

**48-Port Gigabit SFP+ 4-Port 10G SFP+ L3 Managed Ethernet Switch**

# **Quick Installation Guide**

## [About Documents](#)

This product's user manual includes documents as below.

Documents	Descriptions	How to get it
Quick Installation Guide	Including product introductions and installation steps introductions.	In the packing box or contact your dealer.
Configuration Guide	Including Web network management system configuration instructions.	Please contact your dealer.
Command Guide	Including CLI-based configuration instructions	Please contact your dealer.

This document is [Quick Installation Guide](#). It is intended for engineers or anyone who needs to install the product.

## [Announcement](#)




The information in this document is subject to change without notice.

The document is only used as operation guide, except for other promises. No warranties of any kind, either express or implied are made in relation to the description, information or suggestion or any other contents of the manual.

The images shown here are indicative only. If there is inconsistency between the image and the actual product, the actual product shall govern.

## [Symbol Conventions](#)

The symbols that may be found in this document are defined as follows.

Symbol	Description
 <b>DANGER</b>	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.
 <b>WARNING</b>	Indicates a hazard with a medium or low level of risk, which if not avoided, could result in minor or moderate injury.
 <b>CAUTION</b>	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.

## Change History

Updates between document issues are cumulative. Therefore, the latest document issue contains all updates made in previous issues.

<b>Version</b>	<b>State</b>	<b>Release Date</b>	<b>Description</b>
V1.0	Released	2021-01-22	Initial commercial release.

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# 1 Packing List

Open the box of the product and carefully unpack it. The box should contain the following items. Please check before installation, if any missing, please contact your dealer immediately.

No.	Items	Quantity
1	Switch	1 pc
2	RS-232 cable (Sub-D9 to RJ-45)	1 pc
3	AC Power Cable	1 pc
4	Mounting Accessory	1 set
5	Quick Installation Guide	1 pc

## 2 Product Introduction

### 2.1 Overview

The switch is 48-Port Gigabit SFP+ 4-Port 10G SFP+ L3 Managed Ethernet Switch (short for 48-Port L3 Managed Switch). It is full fiber stackable routing switches with fixed, built-in 10GbE uplink ports. The fully managed switch provides high availability, scalability, security, energy efficiency, and easy operation with rich L3 features, ideal for aggregation or access layer for campus, enterprise, government and service provider networks. It is deployed as Access switch with 10G uplink in FTTH network.

### 2.1 Hardware Introduction

#### Front Panel



#### Real Panel




#### [Led Indicators Instructions](#)

Indicators		Status	Descriptions
PWR	AC Power Indicator	On (Green)	AC power is operating normally
		Off	AC power is not operating
RPS	DC Power Indicator	On (Green)	DC power is operating normally
		Off	DC power is not operating
DIAG	System Indicator	Blink (Green)	System is loading
		On (Green)	System is operating normally
MGMT	Management Port Indicator	On (Green)	Network management port 10M/100M/1G is linking
		Off	Network management port is not linking
		Blink	Data forwarding
Port Link Indicator		On	The port is linking normally.

	Blink	The port is transmitting or receiving data.
	Off	The port links down.

## Interfaces

<b>Interfaces</b>	<b>Specifications</b>
SFP	100/1000 Base-X SFP
SFP+	10 GbE SFP+
RJ-45 port	<ul style="list-style-type: none"> <li>· MGMT: Ethernet management port</li> <li>· CONSOLE: Console port for web management</li> </ul>
AC plug-in interface	<p>The rating voltage range: 100V~240V AC; 50/60HZ</p> <p>The max voltage range: 90V~264V AC; 47HZ~63HZ</p>
DC plug-in interface	<p>Removable 5-position terminal block.</p> <p>Voltage range: 11~13V</p> <p>Current value: 8.33A</p>
	Ground screw

# 3 Installations

## 3.1 Installation Notice

To ensure the proper operation of switch and your physical security, please read carefully the following installation guide.

