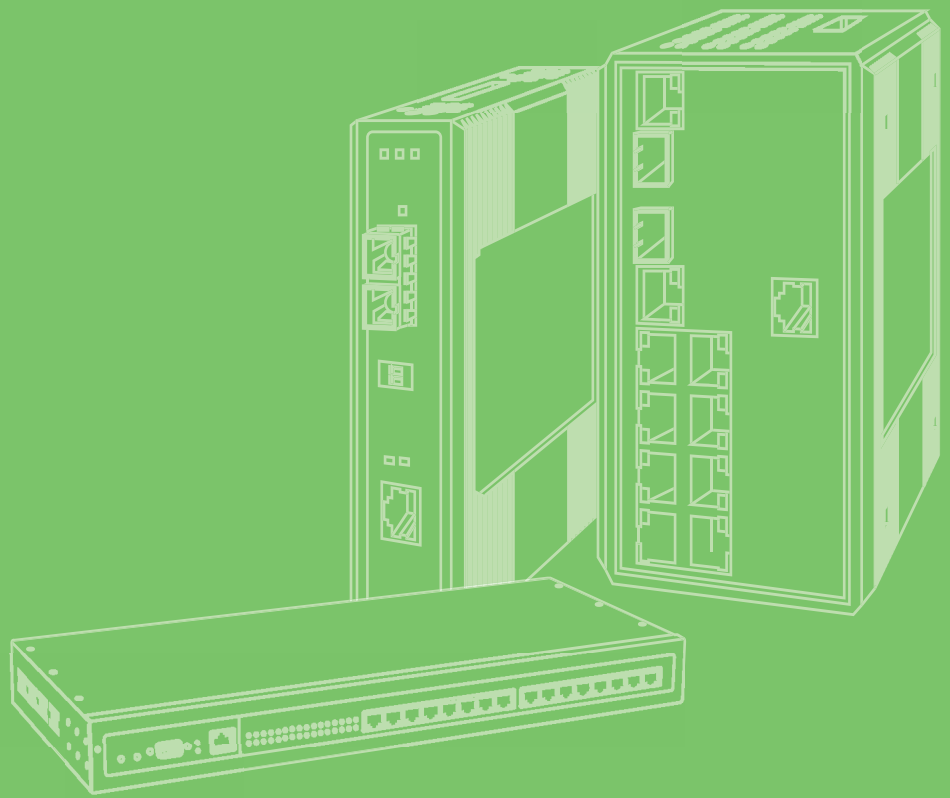


User Manual



EKI-6528TI/ 6528TPI

**EN50155 8-port M12
Unmanaged/ PoE Switch with
Wide Temperature**

ADVANTECH

eAutomation

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Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

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January 2011

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Technical Support and Assistance

1. Visit the Advantech web site at www.advantech.com/support where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wording of any error messages

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.

6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated into the equipment.
 - The equipment has been exposed to moisture.
 - The equipment does not work well, or you cannot get it to work according to the user's manual.
 - The equipment has been dropped and damaged.
 - The equipment has obvious signs of breakage.
15. **DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.**
16. **CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.**
17. The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
- Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

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Chapter 1

Overview

1.1 Introduction

EKI-6528TI and EKI-6528TPI are EN50155 compliant industrial switches with IP40 protection and wide temperature support designed for railway applications. EKI-6528TPI provides 4 x PoE ports that support IEEE 802.3af and can provide up to 15.4 watts of power per port. M12 connectors ensure highly reliable connectivity for industrial communication applications. With IP40 compact metal housings, these switches are protected against dusty environments and are a good fit for many industrial applications. Under no-power condition, 'Auto Bypass' function ensures the Ethernet signal connection through internal circuitry. This feature provides non-stop communication to rolling stocks even no power exists in some of the carriages.

1.2 Features

- Back-plane (switching fabric): 1.6Gbps
- M12 connectors and IP40 metal housing
- Four IEEE 802.3af compliant PoE ports (EKI-6528TPI)
- Each PoE port provides up to 15.4 watts at 24~48 VDC
- Wide range redundant power design
- Wide operating temperature (-40~75°C)
- EN50155/50121-3-2/50121-4

1.3 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 (EKI-6528TPI)
- LAN
 - 10/100Base-TX
- Transmission Speed
 - Up to 100 Mbps
- Switch Architecture
 - Back-plane: 1.6Gbps

Interface

- Connectors:
 - 8 x M12, 4-pole D-coded, female (10/100TX)
 - 1 x M12, 5-pole A-coded, male (Power)
- LED Indicators:
 - System: PWR1, PWR2
 - 10/100Base-TX port: LNK/ACT
 - PoE (EKI-6528TPI)

Power

- 3.36W max. @ 48VDC (EKI-6528TI)
- 72 W max. @ 24 VDC (EKI-6528TPI)

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
- Operating Humidity: 5~95% (non-condensing)
- Storage Temperature: -40 ~ 85° C
- MTBF
 - EKI-6528TI: 391,306 hours
 - EKI-6528TPI: 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 EN50155, EN50121-3-2, EN50121-4
- Free Fall IEC60068-2-32
- Shock IEC61373
- Vibration IEC61373

Packing List

Before installation, please make sure that you have received the following:

- 1 x EKI-6528TI/ 6528TPI Industrial Unmanaged Ethernet Switch
- 2 x Wall-mount plates with screws
- 1 x DIN-rail clip with screws
- 1 x EKI-6528TI/ 6528TPI startup manual
- 1 x User Manual (CD-ROM)

If anything is missing or damaged, contact your distributor or sales representative immediately.

