Multi-port 10/100/1000T 802.3bt PoE + 4-Port 10G SFP+ Managed Ethernet Switch

Perfect Managed PoE++ Switches with Advanced L2/L4 Switching and Security

PLANET GS-4210-16UP8T4X and GS-4210-24UP4X Gigabit 802.3bt PoE++ Managed Switches feature PLANET intelligent PoE functions to improve the availability of critical business applications. They provide IPv6/IPv4 dual stack management and a built-in L2/L4 Gigabit switching engine. The GS-4210-16UP8T4X comes with 16 10/100/1000BASE-T 802.3bt PoE++ ports, 8 additional Gigabit copper ports, and 4 10 Gigabit fiber ports, with a total power budget of 420 watts. The GS-4210-24UP4X comes with 24 10/100/1000BASE-T 802.3bt PoE++ ports and 4 10 Gigabit fiber ports, with a total power budget of 720 watts. The GS-4210-Series offers a quick, safe, and cost-effective 802.3bt PoE++ network solution for small businesses and enterprises.

Cybersecurity Network Solution to Minimize Security Risks

The cybersecurity feature included to protect the switch management in a mission-critical network virtually needs no effort and cost to install. Both SSHv2 and TLSv1.2 protocols are utilized to provide strong protection against advanced threats. The network administrator can now construct highly-secure corporate networks with considerably less time and effort than before.

Redundant Ring, Fast Recovery for Critical Network Applications

The GS-4210-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)**

Physical Port

- **GS-4210-16UP8T4X**
  - **16 10/100/1000BASE-T ports with 95W 802.3bt PoE++** injector function (Ports 1 to 16)
  - **8 10/100/1000BASE-T ports** (Ports 17 to 24)
  - **4 10GBASE-SR/LR SFP+ slots**, backward compatible with 100/1G/2.5GBASE-X SFP transceivers (Ports XG1 to XG4)
  - RJ45 to DB9 console interface for switch basic management and setup
- **GS-4210-24UP4X**
  - **24 10/100/1000BASE-T ports with 95W 802.3bt PoE++** injector function (Ports 1 to 24)
  - **4 10GBASE-SR/LR SFP+ slots**, backward compatible with 100/1G/2.5GBASE-X SFP transceivers (Ports XG1 to XG4)
  - RJ45 to DB9 console interface for switch basic management and setup

Switching

- Hardware-based 10/100Mbps (half/full duplex), 1000Mbps (full duplex), auto-negotiation and auto MDI/MDI-X
- IEEE 802.3x flow control for full duplex operation and back pressure for half duplex operation
- 16K MAC address table size
- 12K jumbo frame
- Automatic address learning and address aging

Power over Ethernet

- Compliant with IEEE 802.3bt Power over Ethernet Plus Plus
- 16/24 ports supporting IEEE 802.3bt PoE++ with each offering up to 95 watts (ports 1-16 / ports 1-24)
- Total PoE power budget of 420/720 watts
- Automatic detection of powered devices (PD)
- Built-in circuit protection to prevent power interference between ports
- Remote power feeding up to 100 meters in standard mode and 250 meters in extend mode
- Advanced PoE management capabilities:

technology, Spanning Tree Protocol (802.1s MSTP) into customer's network to enhance system reliability and uptime in various environments.

ERPS Ring for Video Transmission Redundancy
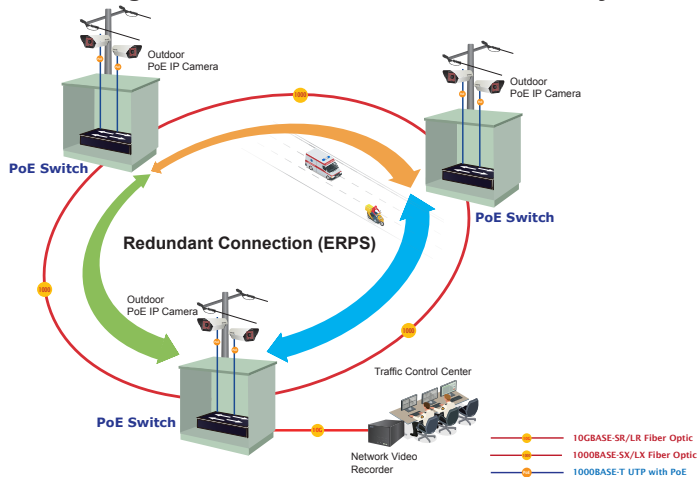
802.3bt PoE++ 95-watt Power over 4-pair UTP Solution

