

# **KOM600/KOM600G Fiber Media Converter**

## **Hardware Installation Manual**

***KYLAND***

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## **KOM600&KOM600G Fiber Media Converter**

### **Hardware Installation Manual**

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

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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 soft cotton cloth.
- Do not place any irrelevant materials on the device or cables. Ensure adequate heat dissipation and tidy cable layout without knots.
- Avoid any exposed metal wires because they may be oxidized or electrified.
- Before power-on, make sure the power supply is within the allowed range of the device. Overhigh 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.
- 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

KOM600/KOM600G is a green industrial fiber media converter with low power consumption. It is applicable to wind power, distribution network automation, subway PIS, power SACDA, sewage treatment, expressway, metallurgy, intelligent transportation, and many other industries. KOM600/KOM600G supports the Link Fault Pass-Through (LFP) function, which facilitates fault locating and network maintenance. KOM600G provides a reset button on the front panel.

KOM600/KOM600G supports both DIN-rail mounting and panel mounting. KOM600 provides one 100Base-FX Ethernet port and one 10/100Base-T(X) Ethernet port. KOM600G provides one 1000Base-X, 10/100/1000Base-T(X) SFP slot (namely, Gigabit SFP slot), and one 10/100/1000Base-T(X) Ethernet port. For details, see the following table.

Table 1 KOM600/KOM600G Models

Model	Interface				Power
	Gigabit SFP slot	10/100/1000Base-T(X) Ethernet port	100Base-FX Ethernet port	10/100Base-T(X) Ethernet port	
KOM600-1S/M-1T	--	--	1	1	12DCW,
KOM600G-1GX-1GE	1	1	--	--	24DCW (redundant)



**Note:**

We reserve the right to amend the information in the preceding table without notice to users. To obtain the latest information, you can contact our sales or technical support personnel.

## 2 Structure and Interface



**Caution:**

To keep ports clean and ensure device performance, you are advised to purchase the port dustproof shield (optional).

### 2.1 Front Panel

- Front Panel of KOM600

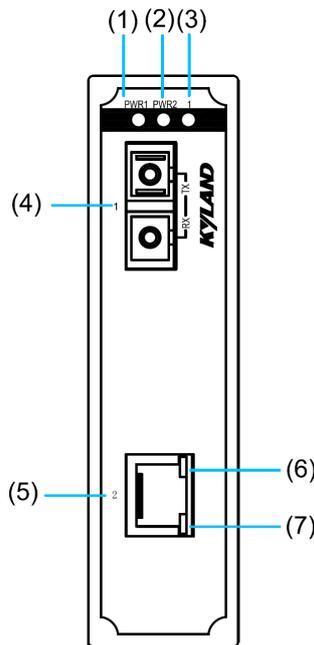


Figure 1 Front Panel of KOM600

Table 2 Description of the Front Panel of KOM600

No.	Identifier	Description
(1)	PWR1	Power 1 LED
(2)	PWR2	Power 2 LED
(3)	1	100Base-FX Ethernet port connection status LED
(4)	1	100Base-FX Ethernet port
(5)	2	10/100Base-T(X) Ethernet port
(6)	--	10/100Base-T(X) Ethernet port speed LED (yellow)
(7)	--	10/100Base-T(X) Ethernet port connection status LED (green)

● Front Panel of KOM600G

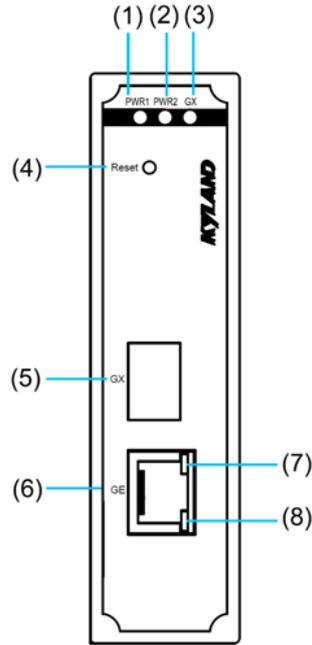


Figure 2 Front Panel of KOM600G

Table 3 Description of the Front Panel of KOM600G

No.	Identifier	Description
(1)	PWR1	Power 1 LED
(2)	PWR2	Power 2 LED
(3)	GX	Gigabit SFP slot connection status LED
(4)	Reset	Reset button
(5)	GX	Gigabit SFP slot
(6)	GE	10/100/1000Base-T(X) Ethernet port
(7)	--	10/100/1000Base-T(X) Ethernet port speed LED (yellow)
(8)	--	10/100/1000Base-T(X) Ethernet port connection status LED (green)

## 2.2 Top Panel

- Top Panel of KOM600/KOM600G

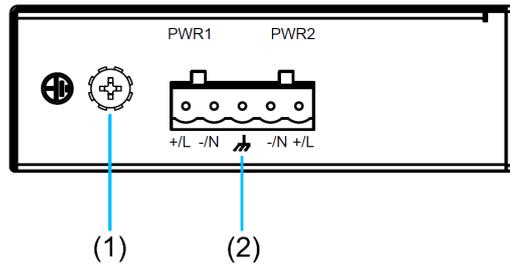


Figure 3 Top Panel of KOM600/KOM600G

Table 4 Description of the Top Panel of KOM600/KOM600G

No.	Identifier	Description
1		Grounding screw
2	PWR1      PWR2 +/L -/N  -/N +/L	Power terminal block

