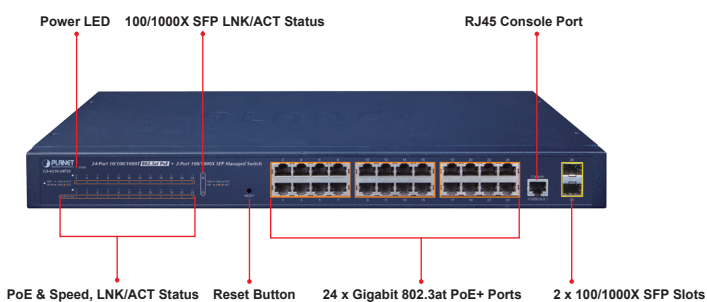# 24-Port 10/100/1000T 802.3at PoE + 2-Port 100/1000X SFP Managed Switch

## Cost-optimized Managed PoE+ Switch with Advanced L2/L4 Switching and Security

PLANET GS-4210-24P2S is an ideal Gigabit PoE Switch which provides cost-effective advantage to local area network and is widely accepted in the SMB office network. It offers **intelligent Layer 2 data packet switching and management functions, friendly web user interface and stable operation**. The model complies with **IEEE 802.3at Power over Ethernet Plus (PoE+)** at an affordable price. The GS-4210-24P2S is equipped with **24 10/100/1000BASE-T** Gigabit Ethernet ports and 2 **100/1000BASE-X** SFP interfaces with inner power system. Its **24** Gigabit Ethernet ports integrated with 802.3at PoE+ injector function on all ports. It offers a rack-mountable, affordable, safe and reliable power solution for SMBs deploying Power over Ethernet networks, or requiring enhanced data security and network traffic management.

Power LED    100/1000X SFP LNK/ACT Status              RJ45 Console Port

PoE & Speed, LNK/ACT Status   Reset Button   24 x Gigabit 802.3at PoE+ Ports    2 x 100/1000X SFP Slots

## Cybersecurity Network Solution to Minimize Security Risks

The GS-4210-24P2S supports SSHv2 and TLS protocols to provide strong protection against advanced threats. It includes a range of cybersecurity features such as **DHCP Snooping**, **IP Source Guard**, **dynamic ARP Inspection** Protection, **802.1x port-based** network access control, **RADIUS** and **TACACS+** user accounts management, **SNMPv3** authentication, and so on to complement it as an all-security solution.

## Physical Port
- **24-port 10/100/1000BASE-T** Gigabit RJ45 copper
- **2 100/1000BASE-X** mini-GBIC/SFP slots
- RJ45 console interface for switch basic management and setup
- 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
- 9K jumbo frame
- Automatic address learning and address aging
- Supports CSMA/CD protocol

## Power over Ethernet
- Complies with IEEE 802.3at Power over Ethernet Plus
- Complies with IEEE 802.3af Power over Ethernet
- Up to 24 ports of IEEE 802.3af/802.3at devices powered
- Supports PoE Power up to 30.8 watts for each PoE port
- 300-watt PoE budget
- 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
  - Total PoE power budget control
  - Per port PoE function enable/disable
  - PoE Port Power feeding priority
  - Per PoE port power limitation
  - PoE delay
  - PD classification detection
- Intelligent PoE features
  - PoE usage threshold control
  - PD alive check
  - PoE schedule

## Redundant Ring, Fast Recovery for Critical Network Applications

The GS-4210-24P2S 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, Spanning Tree Protocol (802.1s MSTP) into customer's network to enhance system reliability and uptime in various environments.
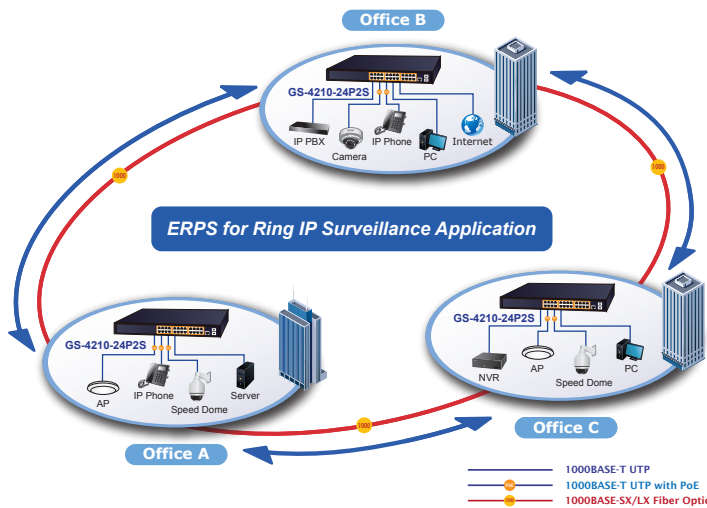


