Manual

Elinx EIRP410-2SFP-T

8 Ports 10/100 PoE with 2 combo 10/100/1000 or 100/1000 SFP Ports
Unmanaged Din Rail Ethernet Switch
Table of Contents

INTRODUCTION ................................................................................................................................. 1

The EIRP410-2SFP-T is an industrial Managed Ethernet switch that has 8 10/100TX PoE ports and 2 10/100/1000T/Mini-GBIC Combo ports. .............................................................................................................................. 1

Features ................................................................................................................................................................................... 1

Package Contents ................................................................................................................................................................... 2

HARDWARE DESCRIPTION .................................................................................................. 3

Physical Dimension ................................................................................................................................................................ 3

Front Panel ............................................................................................................................................................................. 3

Front Panel of the PoE Industrial Switch ............................................................................................................................ 3

Top View ................................................................................................................................................................................. 4

Top View of the PoE Injectors Industrial Switch.................................................................................................................. 4

LED Indicators ....................................................................................................................................................................... 5

Ports......................................................................................................................................................................................... 6

RJ-45 ports ........................................................................................................................................................................... 6

2 Mini-GBIC combo port ..................................................................................................................................................... 8

Cabling .................................................................................................................................................................................... 8

Wiring the Power Inputs ..................................................................................................................................................... 11

Wiring the Fault Alarm Contact ......................................................................................................................................... 11

MOUNTING INSTALLATION ................................................................................................ 13

DIN-Rail Mounting .............................................................................................................................................................. 13

Wall Mount Plate Mounting ................................................................................................................................................ 15

NETWORK APPLICATION ................................................................................................... 16

Troubleshooting .................................................................................................................................................................... 17

TECHNICAL SPECIFICATION ............................................................................................. 18
Introduction

The EIRP410-2SFP-T is an industrial Managed Ethernet switch that has 8 10/100TX PoE ports and 2 10/100/1000T/Mini-GBIC Combo ports.

Features

- System Interface/Performance
  - RJ-45 ports support Auto MDI/MDI-X Function
  - Embedded 8-ports PoE
  - SFP (Mini-GBIC) supports 100/1000 Dual Mode
  - Store-and-Forward Switching Architecture
  - Back-plane (Switching Fabric): 5.6Gbps
  - 1Mbits Packet Buffer
  - 8K MAC Address Table
  - Supports Wide Operating Temperature (-40°C ~ 75°C)

- Power Supply
  - Redundant Power Design

- Case/Installation
  - IP-30 Protection
  - DIN Rail and Wall Mount Design

- Relay Alarm
  - Relay output for port breakdown, power fail and alarm
Package Contents

- 8 Ports 10/100 PoE with 2 combo 10/100/1000 or 100/1000 SFP Ports Industrial Switch
- User manual
- Pluggable Terminal Block
- 2 wall mount plates and 6 screws
- One DIN-Rail (attached on the switch)
Hardware Description

The following information is an introduction to the Industrial switch’s hardware spec, port, cabling information, and wiring installation will be described.

Physical Dimension

8 Ports 10/100 PoE with 2 combo 10/100/1000 or 100/1000 SFP Ports Industrial Switch dimension (W x D x H) are 72mm x 105mm x 152mm

Front Panel

The Front Panel of the 8 Ports 10/100 PoE with 2 combo 10/100/1000 or 100/1000 SFP Ports Industrial Switch is shown as below:

Front Panel of the PoE Industrial Switch
The top view of the 8 Ports 10/100 PoE with 2 combo 10/100/1000 or 100/1000 SFP Ports Industrial Switch has one terminal block connector of two DC power inputs.

*Top View*

*Top View of the PoE Injectors Industrial Switch*
# LED Indicators

The diagnostic LEDs located on the front panel of the industrial switch provide real-time information of operation and status. The following table provides the description of the LED status and their meanings for the switch.

