

KIEN1026 Industrial Ethernet Switch

Hardware Installation Manual

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KYLAND

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Notice for Safety Operation

The product performs reliably as long as it is used according to the guidance. Artificial damage or destruction of the device should be avoided. Before using the device, read this notice carefully for personal and equipment safety. Please keep the manual for further reference. Kyland is not liable to any personal or equipment damage caused by violation of this notice.

- Do not place the device near water sources or damp areas. Keep the ambient relative humidity within the range from 5% to 95% (non-condensing).
- Do not place the device in an environment with high magnetic field, strong shock, or high temperature. Keep the working and storage temperatures within the allowed range.
- Install and place the device securely and firmly.
- Please keep the device clean; if necessary, wipe it with a soft cotton cloth.
- Do not place any irrelevant materials on the device or cables. Ensure adequate heat dissipation and tidy cable layout without knots.
- Wear antistatic gloves or take other protective measures when operating the device.
- Avoid any exposed metal wires because they may be oxidized or electrified.
- Install the device in accordance with related national and local regulations.
- Before power-on, make sure the power supply is within the allowed range of the device. High voltage may damage the device.
- Power connectors and other connectors should be firmly interconnected.
- Do not plug in or out the power supply with wet hands. When the device is powered on, do not touch the device or any parts with wet hands.
- Before operating a device connected to a power cable, remove all jewelry (such as rings, bracelets, watches, and necklaces) or any other metal objects, because they may cause electric shock or burns.

- Do not operate the device or connect or disconnect cables during an electrical storm.
- Use compatible connectors and cables. If you are not sure, contact our sales or technical support personnel for confirmation.
- Do not disassemble the device by yourself. When an anomaly occurs, contact our sales or technical support personnel.
- If any part is lost, contact our sales or technical support personnel to purchase the substitute. Do not purchase parts from other channels.
- Dispose of the device in accordance with relevant national provisions, preventing environmental pollution.

In the following cases, please immediately shut down your power supply and contact your Kyland representative:

- Water gets into the equipment.
- Equipment damage or shell damage.
- Equipment operation or performance has abnormally changed.
- The equipment emits odor, smoke or abnormal noise.

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1 Product Overview

KIEN1026 includes a series of high-performance industrial Ethernet switches developed by Kyland particularly for industrial applications. KIEN1026 is applicable to harsh and hazardous industrial environments due to its high-performance switching engine, solid closed housing, fanless but heat dissipation-capable single-rib shaped chassis, overcurrent, overvoltage, and EMC protection for power input, and sound EMC protection of RJ45 ports.

KIEN1026 supports 19 inch 1U rack mounting. It provides up to twenty-four 10/100Base-T(X) Ethernet ports and two 100Base-FX Ethernet ports. For details, see the following table.

Table 1 KIEN1026 Models

Model	Port		Power Supply
	100Base-FX Ethernet port	10/100Base-T(X) Ethernet port	
KIEN1026-2S/M-24T	2	24	220AC/DCW, 24DC (single and redundant power supply)
KIEN1026-2S/M-16T	2	16	
KIEN1026-24T	--	24	
KIEN1026-16T	--	16	
 Note:	For the product information listed in this table, we reserve the right to amend it without notice. To obtain the latest information, you can contact our sales or technical support personnel.		

2 Structure and Interface


Caution:

It is recommended to purchase the port dustproof shield (optional) to keep ports clean and ensure switch performance.

2.1 Front Panel

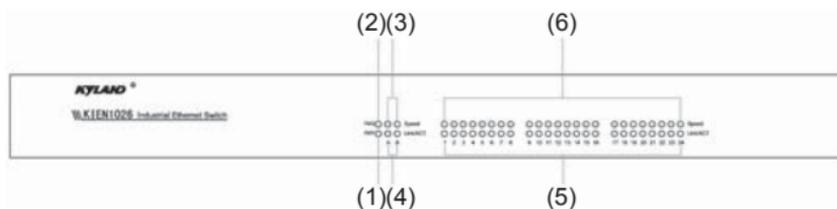


Figure 1 Front Panel

Table 2 Description of the Front Panel

No.	Identifier	Description
(1)	PWR1	Power 1 LED
(2)	PWR2	Power 2 LED
(3)	A-B: Speed	Two speed LEDs for 100Base-FX Ethernet ports
(4)	A-B: Link/ACT	Two connection status LEDs for 100Base-FX Ethernet ports
(5)	1-24: Link/ACT	Twenty-four connection status LEDs for 10/100 Base-T(X) Ethernet ports
(6)	1-24: Speed	Twenty-four speed LEDs for 10/100Base-T(X) Ethernet ports

