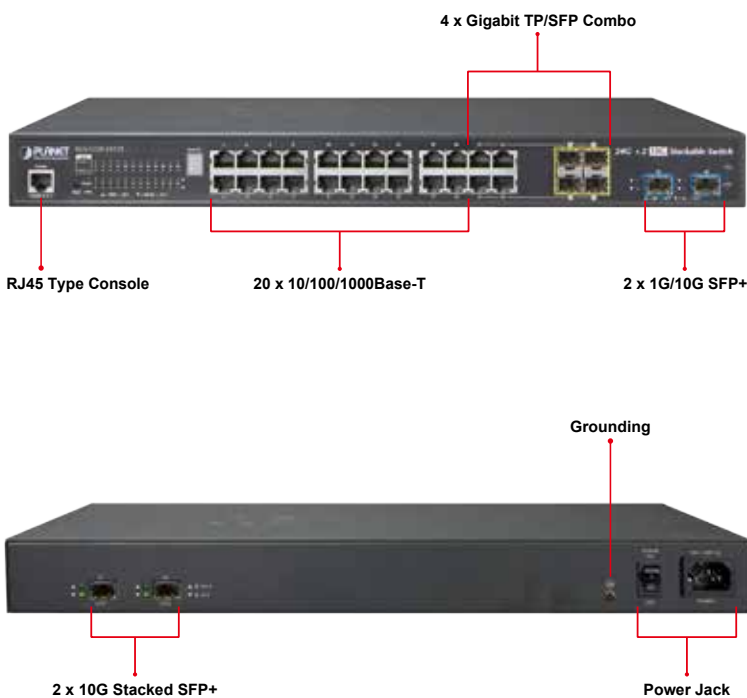


L2+ 24-Port 10/100/1000T + 4-Port Shared SFP + 2-Port 10G SFP+ Managed Stackable Switch



High-Density, Resilient Deployment Switch Solution for Gigabit Networking of Enterprise, Campus and Data Center

For the growing Gigabit network and IoT (Internet of Things) demand, PLANET has launched a new-generation Stackable Gigabit Switch solution, the SGS-5220 switch series, to meet the needs of enterprises, telecoms and campuses for a large-scale network deployment. The SGS-5220-24T2X is Layer 2+ Managed Stackable Gigabit Switch, which supports both **IPv4 and IPv6 protocols and hardware Layer 3 static routing** capability, and provides **24 10/100/1000Mbps Gigabit Ethernet ports, 4 shared Gigabit SFP slots, 2 10G SFP+ uplink slots** and another 2 **dedicated 10G SFP+ stacked interfaces** for stacking with the series of switches. Up to 16 units, 384 Gigabit Ethernet ports and 32 10Gbps SFP+ slots can be managed by a stacking group and you can add ports and functionality as needed.



Physical Port

- 24-Port 10/100/1000Base-T RJ45 copper
- 4 100/1000Base-X mini-GBIC/SFP slots, shared with Port-21 to Port-24 compatible with 100Base-FX SFP
- 2 10GBase-SR/LR SFP+ slots, compatible with 1000Base-SX/LX/BX SFP
- 2 10GBase-SR/LR SFP+ stackable slots
- RJ45 console interface for basic management and setup

Stacking Features

- Physical stacking up to 16 units, 384 Gigabit ports, 32 10 Gigabit ports
- Single IP address stack management
- Stacking architecture supports Chain and Ring mode
- Plug and Play connectivity
- Mirror across stack
- Link Aggregation groups spanning multiple switches in a stack
- Physical MAC address learning with MAC table synchronization across stack

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)

