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

Physical Port

- **48 10/100/1000BASE-T** Gigabit RJ45 copper ports with 48-port **IEEE 802.3at/af PoE** injector function
- **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
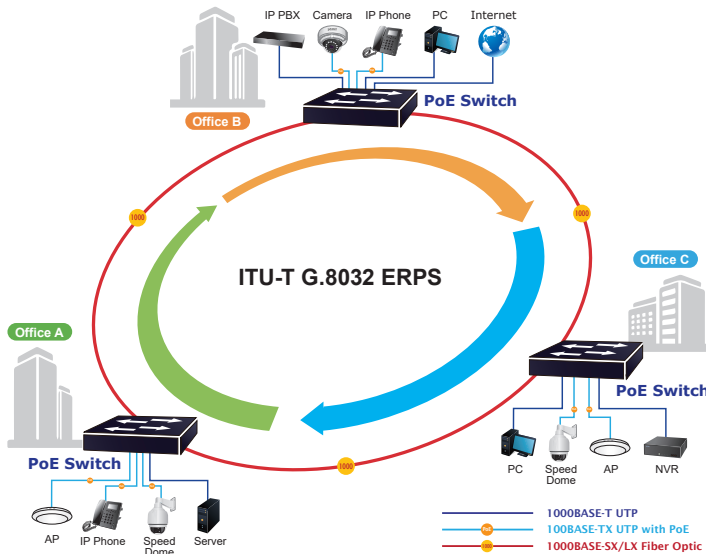 - PD alive-check
  - PoE schedule

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**

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.

GS-4210-48P4S

600-watt
PoE Power Budget

RJ45 Type Console Port

48 x Gigabit 802.3at PoE+ Port   4 x 100/1000BASE-X SFP Slot
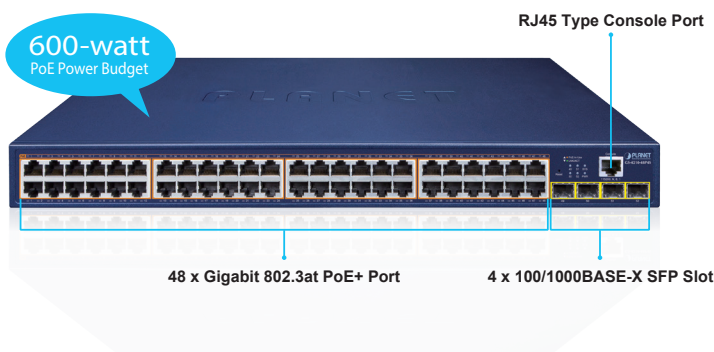
Premium VoIP Networks for Medium- to Large-scale Deployments

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 various 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

- 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
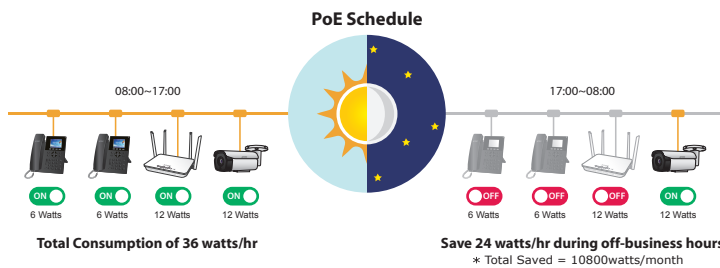
Multicast

- 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
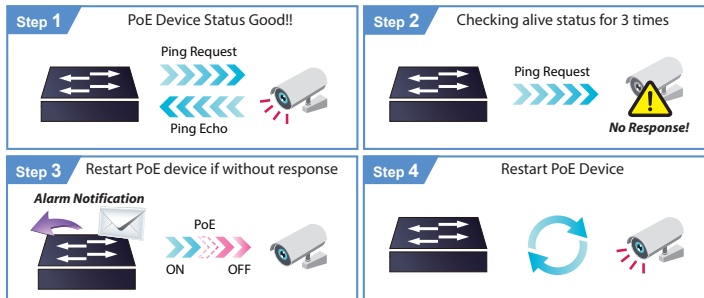
PoE Schedule for Energy Savings

Under the trend of energy savings 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.

PoE Schedule

08:00~17:00

ON	ON	ON	ON
6 Watts	6 Watts	12 Watts	12 Watts

Total Consumption of 36 watts/hr

17:00~08:00

OFF	OFF	OFF	ON
6 Watts	6 Watts	12 Watts	12 Watts

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

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.

PD Alive Check

Step 1 — PoE Device Status Good!!
Ping Request
Ping Echo

Step 2 — Checking alive status for 3 times
Ping Request
No Response!

