Industrial L2/L4 Managed Gigabit Switch with 4-Port 802.3at PoE+

Ideal, Cost-effective, Manageable PoE Solution for Hardened Environment

Designed to be installed in heavy industrial demanding environments, the switch series are the new generation of PLANET Industrial-grade, DIN-rail type L2/ L4 Managed Gigabit PoE+ Switch featuring **PLANET intelligent PoE** functions to improve the availability of critical business applications. It provides **IPv6/IPv4 dual stack management** and built-in **L2/L4 Gigabit switching engine** along with **4 10/100/1000BASE-T** ports featuring **30-watt 802.3at PoE+**, **4 additional Gigabit copper ports** and another **2 extra 100/1000BASE-X SFP fiber slots** for data and video uplink. The switch series are able to operate reliably, stably and quietly in any environment without affecting its performance. It comes with a total power budget of up to **144 watts** for different kinds of PoE applications and operating temperature ranging from **-40 to 75 degrees C** in a rugged IP30 metal housing.

Physical Port

- **8-port 10/100/1000BASE-T** Gigabit RJ45 copper with 4-port **IEEE 802.3at/af** PoE Injector (Port-1 to Port-4)
- **2 100/1000BASE-X mini-GBIC/SFP** slots, SFP type auto detection (For IGS-4215-4P4T2S)
- RJ45 console interface for switch basic management and setup

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 4 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 & Installation

- IP30 aluminum metal case protection
- DIN-rail and wall-mount design
- Supports -40 to 75 degrees C operating temperature
- Supports ESD 6KV DC Ethernet protection
- Redundant power design
  - 48V~56V DC wide power input

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

Built-in Unique PoE Functions for Powered Devices Management

As it is the managed PoE switch for surveillance, wireless and VoIP networks, the switch series feature the following special PoE management functions:

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

Intelligent Powered Device Alive Check

The switch 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 switch 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.
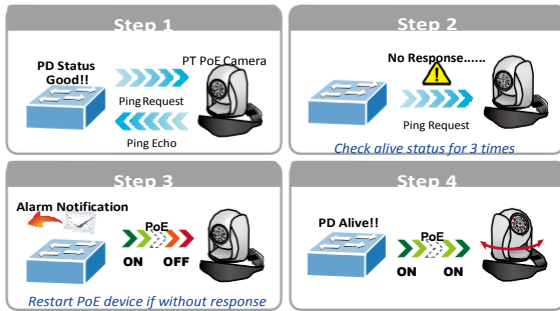

Scheduled Power Recycling

The switch series 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.
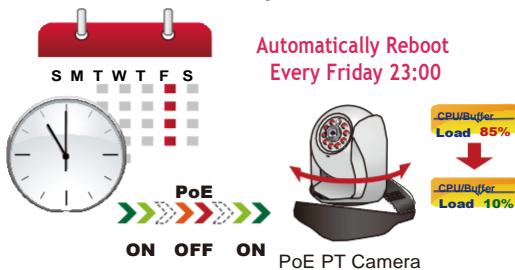
PoE Schedule for Energy Saving

Under the trend of energy saving worldwide and contributing to environmental protection, the switch series 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.
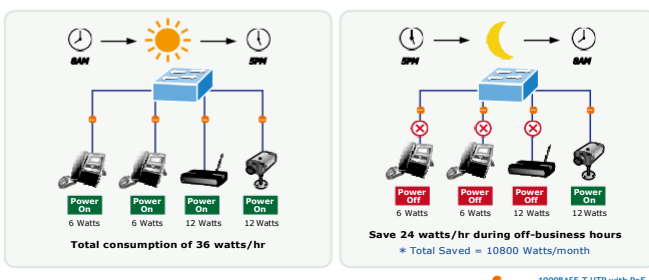
- 8K MAC address table size
- 10K jumbo frame
- Automatic address learning and address aging
- Supports CSMA/CD protocol

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)
  - Maximum 4 trunk groups, up to 4 ports per trunk group
- 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, and 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 co-operate with the RADIUS servers
  - DHCP Option 82
  - RADIUS/TACACS+ authentication

PoE Usage Monitoring and Intelligent LED Indicator for Real-time PoE Usage

Via the power usage chart in the web management interface, the switch series enables the administrator to monitor the status of the power usage of the connected PDs in real time. Thus, it greatly enhances the management efficiency of the facilities. Moreover, the switch series helps users to monitor the current status of PoE power usage easily and efficiently via its advanced LED indication. Called "**PoE Power Usage**", the front panel of the switch series has four LED indicators of different power usages.

