

# Industrial L2+ 8/16/24-Port 10/100/1000T + 4-Port 10G SFP+ Managed Ethernet Switch



### Budget-friendly Industrial L2+ Switch with PoE Capability

Engineered to excel in demanding industrial settings, the **IGS-4215 series** stands out as PLANET's latest DIN-rail Layer 2+ Managed Gigabit switches, combining performance with affordability. The series, now including the **IGS-4215-8T4X**, **IGS-4215-16T4X**, **IGS-4215-16P4X**, **IGS-4215-24T4X**, and **IGS-4215-8UP4X**, provides robust network management with IPv6/IPv4 dual-stack support and an integrated L2/L4 Gigabit switching engine.

The models feature **8, 16, or 24 10/100/1000BASE-T ports** and **4 10GBASE-X SFP+ fiber slots**, ensuring dependable operation across a wide temperature range of **-40 to 75°C**. In comparison, the **IGS-4215-16P4X** is a PoE+ solution, featuring **16 IEEE 802.3at PoE+ ports**, a **360-watt power budget**, and a rugged **IP30 aluminum casing**, while the **IGS-4215-8UP4X** is a robust PoE++ switch with **8 IEEE 802.3bt PoE++ ports**, a **360-watt power budget**, and support for up to **95W per port**.

All switches include a USB Type-C console port for seamless management, ensuring durability and reliability in challenging industrial environments.

### Cybersecurity Network Solution to Minimize Security Risks

The IGS-4215 Series supports SSHv2 and TLSv1.3 protocols to provide strong protection against advanced threats. It includes a range of cybersecurity features such as **DHCP Snooping**, **IP Source Guard**, **Dynamic ARP Inspection Protection**, **RADIUS** and **TACACS+** user accounts management, **SNMPv3** authentication, and so on to complement it as an all-security solution.



### Physical Port

- **8/16/24 10/100/1000BASE-T** Gigabit Ethernet RJ45 ports
- **PoE Functionality:**
  - 16 ports with IEEE 802.3at PoE+ injector function (IGS-4215-16P4X)
  - 8 ports with IEEE 802.3bt PoE++ injector function (IGS-4215-8UP4X)
- **4 10GBASE-SR/LR SFP+ slots**, backward compatible with **100M/1G/2.5GBASE-X SFP**
- One **USB Type C** console interface for basic management and setup

### Power over Ethernet (PoE functionality is exclusive for the IGS-4215-8UP4X & IGS-4215-16P4X.)

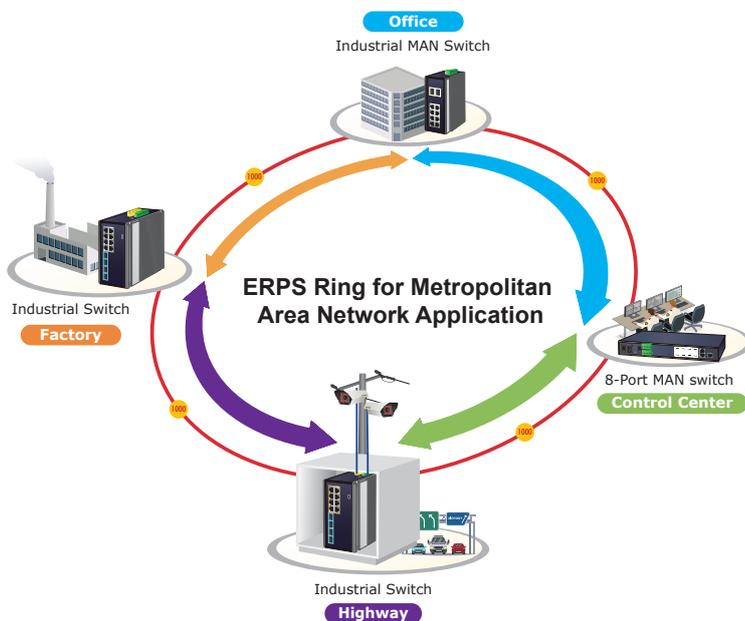
- Compliance with IEEE 802.3bt Type-4 PoE++ standard and backward compatible with IEEE 802.3af/at Power over Ethernet (exclusive to IGS-4215-8UP4X)
- Powers up to 8 ports of IEEE 802.3bt PoE++ devices (exclusive to IGS-4215-8UP4X)
- Powers up to 16 ports of IEEE 802.3at PoE+ devices (exclusive to IGS-4215-16P4X)
- PoE budget (Both IGS-4215-8UP4X & IGS-4215-16P4X)
  - Dual power input: 360W
  - Single power input: 240W
- Supports PoE power up to 95 watts for each PoE port (IGS-4215-8UP4X)
- Supports PoE power up to 36 watts for each PoE+ port (IGS-4215-16P4X)
- Auto detects powered devices (PDs)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100 meters in standard mode and 250m in extended mode
  - IGS-4215-8UP4X: 40W
  - IGS-4215-16P4X: 15W
- 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
- Intelligent PoE features
  - Temperature threshold control
  - PoE extension

**Modbus TCP Provides Flexible Network Connectivity for Factory Automation**

The IGS-4215 series supports the **Modbus TCP** protocol, allowing for easy integration with **SCADA** systems, **HMI** systems, and other data acquisition systems in factory floors. This enables administrators to remotely monitor the industrial Ethernet switch's **operating information**, **port information**, communication status, and DI/DO status, thereby enhancing monitoring and maintenance of the entire factory.