Safety Precaution

ATTENTION

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

Chapter 2

Installation

2.1 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.

Table 2.1: EKI-6528TI LED Definitions

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) (EKI-6528TPI)	Green	On A powered device is connected utilizing PoE on the port
		Off No device is connected or power forwarding fails

2.2 Dimensions (units: mm)

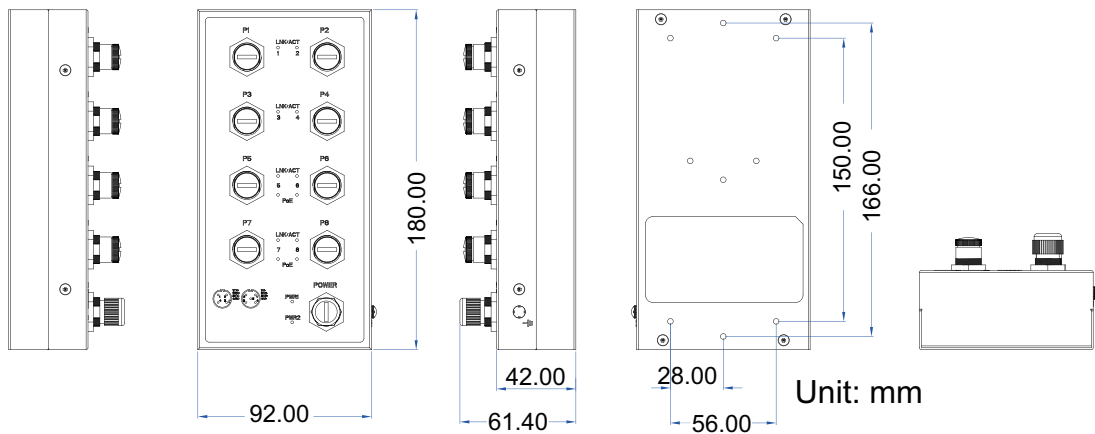


Figure 2.1 EKI-6528TI/6528TPI Dimensions

2.3 Mounting

The EKI-6528T/TPI supports two mounting methods: DIN-rail & Wall.

2.3.1 Wall mounting

1. Attach the brackets included to the switch with screws.
2. With the brackets attached, hang the switch to nails on the wall.

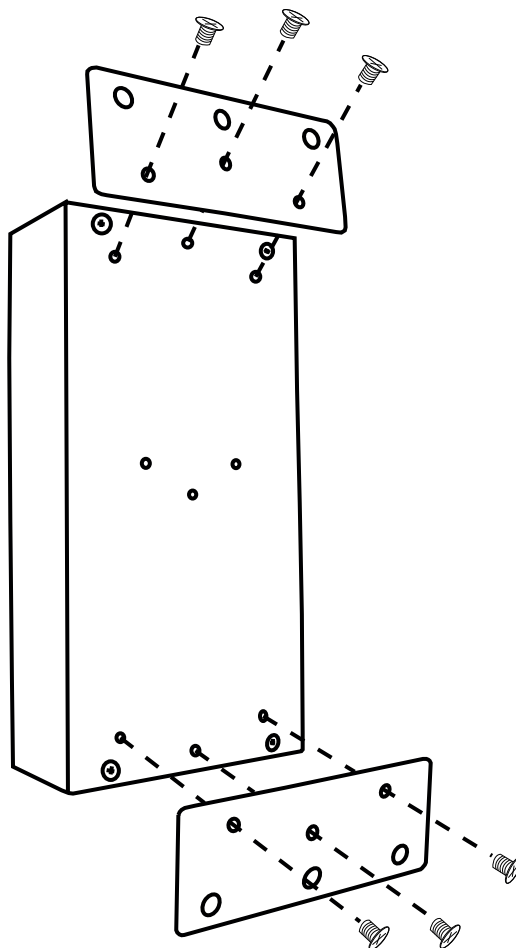


Figure 2.2 Attaching the Metal Mounting Kit

2.3.2 DIN-rail Mounting

1. Align the screw holes between the DIN-rail clip and the unit.
2. Hang the device to the DIN-rail.
3. Hook the device over the DIN rail and let it drop down straight to slide over the rail smoothly.

