KIEN1005S
Industrial Ethernet Switch
Hardware Installation Manual

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Disclaimer: Kyland Technology Co., Ltd. tries to keep the content in this manual as accurate and as up-to-date as possible. This document is not guaranteed to be error-free, and we reserve the right to amend it without notice.

Notice for Safety Operation

This product performs reliably as long as it is used according to the guidance. Artificial damage or destruction of the equipment should be avoided.

- Read this manual carefully and keep it for future reference;
- Do not place the equipment near water sources or damp areas;
- Do not place anything on power cable and put the cable in unreachable places;
- Do not tie or wrap the cable to prevent fire.
- Power connectors and other equipment connectors should be firmly interconnected and checked frequently.
- Do not repair the equipment by yourself, unless it is clearly specified in the manual.
- Please keep the equipment clean; if necessary, wipe the equipment with soft cotton cloth.

In the following cases, please immediately cut off the power supply and contact our company:

- Water gets into the equipment;
- Equipment damage or shell breakage;
- Abnormal operation of equipment or its performances have completely changed;
- The equipment emits odor, smoke or abnormal noise.

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1. Packing List

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Certificate of Quality (including Warranty Card)	1

Note: After unpacking, please check the accessories and the appearance of the equipment. If anything is missing or damaged, please contact us.

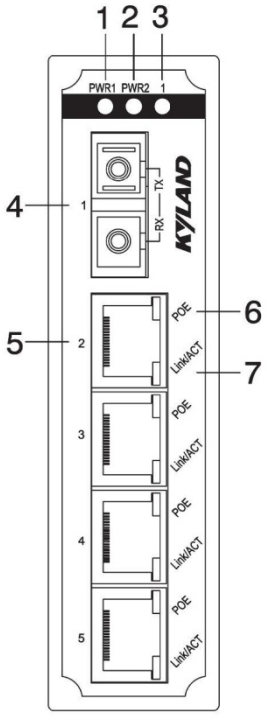
2. Product Overview

The Kyland KIEN1005S is a series of the green, low power consumption, DIN-Rail, POE industrial Ethernet switches that can be applied extensively in security, highway monitoring, rail transit, railway disaster prevention, coal mining, industrial production and control and many other industrial systems.

The KIEN1005S industrial Ethernet switch supports DIN-Rail and wall mounting. It provides one 100M fiber/copper optional port and four 10/100Base-TX 802.3af compliant POE ports. The output power per POE is 15.4W at 24VDC or 48VDC

