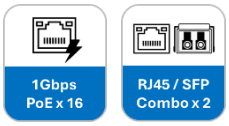
L2+ Managed PoE Switch

16-Port 10/100/1000M PoE+ and 2-Port Gigabit SFP/RJ45 Combo



CMPS-16P21GC

QUICK START GUIDE

Ver. CMPS-PSG-QSG01.1

Handling and Safety Precautions

To ensure safe and proper use of your 1Gbps Managed PoE Switch, follow these handling and safety guidelines:

General Safety

- **Ensure proper ventilation:** Install the switch in a well-ventilated area. Do not block air vents or place objects on top of the device to prevent overheating.
- **Use grounded outlets:** Always plug the switch into a grounded electrical outlet that matches the voltage rating specified on the device label.
- **Avoid moisture and liquids:** Keep the switch away from water, moisture, and other liquids to avoid electrical shock or damage.
- **Use only approved accessories:** Ensure that all connected cables and accessories are rated for the correct power and data specifications to avoid damage.

Handling and Installation

- **Lift with care:** If moving the switch, lift it carefully to avoid injury. If the unit is heavy, use additional personnel or equipment.
- **Use proper mounting techniques:** When installing in a rack, secure the switch properly using rackmount brackets, and ensure that screws are tightened evenly. For desktop use, ensure the switch is placed on a stable, flat surface.
- **Check PoE devices:** Before connecting PoE-powered devices (e.g., IP cameras), verify that they comply with the IEEE 802.3at/af standard supported by the switch.
- **Power off before servicing:** Always turn off the power and unplug the switch before performing any physical maintenance, such as dismantling, cable adjustments, etc.

Electrical Safety

- **Avoid overloading power circuits:** Ensure that the power source can handle the total power consumption of the switch and all connected PoE devices.
- **Surge protection:** To protect against power surges, use a surge protector or uninterruptible power supply (UPS) where necessary.
- **Handle PoE cables with care**: PoE cables carry both data and power; avoid kinks, cuts, or damage to cables that could cause short circuits.

Environment

- **Temperature and humidity:** Operate the switch in an environment where the temperature and humidity stay within the recommended range specified in the product datasheet.
- **Avoid dust and debris:** Keep the switch and surrounding area free of dust to prevent clogging of ventilation fans and ports.

By following these precautions, you can ensure reliable performance and extend the life of your equipment.

Table of Contents

1 Introduction

The CMPS-16P21GC is a 16-port 10/100/1000M PoE switch with 2 Gigabit SFP/RJ45 combo ports, designed to enhance the network connection in small to medium environments. The 16 PoE ports support IEEE 802.3at/af PoE technology, providing up to 30W per port with a maximum transmission distance of 100 meters. The switch is equipped with an AC to DC power module to support the PoE power budget. The two SFP/RJ45 combo ports support both 100m and Gigabit fiber transceivers for long-distance transmission. Additionally, the switch offers advanced Layer 2+ management software features for PoE control, network management, monitoring, and security, making it an excellent choice for optimizing network performance, efficiency, and high PoE power consumption.

Highlights

- **IEEE 802.3at/af PoE Ports**

  Converts 100~240V AC to low-voltage DC, delivering power via LAN cables to IEEE 802.3at/af devices like access points and IP cameras. Includes PoE detection for device compatibility while supporting data transmission to non-compliant devices.

- **Gigabit RJ45 Copper/SFP Combo Ports**

  Two Gigabit Copper/SFP combo ports offer flexible uplinks for servers and storage, with long-distance transmission options.

- **Full Layer 2+ Management Features**

  Supports up to 4K VLANs, QoS with 8 queues, IPv4/IPv6 multicast filtering, RSTP/MSTP, LACP, LLDP, sFlow, port mirroring, cable diagnostics, and advanced security. Managed via CLI, SNMP, and web GUI.

- **IGMP Snooping for AV-over-IP and KVM-over-IP**

  Efficiently manages multicast traffic, optimizing AV-over-IP and KVM-over-IP performance by directing multicast data only to intended recipients, ensuring smooth multimedia and data transmission without network overload.

