Magnum ESD42

Dual-Homing Edge Switches

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 same as the popular Magnum ES42 Edge Switch Series

(PoE Model Shown)

| Office and Wiring Closet | Hardened for Factory Floor | Premium-rated for Outdoors |

Magnum™ ESD42 Dual-Homing Switches bring redundancy to the network edge.

Ethernet LANs increasingly are used where small groups of high-availability nodes at the network edge need to be connected into larger LAN structures. The Magnum ESD42-Series, a versatile family of small Edge Switches, use new dual-homing unmanaged switch networking technology (patent pending) and innovative product packaging to serve redundant edge-of-the-network applications.

What is Dual-Homing? In Ethernet LANs, dual-homing is a network topology that adds reliability by allowing a device to be connected to the network by way of 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.

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 RJ-45 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.

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 (patent pending) 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. Mounting choices include stand-alone panel-mounting, DIN-Rail, or rack-mount tray.

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 (patent pending) 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. Mounting choices include stand-alone panel-mounting, DIN-Rail, or rack-mount tray.

All ESD42 Dual-Homing Edge Switch models come with two (2) sets of LED indicators. One set is on the front for viewing convenience when the unit is DIN-Rail or wall-mounted, and one LED set is mounted in the end adjacent to the ports for easy viewing when units are in a rack-mount tray. The Magnum ESD42 Dual-Homing Edge Switches and other Magnum products are designed and manufactured in the USA and backed by a three-year warranty.

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PERFORMANCE:
RJ-45 Ports Data Rate: 10 / 100 Mbps, FDX and HDX modes.
Auto-negotiation and auto-cross MDI-MDIX on all RJ-45 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:
Ethernet IEEE 802.3, IEEE 802.3u; 100BASE-TX,
10BASE-T, 100BASE-FX

DUAL-HOMING:
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:
Temperature:
ESD42P and PESD42P: IEC 60068 Operating Temp. per "Type Test" -50° to 100°C
UL 60950 "Component Parts" temperature rating: -40° to 75°C
ESD42H: IEC 60068 Operating Temp. per "Type Test" -40° to 85°C
UL 60950 "Component Parts" temperature rating: -25° to 60°C
ESD42: the ambient temperature rating is 0°C to 40°C.
Storage temperature, all models: -40° to 185°F (-40°C to 85°C)
Cold start: ESD42H models to -20°C, ESD42P models to -40°C
Ambient Relative Humidity, all models: 5% - 95% (non-condensing)
Altitude, all models: -200 to 50,000 ft. (-60 to 15,000m)
Conformal coating (humidity protection) optional, request quote.

PACKAGING:
Enclosure: Robust sheet metal (steel)
Dimensions of units: 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)
Power Supply - Hd, Hi: 5.8 oz (165g)
Power Supply - Pd, Pi: 7.9 oz (225g)
Cooling Method: Convection on regular model, case used as a heat sink on H & P models

MOUNTING FOR ESD42 FAMILY OF SWITCH UNITS:
Metal panel mounting clips: included
DIN-Rail mounting option:
Model # DIN-RAIL MC2, illustrated here;
Rack-mount option: Model MC14-TRAY.
Depth: 6.0", Width 17",
Height 2.25"(15 cm D x 43cm W x 5.7cm H)

FIBER PORT CONNECTORS (for dual-homing ports 1 and 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, 2Km
"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.

Port Numbers:

5	6
3	4
1	2

Dual-Homing Ports
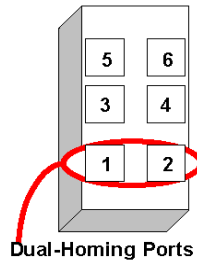
RJ-45 PORT CONNECTORS:
RJ-45 with auto-cross, 100BASE-TX and 10BASE-T: shielded 8-Pin female. Supports shielded (STP) and unshielded (UTP) Cat. 3, 4, 5.

LED INDICATORS, dual, top front and in end:
POWER: ON for power applied
10/100 per RJ-45 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, and 6: ON when delivering power (yellow area of label)

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: all models: 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

AGENCY APPROVALS AND STANDARDS COMPLIANCE:
UL listed (UL60950), cUL, CE, Emissions meet FCC Part 15, Class A. (see footnote 4)
NEBS L3 and ETSI compliant, ncluding 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
P model: designed for above-the-ceiling (plenum) installation

WARRANTY:
Three years   Made in USA

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 are 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.

Model No.	AMBIENT TEMPERATURE			ALARM CONTACT	POWER INPUT							MOUNTING
	0° to 40°C	-25° to +60°C	-40° to +75°C	2 position term. block	d,i AC external	Hd, Hi AC external + 12V TB.	Pd, Pi AC external + 12V TB.	12V DC Term Block	24V DC Term Block	-48V DC Term Block		Panel Clips included or DIN-Rail
ESD42-ff-d, i	X				X							X
ESD42H-ff-Hd, Hi		X		X		X		X				X
ESD42H-ff-12VDC		X		X				X				X
ESD42H-ff-24VDC		X		X					X			X
ESD42HR-ff-24VDC		X		X					X			DIN-Rail
ESD42H-ff-48VDC		X		X						X		X
ESD42P-ff-Pd,Pi			X	X			X	X				X
ESD42P-ff-12VDC			X	X				X				X
ESD42P-ff-24VDC			X	X					X			X
ESD42PR-ff-24VDC			X	X					X			DIN-Rail
ESD42P-ff-48VDC			X	X						X		X
PES42P-ff-48VDC			X	X						X		X

Office & wiring closet   Factory Floor   Outdoors

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