As the GS-4210-Series adopts the IEEE 802.bt PoE++ standard technology, it is capable to source 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). Its power capability is three times more than that of the conventional 802.3at PoE+ and it is an ideal solution for those high power consuming network PDs, such as:

- PoE PTZ speed dome cameras
- Network devices
- Thin clients
- AIO (all-in-one) touch PCs, point of sale (POS) and information kiosks
- Remote digital signage displays
- PoE lightings
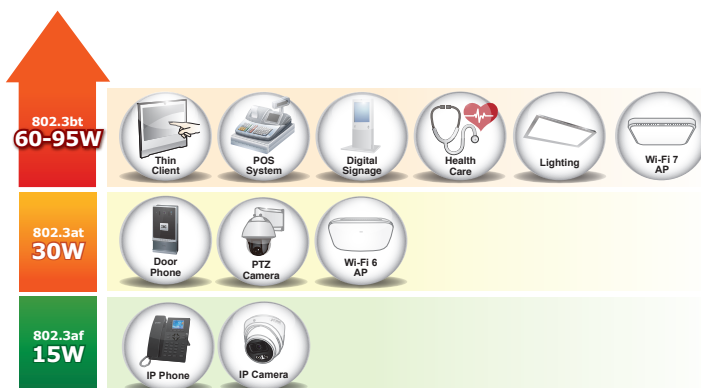
- – Total PoE power budget control
- – Per port PoE function enable/disable
- – PoE port power feeding priority
- – Per PoE port power limitation
- – Detection of PD classification
- Intelligent PoE features
  - – PD alive check
  - – PoE schedule
  - – Scheduled power recycling

Layer 2 Features

- Supports VLAN
  - – IEEE 802.1Q tagged VLAN
  - – Provider bridging (VLAN Q-in-Q, IEEE 802.1ad) support
  - – Protocol VLAN
  - – Private VLAN (Protected port)
  - – Management VLAN
  - – GVRP
- Supports Spanning Tree Protocol
  - – STP (Spanning Tree Protocol)
  - – RSTP (Rapid Spanning Tree Protocol)
  - – MSTP (Multiple Spanning Tree Protocol)
  - – STP BPDU Guard, BPDU Filtering and BPDU Forwarding
- Supports Link Aggregation
  - – IEEE 802.3ad Link Aggregation Control Protocol (LACP)
  - – Cisco ether-channel (static trunk)
  - – Maximum 8 trunk groups, up to 8 ports per trunk group
- Supports port mirror (many-to-1)
- Loop protection to avoid broadcast loops
- Supports ERPS (Ethernet Ring Protection Switching)
- Link Layer Discovery Protocol (LLDP)

Quality of Service

- Ingress and egress rate limit per port bandwidth control
- Storm control support
  - – Broadcast/Unknown unicast/Unknown multicast
- Traffic classification
  - – IEEE 802.1p CoS
  - – TOS/DSCP/IP precedence of IPv4/IPv6 packets
- Strict priority and Weighted Round Robin (WRR) CoS policies

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

To meet the demand of various powered devices consuming stable PoE power, the GS-4210-Series supports multi-PoE operation modes that include 95-watt 802.3bt type-4 PoE++ mode and 4-pair legacy mode to solve the incompatibility of non-standard 4-pair PoE PDs in the field.

