Product Specifications

Industrial 8-Port 10/100/1000T 802.3at PoE + 2-Port 100/1000X SFP
Wall-mount Managed Switch
(-40~75 degrees C)

WGS-4215-8P2S

Version 1.0

Change History:

Revision:	Date:	Author:	Change List
Version 1.0	03/09/2016	Marc Liao	Initial Release

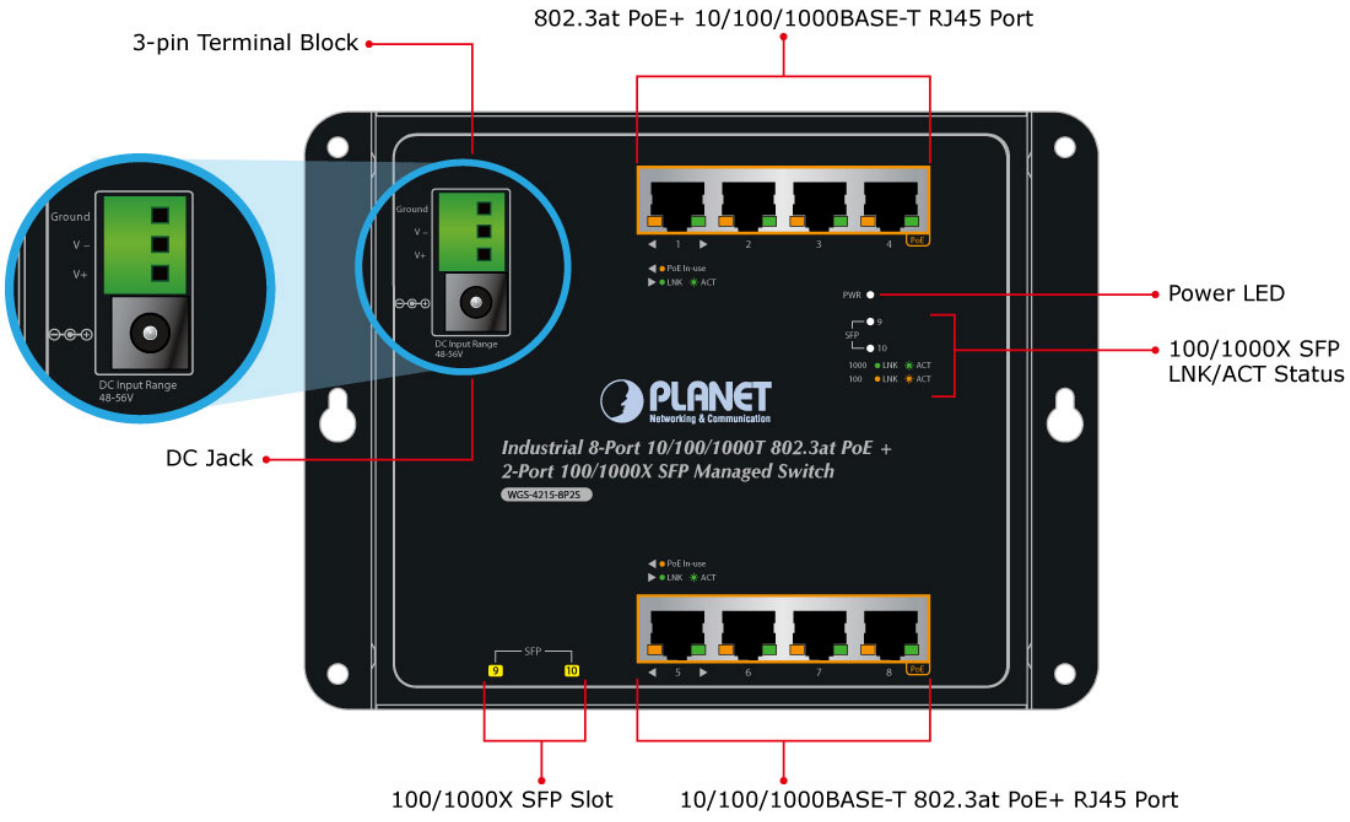
Author:	Marc Liao	**Editor:**	Kent Kang
Reviewed by:		**Approved by:**	Kent Kang