### 3 Mounting

#### 3.1 Dimension Drawing

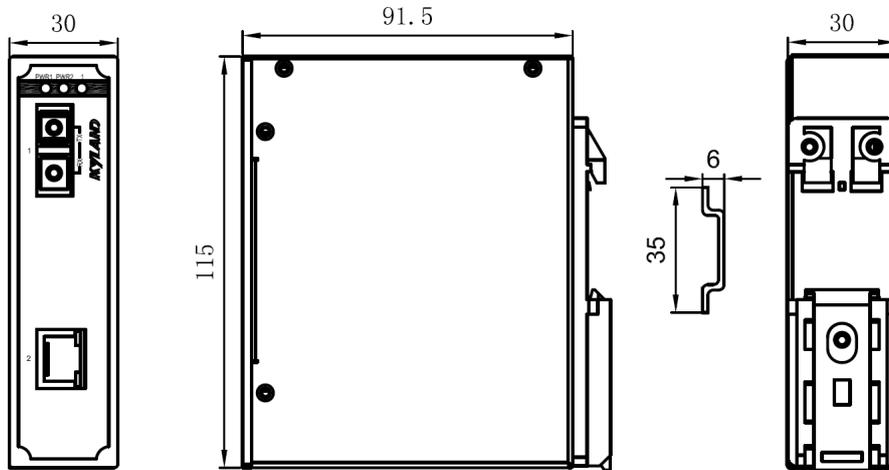


Figure 4 Dimensions for DIN-rail Mounting (unit: mm)

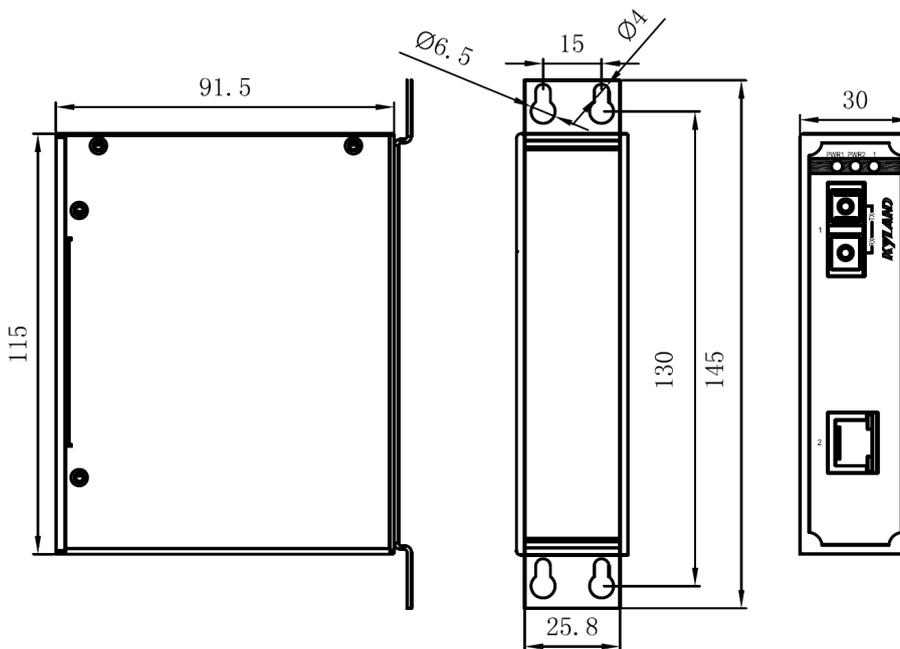


Figure 5 Drawings for Panel Mounting (unit: mm)



**Caution:**

- As part of the heat dissipation system, the device housing becomes hot during operation. Please use caution when coming in contact and avoid covering the device housing when the device is running.
- The preceding figure uses KOM600 as an example. KOM600G has the same dimensions with KOM600.

## 3.2 Mounting Modes and Steps

### 3.2.1 DIN-Rail Mounting

- Mounting

Step 1: Select the mounting position for the device and guarantee adequate space and heat dissipation for it (dimensions: 30mm×115mm×91.5mm).

Step 2: Insert the connecting seat onto the top of the DIN rail, and push the bottom of the device inward and upward to ensure the DIN rail fits in the connecting seat. Make sure the device is firmly installed on the DIN rail, as shown in the following figure.