3. Structure and Interface

◆ **Front Panel**



1: PWR1--- Power 1 LED

2: PWR2 --- Power 2 LED

3: 1--- 100Base-FX port LED

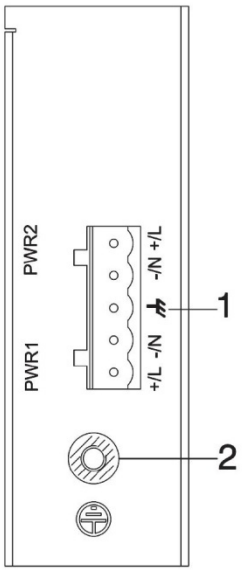
4: 1--- 100Base-FX port

5: 2-5 --- 10/100Base-TX ports

6: POE --- POE LED

7: Link/ACT --- Port Link LED

◆ **Top Panel**

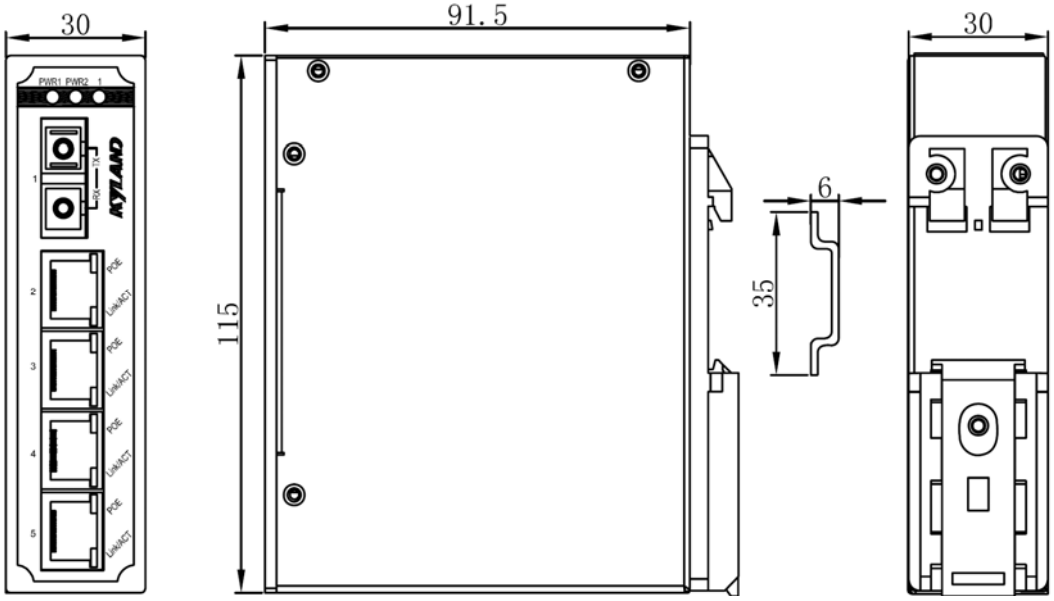


1: Terminal block for power input

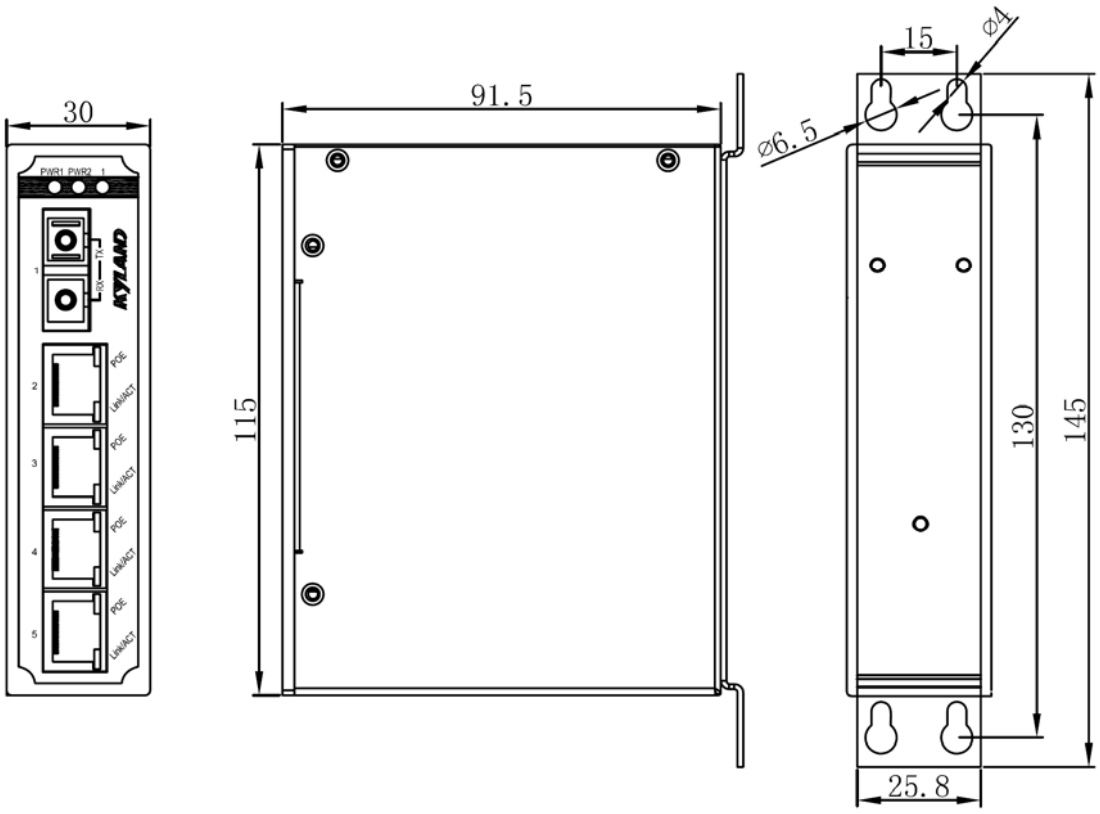
2: Screw hole for grounding

4. Mounting

◆ **Dimension Drawing for DIN-Rail Mounting (Unit: mm)**



◆ **Dimension Drawing for Wall Mounting (Unit: mm)**



Note: The switch housing is a part of the heat dissipation system, which becomes hot during operation. Please be careful when handling the device during operation.