<table>
<thead>
<tr>
<th>LED</th>
<th>Status</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWR1</td>
<td>Green</td>
<td>Power 1 is active</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>No power inputs</td>
</tr>
<tr>
<td>PWR2</td>
<td>Green</td>
<td>Power 2 is active</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>No power inputs</td>
</tr>
<tr>
<td>Fault</td>
<td>Red</td>
<td>Power input 1 or 2 is inactive</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>Power 1 &amp; Power 2 are both active or no power inputs</td>
</tr>
<tr>
<td>P9, P10 (RJ-45)</td>
<td>Upper LED</td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td>Blinking</td>
<td>Networking is active</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>Not connected to network</td>
</tr>
<tr>
<td></td>
<td>Lower LED</td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>The port is disconnected or not operating at speed of 1000M</td>
</tr>
<tr>
<td>Link/Active (P9, P10)</td>
<td>Green</td>
<td>SFP port is linking</td>
</tr>
<tr>
<td></td>
<td>Blinks</td>
<td>Data is transmitting or receiving</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>Not connected to network</td>
</tr>
<tr>
<td>P1 ~ P8 (Green)</td>
<td>Green</td>
<td>Connected to network</td>
</tr>
<tr>
<td></td>
<td>Blinking</td>
<td>Networking is active</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>Not connected to network</td>
</tr>
<tr>
<td>P1 ~ P8 (Yellow)</td>
<td>Yellow</td>
<td>Ethernet port full duplex</td>
</tr>
<tr>
<td></td>
<td>Blinking</td>
<td>Collision of packet occurs</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>Ethernet port half duplex or not connected to network</td>
</tr>
<tr>
<td>FWD (P1 ~ P8)</td>
<td>Green</td>
<td>A powered device is connected utilizing Power over Ethernet on the port</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>No device is connected or power forwarding fails</td>
</tr>
</tbody>
</table>


Ports

RJ-45 ports

The RJ-45 copper ports support auto MDI/MDIX operation. This feature allows network connections to computers, servers, or other switches using straight-through or crossover cables (See Figure below). Straight-through cable connections: pins 1, 2, 3 and 6, at one end of the cable, are connected straight-through to pins 1, 2, 3 and 6 at the other end of the cable. The table below shows the 10BASE-T/100BASE-TX MDI and MDI-X port pin outs.

<table>
<thead>
<tr>
<th>Pin</th>
<th>MDI-X Signal Name</th>
<th>MDI Signal Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Receive Data plus (RD+)</td>
<td>Transmit Data plus (TD+)</td>
</tr>
<tr>
<td>2</td>
<td>Receive Data minus (RD-)</td>
<td>Transmit Data minus (TD-)</td>
</tr>
<tr>
<td>3</td>
<td>Transmit Data plus (TD+)</td>
<td>Receive Data plus (RD+)</td>
</tr>
<tr>
<td>6</td>
<td>Transmit Data minus (TD-)</td>
<td>Receive Data minus (RD-)</td>
</tr>
</tbody>
</table>

Switch        | Router or PC
3 TD+ ─────── 3 RD+
6 TD+ ─────── 6 RD+
1 RD+ ─────── 1 TD+
2 RD+ ─────── 2 TD+

Straight Through Cable Schematic

Switch
3 TD+ ─────── 3 TD+
6 TD+ ─────── 6 TD+
1 RD+ ─────── 1 RD+
2 RD+ ─────── 2 RD+

Cross Over Cable Schematic
Cross Over Cable Schematic

Color Standard

Ethernet Patch Cable

<table>
<thead>
<tr>
<th>RJ45 Pin 1</th>
<th>RJ45 Pin 7</th>
<th>RJ45 Pin 2</th>
<th>RJ45 Pin 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange/White Tracer 1</td>
<td>1 Orange/White Tracer</td>
<td>2 Orange/White Tracer</td>
<td>3 Orange/White Tracer</td>
</tr>
<tr>
<td>Green 2</td>
<td>Green 3</td>
<td>Green 4</td>
<td>Green 5</td>
</tr>
<tr>
<td>Blue/White Tracer 6</td>
<td>Blue/White Tracer 7</td>
<td>Blue/White Tracer 8</td>
<td>Blue/White Tracer 9</td>
</tr>
<tr>
<td>Brown 14</td>
<td>Brown 15</td>
<td>Brown 16</td>
<td>Brown 17</td>
</tr>
</tbody>
</table>

