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GarrettCom Magnum PES42 PoE Edge Switches

The Magnum PES42 family PoE Power-Source Edge Switch combines standard 802.3af Power over Ethernet (PoE) with a small heavy-duty six-port Ethernet Switch.



The PES42 Switches are Power Sourcing Equipment (PSE), and are Compatible with Powered Devices (PD) that Comply with the IEEE 802.3af PoE Standard.

Features

- Industrial PoE Edge Switch with 100Mb Fiber ports and 4 Power-Sourcing RJ45 PoE ports per IEEE 802.3af
- Ideal for PoE used in industrial IP video surveillance, wireless-access, VOIP phones, badge readers and support of similar hardened PoE devices
- Two models for two application environments:
 - Factory Floor
 - Outdoors
- Includes Link-Loss-Learn (LLL) feature for use in selfhealing LAN structures or Dual-Homing on ports 1 & 2.
- Packaging and mounting options are similar to the popular Magnum ES42-Series Edge Switches

The Magnum PES42 family PoE Power-Source Edge Switch combines standard 802.3af Power over Ethernet (PoE) with a small heavy-duty 6-port Ethernet Switch. Using an external -48VDC power source, four of the PES42's Ethernet ports can provide power as well as 10/100 Mb data transmission over the interconnecting Ethernet cables. Data and power for the attached devices can be transmitted over a single Ethernet twisted-pair cable to each, cost-reducing installation and maintenance in an industrial facility. The other PES42 ports may be 100Mb fiber for distance, noise immunity, ground-isolation and high bandwidth.

The compact PES42 Edge Switch design delivers six Ethernet ports. Four ports are always RJ45 for PoE. The PES42 base models have either two 100 Mb fiber and 4 10/100 PoE copper ports, or one fiber and five copper ports, or 6 copper ports, 4 of which are PoE.

The PES42 switches are Power Sourcing Equipment (PSE), and are compatible with Powered Devices (PD) that comply with the IEEE 802.3af PoE standard. The PES42 Switch ports have an auto-sensing algorithm so that they provide power only to attached 802.3af PD devices. If proprietary PoE and non-PoE equipment is attached, it will not be damaged. The PES42 ports discontinue supplying power when the PoE devices are disconnected, and support the PSE standard for overcurrent protection, under-current detection and fault protection.

The PES42 includes Link-Loss-Learn (LLL), enabling it to be used in self-healing LAN structures. The LLL feature causes PES42 switches to sense Link Loss or standard STP / RSTP reconfiguration signals, change LAN packets flow, and pass the reconfiguration signal down the line to other products in the redundant network structure. Magnum PES42 switches, combined with managed switches running RSTP or S-Ring, can incorporate PoE devices and often provide high availability redundant LANs at lower total cost than was previously possible.

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GarrettCom PoE Edge Switches - Magnum PES42

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Applications

The Dual-Homing PESD42 family provides high availability for small clusters of PoE devices such as cameras and badge readers, using a primary and a backup link to the network upstream. This unique method of achieving redundancy in the network improves physical security solutions using IP protocols. The PES42 is a standards-compliant way to power and connect Industrial Ethernet devices at the edge of a network where AC power is either not available or not cost-effective. The Magnum PES42 family are designed and manufactured in the USA and backed by a three-year warranty.

Hardened for Factory Floor

The orange-label Magnum PES42H Hardened units are for factory floor applications.

Premium-rated for Outdoors

The red-label Magnum PES42P Premium-rated units are for temperature un-controlled applications, typically located outdoors. Both models are built with high-grade components and are constructed using special thermal techniques (patent pending) and metal cases for heavy duty industrial and outdoor jobs. The ambient temperature ratings for the "H" and "P" models are for industrial and outdoor uses, respectively. No internal air flow is required for cooling, so they resist dust, dirt, moisture, smoke and insects. Mounting options include stand-alone panel-mounting, DIN-Rail, or rack-mount tray.