- **Advanced Security**

  Includes HTTPS/SSH for secure management, port binding, 802.1X authentication, AAA with RADIUS/TACACS+ integration, and Layer 2+ ACLs for access control based on IP, MAC, or port.

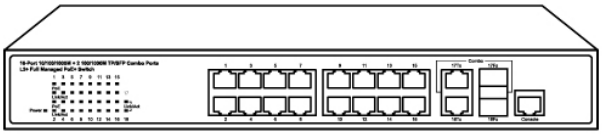
- **PD Alive Check**

  Monitors PoE devices (e.g., IP cameras) and automatically reboots non-responsive devices by cycling PoE power. Detection intervals and retries can be configured via the switch's PoE settings.

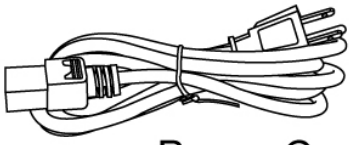
2 Hardware

2.1 Package Contents

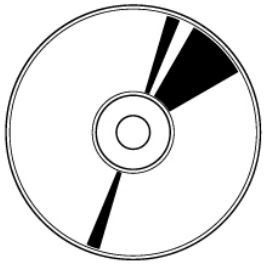
Before you begin installing the PoE+ Mid-Span Power Supply, please verify that your package contains the following items:



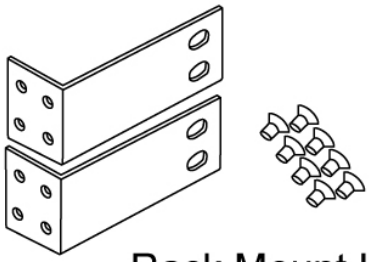
Switch



Power Cord



CD



Rack Mount Kit

- 1 x PoE Ethernet Switch
- 1 x AC Power Cord
- 1 x CD (User Manual)
- 1 x Rackmount Kit for 19” Rack Installation

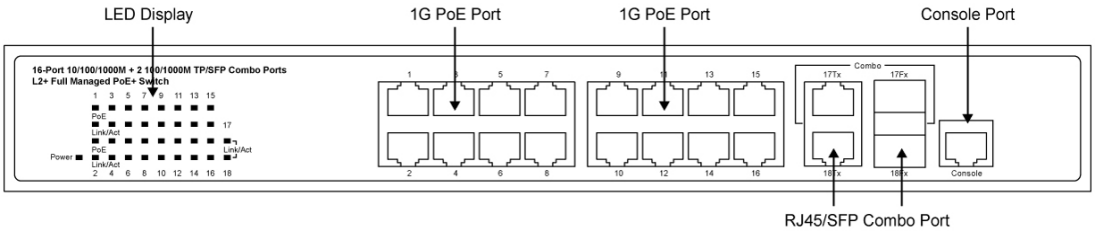
Note: If any of these items are found missing or damaged, please contact your local supplier for a replacement.

2.2 Hardware Description

This section describes the hardware of CMPS-16P21GC Managed PoE switch and provides a physical and functional overview of the switch.

Front Panel

The front panel of the Managed PoE switch consists of 16 10/100/1000 Base-TX RJ45 ports and 2 Gigabit uplink SFP/RJ45 combo ports. The LED Indicators are also located on the front panel.



LED Indicators

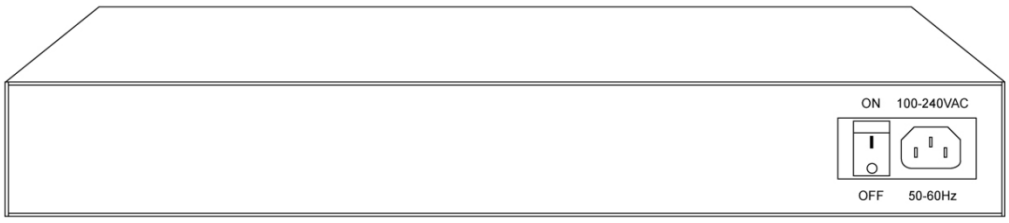
The LED Indicators provide real-time information on the switch's operational status. The table below describes the LED statuses and their meanings.

