

Etherbus®

Industrial Power over Ethernet (PoE) Switch Unmanaged Real-time Switch with Four PSE Outputs

The EB-5ES-PSE combines the ultra-reliability of a five port EtherTRAK Real-time Switch with four industrial PoE sourcing outputs. Simply power this switch with 48 VDC to source the PoE lines. The four PoE ports automatically sense and support both PoE and non-PoE (traditional) Ethernet devices. Or power this switch with 10-30 VDC and it functions as a robust industrial switch that is PoE future-ready.

Product Highlights

- Four fully IEEE-compliant PoE ports
- Slim packaging fits on your DIN rail
- Plug & play saves you time and money
- Truly industrial rated for any application

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 and play simplicity

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

SIXNET reliability and long-term support

- Ultra-reliable 1,000,000+ hours MTBF
- 20-year support and service promise

Industrial tough – ready for any application

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

Certified to Perform:



ISO9001
Certified



European
Community



Hazardous
Locations



USA/Canada
Emissions



Lead & Hazardous
Substance Free

5-ports total with
4 PoE ports plus
an optional fiber
optic uplink port



Etherbus® Industrial Fieldbus Solutions

Like a true fieldbus, Etherbus® combines all the advantages of Ethernet (speed and openness) with power in the same cable to simplify system wiring, reduce maintenance time and save you money. At the heart of Etherbus are standard Ethernet (802.3) and PoE (802.3af) making it truly open. Etherbus is “Every bus” because it passes any and all Ethernet message packets regardless of origin or protocol. Etherbus works with Modbus/TCP, Profinet, Ethernet/IP, ... (the list is endless). Etherbus works with PoE devices as well as non-PoE devices. It can even deliver standard +24 VDC to your field mounted devices – even non-Ethernet devices. **For more details contact SIXNET for the Etherbus brochure.**

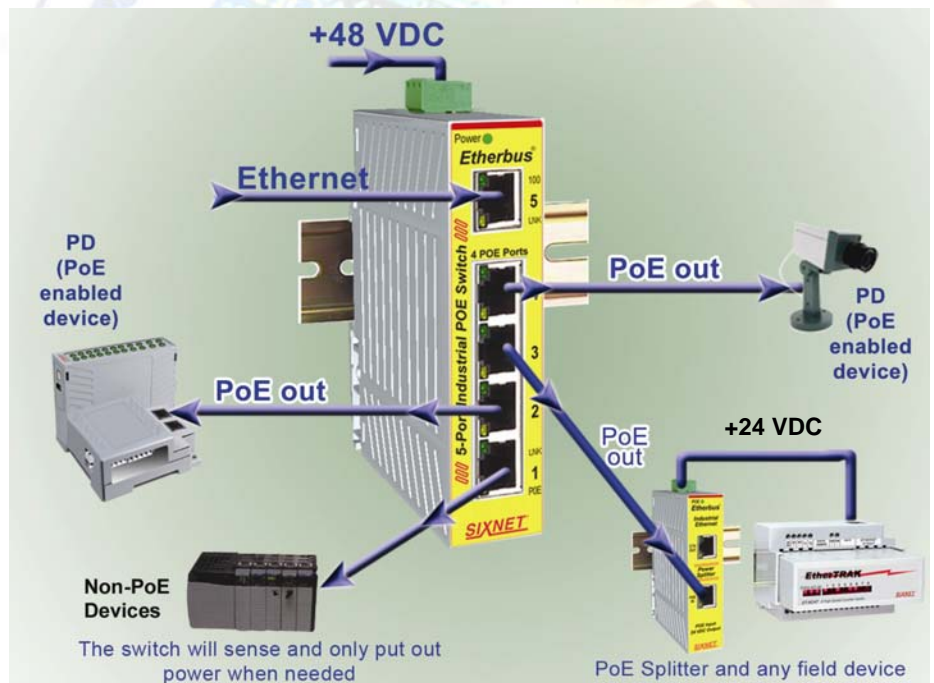
SIXNET Switches are Real-time, Rugged and Reliable

Ensure that your critical automation and control communications stays running. These ruggedized switches connect to any Ethernet device and provide the important features you need:

- Simplify Installation
- Increase Reliability
- Improve Network Bandwidth
- Ensure Real-time Operation
- Allow Deterministic Control

Why a SIXNET Industrial Switch?