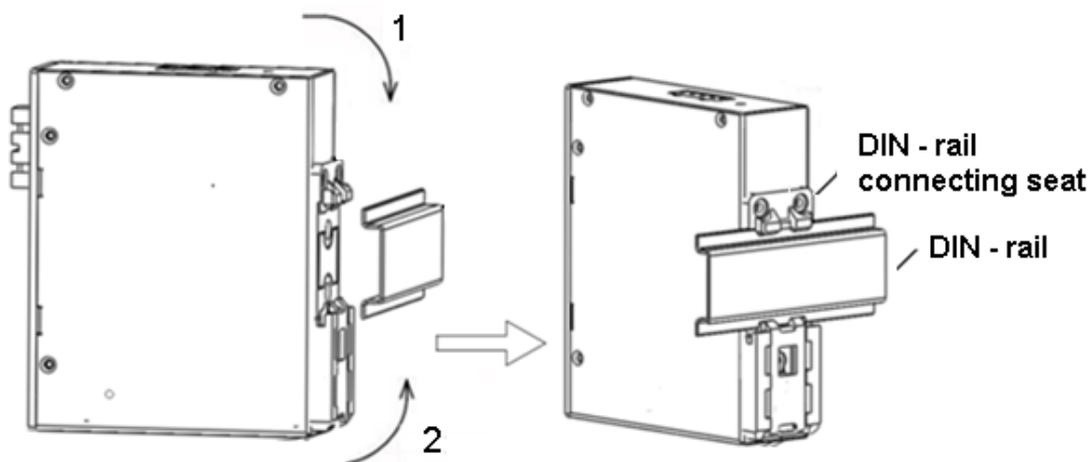


Figure 6 DIN-Rail Mounting

- Dismounting

Step 1: Insert the head of a screwdriver into the opening of the spring locking piece at the bottom from the left. Lift the handle of the screwdriver to open the spring locking piece of the connecting seat, as shown on the left of the following figure.

Step 2: Move the device in direction 2 until the bottom of the device is detached from the DIN rail. Then move the device in direction 3 and uplift the device until the top of the connecting seat is detached from the DIN rail. In this way, the device is removed from the DIN rail completely.

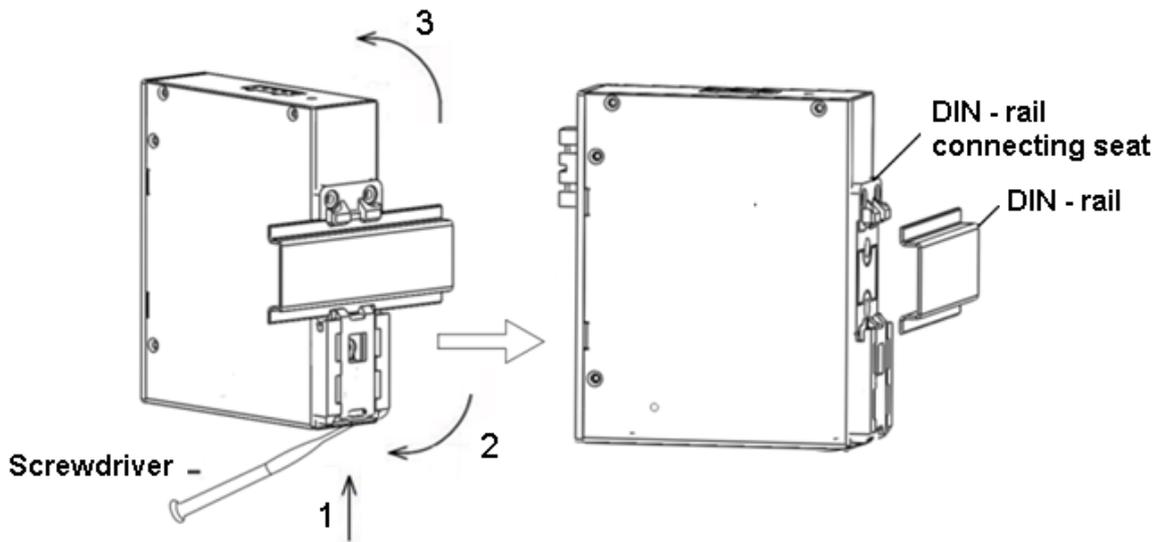


Figure 7 DIN-Rail Dismounting

### 3.2.2 Panel Mounting



**Caution:**

To adopt panel mounting, you need to purchase the plate for panel mounting (optional).

- Mounting

Step 1: Use screws to secure the plate for panel mounting to the rear panel of the device.

Step 2: Select the mounting position (on a wall or inner wall of a cabinet) for the device and guarantee adequate space and heat dissipation for it (dimensions: 30mm×115mm×91.5mm).

Step 3: Punch four holes in the selected position according to the dimensions for panel mounting. Insert four screws into the four holes respectively, and turn the screws with a screwdriver until about a 5mm distance is left between each screw head and the wall.

Step 4: Align the four mounting holes on the plate for panel mounting with the four screws. Make the screws pass through the  $\Phi 6.5$  positions in the following figure. Move the device in direction 1 until the four screws are in the  $\Phi 4$  positions. Then tighten the screws.

