



**Model: EHD4-10T**  
**B&B Electronics' IAsolutions**  
**10BASE-T Ethernet Hub**

B&B's IAsolutions' EHD4-10T is a 10 Mbps miniature repeating hub meeting industrial application requirements in a more cost-effective and uncomplicated manner. The EHD4-10T has the ability to increase a 10BASE-T system beyond two nodes or to increase network distances beyond the 100-meter limit of the 10BASE-T specification.

The EHD4-10T is classified as a compact, four-port Ethernet miniature repeating hub. One port has an extra socket allowing it to be used as an uplink port to connect two hubs together; thereby eliminating a crossover cable. It is designed with cost and convenience in mind for the user. It supports the signaling requirements of 10BASE-T while conforming to the standards for IEEE 802.3 repeater units. These requirements include preamble regeneration, symmetry and amplitude compensation. A repeater must retiming signals so that jitter, introduced by transceivers and cabling, does not build up over multiple segments. It must be able to detect either runt packets or collisions and reinforce detection by generating a jam signal. As a final point, it needs to automatically partition jabbering ports so the entire network is not rendered useless.

This unit supplies its transmitting ports with the necessary digital pre-emphasis to compensate for the inherent roll-off of signal strength on the twisted-pair cable. Each twisted-pair segment can be up to 100 meters in length. Shielded RJ-45 connectors are used to accommodate either UTP or STP cabling. The link integrity function is supported—confirming that a functioning adapter or hub is on the other end of the segment. Hubs can be cascaded with either straight-through or crossover cables. Four "normal" ports make the crossover function internally. Port 4 provides a hub-to-hub cabling option: crossover wiring via its "normal" port or straight-through cable via its "uplink" port (marked "X")—but the two Port 4 options cannot be used simultaneously.

Several LED indicators aid troubleshooting. Besides one common collision LED, a separate LED exists for each port. Each port has one LED that glows green to show link established and indicates port activity by flashing at a rate proportionate to data speed. The unit mounts on TS-32 or TS-35 DIN-rail, can operate from a wide range of low-voltage AC or DC power and offers redundant power connections.

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 compliant
- Shielded RJ-45 connectors
- IEEE 802.3 repeater unit compliant
- Built-in uplink provision
- Link integrity indication
- DIN-rail mountable
- Low-voltage AC or DC operation
- Provision for redundant power sources
- LEDs for activity/link, collision, and power
- 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:

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**Specifications:**

- |                               |                             |            |
|-------------------------------|-----------------------------|------------|
| <b>Electrical:</b>            | <b>DC:</b>                  | <b>AC:</b> |
| • Input voltage               | 10–36 Volts                 | 8–24 Volts |
| • Input power (max)           | 4 Watts                     | 4 VA       |
| • Input frequency             | N/A                         | 47–63 Hz   |
| <b>Environmental:</b>         |                             |            |
| • Operating temperature       | 0 to +60°C (-32 to 140°F)   |            |
| • Storage temperature         | -40 to +85°C (-40 to 185°F) |            |
| <b>Mounting:</b>              | DIN-rail TS-35 or TS-32     |            |
| <b>Functional:</b>            | ANSI/IEEE 802.3             |            |
| • Compliance                  | 10 Mbps                     |            |
| • Data rate                   | 10BASE-T                    |            |
| • Signaling                   | Shielded RJ-45              |            |
| • Port connectors             | Copper: 100 m, Fiber: 2 km  |            |
| • Segment length (max)        | ACTIVITY/LINK—green         |            |
| • LED indicators <sup>1</sup> | POWER—green                 |            |
|                               | COLLISION—red               |            |

<sup>1</sup> ACTIVITY/LINK LEDs exist for each port.

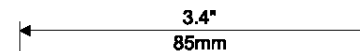
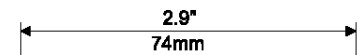
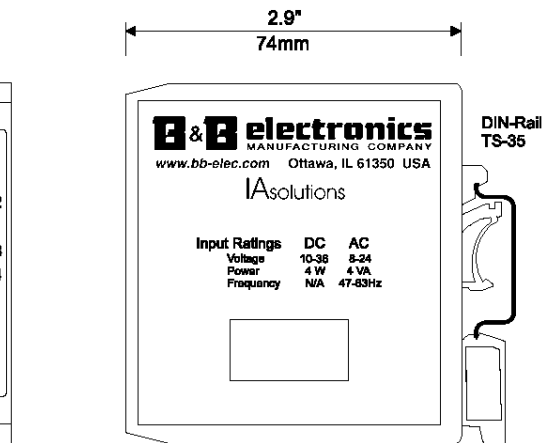
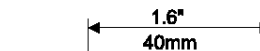
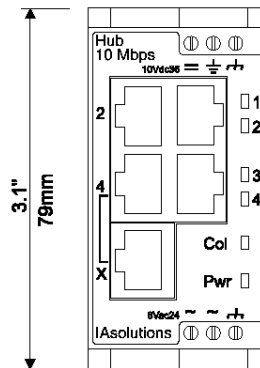
**Regulatory Compliance Standards:**

- Regulatory Compliance:**
    - CE Mark, FCC Part 15 Class A, UL 508 Listed, Industrial Control Equipment
- | <b>Standard:</b> | <b>Test Method:</b> | <b>Description:</b>          | <b>Test Levels:</b>                   |
|------------------|---------------------|------------------------------|---------------------------------------|
| • EN 55024       | EN 61000-4-2        | Electrostatic Discharge      | 4 kV Contact & 6 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                               |

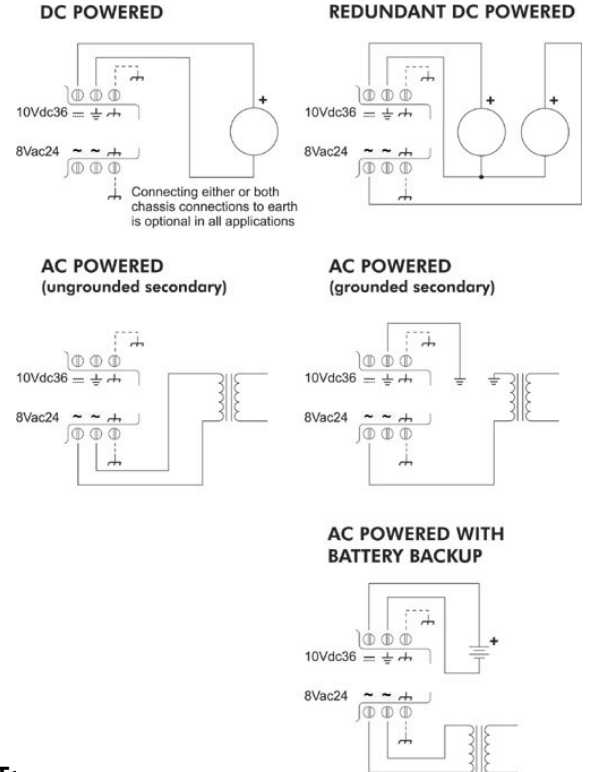
**MDI-X<sub>2</sub> 10BASE-T/100BASE-TX**

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

<sup>2</sup> The EHD4-10T implements the crossover function internally allowing straight-through cables to connect to network interface modules. The jack marked "X" allows Port 4 to connect to another hub without requiring a crossover cable, in which case the regular Port 4 jack cannot be used.



**Dimensional Diagram of Ethernet Hub**



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