

PB00105

Magnum ESD42 Dual-Homing Edge Switches

Bringing redundancy to the network edge



In Ethernet LANs, dual-homing is a network topology that adds reliability by allowing a device to connect to a network via two independent connection points (points of attachment). One connection point is the operating connection, and the other is a standby or back-up connection that is activated in the event of a failure of the operating connection.

Features:

- Dual-Homing on Ports 1 and 2 provide a redundant upstream connection
- Four copper switch ports for connection of local nodes. PoE power sourcing models optional
- Three models for three application environments:
 - Office, wiring closet
 - Factory floor
 - Outdoors
- Factory floor and Outdoor models have integral DC terminal blocks and Power Alarm Relay. AC also available.
- Packaging and mounting options are the same as the popular Magnum ES42 Edge Switch Series

The Magnum ESD42-Series, a versatile family of small Edge Switches, uses new dual-homing unmanaged switch networking technology and innovative product packaging to serve redundant edge-of-the-network applications.

The compact ESD42 Dual-Homing Edge Switch design delivers 6 Ethernet ports, two of which (ports 1 and 2 for dual-homing) may be either fiber or copper and are reserved for use in connecting the ESD42 into the upstream network. The other four ports are regular auto-negotiating auto-cross RJ45 ports. These ports may be PoE ports for attachment of PoE devices. In either case, the nodes attached gain a high-availability network connection. Fiber port choices cover all multi-mode and single-mode fiber connector types.

The Dual-Homing PESD42P provides high availability for small clusters of PoE devices such as cameras and badge readers, using a primary and a back-up link to the network upstream. This unique method of achieving redundancy in the network improves physical security solutions using IP protocols.

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Applications



Office and Wiring Closet

The Magnum ESD42 regular units are for office and indoor wiring closet environments. These are the economical base units in the ESD42 Switch family. An external AC power supply for either North America (-d, 115vac 60Hz) or international (-i, 230vac, 50Hz) is included. The ambient temperature rating is 0°C to 40°C, office grade.



Hardened for Factory Floor

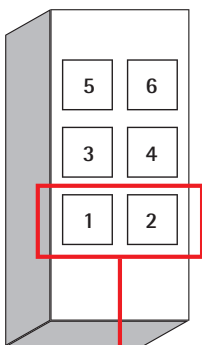
The Magnum ESD42H Hardened units are for factory floor applications. The ESD42H models are built with high-grade components and are constructed using special thermal techniques for cooling. In addition to a Hardened AC power option and jack, terminals for internal DC power choices at 8 to 15V, 24V or -48V DC are included. Two terminals provide connections to monitor an internal power-sense relay. The ambient temperature rating is for industrial use. No internal air flow is required for cooling, so it resists dust, dirt, moisture, smoke and insects.



Premium-rated for Outdoors

The Magnum ESD42P Premium-rated units are for temperature uncontrolled sheltered applications, typically located outdoors. The ESD42P models are built with premium-grade extended temperature components, and use special thermal techniques as the ESD42H Hardened units. In addition to a Premium-rated AC power option and jack, terminals for the power-sense relay and for internal DC power choices at 8 to 15V, 24V or -48V DC are included. When used outdoors, the ESD42P should be sheltered from the elements.

Port Numbers:



Dual-Homing Ports

Technical Information

	ESD42	ESD42H	ESD42P PESD42P
Performance			
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		
Fiber Ports	100Mb, all types of connectors for m-m, sgl-m Fiber ports are factory set for FDX. RFQ for HDX internal settings		
Address Buffer Storage	2K addresses		
Network Standards			
Compliance With	Ethernet IEEE 802.3, IEEE 802.3u; 100BASE-TX, 10BASE-T, 100BASE-FX		
Dual-Homing			
Description	Dual-Homing operation is plug-and-play. Ports 1 and 2 are peers When the ESD42 is powered up, port 1 is initially used for upstream traffic providing that it can establish a Link signal When there is a loss of Link on Port 1, all upstream traffic is moved to port 2 and port 1 becomes the standby port (after upstream fault repair) Port 2 will stay in operation indefinitely...until it experiences a loss of Link, whereupon the ESD42 will move all of the upstream traffic to port 1 Dual-Homing switch-over time is about 300 milliseconds		
Operating Environment			
Ambient Temperature Ratings	0°C to 40°C	IEC 60068 Operating Temp. per "Type Test" -40° to 85°C UL 60950 "Component Parts" temperature rating: -25° to 60°C	IEC 60068 Operating Temp. per "Type Test" -50° to 100°C UL 60950 "Component Parts" temperature rating: -40° to 75°C
Storage Temperature	-40°F to 185°F (-40°C to 85°C)		
Cold Start	-20°C		-40°C
Ambient Relative Humidity	5% - 95% (non-condensing) Conformal coating (humidity protection) optional, request quote		
Altitude	-200 to 50,000 ft. (-60 to 15,000m)		



Technical Information (continued)

