

EB-5ES Industrial Ethernet Switch

Sixnet's EB-5ES-PSE is a 5 port [Industrial Ethernet switch](#) that combines the rugged reliability of a real-time switch with four industrial Power over Ethernet (PoE) sourcing ports. Providing plug-and-play simplicity, these switches automatically sense and support all IEEE 802.3af compliant devices. In addition, advanced technology allows the switches to connect with non-PoE devices without causing damage. This performance saves time and money while keeping networks up and running even in the toughest conditions.



Overview

Industrial Switch Product Highlights

- Slim 5 port DIN-rail packaging
- 4 PoE sourcing ports with full IEEE compliance
- Pre-configured for plug-and-play simplicity
- Industrial-hardened design

To learn more about our EB-5ES-PSE [Industrial Ethernet Switch](#) with PoE, simply contact sales@sixnet.com or call +1 (518) 877-5173.

Features

IEEE 802.3af Compliant PoE Ports

- Power Sourcing Equipment (PSE) operation
- Auto-detection of PD (powered devices)
- Over-temperature and over-current detection
- Over and under-voltage detection

Real-Time Network Operation

- Intelligent message routing (no collisions)
- Supports all standard IEEE 802.3 protocols

True Plug & Play Simplicity

- Auto-sensing for speed and duplex
- Auto-mdi / mdix-crossover and auto-polarity
- Automatic PoE power management

Trouble-Free Operation

- Truly industrial -40 to 75°C operation
- Dual power inputs with surge protection
- DIN-rail or direct panel mounting

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Specs

Ethernet Performance

- Operation: unmanaged, store and forward, wire-speed switching, non-blocking
- Modes: full or half duplex operation with flow control supported on all ports
- Support: all IEEE 802.3 compliant devices and protocols are supported
- Ethernet compliance
 - IEEE 802.3af (Power over Ethernet)
 - IEEE 802.3 (10Mbps Ethernet for legacy devices)
 - IEEE 802.3u (100Mbps Ethernet for newer devices)
 - IEEE 802.3x (Full-Duplex with Flow Control)
- MAC addresses: 1024
- Memory bandwidth: 3.2 Gbps
- Latency (typical): 5 us for 100 Mbps and 16 us for 10 Mbps (plus frame time)
- Ethernet isolation: 1500 Vrms 1 minute

RJ45 Copper Ports

- RJ45 ports: Up to five RJ45 ports that are fully IEEE 802.3 compliant; four of these are PoE (PSE) and fully 802.3af compliant
- RJ45 speed and duplex: 10/100 auto-detecting for speed and duplex (full or half)
- RJ45 MDI / MDIX: Auto-mdi / mdix-crossover automatically supports either straight or crossed cables
- RJ45 Polarity: Auto-polarity for automatic correction of crossed TXD and RXD pairs

Fiber Optic Ports

- One optional 100 Mbps fiber optic port for distances up to 120km
- Transceivers: SC or ST style
- Multimode: Links up to 4 km typical; 1310 nm; use with 50 or 62.5/125 um fiber
 - Transmitter power (dB): -21 min, -17 typ, -14 max
 - Receiver sensitivity (dB): -34 typ, -31 max
- Singlemode: Links up to 20 km typical; 1310 nm; use with 9 or 10/125 um fiber
 - Transmitter power (dB): -15 min, -11 typ, -8 max
 - Receiver sensitivity (dB): -36 typ, -31 max
- Singlemode Long Haul: Links up to 40 km typical; 1310 nm; use with 9 or 10/125 um fiber
 - Transmitter power (dB): -5 min, -3 typ, -0 max (special order)
 - Receiver sensitivity (dB): -36 typ, -34 max (special order)
- Longer distances: Contact Sixnet for distances up to 120 km
- Eye safety: IEC60825-1, Class 1; FDA 21 CFR 1040.10 and 1040.11

Power Input

- Redundancy: Dual power input terminals with reverse polarity protection
- Power input: 10-30 VDC with no PoE output; 45-56 VDC for PoE output
- Switch Power Consumption
 - 2.0 W (5-port without fiber) + PoE
 - 3.0 W (5-port with 1 fiber) + PoE
 - Typical for all ports to be active at 100 Mbps
- PoE Power consumption: Up to 15.4 W per port
- Transient protection: 15,000 watts peak

- Spike protection: 5,000 watts (10 times for 10 uS)

PoE Output

- PoE compliance: 100% IEEE 802.3af compliant
- PoE classification: PSE (Power Sourcing Equipment)
- PoE voltage: 45 to 48 VDC depending on power input
- PoE power: Up to 15.4 watts per channel
- PoE RJ45: pin assignments TX/V- (3, 6); RX/V+ (1, 2)
- PoE operation: automatic detection and power management
- PoE disconnect mode: DC disconnect
- PoE protection: over-temperature, over-current, over/under-voltage and transient

Environmental

- Operating temperature: -40 to 75°C (cold startup @ -40)
- Storage temperature: -40 to 85°C
- Humidity: 5 to 95% RH (non-condensing)
- Vibration: IEC68-2-6
- Shock: IEC68-2-27
- Freefall: IEC68-2-32

Standards & Compliance

- Electrical safety: UL508 / CSA C22.2/14 per CUL; EN61010-1
- EMC: FCC part 15 / ICES-003; EN55022 / IEC61326-1
- Hazardous locations: UL1604, CSA C22.2/213 per CUL (Class I, Div. 2, Groups A, B, C, D); ATEX / Cenelec (Zone 2)
- MTBF Mean Time Between Failure: >1,000,000 hours
- RoHS and WEEE: RoHS (Pb free) and WEEE compliant
- ISO9001:2000: Certified "Total Quality" company
- Industrial Warranty: 5 years with product registration

Mechanical

- Slim line case, ideal for DIN-rail mounting
- Material: Corrosion-proof polycarbonate plastic
- Protection: IP30 protection from dust and debris
- DIN-rail or direct-panel mounting (no optional kits or accessories required)
- Dimensions: 1.0" x 4" x 3.3" (2.5 x 10.0 x 8.3 cm)
- Weight: 4 oz. (0.11 kg)

All specifications are subject to change. Contact Sixnet to learn more.

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Order Guide

Part Number	Description
EB-5ES-PSE-1	Industrial switch with 4 PoE and 1 RJ45 uplink
EB-5ES-PSE-2SC	Industrial switch with 1 multimode SC for links up to 4 km (special order)
EB-5ES-PSE-2ST	Industrial switch with 1 multimode ST for links up to 4 km (special order)

EB-5ES-PSE-3SC	Industrial switch with 1 singlemode SC for links up to 20 km (special order)
EB-5ES-PSE-3ST	Industrial switch with 1 singlemode ST for links up to 20 km (special order)
EB-5ES-PSE-3SCL	Industrial switch with 1 singlemode long haul SC for link up to 40 km (special order)
EB-5ES-PSE-3STL	Industrial switch with 1 singlemode long haul ST for links up to 40 km (special order)

Models



EB-5ES-PSE-1
5 RJ45 Ports



EB-5ES-PSE-2SC or -3SC
4 RJ45 & 1 Fiber (SC Style)



EB-5ES-PSE-2ST or -3ST
4 RJ45 & 1 Fiber (ST Style)



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