Product Specifications

Type	PES42H	PES42P	PESD42H	PESD42P
Product Description	Magnum 6-port hardened PoE Power-Sourcing Edge Switch, four 10/100 RJ45 PoE ports plus two non-PoE ports which may be 100Mb fiber, or regular 10/100 copper, or one each type. See "ff" above for fiber port type choices. Compact industrial-grade metal case, rated for factory floor environments. All four PoE RJ45 Ethernet ports support Power Source PoE per the IEEE 802.3af standard. Includes -48V DC terminal block for power input, an alarm contact for status monitoring, and panelmount brackets. DIN-Rail mounting bracket optional.	Same as PES42H-ff-48VDC, but with Premium-rated for temperature un-controlled (outdoor) environments	Same as PES42H-ff-48VDC, but with Dual-Homing redundancy on Ports 1 and 2.	Same as PES42P-ff-48VDC, but with Dual-Homing redundancy on Ports 1 and 2.
Port Type and Quantity	6 x 10/100BASE-TX			
Order Number	Magnum PES42H-ff-48VDC	Magnum PES42P-ff-48VDC	Magnum PESD42H-ff-48VDC	Magnum PESD42P-ff-48VDC
RJ45 Port Connectors				
RJ45 with auto-cross, 100BASE-TX and 10BASE-T	Shielded 8-Pin female. Supports shielded (STP) and unshielded (UTP) Cat. 5 and higher. PoE power is delivered to the data pairs of the twisted-pair port pins.			
Network Standards				
Ethernet	IEEE 802.3, IEEE 802.3u; IEEE 802.1p, IEEE 802.3af for PoE, 100BASE-TX, 10BASE-T, 100BASE-FX			
Link-Loss-Learn (LLL)	Non-Dual-Homing Models. Factory default for LLL is Activated on Ports 1 and 2, the non-PoE ports.			
Dual-Homing Models	Port 1 is primary; Port 2 is back-up. On Activated Ports, when a Loss of Link or reconfiguration BPDU for STP or RSTP is detected, the PES42 will flush internal address buffers and will pass the signal to other LLL Activated ports. This enables the PES42 to change the direction of packets flow and propagate the self-healing reconfiguration signal down the line.			



Product Specifications (continued)

Performance				
Fiber Ports	100Mb, all types of connectors for m-m and single-mode. Fiber ports are factory set for FDX. RFQ for internal settings at HDX			
RJ45 Ports Data Rate	10 / 100 Mbps, FDX and HDX modes. Auto-negotiation and auto-cross MDI-MDIX on all RJ45 ports. Occurs at LINK-enable. No cross-over cables required.			
PoE Ports	Ports 3, 4, 5, and 6.			
Non-blocking Switching	128KB packet buffer memory			
Address Buffer Storage	2K addresses			
Address Buffer Age-out Time	300 seconds (see also LLL)			
Power Input				
Total Power Consumption	For 4 PoE ports, 66 watts max. or 1.4A @ 48VDC, (15.4 watts/port) plus 7 watts typical for the PES42 unit. Terminal Block for -48V DC input (range of 46 to 60V DC), built-in for +, -, ground. The 8-15V DC jack is also present, but can only be used to power the PES42 unit when no PoE devices are attached. Internal DC power floats, user may ground + or - if desired.			
LED Indicators (dual, top front and in end)				
Power	ON for -48VDC input power applied to the unit 10/100 per RJ45 port: Steady ON for 100 Mb, OFF for 10 Mb speed			
10/100 Per RJ45 Port	Steady ON for 100 Mb, OFF for 10 Mb speed			
LK/ACT Per Port	Steady ON for LINK with no traffic, blinking for Activity			
F/H Per Port	Steady ON for F/D mode, OFF for H/D mode			
PoE Ports 3, 4, 5 and 6	ON when delivering power (yellow area of label)			
Alarm Terminal Block (two screw terminals)				
Internal 60VA Relay Contact	Open for Power Off, Closed for Power On			
Operating Environment				
	PES42H	PES42P	PESD42H	PESD42P
Ambient Temp. Rating	-25°C to 60°C long term per independent agency tests (UL 60950), or -40°C to 85°C short term per Type Tests (IEC 60068)	-40°C to 75°C long term per independent agency tests (UL 60950), or -50°C to 100°C short term per Type Tests (IEC 60068)	-25°C to 60°C long term per independent agency tests (UL 60950), or -40°C to 85°C short term per Type Tests (IEC 60068)	-40°C to 75°C long term per independent agency tests (UL 60950), or -50°C to 100°C short term per Type Tests (IEC 60068)
Cold Start	-20°C	-40°C	-20°C	-40°C
Storage Temperature	-40° to 185°F (-40° to 85°C)			
Ambient Relative Humidity	5% - 95% (non-condensing)			
Altitude	-200 to 50,000 ft. (-60 to 15,000m)			
Conformal Coating	Optional			
NEBS Compliance	Yes - including vibration, shock, and altitude.			
Packaging				
Enclosure	Robust sheet metal (aluminum)			
H&P Models	IEC 529 rated IP40			
Dimensions	3.6 in H x 3.0 in W x 1.7 in D (9.2 cm x 7.6 cm x 4.3 cm)			
Weight	9.5 oz (270g)			
Colling Method	Case used as heat sink			
Mounting				
Metal Panel Mounting Clips	Included			
DIN-Rail Mounting Option	Model # DIN-RAIL-LATCH			
Rack-mount Option	Model MC14-TRAY, Depth: 6.0", Width 17", Height 2.25"(15 cm D x 43cm W x 5.7cm H)			
Agency Approval and Standards Compliance				
UL Listing	UL 60950, cUL, CE, Emissions meet FCC Part 15, Class A (see footnote).			
EN 300 386	Yes - EMC and Operating Conditions Class C for Power Substations			
Class 1 Div 2	Yes - Environmental Standard for Electric Power Substations)			
Footnote: These products are tested and approved under IEC61850 for use in Class C sheltered locations where neither temperature nor humidity is controlled. The equipment needs to be protected against solar radiation, rainfall, other precipitations, and wind. UL has not approved these products for Annex-T outdoor use.				
Warranty				
Warranty	Three Years			

