Product Specifications

48-Port 10/100/1000T 802.3at PoE + 4-Port 100/1000BASE-X SFP Managed Switch

GS-4210-48P4S

Version 3.0

Change History:

Revision:	Date:	Author:	Change List
Version 3.0	2022/11/1	Marc Liao	Initial Release - Dimension change. - POE chipset replacement from Microsemi PD69200 /PD69208M to Realtek RTL8238B.
Version 2.1	2021/12/22	Marc Liao	Firmware Enhance - ITU-T G.8032 ERPS support - Cybersecurity enhance
Version 2.0	2018/1/3	Bryant Wu	Change PoE and power Solution Change case to left side fan placement designed
Version 1.0	9/4/2015	Bryant Wu	Initial Release

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1. PRODUCT DESCRIPTION

Perfect Managed PoE+ Switch with Advanced L2/L4 Switching and Security

PLANET GS-4210-48P4S is a cost-optimized, high-density PoE+ Managed Gigabit Ethernet Switch featuring PLANET **intelligent PoE** functions to improve the availability of critical business applications. It provides IPv6/IPv4 dual stack management and built-in L2/L4 Gigabit switching engine along with **48 10/100/1000BASE-T** ports featuring **36-watt 802.3at PoE+** and **4 additional Gigabit SFP** slots. With a total power budget of up to **600 watts** for different kinds of PoE applications, it provides a quick, safe and cost-effective Power over Ethernet network solution for small businesses and enterprises.

Premium VoIP Networks for Medium- to Large-scale Deployments

The GS-4210-48P4S has 48 IEEE 802.3at PoE+ ports, 104Gbps switch fabric and advanced QoS functionality for deploying medium- to large-scale VoIP or wireless networks at a low total cost. One GS-4210-48P4S can power up 48 PoE VoIP phones and delivers HD (high-definition) voice to VoIP network with high priority, resulting in higher quality voice and clearer communication. From now on, customers only need fewer units of the GS-4210-48P4S than before to achieve the goal of cost-effectiveness, thereby saving setup time and human resource.

Cybersecurity Network Solution to Minimize Security Risks

The cybersecurity feature included to protect the switch management in a mission-critical network virtually needs no effort and cost to install. Both SSHv2 and TLSv1.2 protocols are utilized to provide strong protection against advanced threats. The network administrator can now construct highly-secure corporate networks with considerably less time and effort than before.

Redundant Ring, Fast Recovery for Critical Network Applications

The GS-4210-48P4S supports redundant ring technology and features strong, rapid self-recovery capability to prevent interruptions and external intrusions. It incorporates advanced ITU-T G.8032 ERPS (Ethernet Ring Protection Switching) technology and Spanning Tree Protocol (802.1w RSTP) into customer's network to enhance system reliability and uptime in harsh environments.

Built-in Unique PoE Functions for Powered Device Management

As it is the managed PoE switch for surveillance, wireless and VoIP networks, the GS-4210-48P4S features the following special PoE management functions:

- PD Alive Check
- Scheduled Power Recycling
- PoE Schedule
- PoE Usage Monitoring
- PoE Extension

PoE Schedule for Energy Savings

Under the trend of energy saving worldwide and contributing to environmental protection, the GS-4210-48P4S can effectively control the power supply besides its capability of giving high watts power. The "**PoE schedule**" function helps you to enable or disable PoE power feeding for each PoE port during specified time intervals and it is a powerful function to help SMBs or enterprises save power and money. It also increases security by powering off PDs that should not be in use during non-business hours.

Intelligent Powered Device Alive-Check

The GS-4210-48P4S can be configured to monitor connected PD (powered device) status in real time via ping action. Once the PD stops working and responding, the GS-4210-48P4S will resume the PoE port power and bring the PD back to work. It will greatly enhance the network reliability through the PoE port resetting the PD's power source and reducing administrator management burden.

Scheduled Power Recycling

The GS-4210-48P4S allows each of the connected PoE IP cameras or PoE wireless access points to reboot at a specific time each week. Therefore, it will reduce the chance of IP camera or AP crash resulting from buffer overflow.

