

L3 16-Port 10/100/1000T 802.3bt PoE + 4-Port 100/1000X SFP + 2-Port 10G SFP+ Managed Switch



Amazing 95W PoE++ Managed Switch with Layer 3 Switching and Security

PLANET GS-5220-16UP4S2XR is a cost-optimized, 1U, Gigabit PoE++ Managed Switch featuring PLANET intelligent PoE functions to improve the availability of critical business applications. They provide IPv6/IPv4 dual stack management and built-in Layer 3 OSPF/static routing Gigabit switching along with 16 10/100/1000BASE-T ports featuring 60 to 95-watt 802.3bt PoE++, 4 Gigabit SFP ports and 2 additional 10Gigabit SFP+ ports. With a total power budget of up to 400 watts for different kinds of PoE applications, the GS-5220-16UP4S2XR provides a quick, safe and cost-effective PoE network solution for small businesses and enterprises.

60~95 Watts of Power over 4-pair UTP

The GS-5220-16UP4S2XR adopts the IEEE 802.3bt PoE++ standard and PoH technology. It is capable of sourcing up to 95 watts of power by using all the four pairs of standard Cat5e/6 Ethernet cabling to deliver power and full-speed data to each remote PoE compliant powered device (PD). It possesses triple amount of power capability than the conventional 802.3at PoE+ and is an ideal solution to satisfy the growing demand for higher power consuming network PDs, such as:

- PoE PTZ speed dome
- Any network device that needs higher PoE power to work normally
- Thin-client
- AIO (All-in-One) touch PC
- Remote digital signage display
- PoE lightings



Physical Port

- 16 10/100/1000BASE-T Gigabit RJ45 copper ports with 16-port IEEE 802.3bt PoE++ injector function
- 4 100/1000BASE-X mini-GBIC/SFP slots
- 2 10GBASE-SR/LR SFP+ slots, compatible with 1000BASE-SX/LX/BX SFP
- RJ45 console interface for switch basic management and setup

802.3bt Power over Ethernet Plus Plus

- Complies with IEEE 802.3bt Power over Ethernet Plus Plus Type-4 PSE
- Backward compatible with IEEE 802.3af/at Power over Ethernet Plus
- Up to 16 ports of PoE devices powered
- 8 PoE ports with built-in 802.3bt PoE++ Type-4 90W injector function (Port-1 to Port-8)
- 8 PoE ports with built-in 802.3bt PoE++ Type-3 60W injector function (Port-9 to Port-16)
- 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 admin-mode control
 - PoE port power feeding priority
 - Per PoE port power limitation
 - PD classification detection
- Intelligent PoE features
 - Temperature threshold control
 - PD alive check
 - PoE schedule

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

802.3bt PoE++ and Advanced PoE Power Output Mode Management

To meet the demand of various powered devices consuming stable PoE power, the GS-5220-16UP4S2XR provides five different PoE power output modes for selection.

- **95W UPOE/PoH Power Output Mode** (Pins 1, 2, 3, 6 + Pins 4, 5, 7, 8)
- **90W 802.3bt PoE++ Power Output Mode** (Pins 1, 2, 3, 6 + Pins 4, 5, 7, 8)
- **60W Force Power Output Mode** (Pins 1, 2, 3, 6 + Pins 4, 5, 7, 8)
- **30W End-span PoE Power Output Mode** (Pins 1, 2, 3, 6)
- **30W Mid-span PoE Power Output Mode** (Pins 4, 5, 7, 8)

Convenient and Smart ONVIF Devices with Detection Feature

PLANET has newly developed an awesome feature -- ONVIF Support -- which is specifically designed for co-operating with Video IP Surveillances. From the GS-5220-16UP4S2XR's GUI, clients just need one click to search and show all of the ONVIF devices via network application. In addition, clients can upload floor images to the switch series, making the deployments of surveillance and other devices easy for planning and inspection purposes. Moreover, clients can get real-time surveillance's information and online/offline status. They allow PoE reboot control from the GUI.



Built-in Unique PoE Functions for Powered Devices Management

Being the managed PoE switches for surveillance, wireless and VoIP networks, the GS-5220 PoE++ Series features the following special PoE management functions:

- PD alive check
- Scheduled power recycling
- PoE schedule
- PoE usage monitoring

Intelligent Powered Device Alive Check

The GS-5220 PoE++ Series can be configured to monitor connected PD (powered device) status in real time via ping action. Once the PD stops working and responding, the GS-5220 PoE++ Series will resume the PoE port power and bring the PD back to work. They will greatly enhance the network reliability through the PoE port resetting the PD's power source and reducing administrator management burden.

