

SICOM3008PN Industrial Ethernet Switch

Hardware Installation Manual

Publication Data: Oct. 2018

Version: V1.1

KYLAND

SICOM3008PN Industrial Ethernet Switch

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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

The profinet switch SICOM3008PN mainly applied in industrial automation related industries. SICOM3008PN are 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 EMC protection of RJ45 ports. The redundant network and power input support guarantees the reliable operation of the system.

SICOM3008PN support typical profinet network function include GSD file, MRP, which fulfill the profinet conformance class B and we have certified by PI (Profibus & Profinet International). The device can be managed through CLI, Telnet, Web.

The series switches support DIN rail and panel mounting. For details, see the following table.

Table 1 SICOM3008PN

Model	SICOM3008PN- Ports - PS1- PS2-PN type
Code definition	Code option
Ports: GX/GE	2GX6GE, 8GE
	<p>Note:</p> <p><i>2GX6GE:</i> two 100/1000Base-X, 10/100/1000Base-T(X) SFP slots six 10/100/1000Base-T(X) ports</p> <p><i>8GE:</i> eight 10/100/1000Base-T(X) ports</p>
PS1:power input 1	L15(12-58VDC)
PS2: power input 2	L15(12-58VDC)
PN type:	N/A GSD file C GSD file, MRC

	M GSD file, MRC, MRM&System Redundancy
--	----------------------------------------

**Note:**

We reserve the right to amend the product information listed in this table without notice. To obtain the latest information, 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

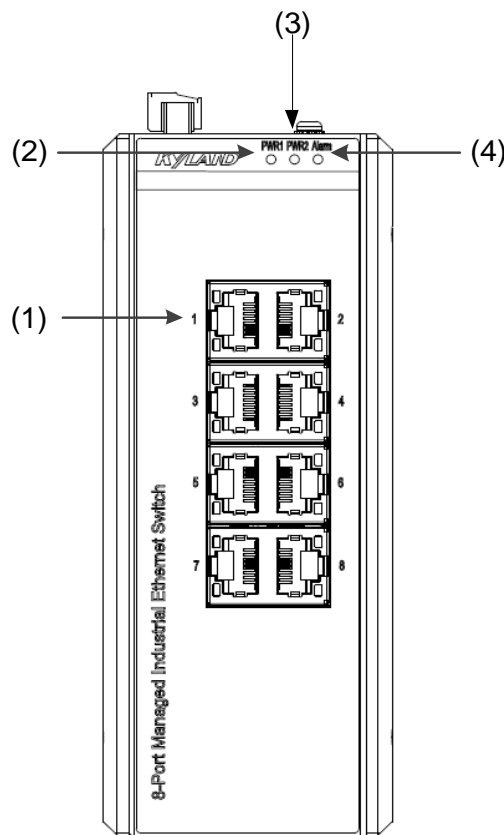


Figure 1 Front Panel of SICOM3008PN-8GE-L15-L15

Table 2 Description of the Front Panel

No.	Identifier	Description
(1)	1-8	eight 10/100/1000Base-T(X) ports
(2)	PWR1	Power 1 LED
(3)	PWR2	Power 2 LED
(4)	Alarm	Alarm LED

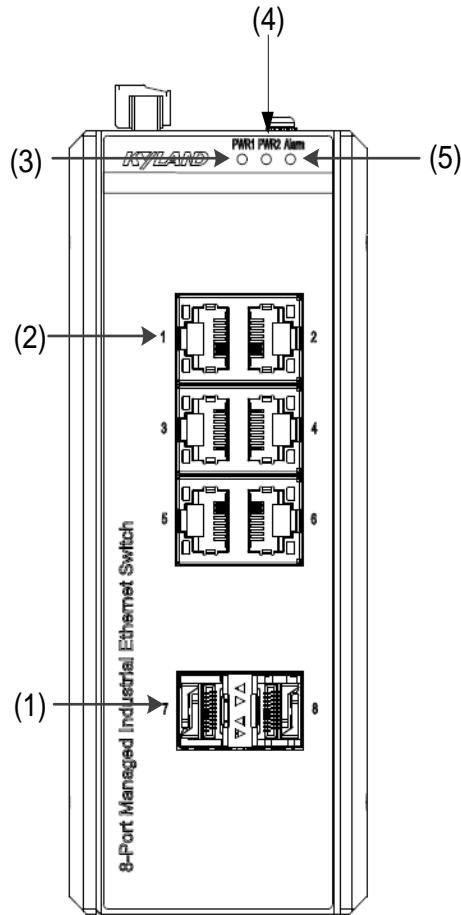


Figure 2 Front Panel of SICOM3008PN-2GX6GE-L15-L15

Table 3 Description of the Front Panel

No.	Identifier	Description
(1)	7-8	two 100/1000Base-X,10/100/1000Base-T(X) SFP slots
(2)	1-6	six 10/100/1000Base-T(X) ports
(3)	PWR1	Power 1 LED
(4)	PWR2	Power 2 LED
(5)	Alarm	Alarm LED

