8-Port IP40 IEEE802.3af

PoE Unmanaged Industrial Switch



User's Manual

Version 1.1

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Overview

Introduction

The 8-port M12 IP40 IEEE 802.3af PoE unmanaged industrial switch is a rugged device to be deployed in various environments. The Ethernet switch conforms to EN50155, EN50121-3-2, EN50121-4 railway applications standards.

Apart from 8 x 10/100Base-TX Fast Ethernet ports in M12 type, the Ethernet switch especially comes equipped with four IEEE 802.3af compliant PoE ports providing power up to 15.4 watts for each connected Powered Devices.

Heavy Duty

Designed with circular M12 connectors and constructed with metallic housing, the Ethernet switch provides the rugged Fast Ethernet interface to withstand vibration and shock.

Dual Power Inputs

The redundant power input design for the Ethernet switch gives a backup power solution. With both the power inputs supplied, if either one fails, the other one will be activated to keep the system operating continually.

Flexible Mounting

The Ethernet switch is compact and can be mounted on the wall, so it is suitable for any space-constrained environment.

Bypass Function

The equipment is designed with the function known as Bypass. When the power failure occurs, a shorted circuit between two Ethernet ports (P1 and P2) is formed to have the equipment being a bypassed device to prevent the network from disconnecting.

Features

- Back-plane (switching fabric) : 1.6Gbps
- M12 connectors and IP40 metal housing
- Four IEEE 802.3af compliant PoE ports
- Each PoE port provides up to 15.4 watts at 24~48 VDC
- Wide range redundant power design
- Wide operating temperature (-40~75ºC)
- EN50155/50121-3-2/50121-4

Technical Specifications

Communications

Standard	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX IEEE 802.3x Flow control and back pressure IEEE 802.3af Power over Ethernet
LAN	10/100Base-TX
Transmission Speed	Up to 100 Mbps
Switch Architecture	Back-plane: 1.6Gbps
Packet Buffer	448Kbits
MAC Address Table	2K-entry

Interface

Connectors	8 x M12, 4-pole D-coded, female (10/100TX) with the bypass function (P1 and P2) 1 x M12, 5-pole A-coded, male (Power)
LED Indicators	System: PWR1, PWR2 10/100Base-TX port: LNK/ACT PoE

Power

Power Consumption	72 Watts max. @ 24 V_{DC}
Power Input	24 ~ 48 V_{DC}

Mechanism

Dimensions (WxHxD)	92 x 180 x 42 mm
Enclosure	IP40 protection, metal housing
Mounting	DIN-rail, Wall-mount

Environment

Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)
Operating Humidity	5% ~ 95% (non-condensing)
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)
Storage Humidity	5% ~ 95% (non-condensing)
MTBF	348, 384 hours

Certifications

Safety	UL, cUL 60950
EMC	CE, FCC Class A CE EN61000-6-2 CE EN61000-6-4 CE EN61000-4-2 (ESD) CE EN61000-4-3 (RS) CE EN61000-4-4 (EFT) CE EN61000-4-5 (Surge) CE EN61000-4-6 (CS) CE EN61000-4-8 (Magnetic Field)
Railway Traffic	EN50155, EN50121-3-2, EN50121-4
Free Fall	IEC60068-2-32
Shock	IEC61373
Vibration	IEC61373

Packing List

- 1 x 8-port M12 IP40 IEEE 802.3af PoE Unmanaged Industrial Switch
- 2 x Wall-mount plates with screws
- 1 x DIN-rail clip with screws
- 1 x User Manual (CD-ROM)

Compare the contents of the Ethernet switch with the standard checklist above. If any item is damaged or missing, please contact the local dealer for service.