Step 3 — Restart PoE device if without response
Alarm Notification
PoE
ON   OFF

Step 4 — Restart PoE Device

Scheduled Power Recycling

The GS-4210-48P4S allows each of the connected PoE IP cameras or PoE wireless access points to reboot at a specified time each week to avoid IP camera or AP crash.

IP Camera

AP Router

IP Phone

PoE lighting

S M T W T F S

Door Phone

Automatically Reboot
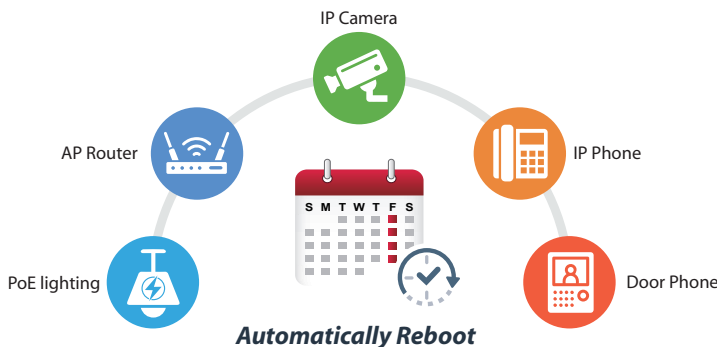
- Port security for source MAC address entries filtering
- DHCP snooping to filter untrusted DHCP messages
- Dynamic ARP Inspection discards ARP packets with invalid MAC address to IP address binding
- IP source guard prevents IP spoofing attacks
- DoS attack prevention

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/CloudViewerPro for deployment management

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.
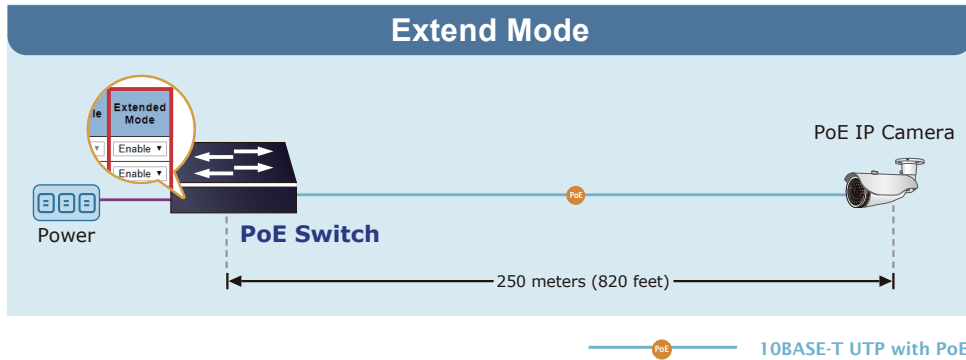

IPv6/IPv4 Dual Stack Management

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.
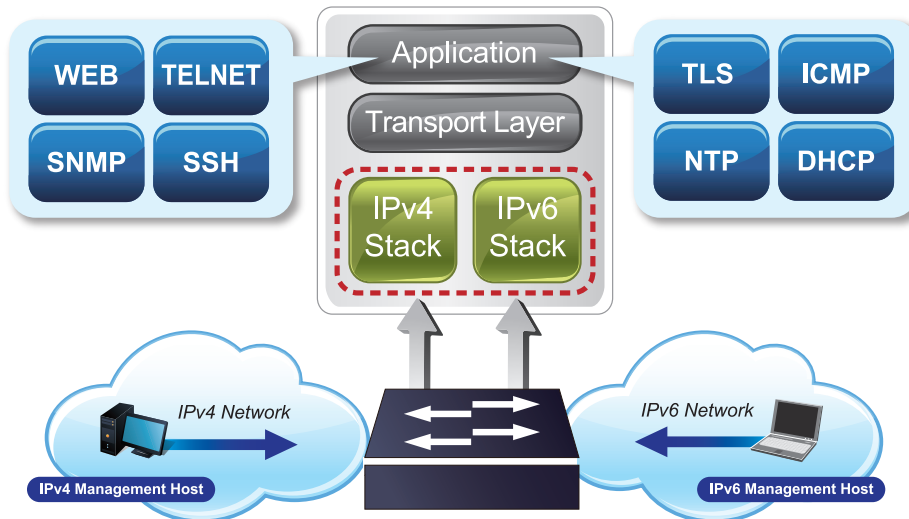
Robust Layer 2 Features