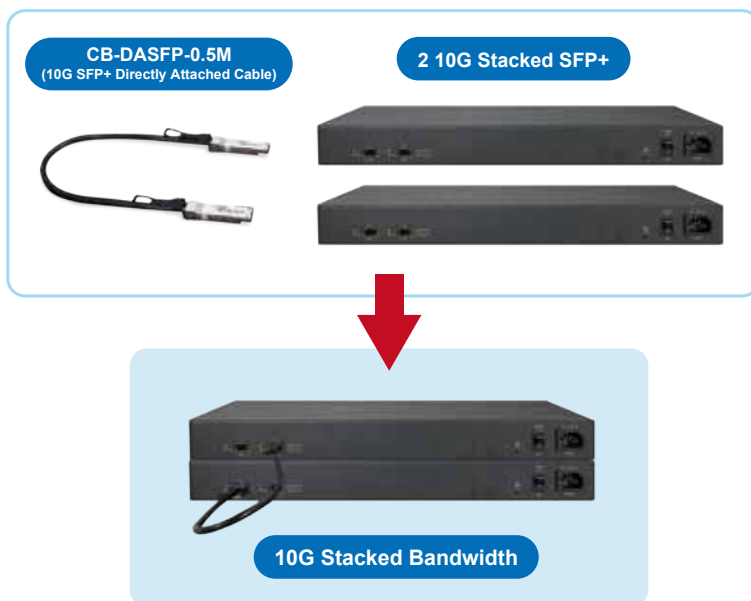
Efficient Single IP Management

The SGS-5220 series applies the advantage of the stacking technology to managing the stack group with one single IP address, which helps network managers to easily manage a stack of switches instead of connecting and setting each unit one by one. The stacking technology also enables the chassis-based switches to be integrated into the SGS-5220 Managed Switch series at an inexpensive cost.



Highly-reliable Stacking Ability

Through its up to 40Gbps, bi-directional high bandwidth tunnel and stacking technology, the SGS-5220-24T2X gives the enterprises, service providers and telecoms flexible control over port density, uplinks and switch stack performance. The stack redundancy of the SGS-5220-24T2X ensures that data integrity is retained even if one switch in the stack fails. You can even hot-swap switches without disrupting the network, which greatly simplifies the tasks of upgrading the LAN for catering to increasing bandwidth demands.



Cost-effective 10Gbps Uplink Capacity

10G Ethernet is a big leap in the evolution of Ethernet. The two 10G SFP+ slot of the SGS-5220-24T2X 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 10Gbps high performance in a cost-effective way because 10GbE interface usually could be available in Layer 3 Switch but Layer 3 Switch could be too expensive to SMBs.

- Protocol-based VLAN
- MAC-based VLAN
- Voice VLAN
- Supports 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, spanning tree by VLAN
 - BPDU Guard
- Supports Link Aggregation
 - 802.3ad Link Aggregation Control Protocol (LACP)
 - Cisco ether-channel (Static Trunk)
 - Maximum 10 trunk groups, up to 16 ports per trunk group
 - Up to 32Gbps bandwidth (full duplex mode)
- Provides port mirror (many-to-1)
- Port mirroring to monitor the incoming or outgoing traffic on a particular port
- Loop protection to avoid broadcast loops

Layer 3 IP Routing Features

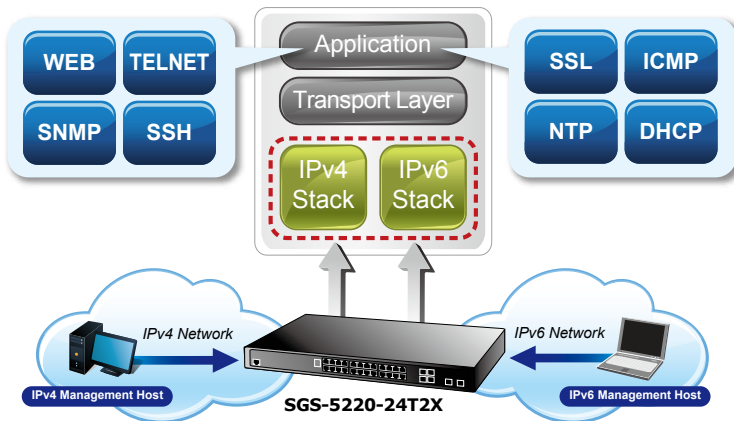
- Supports maximum 128 static routes and route summarization

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 policies on the switch port
- DSCP remarking

Solution for IPv6 Networking

By supporting IPv6 / IPv4 dual stack and plenty of management functions with easy and friendly management interfaces, the SGS-5220 series is the best choice for IP surveillance, VoIP and wireless service providers to connect with the IPv6 network. It also helps the SMB to step in the IPv6 era with the lowest investment but not necessary to replace the network facilities while the ISP constructs the IPv6 FTTx edge network.



IPv4 and IPv6 VLAN Routing for Secure and Flexible Management

To help customers stay on top of their businesses, the SGS-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 secured, flexible management and simpler networking application.