## Built-in Unique PoE Functions for Powered Devices Management

As the PoE managed switch for surveillance, wireless and VoIP networks, the GS-4210-24P2S features special PoE management functions:

- ■ PD alive check
- ■ Scheduled power recycling
- ■ PoE schedule
- ■ PoE usage monitoring
- ■ PoE Extension

## Intelligent Powered Device Alive Check

The GS-4210-24P2S 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-4210-24P2S 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.

## 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, runt/CRC filtering 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
  - – Voice VLAN
  - – Private 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)
  - – 1 LACP group, up to 2 ports per LACP group
  - – Cisco ether-channel (static trunk)
  - – 1 trunk group, up to 2 ports per trunk group
- • Provides port mirror (many-to-1)
- • Loop protection to avoid broadcast loops
- • Supports ERPS (Ethernet Ring Protection Switching)
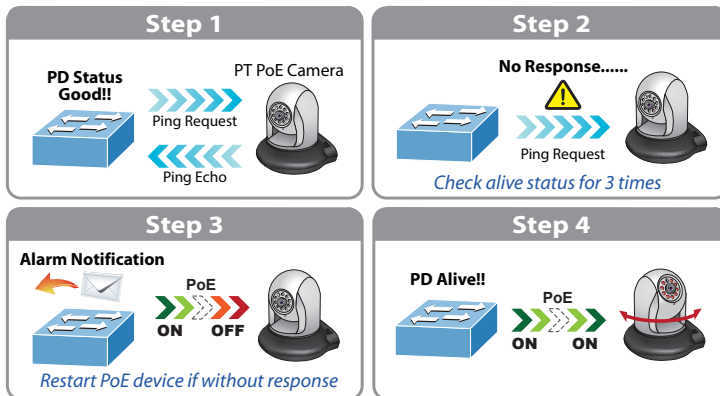
## Quality of Service

- • Ingress/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 and v3
- • Supports IPv6 MLD snooping v1, v2
- • IGMP querier mode support
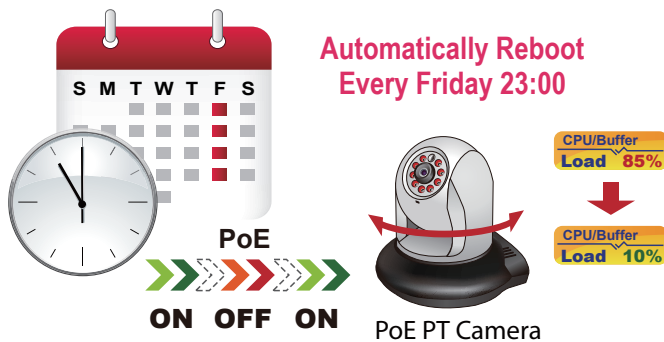- • IGMP snooping port filtering
- • MLD snooping port filtering

## Security

- • Authentication

**Step 1**

PD Status Good!!

PT PoE Camera

Ping Request

Ping Echo

**Step 2**

No Response......

Ping Request

*Check alive status for 3 times*

**Step 3**

Alarm Notification

PoE

ON    OFF

*Restart PoE device if without response*
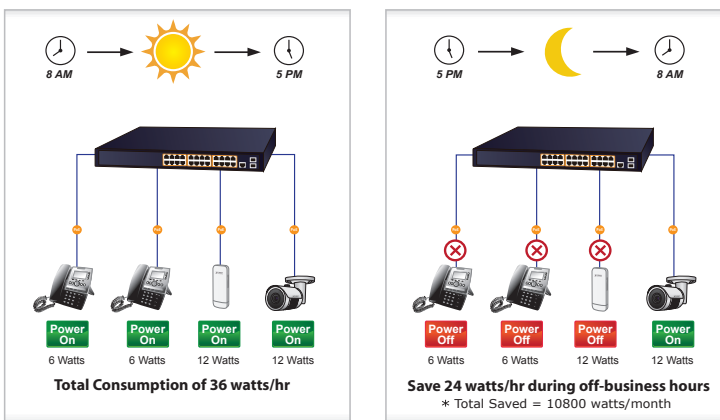
**Step 4**

PD Alive!!

