

# EIDX\_M Series

CTRLink®

A Line of Managed Ethernet Switching Hubs

---

## INSTALLATION GUIDE

### INTRODUCTION

The EIDX\_M Series of managed Industrial Ethernet switches provides the user with a sophisticated instrument with several advanced features for the discriminating network professional. Each of the 8 models in the series operates in extended temperatures while offering a choice of mounting, port count, media and support.

To optimise speed and throughput, some functions are *automatically negotiated*:

Each twisted-pair port automatically optimises its data rate to 10 Mbps or 100 Mbps. The data rate of fibre ports is fixed at 100 Mbps.

Each port negotiates flow control — supporting the PAUSE function for full-duplex links, and using the backpressure scheme for half-duplex segments.

All units offer **non-blocking wire-speed operation** with a maximum data rate of 148,810 frames per second for 100 Mbps Ethernet on all ports at full duplex. Copper ports are wired MDI-X (internal crossover) for attaching NICs via straight-through cables.

All units support SNMP and offer these advanced features:

RapidRing™ high-speed redundancy (link loss recovery under 300 ms)

VLANs to limit broadcast/multicast domains and improve performance

Trunking to allow high-bandwidth redundant backbones

QoS message priority for either port-based or MAC-based priority

Programmable fault relay to indicate the loss or addition of a link

Auto-MDIX for all copper ports enabled/disabled by software control

All units operate from low-voltage AC/DC sources — and redundant power connections are available for backup considerations. They come with the ability for either DIN rail or panel mounting. The front panel features LED indicators for power and CPU status — and link status, activity and data rate of each port.

# SPECIFICATIONS

## Electrical (for 24-port models)

INPUT	DC	AC
Voltage $\pm 5\%$ :	24 VDC	24 VAC
Power (max):	14 W	35 VA

## Temperature

Operating:	-40°C to +75°C
Storage:	-40°C to +85°C

## Shipping Weight

2 lbs. (.9 kg)

## Regulatory Compliance

CE Mark; CFR 47, Part 15 Class A  
UL508 Listed Industrial Control Equipment  
(intended for use with Class 2 circuits)

## Functional

Compliance: ANSI/IEEE 802.3  
Data Rate: 10 Mbps and 100 Mbps  
Signalling: 10BASE-T, 100BASE-TX,  
100BASE-FX

## LED Indicators

Power	green
Status	red/green
Ports	green/yellow

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

## Mechanical

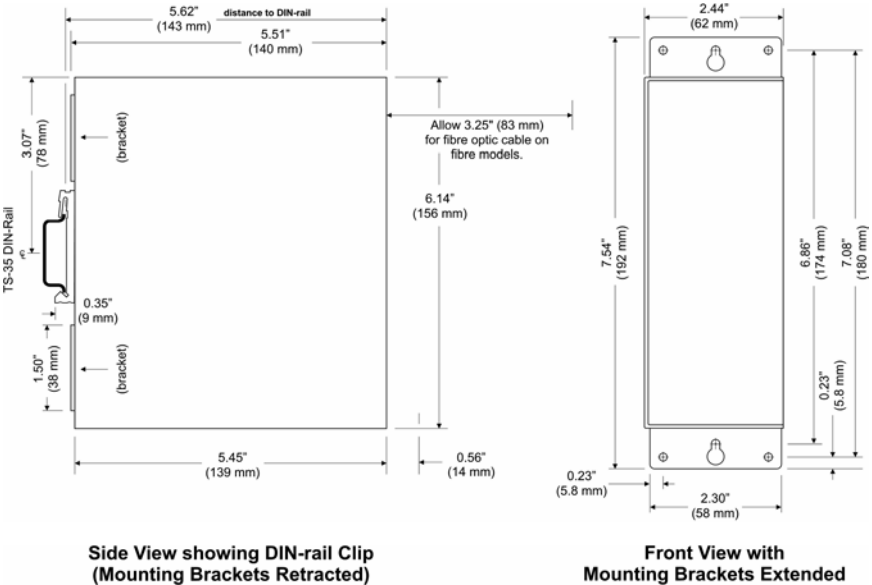
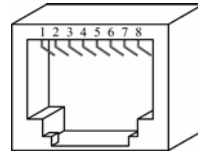


Figure 1 — EIDX Dimensions

---

*RJ-45 Connector Pin Assignments*

<u>PIN</u>	<u>MDI-X</u>
1	TD+
2	TD-
3	RD+
4	unused
5	unused
6	RD-
7	unused
8	unused



