

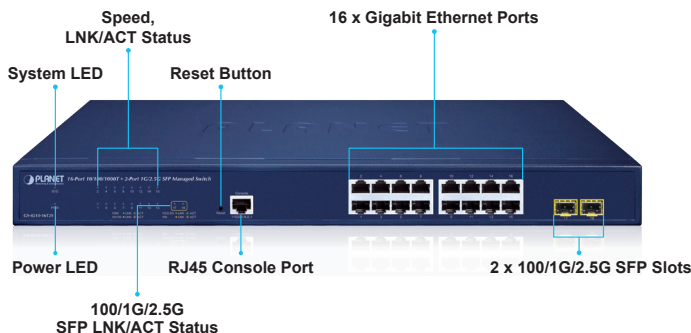
## 16-Port 10/100/1000T + 2-Port 1G/2.5G SFP Managed Ethernet Switch



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

PLANET GS-4210-16T2S is an ideal Gigabit 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**. Besides the popular IPv6/IPv4 management and abundant L2/L4 switching functions, the GS-4210-16T2S comes with fanless feature and green technology to provide a quiet, energy-saving, high-speed and reliable office network environment.

The GS-4210-16T2S is equipped with **16 10/100/1000BASE-T** Gigabit Ethernet ports and **2 additional 100/1G/2.5GBASE-X** SFP interfaces with inner power system. It offers a rack-mountable, affordable, safe and reliable Gigabit network switch solution for SMBs deploying networks, or requiring enhanced data security and network traffic management.



### Cybersecurity Network Solution to Minimize Security Risks

The GS-4210-16T2S 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

- **16-port 10/100/1000BASE-T** Gigabit RJ45 copper
- **2 100/1000/2500BASE-X** SFP slots
- RJ45 console interface for switch basic management and setup
- Reset button for system factory default

### 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
- 12K jumbo frame
- Power saving ability for Green networking
- Supports ESD protection
  - Contact Discharge 6KV DC
  - Air Gap Discharge 8KV DC
- Automatic address learning and address aging
- Supports CSMA/CD protocol

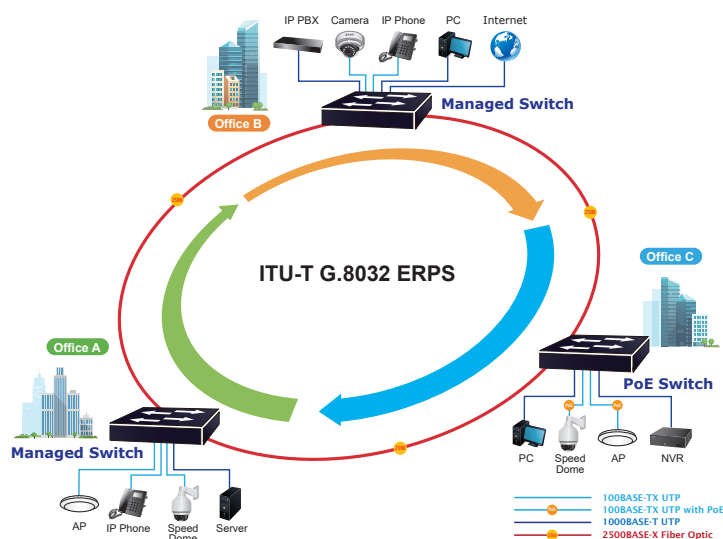
### Layer 2 Features

- Supports **VLAN**
  - IEEE 802.1Q tagged VLAN
  - Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
  - Protocol VLAN
  - Voice VLAN
  - Private VLAN (Protected port)
  - 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)
  - Maximum 8 trunk groups, up to 8 ports per trunk group
- Provides port mirror (many-to-1)
- Loop protection to avoid broadcast loops
- Supports ERPS (Ethernet Ring Protection Switching)



