



Model ESD5-100T **B&B Electronics' IAsolutions** **Miniature 5-port Ethernet Switch**

B&B's IAsolutions' model ESD5-100T is a miniature switching hub that advances switch technology to a new level for industrial applications. The ESD5-100T brings together the benefits of flexibility and increased network performance in a compact, cost-effective approach.

The ESD5-100T is designated as a five-port miniature switching hub. One port has an extra socket allowing it to be used as an uplink port to connect two switches together thereby eliminating the need for a crossover cable. The ESD5-100T divides the Ethernet network into as many as five separate collision domains. It terminates the collision domain of each half-duplex operated port. It functions as a "bridge" between these various data links creating a larger network diameter than can be achieved with repeating hubs. Each port automatically negotiates the data rate for that port with its attached device, either 10 Mbps or 100 Mbps. The flow control mechanism is also negotiated. For full-duplex segments, the PAUSE scheme is used. For half-duplex segments, the BACKPRESSURE method is applied.

The switch provides preamble regeneration with symmetry and amplitude compensation—retiming signals to eliminate jitter. Digital pre-emphasis compensates for inherent signal strength roll-off. Link integrity is monitored, verifying that a working adapter or hub is on the distant end of a segment.

The switch learns the port locations of Ethernet devices by reading complete Ethernet frames and observing source addresses. A table of source addresses and corresponding port assignments is created and maintained. From that time on, traffic is restricted to only those ports involved in a transmission. This allows enhanced throughput since simultaneous transmissions can now be initiated on those ports without activity. Also, table values are aged to automatically accommodate changes to the field wiring. If a unicast transmission to an unknown destination is received on a port, all other ports are flooded with the transmission. This is also true of broadcast or multicast transmissions.

To aid troubleshooting, each port LED glows solid if a link exists, flashes to show activity and shows data rate by color: green for 100 Mbps and yellow for 10 Mbps. One green power LED is provided.

Other features include low-voltage DC (10 V–36 V) or AC (8 V–24 V) power at 47–63 Hz. The unit mounts on TS-32 or TS-35 DIN-rail, making it an easy-setup switch technology in the field.

B&B's IAsolutions series is intended for Industrial Ethernet applications and complies with the EMC standards for immunity and emissions to withstand the rigors of harsh industrial environments.

Benefits:

- Compact size
- 10BASE-T/100BASE-TX compliant
- Built-in uplink provision
- Auto-negotiated data rate and flow control
- DIN-rail mountable
- Low-voltage AC or DC operation
- Broadcast storm control
- Full or half-duplex
- Provision for redundant power sources
- Activity/link and data rate LEDs
- Industrial environment EMC
- CE Mark, UL 508 listed

Applications:

- Interconnection of Ethernet PLCs, operator interface, motion control
- Ethernet I/O
- Machine monitoring
- Environmental control
- Test and measurement
- Process control
- Remote data acquisition
- Communications gateway

International Headquarters:

B & B Electronics Mfg. Co. 707 Dayton Road P.O. Box 1040 Ottawa, IL 61350 USA
815-433-5100 Fax 433-5104 www.bb-elec.com orders@bb-elec.com support@bb-elec.com

B & B Electronics Ltd Westlink Commercial Park Oranmore Co. Galway Ireland
+353 91 792444 Fax +353 91 792445 www.bb-europe.com orders@bb-elec.com support@bb-europe.com

Specifications:

- | | | |
|-------------------------------|-----------------------------|------------|
| Electrical: | DC: | AC: |
| • Input voltage | 10–36 Volts | 8–24 Volts |
| • Input power (max) | 4 Watts | 4 VA |
| • Input frequency | N/A | 47–63 Hz |
| Environmental: | | |
| • Operating temperature | 0 to +60°C (32 to 140°F) | |
| • Storage temperature | -40 to +85°C (-40 to 185°F) | |
| Mounting: | DIN-rail TS-35 or TS-32 | |
| Functional: | ANSI/IEEE 802.3 | |
| • Compliance | 10/100 Mbps | |
| • Data rate | 10BASE-T/100BASE-TX | |
| • Signaling | Shielded RJ-45 | |
| • Port connectors | 100 m | |
| • Segment length (max) | ACTIVITY/LINK/DATA RATE | |
| • LED indicators ¹ | —green or yellow | |
| | POWER—green | |
| • Aging | 200 to 300 seconds | |
- ¹ ACTIVITY/LINK/DATA RATE LED exists for each port.