802.3at PoE+ Power and Ethernet Data Transmission Distance Extension

In the **"Extend"** operation mode, the GS-4210-48P4S operates on a per-port basis at 10Mbps duplex operation but can support 36-watt PoE power output over a distance of up to 250 meters overcoming the 100m limit on Ethernet UTP cable. With this brand-new feature, the GS-4210-48P4S provides an additional solution for 802.3at/af PoE distance extension, thus saving the cost of Ethernet cable installation.

IPv6/IPv4 Dual Stack Management

Supporting both IPv6 and IPv4 protocols, the GS-4210-48P4S helps the SMBs to step in the IPv6 era with the lowest investment as its network facilities need not be replaced or overhauled if the IPv6 network is set up.

Robust Layer 2 Features

The GS-4210-48P4S can be programmed for advanced switch management functions such as dynamic port link aggregation, 802.1Q VLAN and **Q-in-Q VLAN**, **Multiple Spanning Tree protocol (MSTP)**, loop and **BPDU guard**, **IGMP snooping**, and **MLD snooping**. Via the link aggregation, the GS-4210-48P4S allows the operation of a high-speed trunk to combine with multiple ports, and supports fail-over as well. Also, the **Link Layer Discovery Protocol (LLDP)** is the Layer 2 protocol included to help discover basic information about neighboring devices on the local broadcast domain.

Efficient Traffic Control

The GS-4210-48P4S is loaded with robust QoS features and powerful traffic management to enhance services to business-class data, voice, and video solutions. The functionality includes broadcast/multicast **storm control**, per port **bandwidth control**, IP DSCP QoS priority and remarking. It guarantees the best performance for VoIP and video stream transmission, and empowers the enterprises to take full advantage of the limited network resources.

Powerful Security

The GS-4210-48P4S offers comprehensive Layer 2 to Layer 4 Access Control List (ACL) for enforcing security to the edge. It can be used to restrict network access by denying packets based on source and destination IP address, TCP/UDP ports or defined typical network applications. Its protection mechanism also comprises 802.1x Port-based user authentication. With the private VLAN function, communication between edge ports can be prevented to ensure user privacy.

Advanced IP Network Protection

The GS-4210-48P4S also provides **DHCP Snooping**, **IP Source Guard** and **Dynamic ARP Inspection** functions to prevent IP snooping from attack and discard ARP packets with invalid MAC address. The network administrator can now build highly-secure corporate networks with considerably less time and effort than before.

Efficient Management

For efficient management, the GS-4210-48P4S is equipped with Command line, Web and SNMP management interfaces.

■ With the built-in **Web-based** management interface, the GS-4210-48P4S offers an easy-to-use, platform-independent management and configuration facility.

■ For **text-based** management, it can be accessed via Telnet and the console port.

■ By supporting the standard SNMP protocol, the switch can be managed via any SNMP-based management software.

Remote Management Solution

PLANET's **Universal Network Management System** (UNI-NMS) and CloudViewer app support IT staff by remotely managing all network devices and monitoring PDs' operational statuses. Thus, they're designed for both the enterprises and industries where deployments of PDs can be as remote as possible, without having to go to the actual location once a bug or faulty condition is found. With the UNI-NMS or CloudViewer app, all kinds of businesses can now be speedily and efficiently managed from one platform.

Flexibility and Extension Solution

The four mini-GBIC slots built in the GS-4210-48P4S support SFP auto-detection and dual speed as it features **100BASE-FX** and **1000BASE-SX/LX SFP** (Small Form-factor Pluggable) fiber transceivers to uplink to backbone switch and monitoring center in long distance. The distance can be extended from 550 meters to 2 kilometers (multi-mode fiber) and up to above 10/20/40/60/80/120 kilometers (single-mode fiber or WDM fiber). They are well suited for applications within the enterprise data centers and distributions.

Intelligent SFP Diagnosis Mechanism

The GS-4210-48P4S supports **SFP-DDM** (**Digital Diagnostic Monitor**) function that can easily monitor real-time parameters of the SFP for network administrator, such as optical output power, optical input power, temperature, laser bias current and transceiver supply voltage.