2.2 Rear Panel

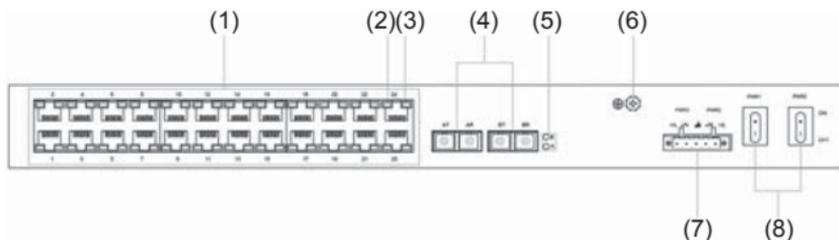


Figure 2 Rear Panel

Table 3 Description of the Rear Panel

No.	Identifier	Description
(1)	1-24	Twenty-four 10/100Base-T(X) Ethernet ports
(2)	--	10/100Base-T(X) Ethernet port speed LED (yellow)
(3)	--	10/100Base-T(X) Ethernet port connection status LED (green)
(4)	AT AR, BT BR	Two 100Base-FX Ethernet ports
(5)	A, B	100Base-FX Ethernet port connection Status LED
(6)	--	Grounding screw
(7)	PWR1 PWR2 +/L -/N  -/N +/L	Power terminal block
(8)	PWR1&PWR2:ON/OFF	Switch for power 1 and power 2

3 Mounting

3.1 Dimension Drawing

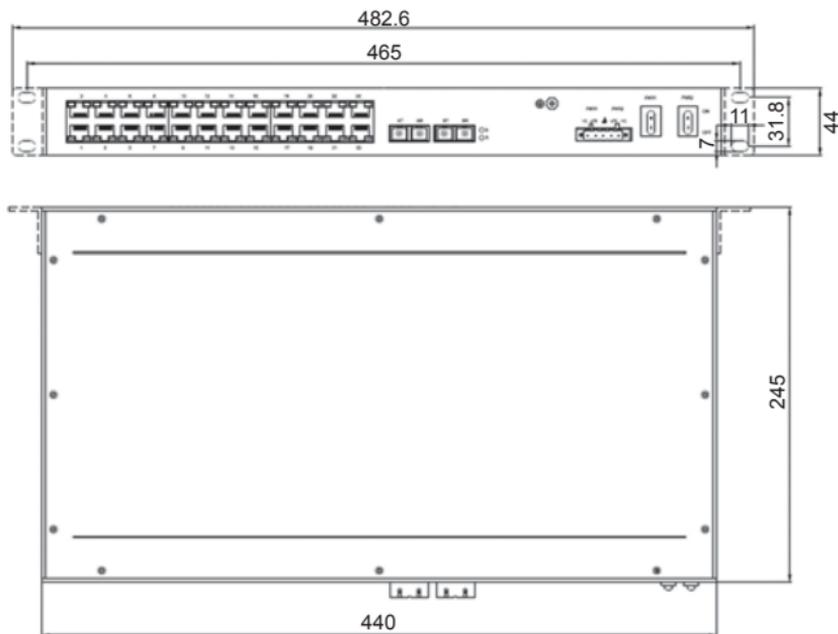


Figure 3 Dimension Drawing (unit: mm)



Caution:

- As part of the heat dissipation system, the switch housing becomes hot during operation. Please use caution when coming in contact and avoid covering the switch housing when the switch is running.
- The figures in this manual are only for reference.

3.2 Mounting Modes and Steps

The series switches support rack mounting by the front/rear panel. The following uses mounting by front panel as an example to describe mounting steps. The steps for mounting by rear panel are similar to those for mounting by front panel. Before installation, make sure that the following requirements are met.

- 1) Environment: temperature (-40°C to 85°C), ambient relative humidity (5% to 95%, non-condensing)
- 2) Power requirement: The power input is within the voltage range of the switch.
- 3) Grounding resistance: $<5\Omega$
- 4) No direct sunlight, distant from heat source and areas with strong electromagnetic interference.