### 3.1.1 Environmental Requirements

- The switch must be installed in a clean area. Otherwise, the switch may be damaged by electrostatic adherence.
- Maintain the temperature within 0 to 50 °C and the humidity within 5% to 95%, non-condensing.
- The switch must be put in a dry and cool place. Leave sufficient spacing around the switch for good air circulation.
- The switch must work in the range of AC power input: 100~240V AC (50/60Hz) and DC power input: 11~13V DC.
- The switch must be well grounded in order to avoid ESD damage and physical injury of people.
- The switch should avoid the sunlight perpendicular incidence. Keep the switch away from heat sources and strong electromagnetic interference sources.
- The switch must be mounted to a standard 19" rack or placed on a clean level desktop.

### Dust and Particles

Dust is harmful to the safe operation of switch. Dust can lead to electrostatic adherence, especially likely under low relative humidity, causing poor contact of metal connectors or contacts. Electrostatic adherence will result in not only reduced product lifespan, but also increased chance of communication failures. The recommended value for dust content and particle diameter in the site is shown below:

<b>Max Diameter (µm)</b>	0.5	1	3	5
<b>Max Density (particles/m<sup>3</sup>)</b>	1.4×10 <sup>5</sup>	7×10 <sup>5</sup>	2.4×10 <sup>5</sup>	1.3×10 <sup>5</sup>

In addition, salt, acid and sulfide in the air are also harmful to the switch. Such harmful gases will aggravate metal corrosion and the aging of some parts. The site should avoid harmful gases, such as SO<sub>2</sub>, H<sub>2</sub>S, NO<sub>2</sub>, NH<sub>3</sub> and Cl<sub>2</sub>, etc. The table below details the threshold value.



Gas	Average (mg/m <sup>3</sup> )	Max (mg/m <sup>3</sup> )
SO <sub>2</sub>	0.2	1.5
H <sub>2</sub> S	0.006	0.03
NO <sub>2</sub>	0.04	0.15
NH <sub>3</sub>	0.05	0.15
Cl <sub>2</sub>	0.01	0.3

### Temperature and Humidity

Although the switch is designed to use fans, the site should still maintain a desirable temperature and humidity. High-humidity conditions can cause electrical resistance degradation or even electric leakage, degradation of mechanical properties and corrosion of internal components. Extreme low relative humidity may cause the insulation spacer to contract, making the fastening screw insecure. Furthermore, in dry environments, static electricity is liable to be produced and cause harm to internal circuits. Temperature extremes can cause reduced reliability and premature aging of insulation materials, thus reducing the switch's working lifespan. In the hot summer, it is recommended to use air-conditioners to cool down the site. And the cold winter, it is recommended to use heaters.

The recommended temperature and humidity are shown below:

Temperature:		Relative humidity	
Long term condition	Short term condition	Long term condition	Short term condition
15 ~ 30°C	0 ~ 50°C	40 ~ 65%	5 ~ 95%

A sample of ambient temperature and humidity should be taken at 1.5m above the floor and 0.4m in front of the switch rack, with no protective panel covering the front and rear of the rack. Short term working conditions refer to a maximum of 48 hours of continued operation and an annual cumulative total of less than 15 days. Formidable operation conditions refers to the ambient temperature and relative humidity value that may occur during an air-conditioning system failure, and normal operation conditions should be recovered within 5 hours.

### Power Supply

Before powering on the power supply, please check the power input to ensure proper grounding of the power supply system. The input source for the switch should be reliable and secure; a voltage adaptor can be used if necessary. The building's circuit protection system should include in the circuit a fuse or circuit-breaker of no greater than 240 V, 10A. It is recommended to use a UPS for more reliable power supplying.



## CAUTION

Improper power supply system grounding, extreme fluctuation of the input source, and transients (or spikes) can result in larger error rate, or even hardware damage!