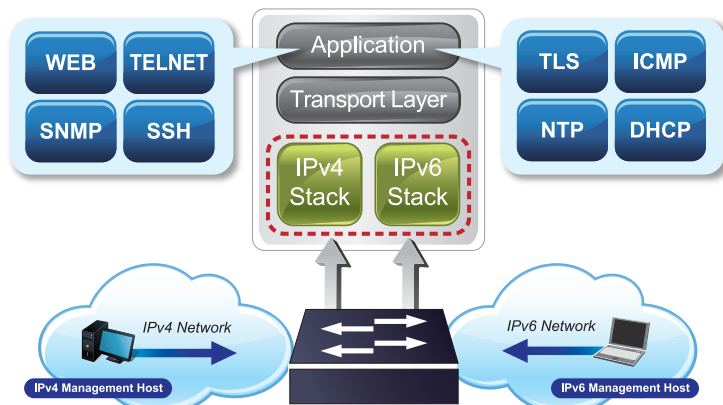
### Redundant Ring, Fast Recovery for Critical Network Applications

The GS-4210-16T2S 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.



### IPv6/IPv4 Dual Stack Management

Supporting both IPv6 and IPv4 protocols, the GS-4210-16T2S 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.



### 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

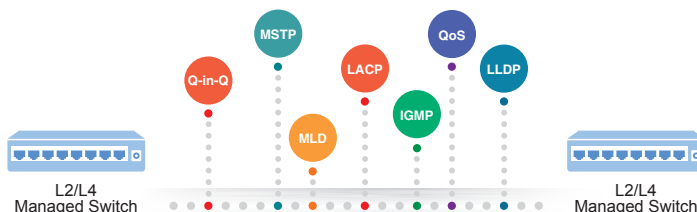
- Authentication
  - IEEE 802.1X port-based network access authentication
  - Built-in RADIUS client to cooperate with the RADIUS servers
  - DHCP Option 82
  - RADIUS/TACACS+ login user access authentication
- Access Control List
  - IPv4/IPv6 IP-based ACL
  - IPv4/IPv6 IP-based ACE
  - MAC-based ACL
  - 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/TLSv1.3 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

### Robust Layer 2 Features

The GS-4210-16T2S 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-4210-16T2S allows the operation of a high-speed trunk to combine with multiple ports such as a 16Gbps 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.



- 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
- Four RMON groups (history, statistics, alarms and events)
- Event message logging to remote Syslog server
- SMTP remote alarm
- PLANET Smart Discovery utility automatically finds PLANET devices on the network
- PLANET NMS system and NMSViewerPro/CloudViewerPro/CloudNMS App for deployment management

### Efficient Traffic Control

The GS-4210-16T2S 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 advantage of the limited network resources.

### Powerful Security

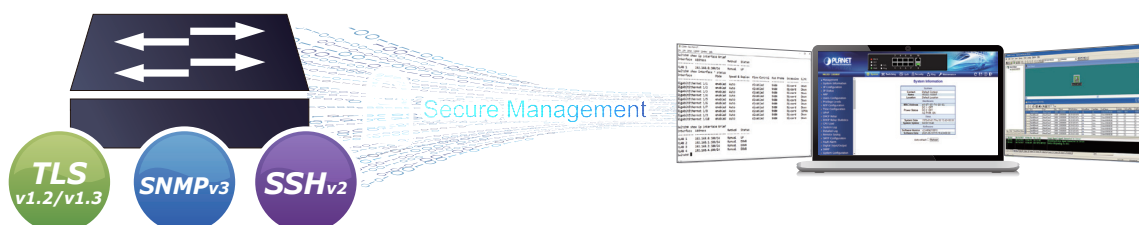
PLANET GS-4210-16T2S offers comprehensive **IPv4/IPv6** Layer 2 to **Layer 4 Access Control List (ACL)** for enforcing security to the edge. It can be used to restrict network access by denying packets based on source and destination IP address, TCP/UDP ports or defined typical network applications. 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.

### Friendly and Secure Management

For efficient management, the GS-4210-16T2S is equipped with Command line, Web and SNMP management interfaces.

- With the built-in **Web-based** management interface, the GS-4210-16T2S 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-4210-16T2S offers secure remote management by supporting **SSHv2**, **TLSv1.2/TLSv1.3** and **SNMP v3** connections which encrypt the packet content at each session.



