

# EX73000 Series

Hardened Managed 16-port 10/100BASE with 2-port Gigabit combo Ethernet Switch



## Overview

EtherWAN's EX73000 Series provides a Hardened Fully Managed 18-port switching platform combining high performance switching backbone with robust and secure management features required for mission critical and harsh environments where sustained connectivity is crucial.

The EX73000 Series is equipped with sixteen 10/100BASE Fast Ethernet ports, in combination with up to two Gigabit combo ports with fixed Fiber options. Mountable on a DIN-rail, the EX73000 Series is equipped with EtherWAN's Alpha-Ring self-healing technology, providing less than 15ms fault recovery time making it ideal for applications intolerant to interruption.

Users are able to access management features such as port security, IGMP snooping, VLANs, GARP protocols, LACP to name a few, and via web browser, Telnet, SNMP, RMON, TFTP, and RS-232 console interfaces.

EtherWAN — "When Connectivity is Crucial."

## Spotlight

### • Versatile Connectivity

- Provides 16-port 10/100BASE-TX/FX/BX/SFP plus 2-port Gigabit-SX/LX/BX/SFP combo

### • Hardened Grade

- Wide operating temperature range from -40°C to 75°C (-40°F to 167°F) for extreme environments
- Fanless and ruggedized housing

### • Secure Remote Access

- IEEE802.1x, and RADIUS support

# Software Features

## Management

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- Interface
  - CLI, Telnet and Web Browser
  - SNMP v1/v2c/v3
- Firmware and configuration upgrade and backup via TFTP
- Supports DHCP Server/Client
- RMON (Remote monitoring): group 1, 2, 3, 9
- Port mirroring: TX/RX and both
- NTP (Network Time Protocol) time synchronization
- IEEE802.1ab LLDP (Link Layer Discovery Protocol)

## Security

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- MAC address filtering
- Enable/disable port
- Storm control (broadcast and multicast types)
- IEEE802.1x LAN access control
- Remote authentication through RADIUS
- SSH for CLI and Telnet security
- SSL for web security
- Multi-level user account/password against unauthorized configuration
- System log (remote/local)

## Quality of Service (QoS)

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- Priority Queues: 4 queues per port
- Traffic classification based on IEEE802.1p CoS, DSCP, WRR (Weighted round robin) and strict mode
- Rate Limiting (Ingress/Egress)

## Layer 2 Features

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- Auto-negotiation for port speed and duplex mode
- Flow Control
  - IEEE802.3x full duplex mode
  - Back-Pressure half duplex mode
- Redundant Protocol
  - IEEE802.1D Spanning Tree Protocol (STP)
  - IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
  - IEEE802.1s Multiple Spanning Tree Protocol (MSTP)
  - EtherWAN's  $\alpha$ -Ring network fault recovery (<15ms)
- VLANs
  - Port-based VLANs
  - IEEE802.1Q Tag VLANs (128 groups, 4096 VID)
  - GVRP (GARP VLAN Registration Protocol)
  - GMRP (GARP Multicast Registration Protocol)
- Link Aggregation
  - Static Trunk (2 groups, support MAC base)
  - IEEE802.3ad Link Aggregation Control Protocol
- IGMP Snooping
  - IGMP snooping v1/v2/v3

## Performance

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- Switching Capability: 7.2Gbps
- Packet Buffer Size: 2M bits
- MAC Address Table: 8192

# Hardware Specifications

## Technology

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### Standards

- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex and flow control
- IEEE802.1p Quality of Service (QoS)
- IEEE802.1Q Tag VLANs
- IEEE802.1w RSTP
- IEEE802.1x Port-based Network Access Control

### 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
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

### Address Table Size

- 8192 MAC addresses

## Power

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### Input

- Redundant power inputs:
  - 12 - 48VDC (Terminal Block),
  - 12VDC (DC Jack)

### Power Consumption

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

### Protection

- Overload current protection
- Reverse polarity protection

## Mechanical

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### Casing

- Aluminum Case
- IP30

### Dimensions

- 65mm (W) x 125mm (D) x 145mm (H)  
(2.56" (W) x 4.92" (D) x 5.71" (H))

### Weight

- 1Kg (2.2lbs.)