PoE

ON    ON

## Scheduled Power Recycling

The GS-4210-24P2S 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.

**Automatically Reboot Every Friday 23:00**

S M T W T F S

PoE

ON  OFF  ON

PoE PT Camera

CPU/Buffer Load  85%

CPU/Buffer Load  10%

## PoE Schedule for Energy Saving

Under the trend of energy saving worldwide and contributing to environmental protection, the GS-4210-24P2S 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.

8 AM → → 5 PM

Power On — 6 Watts
Power On — 6 Watts
Power On — 12 Watts
Power On — 12 Watts

**Total Consumption of 36 watts/hr**

5 PM → → 8 AM

Power Off — 6 Watts
Power Off — 6 Watts
Power Off — 12 Watts
Power On — 12 Watts

**Save 24 watts/hr during off-business hours**
∗ Total Saved = 10800 watts/month

━━━ 1000BASE-T UTP with PoE

- – IEEE 802.1X port-based network access authentication
- – Built-in RADIUS client to co-operate with the RADIUS servers
- – DHCP Option 82
- – RADIUS/TACACS+ login user access authentication
- Access Control List
  - – IPv4/IPv6 IP-based ACL
  - – IPv4/IPv6 IP-based ACE
  - – MAC-based ACL
  - – MAC-based ACE
- MAC Security
  - – Static MAC
  - – MAC Filtering
- Port security for source MAC address entries filtering
- DHCP snooping to filter distrusted 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
- User privilege levels control
- 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 web interface
  - – Dual images
  - – Hardware reset button for system reboot or reset to factory default
- SNTP Network Time Protocol
- Cable diagnostics
- Link Layer Discovery Protocol (LLDP) and LLDP-MED
- SNMP trap for interface link up and link down notification
- Event message logging to remote Syslog server
- Four RMON groups (history, statistics, alarms and events)
- PLANET Smart Discovery Utility for deployment management
- PLANET NMS system for deployment management

### PoE Usage Monitoring

Via the power usage chart in the web management interface, the GS-4210-24P2S enables the administrator to monitor the status of the power usage of the connected PDs in real time. Thus, it greatly enhances the management efficiency of the facilities.

### 802.3at PoE+ Power and Ethernet Data Transmission Distance Extension

In the **"Extend"** operation mode, the GS-4210-24P2S operates on a per-port basis at 10Mbps duplex operation but can support 20-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-4210-24P2S provides an additional solution for 802.3at/af PoE distance extension, thus saving the cost of Ethernet cable installation.
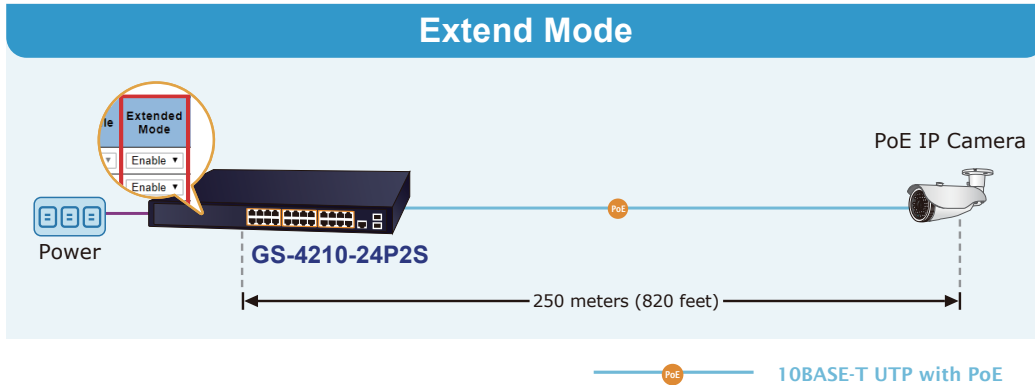


