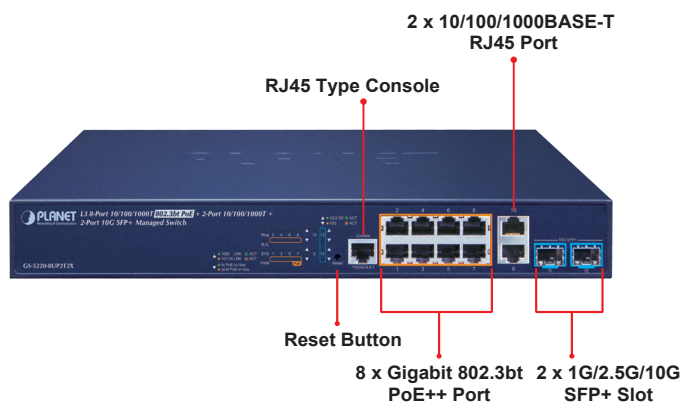# L3 8-Port 10/100/1000T 802.3bt PoE + 2-Port 10/100/1000T + 2-Port 10G SFP+ Managed Switch

Perfect 802.3bt PoE++ Managed Switch with L2+/L4 Switching and Security

PLANET GS-5220-8UP2T2X Layer 3 Managed Gigabit Switch supports both **IPv4 and IPv6 protocols** and **Layer 3 OSPFv2 dynamic routing and static routing**, and provides **8 10/100/1000BASE-T** ports featuring **95-watt 802.3bt PoE++**, **2 additional Gigabit copper ports** and another **2 extra 1/2.5/10 Gigabit BASE-X SFP+ fiber slots**. Each of the eight Gigabit ports provides 95 watts of power, with a total power budget of up to **240 watts** for the different types of PoE applications being employed. It provides a quick, safe and cost-effective Power over Ethernet network solution to IP security surveillance for small businesses and enterprises.

2 x 10/100/1000BASE-T RJ45 Port

RJ45 Type Console

Reset Button

8 x Gigabit 802.3bt PoE++ Port

2 x 1G/2.5G/10G SFP+ Slot

95 Watts of Power over 4-pair UTP

Adopting the IEEE 802.3bt standard, instead of delivering power over 2-pair twisted UTP – be it end-span (Pins 1, 2, 3 and 6) or mid-span (Pins 4, 5, 7 and 8), the GS-5220-8UP2TX 802.3bt PoE++ switch provides the capability to source up to 95 watts of power by using all the four pairs of standard Cat. 5e/6 Ethernet cabling. In the new 4-pair system, two PSE controllers will be used to power both the data pairs and the spare pairs. It can offer more PoE applications, such as:

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

Physical Port

- **8-port 10/100/1000BASE-T** with 95W PoE injector
- **2-port 1G/2.5G/10G BASE-X** SFP+
- RS-232 RJ45 console interface for switch basic management and setup

Power over Ethernet

- Up to 8 ports of IEEE 802.3af/802.3at/802.3bt devices powered
- Supports PoE Power up to 95 watts for each PoE port
- Auto detects powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100 meters in standard mode and 250m in extend mode
- PoE Management
  - PoE Port Status monitoring
  - Over Temperature Protection
  - PoE usage threshold
  - Temperature threshold
  - Per port PoE function enable/disable
  - PoE Port Power feeding priority
  - Per PoE port power limit
  - PD classification detection
 - Sequence port PoE

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 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

Redundant Ring, Fast Recovery for Critical Network Applications

The GS-5220-8UP2T2X 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 to normal operation.

ERPS Ring for Video Transmission Redundancy
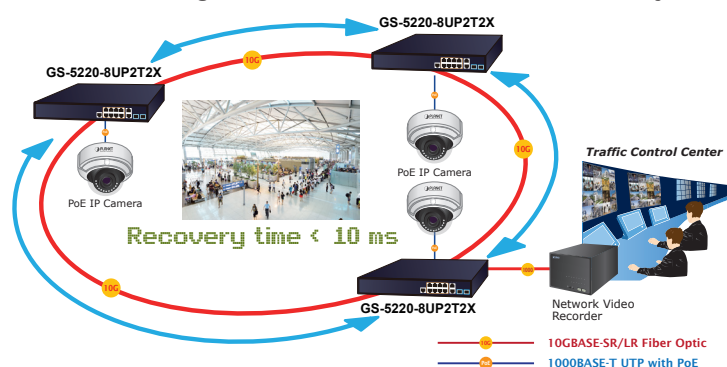
Cybersecurity Network Solution to Minimize Security Risks

The cybersecurity feature that virtually needs no effort and cost to have includes the protection of the switch management and the enhanced security of the mission-critical network. Both SSH and TLS protocols are utilized to provide strong protection against advanced threats.