LED	Color / Status	Description	No. of LEDs
Power	On	Power on	1
Link/ACT	On	Link Up	1 – 18
	Blinking	Data Activity	1 – 18
PoE	On	PD Connected	1 – 16
	Blinking without Link/ACT LED On	PoE Budget Depleted*	1 – 16
SFP	On	Linked to Powered Device	17 – 18
	Blinking	Data Activity	17 – 18

***** If a new PD is connected to the PoE switch and the PoE budget is depleted, the PoE LED will start blinking. No Power will be provided, and the user must allocate PoE power manually.

Rear Panel

The rear panel of the network switch contains a power switch, and an IEC 60320 plug for power supply.



Note: This switch's fan is located on its side panel.

PoE Budget

Different switch models come with different power modules and PoE budget. The table below lists the Maximum Power and the PoE budget:

Model	Power Supply	PoE Budget
CMPS-16P21GC	1 x 310W	270W
CMPS-8P210GF	1 x 310W	250W
CMPS-24P410GF	1 x 600W	540W
	2 x 600W	540W
CMPS-48P410GF	1 x 920W	860W
	2 x 920W	860W

2.3 Hardware Installation

2.3.1 Brackets & Rack-Mounting Installation

The switch comes with 2 L-shaped brackets and 8 screws, allowing you to mount your switch to a 19-inch rack. The following sections guide you through installing the L-shaped brackets on the switch and mounting the switch to a 19-inch rack.

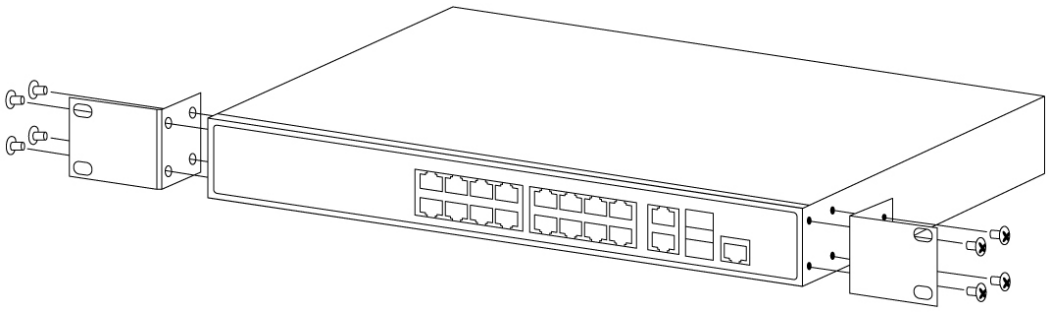
1. Prepare the Rack-mount Kits

Remove the Rack-mount Kits and screws from the package. You will also need a Philips screwdriver.

Power off your switch, and place it on a flat surface (e.g., a table).

Attach the 2 Rack-mount Kits to the sides of the switch using your Philips screwdriver, as shown in the picture below.

Ensure you fasten all the screws provided. Using insufficient number of screws may cause the Rack-mount Kits to be unable to support the switch's weight.