1. PRODUCT DESCRIPTION

Easily-deployed and Expanded Network

Designed to be installed in a wall enclosure or simply mounted on a wall in any convenient location, PLANET WGS-4215-8P2S, an innovative, **Industrial 8-port 10/100/1000T 802.3at PoE + 2-port 100/1000X SFP Wall-mounted Managed Switch,** offers IPv6/IPv4 dual stack management, **intelligent Layer 2 management functions**, and **user-friendly interface**. The WGS-4215-8P2S is able to operate reliably, stably and quietly in any environment without affecting its performance. With a total power budget of up to **200 watts** for different kinds of PoE applications and featuring ultra networking speed and operating temperature ranging from **-40** to **75 degrees C** in a compact but rugged IP30 metal housing, the WGS-4215-8P2S is an ideal solution to meeting the demand for the following network applications:

- Building/Home automation network
- Internet of things (IoT)
- IP surveillance
- Wireless LAN



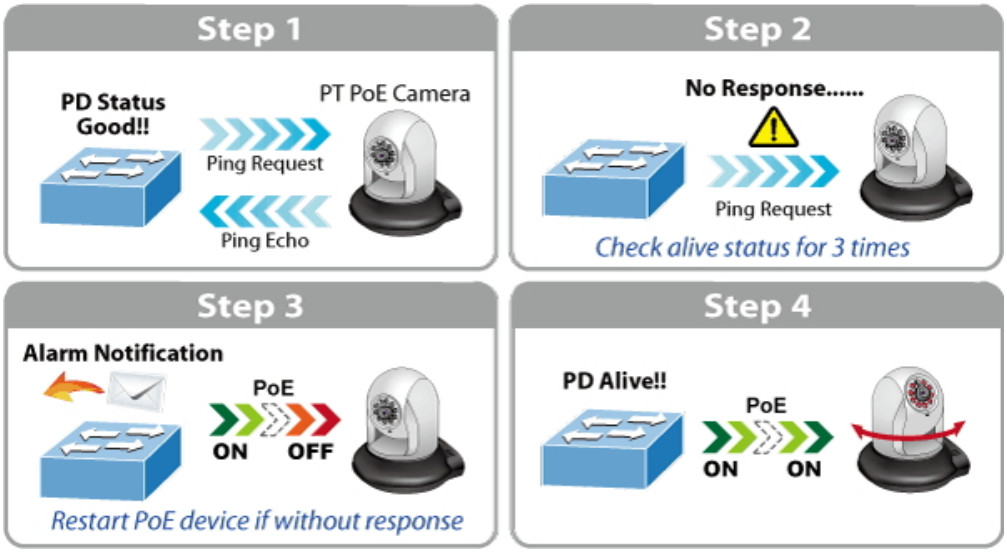
Built-in Unique PoE Functions for Powered Devices Management

As it is the managed PoE switch for surveillance, wireless and VoIP networks, the WGS-4215-8P2S features the following special PoE management functions:

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

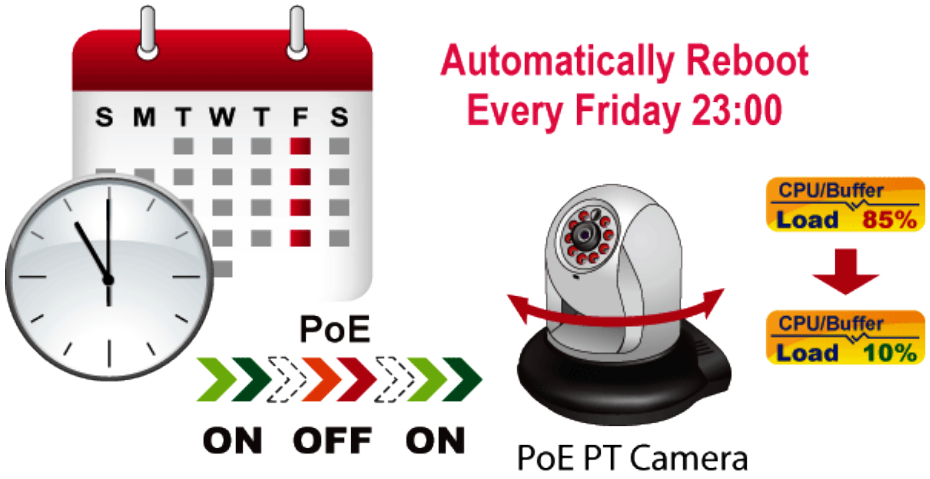
Intelligent Powered Device Alive Check

The WGS-4215-8P2S can be configured to monitor connected PD (Powered Device) status in real time via ping action. Once the PD stops working and responding, the WGS-4215-8P2S 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.