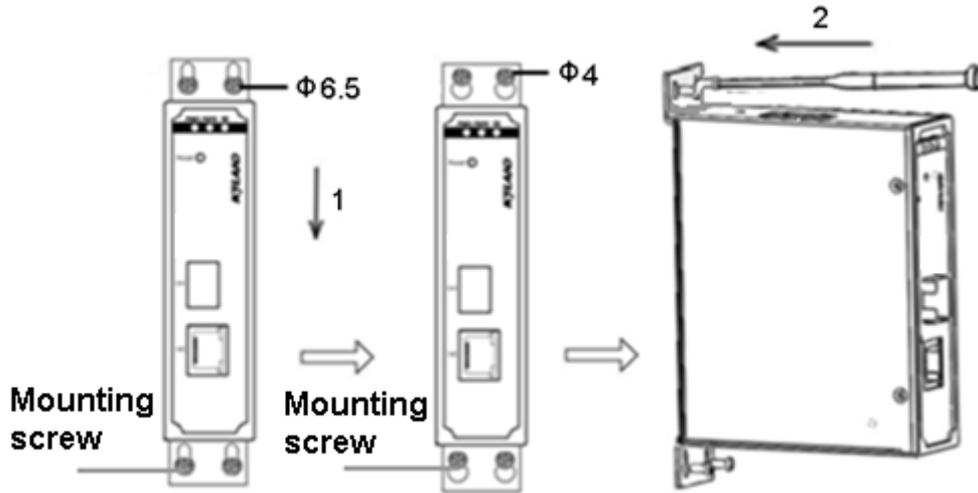


Figure 8 Panel Mounting

- Dismounting

Step 1: Loosen the four screws with a screwdriver. Move the device upward until the four screws are in the  $\Phi 6.5$  positions in the following figure. Then remove the plate for panel mounting from the four screws to detach the device from the wall or inner wall of the cabinet.

Step 2: Loosen the screws completely with a screwdriver. Remove them from the wall or inner wall of the cabinet. Then remove the plate for panel mounting from the rear panel to complete dismounting the device.

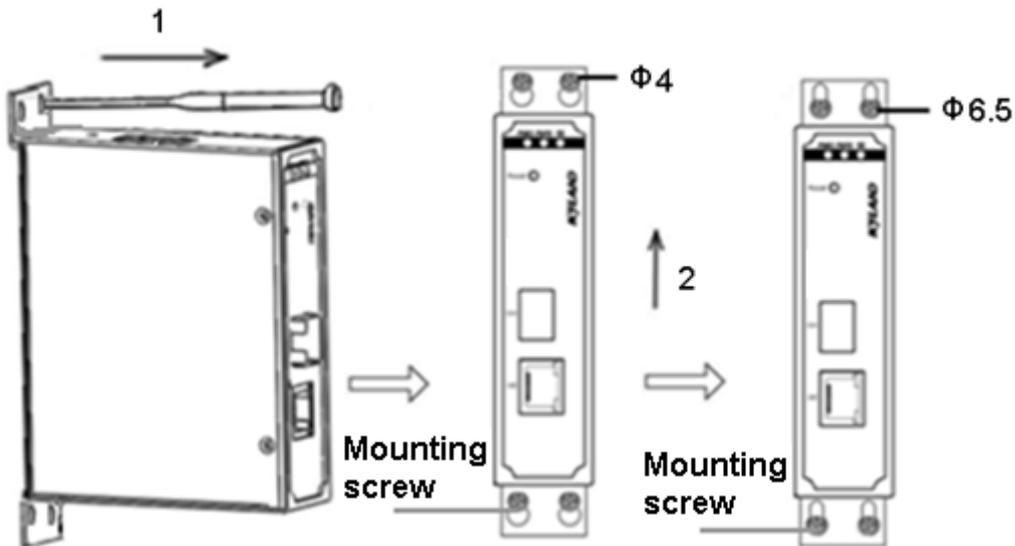


Figure 9 Panel Dismounting

## 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 supports MDI connection. If the peer device supports MDI connection only, connect the 10/100Base-T(X) Ethernet port of KOM600/KOM600G to the peer device with a cross-over cable. If the peer device supports both MDI and MDI-X connections, connect the port of KOM600/KOM600G to the peer device with either a straight-through cable or a cross-over cable.

- Pin Definition

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

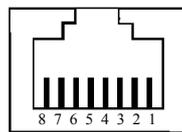


Figure 10 RJ45 Port

The following table lists the pin definitions of the 10/100Base-T(X) RJ45 port.

Table 5 Pin Definitions of 10/100Base-T(X) RJ45 Port

Pin	MDI Signal
1	Transmit Data+ (TD+)
2	Transmit Data- (TD-)
3	Receive Data+ (RD+)
6	Receive Data- (RD-)
4, 5, 7, 8	Unused

- Wiring Sequence

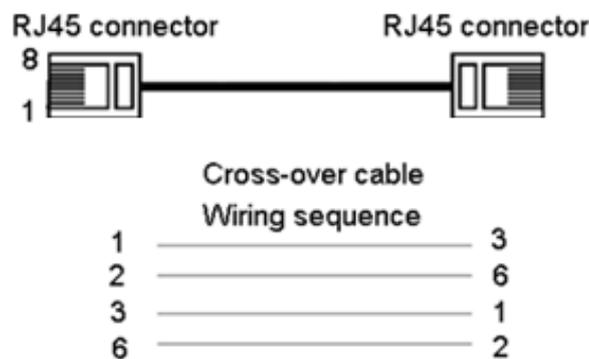


Figure 11 Connection Using Cross-over Cable



**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 port is equipped with FC/ST/SC connector, and each port consists of TX (transmit) port and RX (receive) port. To enable communication between Device A and Device B, connect the TX (transmit) port of Device A to the RX (receive) port of Device B, and the RX (receive) port of Device A to the TX (transmit) port of Device B. The following figure shows the wiring sequence of the 100Base-FX Ethernet port. (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.)