### Preventing Electrostatic Discharge Damage

Static electric discharges can cause damage to internal circuits, even the entire switch. Follow these guidelines for avoiding ESD damage:

- Ensure proper earth grounding of the device;
- Perform regular cleaning to reduce dust;
- Maintain proper temperature and humidity;
- Always wear an ESD wrist strap and antistatic uniform when in contact with circuit boards.

### Anti-interference

All sources of interference, whether from the device/system itself or the outside environment, will affect operations in various ways, such as capacitive coupling, inductive coupling, electromagnetic radiation, common impedance (including the grounding system) and cables/lines (power cables, signal lines, and output lines). The following should be noted:

- Precautions should be taken to prevent power source interruptions;
- Provide the system with a dedicated grounding, rather than sharing the grounding with the electronic equipment or lightning protection devices;
- Keep away from high power radio transmitters, radar transmitters, and high frequency strong circuit devices;
- Provide electromagnetic shielding if necessary.

### Rack Configuration

The dimensions of the switch is designed to be mounted on a standard 19" rack, please ensure good ventilation for the rack.

- Every device in the rack will generate heat during operation, therefore vent and fans must be provided for an enclosed rack, and devices should not be stacked closely.
- When mounting devices in an open rack, care should be taken to prevent the rack frame from obstructing the switch ventilation openings. Be sure to check the positioning of the switch after installation to avoid the aforementioned.



## CAUTION

If a standard 19" rack is not available, the switch can be placed on a clean level desktop, leave a clearance of 100mm around the switch for ventilation, and do not place anything on top of the switch.

### 3.1.2 Installation Caution

- Read through the installation instruction carefully before operating on the system. Make sure the installation materials and tools are prepared. And make sure the installation site is well prepared.
- During the installation, users must use the brackets and screws provided in the accessory kit. Users should use the proper tools to perform the installation. Users should always wear antistatic uniform and ESD wrist straps. Users should use standard cables and connectors.
- After the installation, users should clean the site. Before powering on the switch, users should ensure the switch is well grounded. Users should maintain the switch regularly to extend the lifespan of the switch.

### 3.1.3 A-level declarations

According to the requirements of standard GB9254-2008 "Radio Disturbance Limits and Measurement Methods for Information Technology Equipment", information technology equipment can be divided into two categories: A-level ITE and B-level ITE.

Class A ITE is a category of all other ITE which satisfies the class A ITE limits but not the class B ITE limits. The following warning shall be included in the instructions for use:



#### **WARNING**

This is class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

### 3.1.4 Security Warnings

- When using SFP transceiver, do not stare directly at the fiber bore when the switch is in operation. Otherwise the laser may hurt your eyes.
- Do not attempt to conduct the operations which can damage the switch or which can cause physical injury.
- Do not install, move or disclose the switch and its modules when the switch is in operation.
- Do not open the switch shell.
- Do not drop metals into the switch. It can cause short-circuit.
- Do not touch the power plug and power socket.
- Do not place the tinder near the switch.
- Do not configure the switch alone in a dangerous situation,
- Use standard power sockets which have overload and leakage protection.
- Inspect and maintain the site and the switch regularly.
- Have the emergence power switch on the site. In case of emergence, switch off the power immediately.



## CAUTION

Potential risk include: Electric leakage, Power supply arcing, Power line breakage, Imperfect earth, Overload circuit and Electrical short circuit. If electric shock, fire, electrical short circuit occurs, please cut off the electricity supply and alarm rapidly. Rescue the injured person in the contingency under inherently safe, give the injured person proper first aid treatment according to the injury state, and seek help from the Medical Emergency using various ways

## 3.2 Installation Preparation

The required tools and utilities are shown below:

- Cross screwdrivers
- Flat-blade screwdriver
- ESD wrist strap
- Antistatic uniform



## CAUTION

Users should prepare the required tools and utilities by themselves.