### IPv6/IPv4 Dual Stack Management

Supporting both IPv6 and IPv4 protocols, the GS-4210-24P2S 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 FTTx edge network is set up.
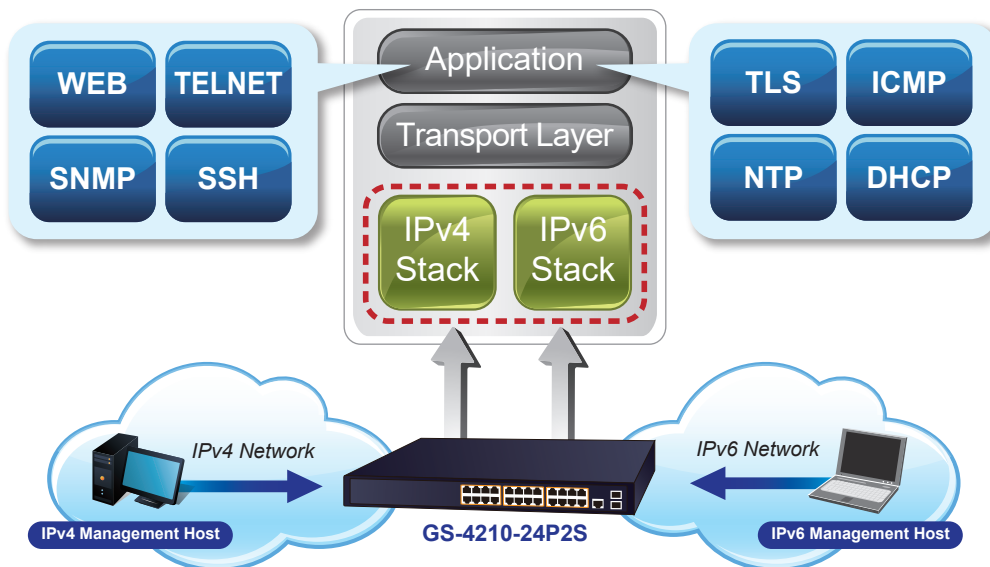


### Robust Layer 2 Features

The GS-4210-24P2S  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-4210-24P2S allows the operation of a high-speed trunk to combine with multiple ports such as a 4Gbps fat pipe, 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-4210-24P2S 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/unicast **storm control**, per port **bandwidth control**, 802.1p/CoS/IP DSCP QoS priority and remarking. It guarantees the best performance at VoIP and video stream transmission, and empowers the enterprises to take full advantages of the limited network resources.

## Powerful Security

PLANET GS-4210-24P2S offers comprehensive **IPv4/IPv6** 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 and device authentication, which can be deployed with RADIUS to ensure the port level security and block illegal users. With the protected port function, communication between edge ports can be prevented to guarantee user privacy. Furthermore, Port security function allows to limit the number of network devices on a given port. The network administrators can now construct highly-secure corporate networks with considerably less time and effort than before.

## Friendly and Secure Management

For efficient management, the GS-4210-24P2S is equipped with Command line, Web and SNMP management interfaces.

- With the built-in **Web-based** management interface, the GS-4210-24P2S 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.

Moreover, the GS-4210-24P2S offers secure remote management by supporting **SSHv2**, **TLSv1.2** and **SNMPv3** connections which encrypt the packet content at each session.



## Flexible Extension Solution

The two mini-GBIC slots built in the GS-4210-24P2S are compatible with the **100BASE-FX/1000BASE-SX/LX** SFP (Small Form-factor Pluggable) fiber transceiver to uplink to backbone switch and monitor center in long distance. The distance can be extended from 550 meters to 2 kilometers (multi-mode fiber) and to 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.

