

Switching Hub

**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

The EISM miniature switching hub, in the CTRLink® family, advances switch technology to a new level for industrial applications. The EISM5-100T brings together the benefits of flexibility and increased network performance in a compact, cost-effective approach.

The EISM5-100T 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 EISM5-100T is similar in function and capabilities to its EIS8-100T counterpart. It 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 with its attached device the data rate for that port, 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.

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

**Product Description**

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 simple to set up switch technology in the field.

The EIS 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.

To learn more about CTRLink, visit www.CTRLink.com.

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Specifications

Electrical	DC	AC
Input voltage	10-36 Volts	8-24 Volts
Input power (max)	5 Watts	5 VA
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	10/100 Mbps	
Signaling	10BASE-T/100BASE-TX	
Port connectors	Shielded RJ-45	
Segment length (max)	100 m	
LED indicators ¹	ACTIVITY/LINK/DATA RATE—green or yellow POWER—green	
Flow control	Half Duplex—backpressure Full Duplex—IEEE 802.3x	
Aging	200 to 300 seconds	
Regulatory Compliance	CE Mark, FCC Part 15 Class A, UL 508 Listed, Industrial Control Equipment	

¹ACTIVITY/LINK/DATA RATE LED exists for each port.

Regulatory Compliance Standards

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 5 sec. @ 100% dip
EN 55022	CISPR 22	Radiated Emissions	Class A
EN 55022	CISPR 22	Conducted Emissions	Class B

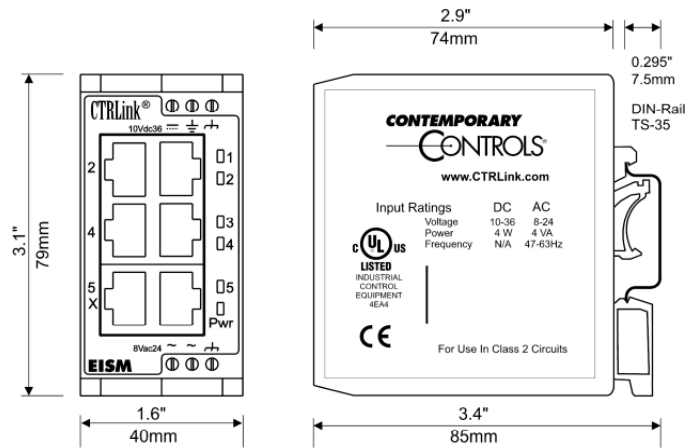
MDI-X² 10BASE-T/100BASE-TX

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 EISM 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.

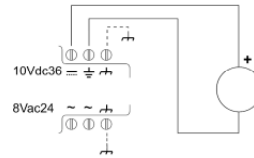
Ordering Information

Model	Description
EISM5-100T	Five-port 10BASE-T/100BASE-TX miniature switching hub
Accessories	
Model	Description
AI-XFMR	Wall-mount transformer 120 VAC (nom)
AI-XFMR-E	Wall-mount transformer 220 VAC (nom)

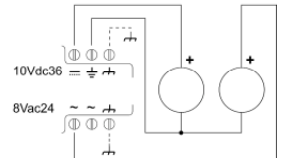


Power Options

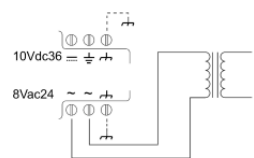
DC POWERED



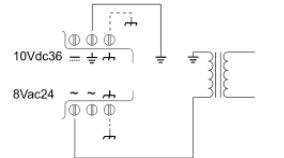
REDUNDANT DC POWERED



AC POWERED (ungrounded secondary)

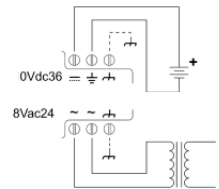


AC POWERED (grounded secondary)



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

AC POWERED WITH BATTERY BACKUP



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