### Remote Management Solution

PLANET's **Universal Network Management System (UNI-NMS)** and NMSViewerPro/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 NMSViewerPro/CloudViewerPro app, all kinds of businesses can now be speedily and efficiently managed from one platform.



### PLANET CloudNMS – Cloud-Based Universal Network Management

PLANET's CloudNMS platform and mobile app empower IT staff to remotely manage all network devices and Powered Devices (PDs) in real time. Designed for enterprises and industries, CloudNMS minimizes the need for on-site troubleshooting by providing centralized monitoring, fault detection, and instant alerts.

With CloudNMS, businesses can manage diverse network deployments more efficiently, securely, and intelligently—all from a single cloud-based platform.

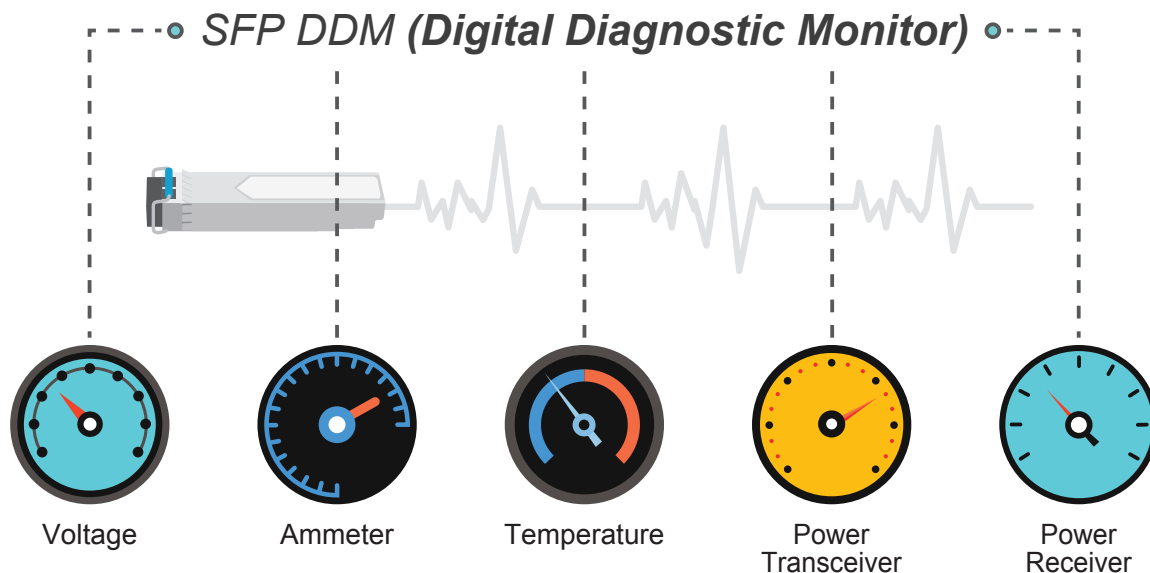


### Flexible Extension Solution

The two slots built in the GS-4210-16T2S are compatible with the **100BASE-FX/1000/2500BASE-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 100 meters (RJ45 to SFP) or 300m and 500m (Multi-mode, LC) 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.

#### Intelligent SFP Diagnosis Mechanism

The GS-4210-16T2S 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.



#### Fanless Design

Adopting the latest chip process and green technology, the GS-4210-16T2S successfully reduces substantial power consumption with the fanless and noiseless design collocating with the effective cooler. Therefore, the GS-4210-16T2S is able to operate stably and quietly in any environment without affecting its performance.