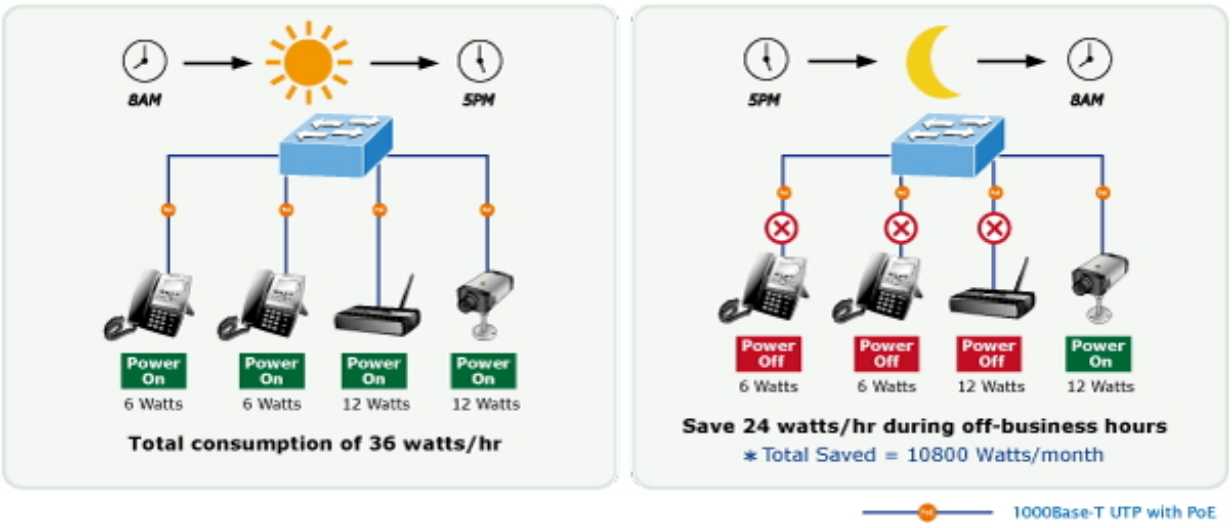
Scheduled Power Recycling

The WGS-4215-8P2S allows each of the connected PoE IP cameras or PoE wireless access points to reboot at a specific time each week. Therefore, it 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 WGS-4215-8P2S 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 or enterprises save power and budget. It also increases security by powering off PDs that should not be in use during non-business hours.



Innovative Wall-mount Installation

The WGS-4215-8P2S is specially designed to be installed in a narrow environment, such as wall enclosure or electric weak box. The compact, flat and wall-mounted design fits easily in any space-limited location. It adopts the user-friendly "**Front Access**" design, making the installing, cable wiring, LED monitoring and maintenance of the WGS-4215-8P2S placed in an enclosure very convenient for technicians. The WGS-4215-8P2S can be installed by **fixed wall mounting**, **magnetic wall mounting** or **DIN rail**, thereby making its usability more flexible.

Environmentally Hardened Design

With IP30, flat but rugged metal housing protection, th e WGS-4215-8P2S provides a high lev el of immunit y against electromagnetic interference and heavy electrical surges which are usually found on plant floors or in curb-side traffic control cabinets without air co nditioner. Being able to op erate under the te mperature range from -40 to 75 degrees C, t he WGS-4215-8P2S can be placed in almost any difficult environment.

IPv6/IPv4 Dual Stack Management

Supporting both IPv6 and IPv4 protocols, the WGS-4215-8P2S helps the SMBs to step in the IPv6 era with the lowest investment as its network facilities need not be replaced or overhauled if the IPv6 FTTx edge network is set up.

Robust Layer 2 Features

The WGS-4215-8P2S can be programmed for advanced switch management functions such as dynamic port link aggregation, 802.1Q VLAN, **Q-in-Q VLAN, Multiple Spanning Tree Protocol (MSTP)**, Loop and **BPDU Guard, IGMP Snooping**, and **MLD Snooping**. Via the link aggregation, the WGS-4215-8P2S allows the operation of a high-speed trunk to combine with multiple ports such as a 16Gbps fat pipe, and supports fail-over as well. Also, the **Link Layer Discovery Protocol (LLDP)** is the Layer 2 protocol included to help discover basic information about neighboring devices on the local broadcast domain.

