Ethernet Switch (4/8-port Unmanaged Desktop Switch)

Quick Start Guide

V1.0.0

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Foreword

General

This manual mainly introduces the hardware, installation, and wiring steps of the 4/8-port unmanaged desktop switch (hereinafter referred to as "the device").

Safety Instructions

The following categorized signal words with defined meaning might appear in the manual.

Signal Words	Meaning
 DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
 CAUTION	Indicates a potential risk which, if not avoided, could result in property damage, data loss, lower performance, or unpredictable result.
 TIPS	Provides methods to help you solve a problem or save you time.
 NOTE	Provides additional information as the emphasis and supplement to the text.

Revision History

Version	Revision Content	Release Time
V1.0.0	First release.	March 24, 2021

About the Manual

- The manual is for reference only. If there is inconsistency between the manual and the actual product, the actual product shall prevail.
- We are not liable for any loss caused by the operations that do not comply with the manual.
- The manual would be updated according to the latest laws and regulations of related regions. For detailed information, see the paper manual, CD-ROM, QR code or our official website. If there is inconsistency between paper manual and the electronic version, the electronic version shall prevail.
- All the designs and software are subject to change without prior written notice. The product updates might cause some differences between the actual product and the manual. Please contact the customer service for the latest program and supplementary documentation.
- There still might be deviation in technical data, functions and operations description, or errors in print. If there is any doubt or dispute, please refer to our final explanation.
- Upgrade the reader software or try other mainstream reader software if the manual (in PDF format) cannot be opened.
- All trademarks, registered trademarks and the company names in the manual are the properties of their respective owners.
- Please visit our website, contact the supplier or customer service if there is any problem occurred

when using the device.

- If there is any uncertainty or controversy, please refer to our final explanation.

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Important Safeguards and Warnings

The manual helps you to use our product properly. To avoid danger and property damage, read the manual carefully before using the product, and we highly recommend you to keep it well for future reference.

Operating Requirements

- Do not expose the device directly to the sunlight, and keep it away from heat.
- Do not install the device in the damp environment, and avoid dust and soot.
- Make sure the device is in horizontal installation, and install the device on solid and flat surface to avoid falling down.
- Avoid liquid spattering on the device. Do not place object full of liquid on the device to avoid liquid flowing into the device.
- Install the device in the well-ventilated environment. Do not block the air vent of the device.
- Use the device at rated input and output voltage.
- Do not disassemble the device without professional instruction.
- Transport, use, and store the device in allowed ranges of humidity and temperature.
- When removing the cable, power off the device first to avoid personal injury.
- Voltage stabilizer and lightning protection device are optional according to power supply and surrounding environment.

Power Supply Requirements

- Use the battery properly to avoid fire, explosion, and other dangers.
- Replace the battery with battery of the same type.
- Use locally recommended power cord in the limit of rated specifications.
- Use the standard power adapter. We will assume no responsibility for any problems caused by nonstandard power adapter.
- The power supply shall meet the SELV requirement. Use the power supply that conforms to Limited Power Source, according to IEC 62368-1. Refer to the device label.
- Be sure to ground the device (cross section of copper wire: > 2.5 mm^2; resistance to ground: ≤ 4 Ω).
- The coupler is the disconnecting apparatus. Keep it at the angle for easy operation.

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1 Overview

1.1 Introduction

The device is a layer-2 commercial switch. It provides high-performance switching engine and large buffer memory to ensure smooth video stream transmission. With a full-metal and fanless design, the device features great heat dissipation capability on the shell surface, and is able to work in the environment from –10°C to +55 °C. With a DIP design, it can provide a variety of working modes for different scenarios. The device also supports power consumption management, which can adapt to the fluctuation of power consumption of terminal device to ensure stable operation.
The device is applicable for use in different scenarios, including home, office, server farm, and small mall.

1.2 Features

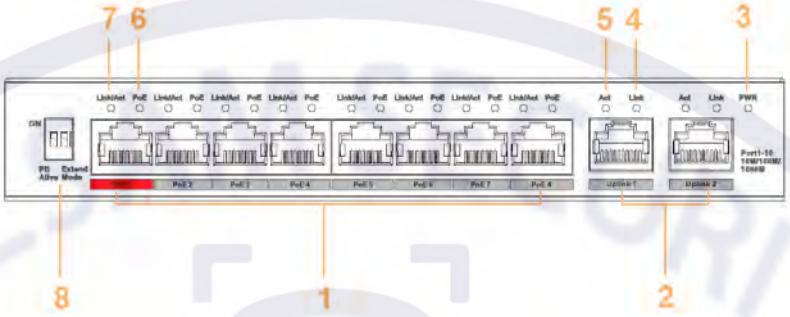
- 4/8 × 100/1000 Mbps Ethernet port
- All ports support IEEE802.3af and IEEE802.3at. The red port also supports Hi-PoE and IEEE802.3bt. The orange port also supports Hi-PoE
- 250 m long-distance PoE transmission, which can be enabled by DIP switch
- PoE watchdog
- Power consumption management
- Fanless
- Desktop mount and wall mount

2 Port and Indicator

2.1 Front Panel

The following figure is for reference only, and might differ from the actual product.