- Supports **VLAN**
 - IEEE 802.1Q tagged VLAN
 - Up to 4K 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
 - GVRP (GARP VLAN Registration Protocol)
- 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 11 trunk groups, up to 6 ports per trunk group
- 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
- Link Layer Discovery Protocol (LLDP) and LLDP-MED
- Supports G.8032 ERPS (Ethernet Ring Protection Switching)

Layer 3 Features

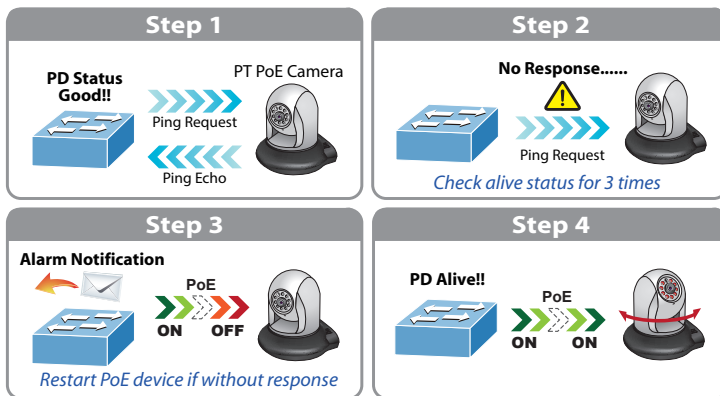
- Supports maximum 128 static routes and route summarization
- IP dynamic routing protocol supports OSPFv2
- Routing interface provides per VLAN routing mode

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

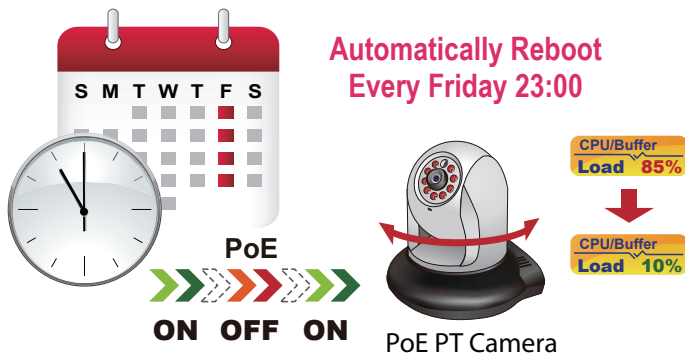
Multicast

- Supports IPv4 IGMP snooping v1, v2 and v3



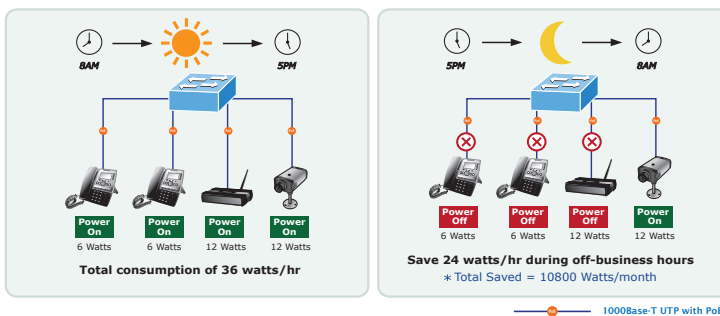
Scheduled Power Recycling

The GS-5220 PoE++ Series allows each of the connected PoE IP cameras or PoE wireless access points to reboot at a specified time each week. Therefore, they will reduce the chance of IP camera or AP crash resulting from buffer overflow.



PoE Schedule for Energy Saving

Under the trend of energy saving worldwide and contributing to environmental protection, the GS-5220 PoE++ Series can effectively control the power supply besides their 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 SMBs or enterprises save power and money. It also increases security by powering off PDs that should not be in use during non-business hours.



PoE Usage Monitoring

Via the power usage chart in the web management interface, the GS-5220 PoE++ Series enables the administrator to monitor the status of the power usage of the connected PDs in real time. Thus, they greatly enhance the management efficiency of the facilities.

- Supports IPv6 MLD snooping v1 and v2
- Querier mode support
- IPv4 IGMP snooping port filtering
- IPv6 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
 - Guest VLAN assigns clients to a restricted VLAN with limited services
- 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

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
 - SSHv2, TLSv1.2 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)
- Network Diagnostic

Layer 3 Routing Support

The GS-5220 PoE++ Series enables the administrator to conveniently boost network efficiency by configuring Layer 3 IPv4/IPv6 VLAN static routing manually, and the **OSPFv2** (Open Shortest Path First) settings automatically. The OSPF is an interior dynamic routing protocol for autonomous system based on link state. The protocol creates a database for link state by exchanging link states among Layer 3 switches, and then uses the Shortest Path First algorithm to generate a route table based on that database.