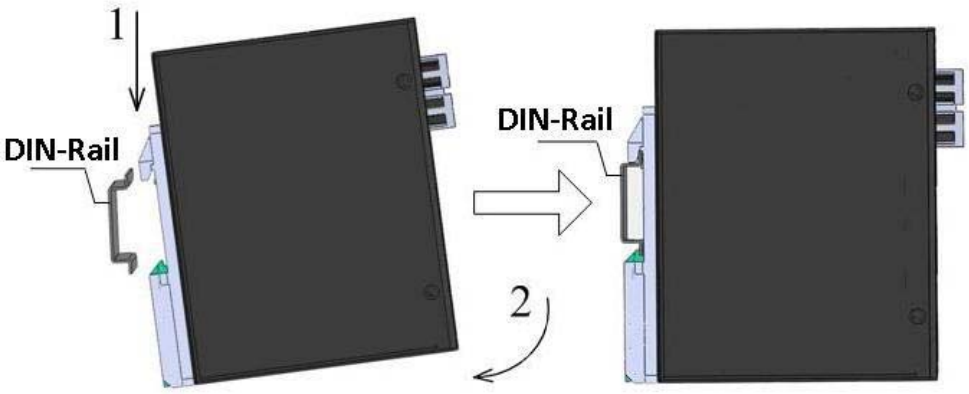
◆ **Mounting Steps**

- **KIEN1005S DIN-Rail Mounting**

The specific steps are as follows:

Step 1: Select the mounting position for KIEN1005S and ensure that there is enough space.

Step 2: Insert the top of the DIN-Rail into the spring-supported slot of the DIN-Rail connecting seat in the rear panel of KIEN1005S as seen below; move the device in the direction of arrow 2 to put the whole Din-Rail into the seat; check whether KIEN1005S is firmly mounted on the DIN-Rail, as shown below.

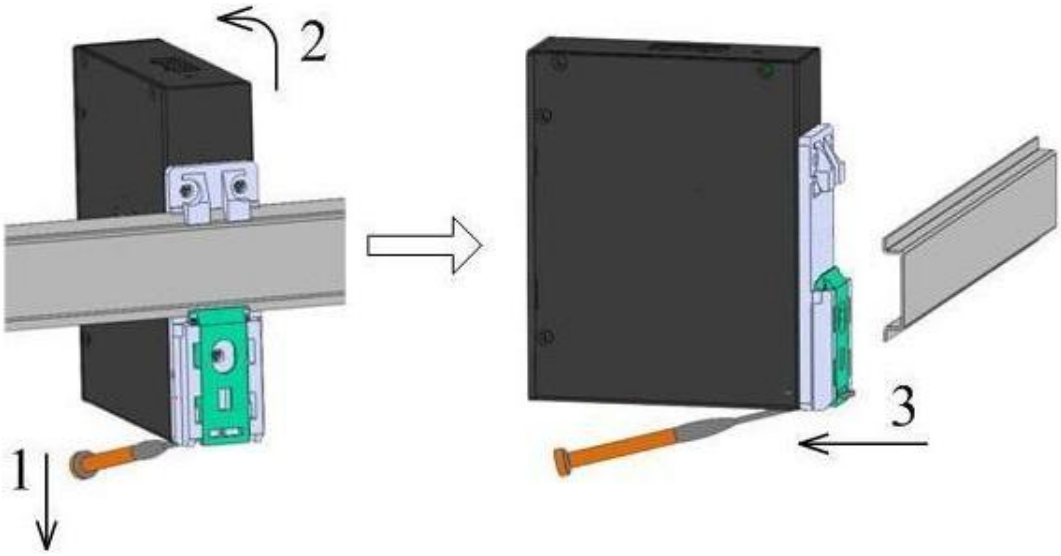


- **Remove KIEN1005S from DIN-Rail**

  The specific steps are as follows:

  Step 1: Plug the screwdriver into the hole at the bottom of spring locking plate; press the plate down to loosen the connection of DIN-Rail and switch, as shown in arrow 1

  Step 2: Take up KIEN1005S in the direction of arrow 2; meanwhile remove the device from the DIN-Rail along the direction of arrow 3.