Efficient Traffic Control

The WGS-4215-8P2S is loaded with robust QoS features and powerful traffic management to enhance services to business-class data, voice, and video solutions. The functionality includes broadcast/multicast/unicast **storm control**, per port **bandwidth control**, 802.1p/CoS/IP DSCP QoS priority and remarking. It guarantees the best performance in VoIP and video stream transmission, and empowers the enterprises to take full advantage of the limited network resources.

Friendly and Secure Management

For efficient management, the WGS-4215-8P2S is equipped with **web**, **Telnet** and **SNMP** management interfaces. With the built-in web-based management interface, the WGS-4215-8P2S offers an easy-to-use, platform-independent management and configuration facility. By supporting the standard SNMP, the switch can be managed via any standard management software. For text-based management, the switch can be accessed via Telnet. Moreover, the WGS-4215-8P2S offers secure remote management by supporting **SSH, SSL** and **SNMP v3** connections which encrypt the packet content at each session.

Advanced Network Security

PLANET WGS-4215-8P2S offers a comprehensive **IPv4/IPv6** Layer 2 to Layer 4 **Access Control List (ACL)** for enforcing security to the edge. Its protection mechanism also comprises **802.1X port-based** user and device authentication, which can be deployed with RADIUS to ensure the port level security and block illegal users. With the **protected port** function, communication between edge ports can be prevented to guarantee user privacy. Furthermore, the WGS-4215-8P2S also provides **DHCP snooping**, **IP source guard** and **dynamic ARP inspection** functions to prevent IP snooping from attack and discarded ARP packets with invalid MAC address. The network administrators can now construct highly-secure corporate networks with considerably less time and effort than before.

Flexibility and Long-distance Extension Solution

The two mini-GBIC slots built in the WGS-4215-8P2S support SFP auto-detection and dual speed as it features **100BASE-FX** and **1000BASE-SX/LX SFP** (Small Form-factor Pluggable) fiber transceivers to uplink to backbone switch and monitoring center in long distance. The distance can be extended from 550 meters to 2 kilometers (multi-mode fiber) and up to 10/20/30/40/50/60/70/120 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 WGS-4215-8P2S supports **SFP-DDM** (**Digital Diagnostic Monitor**) function that can easily monitor real-time parameters of the SFP for network administrator, such as optical output power, optical input power, temperature, laser bias current and transceiver supply voltage.

2. PRODUCT FEATURES

- **Physical Port**
  - **8-Port 10/100/1000BASE-T** Gigabit RJ45 copper with **IEEE 802.3at** PoE+ Injector function
  - **2 100/1000BASE-X mini-GBIC/SFP** slots

- **Power over Ethernet**
  - Complies with IEEE 802.3at Power over Ethernet Plus, end-span PSE
  - Backward compatible with IEEE 802.3af Power over Ethernet
  - Up to 8 ports of IEEE 802.3af/802.3at devices powered
  - Supports PoE power up to 36 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

- **Industrial Case and Installation**
  - Compact size with fixed wall-mounted,, magnetic wall-mounted or DIN-rail design
  - IP30 metal case protection
  - Supports -40 to 75 degrees C operating temperature
  - Supports ESD 8KV DC Ethernet protection
  - Dual power input design

- 48V~56V DC wide power input with polarity reverse protect function
- 3-pin terminal block or DC jack connector

Switching

- Hardware based 10/100Mbps, half/full duplex and 1000Mbps full duplex mode, flow control and auto-negotiation and auto MDI/MDI-X
- Features Store-and-Forward mode with wire-speed filtering and forwarding rates
- IEEE 802.3x flow control for full duplex operation and back pressure for half duplex operation
- 8K MAC address table size
- 10K jumbo frame
- Automatic address learning and address aging
- Supports CSMA/CD protocol

Layer 2 Features

- Supports **VLAN**
  - IEEE 802.1Q tagged VLAN
  - Provider bridging (VLAN Q-in-Q, IEEE 802.1ad) support
  - Protocol VLAN
  - Voice 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)
- Provides port mirror (many-to-1)
- Loop protection to avoid broadcast loops

Quality of Service

- Ingress/Egress Rate Limit per port bandwidth control
- Traffic classification
  - IEEE 802.1p CoS
  - TOS/DSCP/IP precedence of IPv4/IPv6 packets
- Strict priority and Weighted Round Robin (WRR) CoS policies