2.2 Top Panel

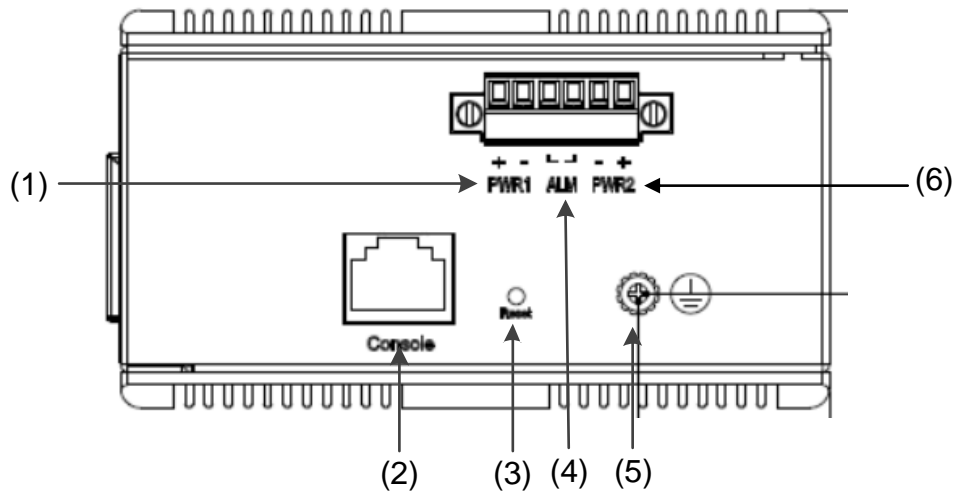



Figure 3 Top Panel

Table 4 Description of the Top Panel

No.	Identifier	Description
(1)	PWR1	Power terminal block 1
(2)	Console	Console port
(3)	Reset	Reset button for switch
(4)	ALM	Alarm relay output
(5)		Grounding screw
(6)	PWR2	Power terminal block 2

3 Mounting

3.1 Dimension Drawing

- SICOM3008PN-8GE-L15-L15

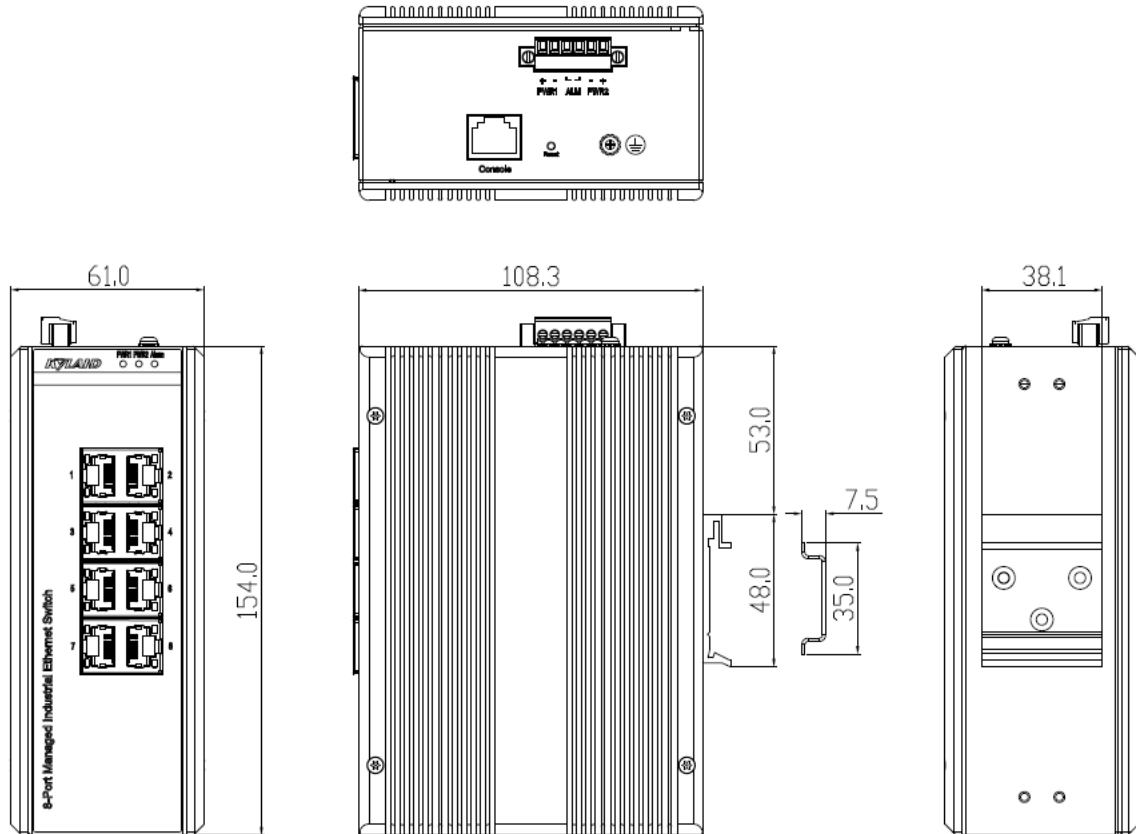


Figure 4 Dimensions of SICOM3008PN-8GE-L15-L15 (unit: mm)