- **KIEN1005S Wall Mounting**

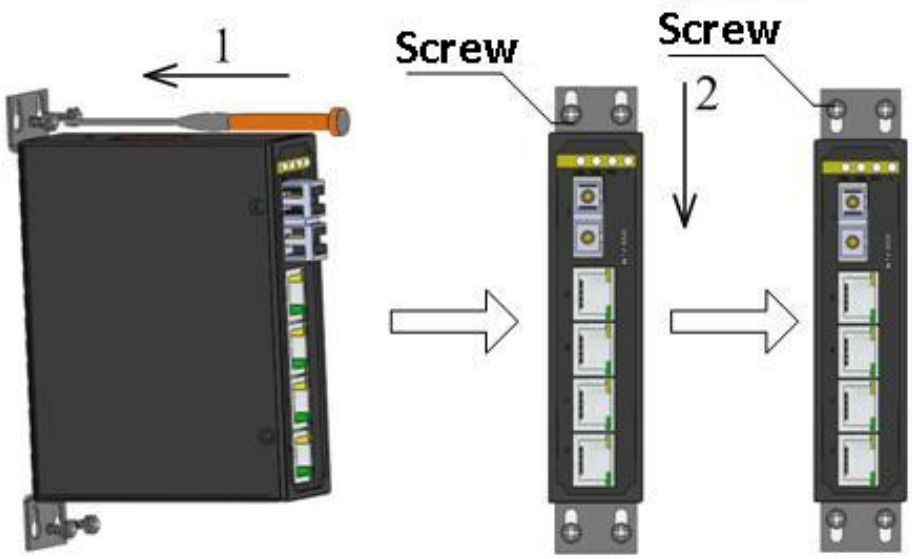
  The specific steps are as follows:

  Step 1: Select the mounting position for KIEN1005S on the wall or in cabinet; ensure that there is enough space for the switch.

  Step 2: Drill 4 holes on the selected position according to the wall mounting dimension drawings; use a cross-screwdriver to screw 4 cross-slot screws (M3×10) into holes.

Don't tighten up the screws completely; leave about 5mm of space between.

Step 3: Aim 4 mounting holes on KIEN1005S mounting plate at 4 fixed screws; pass the screws through 4 holes with the diameter of 6.5mm (Φ6.5); then slide down KIEN1005 as seen below; finally screw 4 screws tightly. Now the KIEN1005 should be firmly fixed to the wall or cabinet.

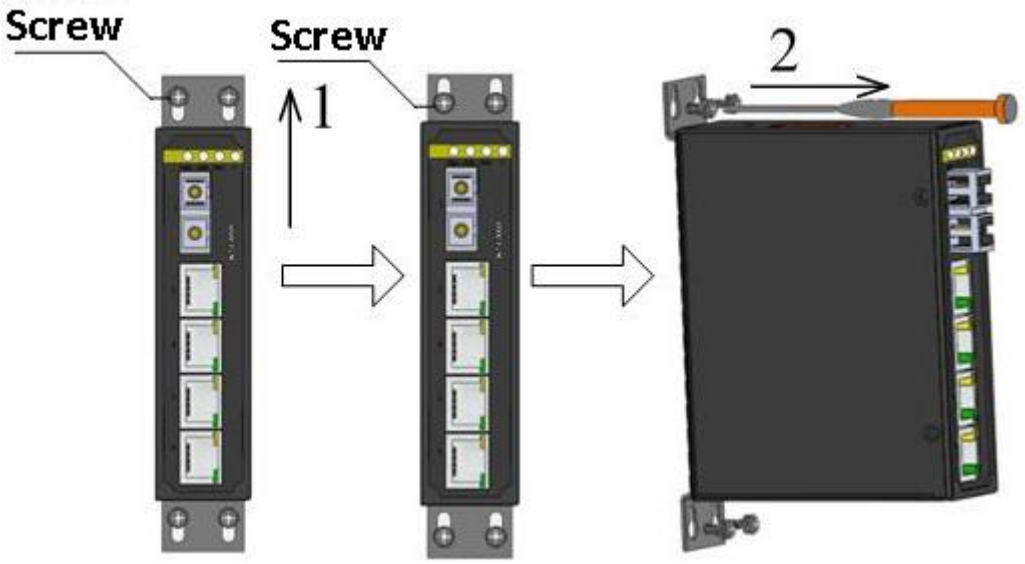


- **Remove KIEN1005S from wall or cabinet**

The specific steps are as follows:

Step 1: Use a screwdriver to loosen 4 screws; move the device up to let screws into 4 holes with the diameter of 6.5mm (Φ6.5).

Step 2: Unscrew the screws from wall or cabinet; remove the device from wall or cabinet



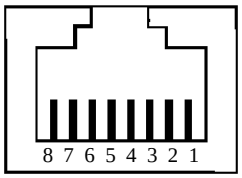
5. Cable Connection

◆ **10/100Base-TX Port (RJ45 Port)**

- **RJ45 port cable types and requirements**

  10/100Base-TX Ethernet RJ45 port can be connected to terminal equipment with a straight-through cable, and connected to network devices with a cross-over cable.

