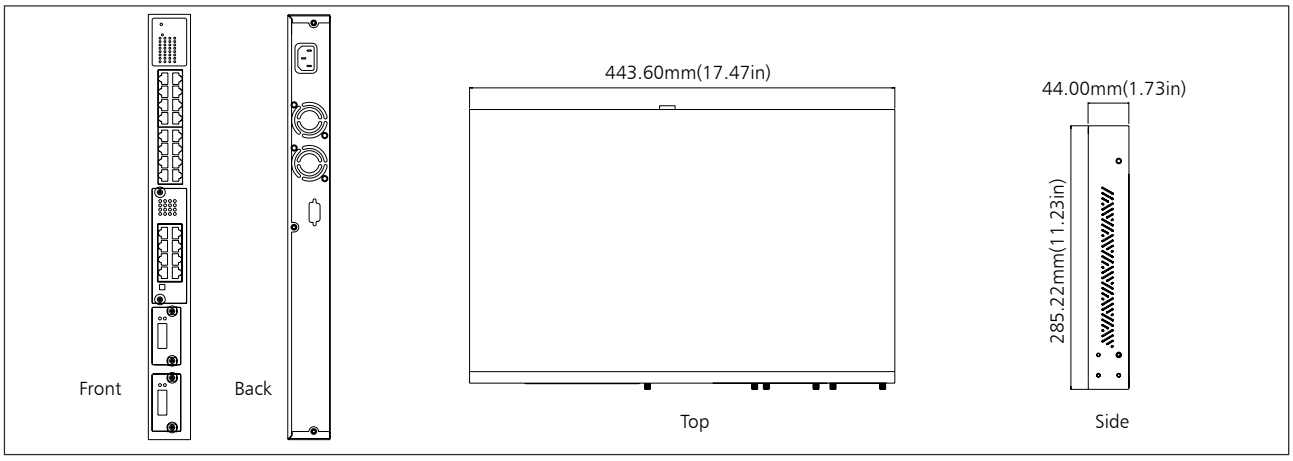
Ambient Relative Humidity:
- 5% to 95% (non-condensing)

Regulatory Approvals:

ISO:
- Manufactured in an ISO9001 facility

Emission Compliance:
- CE Mark Class A, FCC Part 15 Class A

Diagrams



EX1808C Series

8-port 10/100Base Fast Ethernet Managed Ethernet Switches

Overview

The EX1808C series provides an affordable means for interconnection between offices and workgroups on campus, industrial environments or any multi-tenant locations that require good management.

Managed Switch:
EX1808C series is a compact Managed Ethernet Switch equipped with eight ports. It features several management functions such as SNMP and RMON, and therefore it is an ingenious and yet simple answer to today's complicated networking needs.

Low-Cost Ownership:
Delivering the power of 100Mbps switching and management functions at a very competitive price, The EX1808C series is the best choice for network managers who are looking for cost effective solutions. Its compact size is ideal for wall, shelf or Rack Mounting purposes.

Features

- IEEE802.1w RSTP and IEEE802.1D STP compatible
- IP Multicast Filtering through IGMP Snooping
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- IEEE802.1p QoS classification based on: Port-based priority; VLAN priority field in VLAN tagged frame; DS/TOS field in IP packet; UDP/TCP logical ports
- Eight port-based trunking groups with up to 8 ports per group
- RS-232 console, Telnet, SNMP V1 & V2, RMON, Web Browser, and TFTP Management
- Bandwidth Rate Control
- Packet Filtering and Port Security: Destination MAC; Static MAC address not subject to aging; Secure mode freezes MAC address learning
- Port mirroring
- 4096 MAC addresses
- 2M Bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Metal case
- Supports Wall, Shelf or Rack Mounting installation

Ordering Information

EX1808C	8-port 10/100Base-TX Managed Ethernet Switch
EX1808CFT1	7-port 10/100Base-TX + 1-port 100Base-FX Multi Mode (ST) -2Km Managed Ethernet Switch
EX1808CFC1	7-port 10/100Base-TX + 1-port 100Base-FX Multi Mode (SC) -2Km Managed Ethernet Switch
EX1808CFT1-20	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (ST) -20Km Managed Ethernet Switch
EX1808CFC1-15	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) -15Km Managed Ethernet Switch
EX1808CFC1-40	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) -40Km Managed Ethernet Switch
EX1808CFCA1-20	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX :1310nm/RX:1550nm -20Km Managed Ethernet Switch
EX1808CFCB1-20	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX :1550nm/RX:1310nm -20Km Managed Ethernet Switch
EX1808CFCA1-40	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX :1310nm/RX:1550nm -40Km Managed Ethernet Switch
EX1808CFCB1-40	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX :1550nm/RX:1310nm -40Km Managed Ethernet Switch
EX1808CFT2	6-port 10/100Base-TX + 2-port 100Base-FX Multi Mode (ST) -2Km Managed Ethernet Switch
EX1808CFC2	6-port 10/100Base-TX + 2-port 100Base-FX Multi Mode (SC) -2Km Managed Ethernet Switch
EX1808CFT2-20	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (ST) -20Km Managed Ethernet Switch
EX1808CFC2-15	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) -15Km Managed Ethernet Switch
EX1808CFC2-40	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) -40Km Managed Ethernet Switch
EX1808CFCA2-20	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Managed Ethernet Switch
EX1808CFCB2-20	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Managed Ethernet Switch
EX1808CFCA2-40	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Managed Ethernet Switch
EX1808CFCB2-40	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Managed Ethernet Switch

Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x, IEEE802.1Q, IEEE802.1p, IEEE802.1w

Protocols:
- IGMP, GVRP, SNMP V1/V2, RMON, TFTP

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 2M bits

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

Address Table Size:
- 4096 MAC addresses

Latency:
- Less than 9.6μs

Power

Input:
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

Power Consumption:
- 8.04W Max.

Mechanical

Casing:
- Metal case

Dimensions:
- 252mm (W) x 134.3mm (D) x 35mm (H) (9.92" (W) x 5.29" (D) x 1.38" (H))

Weight:
- 1.6Kg (3.52lbs.)

Installation:
- Wall, Shelf, Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 8, 7 or 6 ports
- 100Base-FX: 0, 1 or 2 ports

Console Port:
- Port: One DB9 RS-232 port

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 10/100TX, 100FX: Link/Activity, Speed, Full-duplex/Collision

Environment

Operating Temperature:
- 0°C to 45°C (32°F to 113°F)

Storage Temperature:
- -10°C to 70°C (14°F to 158°F)

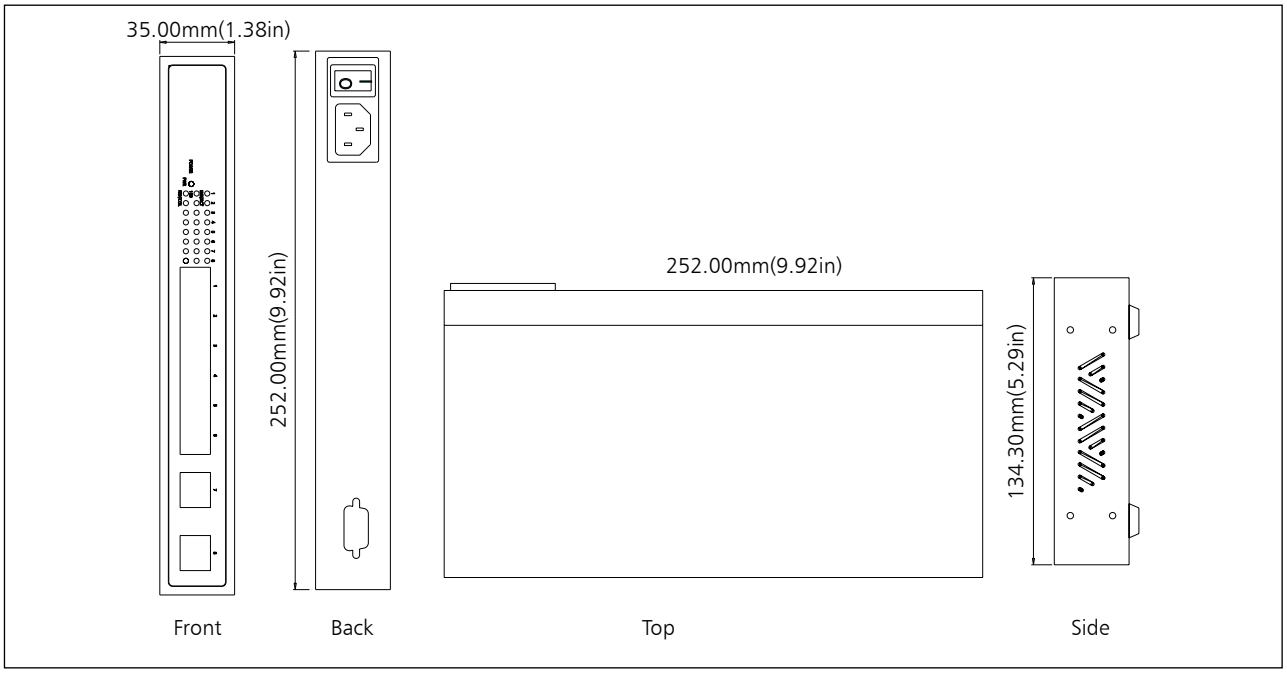
Ambient Relative Humidity:
- 5% to 95% (non-condensing)

Regulatory Approvals:

ISO:
- Manufactured in an ISO9001 facility

Emission Compliance:
- CE Mark Class A, FCC Part 15 Class A

Diagrams



EX1616W Series

16-port 10/100Base-TX and 1-port 100Base-FX Web-Smart Ethernet Switches

Overview

EX1616W is a high port-density switch with one expansion slot for a fiber module. This switch offers 16 ports for 10/100Base-TX and neatly meets the immediate bandwidth requirements for small and medium size companies. Featuring auto-negotiation and auto-MDIX, EtherWAN provides a cost effective way of integrating legacy 10Mbps network with 100Mbps Fast Ethernet network.

