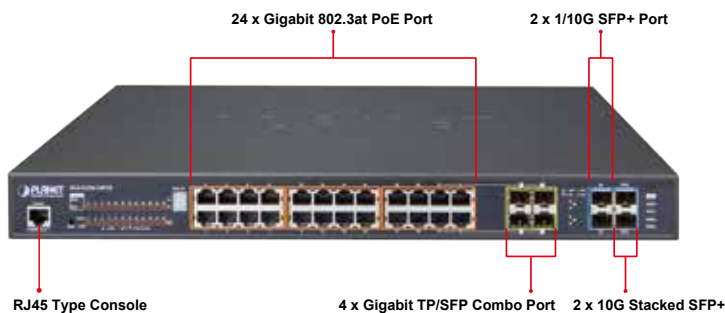


## L2+ 24-Port 10/100/1000T 802.3at PoE + 2-Port 10G SFP+ Stackable Managed Switch



### 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-5220-24P2X is Layer 2+ Stackable Managed Gigabit Switch, which supports both **IPv4 and IPv6 protocols and hardware Layer 3 static routing** capability, and provides **24 10/100/1000Mbps 802.3at PoE+ 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 PoE+ ports and 32 10Gbps SFP+ slots can be managed by a stacking group and you can add ports and functionality as needed.



### Efficient Single IP Management

The SGS-5220 stackable 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 Stackable Managed Switch series at an inexpensive cost.



### Physical Port

- **24-Port 10/100/1000BASE-T** RJ45 copper with IEEE 802.3at / 802.3af Power over Ethernet Injector function
- **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

### Power over Ethernet

- Complies with IEEE 802.3at High Power over Ethernet end-span PSE
- Complies with IEEE 802.3af Power over Ethernet end-span PSE
- Up to 24 ports of IEEE 802.3af / 802.3at devices powered
- Supports PoE Power up to 30.8 watts for each PoE port
- Auto detects powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100 meters
- PoE Management
  - Total PoE power budget control
  - Per port PoE function enable/disable
  - PoE Port Power feeding priority
  - Per PoE port power limitation
  - PD classification detection
  - PD alive-check
  - PoE schedule
  - PD power recycling schedule

### Highly-reliable Stacking Ability

Through its up to 40Gbps, bi-directional high bandwidth tunnel and stacking technology, the SGS-5220-24P2X gives the enterprises, service providers and telecoms flexible control over port density, uplinks and switch stack performance. The stack redundancy of the SGS-5220-24P2X 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.

### Centralized Power Management for Gigabit Ethernet PoE Networking

To fulfill the needs of higher power required PoE network applications with Gigabit speed transmission, the SGS-5220-24P2X features high-performance Gigabit IEEE 802.3af PoE (up to 15.4 watts) and IEEE 802.3at PoE+ (up to 30 watts) on all ports. It perfectly meets the power requirement of PoE VoIP phone and all kinds of PoE IP cameras such as IR, PTZ, speed dome cameras or even box type IP cameras with built-in fan and heater for high power consumption.

The SGS-5220-24P2X's PoE capabilities also help to reduce deployment costs for network devices as a result of freeing from restrictions of power outlet locations. Power and data switching are integrated into one unit, delivered over a single cable and managed centrally. It thus eliminates cost for additional AC wiring and reduces installation time.

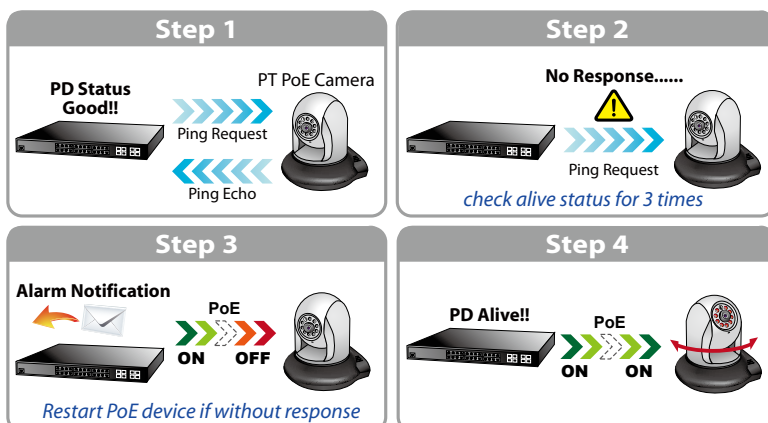
### Built-in Unique PoE Functions for Surveillance Management

As a managed PoE Switch for surveillance network, the SGS-5220-24P2X features intelligent PoE Management functions:

- PD ALIVE Check
- Scheduled Power Recycling
- SMTP/SNMP Trap Event Alert
- PoE Schedule

### Intelligent Powered Device Alive Check

The SGS-5220-24P2X can be configured to monitor connected PD (Powered Device) status in real-time via ping action. Once the PD stops working and it is without response, the SGS-5220-24P2X 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, thus reducing administrator management burden.



