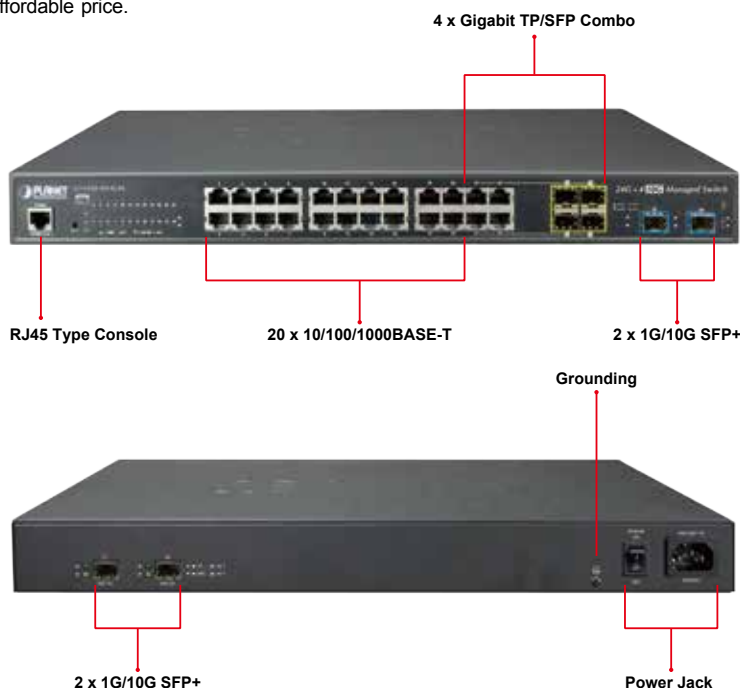# L2+ 24-Port 10/100/1000T + 4-Port Shared SFP + 2-Port 10G SFP+ Managed Switch

IPv6 Routing and 10G Ethernet Switch Solutions for SMBs

PLANET GS-5220-20T4C4X and GS-5220-20T4C4XR Layer 2+ Managed Gigabit Switches support both **IPv4 and IPv6 protocols** and **hardware Layer 3 static routing** capability, and provide **24 10/100/1000Mbps Gigabit Ethernet ports**, **4 shared Gigabit SFP slots and 4 10G SFP+ uplink slots**. The GS-5220-20T4C4X 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.

4 x Gigabit TP/SFP Combo

RJ45 Type Console　　**20 x 10/100/1000BASE-T**　　**2 x 1G/10G SFP+**

Grounding

2 x 1G/10G SFP+　　**Power Jack**

Cost-effective 10Gbps Uplink Capacity

10G Ethernet is a big leap in the evolution of Ethernet. The four 10G SFP+ slots of the GS-5220-20T4C4X 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.

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
- 4 10GBASE-SR/LR SFP+ slots, compatible with 1000BASE-SX/LX/BX SFP
- RJ45 console interface for 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
  - 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
  - IEEE 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 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
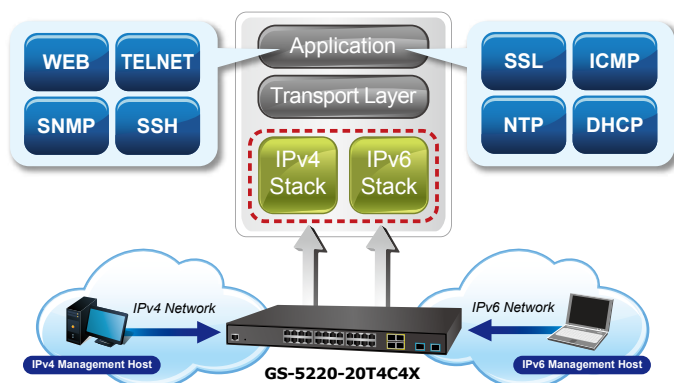- Loop protection to avoid broadcast loops

Redundant AC/DC Power Supply to Ensure Continuous Operation

The GS-5220-20T4C4XR is 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-5220-20T4C4XR is 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

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

WEB TELNET Application
SNMP SSH

Transport Layer
SSL ICMP
NTP DHCP

IPv4 Stack IPv6 Stack

IPv4 Network   IPv6 Network
IPv4 Management Host   IPv6 Management Host
GS-5220-20T4C4X

IPv4 and 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 crossover different VLANs and different IP addresses for the purpose of having a highly-secure, flexible management and simpler networking application.