PoE Power Usage Display

PoE Power Usage Display

Environmentally Hardened Design

With the IP30 aluminum industrial case, the switch series provides a high level of immunity against electromagnetic interference and heavy electrical surges which are usually found on plant floors or in curb-side traffic control cabinets without air conditioner. Being able to operate under the temperature range from -40 to 75 degrees C, the switch series can be placed in almost any difficult environment.

IPv6/IPv4 Dual Stack Management

Supporting both IPv6 and IPv4 protocols, the switch series helps the system integrators to step in the IPv6 era with the lowest investment as its network facilities need not be replaced or overhauled if the IPv6 network is set up.

- 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
  - Console and Telnet Command Line Interface
  - SNMP v1, v2c, and 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
  - Dual images
- 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

Robust Layer 2 Features

The switch series 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 IGS-4215 series 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.

L2/L4
Managed Switch

L2/L4
Managed Switch
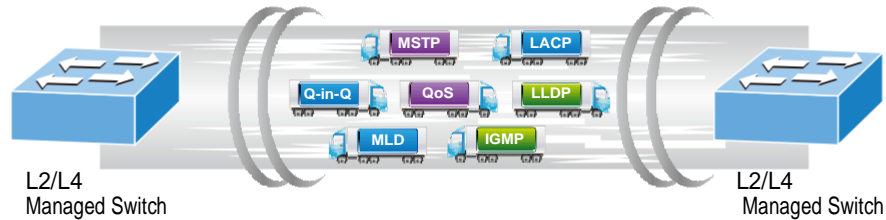
Efficient Traffic Control

The switch series are 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 switch series are equipped with **web**, **Telnet** and **SNMP** management interfaces. With the built-in web-based management interface, the switch series offer 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 switch series offer secure remote management by supporting **SSH**, **SSL** and **SNMP v3** connections which encrypt the packet content at each session.

Computer

SSL

SNMPv3

SSH

Advanced Network Security

This switch series offer 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 switch series also provide **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.

Friendly and Secure Management

The two mini-GBIC slots built in the switch 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 switch supports SFP-DDM (**Digital Diagnostic Monitor**) function that greatly helps network administrator to easily monitor real-time parameters of the SFP, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.


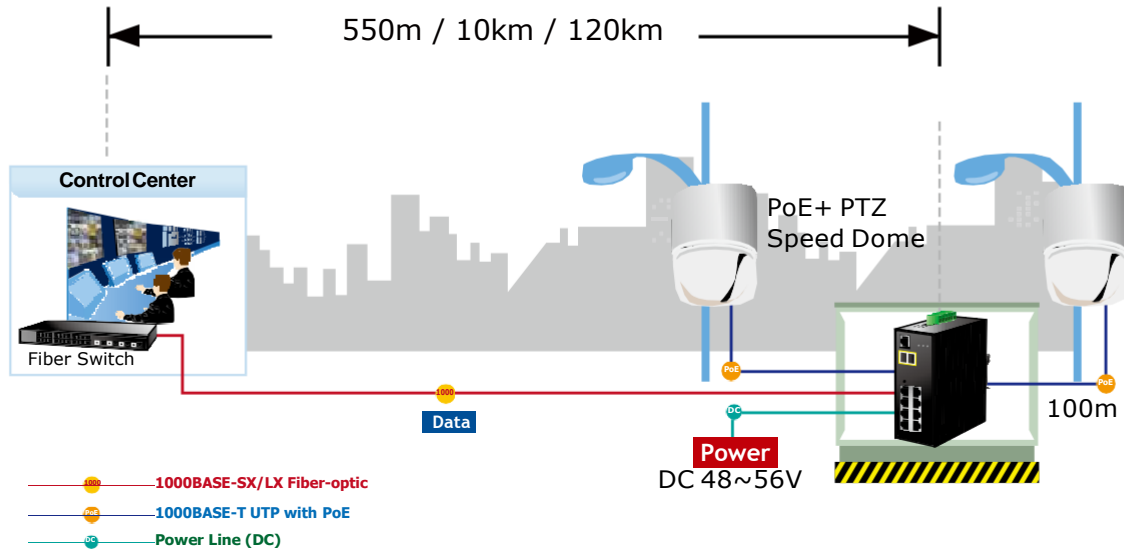
Digital Diagnostic Monitor (DDM)