Ethernet Crossover Cable

<table>
<thead>
<tr>
<th>RJ45 Pin 1</th>
<th>RJ45 Pin 7</th>
<th>RJ45 Pin 2</th>
<th>RJ45 Pin 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange/White Tracer 1</td>
<td>1 Orange/White Tracer</td>
<td>2 Orange/White Tracer</td>
<td>3 Orange/White Tracer</td>
</tr>
<tr>
<td>Green 2</td>
<td>Green 3</td>
<td>Green 4</td>
<td>Green 5</td>
</tr>
<tr>
<td>Blue/White Tracer 6</td>
<td>Blue/White Tracer 7</td>
<td>Blue/White Tracer 8</td>
<td>Blue/White Tracer 9</td>
</tr>
<tr>
<td>Brown 14</td>
<td>Brown 15</td>
<td>Brown 16</td>
<td>Brown 17</td>
</tr>
</tbody>
</table>

"B" is most recent

Common Ethernet Crossover Cables may only cross connect the Orange & Green pairs
2 Mini-GBIC combo port

2 auto-detect combo Giga ports — RF45 or fiber. The gigabit Ethernet ports are shared with the mini-GBIC ports. RJ45 UTP (Gigabit Ethernet) ports can operate in half/full-duplex modes and work at speeds of 10/100/1000Mbps that support auto-sensing technology to enable each port to detect the connecting speed. The mini-GBIC port is a socket for a mini-GBIC (SFP) fiber transceiver.

Cabling

- Use four twisted-pair, Category 5e or above cabling for RJ-45 port connection. The cable between the switch and the link partner (switch, hub, workstation, etc.) must be less than 100 meters (328 ft.) long.
- Use the mini-GBIC ports to uplink to another switch by inserting the mini-GBIC (SFP) transceiver.

To connect the transceiver and LC cable, please follow the steps shown below:
First, insert the transceiver into the SFP module. Notice that the triangle mark is the bottom of the module.

![Figure 2.8: Transceiver to the SFP module](image)
Second, insert the fiber cable LC connector into the transceiver.

To remove the LC connector from the transceiver, press the upper side of the LC connector to release from the transceiver and pull it out.
Second, push down the metal loop and pull the transceiver out by the plastic handle.

Figure 2.11: Remove LC connector

Figure 2.12: Pull out from the transceiver
**Wiring the Power Inputs**

The diagram shows the power inputs labeled 1, 2, 3, 4, 5, and 6, with V- and V+ terminals highlighted.

**Wiring the Fault Alarm Contact**

The fault alarm contact is wired to pins 3 and 4 of the terminal block connector as shown in the picture below. When the wires are inserted, the connected device will detect the fault status. The fault status includes power failure or port link failure. Once one of these states occurs, an open circuit will exist. An application example for the fault alarm contact is shown on the next page:

![Fault Alarm Contact Wiring Diagram](image)

**Note**  
The wire gauge for the terminal block should be in the range between 12-24 AWG.
Fault Alarm Contact

The open circuit will form when the power fails.

24V DC Buzzer
The fault alarm device will send a warning signal to warn the user, ex: alarm sound or flash light.

24V Battery
Mounting Installation

**DIN-Rail Mounting**

The DIN-Rail is installed at the factory and maybe removed if needed.

1. First, insert the top of the DIN-Rail into the track.
2. Lightly push the DIN-Rail into the track.

3. Check the DIN-Rail to insure proper fit.

4. To remove the industrial switch from the track, reverse steps above.
**Wall Mount Plate Mounting**

1. Remove the DIN-Rail from the industrial switch.
2. Install the wall mount plate on the rear panel of the industrial switch.
Network Application

This segment provides the samples to help user have more actual idea of industrial switch application. For a sample application of the industrial switch, see the figures below.
Troubleshooting

- Verify that you are using the appropriate power supply adapter. Do not use the power adapter with DC output higher than the power rating of the device.
- Select the proper UTP/STP cable to construct your network. Use unshielded twisted-pair (UTP) or shielded twisted-pair (STP) cable for RJ-45 connections: 100 Ω Category 3, 4 or 5 cable for 10Mbps connections, 100 Ω Category 5 cable for 100Mbps connections. Insure the length of any twisted-pair connection does not exceed 100 meters (328 feet).
- **Diagnosing LED Indicators**: The Switch can be easily monitored through panel LED’s. The LED’s will provide an easy way of detecting power or communication problems.
- If the Industrial switch LED indicators function normal and the connected cables are correct but the packets still cannot transmit, please check your system’s Ethernet devices’ configuration or status. The Ping test is a common method to check Ethernet devices connections on the network.
## Technical Specification