**Redundant Ring, Fast Recovery for Critical Network Applications**

The IGS-4215 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 (802.1s MSTP) into customer's network to enhance system reliability and uptime in various environments.



**High Power and High-speed Data Delivered over 4-pair UTP Cabling**

The IGS-4215-8UP4X meets the standards of IEEE 802.bt PoE++ technology and has a total power capacity of 360 watts. This allows it to supply up to 95 watts of power to each remote PoE-compliant powered device (PD) using all four pairs of standard Cat5e/6 Ethernet cabling, ensuring high power and high-speed data transmission. Compared to the conventional 802.3at PoE+, it offers triple power capacity, making it the perfect solution for higher power consuming PDs, including:

- 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

- PD alive check
- PoE schedule

**Industrial Case and Installation**

- IP30 aluminum case
- DIN-rail and wall-mount designs
- **IGS-4215-8UP4X/IGS-4215-16P4X**: 48~54V DC (redundant power with reverse polarity protection)
- **IGS-4215-8T4X/IGS-4215-16T4X/IGS-4215-24T4X**: 9~48V DC (redundant power with reverse polarity protection) or 24V AC input
- Supports 6KVDC Ethernet ESD protection
- -40 to 75 °C operating temperature

**Digital Input and Digital Output**

- 2 digital input (DI)
- 2 digital output (DO)
- Integrate sensors into auto alarm system
- Transfer alarm to IP network via SNMP trap

**Switching**

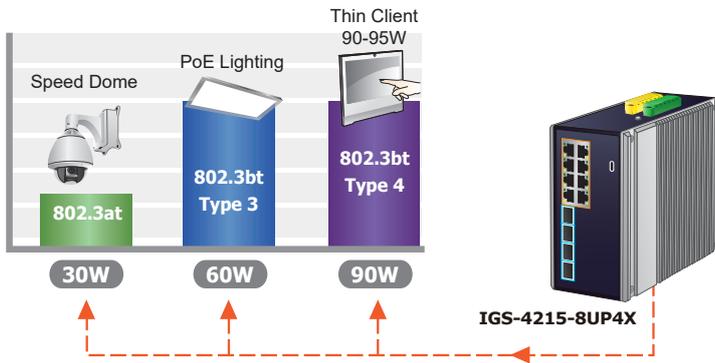
- Hardware-based 10/100Mbps (half/full duplex), 1000Mbps (full duplex), auto-negotiation and auto MDI/MDI-X
- IEEE 802.3x flow control for full duplex operation and back pressure for half duplex operation
- 32K MAC address table size
- 12K jumbo frame
- Automatic address learning and address aging

**Layer 3 IP Routing Features**

- Supports maximum 32 static routes and route summarization
- Routing interface provides per VLAN routing mode

**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 8 trunk groups, up to 8 ports per trunk group



**Reliable Power and High-speed Data with IEEE 802.3at PoE+ Support**

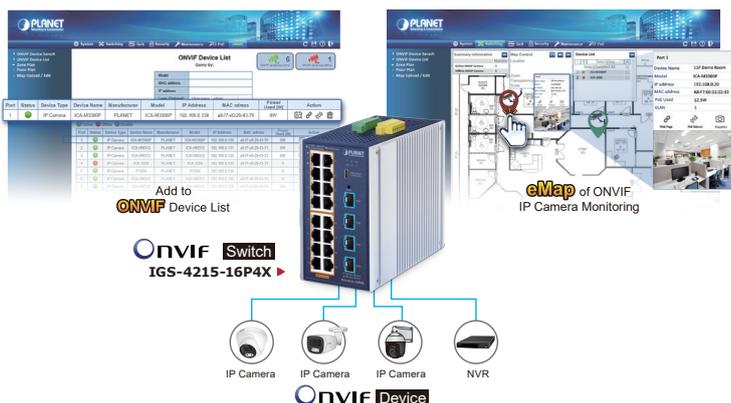
The IGS-4215-16P4X is designed to meet the needs of networks with **smaller to medium PoE power demands**, complying with the IEEE 802.3at PoE+ standard. It delivers a total power capacity of **360 watts** across its **16 PoE+ ports**, with each port supporting up to **36 watts** of power. This makes it ideal for powering a range of **medium-power PoE-compliant devices (PDs)** over standard Cat5e/6 Ethernet cabling.

