L2+ 16-/24-Port 10/100/1000T + 2-/4-Port 10G SFP+ Managed Ethernet Switch with LCD Touch Screen
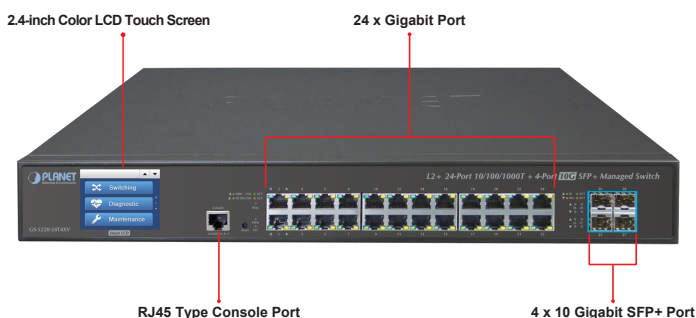
TAIWAN EXCELLENCE 2018

IPv6 Routing and 10G Ethernet Switch Solutions for SMBs

PLANET GS-5220-16T2XV(R) and GS-5220-24T4XV(R) Layer 2+ Managed Gigabit Switches with LCD Touch Screen support both IPv4 and IPv6 protocols and hardware Layer 3 static routing capability, and provide 16/24 10/100/1000Mbps Gigabit Ethernet ports and 2/4 10Gigabit SFP+ uplink slots. The GS-5220 series can handle extremely large amounts of data in a secure topology linking to a data center/service provider backbone or high capacity servers. They can work with a 10Gbps SFP+ server adapter to help SMBs build the 10Gbps Ethernet network providing 10Gbps NAS (Network Attached Storage) or heavy transmission of video streaming service at an affordable price.

GS-5220-16T2XV(R)

2.4-inch Color LCD Touch Screen
16 x Gigabit Port
RJ45 Type Console Port
2 x 10 Gigabit SFP+ Port

GS-5220-24T4XV(R)

2.4-inch Color LCD Touch Screen
24 x Gigabit Port
RJ45 Type Console Port
4 x 10 Gigabit SFP+ Port
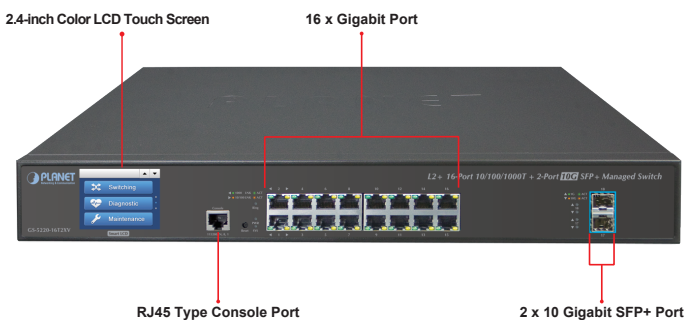
Physical Port

- **16/24 10/100/1000BASE-T** Gigabit RJ45 copper ports
- **2/4 10GBASE-SR/LR SFP+ slots**, compatible with 1000BASE-SX/LX/BX SFP
- RJ45 console interface for switch basic management and setup

Layer 2 Features

- Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x pause frame flow control (full-duplex)
- High performance of Store-and-Forward architecture and runt/CRC filtering eliminates erroneous packets to optimize the network bandwidth
- Storm Control support
  – Broadcast/Multicast/Unknown unicast
- Supports VLAN
  – IEEE 802.1Q tagged VLAN
  – Up to 255 VLANs groups, out of 4094 VLAN IDs
  – Supports provider bridging (VLAN Q-in-Q, IEEE 802.1ad)
  – Private VLAN Edge (PVE)
  – Protocol-based VLAN
  – MAC-based VLAN
  – Voice VLAN
- Supports Spanning Tree Protocol
  – IEEE 802.1D Spanning Tree Protocol
  – EEE 802.1w Rapid Spanning Tree Protocol
  – IEEE 802.1s Multiple Spanning Tree Protocol, spanning tree by VLAN
  – BPDU Guard
- Supports **Link Aggregation**
  – 802.3ad Link Aggregation Control Protocol (LACP)
  – Cisco ether-channel (static trunk)
  – Maximum 14 trunk groups, up to 4 ports per trunk group (GS-5220-24T4XV(R))
  – Up to 80Gbps bandwidth (full duplex mode, GS-5220-24T4XV(R))
  – Maximum 9 trunk groups, up to 2 ports per trunk group (GS-5220-16T2XV(R))
  – Up to 40Gbps bandwidth (full duplex mode, GS-5220-16T2XV(R))
- Provides port mirror (many-to-1)
- Port mirroring to monitor the incoming or outgoing traffic on a particular port

Cybersecurity Network Solution to Minimize Security Risks

The new generation of GS-5220 series has the cybersecurity feature to protect the switch management and enhance the security for mission-critical network without extra deployment cost and effort. The GS-5220 series expand its memory and upgrades the kernel of SSH and SSL protocols to provide strong protection against advanced threats. It includes a range of cybersecurity features such as DHCP Snooping, IP Source Guard, ARP Inspection Protection, 802.1x port-based and MAC-based network access control, RADIUS and TACACS+ user accounts management, SNMPv3 authentication, and so on to complement it as an all-security solution. The network administrator can now construct highly-secure corporate networks with considerably less time and effort than before.