EX1616W is designed specifically for users who are looking to expand network speed and distance at an affordable price. There are several modules to choose from that serve this purpose. M100M Series Module is a single port module that allows for SC and ST fiber optic connectors.

Single-Mode fiber in SC and ST connector type enables long distance connections of up to 120Km (75miles). WDM Single-Mode fiber in SC connector type enables long distance connections of up to 40Km (24.8miles). EX1616W also provides several advanced functions such as IP Configuration, Port Configuration, Port-based VLAN, Port-based Trunking, QoS Mode, QoS Priority, and Load Default setting through the Web-based management interface.

Features

- System, IP Configuration, Port Configuration, Port-based VLAN, MAC-based Trunking, QoS Mode, QoS Priority, and Load Default setting through the Web-based browser
- 4096 MAC addresses
- 1.5M bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Metal case
- Supports Rack Mounting installation

Ordering Information

Rackmount size Web-Smart Ethernet Switch

EX1616W	16-port 10/100Base-TX + 1 slot for M100M Series Modules

** All items include Rackmounting bracket (black)

M100M Series Modules

FT100M	1-port 100Base-FX Multi Mode (ST) Module
FC100M	1-port 100Base-FX Multi Mode (SC) Module
SFT120M	1-port 100Base-FX Single Mode (ST) -20Km Module
SFC115M	1-port 100Base-FX Single Mode (SC) -15Km Module
SFC140M	1-port 100Base-FX Single Mode (SC) -40Km Module
SFCA120M	1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Module
SFCB120M	1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Module
SFCA140M	1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Module
SFCB140M	1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Module

Optional Accessories:

- **KR-AE612-400:** Rack mount kit (black)

Specifications

Technology

Standards:
- IEEE802.3 10Base-T,
  IEEE802.3u 100Base-TX/100Base-FX,
  IEEE802.3x

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 1.5M bits

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

Address Table Size:
- 4096 MAC addresses

Latency:
- Less than 27.7μs

Power

Input:
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

Power Consumption:
- 7.4W Max.

Mechanical

Casing:
- Metal case

Dimensions:
- 440mm (W) x 207mm (D) x 44mm (H)
  (17.32" (W) x 8.15" (D) x 1.73" (H))
  Standard 19" rack-mount size, one-unit-height

Weight:
- 2.8Kg (6.16lbs.)

Installation:
- Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 16 ports
- 100Base-FX: 1 port

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 10/100TX: Link/Activity, Speed
  100FX: Link/Activity

Environment

Operating Temperature:
- 0°C to 45°C (32°F to 113°F)

Storage Temperature:
- -10°C to 70°C (14°F to 158°F)

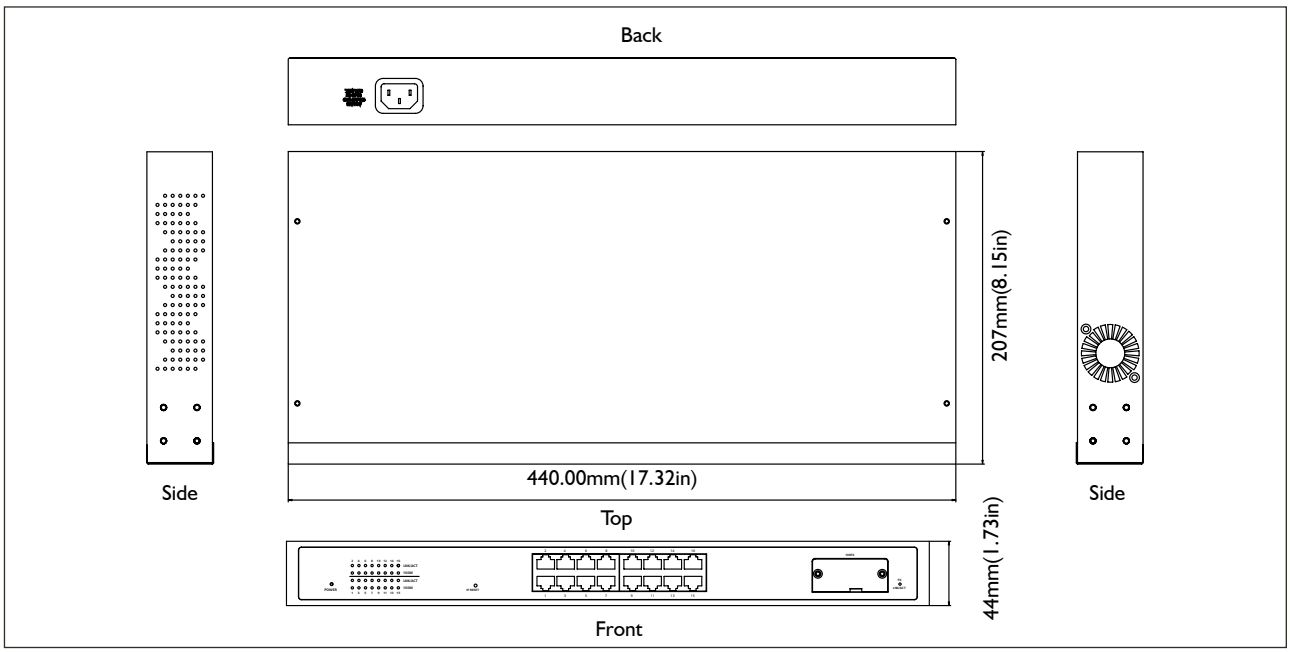
Ambient Relative Humidity:
- 5% to 95% (non-condensing)

Regulatory Approvals:

ISO:
- Manufactured in an ISO9001 facility

Emission Compliance:
- CE Mark Class A, FCC Part 15 Class A

Diagrams



EX1624W Series

24-port 10/100Base-TX and 1-port 100Base-FX Web-Smart Ethernet Switches

Overview

EX1624W is a high port-density switch with one expansion slot for a fiber module. This switch offers 24 ports for 10/100Base-TX and neatly meets the immediate bandwidth requirements for small and medium size companies. Featuring auto-negotiation and auto-MDIX, EtherWAN provides a cost effective way of integrating legacy 10Mbps network with 100Mbps Fast Ethernet network.EX1624W is designed specifically for users who are looking to expand network speed and distance at an affordable price. There are several modules to choose from that serve this purpose. M100M Series Module is a single port module that allows for a variety of fiber optic connectors; including SC and ST, as well as small form factor connectors like MT-RJ, VF-45, and LC. Single-Mode fiber in SC and ST connector type enables long distance connections of up to 120Km (74.4miles). WDM Single-Mode fiber in SC connector type enables long distance connections of up to 40Km (24.8miles). EX1624W also provides several advanced functions such as, IP Configuration, Port-based VLAN, and Port-based Trunking setting through a Web-based management interface.

Features

- System, IP Configuration, Port-based VLAN and Port-based Trunking setting through the Web-based RJ-45 Console Port
- 8192 MAC addresses
- 1.5M bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Metal case
- Supports Rack Mounting installation

Ordering Information

Rackmount size Web-Smart Ethernet Switch

EX1624W	24-port 10/100Base-TX + 1 slot for M100M Series Modules

** All items include Rackmounting bracket (black)

M100M Series Modules

FT100M	1-port 100Base-FX Multi Mode (ST) Module
FC100M	1-port 100Base-FX Multi Mode (SC) Module
SFT120M	1-port 100Base-FX Single Mode (ST) -20Km Module
SFC115M	1-port 100Base-FX Single Mode (SC) -15Km Module
SFC140M	1-port 100Base-FX Single Mode (SC) -40Km Module
SFCA120M	1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Module
SFCB120M	1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Module
SFCA140M	1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Module
SFCB140M	1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Module

Optional Accessories:

- **KR-AE612-400:** Rack mount kit (black)

Specifications

Technology

Standards:
- IEEE802.3 10Base-T,
  IEEE802.3u 100Base-TX/100Base-FX,
  IEEE802.3x

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 1.5M bits

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

Address Table Size:
- 8192 MAC addresses

Latency:
- Less than 28μs

Power

Input:
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

Power Consumption:
- 11.74W Max.

Mechanical

Casing:
- Metal case

Dimensions:
- 440mm (W) x 207mm (D) x 44mm (H)
  (17.32" (W) x 8.15" (D) x 1.73" (H))
  Standard 19" rack-mount size, one-unit-height

Weight:
- 2.8Kg (6.16lbs.)

