

EIDX_MP Series CTRLink®

A Line of Managed PoE PSE Ethernet Switching Hubs

INSTALLATION GUIDE

INTRODUCTION

The EIDX_MP 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 support and 8 Power-Over-Ethernet ports (PoE).

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 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

- Voltage: 48 VDC \pm 10%
- Power (max): 135 W
- PoE Output: 48 VDC, 15.4 W (max)
(per port)

Temperature

- Operating: -40°C to $+75^{\circ}\text{C}$
- Storage: -40°C to $+85^{\circ}\text{C}$

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/48 V green
- Status red/green
- Ports green/yellow
- Fault red
- PoE Power green

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

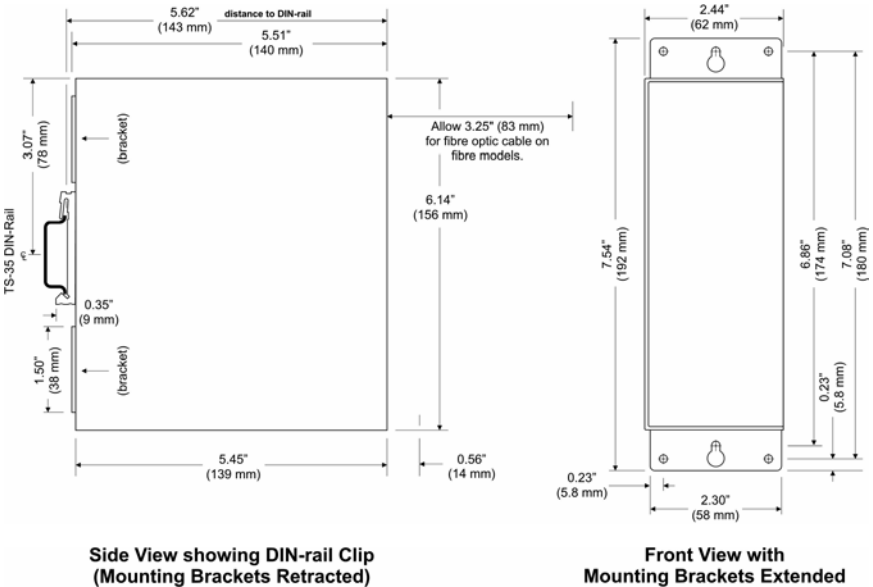


Figure 1 — EIDX Dimensions

RJ-45 Connector Pin Assignments

| <u>PIN</u> | <u>MDI-X</u> | <u>PoE</u> |
|-------------------|---------------------|-------------------|
| 1 | TD+ | TD+ |
| 2 | TD- | TD- |
| 3 | RD+ | RD+ |
| 4 | unused | +48 V |
| 5 | unused | +48 V |
| 6 | RD- | RD- |
| 7 | unused | 48 V return |
| 8 | unused | 48 V return |

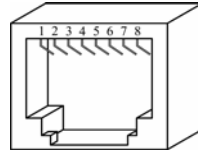


Figure 2 — RJ-45 Connector

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.

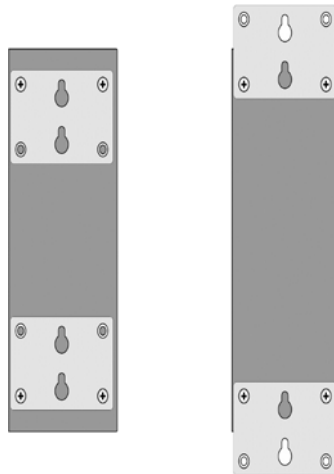


Figure 3 — Using the Panel-Mounting Brackets

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 μ 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 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 48 VDC $\pm 10\%$ 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.

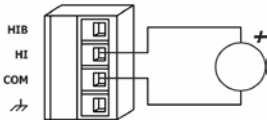


Figure 4 — DC Powered

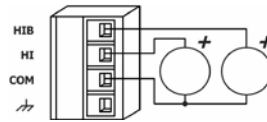


Figure 5 — Redundant DC Powered

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.

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.

PoE Power — This LED glows green when PoE power is being delivered to a powered device (PD).

48V — This LED glows green when 48 VDC is present for the PoE ports.

Fault — This LED glows red to indicate an error condition on the PoE ports.

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.

On all models, PoE is provided on ports 9–16 which are on the bottom of the unit.

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 EIDX24MP-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).

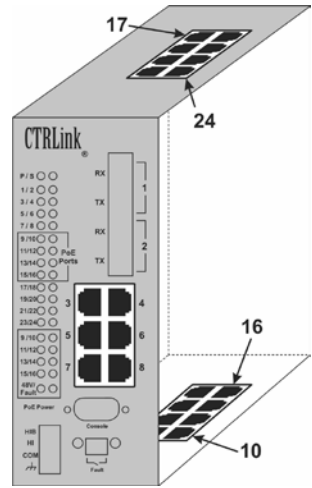


Figure 6 — Port Locations

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.

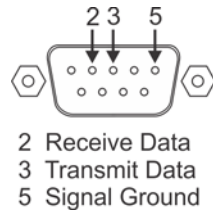


Figure 7 — Console Port

NEED MORE HELP INSTALLING THIS PRODUCT?

Additional information exists on our web site at 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

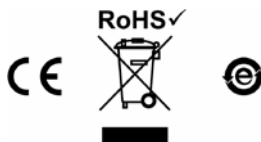
Return the product to the location where it was purchased by following the instructions at the URL below:

www.ccontrols.com/rma.htm

DECLARATION OF CONFORMITY

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

www.ccontrols.com/compliance.htm



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