Compared to its PoE++ counterpart, the IGS-4215-8UP4X, which supports devices with higher power consumption, the IGS-4215-16P4X is better suited for applications with multiple devices that require moderate power. It's an excellent choice for:

- PoE IP cameras
- Wireless access points (APs)
- IP phones and VoIP systems
- Digital signage displays
- Industrial IoT devices

**ONVIF Support Allows Effective and Centralized Control Over IP-based Security Products**

The IGS-4215 series switch offers ONVIF support as part of its versatile feature set for seamless integration with IP surveillance cameras. Through the switch's web GUI, users can easily search for and display all ONVIF-compliant devices on their LAN. Users can also upload floor plans to the switch and place IP surveillance cameras on the plan for more intuitive planning and faster inspection in the future. Additionally, the web GUI provides real-time surveillance information, online/offline status, and the ability to remotely reboot cameras.



- 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/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 / Multicast / Unknown Unicast
- 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

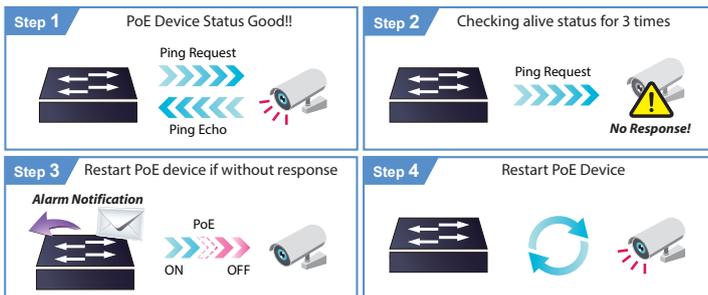
**Management**

- IPv4 and IPv6 dual stack management
- Switch Management Interface
  - Web switch management
  - Console/Telnet Command Line Interface
  - SNMP v1 and v2c switch management
  - SSHv2, TLSv1.3 and SNMP v3 secure access

**Intelligent Powered Device Alive Check**

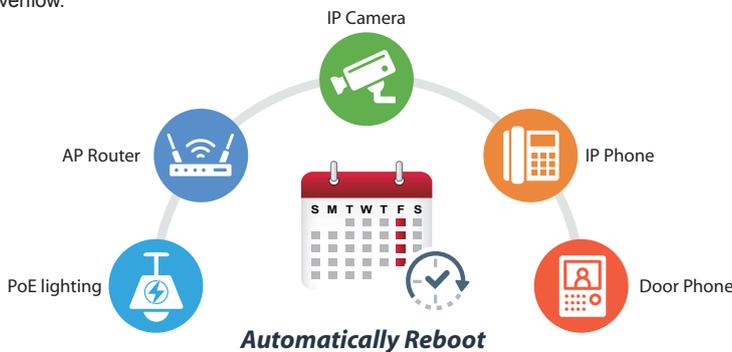
The IGS-4215-8UP4X/IGS-4215-16P4X can be configured to monitor connected PD (powered device) status in real time via ping action. Once the PD stops working and responding, the IGS-4215-8UP4X/IGS-4215-16P4X will resume the PoE port power and bring the PD back to work. It will greatly enhance the network reliability through the PoE port resetting the PD's power source and reducing the administrator's management burden.

**PD Alive Check**



**Scheduled Power Recycling**

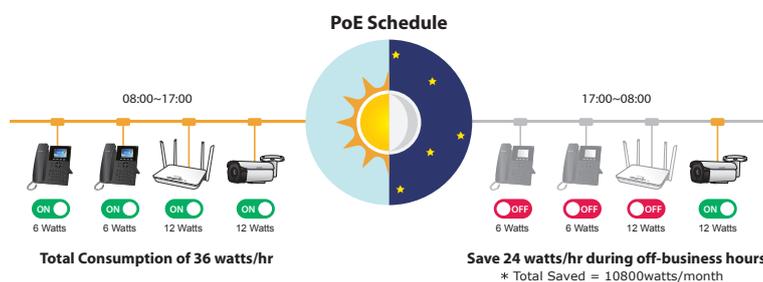
The IGS-4215-8UP4X and IGS-4215-16P4X allow each of the connected PoE IP cameras or PoE wireless access points to reboot at a specified time each week. Therefore, it will reduce the chance of IP camera or AP crash resulting from buffer overflow.