# Applications

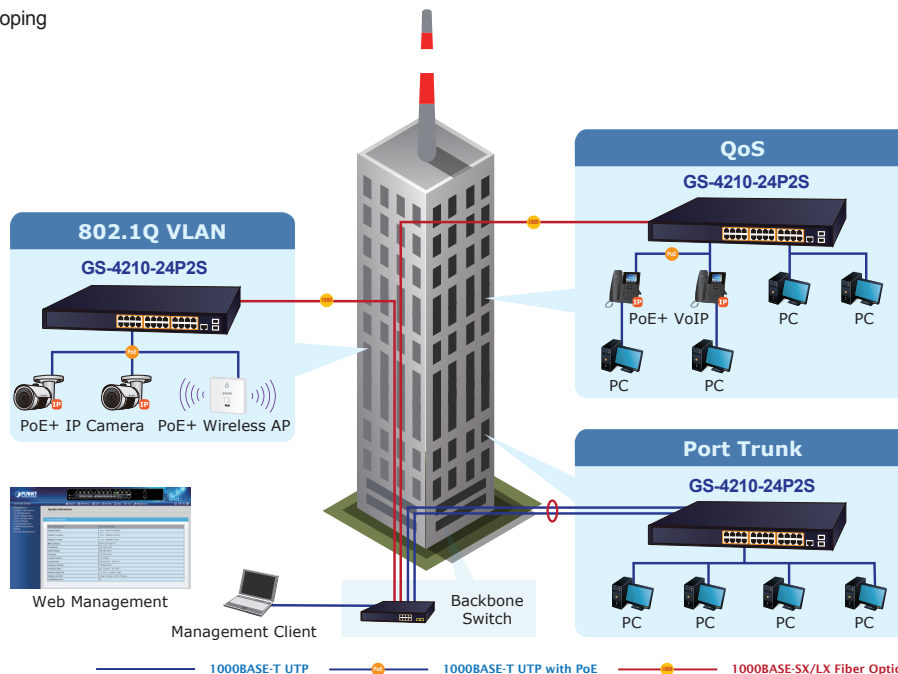### Perfectly-integrated Solution for PoE IP Surveillance

The GS-4210-24P2S brings an ideal, secure surveillance system at a lower total cost. The GS-4210-24P2S provides 24 10/100/1000Mbps 802.3at PoE+ ports able to feed sufficient PoE power for 24 IEEE 802.3af/IEEE 802.3at PoE IP cameras at the same time. It is also able to connect with one 16-channel NVR or two 8-channel NVR systems, uplink to the backbone switch and the monitoring center. With such a high-performance switch architecture, the recorded video files from the PoE IP cameras can be saved in the NVR system to enable the administrators to control and monitor the surveillance images both in the local LAN and the remote sites.
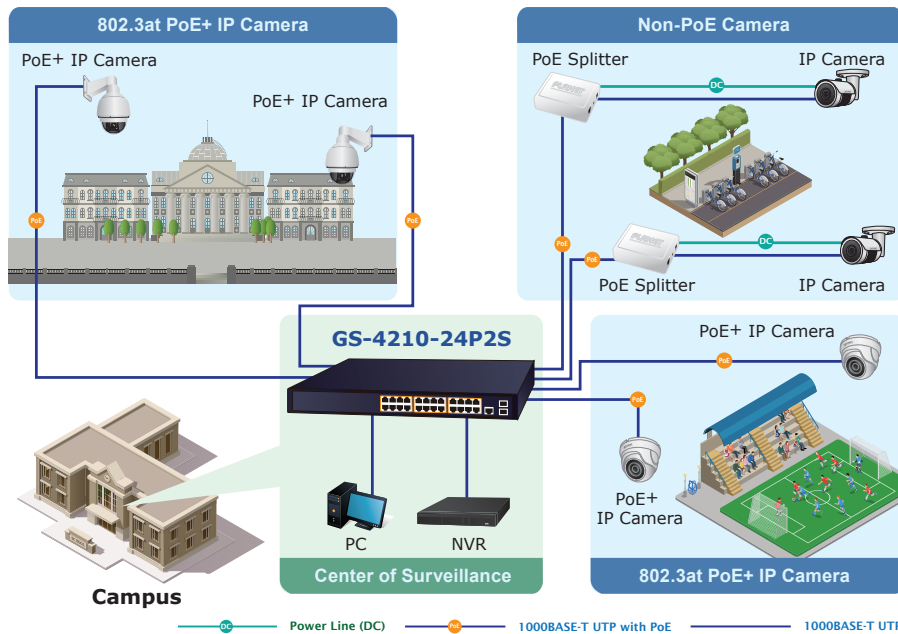


### Department/Workgroup PoE Network

Providing 24 PoE in-line power interfaces, the GS-4210-24P2S can easily build a power that centrally controls IP phone system, IP camera system and wireless AP group for enterprises. The GS-4210-24P2S delivers full ports of 802.3af/at compliant Gigabit Ethernet network connectivity with high-performance and cost-effective advantages for the increasing number of PoE IP telephones, PoE IP cameras, PoE wireless access points and other devices applied at the edge of the small or medium enterprise network. The GS-4210-24P2S improves the network efficiency and protects the network clients with the powerful features:

- Layer 2 to Layer 4 security
- QoS/802.1Q VLAN/static trunk/LACP
- 802.1x port-based and MAC-based network access authentication security
- Multicast IGMP snooping

# Specifications

| Product | GS-4210-24P2S |
|---|---|
| **Hardware Specifications** | |
| Hardware Version | 2 |
| Copper Ports | 24 x 10/100/1000BASE-T RJ45 Auto-MDI/MDI-X Ports |
| PoE Injector Port | 24 802.3af/802.3at PoE Injector Ports |
| SFP/mini-GBIC Slots | 2 100/1000BASE-X SFP interfaces, supporting 100/1000Mbps dual mode |
| Console | 1 x RS-232-to-RJ45 serial port (115200, 8, N, 1) |
| Reset Button | < 5 sec: System reboot<br>> 5 sec: Factory default |
| Thermal Fan | 2 |
| Power Requirements | 100~240V AC, 50/60Hz, 4A (max.) |
| Power Consumption/Dissipation | Max. 330 watts/1122 BTU |
| Dimensions (W x D x H) | 445 x 207 x 45 mm (1U height) |
| Weight | 2.8kg |
| ESD Protection | Yes |
| Enclosure | Metal |
| LED | **System:**<br>  Power (**Green**)<br>**10/100/1000T RJ45 Interfaces (Port 1 to Port 24):**<br>  1000 LNK/ACT (**Green**), 10/100 LNK/ACT (Orange), PoE (Orange)<br>**100/1000Mbps SFP Interfaces (Port 25 to Port 26):**<br>  1000 LNK/ACT (**Green**), 100 LNK/ACT (Orange) |
| **Switching** | |
| Switch Architecture | Store-and-Forward |
| Switch Fabric | 52Gbps/non-blocking |
| Switch Throughput@64 bytes | 38.6Mpps @64 bytes |
| MAC Address Table | 8K entries |
| Shared Data Buffer | 4.1 megabits |
| Flow Control | IEEE 802.3x pause frame for full duplex<br>Back pressure for half duplex |
| Jumbo Frame | 9216 bytes |
| **Power over Ethernet** | |
| PoE Standard | IEEE 802.3af Power over Ethernet/PSE<br>IEEE 802.3at Power over Ethernet Plus/PSE |
| PoE Power Output | Per Port 52V DC, 300mA. Max. 15.4 watts (IEEE 802.3af)<br>Per Port 52V DC, 600mA. Max. 30 watts (IEEE 802.3at) |
| PoE Power Budget | 300 watts |
| Number of PDs, 7 watts | 24 |
| Number of PDs, 15.4 watts | 19 |
| Number of PDs, 30 watts | 9 |
| PoE Management | PD Alive Check<br>Scheduled Power Recycling<br>PoE Schedule<br>PoE Usage Monitoring<br>PoE Extension |
| **Layer 2 Functions** | |
| Port Mirroring | TX/RX/both<br>Many-to-1 monitor |
| VLAN | 802.1Q tagged VLAN<br>Up to 256 VLAN groups, out of 4094 VLAN IDs<br>802.1ad Q-in-Q tunneling<br>Voice VLAN<br>Protocol VLAN<br>Private VLAN (Protected port)<br>GVRP<br>Management VLAN |
| Link Aggregation | IEEE 802.3ad LACP supports 1 group of 2-port trunk and static trunk supports 1 group of 2-port trunk |
| Spanning Tree Protocol | IEEE 802.1D Spanning Tree Protocol (STP)<br>IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)<br>IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) |
| IGMP Snooping | IGMP (v2/v3) snooping<br>IGMP querier<br>Up to 256 multicast groups |
| MLD Snooping | IPv6 MLD (v1/v2) snooping, up to 256 multicast groups |

| | |
|---|---|
| QoS | 8 mapping IDs to 8 level priority queues<br>  - Port number<br>  - 802.1p priority<br>  - DSCP/IP precedence of IPv4/IPv6 packets<br>Traffic classification based, strict priority and WRR<br>Ingress/Egress Rate Limit per port bandwidth control |
| 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<br>Built-in RADIUS client to co-operate with RADIUS server<br>RADIUS/TACACS+ user access authentication |
| MAC Security | IP-MAC port binding<br>MAC filter<br>Static MAC address |
| Enhanced Security | DHCP Snooping and DHCP Option82<br>STP BPDU guard, BPDU filtering and BPDU forwarding<br>DoS attack prevention<br>ARP inspection<br>IP source guard |