Robust Layer2 Features

The SGS-5220 series can be programmed for advanced switch management function, 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 SGS-5220 series allows the operation of a high-speed trunk combining multiple ports. It enables up to 14 groups of 8 ports for trunk maximum and supports connection fail-over as well.



Powerful Security

The SGS-5220 series offers comprehensive layer2 to layer4 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.

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 co-operate 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 un-trusted DHCP messages
- **Dynamic ARP Inspection** discards ARP packets with invalid MAC address to IP address binding
- **IP Source Guard** prevents IP spoofing attacks
- Auto DoS rule to defend DoS attack
- IP address access management to prevent unauthorized intruder

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
- IPv6 IP Address / NTP / DNS management
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- System Maintenance

Enhanced Security and Traffic Control

The SGS-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 secured corporate networks with considerably less time and effort than before.

User-friendly Secure Management

For efficient management, the SGS-5220 series managed switch series is equipped with console, web and SNMP management interfaces. With the built-in web-based management interface, the SGS-5220 series offers an easy-to-use, platform independent management and configuration facility. The SGS-5220 series supports SNMP and it can be managed via any management software based on standard of SNMP v1 and v2 protocol. For reducing product learning time, the SGS-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 SGS-5220 series offers remote secure management by supporting SSH, SSL and SNMPv3 connection which can be encrypted the packet content at each session.

Flexible and Extendable Solution

The 4 mini-GBIC SFP slots built in the SGS-5220-24T2X support dual speed as it features 100Base-FX and 1000Base-SX/LX SFP (Small Form-factor Pluggable) fiber-optic modules. Now the administrator can flexibly choose the suitable SFP transceiver according to not only the transmission distance, but also the transmission speed required. The distance can be extended from 550 meters to 2km (multi-mode fiber) and up to above 10/20/30/40/50/70/120 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 SGS-5220-24T2X 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.

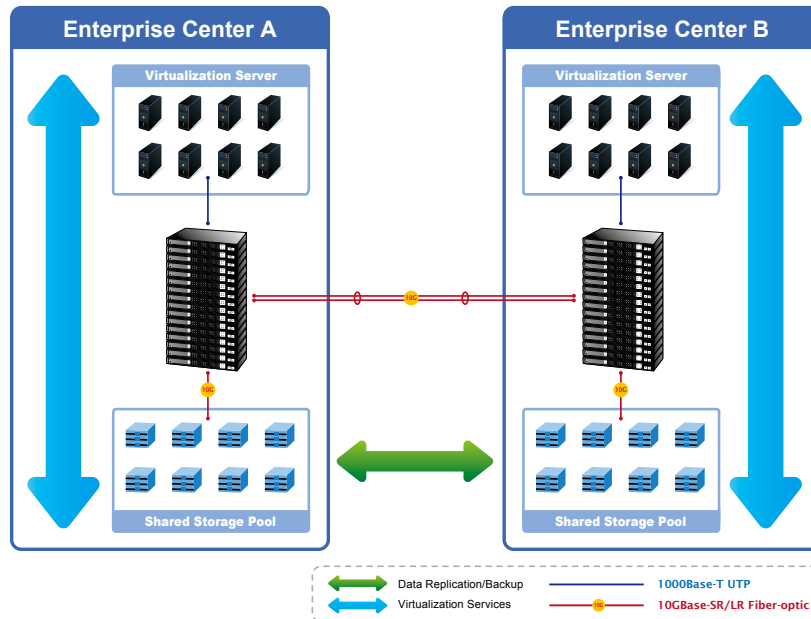
- Firmware upload/download via HTTP / TFTP
- Reset button for system reboot or reset to factory default
- Dual Images
- DHCP Relay
- DHCP Option82
- User Privilege levels control
- NTP (Network Time Protocol)
- Link Layer Discovery Protocol (LLDP) and LLDP-MED
- Network Diagnostic
 - ICMPv6 / ICMPv4 Remote Ping
 - Cable Diagnostic technology provides the mechanism to detect and report potential cabling issues
- SMTP / Syslog remote alarm
- Four RMON groups (history, statistics, alarms and events)
- SNMP trap for interface Link Up and Link Down notification
- System Log
- PLANET Smart Discovery Utility for deploy management

Applications

Good Scalability and Reliability solution for Virtualization and Data Replication / Backup