**Automatically Reboot**

**PoE Schedule for Energy Savings**

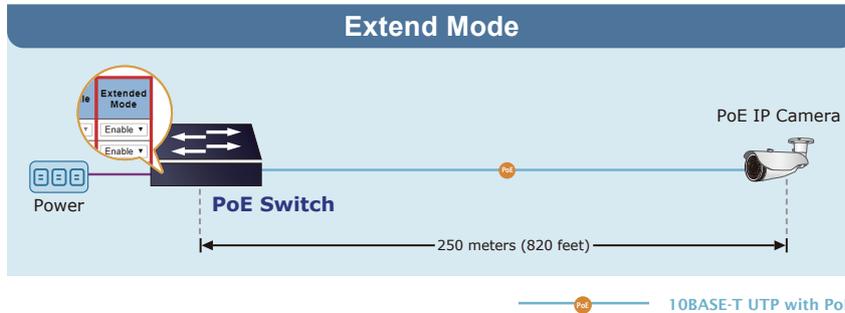
Under the global trend of energy savings and contributing to environmental protection, the IGS-4215-8UP4X and IGS-4215-16P4X can effectively control the power supply besides its capability of giving high watts power. The "PoE schedule" function helps you enable or disable PoE power feeding for each PoE port during specified time intervals, which 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.



- SNMP Management
  - SNMP trap for interface Link Up and Link Down notification
  - Four RMON groups (history, statistics, alarms and events)
- 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
  - Dual images
  - Hardware reset button for system reboot or reset to factory default
- SNTTP Network Time Protocol
- Network Diagnostic
  - Cable diagnostics
  - ICMPv6/ICMPv4 Remote Ping
  - SFP-DDM (Digital Diagnostic Monitor)
- Link Layer Discovery Protocol (LLDP) Protocol and LLDP-MED
- Event message logging to remote syslog server
- PLANET Smart Discovery Utility for deployment management
- PLANET NMS system, NMSViewerPro, and CloudViewer/CloudViewerPro for deployment management

**802.3bt PoE++ Power and Ethernet Data Transmission Distance Extension**

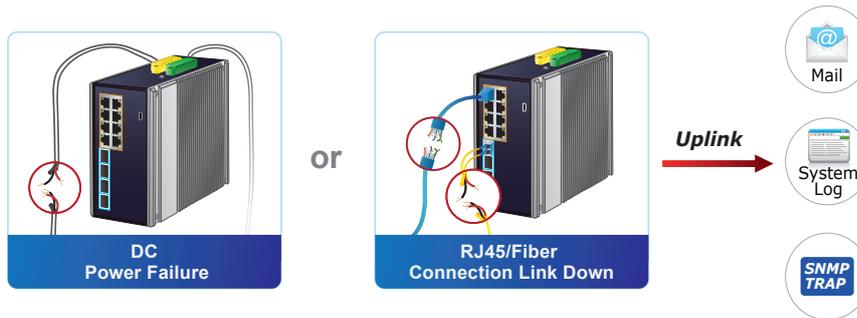
In the "Extend" operation mode, the IGS-4215-8UP4X functions on a per-port basis with a 10Mbps duplex operation. Remarkably, it can deliver a 40-watt PoE power output over a distance of up to 250 meters, surpassing the standard 100m limit on Ethernet UTP cables. Thus, PoE power can be supplied over a long distance without the need of additional Ethernet cabling and electrical outlets, resulting in cost savings.



**Effective Alarm Alert for Better Protection**

The IGS-4215 Series incorporates a Fault Alarm feature that promptly notifies users of any issues with the switches. This valuable feature eliminates the need for users to spend time locating the problem, resulting in significant time and human resource savings.

**Fault Alarm Feature**



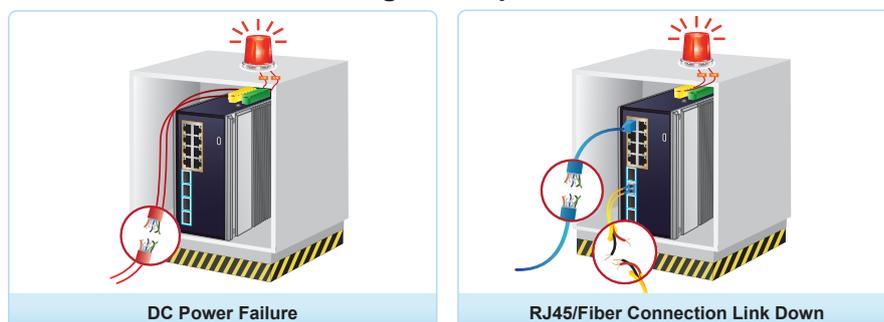
**Digital Input and Digital Output for External Alarm**

The IGS-4215 Series supports Digital Input and Digital Output through a terminal block located on its upper panel. This external alarm enables users to use Digital Input to detect and log external device status (such as door intrusion detector), and send event alarm to the administrators. The Digital Output could be used to alarm the administrators if the IGS-4215 Series port shows "link down", "link up" or "power failure".