- **Multicast**
  - Supports IPv4 IGMP snooping v2, v3
  - Supports IPv6 MLD snooping v1, v2
  - IGMP querier mode support
  - IGMP snooping port filtering
  - MLD snooping port filtering
- **Security**
  - Storm Control support
    - Broadcast/Unknown unicast/Unknown multicast
  - Authentication
    - IEEE 802.1X port-based network access authentication
    - Built-in RADIUS client to cooperate with the RADIUS servers
    - DHCP Option 82
    - RADIUS/TACACS+ authentication
  - 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
  - SSH/SSL
- **Management**
  - IPv4 and IPv6 dual stack management
  - Switch Management Interface
    - IPv4/IPv6 Web switch management
    - Telnet Command Line Interface
    - SNMP v1, v2c, v3
    - SSH and SSL secure access
  - User privilege levels control
  - Built-in Trivial File Transfer Protocol (TFTP) client
  - Static and DHCP for IP address assignment
  - System Maintenance
    - Firmware upload/download via HTTP/TFTP

- Configuration upload/download through HTTP/TFTP
- Hardware reset button for system reboot or reset to factory default

- SNTP Network Time Protocol
- Cable diagnostics
- Link Layer Discovery Protocol (LLDP) Protocol and LLDP-MED
- SNMP trap for interface Link-up and Link-down notification
- Event message logging to remote Syslog server
- Four RMON groups (history, statistics, alarms and events)
- PLANET Smart Discovery Utility

3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

Switch ASIC	Realtek RTL8380MI	x 1
	Built-in 8-port 10/100/1000M RJ45 Ethernet PHY	
	Built-in 2-port 100/1000M Fiber Ethernet PHY	
Flash	16M bytes	x 1
DDR RAM	128M bytes	x 1
PoE Chip	PowerDesign PD69104B1F	x 2

3.2 FUNCTION SPECIFICATIONS

Product	**WGS-4215-8P2S**
Hardware Specifications	
Copper Ports	Eight 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports
PoE Inject Port	Eight with 802.3at PoE+ injector function (Port-1 to Port-8)
SFP/mini-GBIC Slots	Two 100/1000BASE-X SFP interfaces, supporting 100/1000Mbps dual mode
Switch Architecture	Store-and-Forward
Switch Fabric	20Gbps/non-blocking
Switch Throughput@64 bytes	14.8Mpps @64 bytes
MAC Address Table	8K entries
Shared Data Buffer	4.1 megabits
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex
Jumbo Frame	10KB
Reset Button	< 5 sec: System reboot

	> 5 sec: Factory default	
LED	**Power LED**:	Power (Green)
	PoE Port (Port-1 to Port-8):	PoE-in-Use (Orange) LNK/ACT (Green)
	100/1000X SFP Ports (Port 9 to Port 10):	1000 LNK/ACT (Green) 100 LNK/ACT (Orange)
Connector	■ Removable 3-pin terminal block for power input - Pin 1/2 for Power (Pin 1: V+ / Pin 2: V-) - Pin 3 for earth ground ■ DC power jack with 2.0mm central pole	
Power Requirements	48~56V DC, 6A (max.) terminal block power input 48~56V DC, 6A (max.) DC jack power input Note: The two power input interfaces don't support power redundant function.	
Power Consumption/ Dissipation	Max. 210 watts/716 BTU	
Dimensions (W x D x H)	178 x 25 x 134 mm	
Weight	640g	
ESD Protection	Contact Discharge 6KV DC Air Discharge 8KV DC	
Enclosure	Metal	
Installation	Fixed wall mount, magnetic wall mount or DIN rail	
Power over Ethernet		
PoE Standard	IEEE 802.3af/802.3at Power over Ethernet PSE	
PoE Power Supply Type	End-span	
PoE Power Output	IEEE 802.3af Standard - Per port 48V~56V DC (depending on the power supply), max. 15.4 watts IEEE 802.3at Standard - Per port 50V~56V DC (depending on the power supply), max. 36 watts	
Power Pin Assignment	1/2(+), 3/6(-)	
PoE Power Budget	200 watts (depending on power input)	
Max. Number of Class 2 PDs	8	
Max. Number of Class 3 PDs	8	
Max. Number of Class 4 PDs	7	
Layer 2 Functions		
Port Mirroring	TX/RX/Both Many-to-1 monitor	
VLAN	802.1Q tagged-based VLAN Up to 256 VLAN groups, out of 4094 VLAN IDs 802.1ad Q-in-Q tunneling (VLAN stacking) Voice VLAN	