● Installing Mounting Brackets

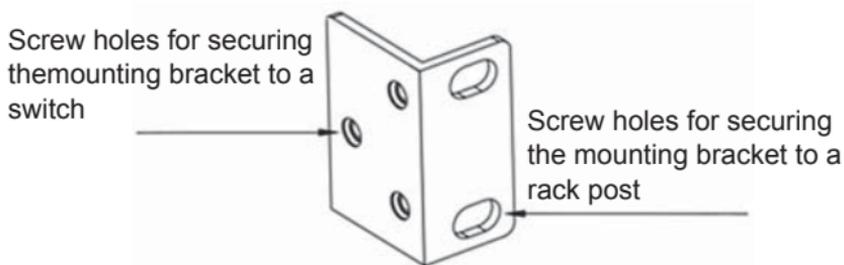


Figure 4 Mounting Bracket

You can select the screw holes for front or rear panel mounting to install the mounting brackets. If there are screws inserted in the screw holes, remove the screws and keep them for future use.

As shown in the following figure, use three screws to secure two mounting brackets to the switch respectively.

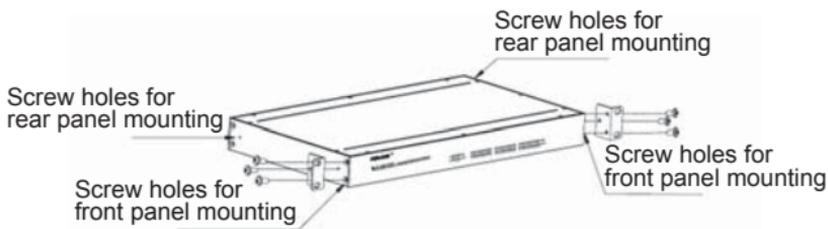


Figure 5 Installing Mounting Brackets

- Mounting

Step 1: Select the mounting position for the switch and guarantee adequate space and heat dissipation (dimensions: 440mm×44mm×245mm).

Step 2: Move the switch in direction 1 until the screw holes for securing the mounting brackets to rack posts are in alignment with the corresponding holes in the rack posts. Then use four screws and supporting captive nuts to secure the mounting brackets to the rack posts.

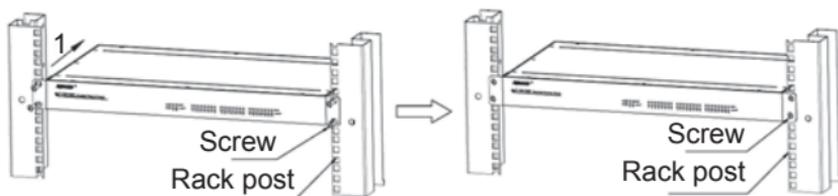


Figure 6 Mounting

- Dismounting

Step 1: Remove the four screws and supporting captive nuts securing the mounting brackets to the rack posts.

Step 2: Remove the switch from the rack posts. Then unscrew the mounting brackets to complete dismounting.

4 Connection

4.1 10/100Base-T(X) Ethernet Port

10/100Base-T(X) Ethernet port is equipped with RJ45 connector. The port is self-adaptive. It can automatically configure itself to work in 10M or 100M state, full or half duplex mode. The port can also adapt to MDI or MDI-X connection automatically. You can connect the port to a terminal or network device with a straight-through or cross-over cable.

- Pin Definition

The following figure shows the pin numbers of the RJ45 port.

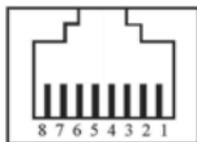


Figure 7 RJ45 Port

The following table lists the pin definitions of the 10/100Base-T(X) Ethernet port.

Table 4 Pin Definitions of 10/100Base-T(X) Ethernet Port

Pin	MDI-X Signal	MDI Signal
1	Receive Data+ (RD+)	Transmit Data+ (TD+)
2	Receive Data- (RD-)	Transmit Data- (TD-)
3	Transmit Data+ (TD+)	Receive Data+ (RD+)
6	Transmit Data- (TD-)	Receive Data- (RD-)
4, 5, 7, 8	Unused	Unused
 Note: "+" and "-" indicate level polarities.		