The Etherbus PoE Switch is truly industrial. SIXNET has over 20 years experience designing Remote Terminal Units for the toughest applications and has applied this expertise to design the most rugged and reliable Ethernet switches. The tough packaging and protected circuitry keep them working under conditions that may cause other so-called industrial switches to quickly fail. Industrial applications are demanding - it gets hot, it gets cold - the power browns out or spikes wildly - and you need a reliable industrial switch that can keep on going.



Protected Power over Ethernet (PoE) - The Etherbus PoE Switch operates as Power Sourcing Equipment (PSE) and runs directly on your DC power. For PoE operation, simply supply 45 to 56 VDC. Each PSE port is fully IEEE 802.3af compliant and will automatically detect your connected devices. You can safely connect either PoE devices (PD) or non-PoE devices and be assured that they will just work. The PoE is protected against over-current, over-temperature and over/under-voltage faults plus transients.

Real-time deterministic performance - The Etherbus PoE Switch is one of the best and easiest ways to ensure the real-time operation of your automation and control system. They provide high throughput (3.2 Gbps, non-blocking) to ensure no delays and special handling for the many repeated short messages found in real-time polled systems. With plug and play ease, simply install this active switch and you'll immediately reap the benefits of increased performance. By providing enhanced message routing and eliminating message collision, these switches allow for true network determinism.


SIXNET Switches deliver ultra-reliability in the heat or cold - SIXNET Real-time Switches have field-proven reliability of more than 1,000,000 hours MTBF. All SIXNET industrially hardened switches are rated to survive in the toughest environment – even outdoors in marine and military applications. These switches work reliably through the dead of winter and those hot summer days. SIXNET industrial switches are designed for those places that you don't want to be - over a wide operating temperature range. You can count on SIXNET, who has been making industrial hardware for over 30 years!

Forget the Velcro and makeshift brackets - SIXNET industrial switches can be DIN rail or direct panel mounted - right out of the box. Their compact footprint fits easily into equipment-filled enclosures. No extra mounting accessories are needed!

SIXNET Industrial Switches make your job easier - Just snap these switches onto the rail, plug in your network cables, and sit back and watch the data flow, year after year. These switches have been specifically designed to make your job easier.

SIXNET®

331 Ushers Road, P.O. Box 767 • Clifton Park, NY 12065 USA • +1 (518) 877-5173 • Fax +1 (518) 877-8346
Email: <mailto:sales@sixnetswitch.com> • Web: <http://www.etherbus.com> • Store: <http://www.sixnetstore.com>

