EISK5-100T/F_ Series

CTRLink®

Plug and Play Fibre Switching Hub for Industrial Automation Systems

Installation Guide

EISK5-100T/F_ switching hubs are designed for Industrial Automation environments. Like all Ethernet switches from Contemporary Controls, each switching hub features non-blocking (full wire-speed) operation.

One *fibre* port communicates at 100 Mbps and has one LED for link status and activity. The series has three models that vary by type of fibre connector being used. The EISK5-100T/FC and the EISK5-100T/FCS use the SC type. The EISK5-100T/FT uses the ST type. Only full-duplex communication is supported on the fibre port.

Four *copper* ports automatically negotiate the data rate to 10 Mbps or 100 Mbps and set flow control with the PAUSE function (full-duplex links) or the backpressure method (half-duplex links). Each copper port uses the Auto-MDIX function for attaching local devices and has one LED for link/activity/rate and one LED for duplex status.

The unit provides preamble regeneration and retimes signals to eliminate jitter. Digital pre-emphasis compensates for inherent signal strength roll-off. Link indicates that a working adapter or hub is on the distant end of a segment.

Port assignments are learned by reading Ethernet frames and logging the source addresses to a table. Learned addresses are aged out of the table after 300 seconds of inactivity. Throughput is optimised by restricting traffic to only those ports that are party to a data exchange (while other data is simultaneously exchanged on other ports). Store-and-forward operation is used. Each port can receive any type of Ethernet message: broadcast, multicast, or unicast.

The switch works from a wide range of low-voltage AC or DC power and features a power LED.

Each unit is provided with a writeable label for easy identification of the remote device attached to each cable.

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Specifications

Electrical

INPUT	**DC**	**AC**
Voltage:	10–36 V	8–24 V
Power:	5 W	5 VA
Frequency:	N/A	47–63 Hz

Environmental

Operating Temp:	0°C	to +60°C
Storage Temp:	–40°C	to +85°C
Humidity:	10–95%, non-condensing	

DIN-rail Mounting TS-35

Shipping Weight 1 lb (0.45 kg)

Regulatory Compliance

CE Mark; EN55022; EN55024
CFR 47, Part 15, Class A
UL508 — Industrial Control Equipment

For use in Class 2 circuits

Functional

Compliance: ANSI/IEEE 802.3

	Copper	**Fibre**
Data Rates:	10/100 Mbps	*100 Mbps*
Signalling:	10BASE-T 100BASE-TX	*100BASE-FX*
Connectors:	RJ-45 (shielded)	*SC or ST*
Segment Length (max):	100 m	*2 km** *15 km***

** multimode, full-duplex* *** single-mode, full-duplex*

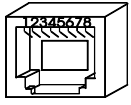
LED Indicators

Power	green
Port Activity	flashing
Port Rate/Link	green/yellow (10/100 Mbps)
Duplex	green (for full-duplex)

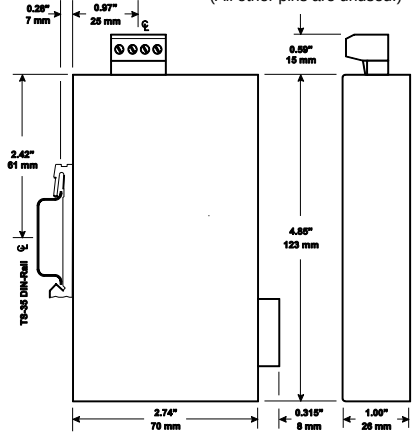
RJ-45 Connector Pin Assignments

Pin	**Function**
1	TD+
2	TD–
3	RD+
6	RD–

(All other pins are unused.)