- SICOM3008PN-2GX6GE-L15-L15

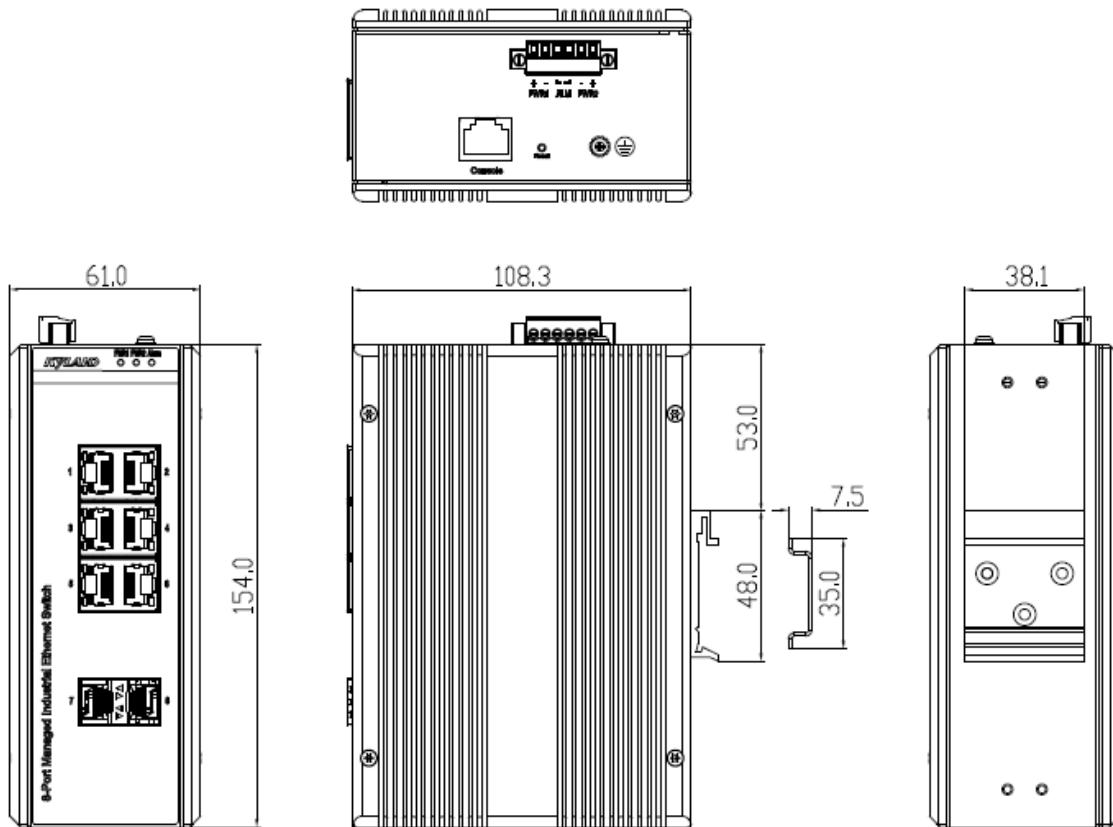


Figure 5 Dimensions of SICOM3008PN-2GX6GE-L15-L15 (unit: mm)



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 DIN-rail and panel mounting. Before installation, make sure that the following requirements are met.

- 1) Environment: temperature (-40°C to 75°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.

3.2.1 Mounting

- DIN-Rail Mounting

Step 1: Select the mounting position for the device and guarantee adequate space and heat dissipation .

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.

