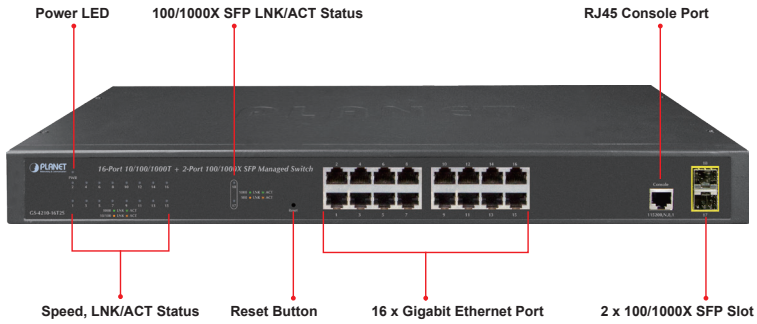
16-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch

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 100/1000BASE-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.



IPv6/IPv4 Dual Stack

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.

Robust Layer 2 Features

The GS-4210-16T2S an 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.

Physical Port

- 16-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

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

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

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

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.

Enhanced and Secure Management

For efficient management, the GS-4210-16T2S is equipped with console, web, telnet 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. By supporting standard Simple Network Management Protocol (SNMP), the switch can be managed via any standard management software. For text-based management, the switch can be accessed via telnet and the console port. Moreover, the GS-4210-16T2S offers secure remote management by supporting SSH, HTTPS and SNMPv3 connections which encrypt the packet content at each session.

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.

Advanced Network Security

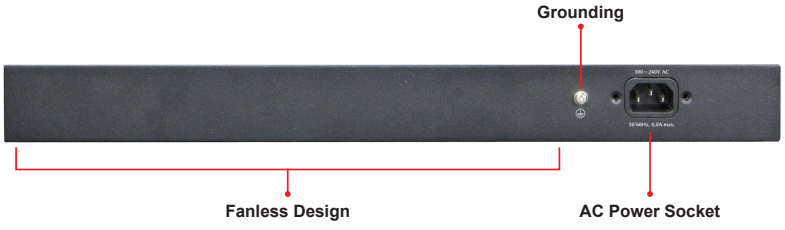
The GS-4210-16T2S also provides DHCP snooping, IP source guard and dynamic ARP inspection functions to prevent IP snooping from attack and discard ARP packets with invalid MAC address. The network administrators can now construct highly-secure corporate networks with considerably less time and effort than before.

Flexible Extension Solution

The two mini-GBIC slots built in the GS-4210-16T2S 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 2km (multi-mode fiber) and to 10/20/30/40/50/60/70/120 kilometers (single-mode fiber or WDM fiber). They are well suited for applications within the enterprise data centers and distributions.

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.



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
- SSH/SSL

Management

- IPv4 and IPv6 dual stack management
- Switch management interface
  - Web switch management
  - Telnet command line interface
  - SNMP v1, v2c and v3
  - SSH and SSL 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

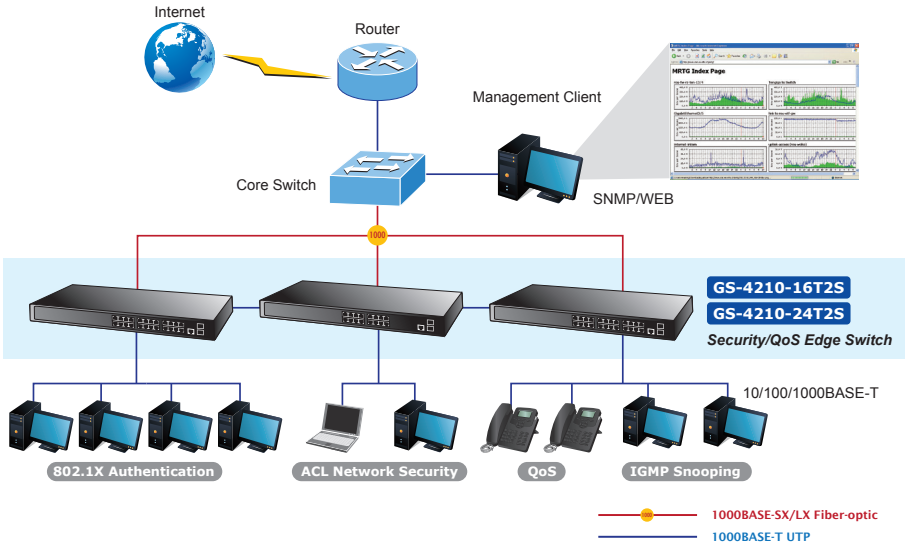
Applications

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 mini-GBIC interfaces provide an uplink to a department backbone. Moreover, the Switch provides 36Gbps 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:

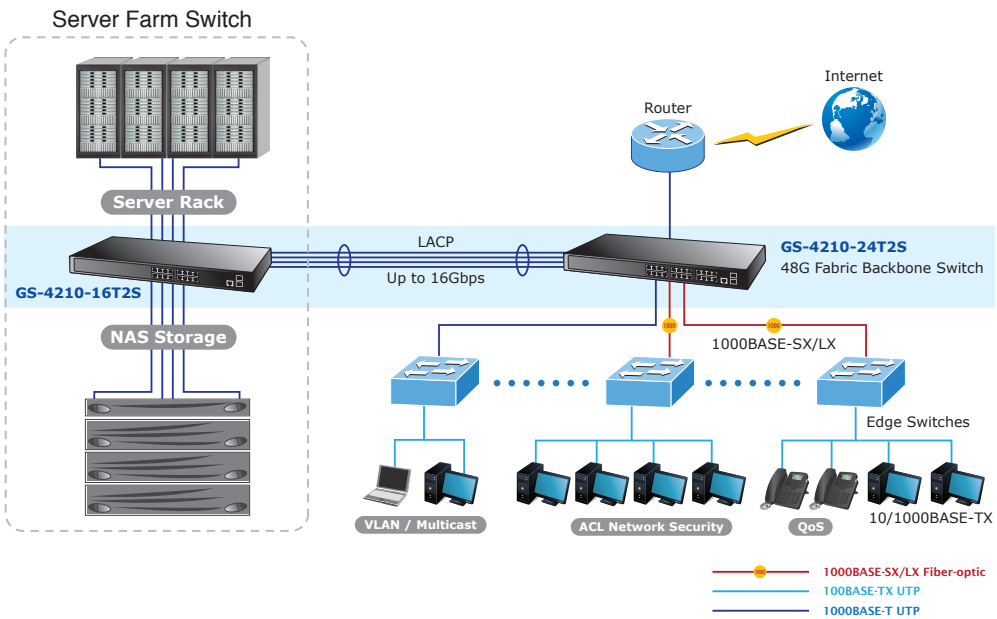
– IPv6/IPv4 management
– Layer 2 to Layer 4 security
– QoS
– 802.1x port-based and MAC-based network access authentication security
– Multicast IGMP snooping

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

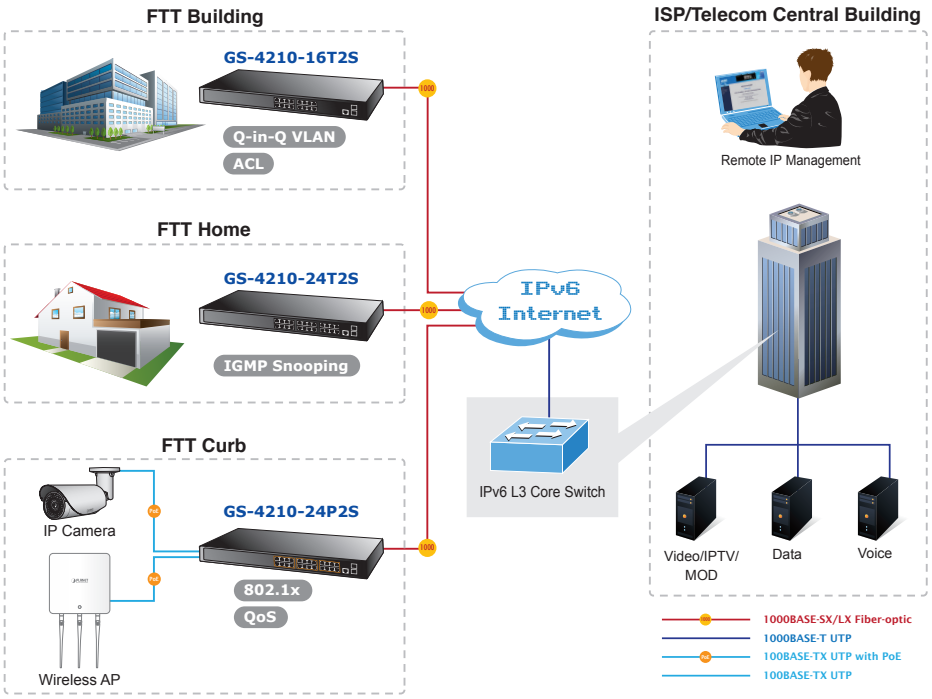
Gigabit Ethernet supported equipment has become the fundamental unit of enterprises and network servers. With up to 36 Gbps non-blocking switch fabric, the GS-4210-16T2S can easily provide a local high bandwidth Gigabit Ethernet network for backbone of enterprises or telecoms. With its port trunking 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 dual-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
Hardware Specifications	
Hardware Version	2
Copper Ports	16 x 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports
SFP/mini-GBIC Slots	2 100/1000BASE-X SFP interfaces, supporting 100/1000Mbps dual mode
Console	1 x RS232-to-RJ45 serial port (115200, 8, N, 1)
Reset Button	> 5 sec: Factory default
Switch Architecture	Store-and-Forward
Switch Fabric	36Gbps/non-blocking
Switch Throughput@64 bytes	26.7Mpps @64 bytes
MAC Address Table	8K entries
Shared Data Buffer	4.1 megabits
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex
Jumbo Frame	9216 bytes
LED	**System:** Power (Green) **10/100/1000T RJ45 Interfaces (Port 1 to Port 16):** 1000 LNK/ACT (Green), 10/100 LNK/ACT (Orange) **100/1000Mbps SFP Interfaces (Port 17 to Port 18):** 1000 LNK/ACT (Green), 100 LNK/ACT (Orange)
Power Requirements	100~240V AC, 50/60Hz, 0.8A (max.)
Power Consumption/Dissipation	Max. 10.4 watts/35 BTU
Dimensions (W x D x H)	445 x 207 x 45 mm (1U height)
Weight	2kg
ESD Protection	Yes
Enclosure	Metal