Safety Precaution



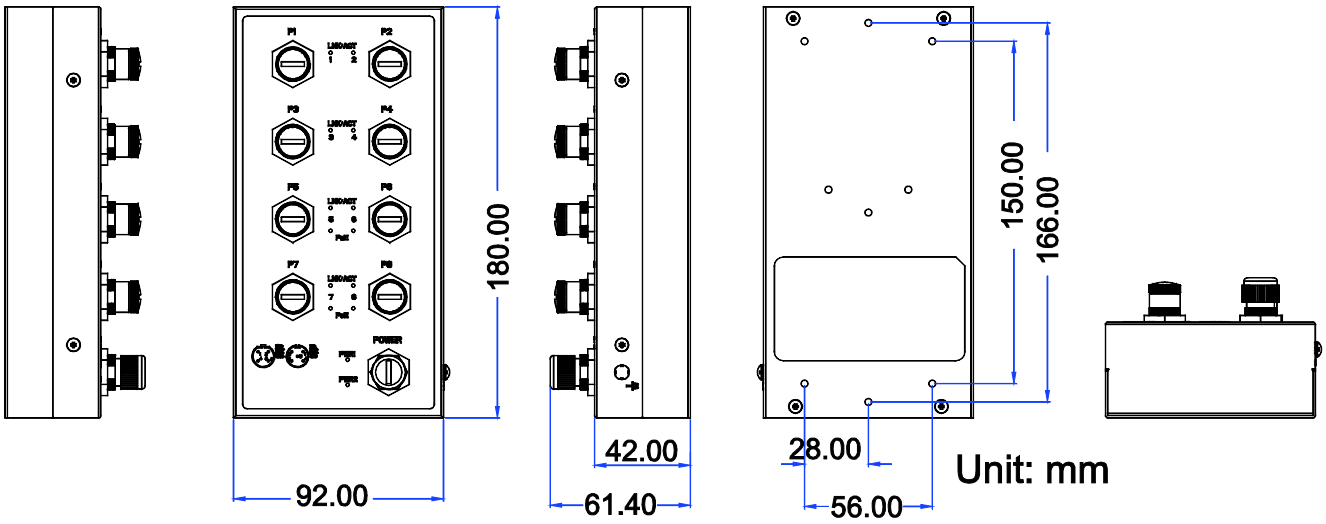
IF DC voltage is supplied by an external circuit, please use a protection device on the power supply input.

Hardware Description

This section is intended to introduce the Ethernet switch's dimensions, definitions of LED indicators, and connector pinouts.

Physical Dimensions

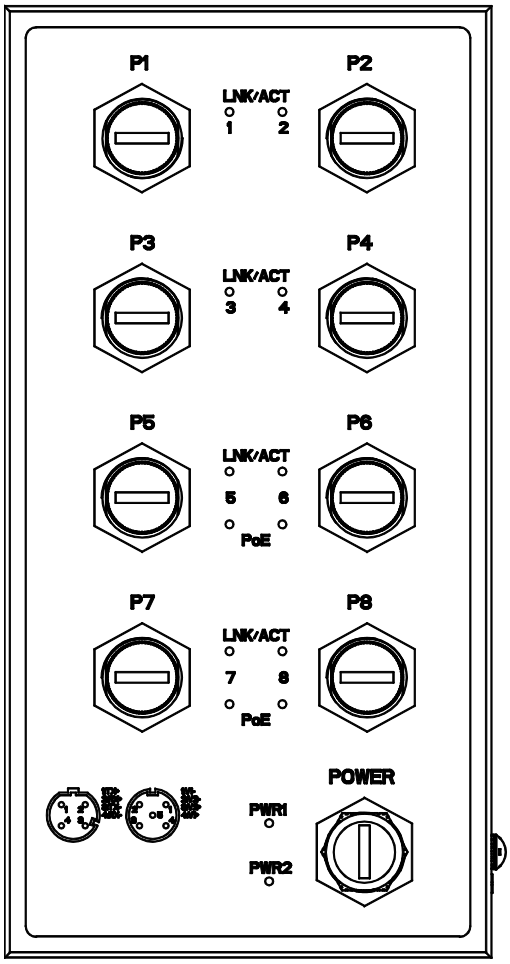
The figure below illustrates the dimensions for the Ethernet Switch.



Mechanical Dimensions

Front Panel

The figure shown below is the Front Panel of the Ethernet switch.



Front Panel

LED Indicators

LED indicators located on the front panel display the status of system power, networking and power feeding over Ethernet of the Ethernet switch. Please refer to the following table for further details.