2. PRODUCT FEATURES

▶ **Physical Port**

- ■ **48 10/100/1000BASE-T** Gigabit RJ45 copper ports with 48-port **IEEE 802.3at/af PoE** injector

- ■ **4 100/1000BASE-X mini-GBIC/SFP** slots

- ■ Reset button for system factory default and reboot

▶ **Switching**

- ■ Hardware-based 10/100Mbps, half/full duplex and 1000Mbps full duplex mode, flow control and auto-negotiation, and auto MDI/MDI-X

- ■ Features Store-and-Forward mode with wire-speed filtering and forwarding rates

- ■ IEEE 802.3x flow control for full duplex operation and back pressure for half duplex operation

- ■ 10K jumbo frame

- ■ Automatic address learning and address aging

- ■ Supports CSMA/CD protocol

▶ **Power over Ethernet**

- ■ Complies with IEEE 802.3at Power over Ethernet Plus, end-span PSE
- ■ Backward compatible with IEEE 802.3af Power over Ethernet
- ■ Up to 48 ports of IEEE 802.3af/802.3at devices powered
- ■ Supports PoE power up to 36 watts for each PoE port
- ■ Auto detects powered device (PD)
- ■ Circuit protection prevents power interference between ports
- ■ Remote power feeding up to 100 meters in standard mode and 250m in extend mode
- ■ PoE management
  - −Per port PoE function enable/disable
  - −PoE port power feeding priority
  - −Per PoE port power limitation
  - −PD classification detection
  - −PD alive-check
  - −PoE schedule

▶ **Layer 2 Features**

- ■ Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x pause frame flow control (full-duplex)

- ■ High performance Store and Forward architecture, broadcast storm control, runt/CRC filtering that eliminates erroneous packets to optimize the network bandwidth

- ■ Supports **VLAN**

  - IEEE 802.1Q tagged VLAN

  - Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)

  - Protocol VLAN

  - Private VLAN (Protected port)

  - Voice VLAN

  - Management VLAN

  - GVRP

- ■ Supports **Spanning Tree Protocol**

    - STP (Spanning Tree Protocol)

    - RSTP (Rapid Spanning Tree Protocol)

    - MSTP (Multiple Spanning Tree Protocol)

    - STP BPDU Guard, BPDU filtering and BPDU forwarding

- ■ Supports **Link Aggregation**

    − IEEE 802.3ad Link Aggregation Control Protocol (LACP)

    − Cisco ether-channel (static trunk)

- ■ Provides port mirror (many-to-1)

- ■ Loop protection to avoid broadcast loops

- ■ Supports ERPS (Ethernet Ring Protection Switching)

► **Quality of Service**

- ■ Ingress and egress rate limit per port bandwidth control

- ■ Storm control support
    − Broadcast/Unknown unicast/Unknown multicast

- ■ Traffic classification
    − IEEE 802.1p CoS

    − TOS/DSCP/IP precedence of IPv4/IPv6 packets

- ■ Strict priority and Weighted Round Robin (WRR) CoS policies

► **Multicast**

- ■ Supports IPv4 IGMP snooping v2, v3

- ■ Supports IPv6 MLD snooping v1, v2

- ■ IGMP querier mode support

- ■ IGMP snooping port filtering

- ■ MLD snooping port filtering

► **Security**

- ■ Authentication
    − IEEE 802.1X port-based network access authentication
    − Built-in RADIUS client to cooperate with the RADIUS servers
    − RADIUS/TACACS+ login user access authentication

- ■ Access control list

    - IPv4/IPv6 IP-based ACL

    - MAC-based ACL

- ■ MAC security

    - Static MAC

    - MAC filtering

- ■ Port security for source MAC address entries filtering

- ■ DHCP snooping to filter untrusted DHCP messages

- ■ Dynamic ARP Inspection discards ARP packets with invalid MAC address to IP address binding