### Installation

- DIN-Rail (Top hat type 35mm) or Wall mounting

## Interface

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### 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 1, Power 2, Power 3
- Per Port: Link/Activity  
(Green: Copper, Orange: Fiber)

### Alarm Contact

- One relay output with current 1A @ 24VDC

## Environment

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### 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

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### ISO

- Manufactured in an ISO9001 facility

### Safety

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#### UL508

#### ISA 12.12.01

### EMI

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#### FCC Part 15B, Class A

#### EN61000-6-4

#### EN55022

#### EN61000-3-2

#### EN61000-3-3

### EMS

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#### EN61000-6-2

- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

### Environmental Test Compliances

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#### IEC60068-2-6 Fc (Vibration Resistance)

#### IEC60068-2-27 Ea (Shock)

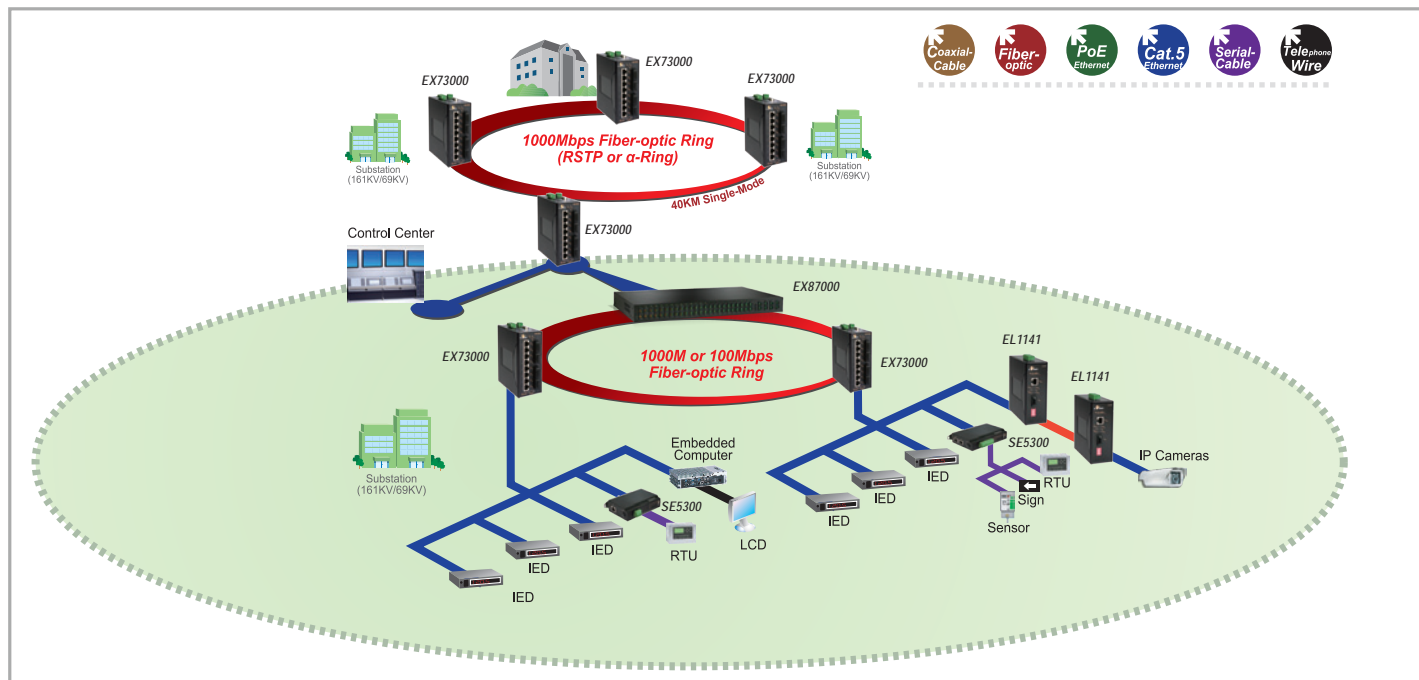
#### FED STD 101C Method 5007.1 (Free fall w/ package)