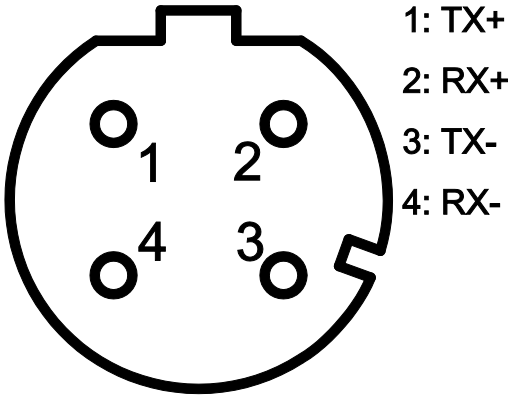
LED	Color	Description	
PWR1	Green	On	Power input 1 is active
		Off	Power input 1 is inactive
PWR2	Green	On	Power input 2 is active
		Off	Power input 2 is inactive
LNK/ACT	Green	On	Connected to network
		Blinks	Data is transmitting/receiving
		Off	Not connected to network
PoE (port 5 ~ 8)	Green	On	A powered device is connected utilizing PoE on the port
		Off	No device is connected or power forwarding fails

Definition of LED indicators

Fast Ethernet Ports

Prepare the M12, 4-pole D-Coded Fast Ethernet Port mating cable for Ethernet connection. The M-12 D-coded Fast Ethernet ports are auto-sensing for 10Base-T or 100Base-TX devices connections. Auto MDI/MDIX means that you can connect to another switch or workstation without changing straight through or crossover cabling.

- **M12 D-coded Connector Pin Assignments**

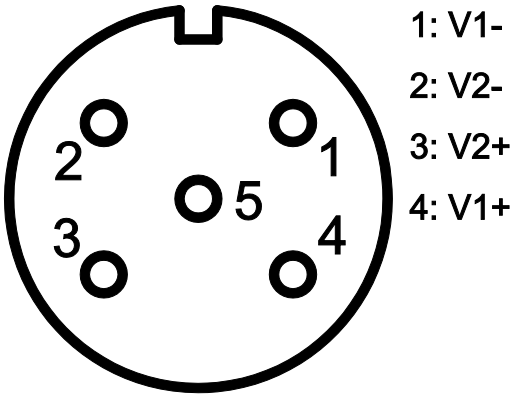


Pin Number	Assignments
1	Tx+
2	RX+
3	TX-
4	Rx-

Note *"+" and "-" signs represent the polarity of the wires that make up each wire pair.*

Pinouts of the Power Connector

Prepare the M12, 5-pole A-Coded cable for Ethernet connection. Connect the positive and negative wires to **PWR1 (V1+, V1-)** and **PWR2 (V2+, V2-)** as the power pin assignments shown below.



Power1 & Power2 Contacts of the M12 Connector

Warning



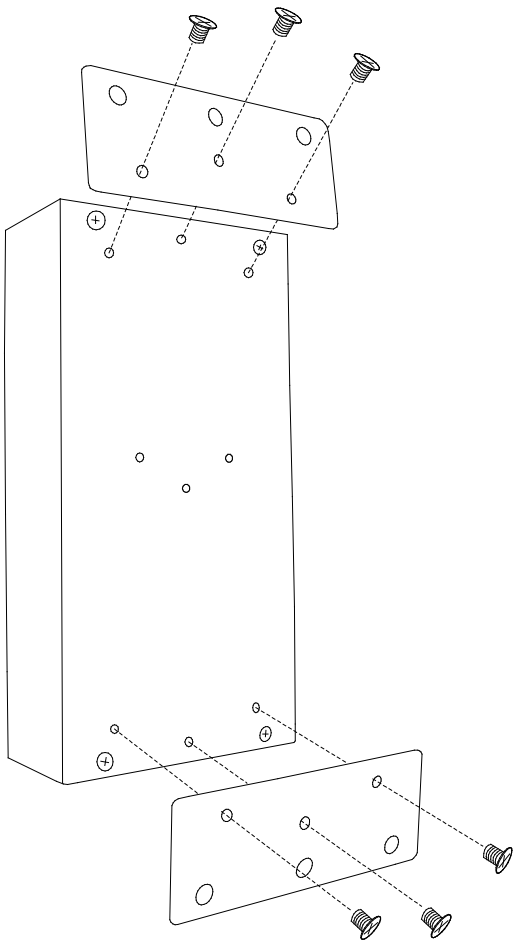
Only trained and qualified personnel should be allowed to install or replace this equipment.

Installation

Wall Mounting

To hang the Ethernet switch on the wall, please follow the steps below.

1. Prepare the two wall-mount plates and six screws included.
2. Align the screw holes between the wall-mount plates and the unit as the figure illustrated.
3. Secure the plates to the unit with the accompanying screws.