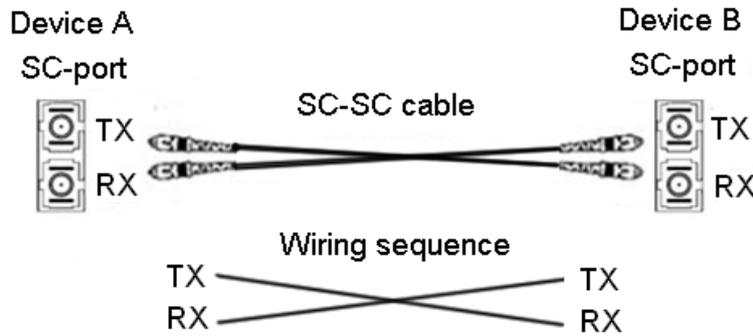


Figure 12 Wiring Sequence of 100Base-FX Ethernet Port



**Caution:**

A laser is used 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 10/100/1000Base-T(X) Ethernet Port

10/100/1000Base-T(X) Ethernet port is equipped with RJ45 connector. The port is self-adaptive. It can automatically configure itself to work in 10M, 100M, or 1000M 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.

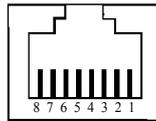


Figure 13 RJ45 Port

The following table lists the pin definitions of the 10/100/1000Base-T(X) RJ45 port.

Table 6 Pin Definitions of 10/100/1000Base-T(X) RJ45 Port

Pin	MDI Signal	MDI-X Signal
1	Transmit/Receive Data (TRD0+)	Transmit/Receive Data (TRD1+)
2	Transmit/Receive Data (TRD0-)	Transmit/Receive Data (TRD1-)
3	Transmit/Receive Data (TRD1+)	Transmit/Receive Data (TRD0+)
4	Transmit/Receive Data (TRD2+)	Transmit/Receive Data (TRD3+)
5	Transmit/Receive Data (TRD2-)	Transmit/Receive Data (TRD3-)
6	Transmit/Receive Data (TRD1-)	Transmit/Receive Data (TRD0-)
7	Transmit/Receive Data (TRD3+)	Transmit/Receive Data (TRD2+)
8	Transmit/Receive Data (TRD3-)	Transmit/Receive Data (TRD2-)

 **Note:** "+" and "-" indicate level polarities.

● Wiring Sequence

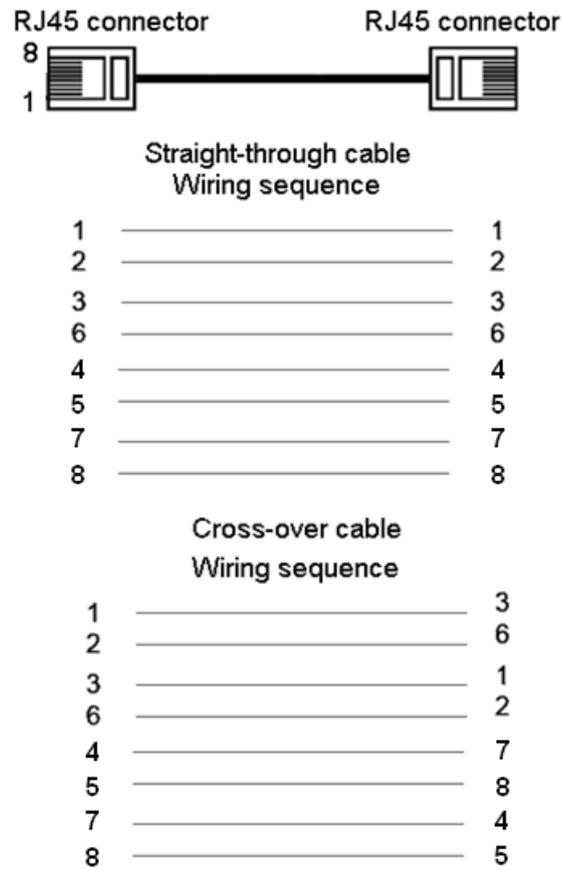


Figure 14 Connection Using Straight-through/Cross-over Cable



**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.

### 4.4 1000Base-X, 10/100/1000Base-T(X) SFP Slot

1000Base-X, 10/100/1000Base-T(X) SFP slot (Gigabit SFP slot): You can enable data transmission only after inserting an SFP optical/electrical module into the slot and connecting cable properly. The following table lists the Gigabit SFP optical/electrical modules (optional) supported by KOM600G.