- ■ IP source guard prevents IP spoofing attacks

- ■ DoS attack prevention

▶ **Management**

- ■ IPv4 and IPv6 dual stack management

- ■ Switch management interface
  - Web switch management
  - Console/Telnet Command Line Interface
  - SNMP v1 and v2c switch management
  - SSHv2, TLSv1.2 and SNMP v3 secure access

- ■ SNMP Management
  - Four RMON groups (history, statistics, alarms and events)
  - SNMP trap for interface link up and link down notification

- ■ Built-in Trivial File Transfer Protocol (TFTP) client

- ■ BOOTP and DHCP for IP address assignment

- ■ System maintenance
  - Firmware upload/download via HTTP/TFTP
  - Configuration upload/download through HTTP/TFTP
  - Dual images
  - Hardware reset button for system reboot or reset to factory default

- ■ SNTP Network Time Protocol

- ■ Network Diagnostic
  - ICMPv6/ICMPv4 Remote Ping
  - Cable diagnostics

- ■ Link Layer Discovery Protocol (LLDP) and LLDP-MED

- ■ Event message logging to remote Syslog server

- ■ PLANET Smart Discovery Utility for deployment management

- ■ PLANET NMS system and CloudViewer for deployment management

3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

Switch ASIC / CPU:	Realtek 8393M	x 1
TP Gigabit PHY:	Realtek 8218B	x 6
Fiber PHY:	Realtek 8214FC	x 1
PoE PSE Manager:	Realtek RTL8238B	x 6

3.2 FUNCTION SPECIFICATIONS

Product	GS-4210-48P4S
Hardware Specifications	
Hardware Version	3
Copper Ports	48 x 10/100/1000BASE-T RJ45 auto-MDI/MDI-X port
SFP/mini-GBIC Slots	4 x 100/1000BASE-X SFP interface Supports 100/1000Mbps dual mode and DDM
PoE Injector Port	48 ports with 802.3at/af PoE injector function with port-1 to port-48
Reset Button	< 5 sec: System reboot > 5 sec: Factory default
LED	System: 　PWR (Power) (Green) 　SYS (System) (Green) 10/100/1000T RJ45 Interfaces (Port 1 to Port 48): 　10/100/1000Mbps, LNK/ACT (Green) 　PoE-in-Use (Amber) 100/1000Mbps SFP Interfaces (Port 49 to Port 52): 　1000Mbps, LNK/ACT (Green) 　100Mbps, LNK/ACT (Green)
Power Requirements	100~240V AC, 50/60Hz, auto-sensing
Dimensions (W x D x H)	440 x 330 x 44.5 mm, 1U height
ESD Protection	6KV DC
Enclosure	Metal
Weight	4872g
Power Consumption	663 watts (max.)/2262 BTU
Fan	4 x fan
Switch Specifications	
Switch Architecture	Store-and-Forward
Switch Fabric	104Gbps, non-blocking
Switch Throughput@64Bytes	77.38Mpps
Address Table	16K entries

Shared Data Buffer	12 megabits
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex
Jumbo Frame	10K bytes
Power over Ethernet	
PoE Standard	IEEE 802.3af/802.3at PoE+ PSE
PoE Power Supply Type	End-span
PoE Power Output	Per port 53V DC, 36 watts (max.)
Power Pin Assignment	1/2(+), 3/6(-)
PoE Power Budget	600 watts (max.) @ 25 degrees C 500 watts (max.) @ 50 degrees C
PoE Ability PD @ 9 watts	48 units
PoE Ability PD @ 15 watts	40 units
PoE Ability PD @ 30 watts	20 units
PoE Management Functions	
Active PoE Device Detection	Yes
PoE Power Recycling	Yes, daily or predefined schedule
PoE Schedule	4 schedule profiles
PoE Extend Mode	Yes, max. up to 250 meters
PoE Port Management	■ Port Enable/Disable/Schedule ■ Port Priority
Layer 2 Functions	
Port Mirroring	TX/RX / both Many-to-1 monitor Up to 4 sessions
VLAN	802.1Q tag-based VLAN Up to 256 VLAN groups, out of 4094 VLAN IDs 802.1ad Q-in-Q tunneling Voice VLAN Protocol VLAN Private VLAN (Protected port) GVRP
Link Aggregation	IEEE 802.3ad LACP and static trunk
Spanning Tree Protocol	STP, IEEE 802.1D Spanning Tree Protocol RSTP, IEEE 802.1w Rapid Spanning Tree Protocol MSTP, IEEE 802.1s Multiple Spanning Tree Protocol STP BPDU Guard, BPDU filtering and BPDU forwarding
IGMP Snooping	IGMP (v2/v3) snooping IGMP querier Up to 256 multicast groups
MLD Snooping	MLD (v1/v2) snooping, up to 256 multicast groups