Cost-effective 10Gbps Uplink Capacity

10G Ethernet is a big leap in the evolution of Ethernet. The two 10G SFP+ slots of the GS-5220 PoE++ 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.

Redundant AC/DC Power Supply to Ensure Continuous Operation

The GS-5220-16UP4S2XR 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-5220-16UP4S2XR are able to act as a telecom-level device that can be located in the electronic room.

- SFP-DDM (Digital Diagnostic Monitor)
- 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
- PLANET NMS system and Smart Discovery Utility for deployment management
- Smart fan with speed control

Redundant Power System

- 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

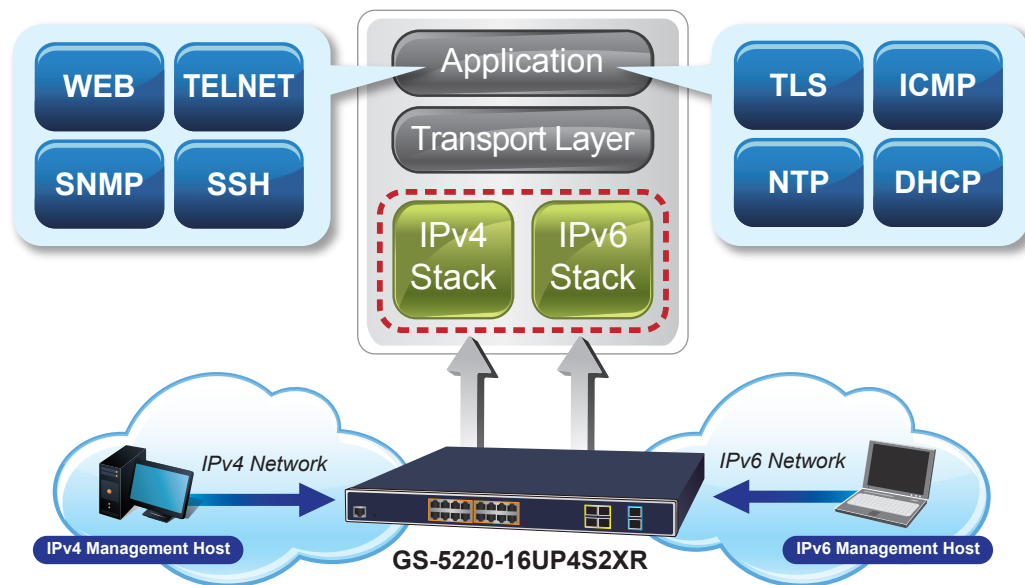


Environment-friendly, Smart Fan Design for Silent Operation

The GS-5220 PoE++ Series features a 19-inch metal housing, a low noise design and an effective ventilation system. They support the smart fan technology that automatically controls the speed of the built-in fan to reduce noise and maintain the temperature of the PoE switch for optimal power output capability. The GS-5220 PoE++ Series is able to operate reliably, stably and quietly in any environment without affecting its performance.

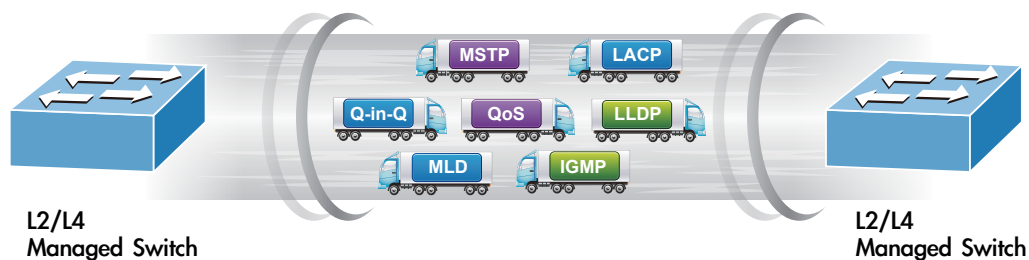
Solution for IPv6 Networking

By supporting IPv6/IPv4 dual stack and plenty of management functions with easy and friendly user interfaces, the GS-5220 PoE++ Series is the best choice for IP surveillance, VoIP and wireless service providers to deploy the IPv6 network. They also help the SMBs to step in the IPv6 era with the lowest investment and without having to replace the network facilities while the ISPs construct the IPv6 FTTx edge network.