Intuitive LCD Control

The GS-5220 series comes with an intuitive touch panel on its front panel to facilitate the Ethernet management to greatly promote management efficiency in large-scale networks, such as enterprises, hotels, shopping malls, government buildings, and other public areas. It also features the following special management and status functions:

■ IP address, VLAN and QoS configuration
■ Port management and status, and SFP information
■ Troubleshooting: Cable diagnostic and remote IP ping
■ Maintenance: Reboot, factory default and save configuration

Redundant Ring, Fast Recovery for Critical Network Applications

The GS-5220 series 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, 802.1s Multiple Spanning Tree Protocol (MSTP)**, and **dual power** input system into customer's industrial automation network to enhance system reliability and uptime in harsh factory environments. In a certain simple ring network, the recovery time of data link can be as fast as 20ms.

- Loop protection to avoid broadcast loops
- Supports ERPS (Ethernet Ring Protection Switching)

Layer 3 Features

- IP interfaces (Max. 128 VLAN interfaces)
- Routing table (Max. 128 routing entries)
- Routing Protocols (IPv4/IPv6 hardware static routing)
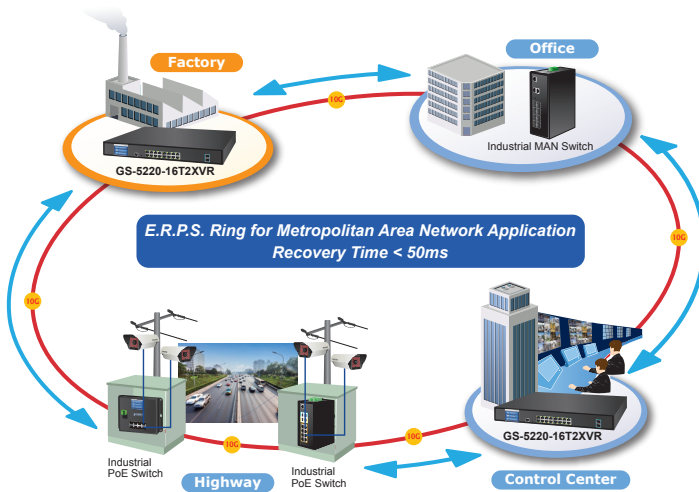
Quality of Service

- Ingress Shaper and Egress Rate Limit per port bandwidth control
- 8 priority queues on all switch ports
- Traffic classification
  – IEEE 802.1p CoS
  – TOS/DSCP/IP precedence of IPv4/IPv6 packets
  – IP TCP/UDP port number
  – Typical network application
- Strict priority and Weighted Round Robin (WRR) CoS policies
- Supports QoS and In/Out bandwidth control on each port
- Traffic-policing on the switch port
- DSCP remarking

Multicast

- Supports IGMP snooping v1, v2 and v3
- Supports MLD snooping v1 and v2
- Querier mode support
- IGMP snooping port filtering
- MLD snooping port filtering
- Multicast VLAN Registration (MVR) support

Security

- Authentication
  – IEEE 802.1x port-based/MAC-based network access authentication
  – Built-in RADIUS client to cooperate with the RADIUS servers
  – TACACS+ login users access authentication
  – RADIUS/TACACS+ users access authentication
- Access Control List
  – IP-based Access Control List (ACL)
  – MAC-based Access Control List
- Source MAC/IP address binding
- **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
- IP address access management to prevent unauthorized intruder

Factory

Office

Industrial MAN Switch

GS-5220-16T2XVR

E.R.P.S. Ring for Metropolitan Area Network Application
Recovery Time < 50ms

10G

10G

10G

10G

10G

GS-5220-16T2XVR

Industrial PoE Switch

Industrial PoE Switch

Highway

Control Center

Management

- IPv4 and IPv6 dual stack management
- Switch Management Interfaces
  - Console/Telnet Command Line Interface
  - Web switch management
  - SNMP v1, v2c, and v3 switch management
  - SSH/SSL secure access
  - 2.4-inch color LCD touch screen
- Four RMON groups (history, statistics, alarms, and events)
- **IPv6** IP address/NTP/DNS management
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- System Maintenance
  - Firmware upload/download via HTTP/TFTP
  - Reset button for system reboot or reset to factory default
  - Dual images
- DHCP Relay
- DHCP Option 82
- User Privilege levels control
- NTP (Network Time Protocol)
- Link Layer Discovery Protocol (LLDP) and LLDP-MED
- Network Diagnostic
  - CMPv6/ICMPv4 remote ping
  - Cable diagnostic technology provides the mechanism to detect and report potential cabling issues
- SFP-**DDM** (Digital Diagnostic Monitor)
- SMTP/Syslog remote alarm
- SNMP trap for interface Link Up and Link Down notification
- System Log
- Reset button for system reboot or reset to factory default
- PLANET Smart Discovery Utility for deployment management

Redundant Power System
(GS-5220-16T2XVR/GS-5220-24T4XVR)