**Digital Input**



**Digital Output**



**Environmentally Hardened Design**

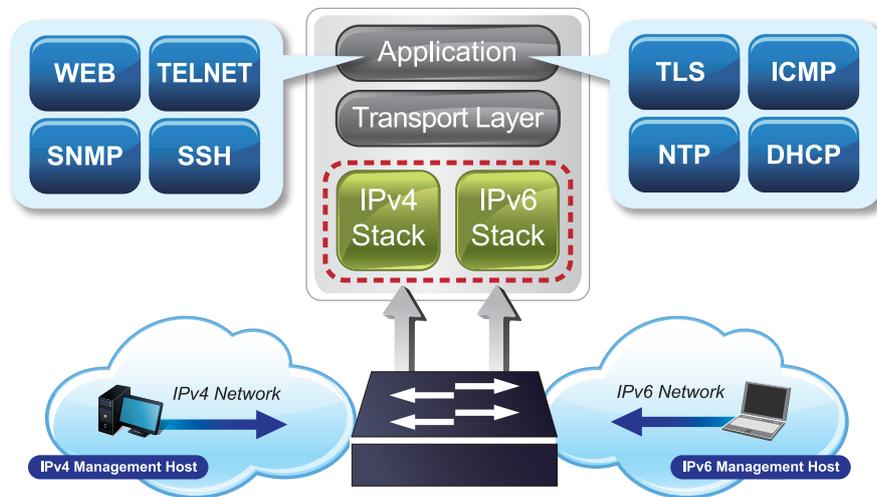
With the IP30 aluminum industrial case, the IGS-4215 Series provides a high level of immunity against electromagnetic interference and heavy electrical surges which are usually found on plant floors or in curb-side traffic control cabinets without air conditioner. Being able to operate under the temperature range from -40 to 75 °C, the IGS-4215 Series can be placed in almost any difficult environment.

**Robust Protection**

The IGS-4215 Series provides contact discharge of ±6KV DC and air discharge of ±8KV DC for Ethernet ESD protection. It also supports ±4KV surge immunity to improve product stability and protects users' networks from devastating ESD attacks, making sure the flow of operation does not fluctuate.

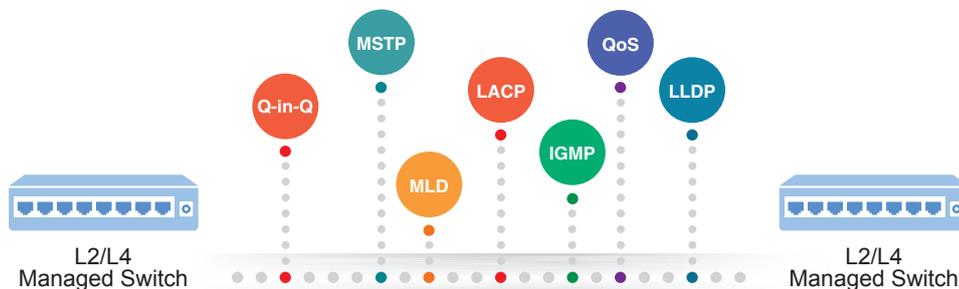
**Layer 3 IPv4 and IPv6 VLAN Routing for Secure and Flexible Management**

The IGS-4215 Series delivers high-performance transmission and advanced Layer 2 and Layer 4 functionalities, along with Layer 3 IPv4 and IPv6 static routing. This capability enables efficient routing between different VLANs and IP addresses, offering a secure, flexible, and straightforward networking solution for diverse applications.



**Robust Layer 2 Features**

The IGS-4215 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**. With dynamic port link aggregation, the switch enables the creation of a high-speed trunk. For instance, it can combine four 10G ports, creating a resilient 40Gbps connection with fail-over support. Additionally, the inclusion of **Link Layer Discovery Protocol (LLDP)** enhances Layer 2 functionality by providing essential information about neighboring devices within the local broadcast domain.



**Efficient Traffic Control**

The IGS-4215 Series 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.

### Enhancing Network Security

PLANET IGS-4215 Series offers comprehensive **IPv4/IPv6** Layer 2 to Layer 4 **Access Control List (ACL)** for enforcing security to the edge. It can be used to restrict network access by denying packets based on source and destination IP address, TCP/UDP ports or defined typical network applications. With the **protected port** function, communication between edge ports can be prevented to guarantee user privacy. Furthermore, **port security** function allows to limit the number of network devices on a given port. The network administrators can now construct highly-secure corporate networks with considerably less time and effort than before.

### Ensuring Network Integrity

The IGS-4215 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. Its accuracy, consistency, and reliability of data can be transmitted across a network. Moreover, it ensures that information remains unaltered during transmission and that the network itself is secure from unauthorized access or attacks.