Robust Layer 2 Features

The GS-5220 PoE++ 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 PoE++ Series allows the operation of a high-speed trunk combining with multiple ports.



Powerful Security

The GS-5220 PoE++ 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 PoE++ 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 PoE++ Series is equipped with console, web and SNMP management interfaces. With the built-in web-based management interface, it offers an easy-to-use, platform independent management and configuration facility. The GS-5220-16UP4S2XR 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 PoE++ 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 PoE++ Series offers the remotely secure management by supporting **SSHv2**, **TLSv1.2** and **SNMPv3** connection where the packet content can be encrypted at each session.

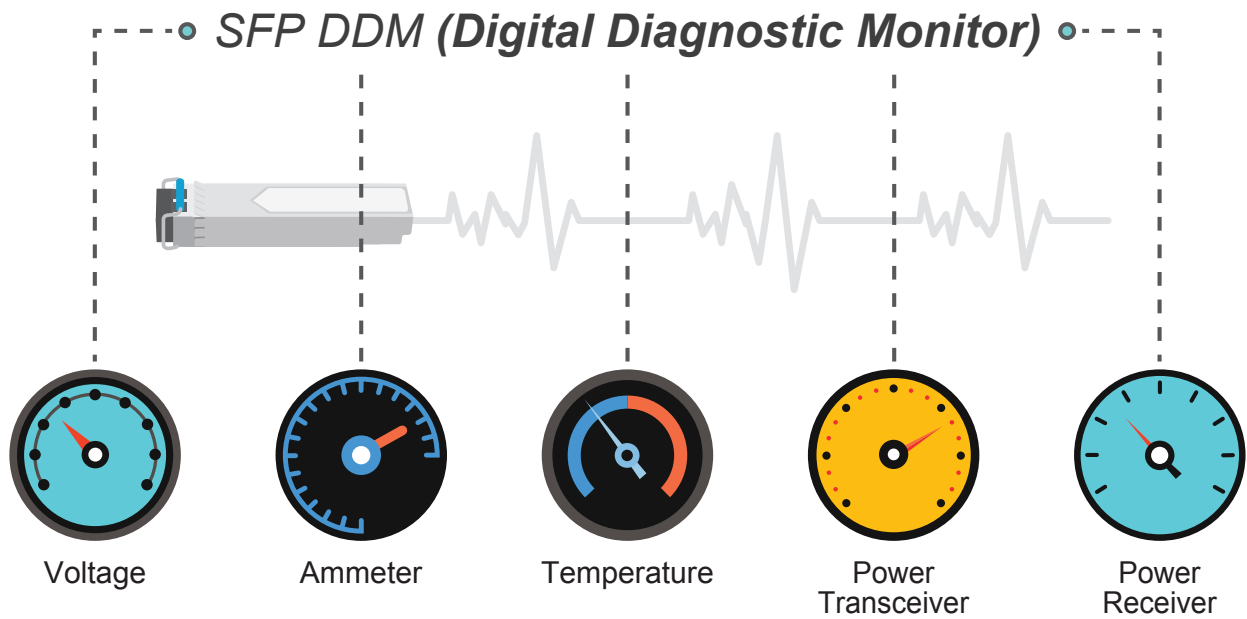
Flexible and Extendable Solution

The 4 mini-GBIC SFP slots built in the GS-5220 PoE++ Series supports 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 m to 2 km (multi-mode fiber) and to 10/20/30/40/50/70/120 km (single-mode fiber or WDM fiber). They are well suited for applications within the enterprise data centers and distributions.