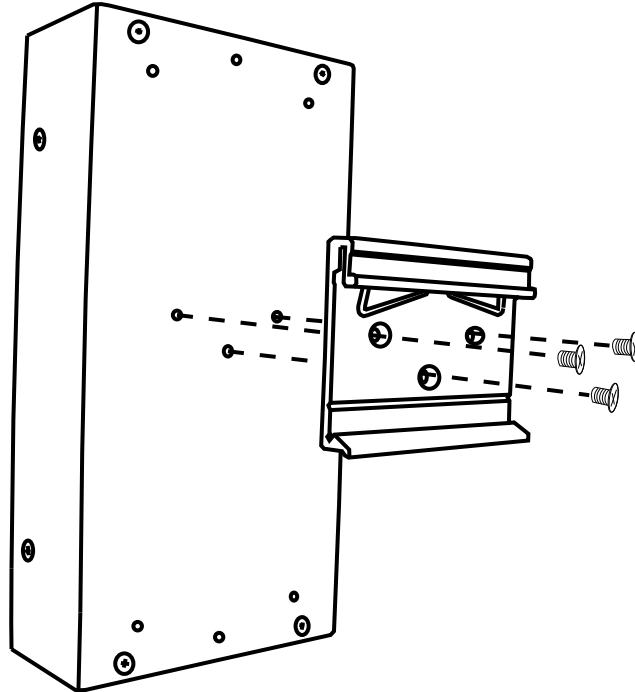


Figure 2.3 DIN-rail Installation

2.4 Network Connection

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.

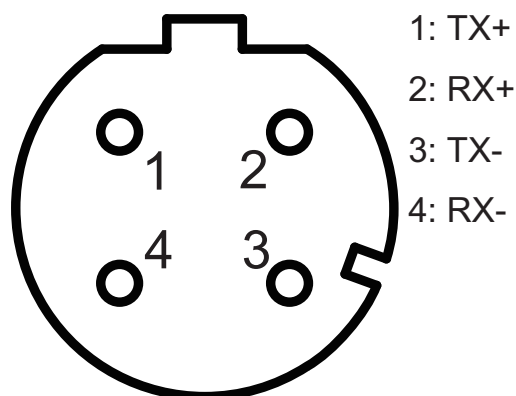


Figure 2.4 Network Connector

2.5 Power Connection

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.

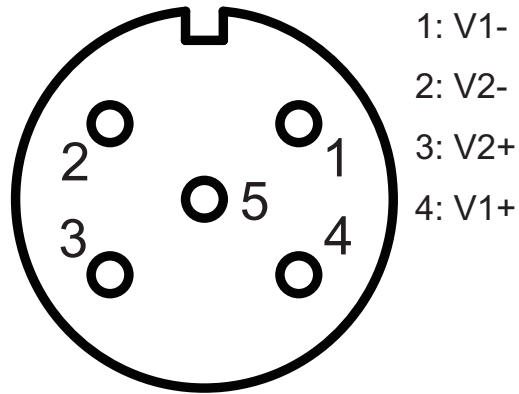


Figure 2.5 Power Connector

2.6 Grounding the Ethernet Switch

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

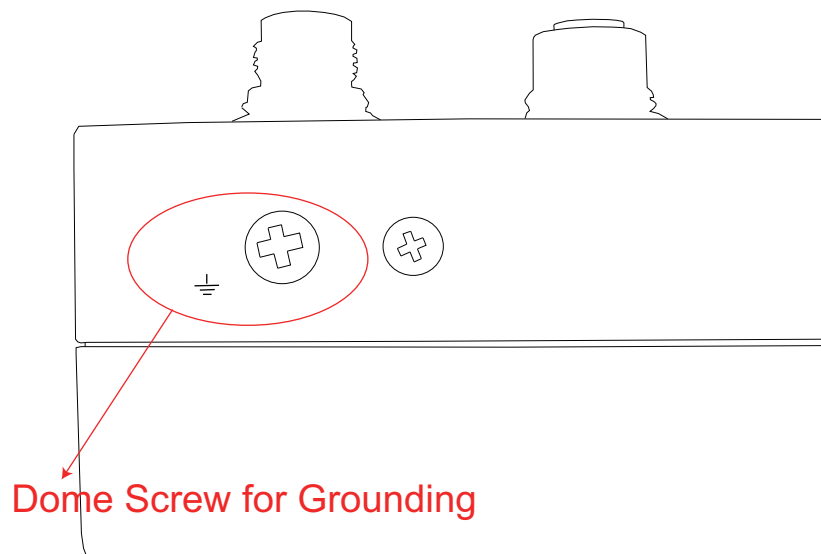


Figure 2.6 Grounding Screws

Chapter 3

Troubleshooting

3.1 Troubleshooting

3.1.1 Power Input

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.

3.1.2 Cable

Select proper cables to construct your network. Please check that you are using the correct cables.

3.1.3 Diagnosing LED Indicators

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.

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