For high-volume Virtualization and Data Replication / Backup such as on the campus and enterprise, PLANET SGS-5220-24T2X Managed Stackable switches allow an affordable and scalable network deployment. **Up to 40Gbps of stacking backplane fiber-optic connections** allow stacked switches to be placed in multiple physical locations, supporting remote or branch offices. **Up to 16 units, 320 Gigabit Ethernet ports, 64 Gigabit TP/SFP ports and 32 high-capacity 10G SFP+ ports** can be managed by a stacking group with one single IP address. Furthermore, it is available for remote uplink connectivity in a stacking group and provides the uplink to the edge network through SFP/SFP+ modules. The SGS-5220-24T2X stackable switching system gives you the flexibility to expand small area network when needed.

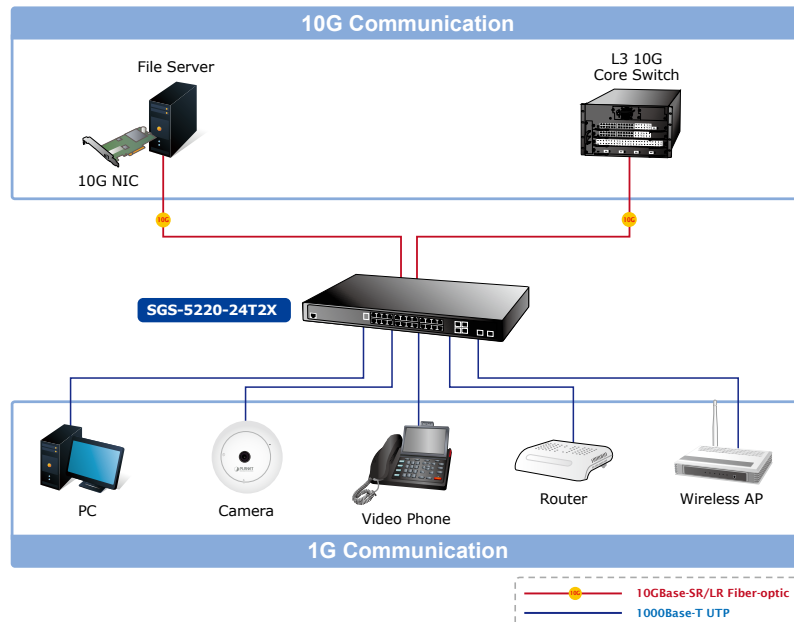
Virtualization and Data Replication/Backup Solution



Excellent Solution to Core/Data Center Security and QoS Switch

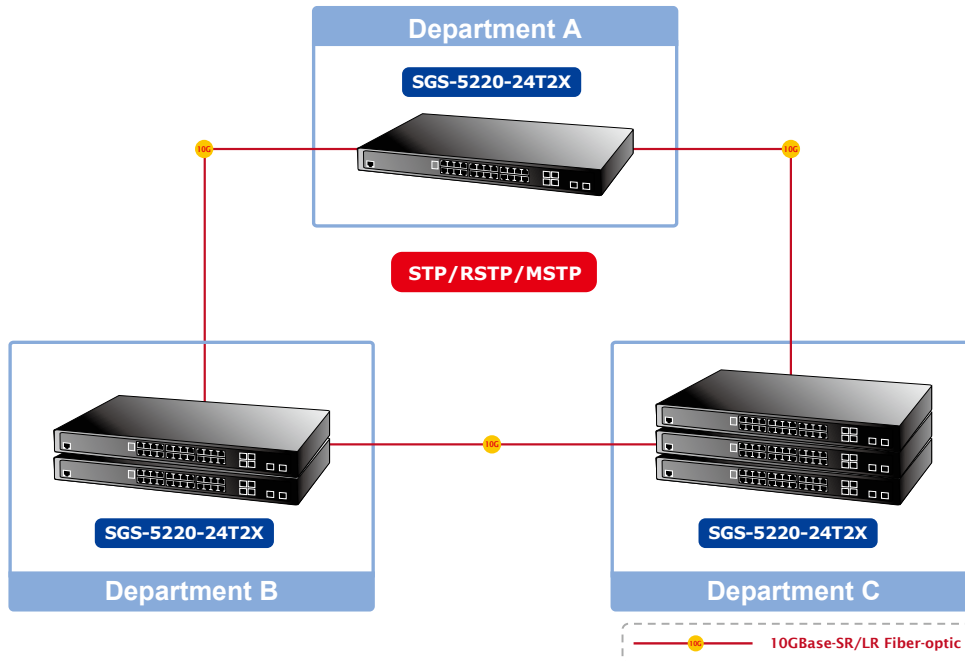
The SGS-5220-24T2X performs 128 Gigabits per second non-blocking switch fabric so it can easily provide a local 10Gbps high bandwidth Ethernet network for backbone of your department. With the two built-in SFP+ ports, the SGS-5220-24T2X provides the uplink to the backbone network through the 10G Ethernet LR/SR SFP+ modules. It further improves the network efficiency and protects the network clients by offering the security and QoS features.