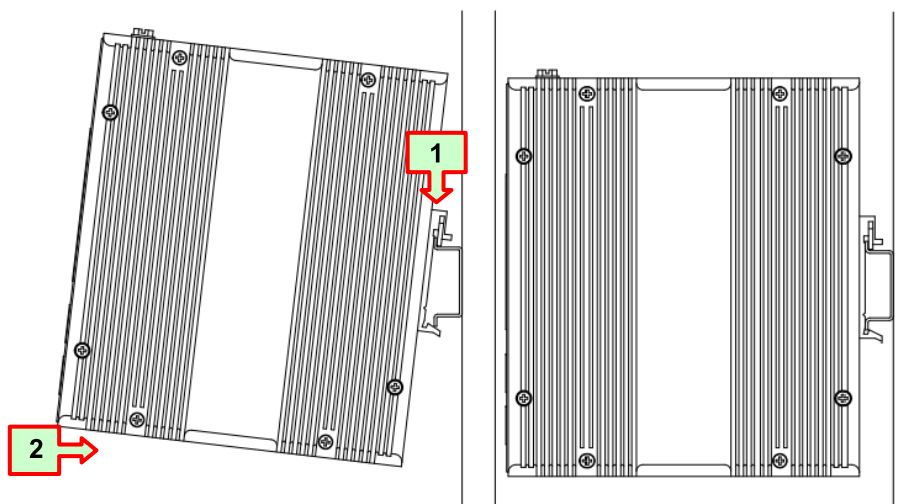


Figure 6 DIN-Rail Mounting

3.2.2 Wall Mounting



Note:

Purchase the plate (optional) for panel mounting.

- Wall Mounting

Screw the wall-mount brackets with screws in the accessory kit.