- Wiring Sequence

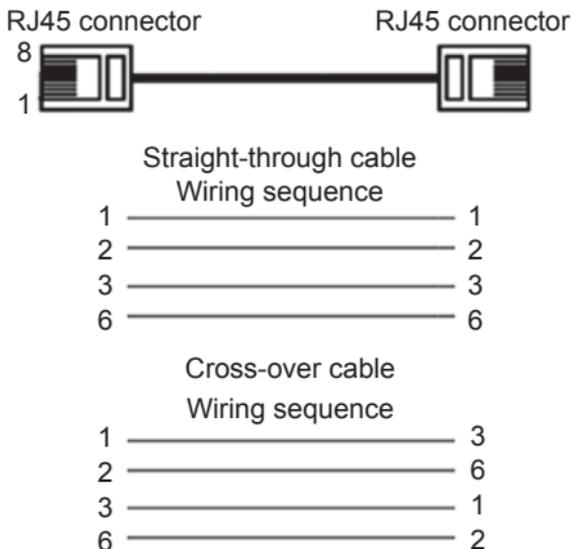


Figure 8 Connection Using Straight-through/Cross-over Cable



Note:

The color of the cable for RJ45 connector meets the 568B standard:
 1-orange and white, 2-orange, 3-green and white, 4-blue,
 5-blue and white, 6-green, 7-brown and white, and 8-brown.

4.2 100Base-FX Ethernet Port

100Base-FX Ethernet port is equipped with FC/ST/SC connector, and each port consists of TX (transmit) port and RX (receive) port. To enable data transmission between Device A and Device B, connect the TX port of Device A to the RX port of Device B, and the RX port of Device A to the TX port of Device B. The following uses an SC port as an example. The wiring sequence of an ST/FC port is the same with that of the SC port.

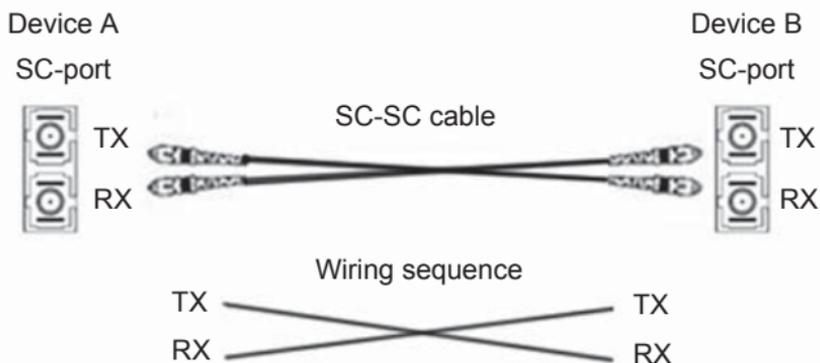


Figure 9 Connection of 100Base-FX Ethernet Port



Caution:

The device uses laser to transmit signals in fibers. 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 when the device is powered on.

4.3 Grounding

Grounding protects the switch from lightning and interference. Therefore, you must ground the switch properly. You need to ground the switch before it is powered on and disconnect the grounding cable after the switch is powered off.

The switch provides a grounding screw on the rear panel for chassis grounding. After crimping one end of the grounding cable to a cold pressed terminal, secure the end to the grounding screw and connect the other end to the earth firmly.



Figure 10 Grounding



Note:

Cross-sectional area of the chassis grounding cable $>2.5\text{mm}^2$;
grounding resistance $<5\Omega$.

4.4 Power Terminal Block

There is a power terminal block on the rear panel of the device. You need to connect the power wires to the terminal block to provide power to the device. The device supports single (PWR1) and redundant (PWR1 and PWR2) power supply with a 5-pin 5.08mm-spacing plug-in terminal block. When the redundant power supply is used and one power input is faulty, the device can continue operating properly, thereby improving network reliability.


Note:

$0.75\text{mm}^2 < \text{Cross-sectional area of the power wire} < 2.5\text{mm}^2$;
grounding resistance $< 5\Omega$.

- 5-Pin 5.08mm-Spacing Plug-in Terminal Block

The following figure shows the 5-pin 5.08mm-spacing plug-in terminal block.

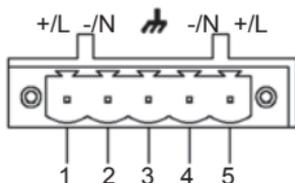


Figure 11 5-Pin 5.08mm-Spacing Plug-in Terminal Block (socket)

The following table lists the pin definitions of the 5-pin 5.08mm-spacing plug-in terminal block.