Table 7 Gigabit SFP Optical/Electrical Modules for KOM600G

Model	Interface	MM/SM	Connector	Center Wavelength (CWL)	Transmission Distance
IGSFP-M-SX-LC-850-0.55	1000Base-X port	MM	LC	850nm	0.55km
IGSFP-S-LX-LC-1310-10	1000Base-X port	SM	LC	1310nm	10km
IGSFP-S-LH-LC-1310-40	1000Base-X port	SM	LC	1310nm	40km
IGSFP-S-ZX-LC-1550-80	1000Base-X port	SM	LC	1550nm	80km
IG-FSFP-M-LX-LC-1310-2	100Base-FX port	MM	LC	1310nm	2km
IG-FSFP-S-LX-LC-1310-10	100Base-FX port	SM	LC	1310nm	10km
IGSFP-10/100/1000BASE-T-RJ45	10/100/1000Base-T(X) port (self-adaptive)	--	RJ45 connector	--	--

#### 4.4.1 Gigabit SFP Optical Module

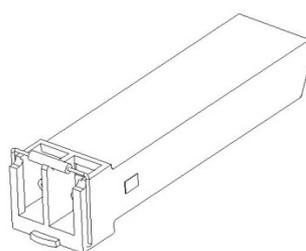


Figure 15 Gigabit SFP Optical Module

Gigabit SFP optical module is equipped with LC connector, and each port consists of a TX (transmit) port and an RX (receive) port. To enable communication between Device A and Device B, connect the TX (transmit) port of Device A to the RX (receive) port of Device B, and the RX (receive) port of Device A to the TX (transmit) port of Device B. The following figure shows the fiber connection of the Gigabit SFP optical module.

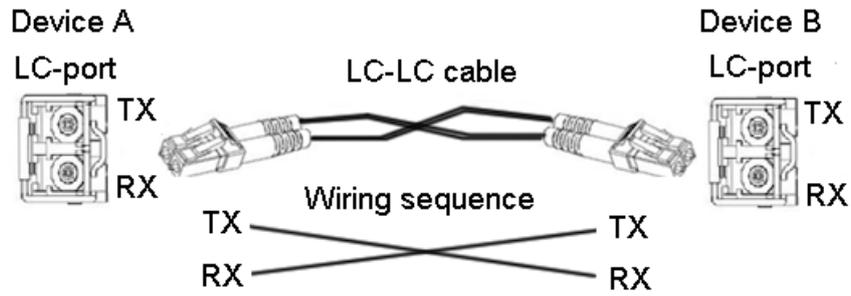


Figure 16 Fiber Connection of Gigabit SFP Optical Module

● Connecting the Gigabit SFP Optical Module

Insert the SFP optical module into the SFP slot in the device, and then plug the optical fiber into the TX port and RX port of the SFP module.

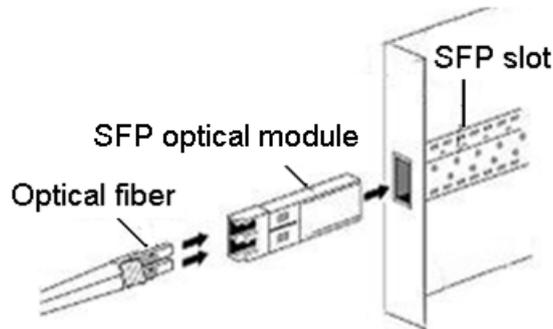


Figure 17 Connecting the Gigabit SFP Optical Module

How to determine the RX port and TX port of Gigabit SFP optical module

1. Insert the two connectors in one end of optical fiber into the gigabit SFP module, and those in the other end of the optical fiber into the SFP module of another device.
2. View the corresponding port connection status LED in the front panel:
  - If the LED blinks, the link is connected.
  - If the LED is off, the link is not connected. This may be caused by incorrect connection of the TX and RX ports. In this case, swap the two connectors in the one end of the optical fiber.

### 4.4.2 Gigabit SFP Electrical Module

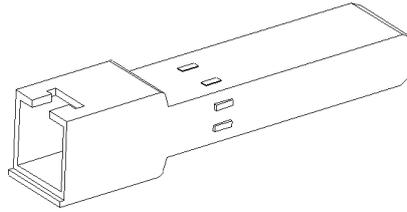


Figure 18 Gigabit SFP Electrical Module

- How to Connect the Gigabit SFP Electrical Module

Insert the SFP electrical module into the SFP slot in the device, and then plug the RJ45 connector of the twisted pair into the SFP module.

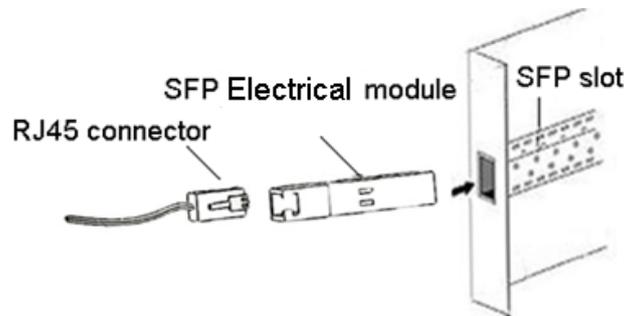


Figure 19 Connecting the Gigabit SFP Electrical Module

## 4.5 Grounding

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

- KOM600

KOM600 provides a grounding screw on the top panel for chassis grounding. It is called GND. The grounding position of the 5.08mm power terminal block is PGND. To ground KOM600, you need to connect the GND to the PGND with an 18#AWG yellow-green wire, and then connect one end of the grounding cable to the grounding screw and the other end to the earth firmly.