Figure 2-1 Front panel



The following are all the ports and indicators on the front panel of the 4/8-port unmanaged desktop switch. The actual device may only have a part of them. Refer to the table below for the contents of the actual device panel.

Table 2-1 Description of front panel

No.	Description
1	10/100 Mbps or 10/100/1000 Mbps self-adaptive Ethernet ports
2	10/100 Mbps or 10/100/1000 Mbps self-adaptive uplink port
3	Power indicator ● On: Power on ● Off: Power off
4	Single-port connection status indicator (Link) ● On: Connected to device ● Off: Not connected to device
5	Single-port data transmission status indicator (Act) ● Flashes: Data transmission is in progress ● Off: No data transmission
6	PoE port status Indicator ● On: Powered by PoE ● Off: Not powered by PoE
7	Single-port connection or data transmission status indicator (Link/Act) ● On: Connected to device ● Off: Not connected to device ● Flashes: Data transmission is in progress

No.	Description
8	DIP switch ● PD Alive: When terminal device crash is detected, power down and restart the terminal device. ● Extend Mode: Extends the maximum transmission distance to 250 m, but reduces average transmission speed to 10 Mbps.
 (Not included in the figure)	Another DIP switch Select **Default** or **Extend Mode** by dialing the DIP switch. Extend Mode: Extends the maximum transmission distance to 250 m, but reduces average transmission speed to 10 Mbps.
Speed (Not included in the figure)	Uplink port speed indicator ● On: 100 Mbps/1000 Mbps ● Off: 10 Mbps

2.2 Rear Panel

The following figure is for reference only, and may differ from the actual product.

Figure 2-2 Rear panel

Table 2-2 Description of rear panel

No.	Name	Description
1	GND	Ground terminal. Available for certain models.
2	Lock hole	Used to lock the device. Available for certain models.
3	Power port	Supports 48 V–57 V DC.

3 Installation

3.1 Preparation

- Select an appropriate installation method as needed.
- Install the device on solid and flat surface.
- Leave about 10 cm heat dissipation space around the switch to ensure good ventilation.

3.2 Desktop Mount

The device supports desktop mount. You can directly place it on solid and flat desktop.

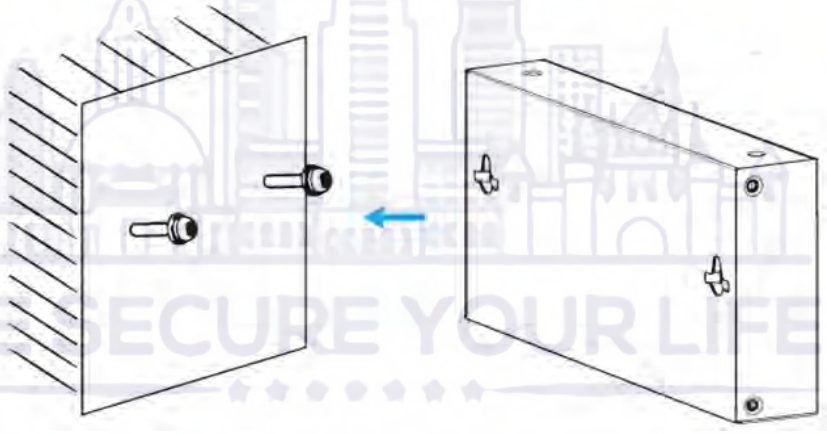
3.3 Wall Mount

Step 1 Drill two M4 screws into the wall, leaving a space of 4 mm between the wall and the head of the screw.

- Screws do not come with the package. Purchase them as needed.
- Make sure that the distance between the screws is the distance between the wall-mount holes (77.8 mm for a 4-port switch and 128.4 mm for an 8-port switch).

Step 2 Align the wall-mount holes on the back cover of the device with the screws, and hang the device on the screws.