Applications

Industrial-grade PoE Switch for Building Automation & Security

Suitable for buildings where security is strictly to be enforced, the switch series, with 4 PoE, in-line power interfaces, can easily build a power centrally controlled for an IP phone system, IP surveillance system, and wireless AP group in the harsh Industrial environment. For instance, 4 PoE IP cameras or PoE wireless APs can be easily installed for surveillance demands or a wireless roaming environment in the industrial area can be built. Without the power-socket limitation, the switch series makes the installation of IP cameras or wireless APs easier and more efficiently.
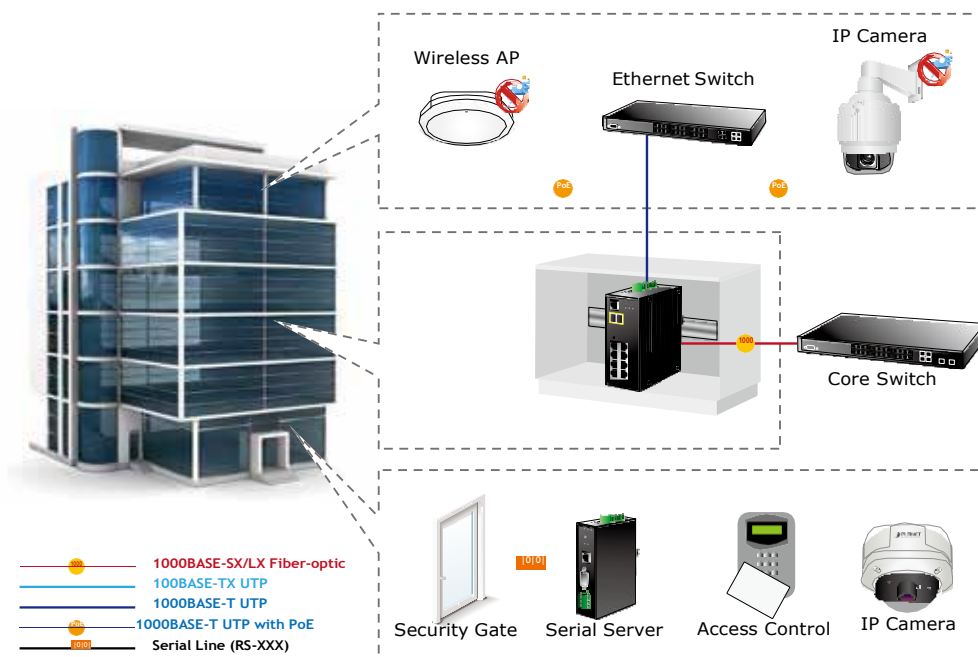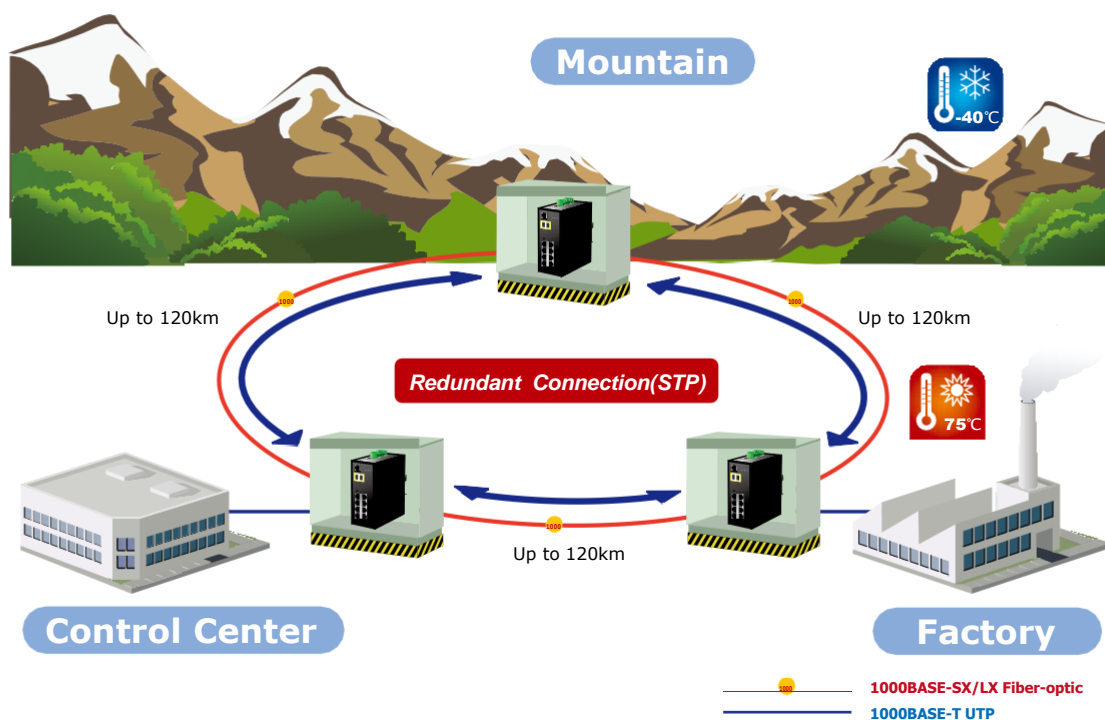
Perfect Integration Solution for IP PoE Camera and NVR System