Performance Specifications	
General	Unmanaged, store & forward
Ethernet protocols supported	All IEEE 802.3
Ethernet switch ports	5 total with 4 PoE (PSE)
RJ45 ports (shielded)	10/100BaseTX
RJ45 speed (10 or 100 Mbps)	Auto-negotiation
RJ45 MDI/MDIX and TD/RD	Auto-crossover and auto-polarity
Ethernet isolation	1500 VRMS 1 minute
Fiber optic port speed / duplex	100BaseF (100 Mbps) / full duplex
Fiber optic port wavelength	1300 nm (others available)
Fiber multimode (mm) typical	50 or 62.5/125 um (SC or ST)
Fiber singlemode (sm) typical	9 or 10/125 um (SC or ST)
Fiber max. distance (full duplex) (see web for details)	4 km (mm), 20 (sm) or 40 km (long haul) or more (contact SIXNET)
Typ. latency for 100 Mbps ports	5 us + frame time Varies on load
MAC addresses and bandwidth	1024 and 3.2 Gbps
Power In and PoE Out	Redundant input terminals
Power input with reverse polarity protection	10-30 VDC with no PoE output 45-56 VDC for PoE output
Switch power consumption (typ. all ports active at 100 Mbps)	2.0 W (5-port without fiber) + PoE 3.0 W (5-port with 1 fiber) + PoE
PoE power consumption	Up to 15.4 W per port
RJ45 pin assignments for PoE	TX/V- (3, 6); RX/V+ (1, 2)
Power input transient protection	15,000 watts peak
Power input spike Protection	5,000 watts (10 times for 10 uS)
PoE operation	Auto power management
PoE disconnect mode	DC disconnect
PoE auto-detection	Per IEEE 802.3af
PoE protection	Over-temperature, over-current, over/under-voltage and transient
Environmental	Truly industrial design
Operating temperature range	-40 to +75 °C (cold startup @ -40)
Storage temperature range	-40 to +85 °C
Humidity (non-condensing)	5 to 95% RH
Vibration, shock and freefall	IEC68-2-6, -27 and -32
Electrical safety	
EMC emissions and immunity	
Hazardous locations	
Eye safety (fiber models)	UL1604 / CSA C22.2/213 (CUL), C1, D2; ATEX / Cenelec Zone 2
Mechanical	DIN rail or direct to panel mounting
Packaging material & protection	Polycarbonate with IP30 protection
Dimensions (H x W x D)	4 x 1 x 3.3" (10 x 2.5 x 8.3 cm)
Weight (approximate)	0.17 Kg (0.25 lbs)
MTBF (estimated)	>1,000,000 hours

Specifications are subject to change. Consult factory for latest information.

For the latest information on all Etherbus products please go to <https://www.etherbus.com>

SIXNET

331 Ushers Road, P.O. Box 767 • Clifton Park, NY 12065 USA • +1 (518) 877-5173 • Fax +1 (518) 877-8346
Email: <mailto:sales@sixnetswitch.com> • Web: <http://www.etherbus.com> • Store: <http://www.sixnetstore.com>

Hardware Highlights:

- 5 port truly industrial Ethernet unmanaged switch with an optional fiber optic port (multimode or singlemode) for distances up to 120 km
- 4 PoE power sourcing equipment (PSE) ports for up to 15.4W each – fully IEEE 802.3af compliant
- Redundant power inputs and industrial surge protection
- UL/CSA, CE and FCC rated for industrial applications
- DIN rail or direct panel mounting (no extra kits required)

Networking Features:

- Store and forward wire speed switching – no delays
- Support for up to 1024 MAC addresses
- Automatic address learning, aging and migration
- Full-Duplex operation with flow control (no collisions!)
- Auto crossover (MDI/MDIX) and auto polarity