### Industrial Compliance

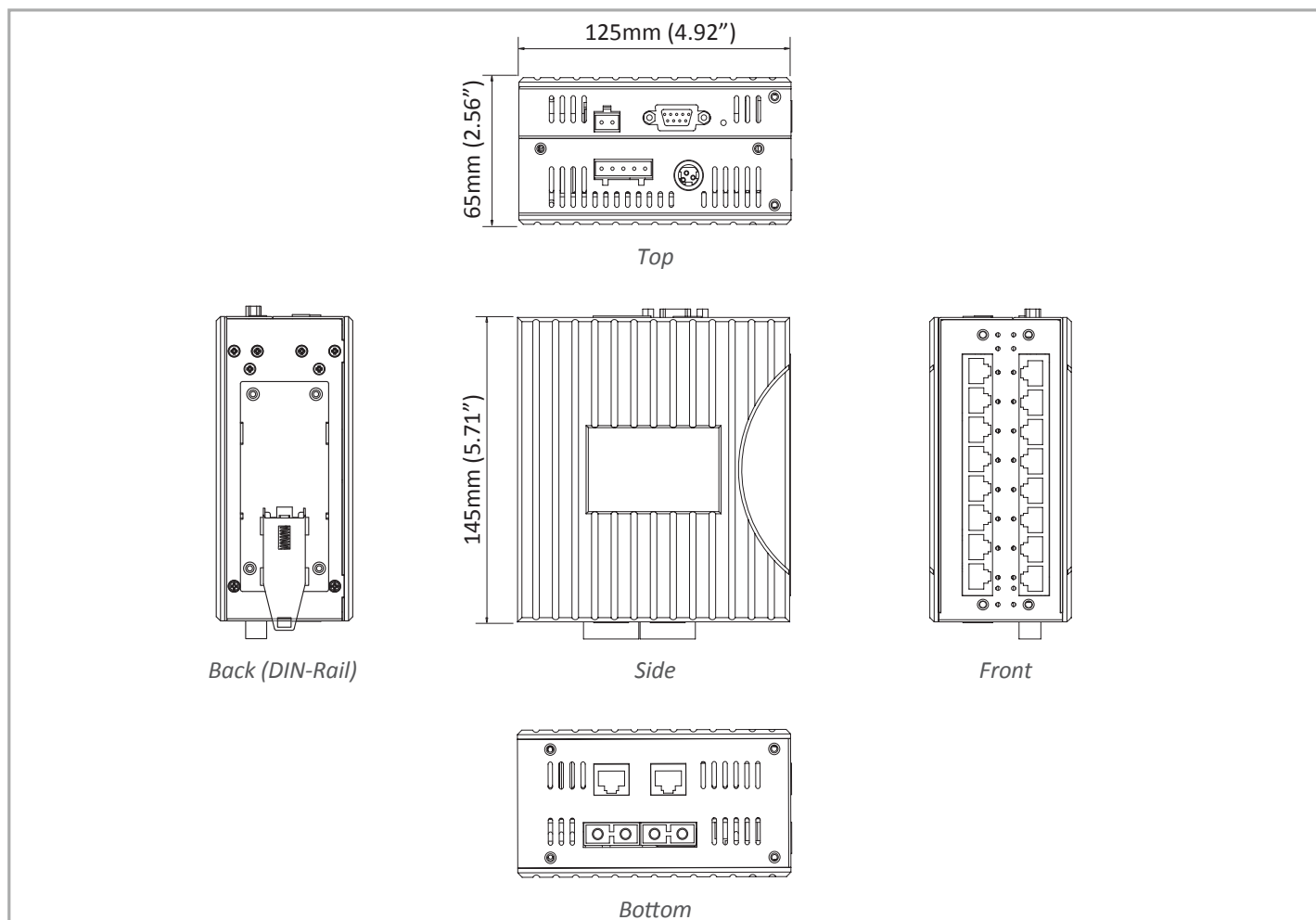
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#### NEMA TS2