	ESD42	ESD42H	ESD42P PESD42P
Packaging			
Enclosure	Robust sheet metal (steel)		
Unit 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	ESD42 and PESD42P Switch Units: 13 oz (370g)		
Power Supply	d, i: 5.8 oz (165g)	Hd, Hi: 5.8 oz (165g)	Pd, Pi: 7.9 oz (225g)
Cooling Method	Convection		
Connectors			
Fiber Port (for dual-homing ports 1, 2)	"ff" selections of the "fiber flavor" (see table below): Use 2ff for a 2-fiber 4-copper model, 1ff for 1-fiber 5-copper model No entry in the "ff" field designates a 6-copper port ESD42 Switch. "1SC" or "2SC" = 100BASE-FX-SC: FO multi-mode with SC type, 2 km "1ST" or "2ST" = 100BASE-FX-ST: FO multi-mode with ST type, 2 km "1MTRJ" or "2MTRJ" = 100BASE-FX-MTRJ: FO m-mode w/ MTRJ, 2 km "1MLC" or "2MLC" = 100BASE-FX-MLC: FO multi-mode with LC, 2K "1SSC" or "2SSC" = 100BASE-FX-SSC: FO single-mode with SC, 20 km "1SSCL" or "2SSCL" = 100BASE-FX-SSCL: sgl-m SC Long Reach 40 km "1SST" or "2SST" = 100BASE-FX-SST: FO single-mode with ST, 20 km "1SLC" or "2SLC" = 100BASE-FX-SLC: FO sgl-m with LC-type, 15 km For other fiber connector types, request quote		
RJ45 Port	RJ45 with auto-cross, 100BASE-TX and 10BASE-T: shielded 8-Pin female Supports shielded (STP) and unshielded (UTP) Cat. 3, 4, 5		
LED Indicators (dual, top front, in end)			
Power	ON for power applied		
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 In End	Steady ON for F/D mode, OFF for H/D mode		
PoE Ports 3,4,5,6	ON when delivering power (yellow area of label)		
Power			
Power Supplies for AC (External)	Power input DC jack (8 to 15V) is 2.5mm, center +ve, with 6ft. DC cord Input: 95-125vac at 60 Hz for "-d" models, 215-240vac at 50 Hz for "-i" models that have IEC power connector in the ext power unit. Input: 100-240vac at 47-63 Hz for "-Hd", "Hi" models, see footnote 1 Input: 100-240vac at 47-63 Hz for "-Pd", "Pi" models, see footnote 2		
Power Input Options for DC	12V DC, internal (range of 8.0 to 15V DC), built-in screw terminal block for +, -, ground. The 12V DC jack is also present. 24V DC internal (range of 10 to 36V DC) built-in screw terminal for +, -, ground. The DC jack is also present, see footnote 3 -48V DC internal (range of 30 to 60V DC), built-in screw terminal block for +, -, ground. The 12V DC jack is also present. Note1: the 12V DC jack can be used for dual source DC power input Note2: internal DC power floats, user may ground + or - if desired. For PoE: Total power input required = 66 watts max or 1.4a @48VDC		
Power Consumption	7.0 Watts typical. 9 Watts max		
Alarm Terminal Block			
H and P Models, two screw terminals	Internal 60VA relay contact: Open for Power Off, Closed for Power On		
Approvals/Standards Compliance			
All Models	UL listed (UL60950), cUL, CE, Emissions meet FCC Part 15, Class A. (see footnote 4) NEBS L3 and ETSI compliant, including vibration, shock, and altitude		
H and P Models	IEEE 1613 Env. Std for Electric Power Substations IEC61850 EMC and Operating Conditions Class C for Power Substations		
P Model	NEMA TS-2 and TEES for traffic control equipment Designed for above-the-ceiling (plenum) installation		
Warranty			
Made in USA	Three [3] years		
Mounting			
Metal Panel Mounting	Clips included		
DIN-Rail Mounting	Model # DIN-RAIL MC2		
Rack-Mount	Model MC14-TRAY. Depth: 6.0", Width 17", Height 2.25"(15 cm D x 43cm W x 5.7cm H)		



1: External 12V1A power supply, wall plug or power cord for North America AC receptacles. Temperature rating same as ESD42H, see above. (North America: for spare, order Model PSH-12V1A-Hd. Intl: order Model PSH-12V1A-Hi with IEC plug).

2: External 12V1A power supply, rated for outdoor temperatures same as ESD42P, see above. Universal AC input with recessed IEC plug. (North America: for spare, order Model PSP-12V1A-Pd, Intl: order Model PSP-12V1A-Pi with IEC plug).

3: For dual source 24V power input to DC jack, order Model DUAL-SRC-24KIT.

4: 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.

Fiber Port Connectors

Model Number	Ambient Temperature			Alarm Contact	Power Input						Mounting
	0°C to 40°C	-25°C to +60°C	-40°C to +75°C	2 position term block	d, i AC external	Hd, Hi AC external +12V T.B.	Pd, Pi AC external +12V T.B.	12V DC Term Block	24V DC Term Block	-48V DC Term Block	Panel Clips Included or DIN Rail
ESD42-ff-d, i	•				•						•
ESD42H-ff-Hd, Hi		•		•		•		•			•
ESD42H-ff-12VDC		•		•				•			•
ESD42H-ff-24VDC		•		•					•		•
ESD42HR-ff-24VDC		•		•					•		DIN-Rail
ESD42H-ff-48VDC		•		•						•	•
ESD42P-ff-Pd, Pi			•	•			•	•			•
ESD42P-ff-12VDC			•	•				•			•
ESD42P-ff-24VDC			•	•					•		•
ESD42PR-ff-24VDC			•	•					•		DIN-Rail
ESD42P-ff-48VDC			•	•						•	•
PES42P-ff-48VDC			•	•						•	•

Office & Wiring Closet Factory Floor **Outdoors**



Belden Competence Center

As the complexity of communication and connectivity solutions has increased, so have the requirements for design, implementation and maintenance of these solutions. For users, acquiring and verifying the latest expert knowledge plays a decisive role in this. As a reliable partner for end-to-end solutions, Belden offers expert consulting, design, technical support, as well as technology and product training courses, from a single source: Belden Competence Center. In addition, we offer you the right qualification for every area of expertise through the world's first certification program for industrial networks. Up-to-date manufacturer's expertise, an international service network and access to external specialists guarantee you the best possible support for products. Irrespective of the technology you use, you can rely on our full support – from implementation to optimization of every aspect of daily operations.

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](https://twitter.com/BeldenIND).

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

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