Installation:
- Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 24 ports
- 100Base-FX: 1 port

Console Port:
- Port: One RJ45 Ethernet port

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: Console port: Link, Activity
  10/100TX: Link, Activity, Speed
  100FX: Link, Activity

Environment

Operating Temperature:
- 0°C to 45°C (32°F to 113°F)

Storage Temperature:
- -10°C to 70°C (14°F to 158°F)

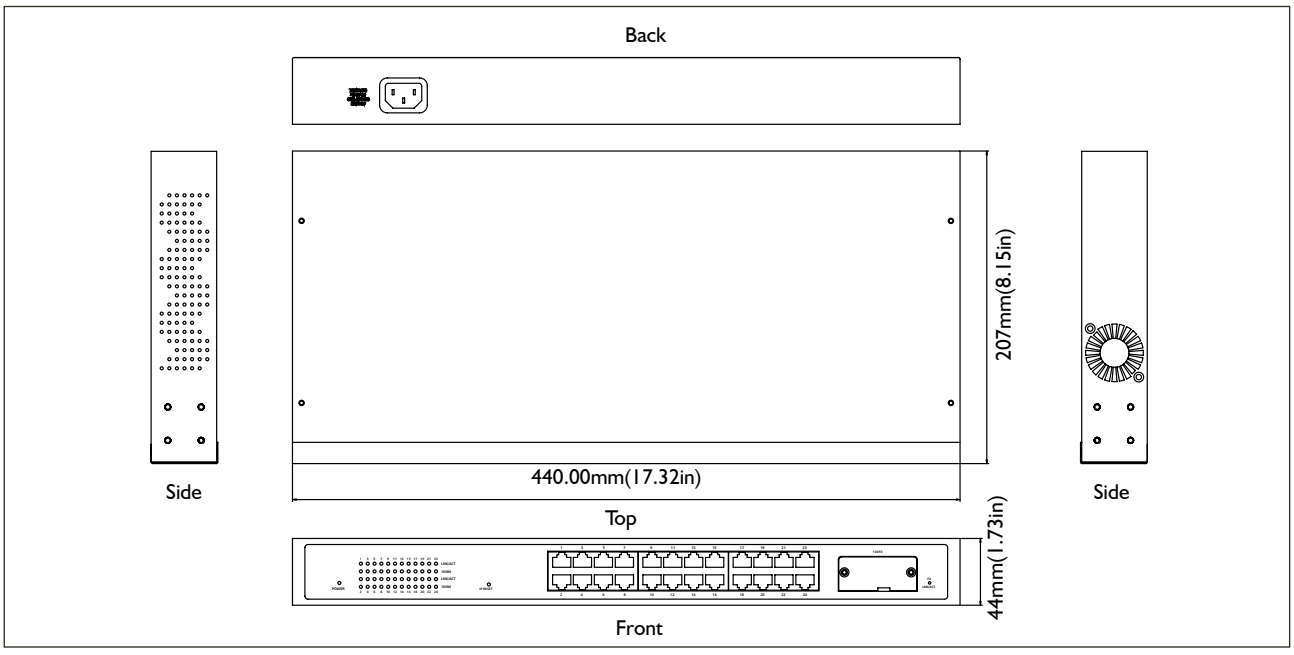
Ambient Relative Humidity:
- 5% to 95% (non-condensing)

Regulatory Approvals:

ISO:
- Manufactured in an ISO9001 facility

Emission Compliance:
- CE Mark Class A, FCC Part 15 Class A

Diagrams



XM3017M Series

8 to 17 ports Modulized 10/100Base Fast Ethernet Smart Ethernet Switches

Overview

EtherWAN presents an elegant way to migrate from copper cabling to fiber optic connectivity. XM3017M consists of three slots for TX or FX modules: one for single-port M100 Series Modules, and two for 8-port M800M Series Modules. The XM3017M provides a means for enterprise networks to transition between copper and fiber optic cabling. EtherWAN offers an extensive array of M800M modules with fiber optic and copper port combinations to provide a very flexible product. XM3017M allows for both Multi-Mode and Single-Mode fiber connections

Features

- Port speed configuration, port duplex modes configuration, Port-based VLAN, and MAC-based Trunking setting through the female DB9 RS-232 Serial Console Port
- 12288 MAC addresses
- 16M bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Metal case
- Supports Rack Mounting installation

Ordering Information

Rackmount size Smart Ethernet Switch

XM3017M	2 slots for M800M Series Modules + 1 slot for M100A Series Modules Chassic

**All items include Rackmounting bracket (black)

M800M Series Modules

TX808M	8-port 10/100Base-TX Module
FT826M	6-port 10/100Base-TX + 2-port 100Base-FX Multi Mode (ST) Module
FC826M	6-port 10/100Base-TX + 2-port 100Base-FX Multi Mode (SC) Module
FT844M	4-port 10/100Base-TX + 4-port 100Base-FX Multi Mode (ST) Module
FC844M	4-port 10/100Base-TX + 4-port 100Base-FX Multi Mode (SC) Module
FT880M	8-port 100Base-FX Multi Mode (ST) Module
FC880M	8-port 100Base-FX Multi Mode (SC) Module
FM880M	8-port 100Base-FX Multi Mode (MT-RJ) Module

M100A Series Modules

TX100A	1-port 10/100Base-TX Module
FT100A	1-port 100Base-FX Multi Mode (ST) Module
FC100A	1-port 100Base-FX Multi Mode (SC) Module
SFT120A	1-port 100Base-FX Single Mode (ST) -20Km Module
SFC120A	1-port 100Base-FX Single Mode (SC) -20Km Module
SFC140A	1-port 100Base-FX Single Mode (SC) -40Km Module
SFCA120A	1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Module
SFCB120A	1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Module
SFCA140A	1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Module
SFCB140A	1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Module

Optional Accessories:

- **KR-AE612-400:** Rack mount kit (black)

Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 16M bits

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

Address Table Size:
- 8192 MAC addresses

Latency:
- Less than 27μs

Power

Input:
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

Power Consumption:
- 52W Max.

Mechanical

Casing:
- Metal case

Dimensions:
- 440mm (W) x 285mm (D) x 44mm (H)
  (17.32" (W) x 11.22" (D) x 1.73" (H))
  Standard 19" rack-mount size, one-unit-height

Weight:
- 3.4Kg (7.48lbs.)

Installation:
- Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 0 to 17 ports
- 100Base-FX: 0 to 17 ports

Console Port:
- Port: One DB9 RS-232 port

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 8-port module: Link/Activity, Full-duplex/Collision
  1-port module: Link/Activity, Full-duplex

Environment

Operating Temperature:
- 0°C to 45°C (32°F to 113°F)

Storage Temperature:
- -10°C to 70°C (14°F to 158°F)

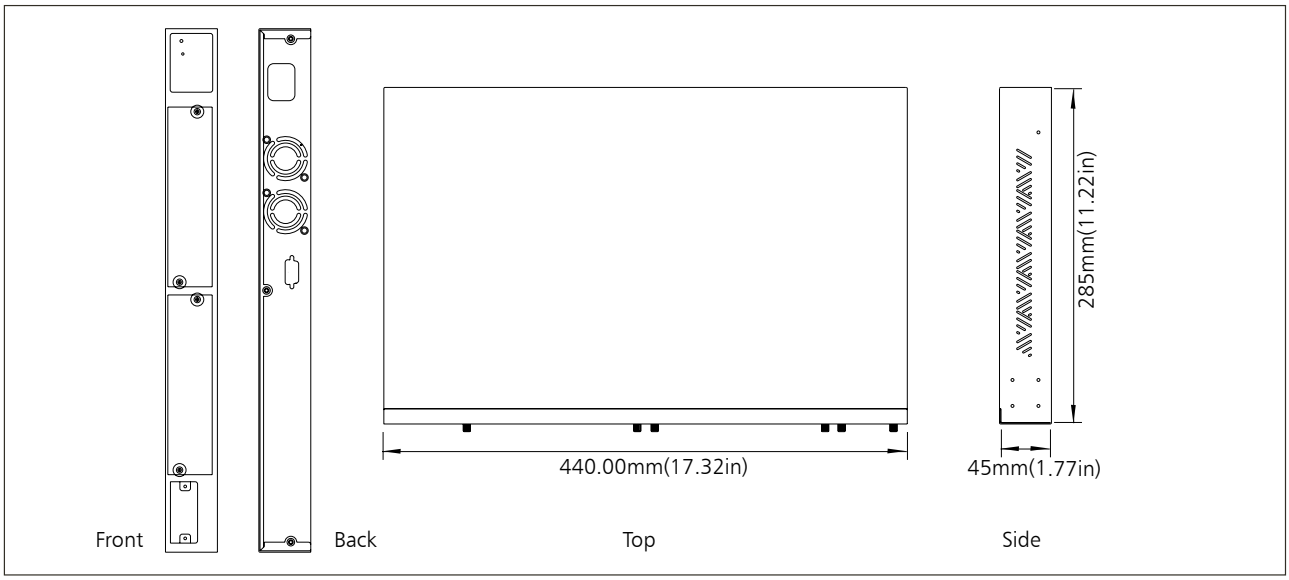
Ambient Relative Humidity:
- 5% to 95% (non-condensing)

Regulatory Approvals:

ISO:
- Manufactured in an ISO9001 facility

Emission Compliance:
- CE Mark Class A, FCC Part 15 Class A

Diagrams



EX1608SF Series

8-port 10/100Base Fast Ethernet Unmanaged Ethernet Switches

Overview

EtherWAN has defined itself as a fiber optic Ethernet switch manufacturing specialist, and the EX1608SF series are designed specifically for optical fiber consumers. The switch is equipped with up to 8 ports for 100Base-FX. It perfectly meets the immediate bandwidth requirements for small and medium size companies, which require more affordable, reliable, and user-friendly LAN solutions. Featuring standard auto-negotiation, EtherWAN provides a cost effective way of integrating legacy 10Mbps networks with 100Mbps fast Ethernet networks. The EX1608SF switches auto-negotiate for 10/100Mbps speed and operate in half or full duplex transmission modes. In addition, the bridging function provides a solution for extending the distance between two 100Mbps network segments; and the non-blocking switching architecture answers the demand bandwidth of multimedia and imaging applications. Taking full advantage of Fast Ethernet Application-Specific Integrated Circuit (ASIC), the EX1608SF switches serve a power of 10/100Mbps switching in a brand new networking era.