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.
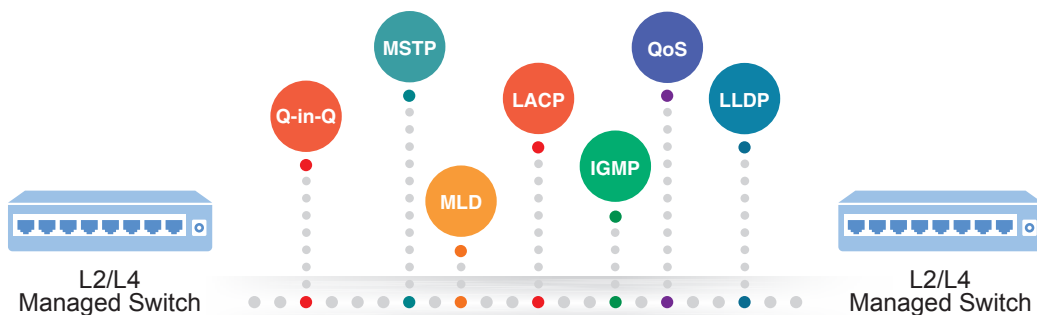
Efficient Traffic Control

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/CloudViewerPro 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/CloudViewerPro app, all kinds of businesses can now be speedily and efficiently managed from one platform.

NMS Controller   CloudViewerPro App

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.

SFP DDM *(Digital Diagnostic Monitor)*

| Voltage | Ammeter | Temperature | Power Transceiver | Power Receiver |
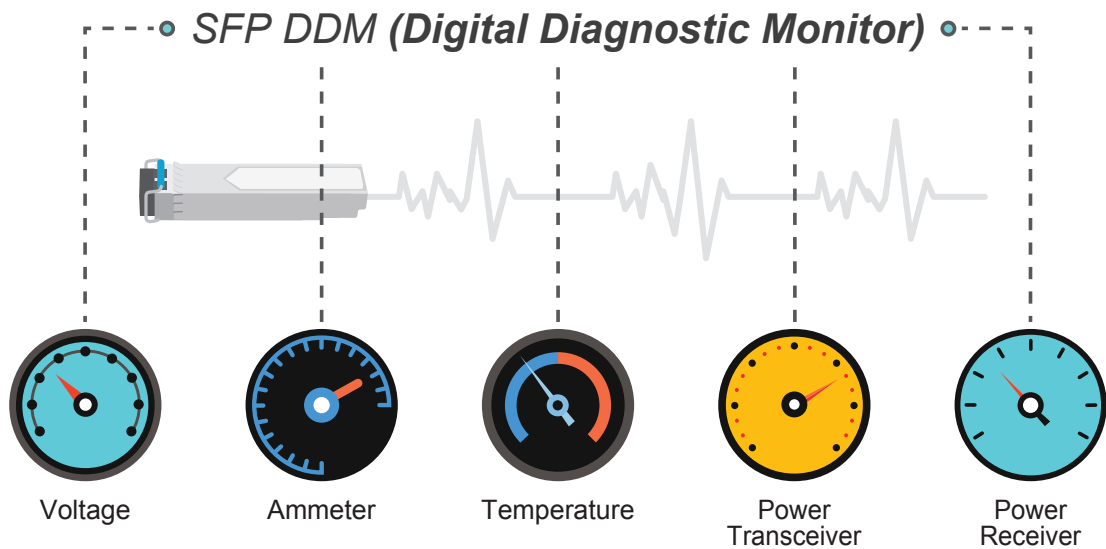
Applications

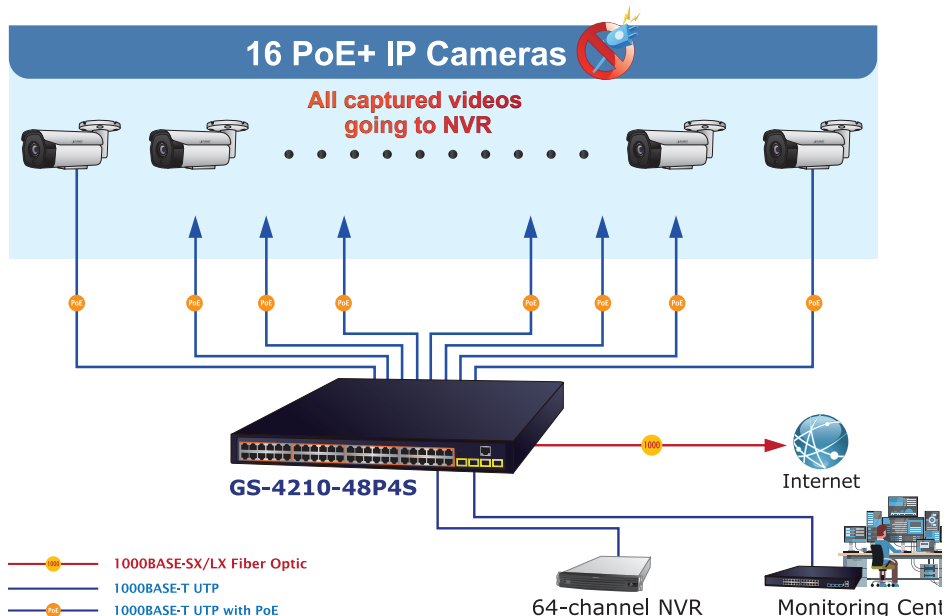### ITU-T G.8032 ERPS with PoE IP Surveillance System for SMBs/Workgroups