Intelligent SFP/SFP+ Diagnosis Mechanism

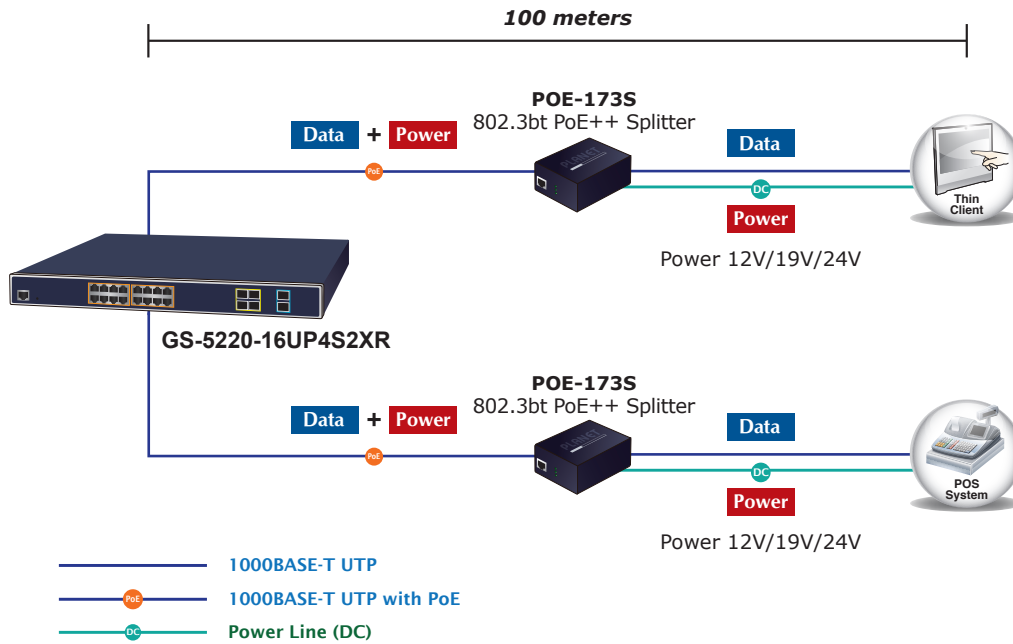
The GS-5220 PoE++ Series supports **SFP-DDM (Digital Diagnostic Monitor)** function that greatly helps network administrator to easily monitor real-time parameters of the SFP and SFP+ transceivers, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.



Applications

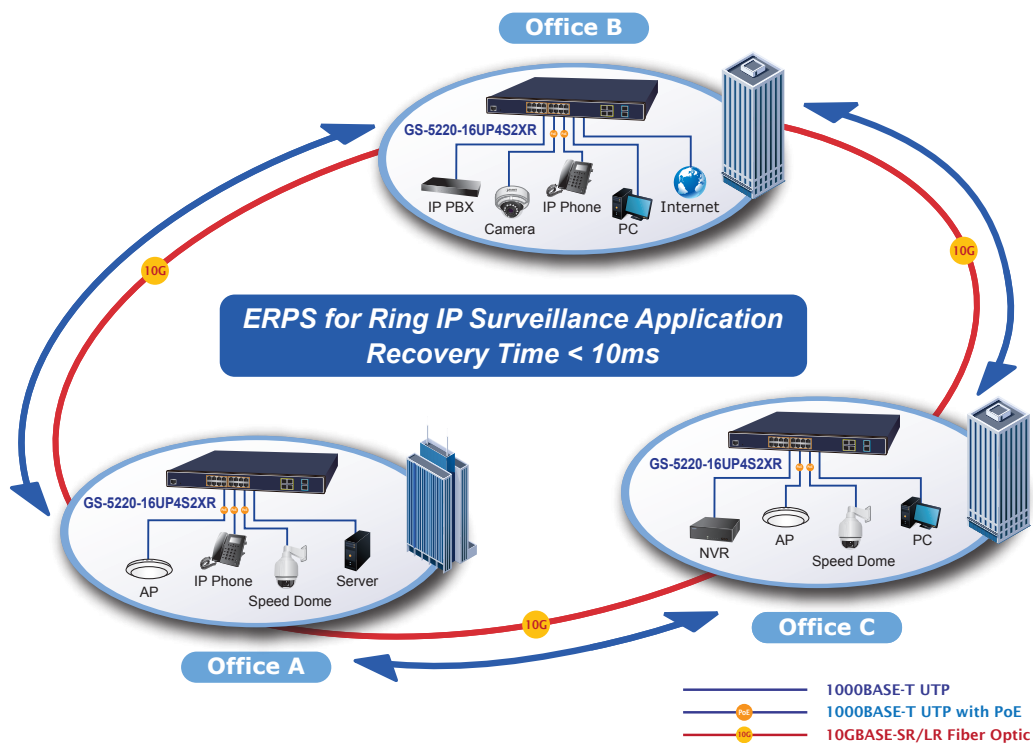
Ultra PoE Networking Solution

PLANET GS-5220 PoE++ Series can easily build an ultra PoE networking solution on the cyber security system for the enterprises. For instance, it can work with the POS system and thin client to perform comprehensive security protection for today's businesses. The GS-5220 PoE++ Series and POE-173S 802.3bt PoE++ Splitter operate as a pair to provide the easiest way to power your Ethernet devices which need high power input. Receiving data and power from the GS-5220 PoE++ Series, the POE-173S separates digital data and power into several optional outputs (12V, 19V or 24V DC) to non-PoE devices such as laptops, thin client, POS system, PTZ (Pan, Tilt & Zoom) network cameras, PTZ speed dome, color touch-screen IP phones, multi-channel wireless LAN access points and other network devices at distance up to 100 meters.