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QoS	8 mapping IDs to 8 level priority queues
	  - Port number
	  - 802.1p priority
	  - 802.1Q VLAN tag
	  - DSCP field in IP packet
	Traffic classification based, strict priority and WRR

Ring	Supports ERPS, and complies with ITU-T G.8032

Security　Functions

Access Control List	IPv4/IPv6 IP-based ACL/MAC-based ACL
Port Security	IEEE 802.1X – Port-based authentication Built-in RADIUS client to co-operate with RADIUS server RADIUS/TACACS+ user access authentication
MAC Security	IP-MAC port binding MAC filter Static MAC address
Enhanced Security	DHCP Snooping and DHCP Option82 STP BPDU guard, BPDU filtering and BPDU forwarding DoS attack prevention ARP inspection IP source guard

Management Functions

Basic Management Interfaces	Web browser/Telnet/SNMP v1, v2c
Secure Management Interfaces	SSHv2, TLS v1.2, SNMP v3
System Management	Firmware upgrade by HTTP/TFTP protocol through Ethernet network LLDP protocol SNTP PLANET Smart Discovery Utility PLANET NMS System/CloudViewer
Event Management	Remote/Local Syslog System log
SNMP MIBs	RFC 1213 MIB-II RFC 1215 Generic Traps RFC 1493 Bridge MIB RFC 2674 Bridge MIB Extensions RFC 2737 Entity MIB (Version 2) RFC 2819 RMON (1, 2, 3, 9) RFC 2863 Interface Group MIB RFC 3635 Ethernet-like MIB RFC 3621 Power Ethernet MIB

Standards Conformance

Regulatory Compliance	FCC Part 15 Class A, CE, LVD
Standards Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX/100BASE-FX IEEE 802.3z Gigabit SX/LX IEEE 802.3ab Gigabit 1000T

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	IEEE 802.3x flow control and back pressure
	IEEE 802.3ad port trunk with LACP
	IEEE 802.1D Spanning Tree protocol
	IEEE 802.1w Rapid Spanning Tree protocol
	IEEE 802.1s Multiple Spanning Tree protocol
	IEEE 802.1p Class of Service
	IEEE 802.1Q VLAN tagging
	IEEE 802.1x Port Authentication Network Control
	IEEE 802.1ab LLDP
	IEEE 802.3af Power over Ethernet
	IEEE 802.3at Power over Ethernet Plus
	RFC 768 UDP
	RFC 783 TFTP
	RFC 791 IP
	RFC 792 ICMP
	RFC 2068 HTTP
	RFC 1112 IGMP version 1
	RFC 2236 IGMP version 2
	RFC 3376 IGMP version 3
	RFC 2710 MLD version 1
	RFC 3810 MLD version 2
	ITU G.8032 ERPS Ring
Environment	
Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 5 ~ 95% (non-condensing)
Storage	Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 95% (non-condensing)