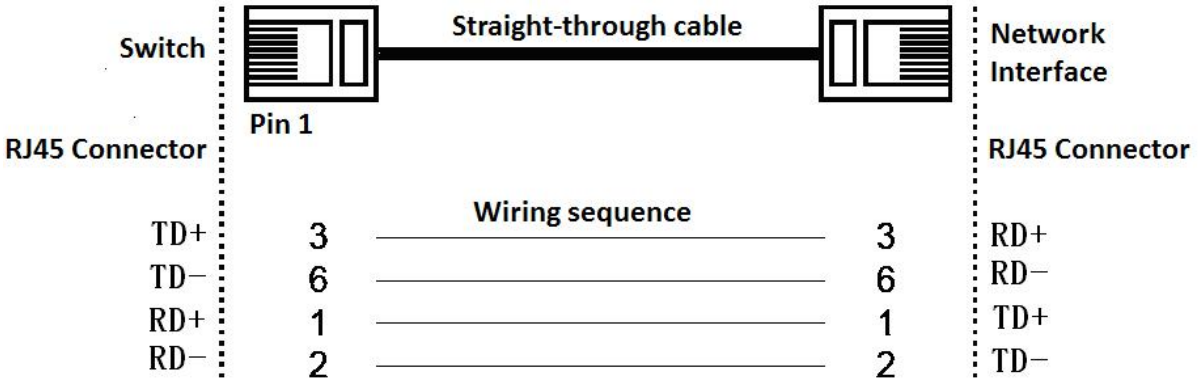
- **RJ45 connector and pin number:**



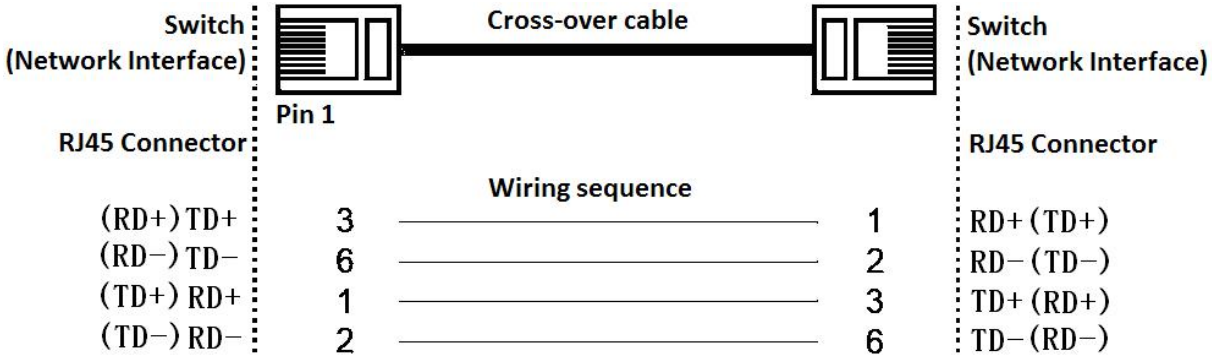
- **Pin distribution of 10/100Base-TX**

Pin	MDI-X signal name	MDI signal name
1	Receiving data+（RD+）	Output data+（TD+）
2	Receiving data-（RD-）	Output data-（TD-）
3	Output data+（TD+）	Receiving data+（RD+）
6	Output data-（TD-）	Receiving data-（RD-）
4, 5, 7, 8	Unused	Unused
Note: "+""-"means cable polarity.		

- **100M straight-through cable wiring**



- **100M cross-over cable wiring**



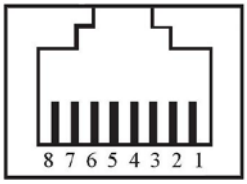
◆ **POE Port (RJ45 port)**

- **POE power supply mode**

  POE power supply can be achieved in two ways: one is power is supplied to PD (Powered Device) over data wires and secondly the power is supplied to PD over unused wires.

  The specific power supply mode of PSE (Power sourcing equipment) is automatically matched according to the power-receiving mode of PD.