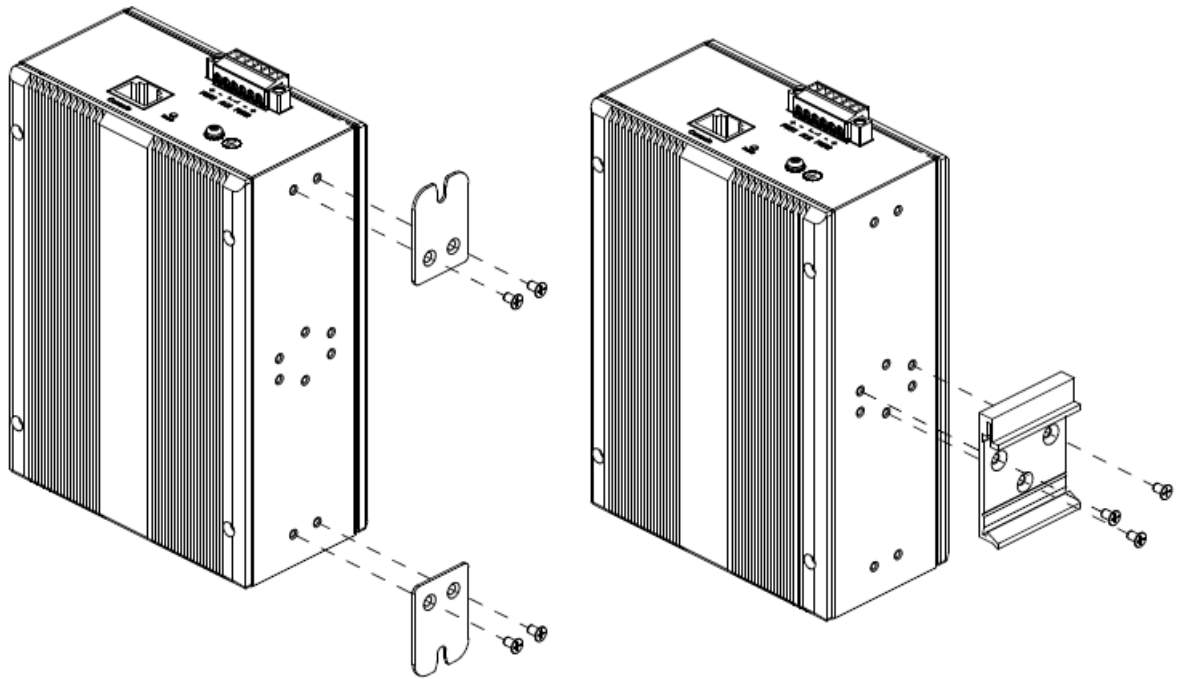


Figure 7 Wall Mounting

4 Connection

4.1 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

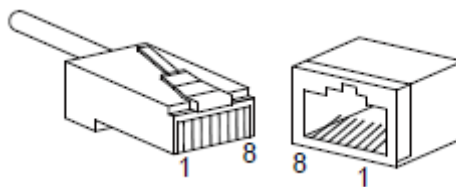



Figure 8 RJ45 Port

Table 5 Pin Definitions of 10/100/1000Base-T(X) RJ45 Port

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



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

- Wiring Sequence

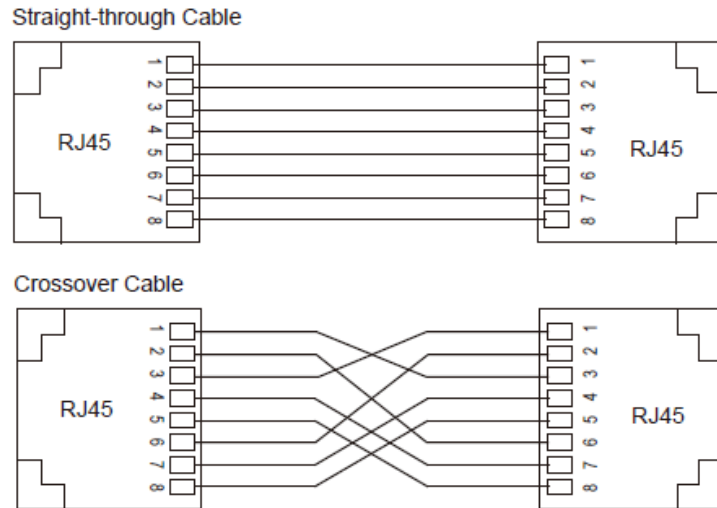


Figure 9 Connection Using Straight-through/Cross-over Cable



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.

4.2 100/1000Base-X, 10/100/1000Base-T(X) SFP slot

100/1000Base-X, 10/100/1000Base-T(X) SFP slot (gigabit SFP slot) requires an SFP optical/electrical module to enable data transmission. The following table lists the gigabit SFP optical/electrical modules (optional) supported by the series switches.

Table 6 Gigabit SFP Optical/Electrical Modules

Model	Port	MM/SM	Connector	Central Wavelength	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
IGSFP-10/100/1000BASE-T-RJ45	10/100/1000Base-T(X) port	--	RJ45	--	--

4.2.1 Gigabit SFP Optical Module

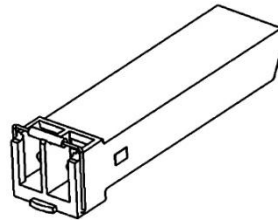


Figure 10 Gigabit SFP Optical Module

An 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 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, as shown in the following figure.

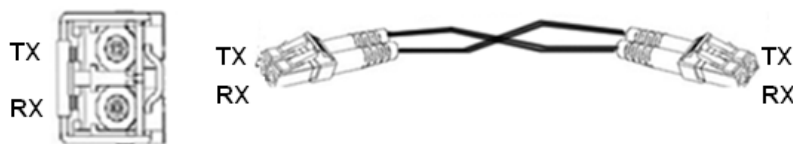


Figure 11 Fiber Connection of an SFP Optical Module

- How to Connect the SFP Optical Module

Insert the SFP optical module into the SFP slot in the switch, and then insert the fibers into the TX port and RX port of the SFP module.

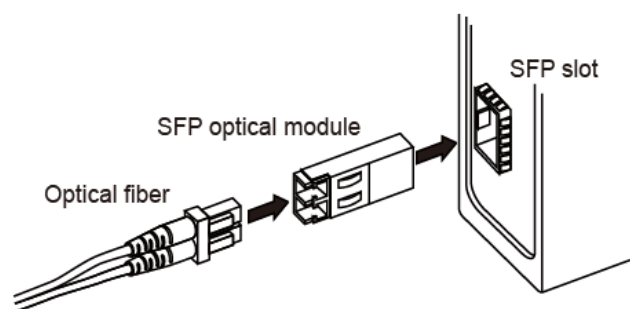


Figure 12 Connecting the SFP Optical Module

Identify the RX port and TX port of an SFP optical module:

1. Insert the two connectors in one end of two fibers into the SFP module, and those in the other end into the peer module.
2. View the corresponding connection status LED:

If the LED is on, the connection is correct. 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 at one end of the fibers.



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.
- If the defined transmission distance of an SFP module is longer than 60km, do not use a short fiber (<20km) for connection. If such a short fiber is used, the module will be burned.

4.2.2 Gigabit SFP Electrical Module

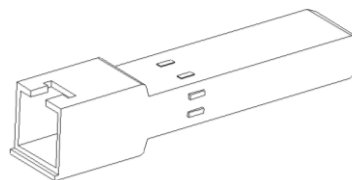


Figure 13 Gigabit SFP Electrical Module

- How to Connect the SFP Electrical Module

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

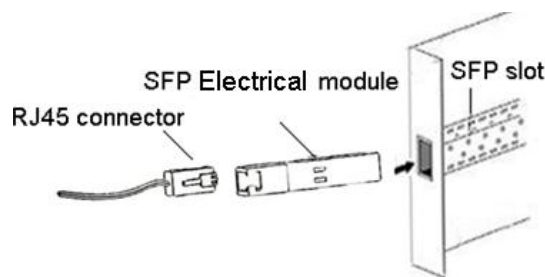


Figure 14 Connecting the SFP Electrical Module

4.3 Console Port

The Console port is for local management by using a terminal emulator or a computer with terminal emulation software.