	Protocol VLAN Private VLAN (Protected port) GVRP Management VLAN
Link Aggregation	IEEE 802.3ad LACP and static trunk Supports 1 group with 2 SFP ports per trunk
Spanning Tree Protocol	IEEE 802.1D Spanning Tree Protocol (STP) IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) STP BPDU guard, BPDU filtering and BPDU forwarding
IGMP Snooping	IPv4 IGMP (v2/v3) snooping IGMP querier Up to 256 multicast groups
MLD Snooping	IPv6 MLD (v1/v2) snooping, up to 256 multicast groups
Access Control List	IPv4/IPv6 IP-based ACL/MAC-based ACL IPv4/IPv6 IP-based ACE/MAC-based ACE
QoS	8 mapping IDs to 8 level priority queues - Port Number - 802.1p priority - DSCP/IP precedence of IPv4/IPv6 packets Traffic classification based, strict priority and WRR Ingress/Egress Rate Limit per port bandwidth control
Security	IEEE 802.1X port-based authentication Built-in RADIUS client to cooperate with RADIUS server RADIUS/TACACS+ authentication IP-MAC port binding MAC filtering Static MAC address DHCP snooping and DHCP Option82 STP BPDU guard, BPDU filtering and BPDU forwarding DoS attack prevention ARP inspection IP source guard Storm control support Broadcast/Unknown unicast/Unknown multicast
Management Functions	
Basic Management Interfaces	Web browser; Telnet; SNMP v1, v2c, v3 Firmware upgrade by HTTP/TFTP protocol through Ethernet network Configuration upload/download through HTTP/TFTP Remote/Local Syslog System log LLDP protocol

	SNTP PLANET Smart Discovery Utility
Secure Management Interfaces	SSH, SSL, SNMP v3
SNMP MIBs	RFC 1213 MIB-II RFC 1215 Generic Traps RFC 1493 Bridge MIB RFC 2674 Bridge MIB Extensions RFC 2737 Entity MIB (version 2) RFC 2819 RMON (1, 2, 3, 9) RFC 2863 Interface Group MIB RFC 3635 Ethernet-like MIB
Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE
Stability Testing	IEC 60068-2-32 (free fall) IEC 60068-2-27 (shock) IEC 60068-2-6 (vibration)
Standards Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX/100BASE-FX IEEE 802.3z Gigabit SX/LX IEEE 802.3ab Gigabit 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 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
Environment	
Operating	Temperature: -40 ~ 75 degrees C Relative Humidity: 5 ~ 95% (non-condensing)
Storage	Temperature: -40 ~ 85 degrees C Relative Humidity: 5 ~ 95% (non-condensing)

Accessories	
Standard Accessories	■ Quick Installation Guide x 1 ■ 3-pin Terminal Block Connector x 1 ■ Wall-mounted Kit x 1 ■ DIN-rail Kit x 1 ■ Magnet Kit x 1 ■ RJ45 Dust Cap x 8 ■ SFP Dust Cap x 2