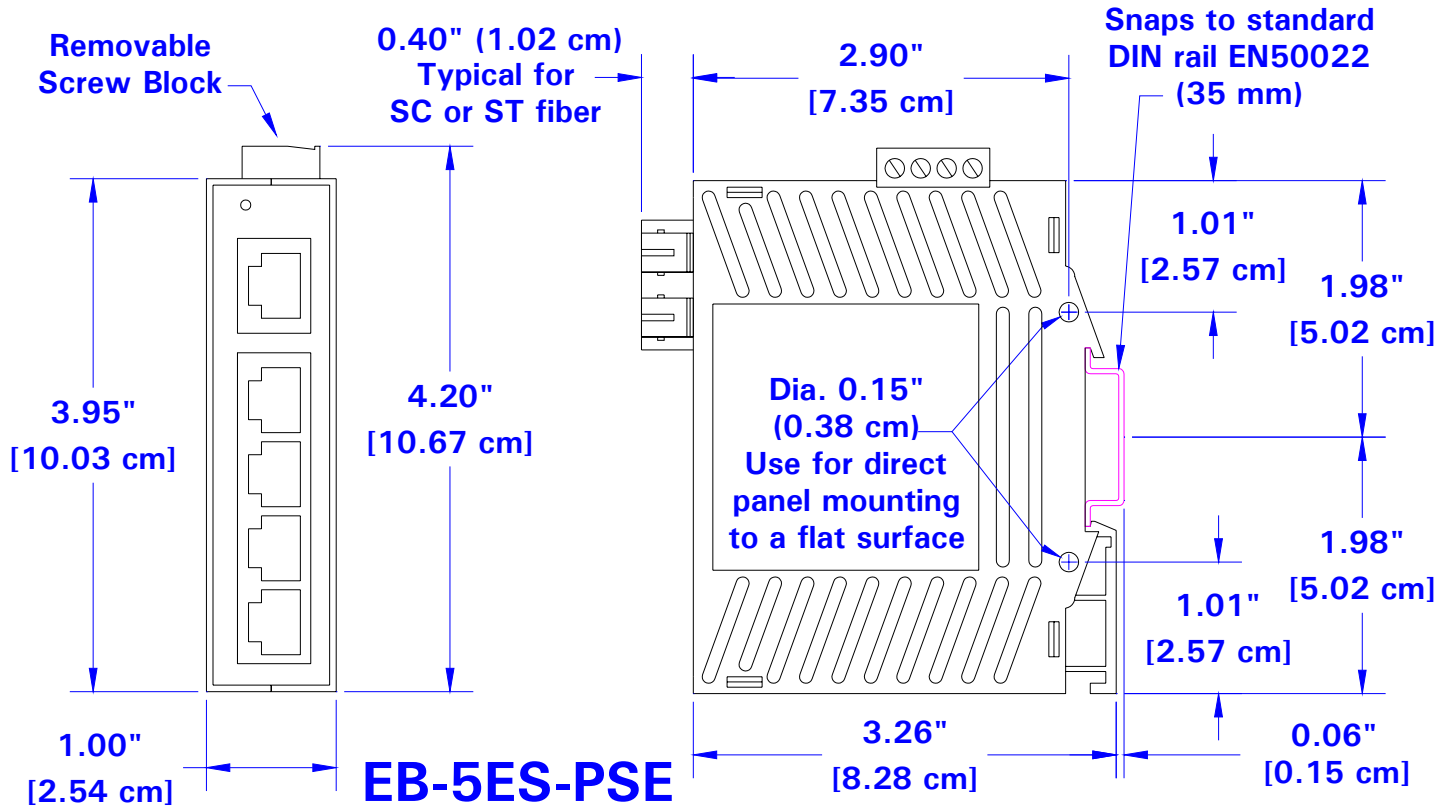
Ethernet Compliance:

- 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)

Ordering Guide	
EB-5ES-PSE-1	5 RJ45 10/100 Ethernet ports including 4 PoE (PSE) ports
EB-5ES-PSE-2SC EB-5ES-PSE-2ST (Special Order)	4 RJ45 PoE (PSE) ports and 1 multimode fiber port with SC or ST style connector for up to 4 km
EB-5ES-PSE-3SC EB-5ES-PSE-3ST (Special Order)	4 RJ45 PoE (PSE) ports and 1 singlemode fiber port with SC or ST style connector for up to 20 km
Contact SIXNET for distances up to 120 km.	
Accessories:	
EB-PS-AC48-75	Power supply, AC to 48 VDC, 75W, 1.5A
EB-PS-AC48-120	Power supply, AC to 48 VDC, 120W, 2.5A
EB-PD-24V-1	PoE splitter to power non-PoE or non-Ethernet 24 VDC devices
EB-CAT5E-##	Kevlar-reinforced Cat 5E Ethernet cable and cordsets
EB-RJF-BLKHD-1	IP67 quick-latching (1/4 turn) bulk-head (through-wall) connector
EB-RJF-CAP-1	IP67 protective cap for bulk-head connector
EB-RJF-PLUG-1	Field installable IP67 Ethernet plug, quick-latching (1/4 turn)

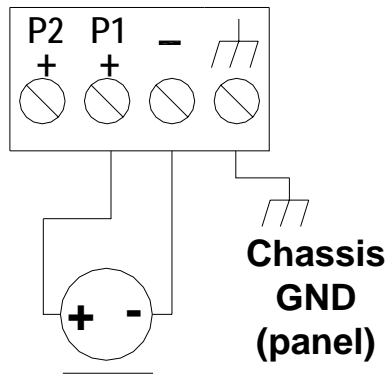
SIXNET knows industrial – We have been designing industrial hardware such as Remote Terminal Units for over 25 years and have used this expertise to design the toughest industrial Ethernet products on the market. Don't trust your critical communications to so-called "industrial" hardware from commercial manufacturers. SIXNET products give you proven assurance that your system will keep running for years to come.