The switch provides 4 10/100/1000Mbps 802.3at PoE ports which can offer sufficient PoE power to 4 PoE IP cameras at the same time. In addition, with the 2 100/1000BASE-X SFP interfaces, the switch can connect to a core fiber switch and send video streams to an NVR and monitoring center. Through the high-performance switch architecture, the switch facilitates the recorded video files from the 4 PoE IP cameras to be saved in the NVR systems. Furthermore, the NVR systems can be controlled and monitored both in the local LAN and the remote site via Internet. The switch undoubtedly brings an ideal secure surveillance system at a lower total cost.

550m / 10km / 120km

Control Center

PoE+ PTZ Speed Dome

Fiber Switch

Data

100m

Power
DC 48~56V

— **1000BASE-SX/LX Fiber-optic**
— **1000BASE-T UTP with PoE**
— **Power Line (DC)**

Multiple Spanning Tree Protocol with PoE Manageable Making Data Transmit Uninterrupted

The switch features strong rapid self-recovery capability to prevent interruptions and external intrusions. It **incorporates Multiple Spanning Tree Protocol (802.1s MSTP)** into customer's automation network to enhance system reliability and uptime. Applying the IEEE 802.3at Power over Ethernet standard, the switch can directly connect with any IEEE 802.3at end-nodes like PTZ (Pan, Tilt & Zoom) network cameras and speed dome cameras. The switch can easily help system integrators with the available network infrastructure to build wireless AP, IP camera and VoIP systems where power can be centrally-controlled.

Mountain

-40℃

Up to 120km

Up to 120km

Redundant Connection(STP)

75℃

Up to 120km

Control Center

Factory

— **1000BASE-SX/LX Fiber-optic**
— **1000BASE-T UTP**

Specifications

Product		
Hardware Specifications		
Copper Ports	8 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports	
SFP/mini-GBIC Slots	NA	2 1000BASE-SX/LX/BX SFP interfaces (Port-9 and Port-10) Compatible with 100BASE-FX SFP
PoE Injector Port	4 port with 802.3af/802.3at PoE injector function (Port-1 to Port-4)	
Console	1 x RS232-to-RJ45 serial port (115200,8, N, 1)	
Switch Architecture	Store-and-Forward	
Switch Fabric	16Gbps/non-blocking	20Gbps/non-blocking
Switch Throughput@64 bytes	11.9Mpps @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	10 Kbytes	
Reset Button	< 5 sec: System reboot > 5 sec: Factory default	
LED	3 x LED for System and Power: ■ Green: DC Power 1 ■ Green: DC Power 2 ■ Green: Power Fault 2 x LED for PoE Copper Port (Port-1~Port-4): ■ Green: LNK/ACT ■ Orange: PoE -in-use 2 x LED for 10/100/1000T Copper Port (Port-5~Port-8): ■ Green: LNK/ACT ■ Orange: 1000Mbps 2 x LED for per mini-GBIC interface (Port-9 and Port-10)(IGS-4215-4P4T2S) ■ Green: LNK/ACT ■ Orange: 1000Mbps 4 x LED for PoE Power Usage (W) ■ Orange: 30, 60, 90 and 120W	
Connector	Removable 6-pin terminal block Pin 1/2 for Power 1; Pin 3/4 for fault alarm; Pin 5/6 for Power 2	
Alarm	One relay output for power failure. Alarm relay current carry ability: 1A @ 24V AC	
Power Requirements	48~56V DC, 3.5A (max.)	
Power Consumption/ Dissipation	5.04 watts, 17.1BTU (Standby without PoE function) 7.28 watts, 23 BTU (Full loading without PoE function) 151.28 watts, 516.1 BTU (Full loading with PoE function)	5.04 watts, 17.1BTU (Standby without PoE function) 8.96 watts, 30.5 BTU (Full loading without PoE function) 152.96 watts, 521.8 BTU (Full loading with PoE function)
Dimensions (W x D x H)	161 x 107 x 72 mm	
Weight	1001g	1004g
ESD Protection	6KV DC	
Enclosure	IP30 aluminum case	
Installation	DIN-rail kit and wall-mount ear	
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	144 watts (depending on power input)	
Max. Number of Class 2 PDs	4	
Max. Number of Class 3 PDs	4	
Max. Number of Class 4 PDs	4	