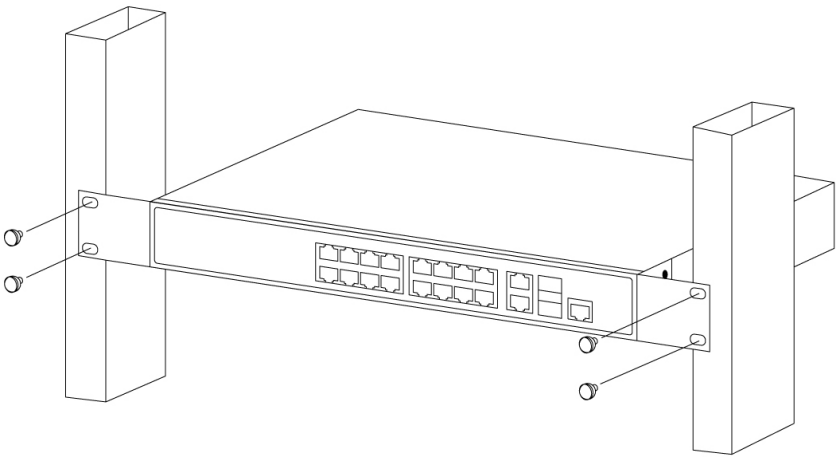


2. Mounting the Switch to the Rack

Before mounting the switch on a rack, ensure the Rack-mount Kits are properly installed as described above.

It is recommended to use M5 or M6 rack screws for mounting. If you're unsure which screws to use, contact the manufacturer of your rack. Using incorrect rack screws may damage the rack or the switch's rackmount unit, and in some cases, the incorrect screws may fail to support the switch's weight, causing it to fall.

You will need 4 rack screws to secure the switch to your rack. Fasten all 4 screws as shown in the picture below.



2.3.2 Ethernet Cable Requirements

The following minimum cable types are recommended based on network speeds:

- **10Base-T:** 2-pair UTP/STP CAT. 3, 4, 5 cable, EIA/TIA-568 100-ohm (Max. 100m)
- **100Base-TX:** 2-pair UTP/STP CAT. 5 cable, EIA/TIA-568 100-ohm (Max. 100m)
- **1000Base-T:** 4-pair UTP/STP CAT. 5e cable, EIA/TIA-568 100-ohm (Max. 100m)
- **PoE (Power over Ethernet):** For proper power delivery, it is recommended to use CAT5e or CAT6 cables. Higher quality Ethernet cables can reduce power loss during transmission.

2.3.3 SFP Transceiver and Optical Cable Installation

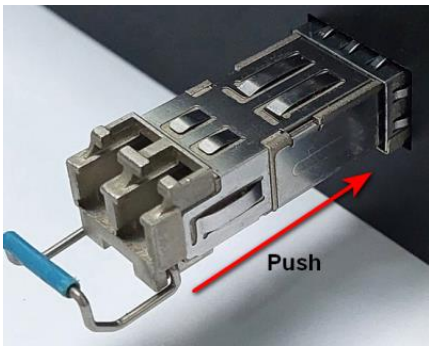
Before Installing SFP Transceiver, ensure the following:

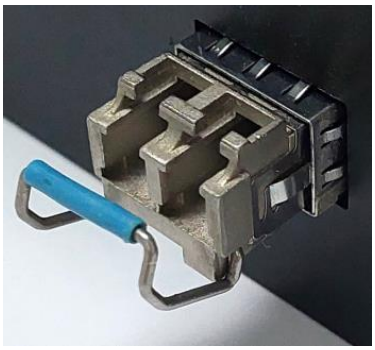
- Both ends of the SFP transceivers are the same type.
- The transmission distance, wavelength, and fiber cable specifications meet your requirements.
- It is recommended to purchase SFP transceivers from the same provider as the switch to avoid incompatible issues.

Installing the SFP Transceiver and Optical Cable

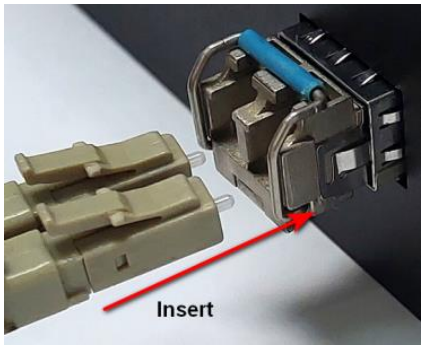
Follow these steps to install the SFP transceiver and optical cable on the switch:

1. **Insert the SFP transceiver:** Align the SFP transceiver with the SFP slot on the switch, then gently push it in until you hear a clicking sound, indicating that it is securely in place.