High Performance Server Service



By means of improving the technology of Optical Fiber Ethernet with highly-flexible, highly-extendable and easy-to-install features, the SGS-5220-24T2X offers up to 10Gbps data exchange speed via optical fiber interface and the transmission distance can be extended to 10km. The SGS-5220-24T2X is the ideal solution for SMBs to build redundant connection and establish high bandwidth for server farm.

High Bandwidth Redundant Connection



Specifications

Product	SGS-5220-24T2X L2+ 24-Port 10/100/1000T + 4-Port Shared SFP + 2-Port 10G SFP+ Managed Stackable Switch
Hardware Specifications	
Copper Ports	24 10/ 100/1000Base-T RJ-45 Auto-MDI/MDI-X ports
10/100/1000Mbps / SFP Combo Interfaces	4 10/100/1000Mbps TP and SFP shared combo interfaces, SFP (Mini-GBIC) supports 100/1000Mbps Dual mode DDM, shared with Port-21 to Port-24
Switch Architecture	Store-and-Forward
10Gbps Fiber Uplink Ports	2 1/10GBase-SR/LR SFP+ slots
10Gbps Fiber Stackable Ports	2 10GBase-SR/LR SFP+ slots
Console	1 x RJ-45 serial port (115200, 8, N, 1)
Switch Architecture	Store-and-Forward
Switch Fabric	128Gbps / non-blocking
Throughput	95.2Mpps@64Bytes
Address Table	32K entries, automatic source address learning and ageing
Shared Data Buffer	4 megabits
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex
Jumbo Frame	9K bytes
Reset Button	< 5 sec: System reboot > 5 sec: Factory Default

LED	<p>System: PWR (Green) Master (Green) Fan1 Alert (Green) Fan2 Alert (Green) Ethernet Interfaces (Port 1 to Port 24): 1000 LNK/ACT (Green), 10/100 LNK/ACT (Orange) 100/1000Mbps SFP Combo Interfaces (Port 21 to Port 24): 1000 (Green), 100 (Orange) 1/10G SFP+ Interfaces (Port 25 to Port 26): 10G (Green), 1G (Orange) 10G Stackable Interfaces (Port 27 to Port 28): Stack (Green), LNK/ACT (Orange)</p>	
Power Requirements	100~240V AC, 50/60Hz, 2A	
Power Consumption (Full Loading)	43 watts	
ESD Protection	6KV DC	
Dimensions (W x D x H)	440 x 200 x 44.5 mm, 1U high	
Weight	2850g	
Stacking Functions		
Stacking Ports	2 SFP+ slots	
Stacking Numbers	16	
Stacking Bandwidth	40Gbps full duplex	
Stack ID Display	7-Segment LED display (1~9, A~F, 0)	
Stack Topology	Ring / Chain / Back-to-Back	
Layer2 Management Function		
Basic Management Interfaces	Console, Telnet, Web Browser, SNMP v1, v2c	
Secure Management Interfaces	SSH, SSL, SNMP v3	
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, up to 255 VLAN groups 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 4094 VLAN IDs	
Link Aggregation	IEEE 802.3ad LACP / Static Trunk Supports 10 groups of 16-Port trunk	
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	
SNMP MIBs	RFC 1213 MIB-II IF-MIB RFC 1493 Bridge MIB RFC 1643 Ethernet MIB RFC 2863 Interface MIB RFC 2665 Ether-Like MIB RFC 2737 Entity MIB	RFC 2819 RMON MIB (Group 1, 2, 3 and 9) RFC 2618 RADIUS Client MIB RFC 3411 SNMP-Frameworks-MIB IEEE 802.1X PAE LLDP MAU-MIB