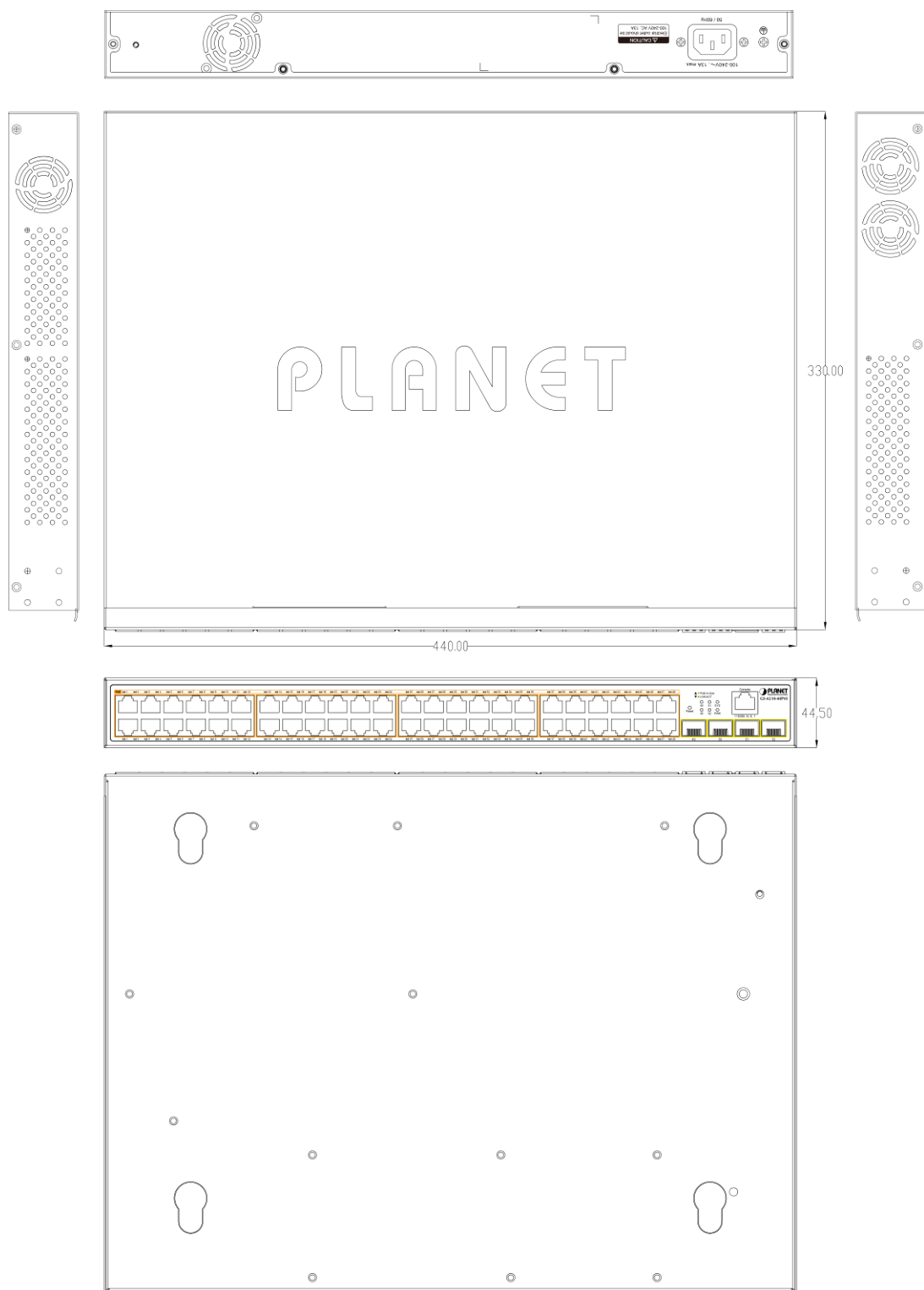## 3.3 PHYSICAL SPECIFICATIONS:

- ■ **Dimensions:**

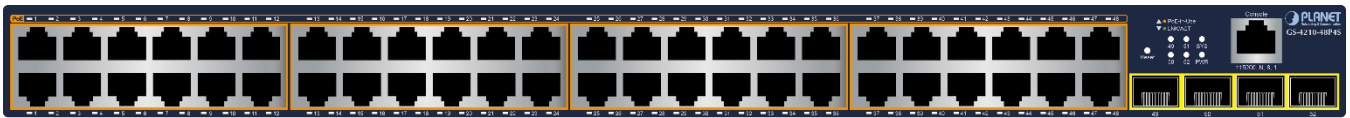   440 x 330 x 44.5 mm (W x D x H), 1U height
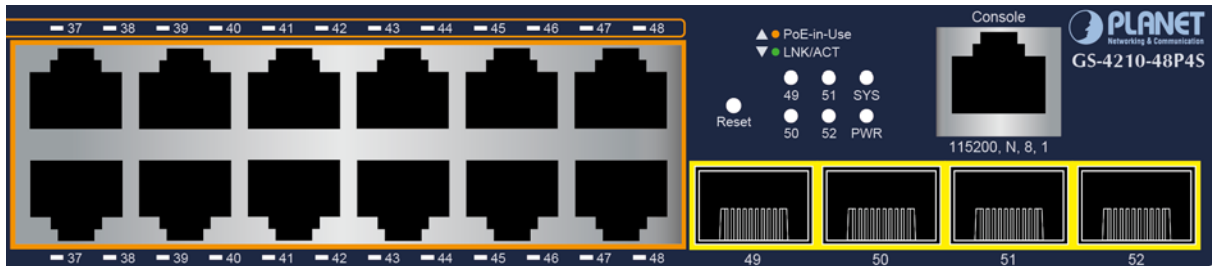
- ■ **Weight:**

    4.87kg

- ■ **Diagram**

Unit: mm

■ **Front Panel:**

■ **Rear Panel:**

■ **LED Definition**

System

LED	Color	Function
PWR	Green	**Lights** to indicate that the Switch has power.
SYS	Green	**Lights** to indicate the system is working.

■ **Per 10/100/1000Mbps RJ45 interfaces (Port-1 to Port-48)**

LED	Color		Function
LNK/ACT	Green	**Lights**:	To indicate the link through that port is successfully established.
		Blinks:	To indicate that the switch is actively sending or receiving data over that port.
PoE	Amber	**Lights**:	To indicate the port is providing DC in-line power.
		Off:	To indicate the connected device is not a PoE PD.

■ **Per 100/1000Mbps SFP Interface (Port-49 to Port-52)**

LED	Color		Function
LNK/ACT	Green	**Lights:**	Indicates the link through that port is successfully established at 1000Mbps.
		Blink:	Indicates that the Switch is actively sending or receiving data over that port.
	Green	**Lights:**	Indicates the link through that port is successfully established at 100Mbps.
		Blink:	Indicates that the Switch is actively sending or receiving data over that port.

3.4 ENVIRONMENTAL SPECIFICATIONS

Operating:

Temperature: 0 ~ 50 degrees C

Relative Humidity: 5% ~ 95% (non-condensing)

Storage:

Temperature: -10 ~ 70 degrees C

Relative Humidity: 5% ~ 95% (non-condensing)

3.5 ELECTRICAL SPECIFICATIONS

Input Voltage:	100 - 240V AC, 50 - 60Hz,	
Power Consumption (System on):	110V: 41.3 watts	140 BTU (roughly)
	220V: 35.3 watts	120 BTU (roughly)
Power Consumption (Ethernet and PoE Full Loading):	110V: 660 watts	2251 BTU (roughly)
	220V: 663 watts	2262 BTU (roughly)

3.6 REGULATORY COMPLIANCE

FCC Part 15 Class A, CE

3.7 RELIABILITY

MTBF > 50,000 hrs @ 25 degrees C

3.8 BASIC PACKAGING

☑ **The GS-4210-48P4S**	x 1
☑ **Quick Installation Sheet**	x 1
☑ **Power Cord**	x 1
☑ **SFP Dust Cap**	x 4
☑ **Rubber Feet**	x 4
☑ **Rack Mount Accessory Kit**	x 1

3.9 PACKING INFORMATION

Box Dimensions (W x D x H)	495 x 415 x 72 mm
Weight (gross weight)	6.02kg
Carton Dimensions (W x D x H)	510 x 170 x 440 mm
Carton Weight (total)	13.4kg
Quantity	2pcs in one carton