Features

- 2048 MAC addresses
- 768K bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Metal case
- Supports Rack Mounting installation

Ordering Information

EX1608SFT2	6-port 10/100Base-TX + 2-port 100Base-FX Multi Mode (ST) -2Km Unmanaged Ethernet Switch
EX1608SFC2	6-port 10/100Base-TX + 2-port 100Base-FX Multi Mode (SC) -2Km Unmanaged Ethernet Switch
EX1608SFT2-20	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (ST) -20Km Unmanaged Ethernet Switch
EX1608SFC2-15	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) -15Km Unmanaged Ethernet Switch
EX1608SFC2-40	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) -40Km Unmanaged Ethernet Switch
EX1608SFCA2-20	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Unmanaged Ethernet Switch
EX1608SFCB2-20	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Unmanaged Ethernet Switch
EX1608SFCA2-40	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Unmanaged Ethernet Switch
EX1608SFCB2-40	6-port 10/100Base-TX + 2-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Unmanaged Ethernet Switch
EX1608SFT6	2-port 10/100Base-TX + 6-port 100Base-FX Multi Mode (ST) -2Km Unmanaged Ethernet Switch
EX1608SFC6	2-port 10/100Base-TX + 6-port 100Base-FX Multi Mode (SC) -2Km Unmanaged Ethernet Switch
EX1608SFT6-20	2-port 10/100Base-TX + 6-port 100Base-FX Single Mode (ST) -20Km Unmanaged Ethernet Switch
EX1608SFC6-15	2-port 10/100Base-TX + 6-port 100Base-FX Single Mode (SC) -15Km Unmanaged Ethernet Switch
EX1608SFC6-40	2-port 10/100Base-TX + 6-port 100Base-FX Single Mode (SC) -40Km Unmanaged Ethernet Switch
EX1608SFCA6-20	2-port 10/100Base-TX + 6-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Unmanaged Ethernet Switch
EX1608SFCB6-20	2-port 10/100Base-TX + 6-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Unmanaged Ethernet Switch
EX1608SFCA6-40	2-port 10/100Base-TX + 6-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Unmanaged Ethernet Switch
EX1608SFCB6-40	2-port 10/100Base-TX + 6-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Unmanaged Ethernet Switch
EX1608SFT8	8-port 100Base-FX Multi Mode (ST) -2Km Unmanaged Ethernet Switch
EX1608SFC8	8-port 100Base-FX Multi Mode (SC) -2Km Unmanaged Ethernet Switch
EX1608SFT8-20	8-port 100Base-FX Single Mode (ST) -20Km Unmanaged Ethernet Switch
EX1608SFC8-15	8-port 100Base-FX Single Mode (SC) -15Km Unmanaged Ethernet Switch
EX1608SFC8-40	8-port 100Base-FX Single Mode (SC) -40Km Unmanaged Ethernet Switch
EX1608SFCA8-20	8-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Unmanaged Ethernet Switch
EX1608SFCB8-20	8-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Unmanaged Ethernet Switch
EX1608SFCA8-40	8-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Unmanaged Ethernet Switch
EX1608SFCB8-40	8-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Unmanaged Ethernet Switch

**All items include Rackmounting bracket (white)

Optional Accessories:

- **KR-EW612-400:** Rack mount kit (white)

Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 768K bits

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

Address Table Size:
- 2048 MAC addresses

Latency:
- Less than 8.6μs

Power

Input:
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

Power Consumption:
- 12W Max.

Mechanical

Casing:
- Metal case

Dimensions:
- 443.6mm (W) x 203.2mm (D) x 44mm (H)
  (17.47" (W) x 8.07" (D) x 1.73" (H))
  Standard 19" rack-mount size, one-unit-height

Weight:
- 2.8Kg (6.16lbs.)

Installation:
- Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 6, 2 or 0 ports
- 100Base-FX: 2, 6 or 8 ports

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 10/100TX, 100FX: Link/Activity, Speed, Full-duplex/Collision

Environment

Operating Temperature:
- 0°C to 45°C (32°F to 113°F)

Storage Temperature:
- -10°C to 70°C (14°F to 158°F)

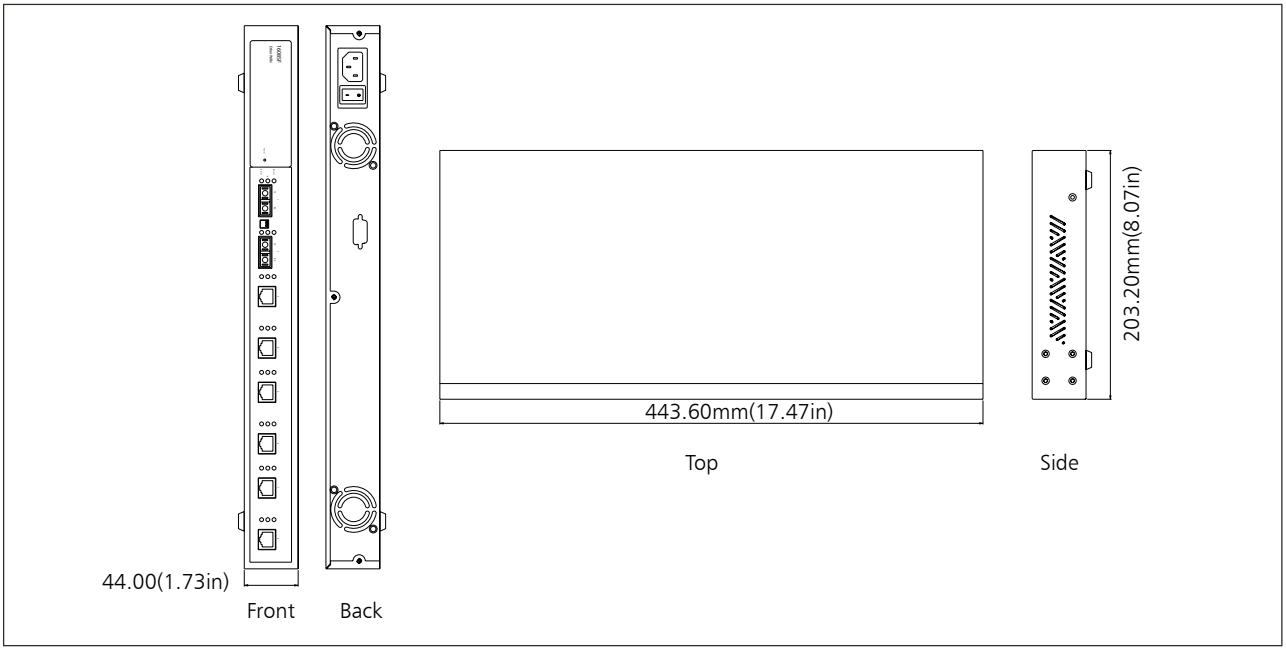
Ambient Relative Humidity:
- 5% to 95% (non-condensing)

Regulatory Approvals:

ISO:
- Manufactured in an ISO9001 facility

Emission Compliance:
- CE Mark Class A, FCC Part 15 Class A

Diagrams



EX1605B/BF1 EX1608B/BF1 Series

5/8 ports 10/100Base Fast Ethernet Unmanaged Ethernet Switches

Overview

EX1605B/1608B are compact Fast Ethernet switches equipped with 5 or 8 ports for 10/100Base-TX. EX1605BF1/1608BF1 are also compact Fast Ethernet switches equipped with 4 or 7 ports for 10/100Base-TX and 1 port for 100Base-FX. These are the internal power version of the EX1605PB/PBF1 and EX1608PB/PBF1.

By using standard auto-negotiation and the inclusion of Auto-MDIX, EtherWAN provides a cost-effective way of integrating legacy 10Mbps networks with 100Mbps Fast Ethernet networks. The TX ports auto-negotiate for 10/100Mbps speed and auto detect full or half duplex mode. The fiber port on EX1605BF1 and EX1608BF1 accommodates SC, ST, MT-RJ, VF-45, or LC; with a fiber connection between two nodes that can reach up to 120Km (74.4miles).

The bridging function of the switch provides a solution for extending the distance between two 100Mbps network segments. The non-blocking switching architecture meets the bandwidth demand of multimedia and imaging applications. A combination of FX and TX ports in a compact sized box makes EX1605BF1 and EX1608BF1 a simple solution for complicated networking needs.

Features

- 2048 MAC addresses
- 1M bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Metal case
- Supports Wall or Rack Mounting installation

Ordering Information

EX1605B	5-port 10/100Base-TX Unmanaged Ethernet Switch
EX1605BFT	4-port 10/100Base-TX + 1-port 100Base-FX Multi Mode (ST) -2Km Unmanaged Ethernet Switch
EX1605BFC	4-port 10/100Base-TX + 1-port 100Base-FX Multi Mode (SC) -2Km Unmanaged Ethernet Switch
EX1605BFT-20	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (ST) -20Km Unmanaged Ethernet Switch
EX1605BFC-15	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) -15Km Unmanaged Ethernet Switch
EX1605BFC-40	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) -40Km Unmanaged Ethernet Switch
EX1605BFCA-20	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Unmanaged Ethernet Switch
EX1605BFCB-20	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Unmanaged Ethernet Switch
EX1605BFCA-40	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Unmanaged Ethernet Switch
EX1605BFCB-40	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Unmanaged Ethernet Switch
EX1608B	8-port 10/100Base-TX Unmanaged Ethernet Switch
EX1608BFT	7-port 10/100Base-TX + 1-port 100Base-FX Multi Mode (ST) -2Km Unmanaged Ethernet Switch
EX1608BFC	7-port 10/100Base-TX + 1-port 100Base-FX Multi Mode (SC) -2Km Unmanaged Ethernet Switch
EX1608BFT-20	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (ST) -20Km Unmanaged Ethernet Switch
EX1608BFC-15	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) -15Km Unmanaged Ethernet Switch
EX1608BFC-40	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) -40Km Unmanaged Ethernet Switch
EX1608BFCA-20	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Unmanaged Ethernet Switch
EX1608BFCB-20	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Unmanaged Ethernet Switch
EX1608BFCA-40	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Unmanaged Ethernet Switch
EX1608BFCB-40	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Unmanaged Ethernet Switch

Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 1M bits

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

Address Table Size:
- 2048 MAC addresses

Latency:
- EX1605B, EX1605BF1: Less than 5μs
- EX1608B, EX1608BF1: Less than 7.5μs

Power

Input:
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

Power Consumption:
- 3.22W Max.