Layer3 Function																									
IP Interfaces	Max. 128 VLAN interfaces																								
Routing Table	Max. 32 routing entries																								
Routing Protocols	IPv4 hardware Static Routing IPv6 hardware Static Routing																								
Standards Conformance																									
Regulation Compliance	FCC Part 15 Class A, CE																								
Standards Compliance	<table border="0"> <tr> <td>IEEE 802.3 10Base-T</td> <td>IEEE 802.1ab LLDP</td> </tr> <tr> <td>IEEE 802.3u 100Base-TX/100Base-FX</td> <td>RFC 768 UDP</td> </tr> <tr> <td>IEEE 802.3z 1000Base-SX/LX</td> <td>RFC 793 TFTP</td> </tr> <tr> <td>IEEE 802.3ab 1000Base-T</td> <td>RFC 791 IP</td> </tr> <tr> <td>IEEE 802.3x flow control and back pressure</td> <td>RFC 792 ICMP</td> </tr> <tr> <td>IEEE 802.3ad port trunk with LACP</td> <td>RFC 2068 HTTP</td> </tr> <tr> <td>IEEE 802.1D Spanning Tree protocol</td> <td>RFC 1112 IGMP version 1</td> </tr> <tr> <td>IEEE 802.1w Rapid Spanning Tree protocol</td> <td>RFC 2236 IGMP version 2</td> </tr> <tr> <td>IEEE 802.1s Multiple Spanning Tree protocol</td> <td>RFC 3376 IGMP version 3</td> </tr> <tr> <td>IEEE 802.1p Class of service</td> <td>RFC 2710 MLD version 1</td> </tr> <tr> <td>IEEE 802.1Q VLAN tagging</td> <td>RFC 3810 MLD version 2</td> </tr> <tr> <td>IEEE 802.1x Port Authentication Network Control</td> <td></td> </tr> </table>	IEEE 802.3 10Base-T	IEEE 802.1ab LLDP	IEEE 802.3u 100Base-TX/100Base-FX	RFC 768 UDP	IEEE 802.3z 1000Base-SX/LX	RFC 793 TFTP	IEEE 802.3ab 1000Base-T	RFC 791 IP	IEEE 802.3x flow control and back pressure	RFC 792 ICMP	IEEE 802.3ad port trunk with LACP	RFC 2068 HTTP	IEEE 802.1D Spanning Tree protocol	RFC 1112 IGMP version 1	IEEE 802.1w Rapid Spanning Tree protocol	RFC 2236 IGMP version 2	IEEE 802.1s Multiple Spanning Tree protocol	RFC 3376 IGMP version 3	IEEE 802.1p Class of service	RFC 2710 MLD version 1	IEEE 802.1Q VLAN tagging	RFC 3810 MLD version 2	IEEE 802.1x Port Authentication Network Control	
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Environments																									
Operating	Temperature: 0 ~ 50 degrees C for AC power input Relative Humidity: 5 ~ 95% (non-condensing)																								
Storage	Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 95% (non-condensing)																								

Ordering Information

SGS-5220-24T2X	L2+ 24-Port 10/100/1000T + 4-Port Shared SFP + 2-Port 10G SFP+ Managed Stackable Switch
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Related Products

SGS-5220-24P2X	L2+ 24-Port 10/100/1000Mbps 802.3at PoE + 4-Port 10G SFP+ Managed Stackable Switch
XGSW-28040	L2+ 24-Port 10/100/1000Mbps with 4-Port Shared SFP + 4-Port 10G SFP+ Managed Switch
XGSW-28040HP	L2+ 24-Port 10/100/1000Mbps 802.3at PoE + 4-Port 10G SFP+ Managed Switch

Available Modules for SGS-5220-24T2X series

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-LR	SFP+ Port 10GBase-LR mini-GBIC Module (Single mode / 1310nm / max. 10km)
MTB-SR	SFP+ Port 10GBase-SR mini-GBIC Module (Multi-mode / 850nm / max. 300m)
MGB-GT	SFP-Port 1000Base-T Module
MGB-SX	SFP-Port 1000Base-SX mini-GBIC module
MGB-LX	SFP-Port 1000Base-LX mini-GBIC module
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
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