Miniature Repeating Hub

Benefits

- Plug and Play operation
- Miniature size
- 10BASE-T compliant
- Shielded RJ-45 connectors
- IEEE 802.3 repeater unit compliant
- Built-in uplink provision
- Wide-range, low-voltage AC or DC powered
- Provision for redundant power connections
- Activity/Link, collision and power LEDs
- Easy DIN-rail installation
- Industrial environment EMC compatible
- 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
- Communication gateway

In the ever-expanding world of Industrial Ethernet products, Contemporary Controls introduces the EIM4-10T, a 10 Mbps miniature repeating hub in the CTRLink® family, to meet industrial application requirements in a more cost-effective and uncomplicated manner. The EIM4-10T functions much like the standard size EI4-10T and EI8-10T hubs in its 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 EIM4-10T is classified as a miniature, four-port Ethernet 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. Adhering to the IEEE 802.3 standard, the hub provides preamble regeneration with symmetry and amplitude compensation. A repeater must retime 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 m 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. Port 4 has an extra socket to allow switch cascading without a crossover cable.

Each port LED glows when a valid link is made to other equipment — and flashes to indicate segment activity. One common green LED indicates power applied and a common red LED reports collisions on the shared Ethernet network.

The EIM4-10T 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.

The EIM repeating hub is intended for Industrial Ethernet applications and complies with the EMC standards for immunity and emissions to withstand the rigors of harsh industrial environments.

Contemporary Control Systems, Inc. • 2431 Curtiss Street • Downers Grove, Illinois 60515 • USA
Telephone 1-630-963-7070 Fax 1-630-963-0109 E-mail info@ccontrols.com Web www.ccontrols.com

Contemporary Controls Ltd • Sovereign Court Two • University of Warwick Science Park • Sir William Lyons Road • Coventry CV4 7EZ UK
Telephone +44 (0)24 7641 3786 Fax +44 (0)24 7641 3923 E-mail ccl.info@ccontrols.com Web www.ccontrols.eu

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˚C to +60˚C	
Storage temperature	–40˚C to +85˚C	
Relative humidity	10 to 95% non-condensing	
Mounting	DIN-rail TS-35 or TS-32	
Functional		
Compliance	ANSI/IEEE 802.3	
Data rate	10 Mbps	
Signaling	10BASE-T	
Port connectors	Shielded RJ-45	
Segment length (max)	100 m	
LED indicators[1]	ACTIVITY/LINK—green POWER—green COLLISION—red	
Approvals	CE Mark, UL 508 Industrial Control Equipment	

[1]ACTIVITY/LINK LED exists for each port.

Electromagnetic Compatibility

Standard	Test Method	Description	Test Levels
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 @ 100% Dip 1 to 5 Seconds @ 100% Dip
EN 55022	CISPR 22	Radiated Emissions	Class A
EN 55022	CISPR 22	Conducted Emissions	Class B
CFR 47: 15	ANSI C63.4	Radiated Emissions	Class A

MDI/X[2] 10BASE-T Port Pin Assignments

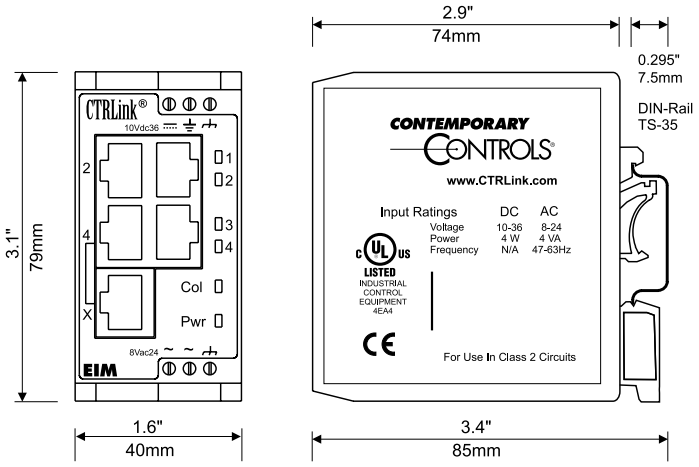
RJ-45	Usage
1	TD+
2	TD–
3	RD+
4	Not Used
5	Not Used
6	RD–
7	Not Used
8	Not Used

[2] The EIM 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.

Ordering Information

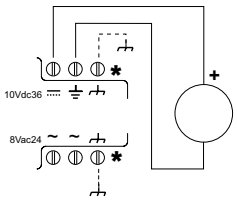
Model	Description
EIM4-10T	Four-port 10BASE-T miniature repeating hub
Accessories	
Model	**Description**
AI-XFMR	Wall-mount plug-in transformer 120V AC (nom) input/24V AC (nom) output
AI-XFMR-E	Wall-mount plug-in transformer 230V AC (nom) input/24 AC (nom) output

Mechanical

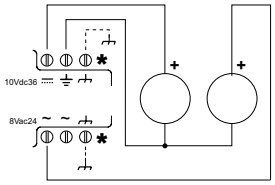


Power Options

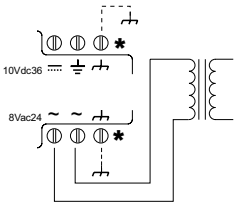
DC Powered



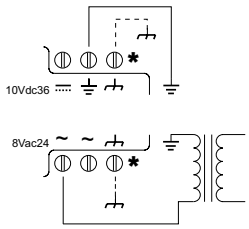
Redundant DC Powered



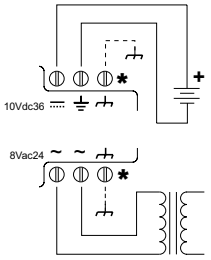
AC Powered (ungrounded secondary)



AC Powered (grounded secondary)



AC Powered with Battery Backup



* Connecting either or both chassis connections to earth is optional in all applications.