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 4 groups with 4 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 snooping v2, v3 IGMP querier Up to 256 multicast groups
MLD Snooping	IPv6 MLD snooping v2, v3, 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

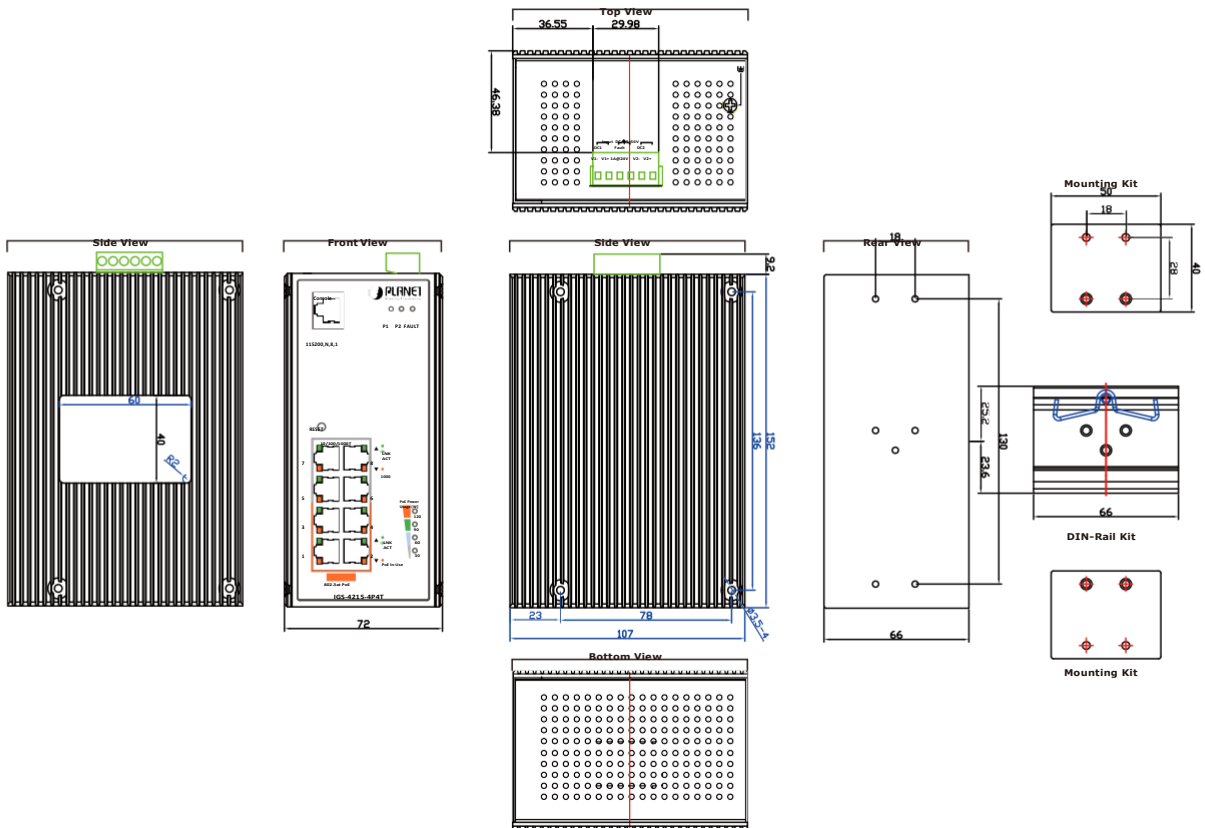|	
Basic Management Interfaces	Web browser; Console; Telnet; SNMP v1, v2c, v3 Firmware upgrade by HTTP/TFTP protocol through Ethernet network Configuration upload/download through HTTP/TFTP Remote/local syslog System log LLDP protocol SNTP PLANET Smart Discovery Utility
Secure Management Interfaces	SSH, 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 v2 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)