*Figure 2 — RJ-45 Connector*

---

# INSTALLATION

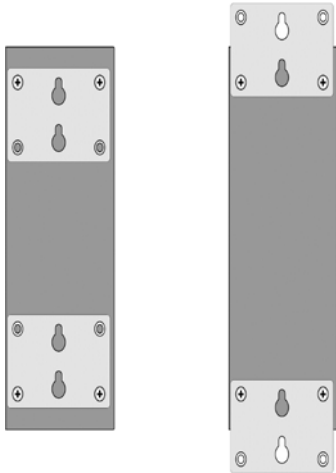
## Mounting

The EIDX is designed for mounting in an industrial enclosure or wiring closet using either set of the provided mounting hardware listed below:

TS-35 DIN Rail Mounting
DIN rail clip
M3x5 screws, flat-head (4)

Panel Mounting
Panel mounting bracket
M3x5 screws, flat-head (4)

For quick snap-mounting to 35 mm DIN rail, a reinforced DIN rail clip is pre-attached to the back of the EIDX enclosure with four M3x5 flat-head screws. If the clip is removed, the EIDX can be panel-mounted by extending the top and bottom brackets which are shipped in retracted position. The extended brackets can then anchor the EIDX to a wall or other flat vertical surface with two #8 pan-head screws (not provided). The left illustration of Figure 3 shows a rear view of the EIDX with brackets in retracted position. The right illustration of Figure 3 shows the brackets extended and secured to the EIDX enclosure with the same screws used in retracted position.



*Figure 3 — Using the Panel-Mounting Brackets*

---

## Cabling Considerations

When attaching signal cables to the EIDX, Table 1 should be considered.

Medium	Signalling and Data Rate	Minimum Required Cable	Maximum Segment Distance
Copper	10BASE-T 10 Mbps	Category 3 UTP	100 m (328 ft)
Copper	100BASE-TX 100 Mbps	Category 5 UTP	100 m (328 ft)
Fibre	100BASE-FX 100 Mbps	1300 nm, multimode 50/125 or 62.5/125 $\mu$ m	Full-Duplex : 2 km (6562 ft) Half-Duplex : 412 m (1352 ft)
Fibre	100BASE-FX 100 Mbps	1300 nm, single-mode	Full-Duplex : 15 km (49213 ft) Half-Duplex : 412 m (1352 ft)

*Table 1 — Cabling Considerations*

Observe in Table 1 that segment distance is very limited when using copper media — regardless of data rate. Although 10BASE-T links can successfully use Category 3, 4 or 5 cable — 100BASE-TX segments *must* use Category 5.

A popular choice for improved distance is multimode fibre — which also gives good electromagnetic noise immunity and optimum protection from lightning strikes. Considerable distance can be achieved in full-duplex mode — and the greatest distance can be realized in full-duplex mode with single-mode fibre. Note that half-duplex operation yields a modest, fixed distance which does not vary with the type of fibre in use. This is because half-duplex mode is limited by the *collision domain* — irrespective of the length and type of fibre.

EIDX switches offer three types of field connectors. Copper ports accept RJ-45 modular plugs. Two choices of fibre connectors are available: ST and SC.

---

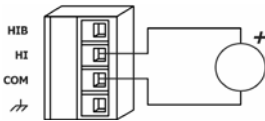
## Powering

The EIDX requires low-voltage AC or DC power via a four-pin removable keyed connector. Power conductors can be stranded (16–18 AWG) or solid (16–22 AWG). Consult the Specifications section for power requirements. The various power options are explained below.

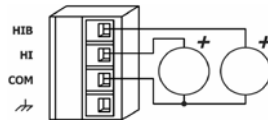
**NOTE: This device is intended for use with Class 2 circuits.**

### *DC Powered*

The EIDX accepts a voltage of 24 VDC  $\pm 5\%$  and draws current commensurate with power consumption. Power conductors should be sized accordingly. COM and the equipment chassis are isolated from zero volts. The input connections are reverse-polarity protected.



**Figure 4 — DC Powered**



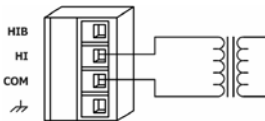
**Figure 5 — Redundant DC Powered**

### *Redundant DC Powered*

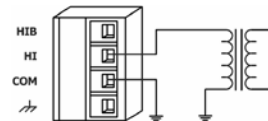
Redundant diode-isolated DC power inputs are provided so the EIDX can operate despite the loss of primary power. Both sources must provide required power.