- DB9 connector connect to computer COM port
- Baud rate: 115200bps
- 8 data bits, 1 stop bit
- None Priority
- None flow control

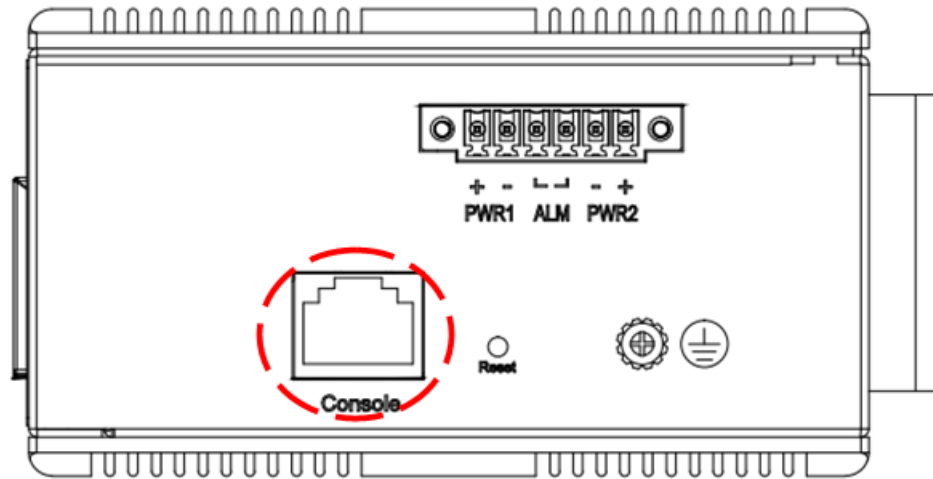


Figure 15 Console connector

To connect the host PC to the console port, a RJ45 (male) connector-to-RS232 DB9 (female) connector cable is required. The RJ45 connector of the cable is connected to the CID port of SICOM3008PN; the DB9 connector of the cable is connected to the PC COM port. The pin assignment of the console cable is shown below:

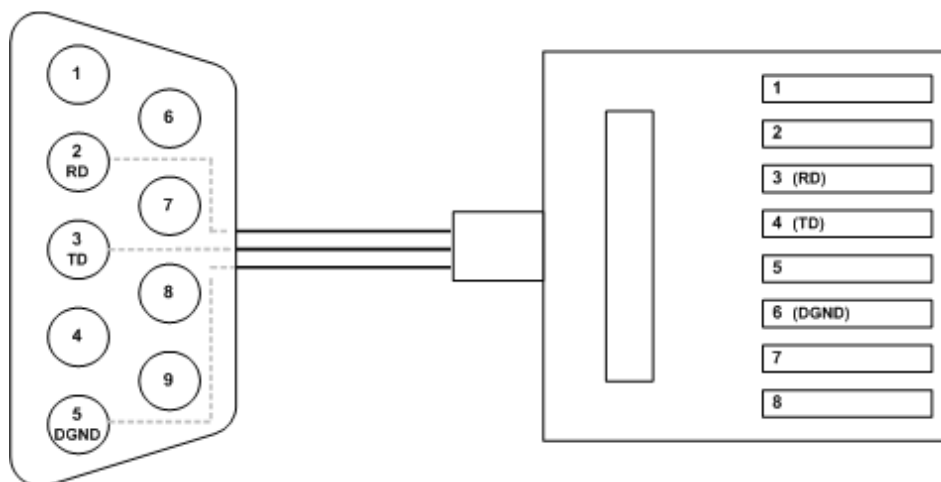


Figure 16 Console connector Define

Table 7 Pin Definitions of DB9 Port (9-Pin Serial Port) and RJ45 Port (Console Port)

DB9 Port (9-Pin Serial Port)		RJ45 Port (Console Port)	
Pin	Signal	Pin	Signal
2	RXD (Receive data)	3	RXD (Receive data)
3	TXD (Transmit data)	4	TXD (Transmit data)
5	DGND (Grounding)	6	DGND (Grounding)

4.4 Grounding/ Power Terminal Block/ Alarm Terminal Block

The alarm relay output contacts are in the middle of the DC terminal block connector as shown in the figure below.

The alarm relay out is “Normal Open”, and it will be closed when detected any predefined failure such as power failures or Ethernet link failures

The relay output with current carrying capacity of 0.5A @ 24 VDC.