### User-friendly and Secure Management

For efficient management, the IGS-4215 Series is equipped with Command line, Web and SNMP management interfaces.

- With the built-in **Web-based** management interface, the IGS-4215 series offers an easy-to-use, platform-independent management and configuration facility.
- For **text-based command line** management, it can be accessed via Telnet, SSH and the console port.
- By supporting the standard SNMP protocol, the switch can be managed via any SNMP-based management software.

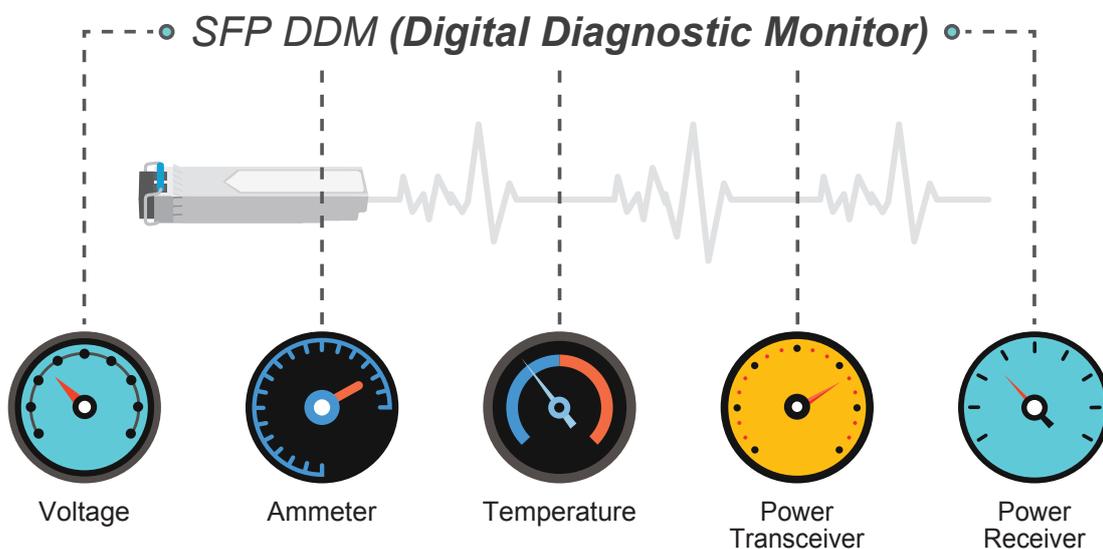
Moreover, the IGS-4215 Series offers secure remote management by supporting **SSHv2**, **TLSv1.3** and **SNMPv3** connections which encrypt the packet content at each session.

### Flexible Long-distance Extension Solution

The emergence of 10G Ethernet marks a significant advancement in Ethernet technology. The IGS-4215 Series is a powerful networking device that offers **four 10G SFP+ slots** capable of supporting three different speeds. These slots can operate at **10GBASE-SR/LR** or **100M/1G/2.5GBASE-SX/LX backwards**, providing administrators with flexibility in choosing the most suitable SFP/SFP+ transceiver based on the required transmission distance and speed. With ample bandwidth and robust processing capacity, the IGS-4215 Series provides an efficient solution for administrators seeking to enhance their network infrastructure.

### Intelligent SFP Diagnosis Mechanism

The IGS-4215 Series supports **SFP-DDM (Digital Diagnostic Monitor)** function that can easily monitor real-time parameters of the SFP for the network administrator, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.