# Application Diagram



# Dimensions



# Ordering Information

## Model

<b>EX73400-00B</b>	16-port 10/100BASE-TX Hardened Managed Ethernet Switch
<b>EX73401-0YB</b>	16-port 10/100BASE-TX + 1-port Gigabit Hardened Managed Ethernet Switch
<b>EX73402-0YB</b>	16-port 10/100BASE-TX + 2-port Gigabit Hardened Managed Ethernet Switch
<b>EX73302-0YB</b>	12-port 10/100BASE-TX + 2-port Gigabit Hardened Managed Ethernet Switch
<b>EX73310-X0B</b>	12-port 10/100BASE-TX + 1-port 100BASE-FX Hardened Managed Ethernet Switch
<b>EX73311-XYB</b>	12-port 10/100BASE-TX + 1-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
<b>EX73312-XYB</b>	12-port 10/100BASE-TX + 1-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
<b>EX73320-X0B</b>	12-port 10/100BASE-TX + 2-port 100BASE-FX Hardened Managed Ethernet Switch
<b>EX73321-XYB</b>	12-port 10/100BASE-TX + 2-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
<b>EX73322-XYB</b>	12-port 10/100BASE-TX + 2-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
<b>EX73200-00B</b>	8-port 10/100BASE-TX Hardened Managed Ethernet Switch
<b>EX73201-0YB</b>	8-port 10/100BASE-TX + 1-port Gigabit Hardened Managed Ethernet Switch
<b>EX73202-0YB</b>	8-port 10/100BASE-TX + 2-port Gigabit Hardened Managed Ethernet Switch
<b>EX73210-X0B</b>	8-port 10/100BASE-TX + 1-port 100BASE-FX Hardened Managed Ethernet Switch
<b>EX73211-XYB</b>	8-port 10/100BASE-TX + 1-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
<b>EX73212-XYB</b>	8-port 10/100BASE-TX + 1-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
<b>EX73220-X0B</b>	8-port 10/100BASE-TX + 2-port 100BASE-FX Hardened Managed Ethernet Switch
<b>EX73221-XYB</b>	8-port 10/100BASE-TX + 2-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
<b>EX73222-XYB</b>	8-port 10/100BASE-TX + 2-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
<b>EX73240-X0B</b>	8-port 10/100BASE-TX + 4-port 100BASE-FX Hardened Managed Ethernet Switch
<b>EX73241-XYB</b>	8-port 10/100BASE-TX + 4-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
<b>EX73242-XYB</b>	8-port 10/100BASE-TX + 4-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch

\* DIN-Rail mounting kit included

## 100FX Fiber Options (X)

<b>1</b>	Multi Mode (SC) - 2Km
<b>2</b>	Multi Mode (ST) - 2Km
<b>6</b>	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 2Km
<b>7</b>	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 2Km
<b>8</b>	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km
<b>9</b>	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km
<b>A</b>	Single Mode (SC) - 20Km
<b>B</b>	Single Mode (SC) - 40Km
<b>H</b>	Single Mode (ST) - 20Km
<b>P</b>	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 20Km
<b>Q</b>	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 20Km
<b>R</b>	Single Mode (SC) WDM-TX:1310nm/RX:1550nm - 40Km
<b>S</b>	Single Mode (SC) WDM-TX:1550nm/RX:1310nm - 40Km

## Gigabit Port Options (Y)

<b>1</b>	10/100/1000BASE-TX (No Gigabit Fiber port supported)
<b>3</b>	Combo port: 10/100/1000BASE-TX with 1000BASE-SX(SC) - 550m
<b>4</b>	Combo port: 10/100/1000BASE-TX with 1000BASE-SX (SC) - 2Km
<b>5</b>	Combo port: 10/100/1000BASE-TX with 1000BASE-SX (ST) - 550m
<b>A</b>	Combo port: 10/100/1000BASE-TX with 1000BASE-LX (SC) - 10Km
<b>B</b>	Combo port: 10/100/1000BASE-TX with 1000BASE-LX (SC) - 20Km
<b>R</b>	Combo port: 10/100/1000BASE-TX with 1000BASE-BX (SC) WDM-TX:1310nm/RX:1550nm - 20Km
<b>S</b>	Combo port : 10/100/1000BASE-TX with 1000BASE-LX (SC) WDM-TX:1550nm/RX: 1310nm - 20Km

## Optional Accessories

<b>KP-AA96-480</b>	Panel mounting Kits
<b>DR-30-24</b>	30W/1.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
<b>DR-60--24</b>	60W/2.5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
<b>DR-120-24</b>	120W/5A DIN-Rail 24VDC Industrial Power Supply (for Terminal Block)
<b>41-136046-X</b>	36W/3A 12VDC hardened power adapter with open wire in aluminum housing (for Terminal Block); (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA
<b>41-136044-X</b>	36W/3A 12VDC hardened power adapter with latched DC Jack in aluminum housing; (for DC Jack) (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA

The logo for DIREKTRONIK is displayed in a bold, italicized, red font with a white outline. It is centered on a yellow, curved background that resembles a stylized wave or a partial circle.

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