Robust Layer2 Features

The GS-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 consists of a maximum of 14 trunk groups with 8 ports for each group, and supports connection failover as well.

MSTP LACP
Q-in-Q QoS LLDP
MLD IGMP

Layer 3 Features

- IP Interfaces Max. 8 VLAN interfaces
- Routing Table Max. 32 routing entries
- Routing Protocols IPv4/IPv6 software 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 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 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
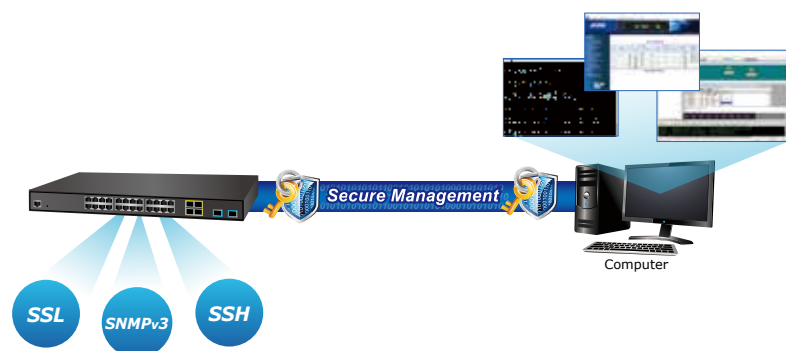
Powerful Security

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.

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 SNMPv3 connection where the packet content can be encrypted at each session.

Secure Management

SSL · SNMPv3 · SSH

Computer

Flexible and Extendable Solution

The 4 mini-GBIC SFP slots built in the GS-5220-20T4C4X and GS-5220-20T4C4XR 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.

- 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
  - 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
  - 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
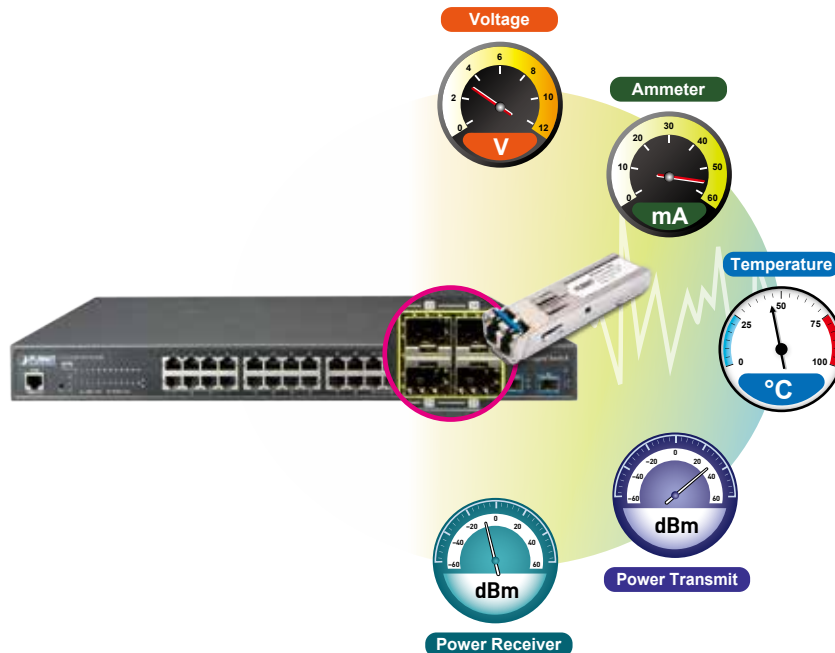- PLANET Smart Discovery Utility for deployment management

Redundant Power System (GS-5220-20T4C4XR)