- Redundant 100~240V AC/36-60V DC dual power
- Active-active redundant power failure protection
- Backup of catastrophic power failure on one supply
- Fault tolerance and resilience

Cost-effective 10Gbps Uplink Capacity

10G Ethernet is a big leap in the evolution of Ethernet. The 2/4 10G SFP+ slots of the GS-5220 series supports **dual-speed 10GBASE-SR/LR or 1000BASE-SX/LX**, meaning the administrator now can flexibly choose the suitable SFP/SFP+ transceiver according to the transmission distance or the transmission speed required to extend the network efficiently. They greatly support SMB network to achieve the maximum performance of 10Gbps in a cost-effective way because the 10GbE interface usually could be available in Layer 3 Switch but Layer 3 Switch could be too expensive to SMBs.

Redundant AC/DC Power Supply to Ensure Continuous Operation

The GS-5220-16T2XVR and GS-5220-24T4XVR are particularly equipped with one 100~240V AC power supply unit and one 36~60V DC power supply unit to provide an enhanced reliable and scalable redundant power supply. The continuous power system is specifically designed to fulfill the demands of high-tech facilities requiring the highest power integrity. With the 36~60V DC power supply, the GS-5220-16T2XVR and GS-5220-24T4XVR are able to act as a telecom-level device that can be located in the electronic room.

Ground   100~240V AC Power
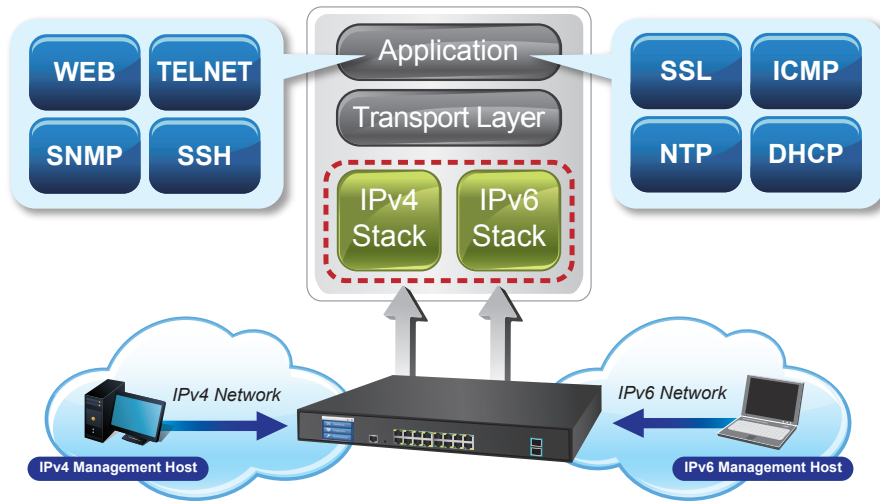

36~60V DC Power

Solution for IPv6 Networking

With the IPv6/IPv4 dual stack and other management functions with user-friendly interfaces, the GS-5220 series is the best choice for IP surveillance, VoIP and wireless service providers to deploy the IPv6 network. More importantly, they help SMBs upgrade their network infrastructures to the IPv6 era without any monetary investment.

IPv4/IPv6 VLAN Routing for Secure and Flexible Management

To help customers stay on top of their businesses, the GS-5220 switch series not only provides ultra high transmission performance and excellent Layer 2 technologies, but also offers IPv4/IPv6 VLAN routing feature which allows to cross over different VLANs and different IP addresses for the purpose of having a highly-secure, flexible management and simpler networking application.

Robust Layer 2 Features

The GS-5220 series can be programmed for advanced switch management functions, such as dynamic port link aggregation, **Q-in-Q VLAN, Multiple Spanning Tree Protocol (MSTP)**, Layer 2/4 QoS, bandwidth control and **IGMP/MLD snooping**. The GS-5220 series allows the operation of a high-speed trunk combining multiple ports. It consists of a maximum of 9 trunk groups with 2 ports for each group, and supports connection fail-over as well.
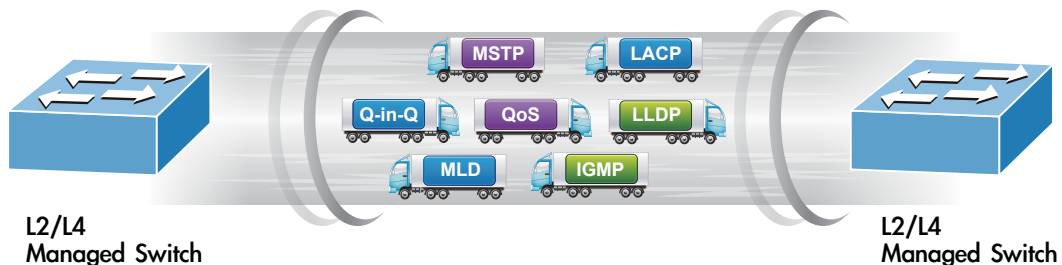
Powerful Security

The GS-5220 series offers a comprehensive **Layer 2 to Layer 4 access control list (ACL)** for enforcing security to the edge. It can be used to restrict to network access by denying packets based on source and destination IP address, TCP/UDP port number or defined typical network applications. Its protection mechanism also comprises **802.1x Port-based** and **MAC-based** user and device authentication. With the **private VLAN** function, communication between edge ports can be prevented to ensure user privacy.