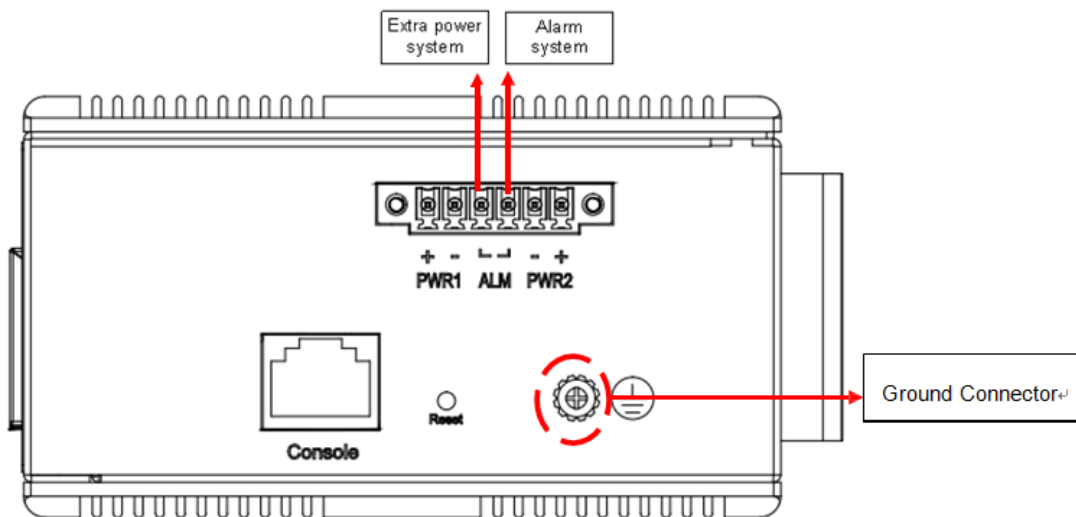


Figure 17 Grounding



Note:

Cross-sectional area of the chassis grounding cable > 2.5mm²; grounding resistance < 5Ω.



Caution:

The switch supports power input (as listed in Table 1). 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.

4.5 SYSTEM RESET

The Reset button is provided to reboot the system without the need to remove power. Under normal circumstances, you will not have to use it. However, on rare occasions, the PROFINET MANAGED SWITCH may not respond; then you may need to push the Reset button.

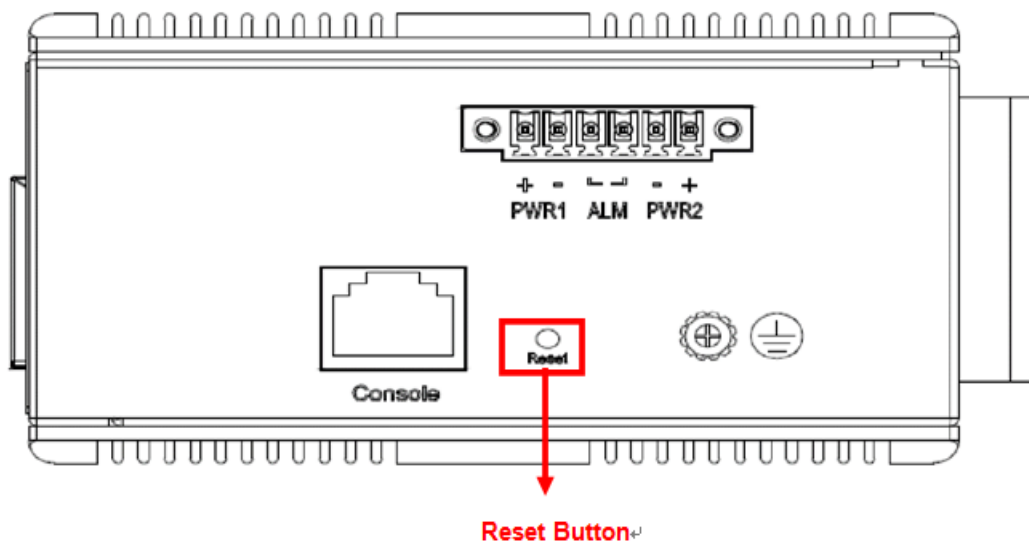
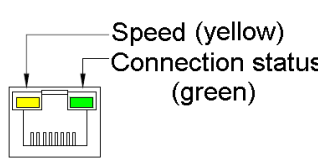
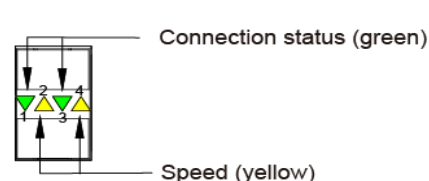


Figure 18 System Reset

5 LEDs

Table 8 Front Panel LEDs

LED Name	Indicator /color	Condition	
PWR1/ PWR2	On Green	PWR1/ PWR2 power line has power	
	Off	PWR1/ PWR2 power line disconnect or does not have	
Alarm	On Red	Ethernet link fails, alarm or power failure alarm occurs	
	Off	No Ethernet link fails and no power failure alarm	
			
Port speed LED	10/100/1000Base-T(X) Ethernet port	On	1000M working state
	10/100/1000Base-T(X) Ethernet port	Off	10/100M working state or no connection
	10/100Base-T(X) Ethernet port	On	100M working state
	10/100Base-T(X) Ethernet port	Off	10M working state or no connection
Port connection status LED		On	Effective port connection
		Blinking	Ongoing network activities
		Off	No effective port connection
			