Mechanical

Casing:
- Metal case

Dimensions:
- 252mm (W) x 134.3mm (D) x 35mm (H)
  (9.92" (W) x 5.28" (D) x 1.38" (H))

Weight:
- 1.6Kg (3.52lbs.)

Installation:
- Wall, Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 5 or 4 ports (EX1605B/BF1)
  8 or 7 ports (EX1608B/BF1)
- 100Base-FX: 1 port

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 10/100TX, 100FX: Link/Activity, Speed, Full-duplex/ Collision

Environment

Operating Temperature:
- 0°C to 45°C (32°F to 113°F)

Storage Temperature:
- -10°C to 70°C (14°F to 158°F)

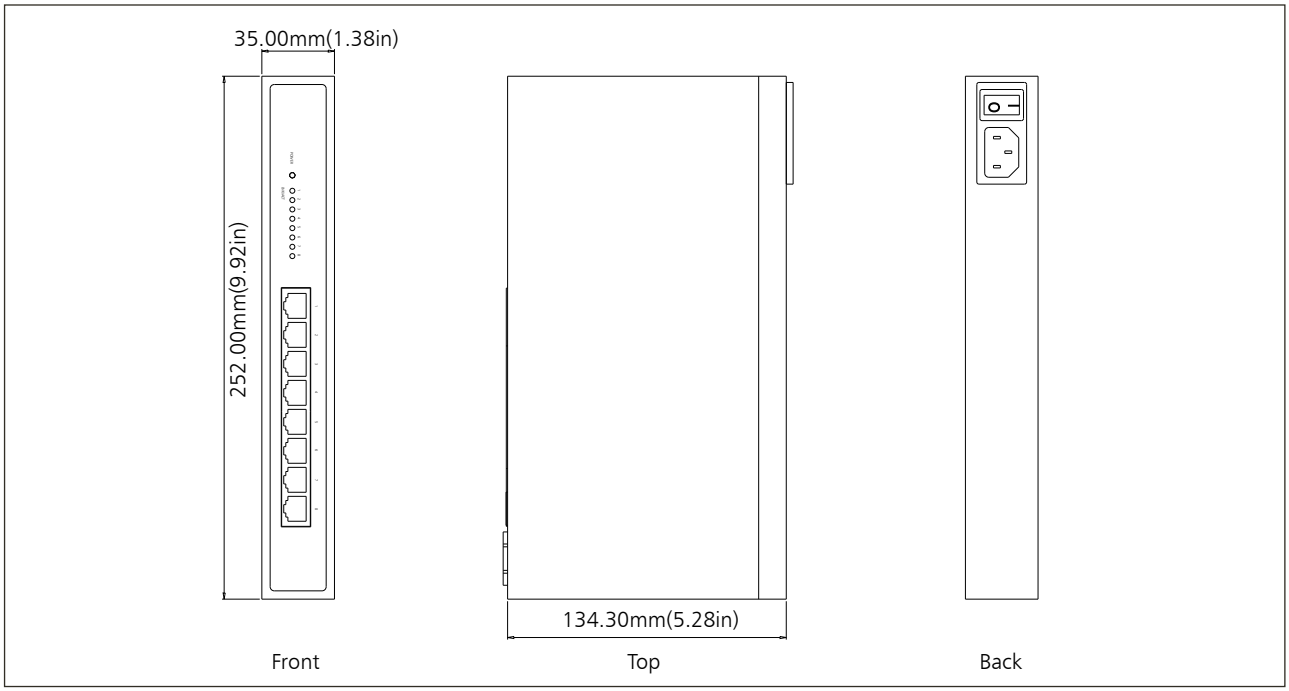
Ambient Relative Humidity:
- 5% to 95% (non-condensing)

Regulatory Approvals:

ISO:
- Manufactured in an ISO9001 facility

Emission Compliance:
- CE Mark Class A, FCC Part 15 Class A

Diagrams



EX1605PB/PBF1 EX1608PB/PBF1 Series

5/8 ports 10/100Base Fast Ethernet Unmanaged Ethernet Switches

Overview

EX1605PB and EX1608PB are pocket sized Fast Ethernet switches equipped with 5 or 8 ports for 10/100Base-TX. EX1605PBF1 and EX1608PBF1 are pocket sized Fast Ethernet switches equipped with 4 or 7 ports for 10/100Base-TX and 1port for 100Base-FX. Their pocket size is ideal for users who prefer Wall mounted or desktop switches. Using standard auto-negotiation and the inclusion of Auto-MDIX, EtherWAN provides a cost-effective way of integrating legacy 10Mbps networks with 100Mbps Fast Ethernet networks. The TX ports auto-negotiate for 10/100Mbps speed and auto detect full or half duplex mode. The fiber ports on EX1605PBF1 and EX1608PBF1 accommodate SC, ST, MT-RJ, VF-45, or LC; with a fiber connection between two nodes that can reach up to 120Km (74.4miles). The bridging function of the switch provides a solution for extending the distance between two 100Mbps network segments. The non-blocking switching architecture satisfies the bandwidth demand of multimedia and imaging applications. A combination of FX and TX ports in a pocket sized box makes EX1605PBF1 and EX1608PBF1 a simple solution for complicated networking needs.

Features

- 2048 MAC addresses
- 1M bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 0.6A 12VDC External Universal PSU
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Metal case
- Supports Wall or Shelf installation

Ordering Information

EX1605PB	5-port 10/100Base-TX Unmanaged Ethernet Switch
EX1605PBFT	4-port 10/100Base-TX + 1-port 100Base-FX Multi Mode (ST) -2Km Unmanaged Ethernet Switch
EX1605PBFC	4-port 10/100Base-TX + 1-port 100Base-FX Multi Mode (SC) -2Km Unmanaged Ethernet Switch
EX1605PBFT-20	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (ST) -20Km Unmanaged Ethernet Switch
EX1605PBFC-15	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) -15Km Unmanaged Ethernet Switch
EX1605PBFC-40	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) -40Km Unmanaged Ethernet Switch
EX1605PBFCA-20	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Unmanaged Ethernet Switch
EX1605PBFCB-20	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Unmanaged Ethernet Switch
EX1605PBFCA-40	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Unmanaged Ethernet Switch
EX1605PBFCB-40	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Unmanaged Ethernet Switch
EX1608PB	8-port 10/100Base-TX Unmanaged Ethernet Switch
EX1608PBFT	7-port 10/100Base-TX + 1-port 100Base-FX Multi Mode (ST) -2Km Unmanaged Ethernet Switch
EX1608PBFC	7-port 10/100Base-TX + 1-port 100Base-FX Multi Mode (SC) -2Km Unmanaged Ethernet Switch
EX1608PBFT-20	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (ST) -20Km Unmanaged Ethernet Switch
EX1608PBFC-15	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) -15Km Unmanaged Ethernet Switch
EX1608PBFC-40	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) -40Km Unmanaged Ethernet Switch
EX1608PBFCA-20	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Unmanaged Ethernet Switch
EX1608PBFCB-20	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Unmanaged Ethernet Switch
EX1608PBFCA-40	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Unmanaged Ethernet Switch
EX1608PBFCB-40	7-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Unmanaged Ethernet Switch

Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 1M bits

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

Address Table Size:
- 2048 MAC addresses

Latency:
- EX1605PB, EX1605PBF1: Less than 5μs
- EX1608PB, EX1608PBF1: Less than 7.5μs

Power

Input:
- Input Voltage:12VDC

Power Consumption:
- 3.24W Max. 0.27A@12VDC

Mechanical

Casing:
- Metal case

Dimensions:
- 160mm (W) x 80.5mm (D) x 28mm (H)
  (6.3" (W) x 3.17" (D) x 1.1" (H))

Weight:
- 0.42Kg (0.92lb.)

Installation:
- Wall, Shelf Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 5 or 4 ports (EX1605PB/PBF1)
  8 or 7 ports (EX1608PB/PBF1)
- 100Base-FX: 1 port

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 10/100TX, 100FX: Link/Activity

Environment

Operating Temperature:
- 0°C to 45°C (32°F to 113°F)

Storage Temperature:
- -10°C to 70°C (14°F to 158°F)

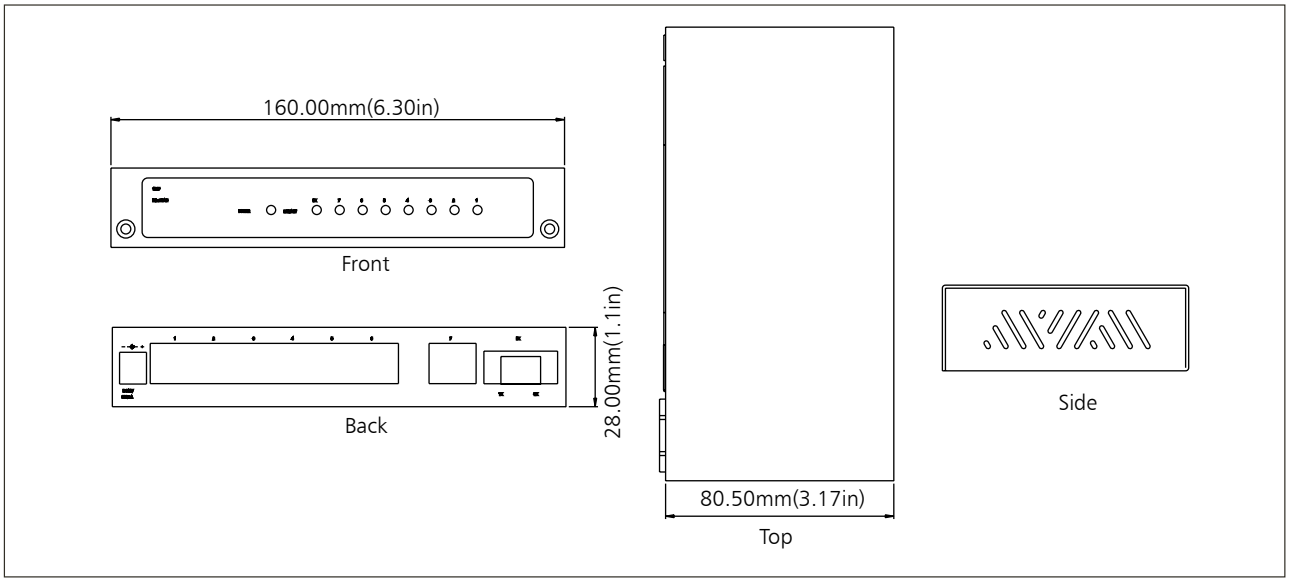
Ambient Relative Humidity:
- 5% to 95% (non-condensing)