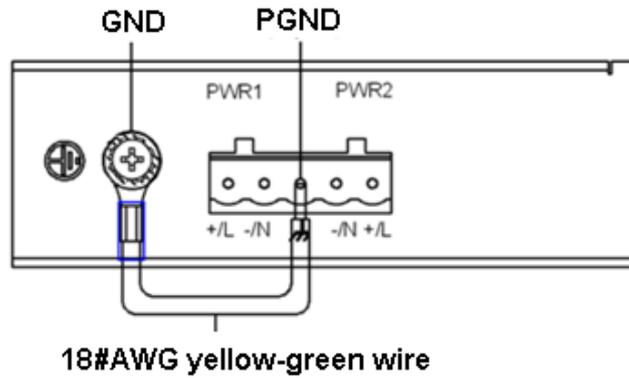


Figure 20 Grounding of KOM600

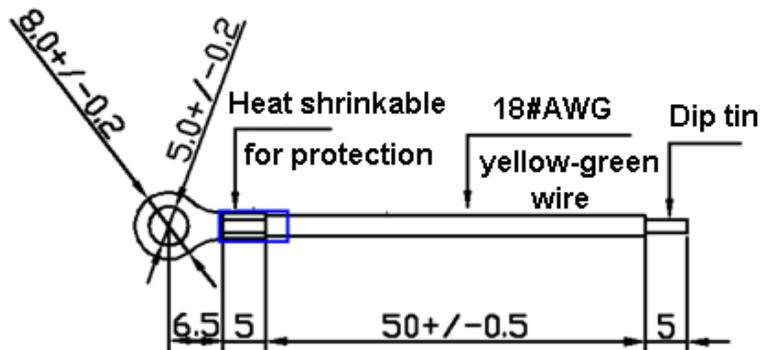


Figure 21 Specifications of an 18#AWG yellow-green wire (unit: mm)

● KOM600G

KOM600G provides a grounding screw on the top 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.

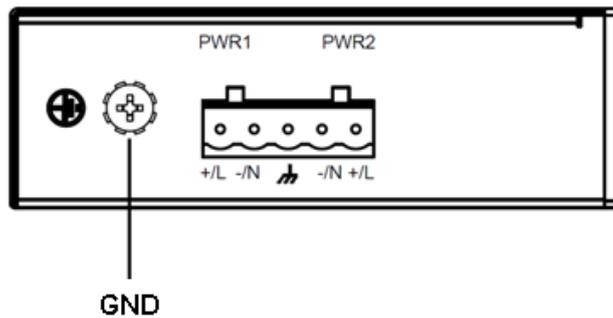


Figure 22 Grounding of KOM600G



**Note:**

Cross-sectional area of the chassis grounding cable > 2.5mm<sup>2</sup>; Grounding resistance < 5Ω

**4.6 Power Terminal Block**

There is a power terminal block on the top panel of the device. You need to connect the power wires to the terminal block to provide power for the device. The device supports redundant

power supply with 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 lists the pin definitions of the 5-pin 5.08mm-spacing plug-in terminal block.

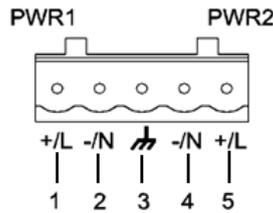


Figure 23 5-Pin 5.08mm-Spacing Plug-in Terminal Block (Socket)

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

Table 8 Pin Definitions of 5-Pin 5.08mm-Spacing Plug-in Terminal Block

No.	DC Definition	AC Definition
1	PWR1: +	PWR1: L
2	PWR1: -	PWR1: N
3	PGND	PGND
4	PWR2: -	PWR2: N
5	PWR2: +	PWR2: L

● Wiring and Mounting

Step 1: Ground the device properly according to section 4.5.

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

Step 3: Insert the power wires into the power terminal block according to Table 8 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.

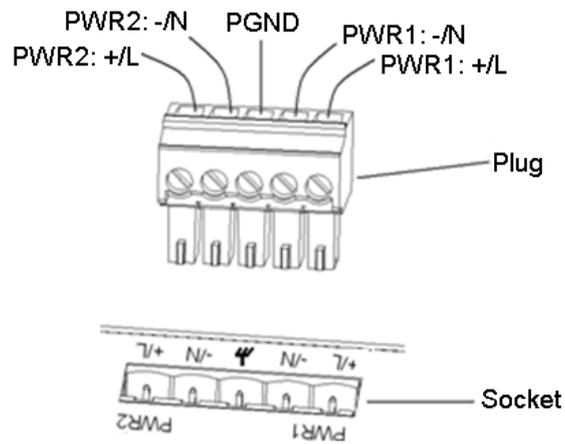


Figure 24 Wiring Sequence of 5-Pin 5.08mm-Spacing Plug-in Terminal Block



**Caution:**

The device supports 12DC and 24DCW 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 LFP

The LFP function is used to detect the working status of remote devices. If a remote device is faulty, the status of all ports in the link changes to link-down through LFP packet exchange, so that the local device can detect a fault rapidly.