## Enhanced Security and Traffic Control

The GS-5220 series 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 construct highly-secure corporate networks with considerably less time and effort than before.

SMTP/SNMP Trap Event Alert

The GS-5220 series provide event alert function to help to diagnose the abnormal device owing to whether or not there is a break of the network connection, or the rebooting response.

User-friendly Secure Management

For efficient management, the GS-5220 managed switch series is equipped with console, web and SNMP management interfaces. With the built-in web-based management interface, the GS-5220 series offers an easy-to-use, platform independent management and configuration facility. The GS-5220 series supports SNMP and it can be managed via any management software based on the standard SNMP v1 or v2 Protocol. For reducing product learning time, the GS-5220 series offers **Cisco-like command** via Telnet or console port and customer doesn't need to learn new command from these switches. Moreover, the GS-5220 series offers the remotely secure management by supporting **SSH**, **SSL** and **SNMP v3** connection where the packet content can be encrypted at each session.
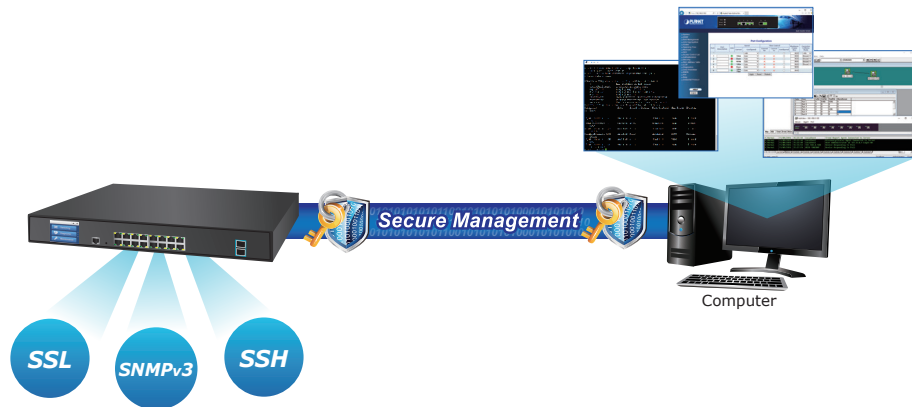
Intelligent SFP/SFP+ Diagnosis Mechanism

The series supports SFP-DDM (Digital Diagnostic Monitor) function that greatly helps network administrator to easily monitor real-time parameters of the SFP and SFP+ transceivers, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.

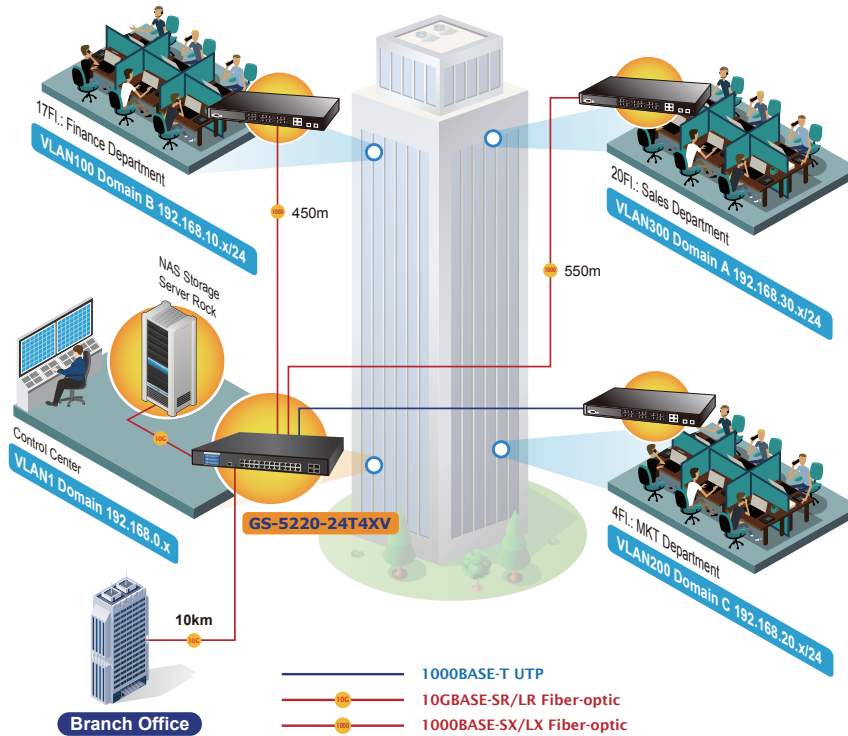## Digital Diagnostic Monitor *(DDM)*

Applications

Layer 2+ VLAN Static Routing and 10G Uplink Application

With the built-in robust IPv4 / IPv6 Layer 3 traffic routing protocols, the GS-5220 series ensures reliable routing between VLANs and network segments. The routing protocols can be applied by VLAN interface with up to 128 routing entries. The GS-5220 series is certainly a cost-effective and ideal solution for enterprises.