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| Standards Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX/100BASE-FX IEEE 802.3z Gigabit SX/LX (IGS-4215-4P4T2S) 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)

Drawing

■ Dimensions (W x D x H) : 161 x 101 x 72mm

Dimensions (unit = mm)

Drawing

■ Dimensions (W x D x H) : 161 x 101 x 72mm
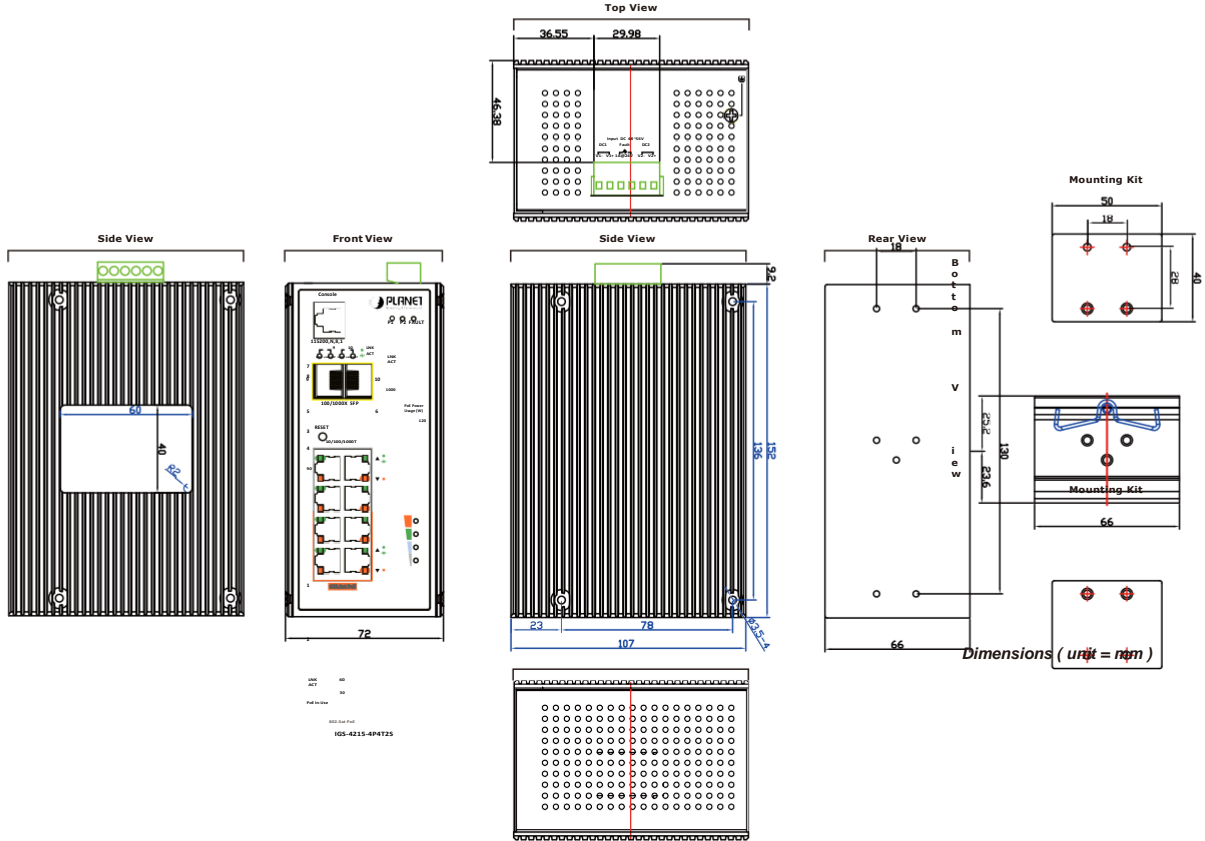
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