**Management Functions**

| | |
|---|---|
| Basic Management Interfaces | RS232 Console<br>Web browser<br>Telnet<br>SNMP v1, v2c |
| Secure Management Interfaces | SSHv2, TLSv1.2, SNMPv3 |
| System Management | Firmware upgrade by HTTP/TFTP protocol through Ethernet network<br>LLDP protocol<br>SNTP<br>PLANET Smart Discovery Utility<br>PLANET NMS System |
| Event Management | Remote/Local Syslog<br>System log |
| SNMP MIBs | RFC 1213 MIB-II<br>RFC 1215 Generic Traps<br>RFC 1493 Bridge MIB<br>RFC 2674 Bridge MIB Extensions<br>RFC 2737 Entity MIB (Version 2)<br>RFC 2819 RMON (1, 2, 3, 9)<br>RFC 2863 Interface Group MIB<br>RFC 3635 Ethernet-like MIB<br>RFC 3621 Power Ethernet MIB |

**Standards Conformance**

| | | |
|---|---|---|
| Regulatory Compliance | FCC Part 15 Class A, CE | |
| Standards Compliance | IEEE 802.3 10BASE-T<br>IEEE 802.3u 100BASE-TX/100BASE-FX<br>IEEE 802.3z Gigabit SX/LX<br>IEEE 802.3ab Gigabit 1000T<br>IEEE 802.3x flow control and back pressure<br>IEEE 802.3ad port trunk with LACP<br>IEEE 802.1D Spanning Tree Protocol<br>IEEE 802.1w Rapid Spanning Tree Protocol<br>IEEE 802.1s Multiple Spanning Tree Protocol<br>IEEE 802.1p Class of Service<br>IEEE 802.1Q VLAN tagging<br>IEEE 802.1x Port Authentication Network Control<br>IEEE 802.1ab LLDP | IEEE 802.3af Power over Ethernet<br>IEEE 802.3at Power over Ethernet Plus<br>IEEE 802.3az Energy Efficient Ethernet (EEE)<br>RFC 768 UDP<br>RFC 793 TFTP<br>RFC 791 IP<br>RFC 792 ICMP<br>RFC 2068 HTTP<br>RFC 1112 IGMP version 1<br>RFC 2236 IGMP version 2<br>RFC 3376 IGMP version 3<br>RFC 2710 MLD version 1<br>RFC 3810 MLD version 2<br>ITU G.8032 ERPS Ring |

**Environment**

| | |
|---|---|
| Operating | Temperature: 0 ~ 50 degrees C<br>Relative Humidity: 5 ~ 95% (non-condensing) |
| Storage | Temperature: -10 ~ 70 degrees C<br>Relative Humidity: 5 ~ 95% (non-condensing) |

## Ordering Information

| | |
|---|---|
| GS-4210-24P2S | 24-Port 10/100/1000T 802.3at PoE + 2-Port 100/1000X SFP Managed Switch |

## Related PoE Products

| | |
|---|---|
| GS-4210-8P2T2S | 8-Port 10/100/1000T 802.3at PoE + 2-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch |
| GS-4210-8P2S | 8-Port 10/100/1000T 802.3at PoE + 2-Port 100/1000X SFP Managed Switch |
| GS-4210-8T2S | 8-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch |
| POE-161S | IEEE 802.3at Gigabit Power over Ethernet Plus Splitter with 5V/12VDC output (10/100/1000Mbps) |
| POE-162S | IEEE 802.3at Gigabit Power over Ethernet Plus Splitter with 12V/24VDC output (10/100/1000Mbps) |
| IPOE-162S | Industrial IEEE 802.3at Gigabit High Power over Ethernet Splitter |
| POE-E201 | IEEE 802.3at Power over Gigabit Ethernet Extender |
| POE-E202 | 1-Port 802.3at PoE+ to 2-Port 802.3af/at Gigabit PoE Extender |