As shown in the following figure, if the connection between the client and fiber media converter B is faulty, fiber media converter B shuts down port B1 upon detecting the fault. Upon detecting that the connection of port A1 is faulty, fiber media converter A shuts down port A1 and port A2. As a result, the server connected to port A2 detects the fault between the client and port B2 rapidly.

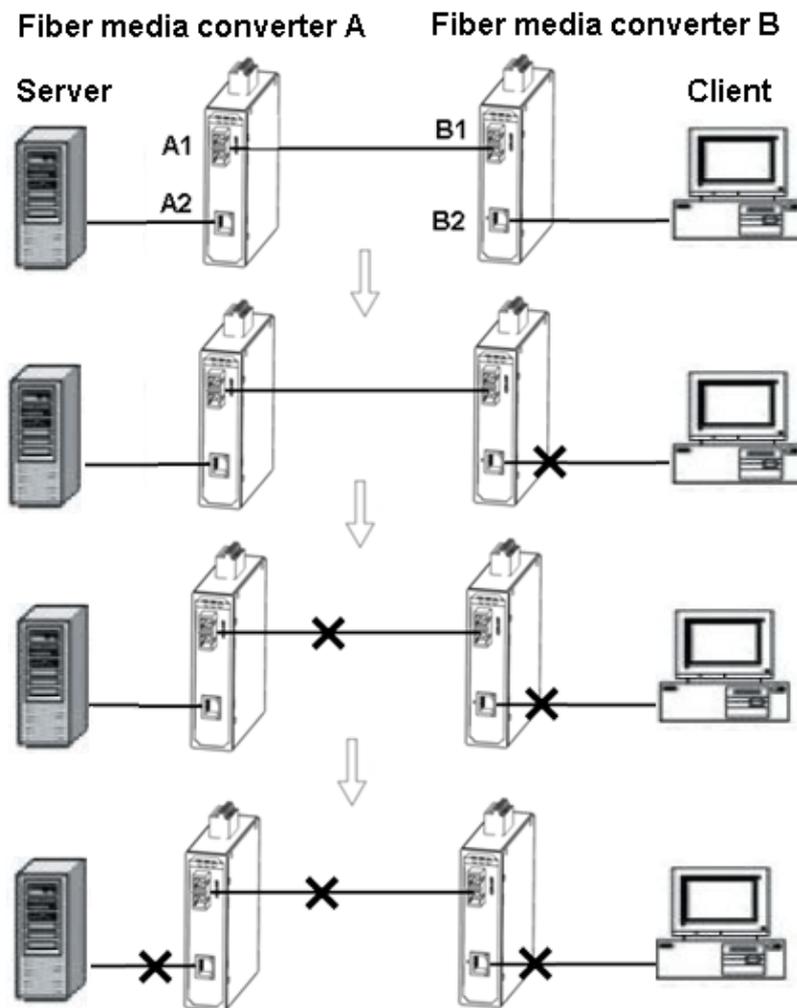


Figure 25 LFP

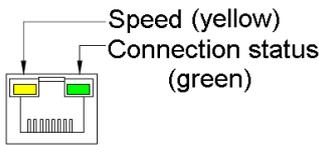


**Caution:**

The LFP function is available only when both the connected devices support the function.

## 6 LEDs

Table 9 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 connection status LED	On	Effective port connection
	Blinking	Ongoing network activities
	Off	No effective port connection
Gigabit SFP slot connection status LED	On	Effective port connection
	Blinking	Ongoing network activities
	Off	No effective port connection
		
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
10/100/1000Base-T(X) Ethernet port speed LED (yellow)	On	1000M working state (1000Base-TX)
	Off	10/100M working state (10/100Base-T(X)) or no connection
10/100/1000Base-T(X) Ethernet port connection status LED (green)	On	Effective port connection
	Blinking	Ongoing network activities
	Off	No effective port connection

## 7 Basic Features and Specifications

### Power Requirements

Rated voltage range	12DCW: 12~24VDC 24DCW: 24~48VDC
Maximum voltage range	12DCW: 9~36VDC 24DCW: 18~72VDC
Terminal block	5-pin 5.08mm-spacing plug-in terminal block

### Rated Power Consumption

Rated power consumption	KOM600: 3W (MAX) KOM600G: 4.5W (MAX)
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### Physical Characteristics

Housing	Metal, fanless
Installation	DIN-rail mounting or panel mounting
Dimensions (W×H×D)	30mm×115mm×91.5mm (excluding the connector, DIN rail, and component for panel mounting)
Weight	0.46Kg

### Environmental Limits

Operating temperature	-40℃~+85℃
Storage temperature	-40℃~+85℃
Ambient relative humidity	5%~95% (non-condensing)

### MTBF

MTBF	546,000 hours
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### Warranty

Warranty	5 years
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