Layer 2 Functions	
Port Mirroring	TX/RX/both Many-to-1 monitor
VLAN	802.1Q tagged-based VLAN Up to 256 VLAN groups, out of 4094 VLAN IDs 802.1ad Q-in-Q tunneling (VLAN stacking) Voice VLAN Protocol VLAN Private VLAN (Protected port) GVRP Management VLAN
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
Access Control List	IPv4/IPv6 IP-based ACL/MAC-based ACL IPv4/IPv6 IP-based ACE/MAC-based ACE
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
Security	IEEE 802.1X port-based authentication Built-in RADIUS client to co-operate with RADIUS server RADIUS/TACACS+ authentication IP-MAC port binding MAC filtering Static MAC address DHCP snooping and DHCP Option82 STP BPDU guard, BPDU filtering and BPDU forwarding DoS attack prevention ARP inspection IP source guard Storm control support Broadcast/unknown unicast/unknown multicast
Management Functions	
Basic Management Interfaces	RJ45 Console; Web browser; Telnet; SNMP v1, v2c, v3 Firmware upgrade by HTTP/TFTP protocol through Ethernet network Configuration upload/download through HTTP/TFTP Remote/Local Syslog System log LLDP Protocol SNTP PLANET Smart Discovery Utility
Secure Management Interfaces	HTTPs, SNMP v3
SNMP MIBs	RFC 3635 Ethernet-like MIB RFC 2863 Interface Group MIB RFC 2819 RMON (1, 2, 3, 9) RFC 1493 Bridge 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 802.3z Gigabit SX/LX IEEE 802.3ab Gigabit 1000BASE-T 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 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

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-4210-16T2S	16-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch

Related Products

GS-4210-24T2S	24-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch

Available Gigabit SFP Modules for GS-4210-16T2S

MGB-GT	SFP-Port 1000BASE-T Module
MGB-SX	SFP-Port 1000BASE-SX mini-GBIC module - 220/550m
MGB-LX	SFP-Port 1000BASE-LX mini-GBIC module - 10km
MGB-L30	SFP-Port 1000BASE-LX mini-GBIC module - 30km
MGB-L50	SFP-Port 1000BASE-LX mini-GBIC module - 50km
MGB-L70	SFP-Port 1000BASE-LX mini-GBIC module - 70km
MGB-L120	SFP-Port 1000BASE-LX mini-GBIC module - 120km
MGB-LA10	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 10km
MGB-LB10	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 10km
MGB-LA20	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 20km
MGB-LB20	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 20km
MGB-LA40	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 40km
MGB-LB40	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 40km

Available Fast Ethernet SFP Modules for GS-4210-16T2S

MFB-FX	SFP-Port 100BASE-FX Transceiver (1310nm) - 2km
MFB-F20	SFP-Port 100BASE-FX Transceiver (1310nm) - 20km
MFB-F40	SFP-Port 100BASE-FX Transceiver (1310nm) - 40km
MFB-F60	SFP-Port 100BASE-FX Transceiver (1310nm) - 60km
MFB-FA20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1310nm) - 20km
MFB-FB20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1550nm) - 20km

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