### 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
  - 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 14 trunk groups, up to 8 ports per trunk group
  - Up to 40Gbps 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

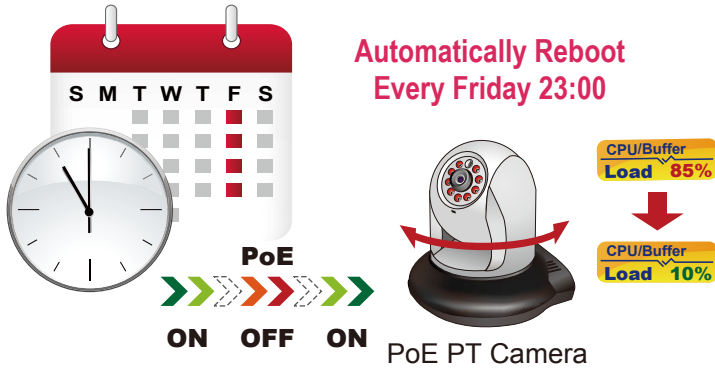
- Supports maximum 128 static routes and route summarization

### 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

### Scheduled Power Recycling

The SGS-5220-24P2X allows each of the connected PDs (Powered Devices) to reboot in a specific time each week. Therefore, it will reduce the chance of PD (Powered Device) crash resulting from buffer overflow.

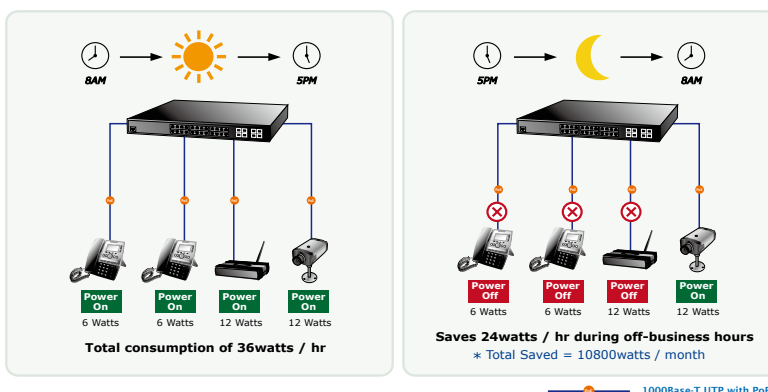


### SMTP/SNMP Trap Event Alert

Though most NVR or camera management software offers SMTP email alert function, the SGS-5220-24P2X further provides event alert function to help to diagnose the abnormal device owing to whether or not there is a break of the network connection, loss of PoE power or the rebooting response by the PD Alive Check process.

### PoE Schedule for Energy Saving

Besides being used for IP surveillance, the SGS-5220-24P2X is certainly applicable to construct any PoE network including VoIP and wireless LAN. Under the trend of energy saving worldwide and contributing to the environmental protection on the Earth, the SGS-5220-24P2X 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 SMB or Enterprise save energy and money.



- 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

### 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

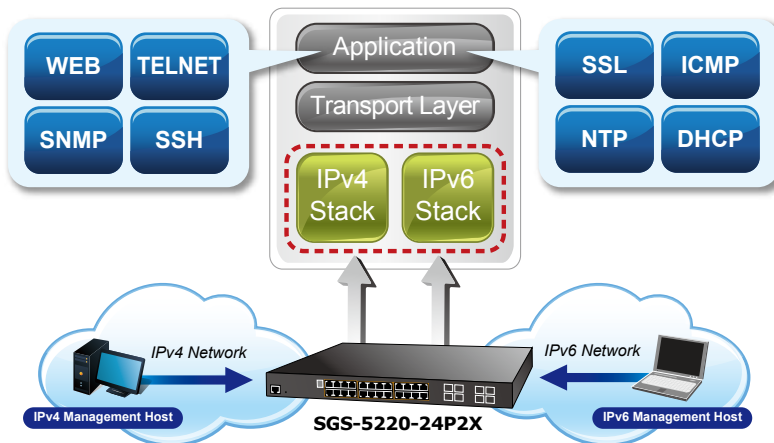
- IPv4 and IPv6 dual stack management
- Switch Management Interfaces
  - Console / Telnet Command Line Interface
  - Web switch management
  - SNMP v1, v2c, and v3 switch management
  - SSH / SSL secure access
- IPv6 IP Address / NTP / DNS management
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- System Maintenance

