EKI-2701PSI

Industrial PoE Splitter, Wide Temperature

User Manual

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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 merchandize 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.

Declaration of Conformity

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

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

Step 1.   Visit the Advantech web site at **www.advantech.com/support** where you can find the latest information about the product.

Step 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's 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:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well, or you cannot get it to work according to the user's manual.
    e. The equipment has been dropped and damaged.
    f. The equipment has obvious signs of breakage.

15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -40   (-40) OR ABOVE 85   (185). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.

Safety Precaution - Static Electricity

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

1. 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.
2. 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.

Contents

Overview

Sections include:

- Introduction
- Features
- Specifications
- Packing List
- Safety Precaution

Chapter 1 Overview

1.1 Introduction

With the technology of PoE (Power over Ethernet), we can transfer both data and electrical power to Ethernet-enabled devices using a standard Ethernet CAT5 cable, EKI-2701PSI plays the role of powered device (PD) and splits power from PoE to Ethernet devices. In this case, both power and data can be transmitted up to 328 feet (100m) from power source equipment (PSE).

This product can operate in a wide range of temperature between -40 and 75°C, and the rugged hardware design makes EKI-2701PSI perfect to ensure your PoE Ethernet equipment can meet industrial applications demanding.

1.1.1 Flexible Mounting

EKI-2701PSI is compact and can be mounted on a DIN-rail or a panel, so it is suitable for any space-constrained environment.

1.1.2 Advanced Protection

The power line of EKI-2701PSI supports up to 3,000 V_{DC} EFT protection, which secure equipment against unregulated voltage and make systems safer and more reliable. Meanwhile, 6,000 V_{DC} ESD protections for Ethernet ports make EKI-2701PSI more suitable for harsh environments.

1.1.3 Wide Operating Temperature

The operating temperature of the EKI-2701PSI is between -40 ~ 75°C. With such a wide range, you can use the EKI-2701PSI in some of the harshest industrial environments that exist.

1.2 Features

- Supports 10/100/1000T for PoE in and Data out
- Power Isolation and Short circuit protection for power output
- Auto disconnection for over power voltage input
- Supports output power up to 12.95W at $24V_{DC}$
- Wide-range Power Design
- Supports surge (EFT) protection 3,000 V_{DC} for power line
- Supports 4,000 V_{DC} Ethernet ESD protection
- Provides flexible mounting: DIN-rail, Wall Mounting
- IP-30 Protection
- Supports operating temperatures from -40 ~ 75

1.3 Specification

Communications

Standard	IEEE 802.3, 802.3u, 802.3ab, 802.3af
LAN	10/100Base-TX, 1000Base-T
Transmission Distance	Up to 100 meters (UTP)
Transmission Speed	Up to 1000 Mbps
Switch Architecture	Store and Forward

Interface

Connectors	2 x 10/100/1000Base-T RJ-45 ports
	6-pin removable screw terminal (power output)
LED Indicators	TX port: 10/100/1000M, Link/Active
	Fiber port: LNK/ACT
	Port Alarm, LFP

Power

Power Input	44 ~ 57V_{DC}
Power Consumption	17.76W at 48V_{DC}
Power Output	12.95W Max. (0.539A @ 24V_{DC})

Mechanism

Dimensions (W x D x H)	37 x 95 x 140 mm
Enclosure	IP30, Metal shell with solid mounting kits
Mounting	DIN-rail, wall

Protection

ESD (Ethernet)	4,000 V_{DC}
Surge (EFT for power)	3,000 V_{DC}
Overload current protection	0.539A@24V_{DC}

Environment

Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)
Operating Humidity	5 ~ 95% (non-condensing)
Storage Humidity	0 ~ 95% (non-condensing)

Certifications

Safety	UL, 60950-1, CAN/CSA-C22.2 No.60950
EMC	U.S.A.: FCC Part 15 CISPR 22
	EU: EN55011, EN61000-6-4
	EN55022, Class A,
	EN61000-3-2/3
	EN55024
	IEC61000-4-2/3/4/6/8
	EN61000-6-2/4
Free Fall	IEC60068-2-32
Shock	IEC60068-2-27
Vibration	IEC60068-2-6

1.4 Packing List

- 1 x EKI-2701PS Series Industrial PoE Splitter
- 1 x eAutomation Industrial Communication CD-ROM with software, and User manual
- 2 x Panel Mounting Bracket and Screws
- 1 x DIN-rail Mounting Bracket and Screws
- 1 x EKI-2701PSI Startup Manual

1.5 Safety Precaution

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

Installation

Sections include:

- LED Indicators
- Dimensions
- Mounting
- Network Connection
- Power Connection

Chapter 2   Installation

In this chapter, you will be given an overview of the EKI-2701PSI hardware installation procedures.

2.1   LED Indicators

There is an LED displaying the power status located on the front panel of EKI-2701PSI.