Regulatory Approvals:

ISO:
- Manufactured in an ISO9001 facility

Emission Compliance:
- CE Mark Class A, FCC Part 15 Class A

Diagrams



EX1605PE EX1608PE Series

5/8 ports 10/100Base-TX Unmanaged Ethernet Switches

Overview

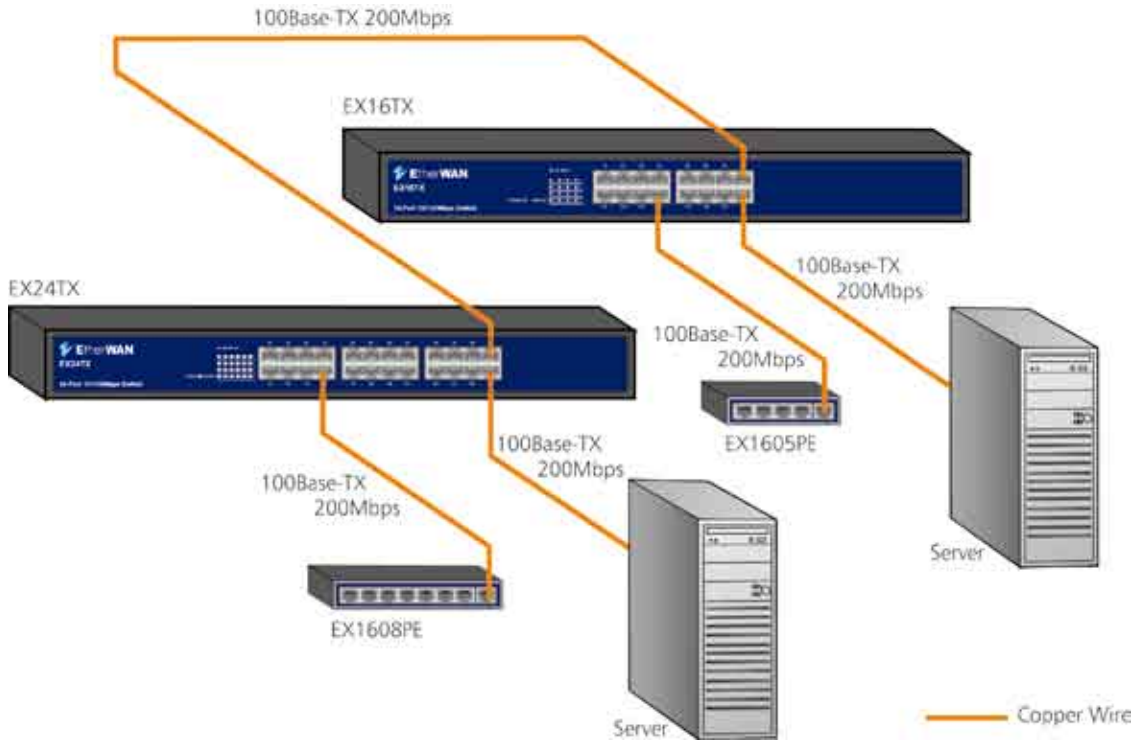
The EX1605PE / EX1608PE is a 10/100Mbps NWay switch with outstanding performance and high efficiency. With five / eight ports that have the 10/100Mbps NWay autonegotiation function, EX1605PE / EX1608PE fulfills the needs for connecting to the network with the best network speed and Duplex mode automatically. It's ideal for SOHO and Home Networks. Unlike shared 10/100Mbps networks, EX1605PE / EX1608PE eliminates bandwidth congestion problems by providing dedicated bandwidth. Duplex mode also doubles the bandwidth by enabling two-way communication. Store-and-forward mechanism provides low latency and delivers error free packets. Plug & play makes installation & network management easy and fast. The Easy-to-read LED indicators allow users to monitor the status of EX1605PE / EX1608PE.

Features

- 1024 MAC addresses
- EX1605PE: 512K bits buffer memory, EX1608PE: 768K bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 0.6A 5VDC external universal PSU
- 0° to 45° (32°F to 113°F) operating temperature range
- Metal case
- Supports Desktop installation

Ordering Information

EX1605PE	5-port 10/100Base-TX Unmanaged Ethernet Switch
EX1608PE	8-port 10/100Base-TX Unmanaged Ethernet Switch



Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, IEEE802.3x

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- EX1605PE: 512K bits
- EX1608PE: 768K bits

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

Address Table Size:
- 1024 MAC addresses

Power

Input:
- Input Voltage: 5VDC

Power Consumption:
- 3W Max. 0.6A@5VDC

Mechanical

Casing:
- Metal case

Dimensions:
- EX1605PE: 121mm (W) x 74.2mm (D) x 26mm (H)
  (4.76" (W) x 2.92" (D) x 1.02" (H))
- EX1608PE: 159mm (W) x 85mm (D) x 26mm (H)
  (6.25" (W) x 3.55" (D) x 1.02" (H))

Weight:
- EX1605PE: 245g (0.54lb.)
- EX1608PE: 335g (0.74lb.)

Installation:
- Desktop

Interface

Ethernet Port:
- 10/100Base-TX: 5 ports (EX1605PE)
  8 ports (EX1608PE)

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 10/100TX: Link/Activity

Environment

Operating Temperature:
- 0°C to 45°C (32°F to 113°F)

Storage Temperature:
- -10°C to 70°C (14°F to 158°F)

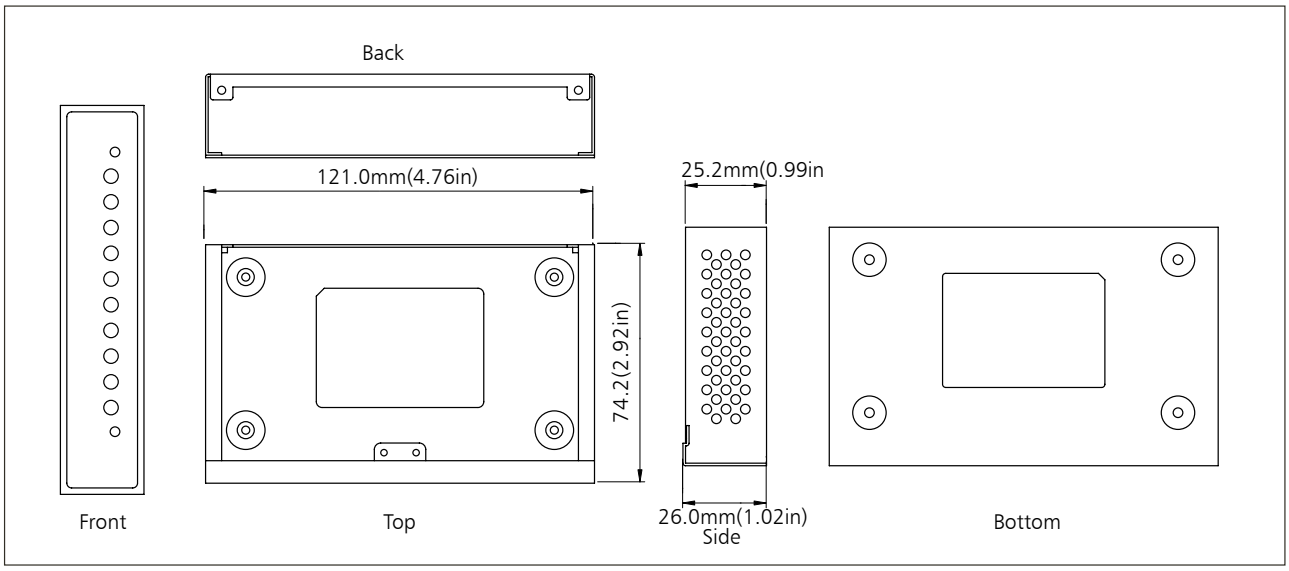
Ambient Relative Humidity:
- 5% to 95% (non-condensing)

Regulatory Approvals:

ISO:
- Manufactured in an ISO9001 facility

Emission Compliance:
- CE Mark Class A, FCC Part 15 Class A

Diagrams



EX16TX EX24TX Series

16/24 ports 10/100Base-TX Unmanaged Ethernet Switches

Overview

The EX16TX / EX24TX is a powerful, high-performance Fast Ethernet switch, with all 16 / 24 ports capable of 10 or 100Mbps auto-negotiation operation (NWay) which means the switch can automatically negotiate with the connected partners on the network for speed and duplex mode. It is ideal for micro-segmenting large networks into smaller, subnets for improved performance, enabling bandwidth demanding multimedia and imaging applications. Moreover, the 10/100Mbps auto-sensing ability provides an easy way to migrate 10Mbps devices to a 100Mbps network without pain. Compared to shared 10Mbps or 100Mbps networks, the switch delivers a dedicated 10/100Mbps connection to every attached client with no bandwidth congestion issues. Store-and-forward switching mode promises low latency plus eliminates network errors, including runt and CRC error packets. When working in full-duplex mode, transmission and reception of the frames can occur simultaneously without causing collisions effectively doubling the network bandwidth.