### Cost-effective 10Gbps Uplink Capacity

10G Ethernet is a big leap in the evolution of Ethernet. The two 10G SFP+ slots of the SGS-5220-24P2X support **Dual-speed, 10GBASE-SR/LR or 100GBASE-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.

### Solution for IPv6 Networking

With the support for IPv6 / IPv4 protocol, and 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 crossover 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. Supporting 14 trunk groups, it enables a maximum of up to 8 ports per trunk 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 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.

- 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

### *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 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 the standard SNMP v1 and v2 protocols. 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 encrypt the packet content at each session.

### *Flexible and Extendable Solution*

The 4 mini-GBIC SFP slots built in the SGS-5220-24P2X 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 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-5220-24P2X 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.

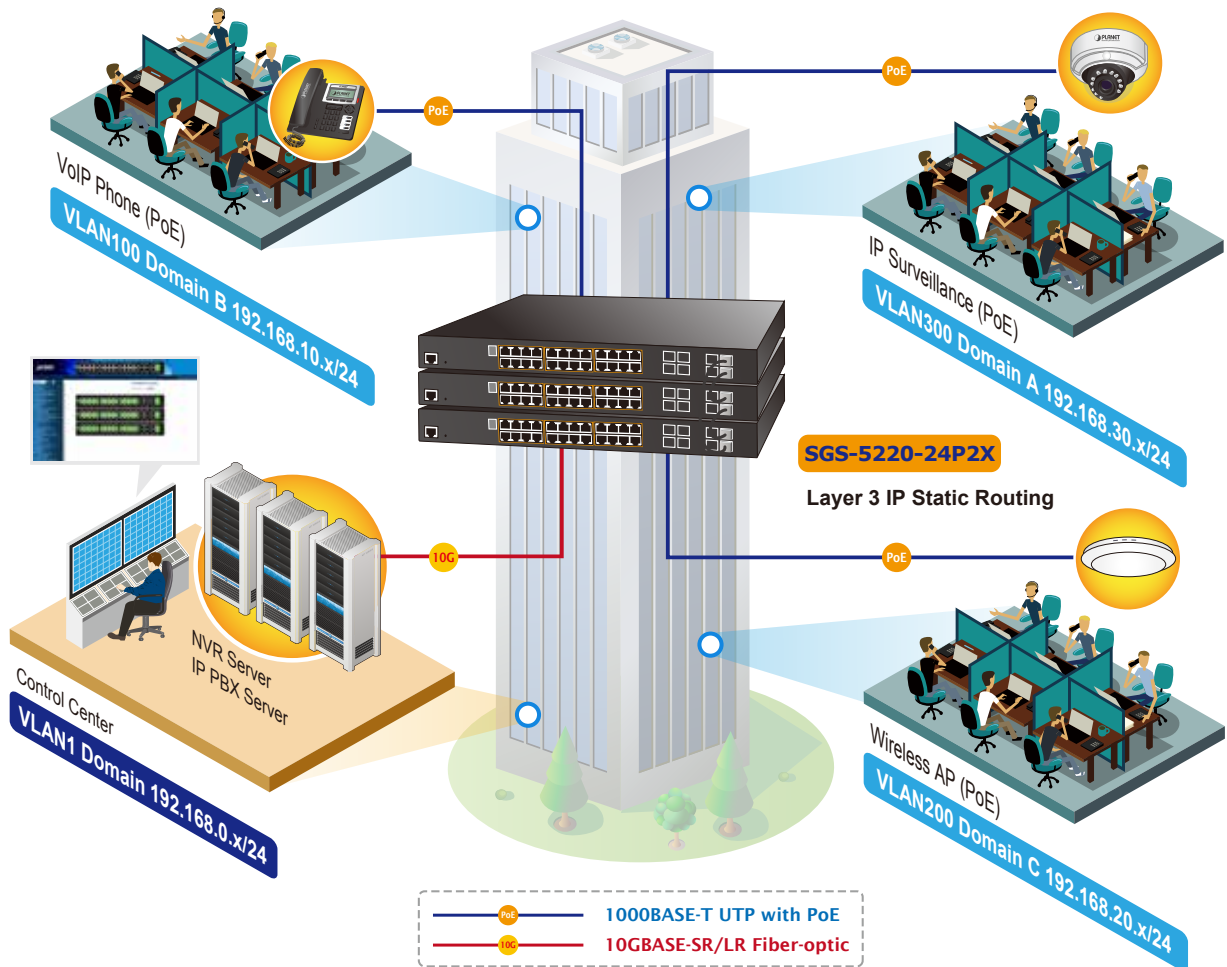
## Applications

### Layer 2+ VLAN Static Routing and PoE Application

With the built-in robust IPv4 / IPv6 Layer 3 traffic routing protocols, the SGS-5220-24P2X ensures reliable routing between VLANs and network segments. The routing protocols can be applied by VLAN interface with up to 128 routing entries. The SGS-5220-24P2X is certainly a cost-effective and ideal solution for enterprises.

Providing up to 24-Port Gigabit High-power PoE and in-line power interface, the SGS-5220-24P2X High-power PoE Switch can easily build a centrally-controlled power network shared by wireless Gigabit AP, IP phone system, or mega-pixel IP camera system group for the enterprises. For instance, 24 IP cameras and wireless APs can be easily installed around the corner in the company for surveillance demands or a wireless roaming environment in the office. Without the power-socket limitation, the stackable PoE Switch makes the deployment of IP cameras or Wireless LAN AP easier and more efficient.

## VLAN Routing + PoE Applications





## Specifications

Product	SGS-5220-24P2X	
<b>Hardware Specifications</b>		
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	
