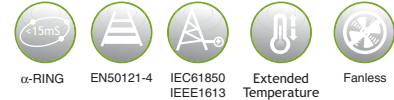


# EX83000 Series

IEC61850/IEEE1613 Managed Hardened 16-port 10/100BASE with 2-port Gigabit Combo Ethernet Switch



## Value

- Provides flexibility of 16-port 10/100BASE-TX/FX/BX plus 2-port Gigabit-SX/LX/BX combo
- Complies with IEC61850-3 & IEEE1613 Environmental requirements for power substation automation systems
- Wide temp range for extreme environments

## Features

- Complies with EN50121-4 Railway application environmental
- Supports  $\alpha$ -ring and RSTP/MSTP/STP for Ethernet redundancy
- IP Multicast Filtering through IGMP Snooping V1, V2 & V3
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- IEEE802.1p QoS with four priority queues
- MAC-based trunking with automatic link fail-over
- RS-232 console, Telnet, SNMP V1, V2c & V3, RMON, Web Browser, and TFTP Management
- Supports Command Line Interface in RS-232 Console
- Supports IEEE802.1x Security
- Bandwidth Rate Control
- Per-port programmable MAC address locking
- Up to 24 Static Secure MAC addresses per port
- Port mirroring
- Supports NTP
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- -40°C to +75°C (-40°F to 167°F) operating temperature range, tested for functional operation @ -40°C to +85°C (-40°F to 185°F)

## Ordering Information

EX83400-00Z	16-port 10/100BASE-TX Hardened Managed Ethernet Switch
EX83401-0YZ	16-port 10/100BASE-TX + 1-port Gigabit Hardened Managed Ethernet Switch
EX83402-0YZ	16-port 10/100BASE-TX + 2-port Gigabit Hardened Managed Ethernet Switch
EX83310-X0Z	12-port 10/100BASE-TX + 1-port 100BASE-FX Hardened Managed Ethernet Switch
EX83311-XYZ	12-port 10/100BASE-TX + 1-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX83312-XYZ	12-port 10/100BASE-TX + 1-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX83320-X0Z	12-port 10/100BASE-TX + 2-port 100BASE-FX Hardened Managed Ethernet Switch
EX83321-XYZ	12-port 10/100BASE-TX + 2-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX83322-XYZ	12-port 10/100BASE-TX + 2-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX83200-00Z	8-port 10/100BASE-TX Hardened Managed Ethernet Switch
EX83201-0YZ	8-port 10/100BASE-TX + 1-port Gigabit Hardened Managed Ethernet Switch
EX83202-0YZ	8-port 10/100BASE-TX + 2-port Gigabit Hardened Managed Ethernet Switch
EX83210-X0Z	8-port 10/100BASE-TX + 1-port 100BASE-FX Hardened Managed Ethernet Switch
EX83211-XYZ	8-port 10/100BASE-TX + 1-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX83212-XYZ	8-port 10/100BASE-TX + 1-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX83220-X0Z	8-port 10/100BASE-TX + 2-port 100BASE-FX Hardened Managed Ethernet Switch
EX83221-XYZ	8-port 10/100BASE-TX + 2-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX83222-XYZ	8-port 10/100BASE-TX + 2-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch
EX83240-X0Z	8-port 10/100BASE-TX + 4-port 100BASE-FX Hardened Managed Ethernet Switch
EX83241-XYZ	8-port 10/100BASE-TX + 4-port 100BASE-FX + 1-port Gigabit Hardened Managed Ethernet Switch
EX83242-XYZ	8-port 10/100BASE-TX + 4-port 100BASE-FX + 2-port Gigabit Hardened Managed Ethernet Switch

### 100FX Fiber Options :

- (X) = 1 : Multi Mode (SC) - 2Km  
 2 : Multi Mode (ST) - 2Km  
 6 : Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 2Km  
 7 : Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 2Km  
 8 : Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km  
 9 : Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km  
 \*More 100FX Fiber options also available upon request.

- 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

### Gigabit Port Options :

- (Y) = 1 : 10/100/1000BASE-TX (No Gigabit Fiber port supported)  
 3 : Combo port : 10/100/1000BASE-TX with 1000BASE-SX (SC) - 550m  
 4 : Combo port : 10/100/1000BASE-TX with 1000BASE-TX with 1000 BASE-SX(SC) - 2Km  
 5 : Combo port : 10/100/1000BASE-TX with 1000BASE-TX with 1000 BASE-SX(ST) - 550m  
 \*More Gigabit options also available upon request.