The GS-4210-48P4S features strong rapid self-recovery capability to prevent interruptions and external intrusions. It incorporates **ITU-T G.8032 ERPS (Ethernet Ring Protection Switching)** technology into customer's automation network to enhance system reliability and uptime. Applying the IEEE 802.3at Power over Ethernet standard, the GS-4210-48P4S can directly connect with any IEEE 802.3at end nodes like PTZ (pan, tilt, zoom) network cameras and speed dome cameras. The GS-4210-48P4S can easily build a power that can centrally control a wireless AP, IP camera and VoIP system for SMBs and workgroups in the enterprises with high availability network infrastructure.
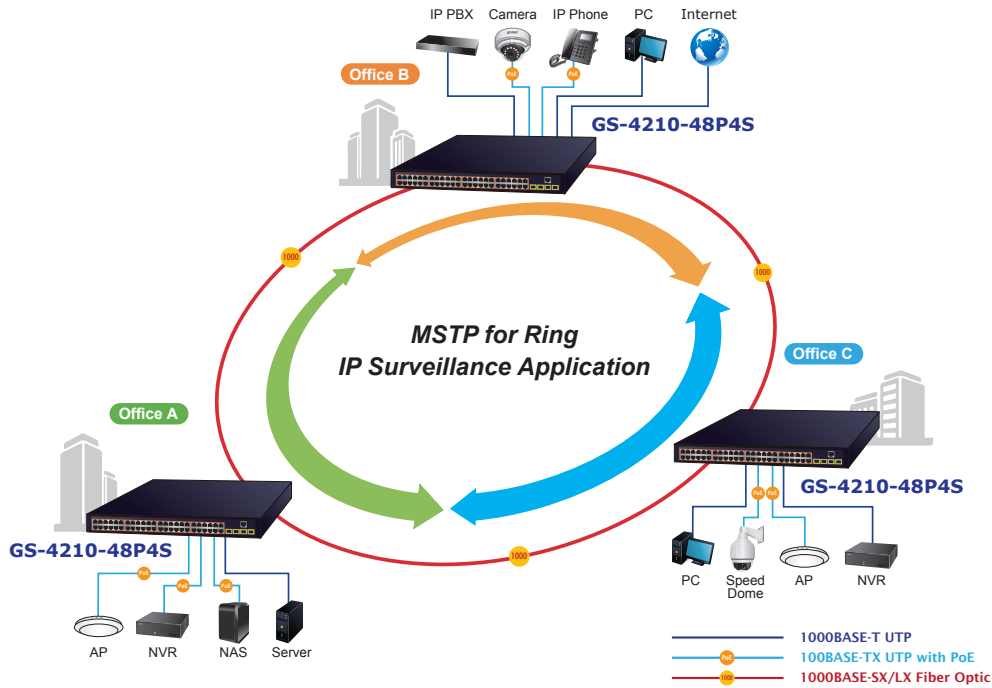
High Density of IP Surveillance Network

Providing up to 48 PoE+, in-line power interfaces and 4 100/1000BASE-X SFP interfaces, the GS-4210-48P4S can easily build an IP camera system where power can be centrally controlled. The GS-4210-48P4S can work with 8/16/32-channel NVR and surveillance software to perform comprehensive security monitoring. For instance, one GS-4210-48P4S can be combined with one 32-channel NVR and one 8-channel NVR, which feature real-time video and audio, live viewing, and playback. Each of its PoE ports can be linked with a PoE IP camera in order for the administrators to centrally and efficiently manage the surveillance system in one site. Moreover, its 4 100/1000BASE-X SFP interfaces also provide flexible fiber connection for uplink to public server groups.

Perfect Combination of 48-Port PoE+ Switch + 64-Ch NVR

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
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 300 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
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	

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 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 793 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)	

Ordering Information

GS-4210-48P4S	48-Port 10/100/1000T 802.3at PoE + 4-Port 100/1000BASE-X SFP Managed Switch

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

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	80km	1490nm	1550nm	0 ~ 60 degrees C
		1000	WDM(LC)	Single Mode	80km	1550nm	1490nm	0 ~ 60 degrees C
MGB-LA80 MGB-LB80	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

GS-4210-48P4S