- 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

Intelligent SFP Diagnosis Mechanism

The GS-5220-20T4C4X and GS-5220-20T4C4XR support **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.
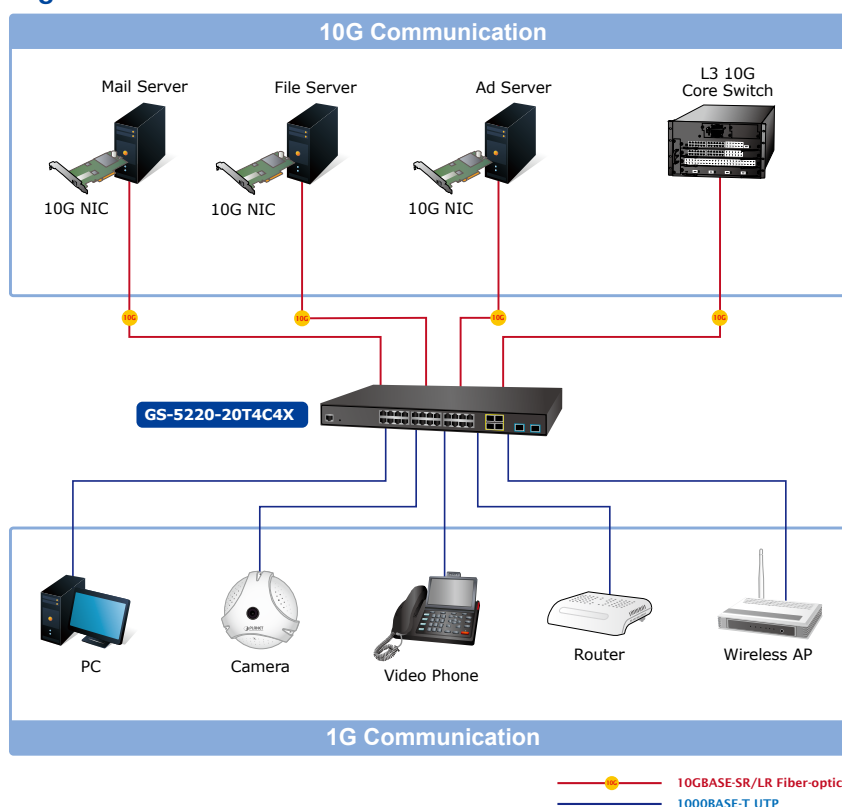
Digital Diagnostic Monitor *(DDM)*

Applications

Excellent Solution to Core/Data Center Security and QoS Switch

The GS-5220-20T4C4X and GS-5220-20T4C4XR perform 128Gbps non-blocking switch fabric, so they can easily provide a local 10Gbps high bandwidth Ethernet network for the backbone of your department. With the four built-in SFP+ ports, the GS-5220-20T4C4X and GS-5220-20T4C4XR provide the uplink to the backbone network through the 10G Ethernet LR/SR SFP+ modules. They further improve the network efficiency and protect the network clients by offering the security and QoS features.
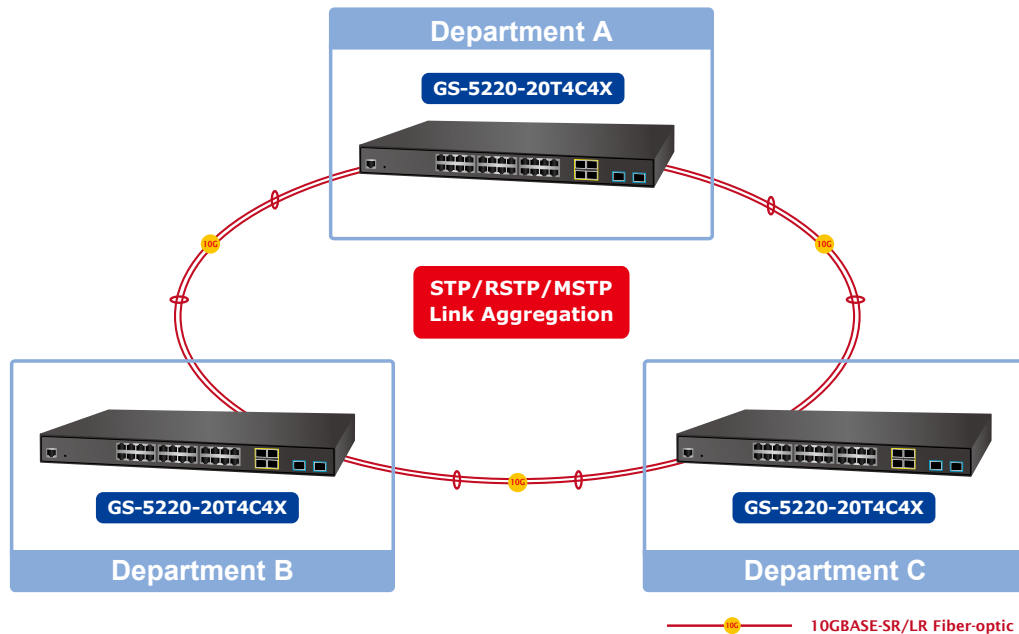
High Performance Server Service

Good Reliability Solution for Virtualization and Data Replication/Backup

By means of improving the technology of Optical Fiber Ethernet with highly-flexible, highly-extendable and easy-to-install features, the GS-5220-20T4C4X and GS-5220-20T4C4XR offer up to 10Gbps data exchange speed via optical fiber interface and the transmission distance can be extended to10km. The GS-5220-20T4C4X and GS-5220-20T4C4XR are the ideal solution for SMBs to build redundant connection and establish high bandwidth for server farm.