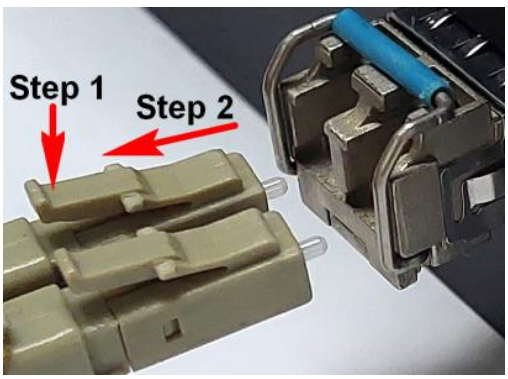
2. **Connect the optical cable:** Insert the optical fiber into the SFP transceiver. Again, push until you hear a clicking sound to ensure a secure connection.



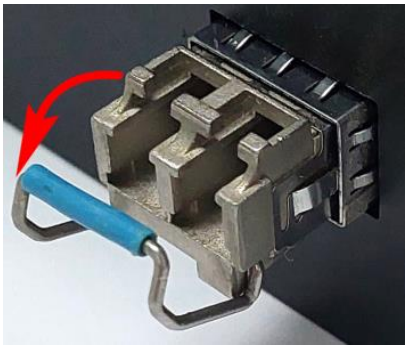
Uninstalling the SFP Transceiver and Optical Cable

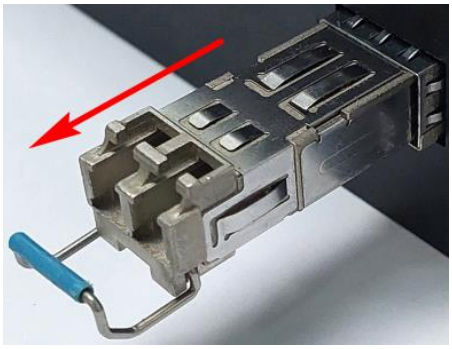
Follow these steps to uninstall the SFP transceiver and optical cable from the switch:

1. **Disconnect the optical cable:** Press and hold the latch on the optical fiber connector, then gently pull the optical fiber out of the SFP transceiver, as shown in the figure below.



2. **Remove the SFP transceiver:** Lower the bale clasp (the small lever) on the SFP transceiver. Hold the clasp, and carefully pull the SFP transceiver out of the switch's SFP port as shown in the figure below.



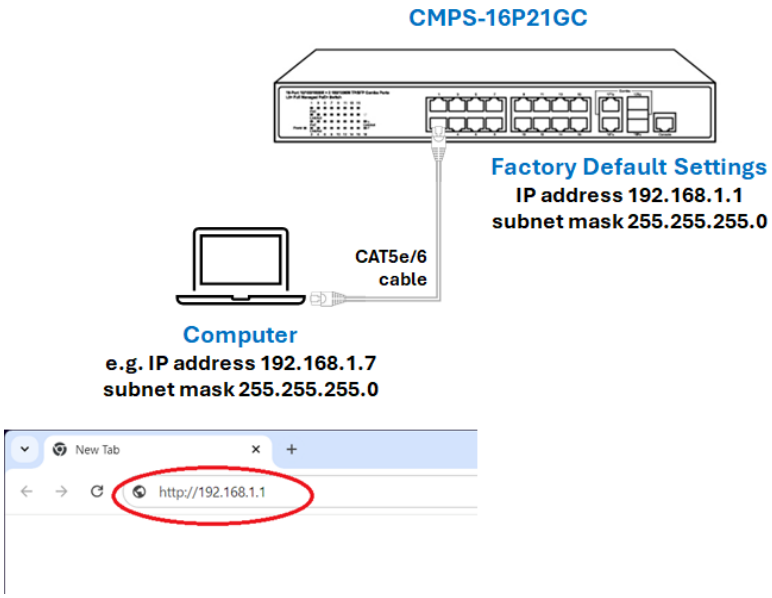


3 Initial Configuration of the Switch

3.1 Initial Switch Configuration Using Web UI

After powering up the switch for the first time, you can perform the initial switch configuration using a web browser. For managing other switch features, refer to the User Manual for details.