Figure 3-1 Wall mount



4 Wiring

4.1 Connecting GND

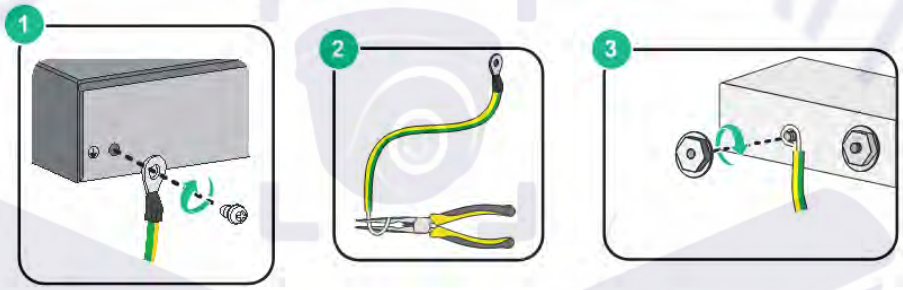
Normal GND connection of the device is the important guarantee for device lightning protection and anti-interference. The steps for connecting the GND are as follows:

Step 1 Remove the ground screw on the device and place it properly. Pass the ground screw through the round hole of the OT terminal of the ground cable. Turn the ground screw clockwise with a cross screwdriver to fasten the OT terminal of the ground cable.

Step 2 Wind the other end of the ground cable into a circle with needle-nose pliers.

Step 3 Connect the other end of the ground cable to the ground bar, turn the hex nut clockwise with a wrench to fasten the other end of the ground cable to the ground terminal.

Figure 4-1 Connect GND



4.2 Connecting Power Cord

Before connecting the power cord, make sure that the device is reliably grounded.

Step 1 Connect one end of the power cord into the power jack of the device accurately.

Step 2 Connect the other end of the power cord to the external power socket.

4.3 Connecting Ethernet Port

Ethernet port adopts standard RJ-45 port. With self-adaptation function, it can be automatically configured to full duplex/half-duplex operation mode. It supports MDI/MDI-X self-recognition of the cable, therefore, you can use cross-over cable or straight-through cable to connect terminal device to network device.

Figure 4-2 Ethernet port pin number

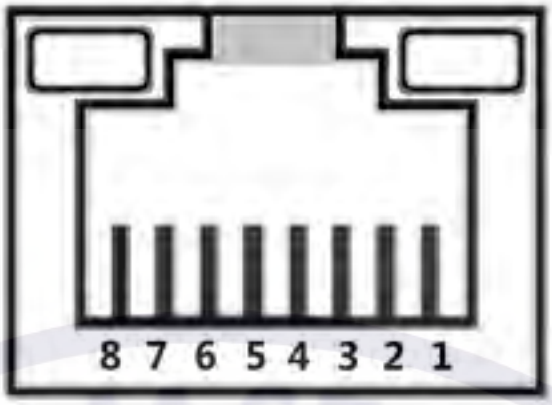
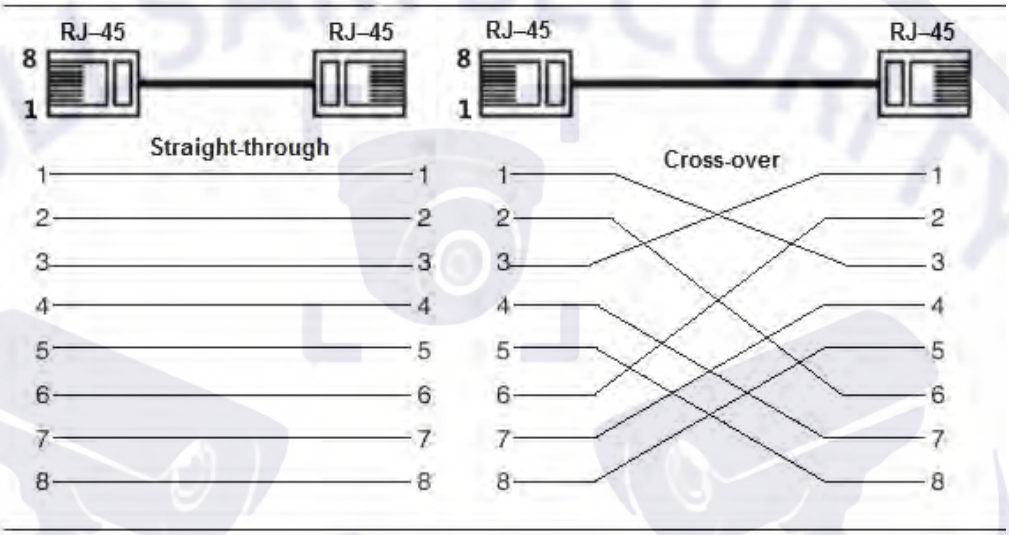


Figure 4-3 Pin description



The cable connection of RJ-45 connector conforms to the standard 568B (1-orange white, 2-orange, 3-green white, 4-blue, 5-blue white, 6-green, 7-brown white, 8-brown).