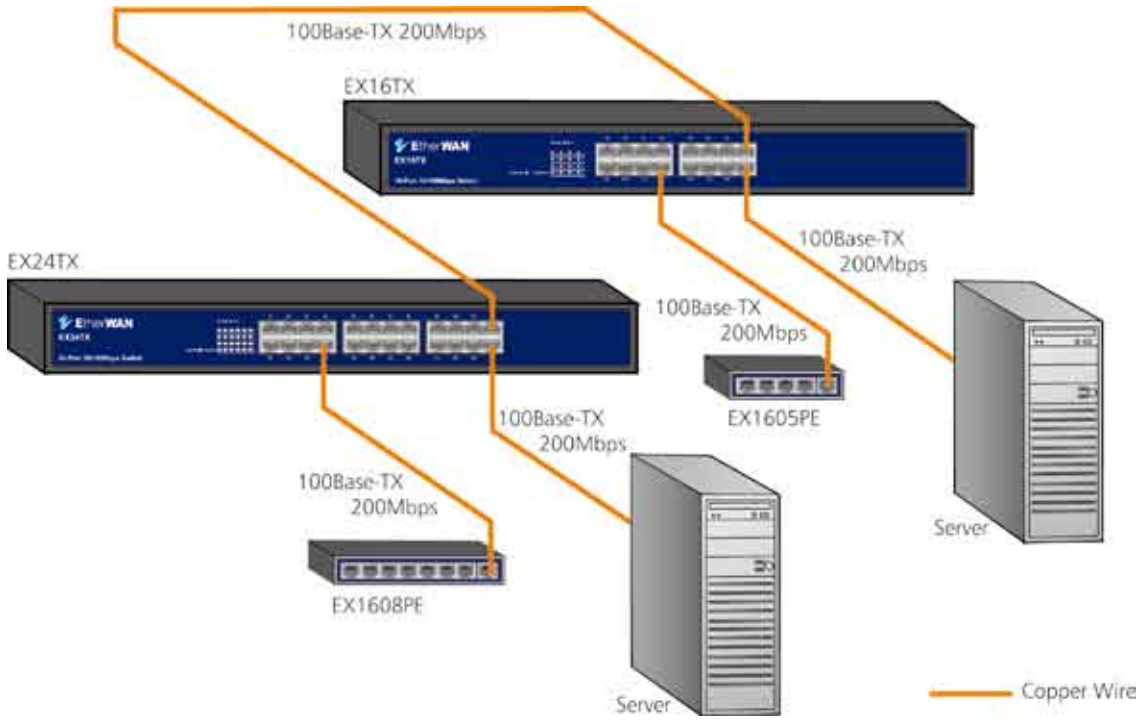
The EX16TX / EX24TX is plug-n-play without any software to configure and fully compliant with protocols. The diagnostic LEDs on the front-panel provide operating status of individual ports and whole switch.

Features

- 8192 MAC addresses
- 1.25M bits Bytes buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Metal case
- Supports Rack Mounting installation

Ordering Information

EX16TX	16-port 10/100Base-TX Unmanaged Ethernet Switch
EX24TX	24-port 10/100Base-TX Unmanaged Ethernet Switch



Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, IEEE802.3x

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory:
- 1.25M 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:
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

Power Consumption:
- 13.2W Max.

Mechanical

Casing:
- Metal case

Dimensions:
- 441mm (W) x 130mm (D) x 44mm (H)
  (17.36" (W) x 5.12" (D) x 1.73" (H))
  Standard 19" rack-mount size, one-unit-height

Weight:
- EX16TX: 1.4Kg (3.08lbs.)
- EX24TX: 1.5Kg (3.3lbs.)

Installation:
- Rack Mounting

Interface

Ethernet Port:
- 10/100Base-TX: 16 ports (EX16TX)
  24 ports (EX24TX)

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 10/100TX: Link/Activity

Environment

Operating Temperature:
- 0°C to 45°C (32°F to 113°F)

Storage Temperature:
- -10°C to 70°C (14°F to 158°F)

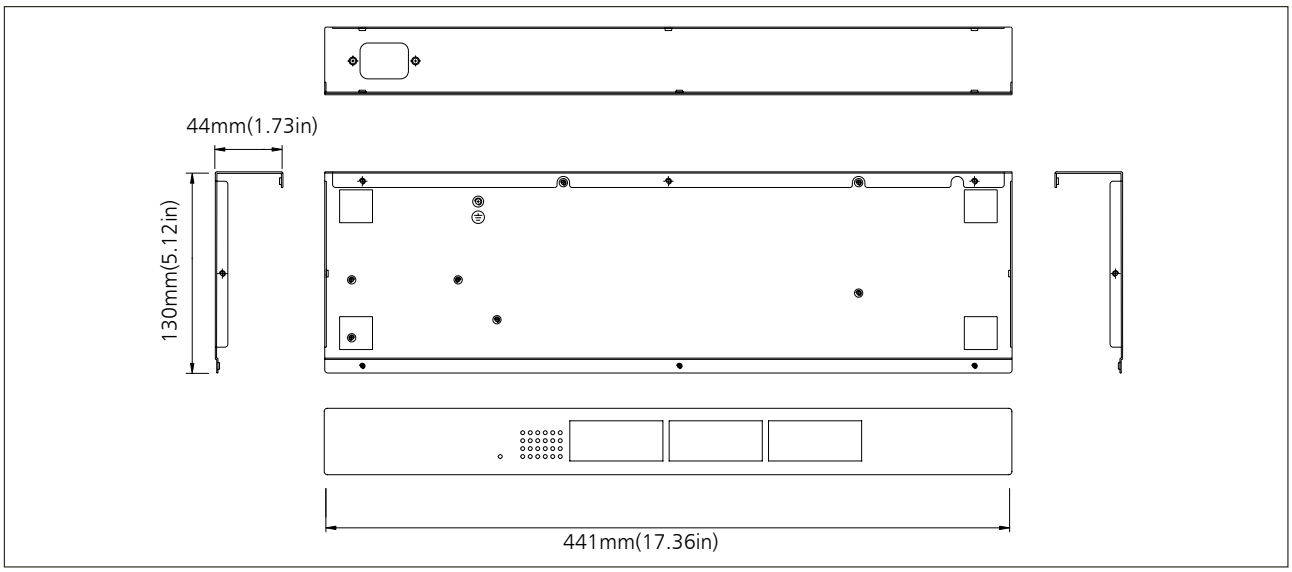
Ambient Relative Humidity:
- 5% to 95% (non-condensing)

Regulatory Approvals:

ISO:
- Manufactured in an ISO9001 facility

Emission Compliance:
- CE Mark Class A, FCC Part 15 Class A

Diagrams



EX1616G4M Series

16-Port Gigabit Unmanaged Ethernet Switch with 4-Port Mini-GBIC

Overview

Easily boost your networking throughput; the EX1616G4M switch has 16 Gigabit ports plus 4 GBIC slots. Users can use this switch for high bandwidth applications, faster file transfer and increased network efficiency. In addition to 16 copper ports, the EX1616G4M has 4 Mini-GBIC port slots that may be equipped with copper or fiber optic interfaces. This switch offers users a fast, reliable network. The store-and-forward architecture filters errors and forwards packets in a non-blocking environment. Flow control ensures no lost packets because of over running a port. The 802.3x and backpressure flow control mechanisms work for both full and half duplex modes. The switch features easy installation and maintenance. It supports N-way auto-negotiation protocol that detects the networking speed (10/100/1000 Mbps) and the duplex modes (Full/Half) automatically. An Auto-MDI/MDI-X function alleviates the need to use crossover cables. Diagnostic LEDs are provided for users to get real-time information about the connection status.

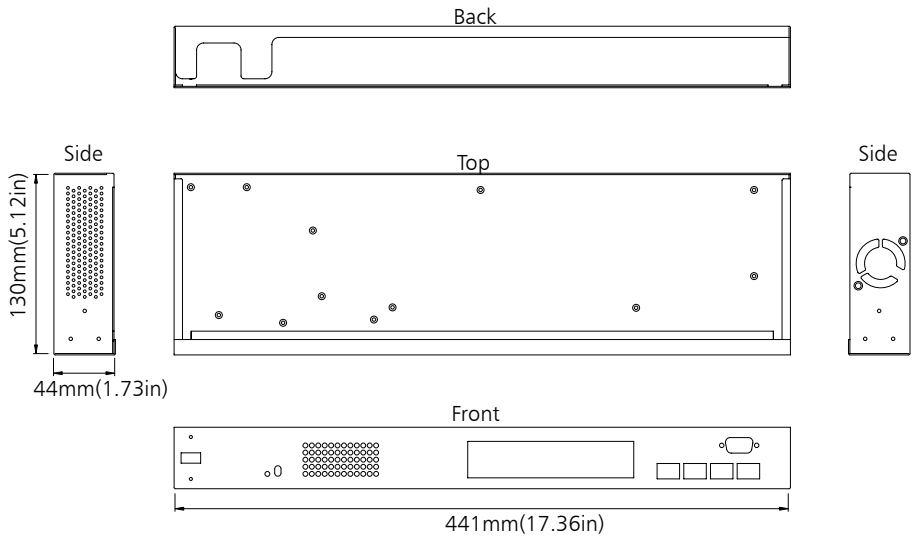
Features

- Four Mini-GBIC ports for optional fiber optical communication, supports auto-detection for Mini-GBIC module insert
- Supports 9K Byte Jumbo frames
- 8192 MAC addresses
- 2.72M bits buffer memory
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Metal case
- Supports Rack Mounting installation

Ordering Information

EX1616G4M	16-port Gigabit Unmanaged Ethernet Switch with 4-port Mini-GBIC

Diagrams



Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-SX/1000Base-LX, IEEE802.3x

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory:
- 2.72M 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:
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

Mechanical

Casing:
- Metal case

Dimensions:
- 441mm (W) x 130mm (D) x 44mm (H)
  (17.36" (W) x 5.12" (D) x 1.73" (H))
  Standard 19" rack-mount size, one-unit-height

Weight:
- 1.5Kg (3.3lbs.)