## 3.3 Device Installation

### 3.3.1 Installing the Switch

Please mount switch on the 19" rack as below:



- Attach the 2 brackets on the switch with screws provided in the accessory kit.
- Put the bracket-mounted switch smoothly into a standard 19" rack. Fasten the switch to the rack with the screws provided. Leave enough space around the switch for good air circulation.



## CAUTION

The brackets are used to fix the switch on the rack. They can't serve as a bearing. Because the device is heavy, we suggest installing the rack tray on the bottom of the switch. Do not place anything on top of the switch. Do not block the blowholes on the switch to ensure the proper operation of the switch. If there is no tray, add the lugs (The device provides it) on the back of the switch to make it fix on the rack.

There is no back horn iron in standard configuration. If users bought it, the figure of installation is below:

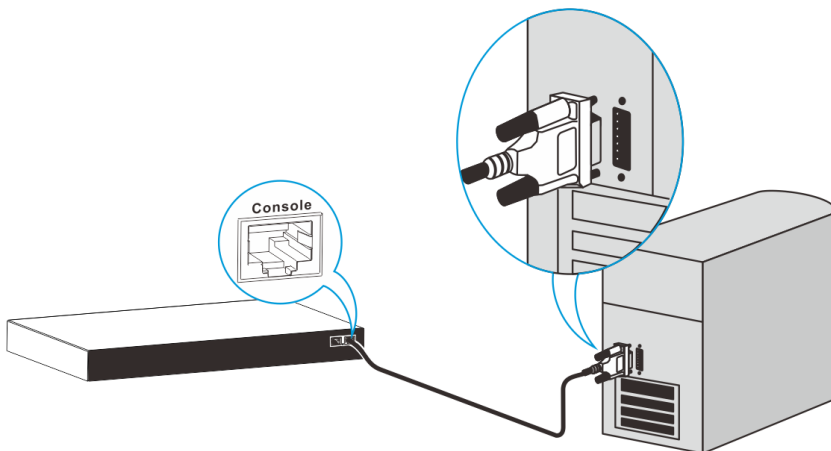


## CAUTION

The brackets are used to fix the switch on the rack. They can't serve as a bearing. Please place a rack shelf under the switch. Don't place anything on top of the switch. Do not block the blowholes on the switch to ensure the proper operation.

### 3.3.2 Connecting Console

The switch provides a serial RJ-45 console port.



The connection procedure is listed below:

- Find the console cable provided in the accessory kit. Attach the RJ-45 end to console port of the switch.
- Connect the other side of the console cable to a character terminal (PC).
- Power on the switch and the character terminal. Configure the switch through the character terminal.

### 3.3.3 SFP/SFP+ Transceiver Installation

Switch has multiple 10Gb interfaces and provides multiple 1000Mb SFP or 10Gb SFP+ transceiver slots.

The procedure for installing the SFP/SFP+ transceiver is shown below:

- Step 1: Put on a ESD wrist strap (or antistatic gloves)
- Step 2: Insert the SFP/SFP+ transceiver to the guide rail inside the fiber interface line card. Do not put the SFP/SFP+ transceiver up-side-down.
- Step 3: Push the SFP/SFP+ transceiver along the guide rail gently until you feel the transceiver snap into place at the bottom of the line card.

Note: the SFP/SFP+ transceiver is hot swappable.



#### **CAUTION**

Do not stare directly at the 2 fiber bore in the SFP/SFP+ transceiver when the switch is in operation, otherwise the laser may hurt your eyes.

### 3.3.4 Copper Cable/Fiber Cable Connection

Copper cables should be connected as below:

- Step 1: Insert one end of the Ethernet cable to the RJ-45 Ethernet port in the switch copper cable line card;
- Step 2: Insert the other end of the Ethernet cable to the RJ-45 Ethernet port of some other device;
- Step 3: Check all status indicators for the corresponding ports; a lighted LED indicates that the link has been established, otherwise the link is not ready and the cable should be examined.