- **RJ45 connector of POE port and pin number:**



- **Pin distribution of 10/100Base-TX**

Pin	MDI-X signal name	MDI signal name	POE power supply
1	Receiving data+（RD+）	Output data+（TD+）	V+
2	Receiving data-（RD-）	Output data-（TD-）	V+
3	Output data+（TD+）	Receiving data+（RD+）	V-

6	Output data-（TD-）	Receiving data-（RD-）	V-
4, 5, 7, 8	Unused	Unused	Unused
Note: "+""-"means cable polarity.			

- **Pin distribution of POE power supply over unused wires**

Pin	MDI-X signal name	MDI signal name	POE power supply
1	Receiving data+（RD+）	Output data+（TD+）	Unused
2	Receiving data-（RD-）	Output data-（TD-）	Unused
3	Output data+（TD+）	Receiving data+（RD+）	Unused
6	Output data-（TD-）	Receiving data-（RD-）	Unused
4	Unused	Unused	V+
5	Unused	Unused	V+
7	Unused	Unused	V-
8	Unused	Unused	V-
Note: "+""-"means cable polarity.			

◆ **100Base-FX Fiber Ports**

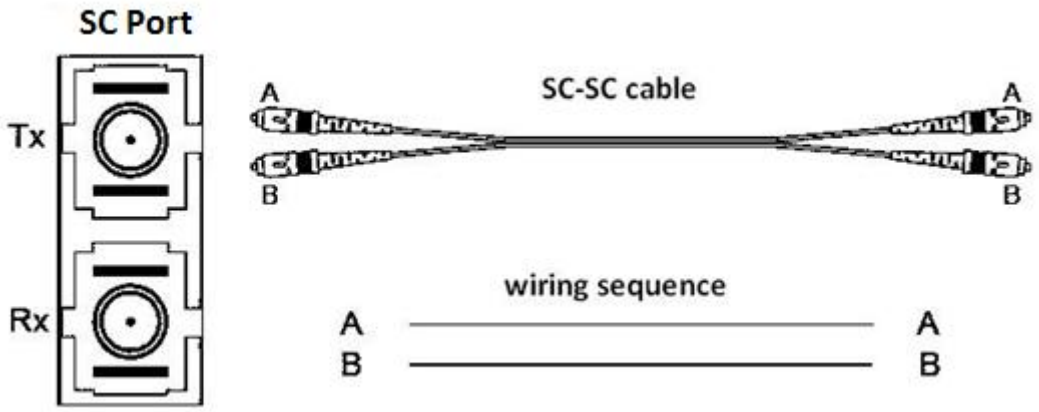
- **Fiber port parameters**

100M FX Parameter Table

Property		FX (FC/SC/ST)					
Type		Multimode (M)		Single mode (S)	Single mode (S)	Single mode (S)	Single mode (S)
Center wavelength (nm)		1310		1310	1310	1550	1550
Transmission distance (Km)		2	5	40	60	60	80
Application range (Km)		0-2	0-5	0-40	6-60	4-60	10-80
Transmitting optical	Minimum (dBm)	-19		-12	-8	-8	-8

power	Max (dBm)	-11	-4	0	-2	0
Receiving sensitivity (dBm)		-31	-34	-34	-34	-34
Overload optical power (dBm)		-3	-3	-3	-3	-3

- **100M fiber port wiring (Take SC port as example; ST/FC wiring method is the same with SC)**



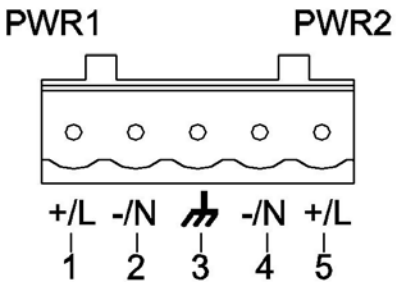
Note: A laser is used to transmit signals in fiber cables. The laser meets the requirements of level 1 laser products. Routine operation is not harmful to your eyes, but do not look directly at the fiber port and fiber connector when the switch is powered on.

◆ **Power**

According to the power input requirements, use a 5.08mm-spacing terminal block to connect power cable.

Note: The cross section area of power cable is required to be greater than 0.75mm^2 and less than 2.5mm^2. The grounding resistance requirement: <5Ω.