| **Standard** | IEEE 802.3 10Base-T Ethernet  
IEEE 802.3u 100Base-TX/FX  
IEEE802.3ab 1000Base-T  
IEEE802.3z Gigabit fiber  
IEEE802.3x Flow Control and Back Pressure  
IEEE802.3af Power over Ethernet |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protocol</strong></td>
<td>CSMA/CD</td>
</tr>
</tbody>
</table>
| **Transfer Rate** | 14,880 pps for 10Base-T Ethernet port  
148,800 pps for 100Base-TX/FX Fast Ethernet port  
1,488,000 pps for Gigabit Fiber Ethernet port |
| **Packet Buffer** | 1Mbits                                                                                                                                                                                      |
| **MAC address** | 8K MAC address table                                                                                                                                                                         |
| **LED** | **8 ports 10/100TX** : Link/Activity (Green), Full duplex/Collision (Yellow), Power Feeding (Green)  
**Giga port**: Link/Activity (Green)  
**Per unit**: Power 1 (Green), Power 2 (Green), Fault (Red) |
| **Network Cable** | 10Base-T: 2-pair UTP/STP Cat. 3, 4, 5, 5e cable  
EIA/TIA-568 100-ohm (100m)  
100Base-TX: 2-pair UTP/STP Cat. 5/5E cable  
EIA/TIA-568 100-ohm (100m)  
1000Base-TX: 2-pair UTP/STP Cat. 5E cable  
EIA/TIA-568 100-ohm (100m) |
| **Optical cable** | **Distance**:  
Multi mode:  
0 to 5 km, 1300 nm (50/125 μm, 800 MHz*km)  
0 to 4 km, 1300 nm (62.5/125 μm, 500 MHz*km)  
Single mode:  
0 to 40 km, 1310 nm (9/125 μm, 3.5 PS/(nm*km))  
0 to 80 km, 1550 nm (9/125 μm, 19 PS/(nm*km)) |
### Min. TX Output:
- Multi mode: -20 dBm
- Single mode: 0 to 40 km, -5 dBm; 0 to 80 km, -5 dBm

### Max. TX Output:
- Multi mode: -14 dBm
- Single mode: 0 to 40 km, 0 dBm; 0 to 80 km, 0 dBm

### Sensitivity:
- Single mode: -36 to -32 dBm (Single mode); -34 to -30 dBm (Multi mode)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back-plane (Switching Fabric)</td>
<td>5.6Gbps</td>
</tr>
<tr>
<td>Packet throughput ability</td>
<td>8.3Mpps at 64 bytes</td>
</tr>
<tr>
<td>Power Supply</td>
<td>External Power Supply: DC 48V</td>
</tr>
<tr>
<td></td>
<td>Redundant power DC 48V with connective removable terminal block</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>140 Watts (maximum)</td>
</tr>
<tr>
<td>Install</td>
<td>DIN rail kit and wall-mount ear for DIN-type cabinet install and wall mounting</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C ~ 75°C (Wide Operating Temperature model)</td>
</tr>
<tr>
<td></td>
<td>-10°C ~ 60°C (standard model)</td>
</tr>
<tr>
<td>Operating Humidity</td>
<td>5% to 95% (Non-condensing)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C to 85°C</td>
</tr>
<tr>
<td>Case Dimension</td>
<td>IP-30, 72 mm (W) x 105 mm (D) x 152mm (H)</td>
</tr>
<tr>
<td>EMI</td>
<td>FCC Class A</td>
</tr>
<tr>
<td></td>
<td>CE EN61000-4-2/3/4/5/6/8/11/12</td>
</tr>
<tr>
<td></td>
<td>CE EN61000-6-2</td>
</tr>
<tr>
<td></td>
<td>CE EN61000-6-4</td>
</tr>
</tbody>
</table>
| Safety        | UL  
cUL  
CE/EN60950-1 |
|--------------|---------|
| Stability testing | IEC60068-2-32 (Free fall) 
IEC60068-2-27 (Shock) 
IEC60068-2-6 (Vibration) |