#### CAUTION

Please verify the sign above the port to ensure using the right port. Connecting to wrong ports might damage the switch.

Fiber cables should be connected as below:

- Step 1: remove the protective plug from the SFP/SFP+ fiber transceiver bore; Remove the protective cap from one end of the fiber cable. Keep the fiber end clean and neat.
- Step 2: Attach one end of the fiber cable to the SFP/SFP+ transceiver, and attach the other end to the transceiver of the other devices. Note: SFP/SFP+ transceiver's TX port should be connected to RX port of other device, and SFP/SFP+ transceiver's RX port should be connected to TX port of other device.
- Step 3: Check the fiber port status indicator, a light LED indicates that the link has been established; otherwise the link is not ready and should be examined.



#### CAUTION

Please verify the sign above the port to ensure using the other ports. Connecting to wrong ports might damage the transceiver or the other ports. When connecting other devices through a fiber cable to the switch, the output power of the fiber cable must not exceed the maximum received power of the corresponding modules. Otherwise, it will damage the fiber transceiver. Do not stare at the fiber bore when the switch is in operation. That may hurt your eyes.

### 3.3.5 Power Supply Connection

Switch uses 220V AC power. Please read the power input specification for the detailed information.

Power supply connection procedure is described as below:

- Insert one end of the power cable provided in the accessory kit into the power source socket (with overload and leakage protection), and the other end to the power socket in the back panel of the switch.
- Check the power status indicator in the front panel of the switch. The corresponding power indicator should light. Switch is self-adjustable for the input voltage. As soon

as the input voltage is in the range printed on the switch surface, the switch can operate correctly.

- When the switch is powered on, it executes self-test procedure and startups.



## **CAUTION**

The input voltage must be within the required range, otherwise the switch can be damaged or malfunction. Do not open the switch shell without permission. It can cause physical injury.

### **3.3.6 Ground Cable Connection**

Grounding: The chassis of the equipment must be grounded properly so that the lightning can flow to the ground, which improves the capability of the chassis for resisting the electromagnetic interference.

- Ensure that the grounding cable is connected correctly so that the equipment is protected against lightning and interference. The correct connection of the grounding cable is an important measure to ensure the human safety.
- Connect the chassis to the ground by using a grounding cable. The grounding resistance must be smaller than 0.10 ohms and the gauge of the grounding cable must be greater than 10 AWG and the length is 50 cm.
- Installation steps:
  - Step 1: Ensure the power switch is set to the off position.
  - Step 2: Use the screwdriver to turn the screws on the earth ground screw point.
  - Step 3: Strip one end of the ground wire to the ground hole of system.
  - Step 4: Connect the other end of the ground wire to a suitable grounding point of building at your side.



## 4 Specifications

Items	48-Port L3 Managed Switch
Ethernet Ports	
Downlink Ports	48*100/1000 Base-X SFP
Uplink Ports	4*10 GbE SFP+
Management Ports	1*Console port 1*RJ-45 Ethernet management port, supporting 1000Mb rate 1*USB 2.0 Interface
Switching Property	
Switching Capacity	176Gbps
Packet Forwarding Rate	131Mpps
Jumbo Frame	10kB
MAC Table	16k
ARP Table	4k
Routing Table	1k
ACL Table	1k
Physical Parameter	
AC Power	The rating voltage range: 100V~240V AC; 50/60HZ The max voltage range: 90V~264V AC; 47HZ~63HZ
DC Power	voltage range: 11~13V current value: 8.33A
Power Consumption	≤60W
Operating Temperature	0°C~50°C
Storage Temperature	-40~70°C
Operating Humidity	5%~95% (Non-condensation)
Fan	Support automatic speed adjustment
Dimension(W*D*H)	440mm*320mm*44mm
Net Weight	<6kg