- **5 pin 5.08mm power terminal block:**

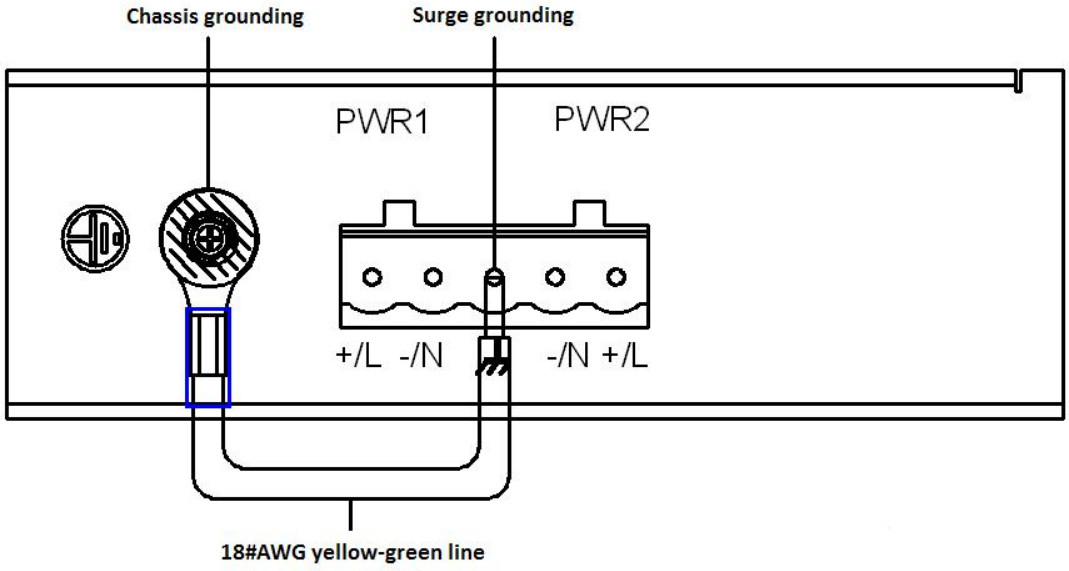


Contact definition

Contact number	DC wiring definition	AC wiring definition
1	PWR1: +	PWR1: L
2	PWR1: -	PWR1: N
3	Protection Ground	Protection Ground
4	PWR2: -	PWR2: N
5	PWR2: +	PWR2: L

◆ **Grounding**

- **Chassis grounding and power terminal grounding**



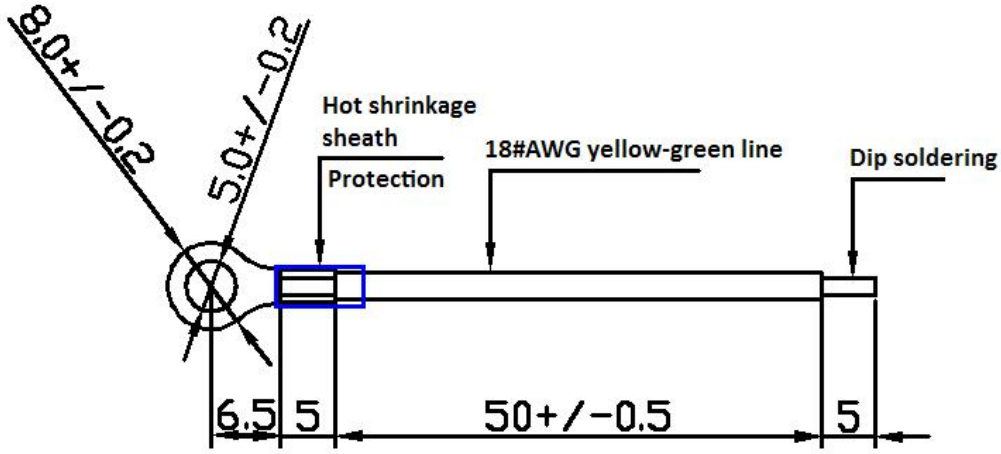
There is a grounding screw on the top panel of the KIEN1005S, which is for chassis

grounding. One end of the chassis grounding cable is connected with the grounding screw and the other end of the cable is reliably earthed. (The cross section area of chassis grounding cable should be more than 2.5mm². The grounding resistance requirement: <5Ω)