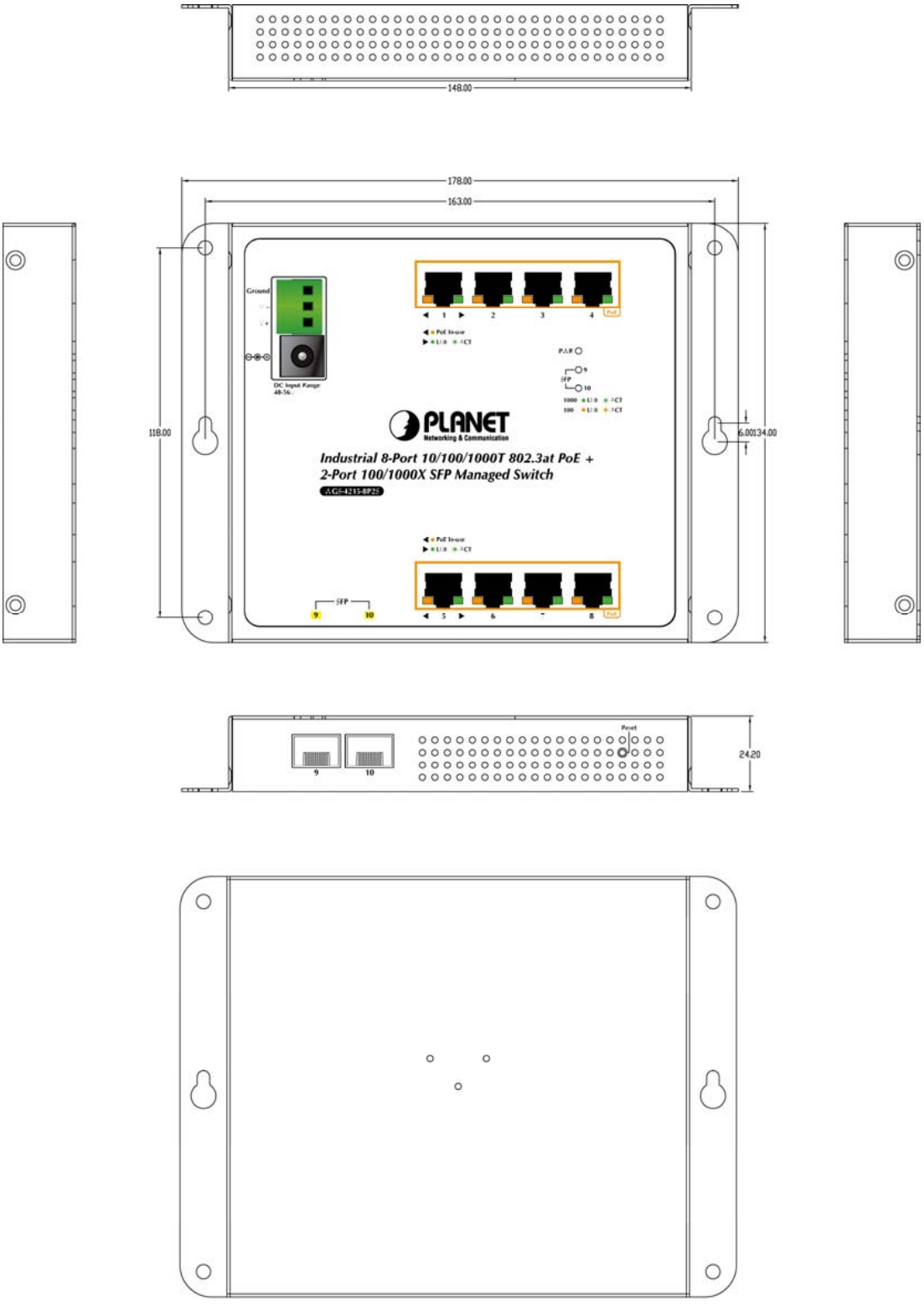
3.3 PHYSICAL SPECIFICATIONS:

Dimensions:

178 x 25 x 134mm (W x D x H)

Weight:

640g



Dimensions (unit = mm)

■ Front Panel:

■ LED Definition

■ System

LED	Color	Function
PWR	Green	**Lights** to indicate that the Switch has power.
		Blinks to indicate the system of the Switch is booting