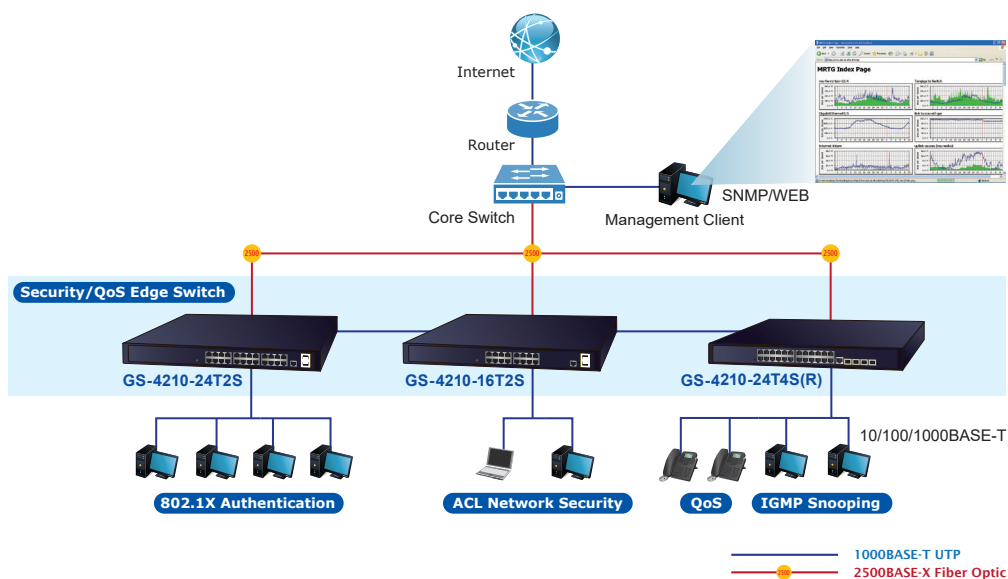
## Applications

### Department/Edge Security and QoS Switch

The GS-4210-16T2S connects up to 16 high speed workstations in the Ethernet environment, in which its two SFP interfaces provide an uplink to a department backbone. Moreover, the Switch provides 42Gbps switch fabric and high bandwidth for backbone connection. The GS-4210-16T2S improves the network efficiency and safeguards the network clients with its powerful features:

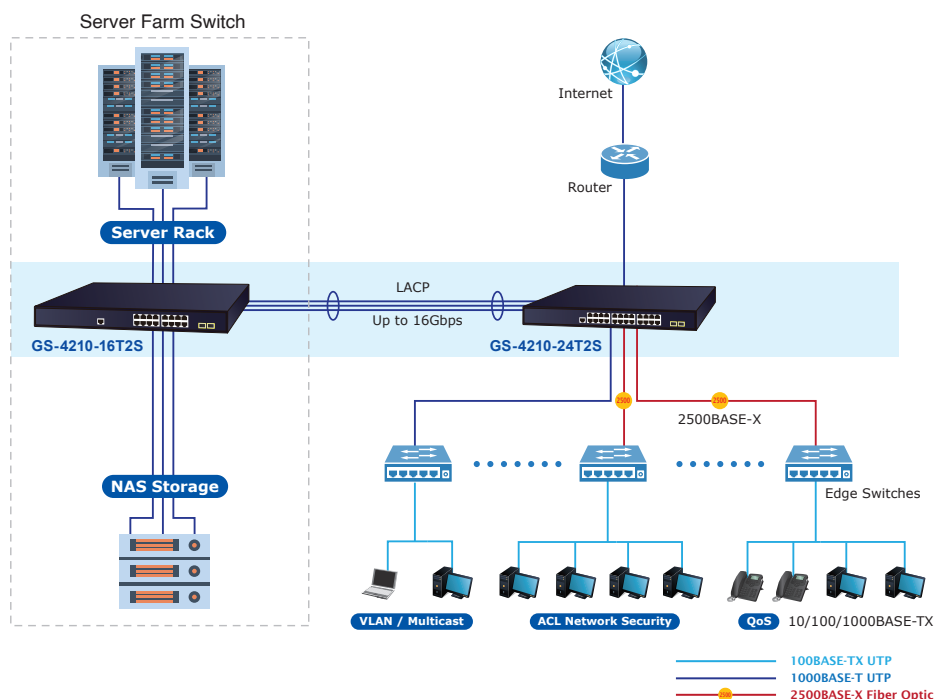
- IPv6/IPv4 management
- Layer 2 to Layer 4 security
- QoS
- 802.1x port-based and MAC-based network access authentication security
- Multicast IGMP snooping

The advanced functionality of the GS-4210-16T2S eliminates traditional issues associated with the use of Ethernet. Users can be separated with advanced VLAN functionality to enhance security. It makes the GS-4210-16T2S one of the best and most cost-effective switch solutions for SMBs.