Table 2.1: EKI-2701PSI LED Definition			
LED	**Color**	**Description**	
Power	Green	On	Power input is active
		Off	Power input is inactive

2.2 Dimensions (units: mm)

Figure 2.1: Front View of EKI-2701PSI series
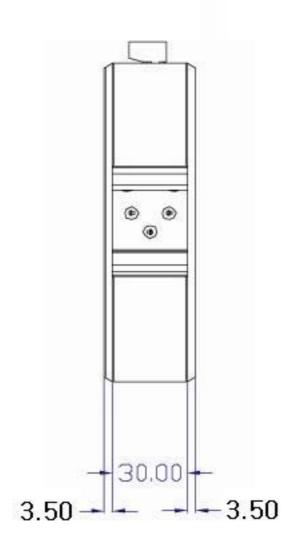
Figure 2.2: Side View of EKI-2701PSI series

Figure 2.3: Rear View of EKI-2701PSI series

Chapter2

The terminal block for power output is located on the top side. Please refer to page 16 for pin assignment.
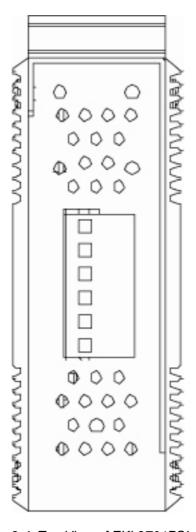

Figure 2.4: Top View of EKI-2701PSI series

2.3 Mounting

The EKI-2701PSI support two mounting methods: DIN-rail & Wall.

2.3.1   Wall mounting

EKI-2701PSI can be wall-mounted by using the included mounting kit. Then, hang on the EKI-2701PSI to the nails on the wall.

First, use the screws included in the package to combine the EKI-2701PSI and metal mounting kit. And then you can install the device firmly via the components, please see Figure 2.5 as below.

Figure 2.5: Combine the Metal Mounting Kit (units: mm)

2.3.2 DIN-rail Mounting

You can also mount EKI-2701PSI on a standard DIN-rail by following the steps below.

The DIN-rail kit is screwed on the industrial switch when out of factory. If the DIN-rail kit is not screwed on the industrial switch, please screw the DIN-rail kit on the switch first.

First, hang the EKI-2701PSI to the DIN-rail with angle of inclination. See figure 2.6.
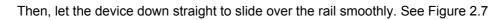

Figure 2.6: Installation to DIN-rail Step 1

Then, let the device down straight to slide over the rail smoothly. See Figure 2.7

Figure 2.7: Installation to DIN-rail Step 2

2.4 Network Connection

Use the four twisted-pair, Category 5e cabling for RJ-45 port connection. The cable between the splitter and the non-PoE device must be less than 100 meters (328 ft.).

2.5 Power Connection

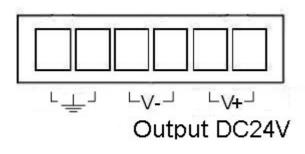The EKI-2701PSI supports dual +24V_{DC} power outputs.

Figure 2.13: Pin Assignment of the Power Connector

Insert the positive and negative wires into the V+ and V- contacts on the terminal block connector. Users can wire the ground contact to the ground of the device whose power input connects to this splitter.

Troubleshooting

Chapter 3   Troubleshooting

1.   Power Input

Verify that the splitter is using the right power source (+44 ~ 57V$_{DC}$).

2.   Cable

Select the proper UTP cable to construct your network. Please check that you are using the right cable.

3.   Diagnosing LED Indicator

If the power indicator does not light up when the PoE In port is connected to a power source equipment (PSE) via the UTP cable, check for loose cable connections, power losses or surges at power outlet. If you still cannot resolve the problem, contact the local dealer for assistance.

APPENDIX

A

Pin Assignment & Wiring

A

Appendix A   Pin Assignment & Wiring

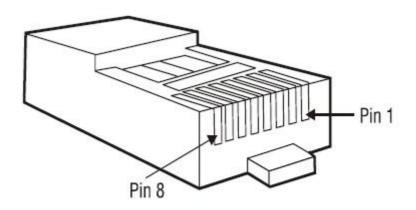It is suggested to adopt ELA/TIA as the wiring of the RJ-45.

Figure A.1: RJ-45 Pin Assignment

RJ-45 ports: 10/100/1000Mbps ports are auto-sensing for 10Base-T, 100Base-TX, or 1000Base-T connections.

Data pins for PoE IN port: 1, 2, 3, 6, 4, 5, 7, and 8
Power pins for PoE IN port: 4, 5 (V+); 7, 8 (V-)
                                              or 1, 2 (V+); 3, 6 (V-)

Data pins for DATA OUT port: 1, 2, 3, 6, 4, 5, 7, and 8
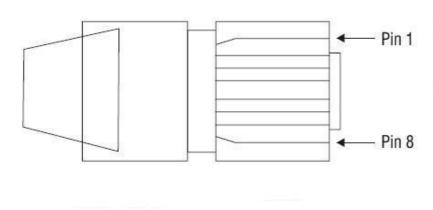Power output (located on the top side): 1 x 6 pin terminal block

1. White, Orange
2. Orange
3. White, Green
4. Blue
5. White, Blue
6. Green
7. White, Brown
8. Brown

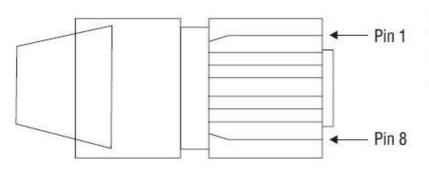*Figure A.2: EIA/TIA-568B*

1. White, Green
2. Green
3. White, Orange
4. Blue
5. White, Blue
6. Orange
7. White, Brown
8. Brown

Figure A.2: EIA/TIA-568A