Optimal Redundant Ring for Faster Recovery of Managed Network

The GS-5220 PoE++ 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, and Spanning Tree Protocol (802.1w RSTP) into customer's network to enhance system reliability and uptime in harsh environments. In a certain simple ring network, the recovery time could be **less than 10ms** to quickly bring the network back, thus enabling the management network to keep on operating.



Specifications

Product	GS-5220-16UP4S2XR
Hardware Specifications	
Hardware Version	3
Copper Ports	16 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports
SFP Slots	4 100/1000BASE-X SFP interfaces, Compatible with 100BASE-FX SFP transceiver
SFP+ Slots	2 10GBASE-SR/LR SFP+ interfaces (Port-17 to Port-18) Compatible with 1000BASE-SX/LX/BX SFP transceiver
Console	1 x RS232-to-RJ45 serial port (115200, 8, N, 1)
Reset Button	< 5 sec: System reboot > 5 sec: Factory default
Dimensions (W x D x H)	440 x 300 x 44.5 mm, 1U height
Weight	4503g
Power Consumption	AC: Max. 439.4 watts/1498.3 BTU DC: Max. 31.9 watts/108.7 BTU
Power Requirements – AC	AC 100~240V, 50/60Hz, 7A
Power Requirements – DC	DC 36~60V, 2A
ESD Protection	6KV DC
Fan	3 smart fans
LED	System: SYS (Green) AC/PWR (Green) DC (Green) (GS-5220-16UP4S2XVR Only) Ring (Green) Fan1/2/3 Alert (Red) PoE PWR Alert (Red) PoE Ethernet Interfaces (Port-1 to Port-16): bt PoE (Green) , af/at PoE (Orange) Ethernet Interfaces (Port-1 to Port-16): 1000 LNK/ACT (Green), 10/100 LNK/ACT (Orange) 100/1000Mbps SFP Interfaces (Port-17 to Port-20): 1000 (Green), 100 (Orange) 1/10G SFP+ Interfaces (Port-21 to Port-22): 1G (Green), 10G (Orange)
Switching	
Switch Architecture	Store-and-Forward
Switch Fabric	80Gbps/non-blocking
Throughput	59.52Mpps@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
Power over Ethernet	
PoE Standard	802.3bt PoE++ PSE Type-4 and Type-4 PSE Backward compatible with IEEE 802.3af/802.3at PoE PSE
PoE Power Supply Type	<ul style="list-style-type: none"> ■ 802.3bt PoE++ ■ UPoE ■ End-span ■ Mid-span ■ Force
PoE Power Output	Per port 52~54V DC <ul style="list-style-type: none"> - 802.3bt Type-4 mode, Port-1 to Port-8: maximum 90 watts - 802.3bt Type-3 mode, Port-9 to Port-24: maximum 60 watts - UPoE mode, Port-1 to Port-8: maximum 95 watts - UPoE-mode, Port-9 to Port-24: maximum 72 watts - End-span mode: maximum 36 watts - Mid-span mode: maximum 36 watts - Force mode: maximum 60 watts

Power Pin Assignment	<ul style="list-style-type: none"> ■ 802.3bt : 1/2(-), 3/6(+),4/5(+), 7/8(-) ■ UPoE : 1/2(-), 3/6(+),4/5(+), 7/8(-) ■ End-span : 1/2(-), 3/6(+) ■ Mid-span : 4/5(+), 7/8(-)
PoE Power Budget	400 watts (max.)
PoE Ability PD @ 15 watts	16 units
PoE Ability PD @ 30 watts	13 units
PoE Ability PD @ 60 watts	6 units
PoE Management	
Active POE device alive detects	Yes
PoE Power Recycle	Yes, daily or predefined schedule
PoE Schedule	4 schedule profiles
PoE System Management	<ul style="list-style-type: none"> System PoE Admin control Total PoE power budget control Auto power input and PoE budget control PoE Legacy mode Over-temperature threshold alarm PoE usage threshold alarm
PoE Port Management	<ul style="list-style-type: none"> Port Enable/Disable/Schedule PoE mode control <ul style="list-style-type: none"> - 802.3bt - UPoE - 802.3at End-span - 802.3at Mid-span Force mode Port Priority
Layer 3 Functions	
IP Interfaces	Max. 128 VLAN interfaces
Routing Table	Max. 128 routing entries
Routing Protocols	<ul style="list-style-type: none"> IPv4 OSPFv2 IPv4 hardware static routing IPv6 hardware static routing
Layer 2 Functions	
Port Configuration	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> TX/RX/Both Many-to-1 monitor
VLAN	<ul style="list-style-type: none"> 802.1Q tagged VLAN Q-in-Q tunneling Private VLAN Edge (PVE) MAC-based VLAN Protocol-based VLAN Voice VLAN MVR (Multicast VLAN registration) Up to 4K VLAN groups, out of 4095 VLAN IDs
Link Aggregation	<ul style="list-style-type: none"> IEEE 802.3ad LACP/static trunk 11 groups with 6 port per trunk
Spanning Tree Protocol	<ul style="list-style-type: none"> IEEE 802.1D Spanning Tree Protocol (STP) IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
QoS	<ul style="list-style-type: none"> Traffic classification based, strict priority and WRR 8-level priority for switching: <ul style="list-style-type: none"> - Port number - 802.1p priority - 802.1Q VLAN tagging - DSCP/ToS field in IP packet
IGMP Snooping	<ul style="list-style-type: none"> IPv4 IGMP (v1/v2/v3) snooping IPv4 IGMP querier mode support Up to 255 IGMP multicast groups

