

Industrial Ethernet Hubs and Links

Product Description

The EI series of Industrial Ethernet Interconnect hubs and links in the CTRLink™ family allows for the expansion of shared 10 Mbps Ethernet networks on the plant floor. A hub is essential to expanding a 10BASE-T system beyond two nodes or to increase network distances beyond the 100-meter limit of the 10BASE-T specification. To maximize distance, the typical network uses twisted-pair wiring for the end devices and fiber cables for the inter-hub links. Each twisted pair can be as long as 100m and the total length of inter-hub fiber can be as much as 2000m. The network diameter cannot exceed 2200m so in a shared Ethernet environment the length of each fiber segment depends upon the number of hubs used.



Contemporary Controls has complemented its line of the EI series of industrial hubs by introducing a fiber optic version known as the EI6-10T/F. The unit is classified as a six-port hub. Four ports for twisted pair support the signaling standards of 10BASE-T and the two fiber ports support the 10BASE-FL interface while incorporating ST connectors. Also available is an EI5-10T/F with one less fiber port.

The EI6-10T/F's advantage is its ability to link 2km fiber optic segments with 10BASE-T ports, making it ideal for building control and industrial control applications where distance and robustness are important. The hub's fiber optic links also provide a layer of isolation and increased immunity to electrical noise and other external influences usually encountered in an industrial environment.

Benefits

- 10BASE-T and 10BASE-FL compliant
- Shielded RJ-45 connectors or ST-style connectors
- IEEE 802.3 repeater unit compliant
- Link integrity support
- Panel or DIN-rail mountable
- Low-voltage AC or DC operation
- LEDs for activity, link, and collision
- Industrial environment EMC compatible
- CE Mark

Applications

- Ethernet I/O
- Machine Monitoring
- Environmental Control
- Test and Measurement
- Process Control
- Remote Data Acquisition
- Communications Gateway

All models of the EI series conform to the requirements for IEEE 802.3 repeater units. These requirements include preamble regeneration, symmetry and amplitude compensation. Repeaters must retiming signals so that jitter, introduced by transceivers and cabling, does not accumulate over multiple segments. These devices detect runt packets and collisions and react by generating a Jam signal. They automatically partition jabbering ports to maintain network operability.

The EI series supplies the required digital pre-emphasis to its 10BASE-T transmitting ports in order to compensate for the inherent roll-off of signal strength on the twisted-pair cable. 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 using a crossover cable.

Other features include wide-range, low-voltage AC or DC power requirements, provisions for redundant power connections, and panel or DIN-rail mounting.

There are several LED indicators supplied that aid troubleshooting. Besides one common collision LED, each port has a pair of LEDs to indicate link status and port activity. Their definitions are compatible with the company's IEISA and IE104 series of Ethernet network interface modules.

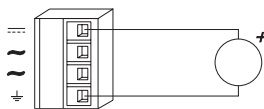
The EI series is intended for Industrial Ethernet applications and complies with the EMC compatibility standards for immunity and emissions in industrial environments.

Specifications

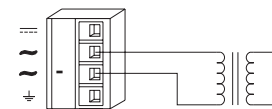
Electrical	DC	AC
Input voltage:	10–36 Volts	8–24 Volts
Input power:	4 Watts	4VA
Input frequency:	N/A	47–63 Hz
Environmental		
Operating temperature:	0°C to 60°C	
Storage temperature:	–40°C to 85°C	
Functional		
Compliance:	ANSI/IEEE 802.3	
Data rate:	10 Mbps	
Signaling:	10BASE-T/10BASE-FL	
Port connectors:	Shielded RJ-45 or ST-style connectors	
Segment length (max):	10BASE-T	100m
	10BASE-FL	2km
LED indicators:	ACTIVITY — yellow	
	LINK — green	
	COLLISION — red	
Regulatory Compliance		
	CE Mark	
	FCC Part 15 Class A	
	EN50081-2	
	EN50082-2	

Power Options

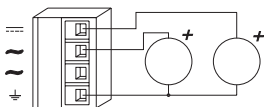
DC POWERED



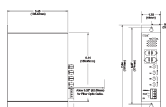
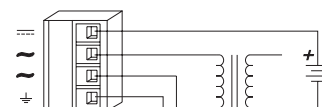
AC POWERED



REDUNDANT DC POWERED



AC POWERED WITH BATTERY BACKUP



MDI-X¹ 10BASE-T Port Assignments

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

¹The EI Series implements the internal crossover function allowing straight-through cables to connect to network interface modules.

Ordering Information

Hubs

Model	Description
EI4-10T	Four-port 10BASE-T Ethernet hub
EI5-10T/F	Four-port 10BASE-T/one-port fiber Ethernet hub
EI6-10T/F	Four-port 10BASE-T/two-port fiber Ethernet hub
EI8-10T	Eight-port 10BASE-T Ethernet hub

Accessories

Model	Description
AI-XFMR	Wall-mount transformer 120VAC (nom)
AI-XFMR-E	Wall-mount transformer 220VAC (nom)
AI-DIN	DIN-rail mounting kit

To order:

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