Flexible and Extendable 10Gb Ethernet Solution

10G Ethernet is a big leap in the evolution of Ethernet. Each of the 10G SFP+ slots in the GS-5220-8UP2T2X supports triple speed and 10GBASE-SR/LR or 2500BASE-X and 1000BASE-SX/LX. With its 2-port,10G Ethernet link capability, 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. The GS-5220-8UP2T2X provides broad bandwidth and powerful processing capacity.

Built-in Unique PoE Functions for Surveillance Management

As a managed PoE Switch for surveillance network, the GS-5220-8UP2T2X features the following intelligent PoE management functions:

- PD Alive Check
- Scheduled Power Recycling
- PoE Schedule
- PoE Usage Monitoring
- PoE Extension

- GVRP
- 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 6 trunk groups, up to 4 ports per trunk group
  - Up to 44Gbps 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
- Supports ERPS (Ethernet Ring Protection Switching)

Layer 3 IP Routing Features

- IP dynamic routing protocol supports OSPFv2
- Routing interface provides per VLAN routing mode
- 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 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

Intelligent Powered Device Alive Check

The GS-5220-8UP2T2X can be configured to monitor a connected PD status in real time via ping action. Once the PD stops working and it is without response, the GS-5220-8UP2T2X 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.
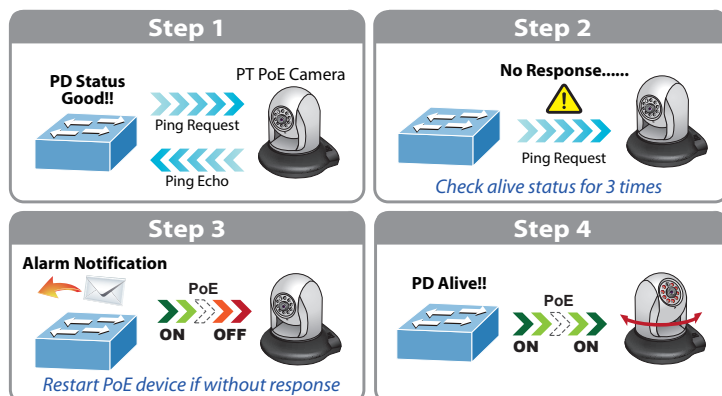
Scheduled Power Recycling

The GS-5220-8UP2T2X allows each of the connected PDs to reboot at a specified time each week. Therefore, it will reduce the chance of PD crash resulting from buffer overflow.
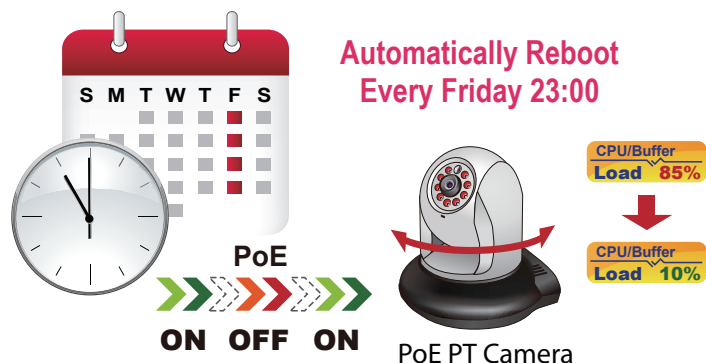
PoE Schedule for Energy Saving

Besides being used for IP surveillance, the GS-5220-8UP2T2X is certainly applicable to build 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 GS-5220-8UP2T2X 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 SMBs and enterprises save energy and budget.

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
  – Web switch management
  – Console/Telnet Command Line Interface
  – SNMP v1 and v2c switch management
  – SSHv2, TLSv1.2 and SNMPv3 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 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