*Remote Management Solution*

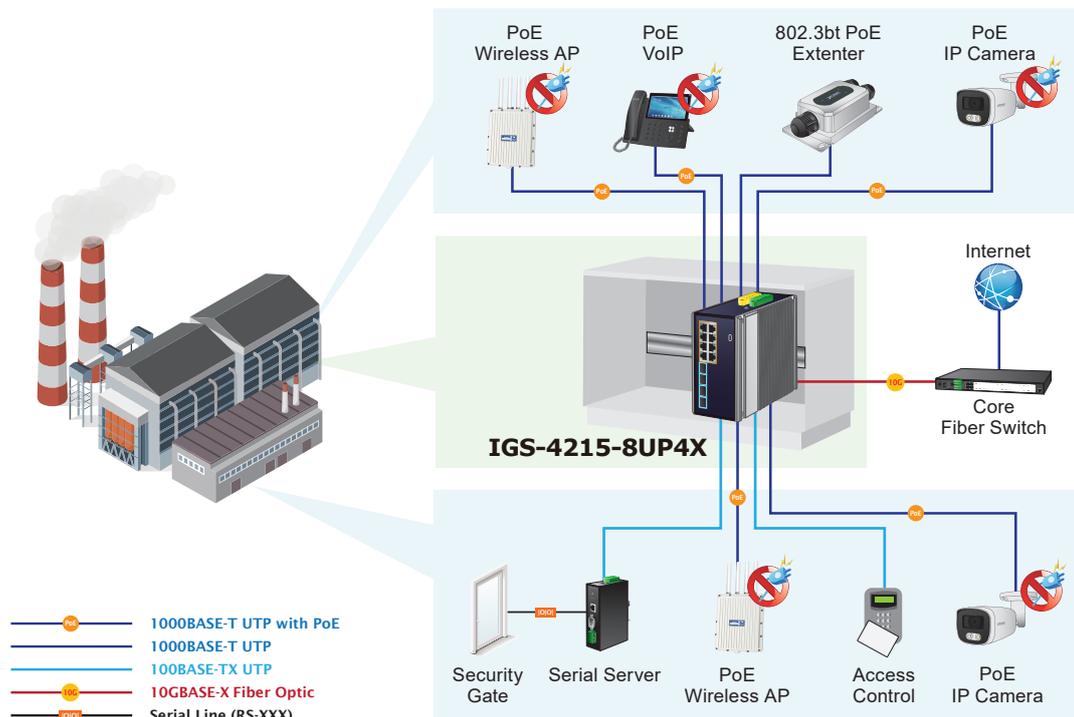
PLANET's Universal Network Management System (UNI-NMS) and CloudViewerPro app provide robust support for IT staff in effectively managing and monitoring all network devices, including the IGS-4215 series, from remote locations. Tailored for deployment in both enterprises and industries where the IGS-4215 series is utilized remotely, these systems enable the identification of bugs or faulty conditions without the need for on-site visits. With UNI-NMS or the CloudViewerPro app, businesses of all types can now be swiftly and efficiently managed through a unified platform, streamlining operational oversight.



**Applications**

*Industrial-grade PoE++ Switch for Building Automation and Security*

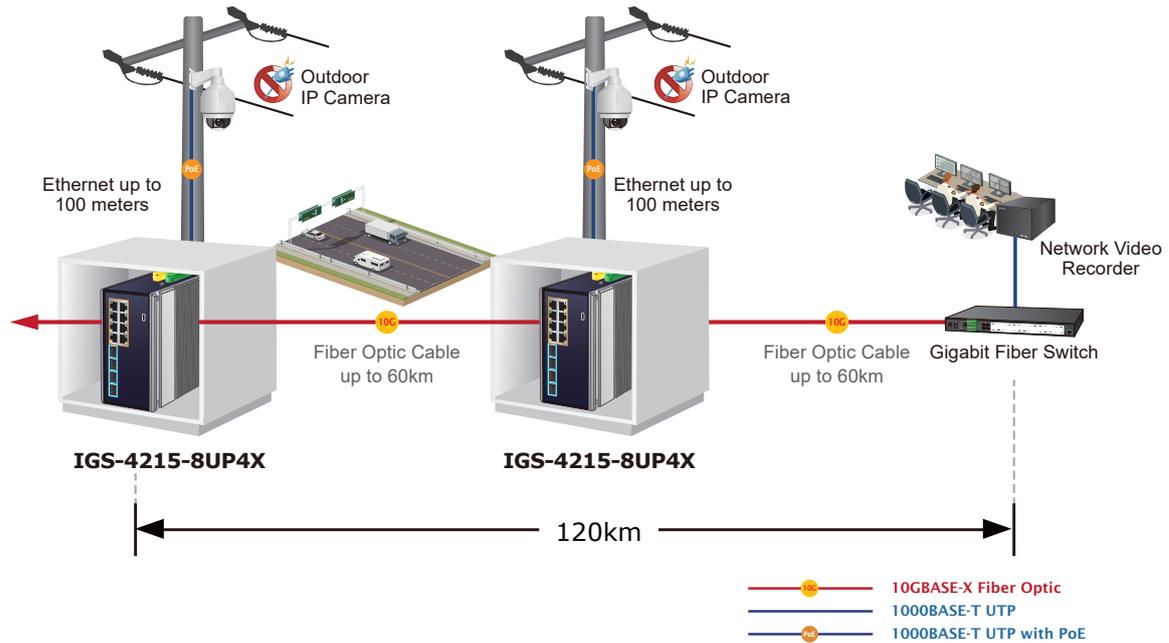
Suitable for buildings where security is strictly to be enforced, the IGS-4215-8UP4X, with eight 802.3bt PoE++, in-line power interfaces, can easily build a power centrally controlled for an IP phone system, IP surveillance system, and wireless AP group in the harsh Industrial environment. For instance, 8 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 IGS-4215-8UP4X makes the installation of IP cameras or wireless APs easier and more efficient.