VLAN Routing + 10G Uplink Applications

17Fl.: Finance Department
VLAN100 Domain B 192.168.10.x/24

450m

NAS Storage Server Rock

20Fl.: Sales Department
VLAN300 Domain A 192.168.30.x/24

550m

Control Center
VLAN1 Domain 192.168.0.x

GS-5220-24T4XV

4Fl.: MKT Department
VLAN200 Domain C 192.168.20.x/24

10km

Branch Office

1000BASE-T UTP
10GBASE-SR/LR Fiber-optic
1000BASE-SX/LX Fiber-optic

Specifications

Product	GS-5220-16T2XV	GS-5220-16T2XVR	GS-5220-24T4XV	GS-5220-24T4XVR
Hardware Specifications				
Copper Ports	16 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports		24 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports	
SFP+ Slots	2 10GBASE-SR/LR SFP+ interfaces (Port-17 to Port-18) Compatible with 1000BASE-SX/LX/BX SFP transceiver		4 10GBASE-SR/LR SFP+ interfaces (Port-25 to Port-28) Compatible with 1000BASE-SX/LX/BX SFP transceiver	
Console	1 x RS232-to-RJ45 serial port (115200, 8, N, 1)			
Switch Architecture	Store-and-Forward			
Switch Fabric	72Gbps/non-blocking		128Gbps/non-blocking	
Throughput	53.57Mpps@64Bytes		95.23Mpps@64Bytes	
Address Table	16K entries, automatic source address learning and aging			
Shared Data Buffer	32M bits			
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex			
Jumbo Frame	10K bytes			
Reset Button	< 5 sec: System reboot > 5 sec: Factory default			
Dimensions (W x D x H)	440 x 300 x 56 mm, 1.25U height			
Weight	3.5kg	3.6kg	3.7kg	3.8kg
LED	System: SYS (Green) AC/PWR (Green) DC (Green) (GS-5220-16T2XVR Only) Ring (Green) Ethernet Interfaces (Port-1 to Port-16): 1000 LNK/ACT (Green), 10/100 LNK/ACT (Orange) 1/10G SFP+ Interfaces (Port-17 to Port-18): 1G (Green), 10G (Orange)		System: SYS (Green) AC/PWR (Green) DC (Green) (GS-5220-24T4XVR Only) Ring (Green) Ethernet Interfaces (Port-1 to Port-24): 1000 LNK/ACT (Green), 10/100 LNK/ACT (Orange) 1/10G SFP+ Interfaces (Port-25 to Port-28): 1G (Green), 10G (Orange)	
Power Consumption	Max. 25.5 watts/87.01 BTU	AC: Max. 26 watts/88.72 BTU DC: Max. 24.9 watts/84.96 BTU	Max. 35.1 watts/119.77 BTU	AC: Max. 35.3 watts/120.45 BTU DC: Max. 33.3 watts/113.62 BTU
Power Requirements – AC	AC 100~240V, 50/60Hz, 2A		AC 100~240V, 50/60Hz, 2A	
Power Requirements – DC	--	DC 36~60V, 1.5A	-	DC 36~60V, 1.5A
ESD Protection	6KV DC			
Fan	1		2	
Layer 2 Management Functions				
Port Configuration	Port disable/enable Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Flow control disable/enable			
Port Status	Display each port's speed duplex mode, link status, flow control status, auto-negotiation status, trunk status			
Port Mirroring	TX/RX/Both Many-to-1 monitor			
VLAN	802.1Q tagged-based VLAN Q-in-Q tunneling Private VLAN Edge (PVE) MAC-based VLAN Protocol-based VLAN Voice VLAN MVR (Multicast VLAN registration) Up to 255 VLAN groups, out of 4095 VLAN IDs			
Link Aggregation	IEEE 802.3ad LACP/static trunk 9 groups with 2 port per 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)			
QoS	Traffic classification based, strict priority and WRR 8-level priority for switching: - Port number - 802.1p priority - 802.1Q VLAN tag - DSCP/ToS field in IP packet			