High Bandwidth Redundant Connection

Specifications

Product	GS-5220-20T4C4X/GS-5220-20T4C4XR
Hardware Specifications	
Copper Ports	24 10/100/1000BASE-T RJ45 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	4 1/10GBASE-SR/LR SFP+ slots
Console	1 RJ45 serial port (115200, 8, N, 1)
Switch Architecture	Store-and-Forward
Switch Fabric	128Gbps/non-blocking
Throughput	95.2Mpps@64 bytes
Address Table	16K entries, automatic source address learning and aging
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:**
	  SYS (Green)
	  AC (Green)
	  DC (Green) (GS-5220-20T4C4XR Only)
	  Fan Alert (Red)
	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 28):
	  1000 (Green), 10G (Orange)

Power Requirements	GS-5220-20T4C4X: 100~240V AC, 50/60Hz, 1A GS-5220-20T4C4XR: 100-240V AC, 50/60Hz, 1A 48V DC @ 2A, Range: 36 ~ 60V

Power Consumption (Full Loading)	GS-5220-20T4C4X:
	  Max. 35.2 Watts/120 BTU @ AC 110V
	  Max. 35.4 Watts/120 BTU @ AC 220V
	GS-5220-20T4C4XR:
	  Max. 32.4 Watts/111 BTU @ DC 36V
	  Max. 33.1 Watts/112 BTU @ DC 48V
	  Max. 33.3 Watts/113 BTU @ DC 60V
	  Max. 35.2 Watts/120 BTU @ AC 110V
	  Max. 35.4 Watts/120 BTU @ AC 220V

ESD Protection	6KV DC
Dimensions (W x D x H)	440 x 200 x 44.5 mm, 1U high
Weight	2822g (GS-5220-20T4C4X) 2859g (GS-5220-20T4C4XR)
Layer 2 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
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 2819 RMON MIB (Groups 1, 2, 3 and 9) IF-MIB RFC 2618 RADIUS Client MIB RFC 1493 Bridge MIB RFC 3411 SNMP-Frameworks-MIB RFC 1643 Ethernet MIB IEEE 802.1X PAE RFC 2863 Interface MIB LLDP RFC 2665 Ether-Like MIB MAU-MIB RFC 2737 Entity MIB PoE Ethernet MIB

Layer 3 Features

IP Interfaces	Max. 8 VLAN interfaces
Routing Table	Max. 32 routing entries
Routing Protocols	IPv4 software static routing IPv6 software static routing

Standards Conformance

Regulatory Compliance	FCC Part 15 Class A, CE
Standards Compliance	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 IE EE 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 FRC 3810 MLD version 2 IEEE 802.1x Port Authentication Network Control

Environment

Operating Temperature	Temperature: 0 ~ 50 degrees C for AC power input Relative Humidity: 5 ~ 95% (non-condensing)
Storage Temperature	Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 95% (non-condensing)

Ordering Information

GS-5220-20T4C4X	L2+ 24-Port 10/100/1000T + 4-Port Shared SFP + 4-Port 10G SFP+ Managed Switch
GS-5220-20T4C4XR	L2+ 20-Port 10/100/1000T + 4-Port Gigabit TP/SFP Combo + 4-Port 10G SFP+ Managed Ethernet Switch with 48VDC Redundant Power

Related Products

GS-5220-48T4X	L2+ 48-Port 10/100/1000T + 4-Port 10G SFP+ Managed Switch
GS-5220-46S8C	L2+ 46-Port 100/1000BASE-X SFP + 2-Port Gigabit TP/SFP + 4-Port 10G SFP+ Managed Switch
GS-5220-44S4C	L2+ 44-Port 100/1000BASE-X SFP + 4-Port Gigabit TP/SFP Managed Switch
GS-5220-16S8C	L2+ 24-Port 100/1000X SFP + 8-Port Shared TP Managed Switch

Available Modules for GS-5220-20T4C4X 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

GS-5220-20T4C4X/GS-5220-20T4C4XR