Magnum PES42 PoE Edge Switches Configuration Guide

Step 1. Select number of fiber ports.

All PES42 PoE Edge Switches have 6 ports—where 0, 1, or 2 non-PoE ports can be fiber. The other four RJ45 ports are always PoE ports.

Examples:

PES42P Premium Model with no fiber ports = **PES42P-48VDC**

PES42H hardened model w/ one multi-mode fiber optic port & an SC-type connector = **PES42H-1SC-48VDC**

PES42P premium model w/ two single-mode fiber optic ports with ST-type connectors = **PES42P-2SST-48VDC**

Step 2. Select fiber port(s) type (if any) “ff” selections of the “fiber flavor”

ST	100BASE-FX-ST: fiber optic multi-mode with ST type, 2 km
SC	100BASE-FX-SC: fiber optic multi-mode with SC type, 2 km
SSC	100BASE-FX-SSC: fiber optic single-mode with SC, 20 km
SSCL	100BASE-FX-SSCL: fib. op. single-mode SC, “Long Reach” 40 km
SST	100BASE-FX-SST: fiber optic single-mode with ST type, 20 km
MTRJ	100BASE-FX-MTRJ: fiber optic multi-mode w/ MTRJ, 2 km
MLC	100BASE-FX-MLC: fiber optic multi-mode with LC-type, 2 km
SLC	100BASE-FX-SLC: fiber optic single-mode with LC-type, 20 km

Step 3. Power type: 48VDC

All models also include an external 12vdc terminal block.

Step 4. Select either Hardened (H) or Premium (P) for your application environment.

H	(-25° to +60°C)
P	(-40° to +75°C)

Mounting Hardware for Edge Switches	DIN-RAIL-MC2	MC14-TRAY
Description	DIN-Rail mounting hardware for “14-series” CS or MC or ES42/ESD42/PES42P Switches.	Rack-mount tray for “14-series” CS or MC or ES42/ESD42/PES42P Switches, 2.25”H, up to 16 units mix-match.
Order Number	DIN-RAIL-MC2	MC14-TRAY

If you need help with PoE switches, power supply chassis or port density needs, please use the contact information below or email ics_security@belden.com or inetsalesops@belden.com for expert guidance

Model Number	Ambient Temperature			Power Input						Mounting
	0° to +40° C	-25° to +60° C	-40° to +75° C	d, i AC external	Hd, Hi external +12V Term. Block	Pd, Pi AC +12V Term. Block	12V DC Term. Block	24V DC Term. Block	-48V DC Term. Block	Panel Clips incl. or DIN-Rail Bracket
Hardened for the Factory Floor (ES42H-)										
PES42H-ff-48VDC		•							•	•
Premium Rated for Outdoors (ES42P-)										
PES42P-ff-48VDC			•						•	•

About Belden

Belden Inc., a global leader in high quality, end-to-end signal transmission solutions, delivers a comprehensive product portfolio designed to meet the mission-critical network infrastructure needs of industrial, enterprise and broadcast markets. With innovative solutions targeted at reliable and secure transmission of rapidly growing amounts of data, audio and video needed for today’s applications, Belden is at the center of the global transformation to a connected world. Founded in 1902, the company is headquartered in St. Louis, USA, and has manufacturing capabilities in North and South America, Europe and Asia.

For more information, visit us at www.belden.com and follow us on Twitter @BeldenIND.

Got questions? Need to talk to an expert? Send us an email:

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