The factory default IP address of the switch is **192.168.1.1**. The factory default Subnet Mask of the switch is **255.255.255.0**.



1. To begin with the initial configuration stage, you need to set up your PC's IP address and subnet mask to make sure that the PC can communicate with the switch. You must choose an IP address for the computer in the range of 192.168.1.2 - 192.168.1.253 that is not already in use.

2. Open a web browser window.

3. Enter the switch IP address in the address bar and press Enter. That is, http://192.168.1.1.

4. The **Switch Login Page** displays.

5. Enter the default login information:

   - Username is **admin**
   - Default password is **admin**

     (Username and Password are case-sensitive)

6. Click Log In.

You are now ready to configure the switch. Refer to the User Manual for further information.

3.2 Switch Factory Configuration for AV-over-IP and KVM-over-IP Extenders

The CMPS 1GbE Managed PoE Switch Series is engineered for professional AV-over-IP and KVM-over-IP installations, providing out-of-the-box configuration for unicast and multicast IP extenders. It features robust IP and IGMP management, ensuring efficient handling of multicast streams, while supporting essential protocols like IGMP snooping and querier. With PoE capabilities to power connected devices and advanced features like jumbo frames, this switch delivers reliable, high-performance video, audio, and control data transmission, making it an ideal solution for AV and KVM-over-IP environments.

The factory default supports a standalone network switch configuration for common AV-over-IP and KVM-over-IP applications. Main factory settings configured for standalone av-over-ip deployment are as follows:

1. Switch Model and Port Configuration

Switch Model	**:**	CMPS-16P21GC
Ports Configuration	**:**	Port 1 – 16 are configured • Auto Negotiating Speed • Supports Full and Half Duplex 10M/100M/1G • Jumbo Frame 9600 bytes Port 17 – 18 are configured • SFP Auto Media Select • Jumbo Frame 9600 bytes

2. Management Interface

Management VLAN	**:**	**VLAN 1**
Console or Web UI Access	**:**	**Web -** http://192.168.1.1 **SSH -** 192.168.1.1 Port 22 **Telnet -** 192.168.1.1 Port 23 **Serial -** Baud Rate: 115200, Data Bit: 8, Parity: None, Stop Bit: 1, Flow Control: None.

3. System IP Configuration

Switch IP Address	**:**	192.168.1.1/24
Default Gateway	**:**	192.168.1.254

DHCP or Static IP Assignment	:	Static

4. PoE Configuration

PoE Enabled Ports	:	Port 1 – 16, PoE Mode, Class 4 PDs limited to 15.4W
PoE Schedule	:	Port 1 – 16 Disabled
PD Alive Enable	:	Port 1 – 16 Disabled

5. IGMP Snooping

Basic Configuration	:	**Global IGMP Snooping –** Enabled **Unregistered IPMCv4 Flooding Enabled –** Not Checked **Fast Leave –** Port 1 to 18 Checked
VLAN Configuration	:	**VLAN ID –** 1 **IGMP Snooping –** Enabled **Querier Election –** Checked **Querier Address –** 192.168.1.1 **IGMP Compatibility –** IGMPv2

6. Spanning Tree Protocol

STP Bridge Configuration	:	**Enabled**
Basic Settings	:	Protocol Version – **MSTP** Bridge Priority: 32768, Hello Time: 2, Forward Delay: 15, Max Age: 20, Max Hop Count: 20, Transmit Hold Count: 6

7. VLAN

Ports VLAN Configuration	:	Port 1 – 18 are set to **Access Port** Mode and Port **VLAN 1** *(No Trunk and Hybrid Port)*

8. Link Aggregation

Aggregation Group Configuration	:	NIL
LACP Port Configuration	:	NIL

9. Other Settings

LLDP Interface Configuration	:	Port 1 – 18 Enabled
Green Ethernet	:	Port 1 – 18 ActiPHY, PerfectReach and EEE are **Not Checked** *(Disabled)*

Please refer to the User Manual to learn more about setup, configuration options, and advanced features.