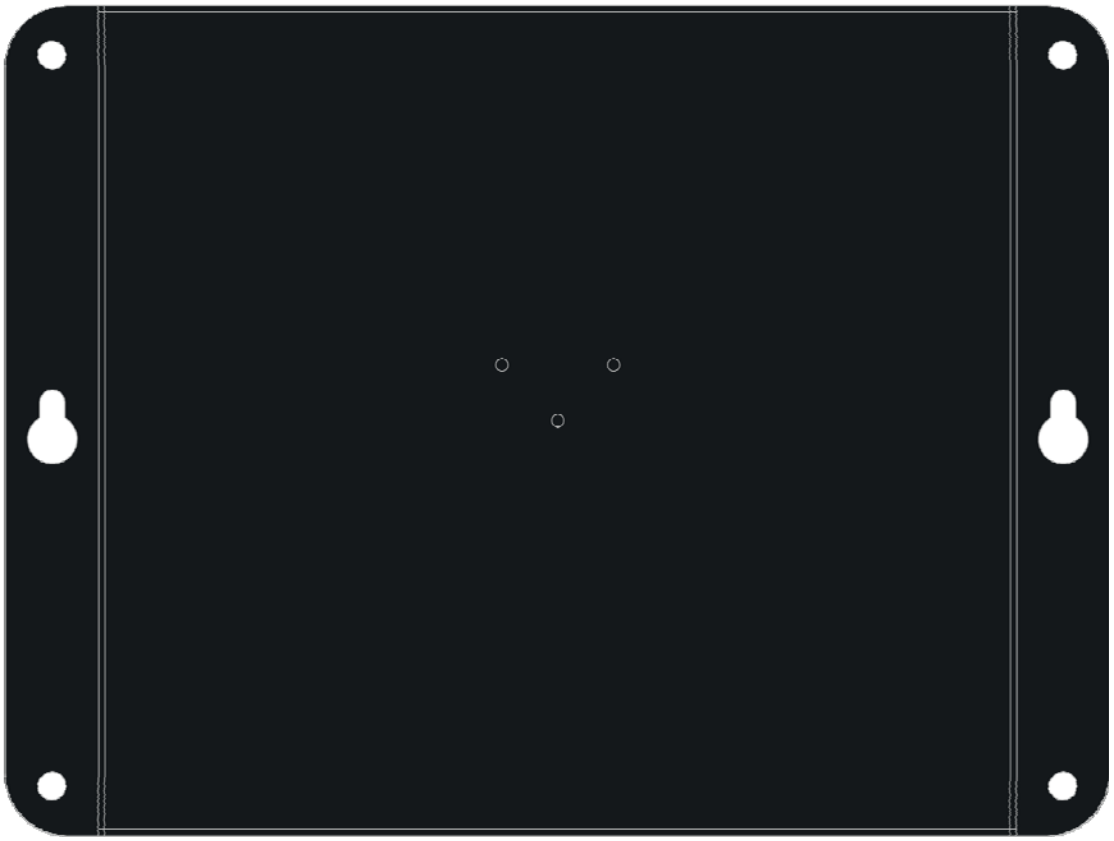
■ PoE 10/100/1000BASE-T Interfaces (Port-1 to Port-8)

LED	Color	Function
LNK/ACT	Green	**Lights**: To indicate the link through that port is successfully established. **Blinks:** To indicate that the switch is actively sending or receiving data over that port.
PoE	Orange	**Lights**: To indicate the port is providing DC in-line power. **Off:** To indicate the connected device is not a PoE Powered Device (PD)

■ Per 100/1000X SFP Interface (Port9 to Port10)

LED	Color	Function	
1000 LNK/ACT	Green	**Lights:**	It indicates the link through that port is successfully established at 1000Mbps.
		Blinks:	It indicates that the Switch is actively sending or receiving data over that port.
100 LNK/ACT	Orange	**Lights:**	It indicates the link through that port is successfully established at 100Mbps.
		Blinks:	It indicates that the Switch is actively sending or receiving data over that port.

■ **Rear Panel:**



3.4 ENVIRONMENTAL SPECIFICATIONS

Operating:

Temperature:	-40°C ~ 75 degrees C
Relative Humidity:	5% ~ 95% (non-condensing)

Storage:

Temperature:	-40°C ~ 85 degrees C
Relative Humidity:	5% ~ 95% (non-condensing)

3.5 ELECTRICAL SPECIFICATIONS

- **Power Requirement:** DC 48~56V, 5A max
- **Power Consumption:**

Operation Mode	Input Voltage	Power Consumption
System on	48V DC	3.3W/11BTU
	56V DC	3.9W/13BTU
Ethernet / PoE Full Loading (Operating)	48V DC	199W/678BTU
	56V DC	210W/716BTU

3.6 REGULATORY COMPLIANCE

FCC Part 15 Class A, CE

3.7 RELIABILITY

MTBF > 100,000 hrs @ 25 degrees C

3.8 BASIC PACKAGING

- The Wall-mounted PoE Managed Switch x 1
- Quick Installation Guide x 1
- 3-pin Terminal Block Connector x 1
- Wall-mounted Kit x 1
- DIN-rail Kit x 1
- Magnet Kit x 1
- RJ45 Dust-proof Cap x 8
- SFP Dust Cap x 2

3.9 PACKING DIMENSIONS

Dimensions: Box	229 (W) x 197 (D) x 70 (H) mm
Dimensions: Carton	480 (W) x 430 (D) x 390 (H) mm
Weight:	TBD KG (gross weight)
Quantity:	20pcs in one carton