4.4 Connecting PoE Ethernet Port

You can directly connect the device PoE Ethernet port to the switch PoE Ethernet port through network cable to achieve synchronized network connection and power supply. With **Extend Mode** disabled, the maximum distance between the switch and the device is about 100 m.

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When connecting to a non-PoE device, the device needs to be used with an isolated power supply.

Appendix 1 Cybersecurity Recommendations

Cybersecurity is more than just a buzzword: it's something that pertains to every device that is connected to the internet. IP video surveillance is not immune to cyber risks, but taking basic steps toward protecting and strengthening networks and networked appliances will make them less susceptible to attacks. Below are some tips and recommendations on how to create a more secured security system.

Mandatory actions to be taken for basic device network security:

1. **Use Strong Passwords**

   Please refer to the following suggestions to set passwords:

   - The length should not be less than 8 characters;
   - Include at least two types of characters; character types include upper and lower case letters, numbers and symbols;
   - Do not contain the account name or the account name in reverse order;
   - Do not use continuous characters, such as 123, abc, etc.;
   - Do not use overlapped characters, such as 111, aaa, etc.;

2. **Update Firmware and Client Software in Time**

   - According to the standard procedure in Tech-industry, we recommend to keep your device (such as NVR, DVR, IP camera, etc.) firmware up-to-date to ensure the system is equipped with the latest security patches and fixes. When the device is connected to the public network, it is recommended to enable the "auto-check for updates" function to obtain timely information of firmware updates released by the manufacturer.
   - We suggest that you download and use the latest version of client software.

"Nice to have" recommendations to improve your device network security:

1. **Physical Protection**

   We suggest that you perform physical protection to device, especially storage devices. For example, place the device in a special computer room and cabinet, and implement well-done access control permission and key management to prevent unauthorized personnel from carrying out physical contacts such as damaging hardware, unauthorized connection of removable device (such as USB flash disk, serial port), etc.

2. **Change Passwords Regularly**

   We suggest that you change passwords regularly to reduce the risk of being guessed or cracked.

3. **Set and Update Passwords Reset Information Timely**

   The device supports password reset function. Please set up related information for password reset in time, including the end user's mailbox and password protection questions. If the information changes, please modify it in time. When setting password protection questions, it is suggested not to use those that can be easily guessed.

4. **Enable Account Lock**

   The account lock feature is enabled by default, and we recommend you to keep it on to guarantee the account security. If an attacker attempts to log in with the wrong password several times, the corresponding account and the source IP address will be locked.

5. **Change Default HTTP and Other Service Ports**

   We suggest you to change default HTTP and other service ports into any set of numbers between 1024~65535, reducing the risk of outsiders being able to guess which ports you are using.

6. **Enable HTTPS**

   We suggest you to enable HTTPS, so that you visit Web service through a secure communication channel.

7. **MAC Address Binding**

   We recommend you to bind the IP and MAC address of the gateway to the device, thus reducing the risk of ARP spoofing.

8. **Assign Accounts and Privileges Reasonably**

   According to business and management requirements, reasonably add users and assign a minimum set of permissions to them.

9. **Disable Unnecessary Services and Choose Secure Modes**

   If not needed, it is recommended to turn off some services such as SNMP, SMTP, UPnP, etc., to reduce risks.

   If necessary, it is highly recommended that you use safe modes, including but not limited to the following services:

   - SNMP: Choose SNMP v3, and set up strong encryption passwords and authentication passwords.
   - SMTP: Choose TLS to access mailbox server.
   - FTP: Choose SFTP, and set up strong passwords.
   - AP hotspot: Choose WPA2-PSK encryption mode, and set up strong passwords.

10. **Audio and Video Encrypted Transmission**

    If your audio and video data contents are very important or sensitive, we recommend that you use encrypted transmission function, to reduce the risk of audio and video data being stolen during transmission.

    Reminder: encrypted transmission will cause some loss in transmission efficiency.

11. **Secure Auditing**

    - Check online users: we suggest that you check online users regularly to see if the device is logged in without authorization.
    - Check device log: By viewing the logs, you can know the IP addresses that were used to log in to your devices and their key operations.

12. **Network Log**

    Due to the limited storage capacity of the device, the stored log is limited. If you need to save the log for a long time, it is recommended that you enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

13. **Construct a Safe Network Environment**

    In order to better ensure the safety of device and reduce potential cyber risks, we recommend:

    - Disable the port mapping function of the router to avoid direct access to the intranet devices from external network.
    - The network should be partitioned and isolated according to the actual network needs. If there are no communication requirements between two sub networks, it is suggested to use VLAN, network GAP and other technologies to partition the network, so as to achieve the network isolation effect.
    - Establish the 802.1x access authentication system to reduce the risk of unauthorized access to private networks.
    - Enable IP/MAC address filtering function to limit the range of hosts allowed to access the device.