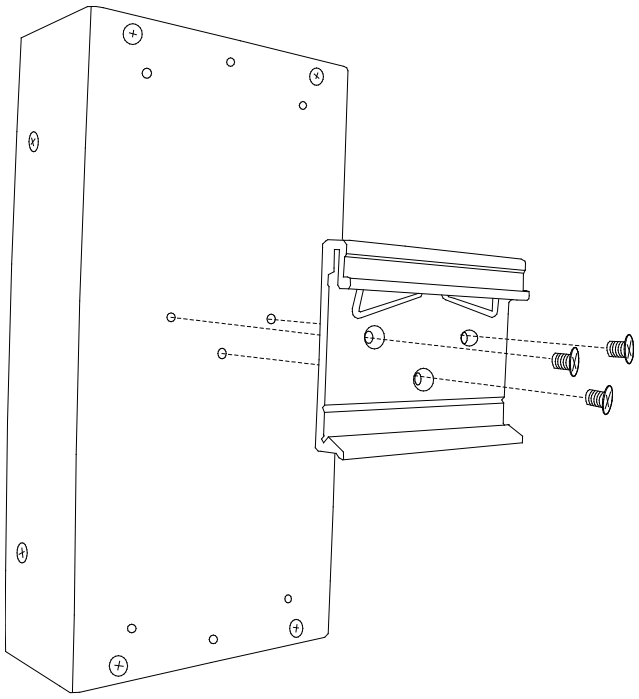


4. Having secured the plates to the unit, you can hang the Ethernet switch on something like nails sticking out from the wall.

DIN-Rail Mounting

To mount the Ethernet switch to a standard DIN rail, please follow the steps below.

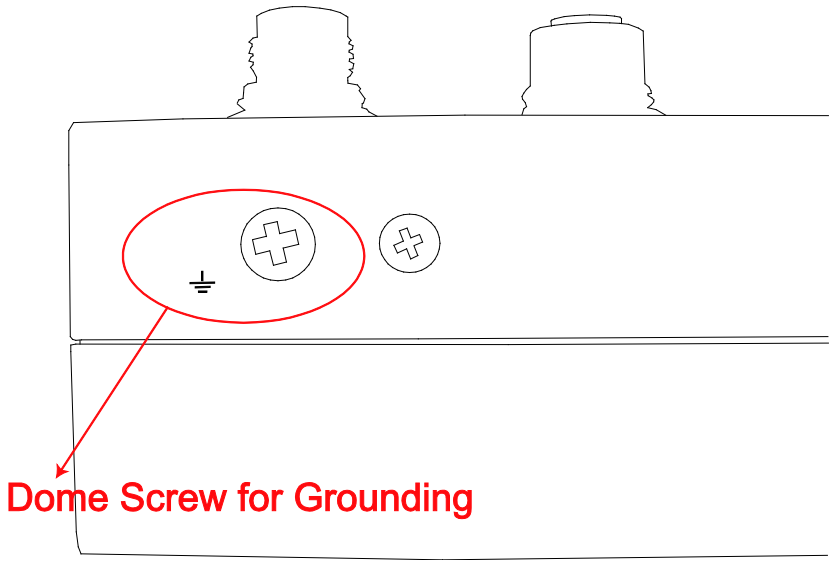
1. Prepare the DIN-rail clip and three screws included.
2. Align the screw holes between the clip and the unit as the figure illustrated.
3. Secure the DIN-rail clip to the unit with the accompanying screws.



4. After you have secured the DIN-rail clip to the unit, position the clip side of the Ethernet switch directly in front of a standard DIN rail. Make sure the top of the clip hooks over the top of the DIN rail.

Grounding the Ethernet Switch

Follow the instructions below to attach the Ethernet switch to ground.



ATTENTION

When installing the Ethernet switch, the ground connection must always be made first and disconnected last.

1. Locate and remove the dome screw which has a ground symbol beside it.
2. Attach the ground wire to the screw hole with the dome screw.

Troubleshooting

- Verify that you are using the correct power cord/adapter. Don't use the power adapter with DC output higher than the rated voltage of the equipment. Or the equipment will be damaged.
- Select proper cables to construct your network. Please check that you are using the right cables.
- **Diagnosing LED Indicators:** the equipment can be easily monitored through panel indicators, which describes common problems you may encounter and where you can find possible solutions to assist in identifying problems.
- If the power indicator does not light up when the power cord is plugged in, you may have a problem with power cord. Then check for loose power connections, power losses or surges at power outlet. If you still cannot resolve the problem, contact your local dealer for assistance.
- If the LED indicators are normal while the corresponding cables are connected correctly but the networking is still inactive, please check your system's Ethernet devices' configuration or status.