- **95W 802.3bt PoE++ Power Output Mode**
- **36W End-span 802.3at PoE+ Power Output Mode**

PoE Watts	PoE Operation Mode	Power Output Mode
95W	802.3bt PoE++	(Pins 1, 2, 3, 6 + Pins 4, 5, 7, 8)
36W	End-span 802.3at PoE	(Pins 1, 2, 3, 6)

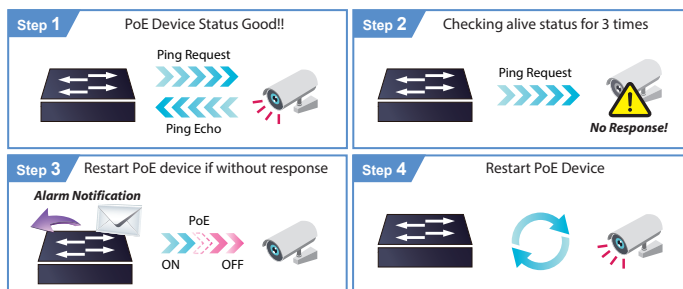## Built-in Unique PoE Functions for Powered Devices Management

As it is the managed PoE++ switch for surveillance, wireless and VoIP networks, the GS-4210-Series features the following special PoE management functions:

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

Intelligent Powered Device Alive Check

The GS-4210-Series can be configured to monitor connected PD status in real time via ping action. Once the PD stops working and responding, the GS-4210-Series 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 and reducing administrator management burden.

PD Alive Check

Step 1	PoE Device Status Good!!
Ping Request
Ping Echo

Step 2	Checking alive status for 3 times
Ping Request
No Response!

Step 3	Restart PoE device if without response
Alarm Notification
PoE
ON   OFF

Step 4	Restart PoE Device

Scheduled Power Recycling

The GS-4210-Series allows each of the connected PoE IP cameras or PoE wireless access points to reboot at a specified time each week. Therefore, it will reduce the chance of IP camera or AP crash resulting from buffer overflow.

IP Camera

AP Router

IP Phone

PoE lighting

Door Phone

Automatically Reboot
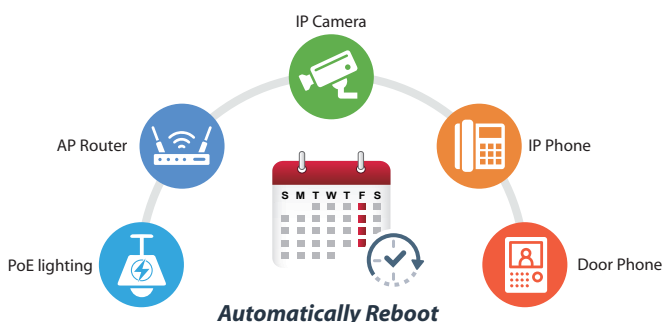
Multicast

- Supports IPv4 IGMP snooping v2 and v3
- Supports IPv6 MLD snooping v1, v2
- IGMP querier mode support
- IGMP snooping port filtering
- MLD snooping port filtering

Security

- Authentication
  - Built-in RADIUS client to cooperate with the RADIUS servers
  - RADIUS/TACACS+ login user access authentication
  - DHCP Option 82
- Access control list
  - IPv4/IPv6 IP-based ACL
  - IPv4/IPv6 IP-based ACE
  - MAC-based ACL
  - MAC-based ACE
- MAC security
  - Static MAC
  - MAC filtering
- Port security for source MAC address entries filtering
- DHCP snooping to filter distrusted DHCP messages
- Dynamic ARP Inspection discards ARP packets with invalid MAC address to IP address binding
- IP source guard prevents IP spoofing attacks
- DoS attack prevention

Management

- IPv4 and IPv6 dual stack management
- Switch management interface
  - Web switch management
  - Console and telnet command line interface
  - SNMP v1 and v2c switch management
  - SSHv2, TLSv1.2 and SNMP v3 secure access
- SNMP Management
  - Four RMON groups (history, statistics, alarms and events)
  - SNMP trap for interface link up and link down notification
- User privilege levels control
- Built-in Trivial File Transfer Protocol (TFTP) client
- Static and DHCP for IP address assignment
- System maintenance