- A : Combo port : 10/100/1000BASE-TX with 1000BASE-LX (SC) - 10Km  
 B : Combo port : 10/100/1000BASE-TX with 1000BASE-LX (SC) - 20Km  
 R : Combo port : 10/100/1000BASE-TX with 1000BASE-LX (SC) WDM-TX:1310nm/RX:1550nm - 20Km  
 S : Combo port : 10/100/1000BASE-TX with 1000BASE-LX (SC) WDM-TX:1550nm/RX:1310nm - 20Km

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

**Power Supply :** (Optional)

\*Option 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: US, 2: EU, 3: UK, 4: AU, 5: JP

\*\*Option B - DC Jack power supplies kit(s), part numbers: 41-136044-X (X)=1: US, 2: EU, 3: UK, 4: AU, 5: JP

**Installation Type :** DIN Rail (mounting kit is included), Optional Panel Mount kits (KP-AA96-480) are available for ordering.

## Specifications

<b>Technology</b>	
Standards	IEEE802.3 10BASE-T, IEEE802.3u 100BASE-TX, IEEE802.3ab1000BASE-T, IEEE802.3z 1000BASESX/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
<b>Power</b>	
Input	Input Voltage: 12 to 48VDC (Terminal Block); 12VDC (DC Jack)
Power Consumption	15W Max. 1.25A @ 12VDC, 0.625A @ 24VDC
Overload Protection	Present
Reverse Polarity Protection	Present
<b>Mechanical</b>	
Casing	Aluminum case IP30
Dimensions	84mm (W) x 125mm (D) x145mm (H) (3.3" (W) x 4.92" (D) x 5.71" (H))
Weight	1Kg (2.2lbs.)
Installation	DIN-Rail (Top hat type 35mm), Wall Mount
<b>Interface</b>	
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
<b>Environment</b>	
Operating Temperature	-40°C to +75°C (-40°F to 167°F)
Storage Temperature	Tested @ -40°C to 80°C (-40°F to 175°F)
Ambient Relative Humidity	5% to 95% (non-condensing)
<b>Regulatory Approvals</b>	
ISO	Manufactured in an ISO9001 facility
EMI	*FCC Part 15, Class A *EN61000-6-4 *EN55022 EN61000-3-2, EN61000-3-3
EMS	*EN61000-6-2 - EN61000-4-2 (ESD Standards)

Environmental Test Compliance	<p>Contact: + / - 8KV; Criteria B Air: + / - 15KV; Criteria B - EN61000-4-3 (Radiated RFI Standards) 10V/m, 80 to 1000MHz; 80% AM Criteria A - EN61000-4-4 (Burst Standards) Signal Ports: + / - 4KV; Criteria B D.C. Power Ports: + / - 4KV; Criteria B - EN61000-4-5 (Surge Standards) Signal Ports: + / - 1KV; Line-to-Line; Criteria B D.C. Power Ports: + / - 0.5KV; Line-to-earth; Criteria B - EN61000-4-6 (Induced RFI Standards) Signal Ports: 10Vrms @ 0.15 - 80MHz; 80% AM Criteria A D.C. Power Ports: 10Vrms @ 0.15 - 80MHz; 80% AM Criteria A - EN61000-4-8 (Magnetic Field Standards) 30A/m @ 50, 60Hz; Criteria A - IEC61000-4-10 (Oscillatory wave magnetic field test) 100kHz and 1MHz: 30A/m - IEC61000-4-16 (Power frequency immunity test) 50Hz: 300V - IEC61000-4-18 (oscillatory wave immunity test): 100 kHz, 2.5kV CM and 2.5kV DM 1MHz, 2.5kV CM and 2.5kV DM - IEEE1613: power frequency withstand voltage: 2KV, Insulation resistance &gt;550 MOhm RJ45 Port 500V, Insulation resistance &gt;550 MOhm Impulse voltage: 5Kv, Insulation resistance &gt;550 MOhm IEC60870-2-1: AC/DC power supply voltage variations - IEC61000-4-10 (Oscillatory wave magnetic field test) 100kHz and 1MHz: 30A/m - IEC61000-4-16 (Power frequency immunity test) 50Hz: 300V - IEC 61000-4-18 (oscillatory wave immunity test): 100 kHz, 2.5kV CM and 2.5kV DM 1MHz, 2.5kV CM and 2.5kV DM - IEEE1613: power frequency withstand voltage: 2KV, Insulation resistance &gt;550 MOhm RJ45 Port 500V, Insulation resistance &gt;550 MOhm Impulse voltage: 5Kv, Insulation resistance &gt;550 MOhm IEC 60870-2-1: AC/DC power supply voltage variations</p>
Environmental Test Compliance	<p>*IEC60068-2-6 Fc (Vibration Resistance) 30A/m @ 50, 60Hz; Criteria A 5g @ 10 - 150Hz, 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.)</p>

## Dimensions