10Gbps Fiber Uplink Ports	2 1/10GBASE-SR/LR SFP+ slots	
10Gbps Fiber Stackable Ports	2 10GBASE-SR/LR SFP+ slots	
Console	1 x RJ45 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	System: PWR (Green), Master (Green), PWR1 (Green), PWR2 (Green), FAN1 (Green), FAN2 (Green) 10/100/1000T RJ45 Interfaces (Port 1 to Port 24): 10/100/1000Mbps LNK/ACT (Green) PoE In-Use (Orange) 100/1000Mbps SFP Combo Interfaces (Port 21 to Port 24): 1000Mbps (Green), LNK/ACT (Orange) 1/10Gbps SFP+ Interfaces (Port 25 to Port 26): 10Gbps LNK/ACT (Green), 1Gbps LNK/ACT (Orange) 10G Stackable Interfaces (Port 27 to Port 28): Stack (Green), LNK/ACT (Orange)	
Power Requirements	100~240V AC, 50/60Hz	
Power Consumption (Full Loading)	502 watts / 1712.8 BTU Max.	
ESD Protection	6KV DC	
Dimensions (W x D x H)	440 x 300 x 44.5 mm, 1U height	
Weight	4887g	
<b>Stacking Functions</b>		
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	
<b>Power over Ethernet</b>		
PoE Standard	IEEE 802.3af / 802.3at PoE / PSE	
PoE Power Supply Type	End-span	
PoE Power Output	Per Port 56V DC, Max. 30.8 watts	
Power Pin Assignment	1/2(+), 3/6(-)	
PoE Power Budget	440 watts (max.) @ 25 degrees C 380 watts (max.) @ 50 degrees C	
PoE Ability	PD @ 7 watts	24 units
	PD @ 15.4 watts	24 units
	PD @ 30.8 watts	14 units
<b>Layer2 Management Function</b>		
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 14 groups of 8-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: 500Kb~80Mbps Egress: 64Kb~80Mbps	
SNMP MIBs	RFC 1213 MIB-II RFC 2863 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 Power over Ethernet MIB
<b>Layer 3 Function</b>		
IP Interfaces	Max. 128 VLAN interfaces	
Routing Table	Max. 32 routing entries	
Routing Protocols	IPv4 hardware static routing IPv6 hardware static routing	
<b>Standards Conformance</b>		
Regulation Compliance	FCC Part 15 Class A, CE	
Standards Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX/100BASE-FX IEEE 802.3z 1000BASE-SX/LX IEEE 802.3ab 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	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
<b>Environment</b>		
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

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

## Related Products

SGS-5220-24T2X	L2+ 24-Port 10/100/1000T + 4-Port Shared SFP + 2-Port 10G SFP+ Stackable Managed 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-5220-24P2X 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