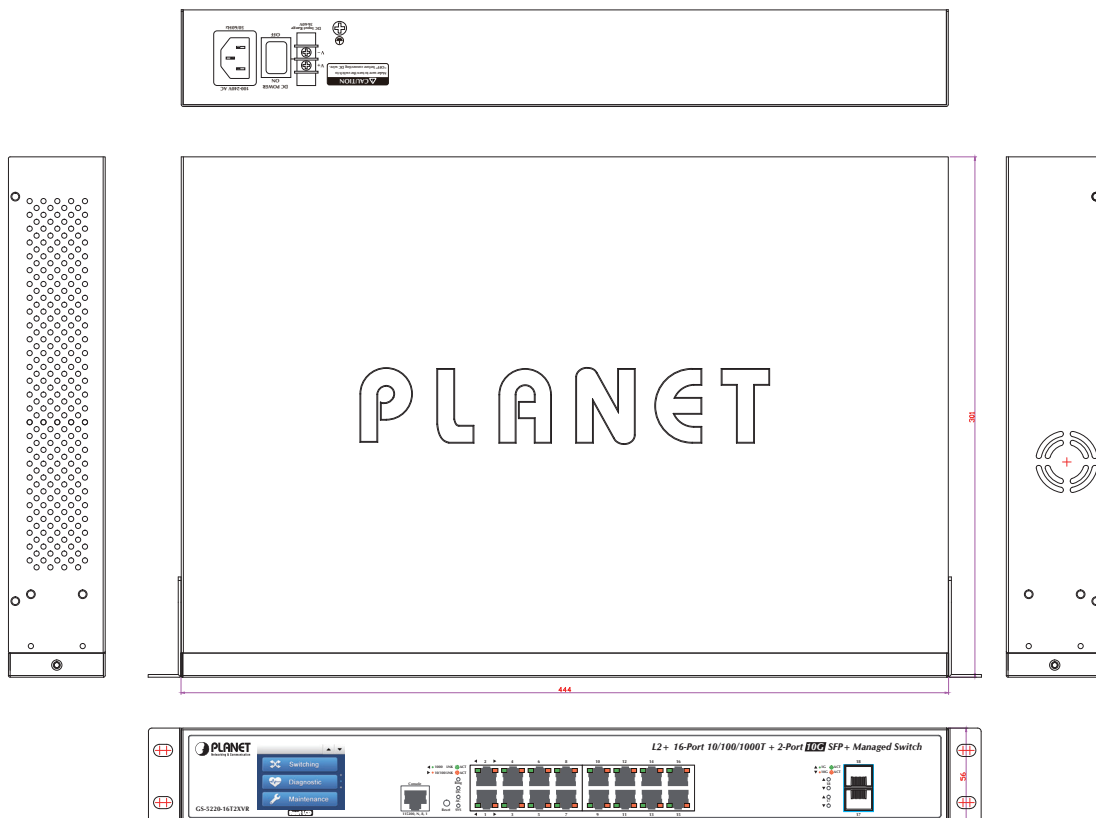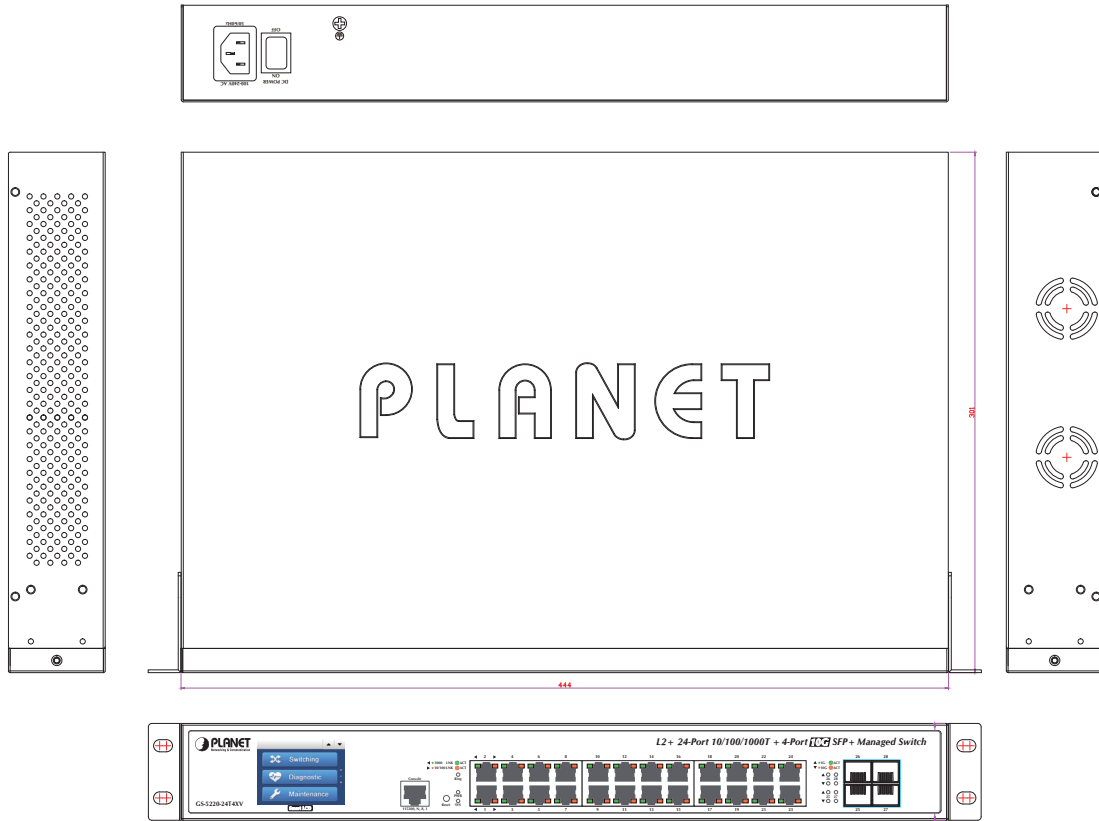|	
IGMP Snooping	IGMP (v1/v2/v3) snooping, up to 255 multicast groups IGMP querier mode support
MLD Snooping	MLD (v1/v2) snooping, up to 255 multicast groups MLD querier mode support
Access Control List	IP-based ACL/MAC-based ACL Up to 256 entries
Bandwidth Control	Per port bandwidth control Ingress: 100Kbps~1000Mbps Egress: 100Kbps~1000Mbps
Layer 3 Functions	
IP Interfaces	Max. 128 VLAN interfaces
Routing Table	Max. 128 routing entries
Routing Protocols	IPv4 hardware static routing IPv6 hardware static routing
Management	
Basic Management Interfaces	Console; Telnet; Web browser; SNMP v1, v2c; 2.4-inch color LCD touch screen
Secure Management Interfaces	SSH, SSL, SNMP v3
SNMP MIBs	RFC 1213 MIB-II RFC 1493 Bridge MIB RFC 1643 Ethernet MIB RFC 2863 Interface MIB RFC 2665 Ether-Like MIB RFC 2819 RMON MIB (Groups 1, 2, 3 and 9) RFC 2737 Entity MIB RFC 2618 RADIUS Client MIB RFC 2863 IF-MIB RFC 2933 IGMP-STD-MIB RFC 3411 SNMP-Frameworks-MIB RFC 4292 IP Forward MIB RFC 4293 IP MIB RFC 4836 MAU-MIB IEEE 802.1X PAE LLDP
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 1000T IEEE 802.3ae 10Gb/s Ethernet 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 ITU-T G.8032 Ethernet Ring Protection Switching RFC 768 UDP RFC 793 TFTP RFC 791 IP RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP v1 RFC 2236 IGMP v2 RFC 3376 IGMP v3 RFC 2710 MLD v1 FRC 3810 MLD v2
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)