LED 1 and LED 2 indicate the status of the lower gigabit SFP slot, while LED3 and LED 4 indicate the status of the upper gigabit SFP slot.			
SFP slot speed LED	100/1000Base-X, module	On	1000M working state (1000Base-TX)
		Off	100M working state (100Base-FX) or no connection
	10/100/1000Base-T(X) Gigabit SFP electrical module	On	1000M working state (1000Base-TX)
		Off	10/100M working state (10/100Base-T(X)) or no connection
SFP slot connection status LED	100/1000Base-X,10/100/1000Base-T(X)	On	Effective port connection
		Blinking	Ongoing network activities
		Off	No effective port connection

6 Switch Access

You can access the switch in any of the following ways:

6.1 Access through Console Port

Step 1: Connect the console port of the switch to the 9-pin serial port of a PC with the RJ45-DB9 console cable.

Step 2: Open Hyper Terminal in Windows OS. On the computer's desktop, click Start → All Programs → Accessories → Communications → Hyper Terminal.

Step 3: Create a connection "Switch", as shown in the following figure.



Figure 19 Creating a Connection

Step 4: Connect the communication port in use, as shown in the following figure.



Figure 20 Selecting a Serial Port



Note:

To confirm the communication port in use, right-click [My Computer] and select [Property]. Click [Hardware] → [Device Manager] → [Port] to view the communication port.

Step 5: Set port parameters (Bits per second: 115200, Data bits: 8, Parity: None, Stop bits: 1 and Flow control: None), as shown in the following figure.



Figure 21 Setting Port Parameters

Step 6: Click OK to enter the switch CLI. Then you can run the commands in Table 9 to perform operations.

Table 9 CLI Commands for SIMCOM3008PN

View	Command	Description
General mode	SWITCH#enable	Enter the privileged mode
Privileged mode	SWITCH#show interface vlan 1	Query the IP address of the switch
Privileged mode	SWITCH#show version	Query the version of the switch
Privileged mode	SWITCH#reboot	Restart the switch
Privileged mode	SWITCH#set default SWITCH#save	Restore the factory default settings
Privileged mode	SWITCH#config terminal	Enter the configuration mode

6.2 Access through Telnet

Step 1: Connect the network port of a PC to the Ethernet port of the switch with a network cable.

Step 2: On the Windows desktop, click Start and Run. The Run dialog box is displayed. Enter "telnet *IP address*". For example, if the IP address of the device is 192.168.0.2 (default IP address of a Kyland switch), enter "telnet 192.168.0.2" in the dialog box.

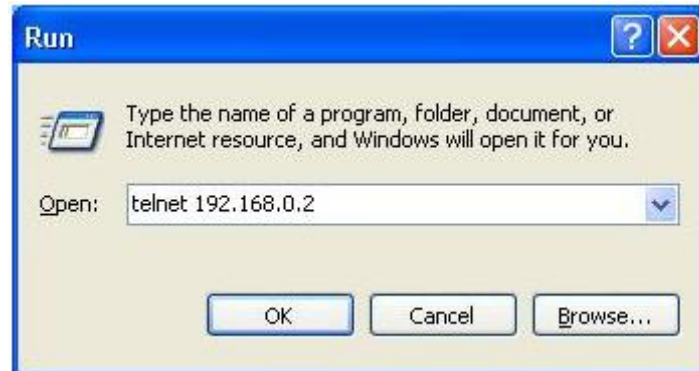


Figure 22 Access through Telnet

Step 3: Click OK. The Telnet CLI is displayed. Then you can run the commands in Table 9 to perform operations.

6.3 Access through Web

Step 1: Connect the network port of the PC to the RJ45 port of the switch with an RJ45-RJ45 cable.

Step 2: Enter the IP address of the switch in the address box of the browser. The user login interface is displayed. You can log in to the Web UI by using default user name "admin" and password "none".



Note:

- IE8.0 or a later version is recommended.
- For details about how to access the switch and other operations, refer to the Web operation manual in the delivered CD.

7 Basic Features and Specifications

Power Requirements

Power Identifier	Rated Voltage Range	Maximum Voltage Range
L15	24 VDC	12 -58 VDC
Terminal block	6-pin 3.81mm-spacing plug-in terminal block	

Rated Power Consumption

Rated power consumption	9Watts
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Physical Characteristics

Housing	Aluminum
Installation	DIN-rail and Wall mounting
Dimensions (W×H×D)	108mm x 154mmx 61mm
Weight	1.3kg

Environmental Limits

Operating temperature	-40 to +75°C
Storage temperature	-40 to +85°C
Ambient relative humidity	5%~95% (non-condensing)

MTBF

MTBF	463158 hours
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Warranty

Warranty	5 years
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KYLAND

FAX: +86-10-88796678

Website: <http://www.kyland.com>

Email: support@kyland.com

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