Installation:
- Rack Mounting

Interface

Ethernet Port:
- Gigabit: 16 ports
- Mini-GBIC: 4 ports

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 10/100TX: Link/Activity (Green)
  10/100/1000TX, 1000SX/LX: Link/Activity (Green)

Environment

Operating Temperature:
- 0°C to 45°C (32°F to 113°F)

Storage Temperature:
- -10°C to 70°C (14°F to 158°F)

Ambient Relative Humidity:
- 5% to 95% (non-condensing)

Regulatory Approvals:

ISO:
- Manufactured in an ISO9001 facility

Emission Compliance:
- CE Mark Class A, FCC Part 15 Class A, VCCI, Class A

EX1624G4M Series

24-Port Gigabit Unmanaged Ethernet Switch with 4-Port Mini-GBIC

Overview

Easily boost your networking throughput; the EX1624G4M switch has 24 Gigabit ports plus 4 GBIC slots. Users can use this switch for high bandwidth applications, faster file transfer and increased network efficiency. In addition to 24 copper ports, the EX1624G4M has 4 Mini-GBIC port slots that may be equipped with copper or fiber optic interfaces. This switch offers users a fast, reliable network. The store-and-forward architecture filters errors and forwards packets in a non-blocking environment. Flow control ensures no lost packets because of over running a port. The 802.3x and backpressure flow control mechanisms work for both full and half duplex modes. The switch features easy installation and maintenance. It supports N-way auto-negotiation protocol that detects the networking speed (10/100/1000 Mbps) and the duplex modes (Full/Half) automatically. An Auto-MDI/MDI-X function alleviates the need to use crossover cables. Diagnostic LEDs are provided for users to get real-time information about the connection status.

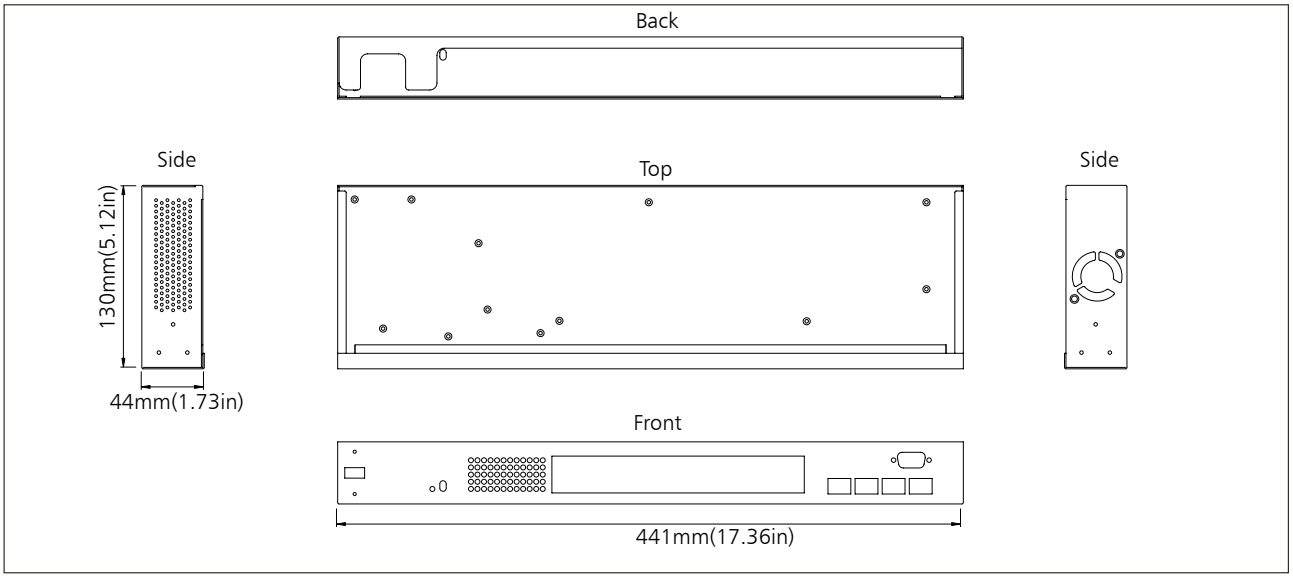
Features

- Four Mini-GBIC ports for optional fiber optical communication, supports auto-detection for Mini-GBIC module insert
- Supports 9K Byte Jumbo frames
- 8192 MAC addresses
- 4M bits buffer memory
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Metal case
- Supports Rack Mounting installation

Ordering Information

EX1624G4M	24-port Gigabit Unmanaged Ethernet Switch with 4-port Mini-GBIC

Diagrams



Specifications

Technology

Standards:
- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-SX/1000Base-LX, IEEE802.3x

Forward and Filtering Rate:
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Packet Buffer Memory:
- 4M 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:
- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

Mechanical

Casing:
- Metal case

Dimensions:
- 441mm (W) x 130mm (D) x 44mm (H)
  (17.36" (W) x 5.12" (D) x 1.73" (H))
  Standard 19" rack-mount size, one-unit-height

Weight:
- 1.5Kg (3.3lbs.)

Installation:
- Rack Mounting

Interface

Ethernet Port:
- Gigabit: 24 ports
- Mini-GBIC: 4 ports

LED Indicators:
- Per Unit: Power Status (Power)
- Per Port: 10/100TX: Link/Activity (Green)
  10/100/1000TX, 1000SX/LX: Link/Activity (Green)

Environment

Operating Temperature:
- 0°C to 45°C (32°F to 113°F)

Storage Temperature:
- -10°C to 70°C (14°F to 158°F)

Ambient Relative Humidity:
- 5% to 95% (non-condensing)

Regulatory Approvals:

ISO:
- Manufactured in an ISO9001 facility

Emission Compliance:
- CE Mark Class A, FCC Part 15 Class A, VCCI, Class A

New Product Preview

EX76000 Series

8 to 16 ports 10/100Base Fast Ethernet with up to 2-port combo Gigabit Hardened Managed PoE Ethernet Switches (16-port PoE Max.)

Key Features

- Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- Supports 8, 12, 16 10/100Base-TX ports with PoE, combined with 2 ~ 4 100Base-FX and 1 ~ 2 combo Gigabit ports
- Supports IEEE802.3af Power over Ethernet (PoE) Power Sourcing Equipment (PSE)
- IEEE802.1s MSTP, IEEE802.1w RSTP, and IEEE802.1D STP compatible
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- RS-232 console (CLI), Telnet (SSH CLI), SNMP v1/v2c/v3, RMON, Web Browser, and TFTP Management
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Redundant power inputs with Terminal Block and DC Jack
- -40°C to 75°C (-40°F to 167°F) operating temperature range
- Supports Rack Mounting installation

EX72000 SFP version

12-port 10/100Base-TX with up to 2-port combo Gigabit SFP Hardened Managed Ethernet Switches

Key Features

- Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- Supports 12 10/100Base-TX ports, combined with 1 ~ 2 combo Gigabit SFP ports
- IEEE802.1s MSTP, IEEE802.1w RSTP and IEEE802.1D STP compatible
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- RS-232 console (CLI), Telnet (SSH CLI), SNMP v1/v2c/v3, RMON, Web Browser, and TFTP Management
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- SFP socket for Gigabit Ethernet fiber optic expansion
- Redundant power inputs with Terminal Block and DC Jack
- -40°C to 75°C (-40°F to 167°F) operating temperature range
- Supports DIN-Rail, Panel, Rack Mounting installation

New Product Preview

EX65000 Series

8-port Gigabit Industrial Managed Ethernet Switches

Key Features

- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- Supports 6 ~ 8 10/100/1000Base-TX ports, combined with 1 ~ 2 1000Base-SX/LX ports
- IEEE802.1s MSTP, IEEE802.1w RSTP, and IEEE802.1D STP compatible
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- RS-232 console (CLI), Telnet (SSH CLI), SNMP v1/v2c/v3, RMON, Web Browser, and TFTP Management
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Alarms for power failure by relay output
- Redundant power inputs with Terminal Block and DC Jack
- -20°C to 60°C (-4°F to 140°F) operating temperature range
- Supports DIN-Rail, Panel, Rack Mounting installation

EX21000 Series

24-port 10/100Base Fast Ethernet SFP (8-port combo) with up to 4-port combo Gigabit SFP Managed Ethernet Switches

Key Features

- Supports 24 10/100Base Fast Ethernet SFP ports (8-port combo), combined with 2 ~ 4 combo Gigabit SFP ports
- IEEE802.1s MSTP, IEEE802.1w RSTP, and IEEE802.1D STP compatible
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- RS-232 console (CLI), Telnet (SSH CLI), SNMP v1/v2c/v3, RMON, Web Browser, and TFTP Management
- Supports jumbo frame packet up to 9,216 Bytes
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- SFP socket for Fast and Gigabit Ethernet fiber optic expansion
- 100 ~ 240VAC 50 ~ 60Hz Internal Universal PSU
- Supports power redundancy
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Supports Rack Mounting installation