Table 5 Pin Definitions of 5-Pin 5.08mm-Spacing Plug-in Terminal Block

No.	Signal	DC Definition	AC Definition
1	+/L	PWR1: +	PWR1: L
2	-/N	PWR1: -	PWR1: N
3		PGND	PGND
4	-/N	PWR2: -	PWR2: N
5	+/L	PWR2: +	PWR2: L
 Caution: For single power supply, only pins 1, 2, and 3 (PWR1) of the terminal block can be connected. Do not use pins 4 and 5.			

● Wiring and Mounting

Step 1: Ground the device properly according to section 4.3.

Step 2: Remove the power terminal block from the device.

Step 3: Insert the power wires into the power terminal block according to Table 5 and secure the wires.

Step 4: Insert the terminal block with the connected wires into the terminal block socket on the device.

Step 5: Connect the other end of the power wires to the external power supply system according to the power supply requirements of the device. View the status of the power LEDs on the front panel. If the LEDs are on, the power is connected properly.

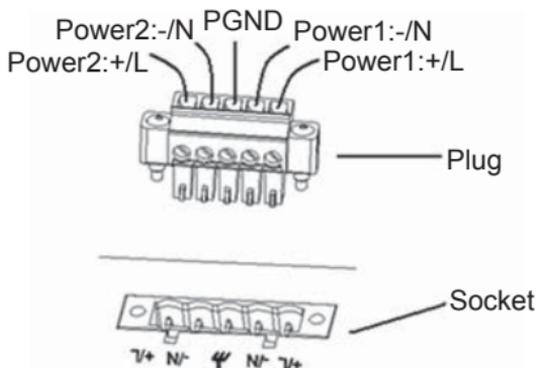


Figure 12 Connection of 5-Pin 5.08mm-Spacing Plug-in Terminal Block



Caution:

The switch supports 220AC/DCW and 24DC power input. Before connecting the device to power supply, make sure that the power input meets the power requirement. If connected to an incorrect power input, the device may be damaged.



Warning:

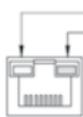
- Do not touch any exposed conducting wire, terminal, or component with a voltage warning sign, because it may cause damage to humans.
- Do not remove any part or plug in or out any connector when the device is powered on.

5 LEDs

Table 6 Front Panel LEDs

LED	State	Description
Power 1 LED	On	Power 1 is connected and operates properly.
	Off	Power 1 is not connected or operates abnormally.
Power 2 LED	On	Power 2 is connected and operates properly.
	Off	Power 2 is not connected or operates abnormally.
100Base-FX Ethernet port speed LED	On	100M working state (100Base-FX)
	Off	No connection
100Base-FX Ethernet port connection status LED	On	Effective port connection
	Blinking	Ongoing network activities
	Off	No effective port connection
10/100Base-T(X) Ethernet port speed LED	On	100M working state (100Base-TX)
	Off	10M working state (10Base-T) or no connection
10/100Base-T(X) Ethernet port connection status LED	On	Effective port connection
	Blinking	Ongoing network activities
	Off	No effective port connection

Table 7 Rear Panel LEDs

LED	State	Description
		
10/100Base-T(X) Ethernet port speed LED (yellow)	On	100M working state (100Base-TX)
	Off	10M working state (10Base-T) or no connection
10/100Base-T(X) Ethernet port connection status LED (green)	On	Effective port connection
	Blinking	Ongoing network activities
	Off	No effective port connection
100Base-FX Ethernet port connection status LED	On	Effective port connection
	Blinking	Ongoing network activities
	Off	No effective port connection

6 Basic Features and Specifications

Power Requirements		
Power Identifier	Rated Voltage Range	Maximum Voltage Range
24DC	24VDC	18-36VDC
220AC/DCW	100-240VAC, 50/60Hz; 110-220VDC	85-264VAC/77-300VDC
Terminal block	5-pin 5.08mm-spacing plug-in terminal block	
Rated Power Consumption		
Rated power consumption	<16.8W	
Physical Characteristics		
Housing	Metal, fanless	
Installation	19 inch 1U rack mounting	
Dimensions (W×H×D)	440mm×44mm×245mm (excluding connectors and mounting brackets)	
Weight	2.5Kg	
Environmental Limits		
Operating temperature	-40°C~+85°C	
Storage temperature	-40°C~+85°C	
Ambient relative humidity	5%~95% (non-condensing)	
MTBF		
MTBF	338,566 hours	
Warranty		
Warranty	5 years	

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