MLD Snooping	IPv6 MLD (v1/v2) snooping IPv6 MLD querier mode support Up to 255 MLD multicast groups	
Access Control List	IP-based ACL/MAC-based ACL ACL based on: - MAC Address - IP Address - Ethertype - Protocol Type - VLAN ID - DSCP - 802.1p Priority Up to 256 entries	
Bandwidth Control	Per port bandwidth control Ingress: 100Kbps~1000Mbps Egress: 100Kbps~1000Mbps	
Switch Management		
Basic Management Interfaces	Console; Telnet; Web browser; SNMP v1, v2c	
Secure Management Interfaces	SSHv2, TLSv1.2, SNMPv3	
System Management	Firmware upgrade by HTTP protocol through Ethernet network Configuration upload/download through HTTP Remote Syslog System log LLDP protocol NTP PLANET Smart Discovery Utility	
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 IEEE 802.3af Power over Ethernet	IEEE 802.3at Power over Ethernet Plus IEEE 802.3bt 4-pair Power over Ethernet Plus Plus IEEE 802.3ah OAM IEEE 802.1ag Connectivity Fault Management (CFM) 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 RFC 3810 MLD v2 RFC 2328 OSPF v2
Environments		
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-5220-16UP4S2XR	L3 16-Port 10/100/1000T 802.3bt PoE + 4-Port 100/1000X SFP + 2-Port 10G SFP+ Managed Switch with System Redundant Power
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Related Products

GS-5220-24UP4X	L3 24-Port 10/100/1000T 802.3bt PoE + 4-Port 10G SFP+ Managed Switch (400W)
GS-5220-24UP4XR	L3 24-Port 10/100/1000T 802.3bt PoE + 4-Port 10G SFP+ Managed Switch with System Redundant Power (400W)
GS-5220-24UPL4X	L3 24-Port 10/100/1000T 802.3bt PoE + 4-Port 10G SFP+ Managed Switch (600W)
GS-5220-24UPL4XR	L3 24-Port 10/100/1000T 802.3bt PoE + 4-Port 10G SFP+ Managed Switch with System Redundant Power (600W)
GS-4210-16UP4C	16-Port 10/100/1000T 802.3bt PoE + 4-Port Gigabit TP/SFP Combo Managed Switch (400W)
GS-4210-24UP4C	24-Port 10/100/1000T 802.3bt PoE + 4-Port Gigabit TP/SFP Combo Managed Switch
UPOE-800G	8-Port 10/100/1000T 802.3bt PoE++ Managed Injector Hub (400W)
UPOE-1600G	16-Port 10/100/1000T 802.3bt PoE++ Managed Injector Hub (600W)