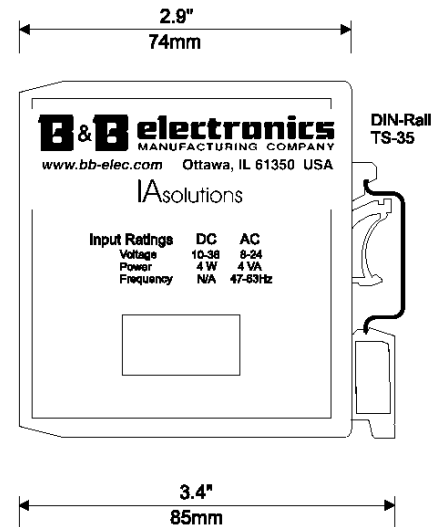
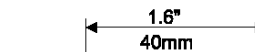
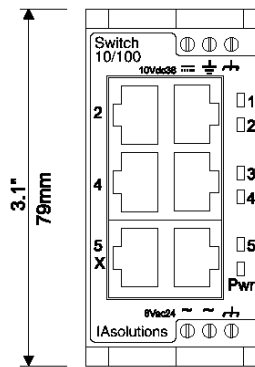
Regulatory Compliance Standards:

- Regulatory Compliance:**
 - CE Mark, FCC Part 15 Class A, UL 508 Listed, Industrial Control Equipment
- | Standard: | Test Method: | Description: | Test Levels: |
|------------------|---------------------|------------------------------|---------------------------------------|
| • EN 55024 | EN 61000-4-2 | Electrostatic Discharge | 6 kV Contact & 8 kV Air |
| • EN 55024 | EN 61000-4-3 | Radiated Immunity | 10 v/m 80 MHz to 1 GHz |
| • EN 55024 | EN 61000-4-4 | Fast Transient Burst | 1 kV Clamp & 2 kV Direct |
| • EN 55024 | EN 61000-4-5 | Voltage Surge | 1 kV L to L & 2 kV L to Earth |
| • EN 55024 | EN 61000-4-6 | Conducted Immunity | 10 Volts (rms) |
| • EN 55024 | EN 61000-4-11 | Voltage Dips & Interruptions | 1 line cycle to 1 & 5 sec. @ 100% dip |
| • EN 55022 | CISPR 22 | Radiated Emissions | Class A |
| • EN 55022 | CISPR 22 | Conducted Emissions | Class B |

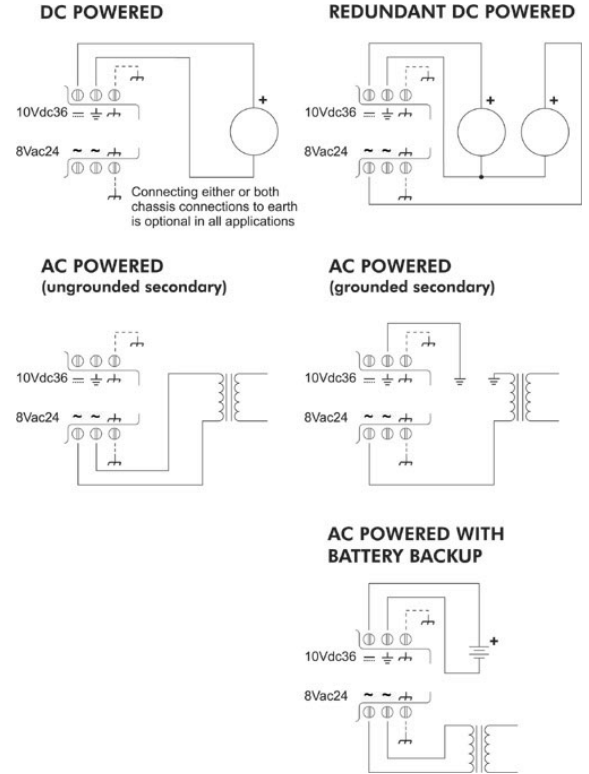
MDI-X₂ 10BASE-T/100BASE-TX

- | RJ-45: | Usage: |
|---------------|---------------|
| 1 | TD+ |
| 2 | TD- |
| 3 | RD+ |
| 4 | Not Used |
| 5 | Not Used |
| 6 | RD- |
| 7 | Not Used |
| 8 | Not Used |

² The ESD5-100T implements the crossover function internally allowing straight-through cables to connect to network interface modules. Socket "5X" allows Port 5 to connect to another hub or switch without requiring a crossover cable, in which case the regular Port 5 socket cannot be used.



Dimensional Diagram of Ethernet Switch



International Headquarters:

B&B Electronics Mfg. Co. 707 Dayton Road P.O. Box 1040 Ottawa, IL 61350 USA
815-433-5100 Fax 433-5104 www.bb-elec.com orders@bb-elec.com support@bb-elec.com

B&B Electronics Ltd Westlink Commercial Park Oranmore Co. Galway Ireland
+353 91 792444 Fax +353 91 792445 www.bb-europe.com orders@bb-elec.com support@bb-europe.com