### *AC Powered*

The EIDX accepts a voltage of 24 VAC  $\pm 5\%$  and draws current commensurate with power consumption.



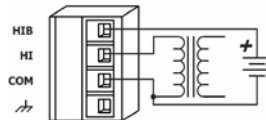
**Figure 6 — AC Powered**



**Figure 7 — AC Powered  
with Grounded Secondary**

### *AC Powered with Battery Backup*

The EIDX can also operate in the AC mode with a backup battery providing power if the AC source fails. The EIDX does NOT charge the battery, so separate provisions are required for charging.



**Figure 8 — AC Powered with  
Battery Backup**

## LED Indicators

**Power** — This LED glows green when proper power is applied to the EIDX.

**Status** — This bicolour LED will be green in an operational state and red in a fault state. The green LED blinks periodically to indicate the management CPU is fully operational.

**Port** — Each port has an associated bicolour LED which glows green when a valid Ethernet link has been established at 100 Mbps but yellow if the data rate is 10 Mbps. The LED flashes when data transfer is occurring.

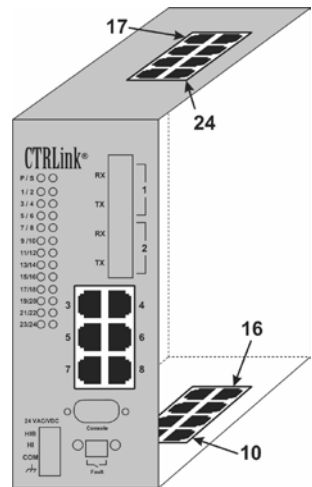
## Port Locations

Ports 1–8 are accessed on the front panel. Other ports are located on the bottom of the enclosure — and for 24-port models, also on the top surface.

An example of port arrangement on the top and bottom of the enclosure is shown in Figure 6 which locates a few of the ports on the model EIDX24M-100T/FC.

## Fault Relay

This relay is disabled by default. Its operation is explained in the Software Manual. Its contact is normally closed and rated at 500 mA, 24 V (max).

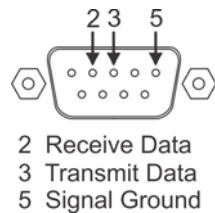


**Figure 9 — Port Locations**

## Console Port

The Console Port uses the standard RS-232 protocol for configuring the switch. For proper communication :

- Set the Baud rate to 9600.
- Set the Data bits to 8.
- Set the Parity to None.
- Set the Stop bits to 1.
- Set the Flow control to None.



**Figure 10 — Console Port**

---

## **NEED MORE HELP INSTALLING THIS PRODUCT?**

Additional information exists on our web site at [www.ccontrols.com](http://www.ccontrols.com). When contacting one of our offices, just ask for Technical Support.

## **WARRANTY**

Contemporary Controls (CC) warrants its new product to the original purchaser for two years from the product shipping date. Product returned to CC for repair is warranted for one year from the date that the repaired product is shipped back to the purchaser or for the remainder of the original warranty period, whichever is longer.

If a CC product fails to operate in compliance with its specification during the warranty period, CC will, at its option, repair or replace the product at no charge. The customer is, however, responsible for shipping the product; CC assumes no responsibility for the product until it is received.

CC's limited warranty covers products only as delivered and does not cover repair of products that have been damaged by abuse, accident, disaster, misuse, or incorrect installation. User modification may void the warranty if the product is damaged by the modification, in which case this warranty does not cover repair or replacement.

This warranty in no way warrants suitability of the product for any specific application. IN NO EVENT WILL CC BE LIABLE FOR ANY DAMAGES INCLUDING LOST PROFITS, LOST SAVINGS, OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCT EVEN IF CC HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, OR FOR ANY CLAIM BY ANY PARTY OTHER THAN THE PURCHASER.

THE ABOVE WARRANTY IS IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED OR STATUTORY, INCLUDING THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE OR USE, TITLE AND NONINFRINGEMENT.

## **Returning Products for Repair**

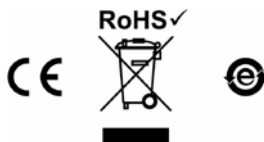
Return the product to the location where it was purchased by following the instructions at the URL below:

[www.ccontrols.com/rma.htm](http://www.ccontrols.com/rma.htm)

## **DECLARATION OF CONFORMITY**

Information on the regulatory compliance of this product exists at the URL below:

[www.ccontrols.com/compliance.htm](http://www.ccontrols.com/compliance.htm)



**TD071105-01A**