Drawing

• GS-5220-16T2XV

L2+ 16-Port 10/100/1000T + 2-Port 10G SFP+ Managed Switch
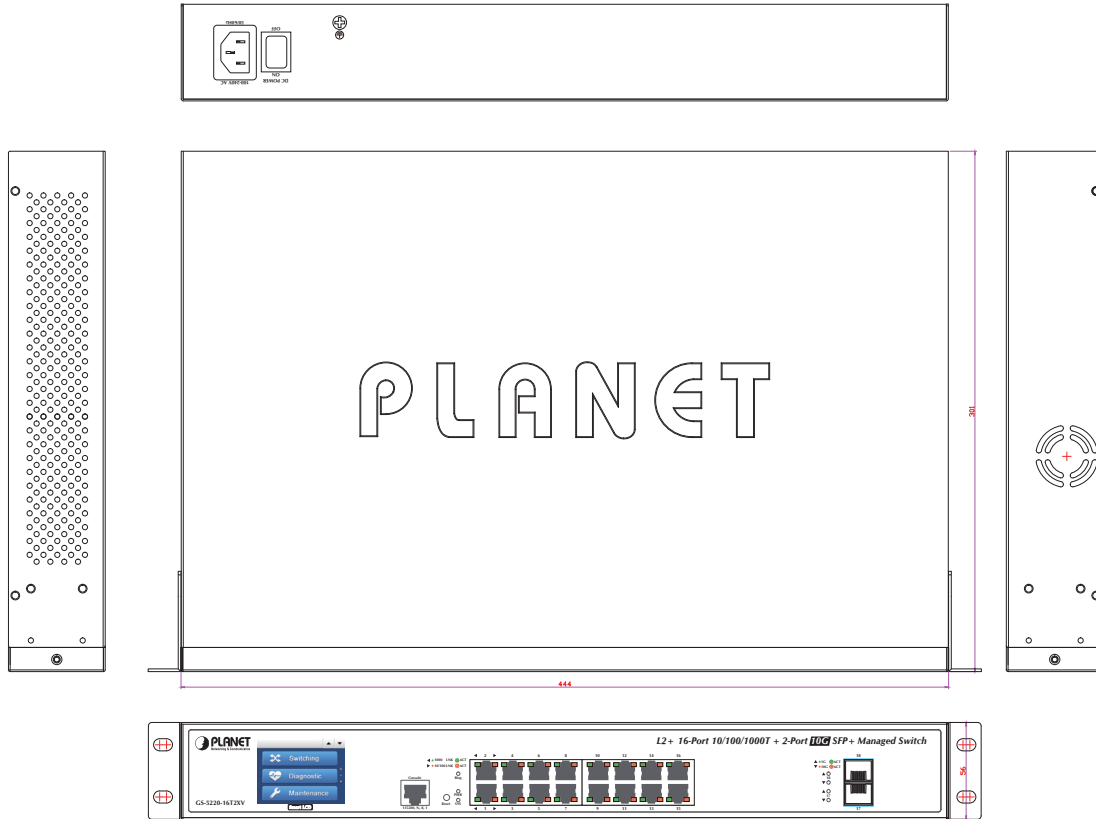
Dimensions (unit = mm)

• GS-5220-16T2XVR

L2+ 16-Port 10/100/1000T + 2-Port 10G SFP+ Managed Switch

Dimensions (unit = mm)