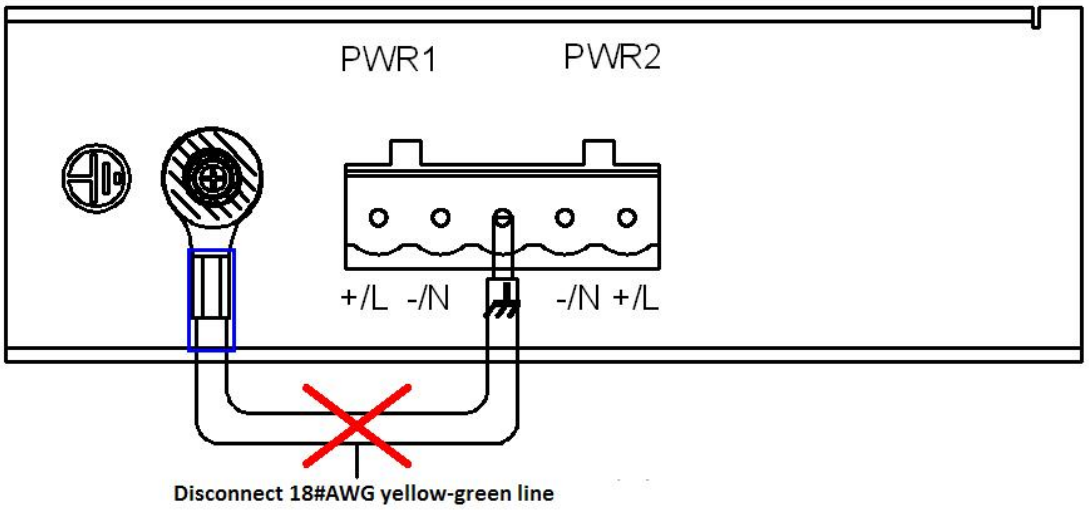
5.08mm power terminal grounding is called surge grounding.

It is required to connect the chassis grounding part with the surge grounding part with 18#AWG yellow-green line as seen below

- **18#AWG yellow-green line (Unit: mm)**



Note: If the KEIN1005S needs to do an insulated withstand voltage test, please disconnect the 18#AWG line to disable surge protection circuit, which will cause the failure of this experiment.



6. LED Indicators

KIEN1005S LED indicators

LED	State	Description
Power LEDs		
PWR1	ON	Power 1 connects and operates normally.
	OFF	Power 1 disconnects or operates abnormally.
PWR2	ON	Power 2 connects and operates normally.
	OFF	Power2 disconnects or operates abnormally.
100M fiber port LED		
LINK/ACT	ON	Effective network connection in the port
	Blinking	Network activities in the port
	OFF	No effective network connection in the port
Ethernet RJ45 port LEDs		
POE (Yellow)	ON	POE port supplies power normally
	Blinking	POE port supplies power abnormally
	OFF	POE port does not supply power
Link/Act (Green)	ON	Effective network connection in the port
	Blinking	Network activities in the port
	OFF	No effective network connection in the port

7. Product Models

The specific configuration models of KIEN1005S are shown in below table:

KIEN1005S Configuration Table

Model	Description	Power
KIEN1005S-1T-4T-4P	1 10/100Base-TX RJ45 port and 4 10/100Base-TX POE ports	24VDC/48VDC, dual redundant power inputs
KIEN1005S-1S/M-4T-4P	1 100Base-FX SM/MM port and 4 10/100Base-TX POE ports	

8. Basic Features and Specifications

- **Technology**

  IEEE 802.3i, IEEE 802.3u, IEEE 802.3af

- **EMC**

  IEC61000-4-2 (ESD): ±8kV (contact), ±15kV (air)

  IEC61000-4-3 (RS): 10V/m (80MHz-2GHz)

  IEC61000-4-4 (EFT): Power Port: ±4kV; Data Port: ±2kV

  IEC61000-4-5 (Surge): Power Port: ±2kV/DM, ±4kV/CM; Data Port: ±2kV

  IEC61000-4-6 (CS): 3V (10kHz-150kHz); 10V (150kHz-80MHz)

  IEC61000-4-16 (Common mode conduction): 30V (cont.), 300V (1s)

- **Cable**

  Twisted Pair: 100m (Standard CAT5, CAT5e network cable)

  Multi Mode Fiber: 1310nm, 5km (100M)

  Single Mode Fiber: 1310nm, 40km/60km (100M)

  1550nm, 60km/80km (100M)

- **Power Requirements**

  Power input: 24VDC/48VDC (22VDC-57VDC)

  Power terminal: 5-pin 5.08mm-spacing plug-in terminal block

  Power consumption: <3W (no PD), <70W (full load PD), 15.4W per POE port

- **Physical Characteristics**

  Installation: DIN-Rail or wall mounting

  Dimensions (W×H×D): 30mm×115mm×91.5 mm

  Weight: 0.5Kg

- **Environment Limits**

  Operating Temperature: -40℃ to 85℃ (-40 to 185℉)

  Storage Temperature: -40℃ to 85℃ (-40 to 185℉)

  Ambient Relative Humidity: 5% to 95% (non-condensing)

- **MTBF**: 353,350 hrs

- **Warranty**: 5 years

For more information about KYLAND products, please visit our website:

http://www.kyland.cn/