### High-performance Backbone/Server Farm Switch

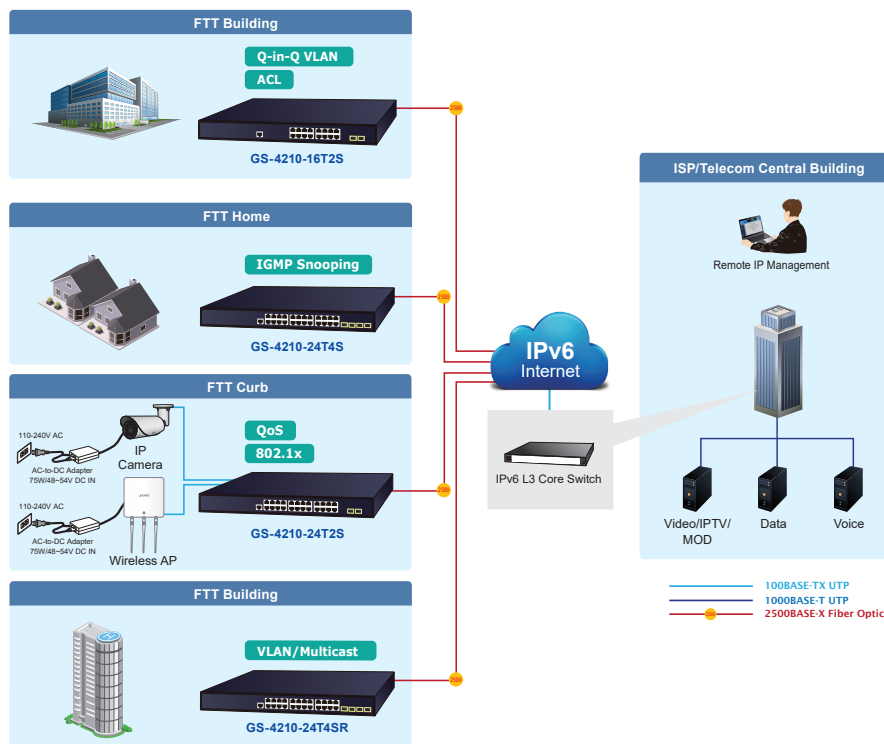
Gigabit Ethernet supported equipment has become the fundamental unit of enterprises and network servers. With up to 42 Gbps non-blocking switch fabric, the GS-4210-16T2S can easily provide a local high bandwidth Gigabit Ethernet network for backbone of enterprises or telecoms. With its port trunking function, a 16 GB fat pipe is provided to connect to the backbone if required. It is ideal to be used as a server farm switch connecting to servers. The GS-4210-16T2S can offer the uplink to the edge network through Gigabit Ethernet LX/SX SFP modules with the two SFP ports.



## FTTX/MAN Application

The GS-4210-16T2S applies the **double tag VLAN (Q-in-Q)** technology to providing low cost and easy operation for service providers carrying traffic for multiple customers across their networks. It features SNMP v3 and RMON Groups. The SNMP v3 security structure consists of security models, with each model having its own security levels. With two triple-speed SFP slots built in, the deployment distance of the GS-4210-16T2S can be extended up to 120 kilometers (single-mode fiber), which provides a high-performance edge service for FTTx solutions.

To build a network solution of FTTH (Fiber to the Home) or FTTC (Fiber to the Curb) for ISPs, and FTTB (Fiber to the Building) for enterprises, the various distances of SFP and Bidi (WDM) transceivers are optional for customers' choices. For security and various applications, the 16 Gigabit ports of the GS-4210-16T2S can be configured with VLAN settings and connected to different units, offices, floors, houses and departments.