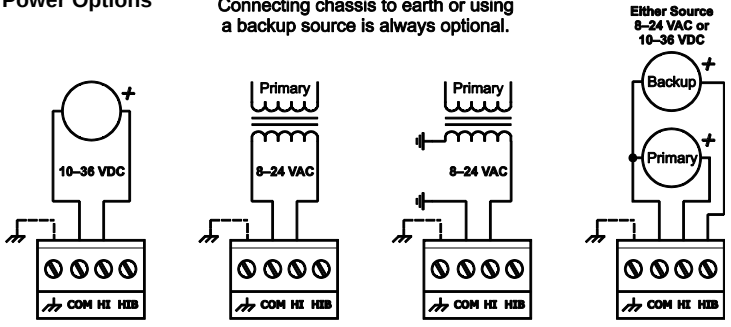


Mechanical



Power Options

Connecting chassis to earth or using a backup source is always optional.



DC Powered | **AC Powered** | **AC Powered with Grounded Secondary** | **Redundant Power**

Power Considerations

Voltage in the range of 10–36 VDC or 8–24 VAC must deliver current commensurate with power consumption. Recommended size for solid power conductors is 16–22 AWG; for stranded conductors, use 16–18 AWG. Common is directly connected to zero volts and chassis is isolated from zero volts. Input connections are reverse-polarity protected.

LED Indicators

The “PWR” LED glows solid green when the switch is properly powered. To aid in troubleshooting, each copper port has two LEDs. The Port 1 LED labelled “L” glows solid if a link exists, flashes to show activity and shows data rate by colour: green for 100 Mbps and yellow for 10 Mbps. The LED labelled “D” glows solid green if full-duplex is on or is unlit when the port is in half-duplex mode — but in half-duplex operation it will flash if a collision occurs. The LEDs of Ports 2–4 are unlabelled but work the same. The fibre port (5) LED glows solid green if linked to a working 100BASE-FX port and flashes when data moves through the port.

Network Connections

The switch employs Auto-MDIX technology so that either straight-through or crossover cables can be used to connect to network interface adapters or to other hubs. Cable issues are shown in the chart to the right

Medium	Signaling & Data Rate	Minimum Cable Needed	Maximum Segment Distance
Copper	10BASE-T 100BASE-TX 10/100 Mbps	CAT 5 UTP	100 m (328 ft)
Fiber	100BASE-FX 100 Mbps	Multimode 50/125 or 62.5/125 µm	Full-Duplex : 2 km (6562 ft)
		Single Mode	Full-Duplex : 15 km (49212 ft)

NEED MORE HELP INSTALLING THIS PRODUCT?

For more information, visit www.ccontrols.com. If contacting our office, ask for Technical Support.

WARRANTY

Contemporary Controls (CC) warrants this product to the original purchaser for five years from the shipping date. If it fails to operate in compliance with its specification during this period, CC will, at its option, repair or replace the product at no charge. The customer is responsible for shipping the product; CC assumes no responsibility for the product until received. This limited warranty covers products only as delivered. If user modification damages the product, repair or replacement are not covered. Damage from abuse, accident, disaster, misuse, or incorrect installation are not covered. This warranty in no way warrants suitability of the product for any specific application. More warranty information can be found at www.ccontrols.com.

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

RETURNING PRODUCTS FOR REPAIR

Return the product to the location where it was purchased by following the instructions at the URL below:

www.ccontrols.com/rma.htm

Declaration of Conformity

Applied Council Directives:

Low Voltage Directive 2006/95/EC

General Product Safety Directive 2001/95/EC

Electromagnetic Compatibility Directive 2004/108/EC

Restriction of Hazardous Substances Directive 2002/95/EC

Waste Electrical and Electronic Equipment Directive 2002/96/EC

Standards to which Conformity is Declared:

EN 55022:2006 + A1:2007, Class A — Emissions

EN 55024:1998+ A1:2001 + A2:2003 — Immunity

Type of Equipment: Industrial Ethernet switching hubs

Models: EISK5-100T/FC 4-port 10/100, 1-port multimode fibre (SC connectors)
EISK5-100T/FCS 4-port 10/100, 1-port single-mode fibre (SC connectors)
EISK5-100T/FT 4-port 10/100, 1-port multimode fibre (ST connectors)

Manufacturer's Declaration

The listed models conform to the above directives and standards.