Available 10Gbps Modules

MTB-RJ	1-Port 10GBASE-T SFP+ Copper Fiber Optic Module - 30m
MTB-SR	1-Port 10GBASE-SR SFP+ Fiber Optic Module - 300m
MTB-SR2	1-Port 10GBASE-SR SFP+ Fiber Optic Module – 2km
MTB-LR	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 10km
MTB-LR20	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 20km
MTB-LR40	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 40km
MTB-LR60	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 60km
MTB-LR80	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 80km
MTB-TSR	1-Port 10GBASE-SR SFP+ Fiber Optic Module - 300m (-40~75 degrees C)
MTB-TSR2	1-Port 10GBASE-SR SFP+ Fiber Optic Module – 2km (-40~75 degrees C)
MTB-TLR	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 10km (-40~75 degrees C)
MTB-TLR20	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 20km (-40~75 degrees C)
MTB-TLR40	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 40km (-40~75 degrees C)
MTB-TLR60	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 60km (-40~75 degrees C)
MTB-TLA20	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 20km (TX:1270nm RX:1330nm) (-40~75 degrees C)
MTB-TLB20	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 20km (TX:1330nm RX:1270nm) (-40~75 degrees C)
MTB-TLA40	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 40km (TX:1270nm RX:1330nm) (-40~75 degrees C)
MTB-TLB40	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 40km (TX:1330nm RX:1270nm) (-40~75 degrees C)
MTB-TLA60	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 60km (TX:1270nm RX:1330nm) (-40~75 degrees C)
MTB-TLB60	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 60km (TX:1330nm RX:1270nm) (-40~75 degrees C)
MTB-LA10	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 10km (TX:1270nm RX:1330nm)
MTB-LB10	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 10km (TX:1330nm RX:1270nm)
MTB-LA20	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 20km (TX:1270nm RX:1330nm)
MTB-LB20	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 20km (TX:1330nm RX:1270nm)
MTB-LA40	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 40km (TX:1270nm RX:1330nm)
MTB-LB40	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 40km (TX:1330nm RX:1270nm)
MTB-LA60	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 60km (TX:1270nm RX:1330nm)
MTB-LB60	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 60km (TX:1330nm RX:1270nm)
MTB-LA70	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 70km (TX:1270nm RX:1330nm)
MTB-LB70	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 70km (TX:1330nm RX:1270nm)

Available 1000Mbps Modules

MGB-GT	SFP-Port 1000 BASE-T Module
MGB-LX	SFP-Port 1000 BASE-LX mini-GBIC module - 20km
MGB-SX	SFP-Port 1000 BASE-SX mini-GBIC module - 550m
MGB-SX2	SFP-Port 1000 BASE-SX mini-GBIC module - 2km
MGB-L40	SFP-Port 1000 BASE-LX mini-GBIC module - 40km
MGB-L80	SFP-Port 1000 BASE-LX mini-GBIC module - 80km
MGB-L120	SFP-Port 1000 BASE-LX mini-GBIC module - 120km
MGB-LA10	SFP-Port 1000 BASE-BX (WDM, TX:1310nm) mini-GBIC module - 10km
MGB-LB10	SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 10km
MGB-LA20	SFP-Port 1000 BASE-BX (WDM, TX:1310nm) mini-GBIC module - 20km
MGB-LB20	SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 20km
MGB-LA40	SFP-Port 1000 BASE-BX (WDM, TX:1310nm) mini-GBIC module - 40km
MGB-LB40	SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 40km
MGB-LA80	SFP-Port 1000 BASE-BX (WDM, TX:1490nm) mini-GBIC module - 80km
MGB-LB80	SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 80km
MGB-TSX	SFP-Port 1000 BASE-SX mini-GBIC module - 550m (-40~75 degrees C)
MGB-TSX2	SFP-Port 1000 BASE-SX mini-GBIC module - 2km (-40~75 degrees C)
MGB-TLX	SFP-Port 1000 BASE-LX mini-GBIC module - 20km (-40~75 degrees C)
MGB-TL40	SFP-Port 1000 BASE-LX mini-GBIC module - 40km (-40~75 degrees C)
MGB-TL80	SFP-Port 1000 BASE-LX mini-GBIC module - 80km (-40~75 degrees C)
MGB-TSA	SFP-Port 1000 BASE-BX (WDM, TX:1310nm) mini-GBIC module - 2km (-40~75 degrees C)
MGB-TSB	SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 2km (-40~75 degrees C)
MGB-TLA10	SFP-Port 1000 BASE-BX (WDM, TX:1310nm) mini-GBIC module - 10km (-40~75 degrees C)
MGB-TLB10	SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 10km (-40~75 degrees C)
MGB-TLA20	SFP-Port 1000 BASE-BX (WDM, TX:1310nm) mini-GBIC module - 20km (-40~75 degrees C)
MGB-TLB20	SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 20km (-40~75 degrees C)
MGB-TLA40	SFP-Port 1000 BASE-BX (WDM, TX:1310nm) mini-GBIC module - 40km (-40~75 degrees C)
MGB-TLB40	SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 40km (-40~75 degrees C)
MGB-TLA80	SFP-Port 1000 BASE-BX (WDM, TX:1490nm) mini-GBIC module - 80km (-40~75 degrees C)
MGB-TLB80	SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 80km (-40~75 degrees C)