## Specifications

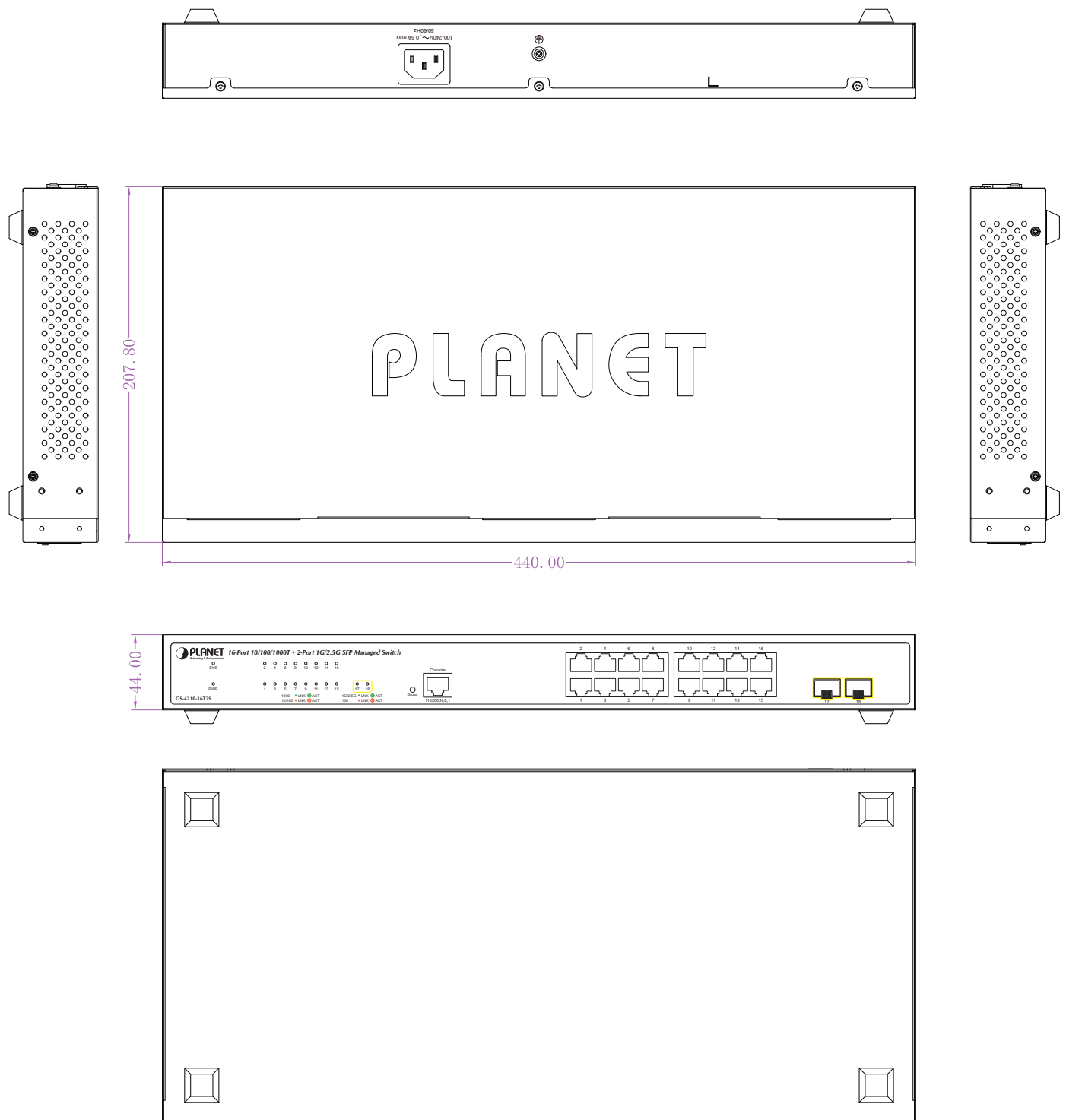
Product	GS-4210-16T2S
<b>Hardware Specifications</b>	
Hardware Version	3
Copper Ports	16 x 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports
SFP Slots	2 100/1000/2500BASE-X SFP interfaces, supporting 100/1000/2500Mbps triple mode
Console	1 x RS232-to-RJ45 serial port (115200, 8, N, 1)
Reset Button	< 5 sec: System reboot > 5 sec: Factory default
Dimensions (W x D x H)	440 x 207 x 44 mm (1U height)
Weight	1.9kg
ESD Protection	±8KV air gap discharge ±6KV contact discharge
Enclosure	Metal
Power Requirements	100~240V AC, 50/60Hz, 0.6A (max.)
Power Consumption/Dissipation	Max. 3.9 watts / 13.3 BTU (Power on without any connection) Max. 10.5 watts / 35 BTU (Full Loading)
LED	<b>System:</b> SYS (Green), Power (Green) <b>10/100/1000T RJ45 Interfaces (Port 1 to Port 16):</b> 1000 LNK/ACT (Green), 10/100 LNK/ACT (Amber) <b>100/1000/2500BASE-X SFP Interfaces (Port 25 to Port 26):</b> 1G/2.5G LNK/ACT (Green), 100 LNK/ACT (Amber)
<b>Switching Specifications</b>	
Switch Architecture	Store-and-Forward
Switch Fabric	42Gbps/non-blocking