## Available 1000Mbps Modules

Gigabit Ethernet Transceiver (1000BASE-X SFP)

| Model | DDM | Speed (Mbps) | Connector Interface | Fiber Mode | Distance | Wavelength (nm) | Operating Temp. |
|---|---|---|---|---|---|---|---|
| MGB-GT | -- | 1000 | Copper | -- | 100m | -- | 0 ~ 60 degrees C |
| MGB-SX(V2) | YES | 1000 | LC | Multi Mode | 550m | 850nm | 0 ~ 60 degrees C |
| MGB-SX2(V2) | YES | 1000 | LC | Multi Mode | 2km | 1310nm | 0 ~ 60 degrees C |
| MGB-LX(V2) | YES | 1000 | LC | Single Mode | 20km | 1310nm | 0 ~ 60 degrees C |
| MGB-L40 | YES | 1000 | LC | Single Mode | 40km | 1310nm | 0 ~ 60 degrees C |
| MGB-L80 | YES | 1000 | LC | Single Mode | 80km | 1550nm | 0 ~ 60 degrees C |
| MGB-L120(V2) | YES | 1000 | LC | Single Mode | 120km | 1550nm | 0 ~ 60 degrees C |

Gigabit Ethernet Transceiver (1000BASE-BX, Single Fiber Bi-directional SFP)

| Model | DDM | Speed (Mbps) | Connector Interface | Fiber Mode | Distance | Wavelength (TX) | Wavelength (RX) | Operating Temp. |
|---|---|---|---|---|---|---|---|---|
| MGB-LA10(V2) MGB-LB10(V2) | YES | 1000 | WDM(LC) | Single Mode | 10km | 1310nm | 1550nm | 0 ~ 60 degrees C |
| | | 1000 | WDM(LC) | Single Mode | 10km | 1550nm | 1310nm | 0 ~ 60 degrees C |
| MGB-LA20(V2) MGB-LB20(V2) | YES | 1000 | WDM(LC) | Single Mode | 20km | 1310nm | 1550nm | 0 ~ 60 degrees C |
| | | 1000 | WDM(LC) | Single Mode | 20km | 1550nm | 1310nm | 0 ~ 60 degrees C |
| MGB-LA40(V2) MGB-LB40(V2) | YES | 1000 | WDM(LC) | Single Mode | 40km | 1310nm | 1550nm | 0 ~ 60 degrees C |
| | | 1000 | WDM(LC) | Single Mode | 40km | 1550nm | 1310nm | 0 ~ 60 degrees C |
| MGB-LA80 MGB-LB80 | YES | 1000 | WDM(LC) | Single Mode | 80km | 1490nm | 1550nm | 0 ~ 60 degrees C |
| | | 1000 | WDM(LC) | Single Mode | 80km | 1550nm | 1490nm | 0 ~ 60 degrees C |

## Available 100Mbps Modules

Fast Ethernet Transceiver (100BASE-X SFP)

| Model | Speed (Mbps) | Connector Interface | Fiber Mode | Distance | Wavelength (nm) | Operating Temp. |
|---|---|---|---|---|---|---|
| MFB-FX | 100 | LC | Multi Mode | 2km | 1310nm | 0 ~ 60 degrees C |
| MFB-F20 | 100 | LC | Single Mode | 20km | 1310nm | 0 ~ 60 degrees C |
| MFB-F40 | 100 | LC | Single Mode | 40km | 1310nm | 0 ~ 60 degrees C |
| MFB-F60 | 100 | LC | Single Mode | 60km | 1310nm | 0 ~ 60 degrees C |
| MFB-F120 | 100 | LC | Single Mode | 120km | 1310nm | 0 ~ 60 degrees C |

Fast Ethernet Transceiver (100BASE-BX, Single Fiber Bi-directional SFP)

| Model | Speed (Mbps) | Connector Interface | Fiber Mode | Distance | Wavelength (TX) | Wavelength (RX) | Operating Temp. |
|---|---|---|---|---|---|---|---|
| MFB-FA20 | 100 | WDM(LC) | Single Mode | 20km | 1310nm | 1550nm | 0 ~ 60 degrees C |
| MFB-FB20 | 100 | WDM(LC) | Single Mode | 20km | 1550nm | 1310nm | 0 ~ 60 degrees C |

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