9

• GS-5220-24T4XV

L2+ 24-Port 10/100/1000T + 4-Port 10G SFP+ Managed Switch

GS-5220-24T4XV

Dimensions (unit = mm)

• GS-5220-24T4XVR

L2+ 24-Port 10/100/1000T + 4-Port 10G SFP+ Managed Switch

GS-5220-24T4XVR
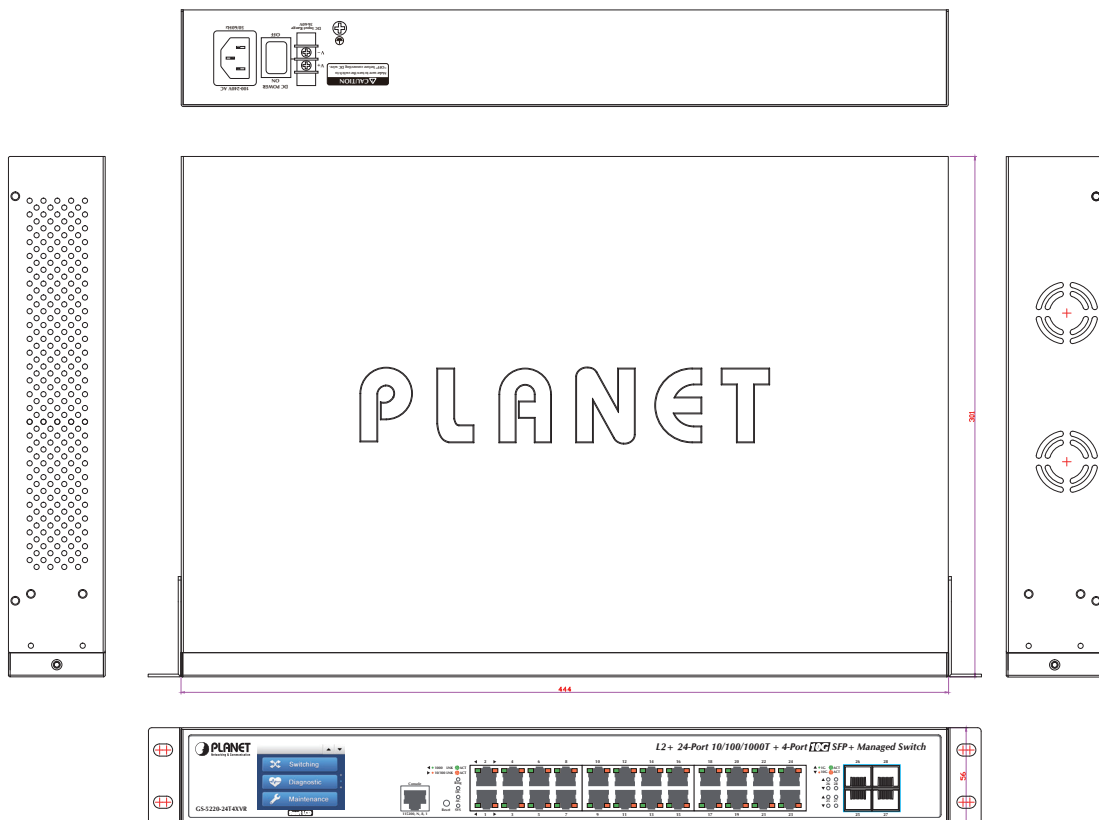
Dimensions (unit = mm)

Ordering Information

GS-5220-16T2XV	L2+ 16-Port 10/100/1000T + 2-Port 10G SFP+ Managed Ethernet Switch with LCD Touch Screen
GS-5220-16T2XVR	L2+ 16-Port 10/100/1000T + 2-Port 10G SFP+ Managed Ethernet Switch with LCD Touch Screen and Redundant Powe
GS-5220-24T4XV	L2+ 24-Port 10/100/1000T + 4-Port 10G SFP+ Managed Ethernet Switch with LCD Touch Screen
GS-5220-24T4XVR	L2+ 24-Port 10/100/1000T + 4-Port 10G SFP+ Managed Ethernet Switch with LCD Touch Screen and Redundant Power

Available 10Gbps Modules

CB-DASFP-0.5M	10G SFP+ Directly-attached Copper Cable (0.5m in length)
CB-DASFP-2M	10G SFP+ Directly-attached Copper Cable (2m in length)
MTB-SR	10GBASE-SR mini-GBIC module - 300m
MTB-LR	10GBASE-LR mini-GBIC module – 10km
MTB-LA20	10GBASE-LX (WDM,TX:1270nm) mini-GBIC module - 20km
MTB-LB20	10GBASE-LX (WDM,TX:1330nm) mini-GBIC module - 20km
MTB-LA40	10GBASE-LX (WDM,TX:1270nm) mini-GBIC module - 40km
MTB-LB40	10GBASE-LX (WDM,TX:1330nm) mini-GBIC module - 40km
MTB-LA60	10GBASE-LX (WDM,TX:1270nm) mini-GBIC module - 60km
MTB-LB60	10GBASE-LX (WDM,TX:1330nm) mini-GBIC module - 60km

Available 1000Mbps Modules

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

GS-5220-16T2XV(R)
GS-5220-24T2XV(R)