Switch Throughput@64 bytes	31.2Mpps @64 bytes
MAC Address Table	16K entries
Shared Data Buffer	4.1 megabits
Flow Control	IEEE 802.3x pause frame for full duplex Back pressure for half duplex
Jumbo Frame	12K bytes
<b>Layer 2 Functions</b>	
Port Mirroring	TX/RX/both Many-to-1 monitor Up to 4 sessions
VLAN	IEEE 802.1Q tagged-based VLAN IEEE 802.1ad Q-in-Q tunneling (VLAN stacking) Voice VLAN Protocol VLAN Private VLAN (Protected port) GVRP Management VLAN Up to 256 VLAN groups, out of 4094 VLAN IDs
Link Aggregation	IEEE 802.3ad LACP and static trunk Supports 8 groups of 8-port trunk
Spanning Tree Protocol	IEEE 802.1D Spanning Tree Protocol (STP) IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) STP BPDU Guard, BPDU Filtering and BPDU Forwarding
IGMP Snooping	IPv4 IGMP (v2/v3) snooping IGMP querier 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 - Port number - 802.1p priority - DSCP/IP precedence of IPv4/IPv6 packets Traffic classification based, strict priority and WRR Ingress/Egress Rate Limit per port bandwidth control
Ring	Supports ERPS, and complies with ITU-T G.8032 Recovery time < 450ms
<b>Security Functions</b>	
Access Control List	IPv4/IPv6 IP-based ACL/MAC-based ACL IPv4/IPv6 IP-based ACE/MAC-based ACE Max. 256 ACL entries
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, max. 256 static MAC entries
Enhanced Security	DHCP Snooping and DHCP Option82 STP BPDU guard, BPDU filtering and BPDU forwarding DoS attack prevention ARP inspection IP source guard
<b>Management Functions</b>	
Basic Management Interfaces	RS232 to RJ45 Console Web browser Telnet SNMP v1, v2c
Secure Management Interfaces	SSHv2, TLSv1.2/TLSv1.3, SNMP v3



System Management	Firmware upgrade by HTTP/TFTP protocol through Ethernet network LLDP protocol SNTP PLANET Smart Discovery Utility PLANET NMS system PLANET NMSViewerPro/CloudViewerPro/CloudNMS	
Event Management	Remote/Local Syslog System log SMTP remote alarm	
SNMP MIBs	RFC 1213 MIB-II RFC 1215 Generic Traps RFC 1493 Bridge MIB RFC 2737 Entity MIB (Version 2) RFC 2819 RMON (1, 2, 3, 9) RFC 3635 Ethernet-like MIB LLDP MIB PLANET-Aggr-MIB PLANET-DDMI-MIB PLANET-Firmware-MIB PLANET-GVRP-MIB PLANET-LACP-MIB PLANET-SYSUTIL-MIB	
Standards Conformance		
Regulatory Compliance	FCC Part 15 Class A, CE	
Standards Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX/100BASE-FX IEEE 802.3ab Gigabit 1000BASE-T IEEE 802.3z Gigabit SX/LX 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 802.3az Energy Efficient Ethernet (EEE) RFC 768 UDP RFC 783 TFTP RFC 791 IP RFC 792 ICMP RFC 793 TCP 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-T 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)	