EB-5ES-PSE Mechanical Dimensions



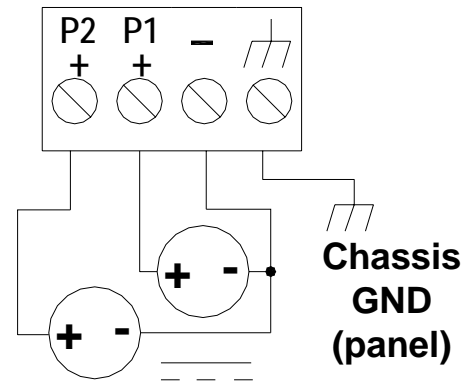
EB-5ES-PSE Power Wiring

EB-5ES-PSE Single DC Power



One DC Supply
(10 - 56 VDC)

EB-5ES-PSE Dual DC Power



Two DC Supplies
(10 - 56 VDC)

SIXNET

A Complete Family of Etherbus® Solutions



Etherbus® Industrial Power Injectors

These space saving industrial PoE injectors convert any standard Ethernet cable into a PoE (Etherbus) channel. Now you do not have to run a separate power cable to your remote devices. The one cable supplies both power and data to your PoE-enabled, non-PoE or even non-Ethernet devices (see the PoE splitter below). The EB-PSE-48V-2 model runs on 48 VDC and can source two PoE channels. The EB-PSE-24V-1 model runs directly on your 24 VDC (no extra supply needed) and can source one PoE channel. Stack these slim units on your DIN rail to create multiple PoE sourcing cables. **Check out the separate datasheet for more details.**

Etherbus® Industrial Power Splitters

These space saving industrial PoE splitters give you all the benefits of Power over Ethernet (PoE) without needing to upgrade your existing non-PoE Ethernet devices. These splitters generate isolated 24 VDC power for your non-PoE or even non-Ethernet devices. Think of this splitter as an industrial 24 VDC power supply that is powered by your incoming PoE (Etherbus) cable. The Ethernet output can be connected to any traditional (non-PoE) Ethernet device. **Check out the separate datasheet for more details.**



Etherbus® Industrial Ethernet Cabling

The trademarked Etherbus® cable is the toughest Ethernet cable in the world. Ensure the reliability of your industrial Ethernet systems (indoors or outdoors) with this ultra-rugged Kevlar-reinforced Etherbus cable. This Cat 5E cable is double shielded for best noise immunity and has excellent temperature, UV, hydrolysis and microbial resistance. You can install it anywhere with confidence that it will keep working for the long haul. **Check out the separate datasheet for more details.**



Etherbus® Industrial Ethernet Connectors

Etherbus features the Amphenol RJField reverse-bayonet quick latching (1/4 turn) connector system. These IP67 rated connectors and plugs are water and corrosion proof. The bulk-head connector allows you to interface between standard Ethernet wiring inside a cabinet to industrial cabling outside. The mating plugs can be easily field installed around an existing Ethernet cable without the need for tools. **Check out the separate datasheet for more details.**



Etherbus® Industrial Power Supplies

SIXNET offers several industrial power supplies to meet your PoE, 24 VDC or 48 VDC power needs. AC to 48 VDC models are available with up to 120 Watts or more. Plus a 48 VDC to 24 VDC compact unit gives you 15 watts of power. This supply is ideal for powering industrial equipment from the 48 VDC power sources found in telecommunication or Etherbus systems. **Check out the separate datasheet for more details.**

**Request Your
FREE Product CD at
<http://www.etherbus.com>**



SIXNET®

331 Ushers Road, P.O. Box 767 • Clifton Park, NY 12065 USA • +1 (518) 877-5173 • Fax +1 (518) 877-8346
Email: <mailto:sales@sixnetswitch.com> • Web: <http://www.etherbus.com> • Store: <http://www.sixnetstore.com>