## Dimensions



Dimensions (W x D x H): 440 x 207.8 x 44 mm

## Ordering Information

GS-4210-16T2S

16-Port 10/100/1000T + 2-Port 1G/2.5G SFP Managed Ethernet Switch

## Related Products

GS-4210-24T2S	24-Port 10/100/1000T + 2-Port 1G/2.5G SFP Managed Ethernet Switch
GS-4210-24T4S	24-Port 10/100/1000T + 4-Port 1G/2.5G SFP Managed Gigabit Switch
GS-4210-24T4SR	24-Port 10/100/1000T + 4-Port 1G/2.5G SFP Managed Gigabit Switch with 36-60V DC Redundant Power

## Available 100Mbps Modules

### Fast Ethernet Transceiver (100BASE-X SFP)

Model	DDM	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (nm)	Operating Temp.
MFB-FX	--	100	LC	Multi Mode	2km	1310nm	0 ~ 60°C
MFB-F20	--	100	LC	Single Mode	20km	1310nm	0 ~ 60°C
MFB-F40	--	100	LC	Single Mode	40km	1310nm	0 ~ 60°C
MFB-F60	--	100	LC	Single Mode	60km	1310nm	0 ~ 60°C
MFB-F120	--	100	LC	Single Mode	120km	1550nm	0 ~ 60°C

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

Model	DDM	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°C
MFB-FB20	--	100	WDM(LC)	Single Mode	20km	1550nm	1310nm	0 ~ 60°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°C
MGB-SX(V2)	YES	1000	LC	Multi Mode	550m	850nm	0 ~ 60°C
MGB-SX2(V2)	YES	1000	LC	Multi Mode	2km	1310nm	0 ~ 60°C
MGB-LX(V2)	YES	1000	LC	Single Mode	20km	1310nm	0 ~ 60°C
MGB-L40	YES	1000	LC	Single Mode	40km	1310nm	0 ~ 60°C
MGB-L80	YES	1000	LC	Single Mode	80km	1550nm	0 ~ 60°C
MGB-L120(V2)	YES	1000	LC	Single Mode	120km	1550nm	0 ~ 60°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)	YES	1000	WDM(LC)	Single Mode	10km	1310nm	1550nm	0 ~ 60°C
MGB-LB10(V2)		1000	WDM(LC)	Single Mode	10km	1550nm	1310nm	0 ~ 60°C
MGB-LA20(V2)	YES	1000	WDM(LC)	Single Mode	20km	1310nm	1550nm	0 ~ 60°C
MGB-LB20(V2)		1000	WDM(LC)	Single Mode	20km	1550nm	1310nm	0 ~ 60°C
MGB-LA40(V2)	YES	1000	WDM(LC)	Single Mode	40km	1310nm	1550nm	0 ~ 60°C
MGB-LB40(V2)		1000	WDM(LC)	Single Mode	40km	1550nm	1310nm	0 ~ 60°C
MGB-LA80	YES	1000	WDM(LC)	Single Mode	80km	1490nm	1550nm	0 ~ 60°C
MGB-LB80		1000	WDM(LC)	Single Mode	80km	1550nm	1490nm	0 ~ 60°C

## Available 2500Mbps Modules

### Gigabit Ethernet Transceiver (2500BASE-X SFP)

Model	DDM	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (nm)	Operating Temp.
MGB-2GSR	YES	2500	LC	Multi-mode	300m	850nm	0 ~ 70 degrees C
MGB-2GLR2	YES	2500	LC	Single mode	2km	1310nm	0 ~ 70 degrees C
MGB-2GLR20	YES	2500	LC	Single mode	20km	1310nm	0 ~ 70 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-2GLA20	YES	2500	WDM(LC)	Single Mode	20km	1310nm	1550nm	0 ~ 70 degrees C
MGB-2GLB20		2500	WDM(LC)	Single Mode	20km	1550nm	1310nm	0 ~ 70 degrees C

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