*Perfect Integration Solution for IP PoE Camera and NVR System*

The IGS-4215-8UP4X provides 8 10/100/1000BASE-T 802.3bt PoE++ ports which can offer sufficient PoE power to 8 PoE IP cameras at the same time. In addition, with the four 10GBASE-X SFP interfaces, the IGS-4215-8UP4X can connect to a core fiber switch and send video streams to an NVR and monitoring center. Through the high-performance switch architecture, the IGS-4215-8UP4X facilitates the recorded video files from the 8 IP cameras to be saved in the NVR systems. Furthermore, the NVR systems can be controlled and monitored in both the local LAN and the remote site via Internet. The IGS-4215-8UP4X undoubtedly brings an ideal secure surveillance system at a lower total cost.

## Extending Ethernet Distance



## Specifications

Product	IGS-4215-8T4X	IGS-4215-16T4X	IGS-4215-24T4X
<b>Hardware Specifications</b>			
Copper Ports	8 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports (Ports 1 to 8)	16 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports (Ports 1 to 16)	24 10/100/1000BASE-T RJ45 auto-MDI/MDI-X (Ports 1 to 24)
SFP+ Ports	4 10GBASE-SR/LR SFP+ interfaces (Port XG1 to Port XG4) Backward compatible with 1G/2.5GBASE-SX/LX/BX SFP transceivers		
Console	1 x USB Type C to RS232 serial port (115200,8, N, 1)		
Reset Button	< 5 sec: System reboot > 5 sec: Factory default		
Connector	Removable 6-pin terminal block Pin 1/2 for Power 1; Pin 3/4 for fault alarm; Pin 5/6 for Power 2 Removable 6-pin terminal block for DI/DO interface Pin 1/2 for DI 1 & 2, Pin 3/4 for DO 1 & 2, Pin 5/6 for GND		
Alarm	One relay output for power failure. Alarm relay current carry ability: 1A @ 24V AC		
Digital input (DI)	2 digital input (DI): Level 0: -24V~2.1V (±0.1V) Level 1: 2.1V~24V (±0.1V) Input load to 24V DC, 10mA max.		
Digital output (DO)	2 digital output (DO): Open collector to 24V DC, 100mA max.		
Power Requirements	9~48V DC, 2A (max.) or 24V AC, 0.8A (max.)	9~48V DC, 2.5A (max.) or 24V AC, 2A (max.)	9~48V DC, 3A (max.) or 24V AC, 2A (max.)

Power Consumption/ Dissipation	DC (system on)	DC (system on)	DC (system on)
	Max. 5.57 watts / 19BTU	Max. 6.24 watts / 21.3BTU	Max. 7.2 watts / 24.55BTU
	DC (Full loading)	DC (Full loading)	DC (Full loading)
	Max. 11.6 watts / 39.6BTU	Max. 15.66 watts / 53.4BTU	Max. 20.25 watts / 69.09BTU
	AC (system on)	AC (system on)	AC (system on)
	Max. 4.7 watts / 16.04BTU	Max. 6 watts / 20.5BTU	Max. 6.4 watts / 21.84BTU
	AC (Full loading)	AC (Full loading)	AC (Full loading)
	Max. 10.6 watts / 36.2BTU	Max. 15 watts / 51.2BTU	Max. 18 watts / 61.42BTU
Dimensions (W x D x H)	76 x 135 x 152 mm		86 x 135 x 152 mm
Weight	1232g	1403g	1853g
Enclosure	IP30 aluminum case		
Installation	DIN-rail kit and wall-mount ear		
ESD Protection	Contact Discharge 6KV DC		
	Air Discharge 8KV DC		
LED	System:	System:	System:
	Power 1 (Green)	Power 1 (Green)	Power 1 (Green)
	Power 2 (Green)	Power 2 (Green)	Power 2 (Green)
	Alarm (Red)	Alarm (Red)	Alarm (Red)
	Ring (Green)	Ring (Green)	Ring (Green)
	R.O.(Green)	R.O.(Green)	R.O.(Green)
	I/O (Red)	I/O (Red)	I/O (Red)
	Per 10/100/1000T RJ45	Per 10/100/1000T RJ45	Per 10/100/1000T RJ45
	Up 1000 LNK/ACT (Green)	Up 1000 LNK/ACT (Green)	Up 1000 LNK/ACT (Green)
	Down 10/100 LNK/ACT (Amber)	Down 10/100 LNK/ACT (Amber)	Down 10/100 LNK/ACT (Amber)
<b>Switching Specification</b>			
Switch Architecture	Store-and-Forward		
Switch Fabric	96Gbps/non-blocking	112Gbps/non-blocking	128Gbps/non-blocking
Switch Throughput@64 bytes	71.43Mpps @64 bytes	83.3Mpps @64 bytes	95.23Mpps @64 bytes
MAC Address Table	32K entries		
Shared Data Buffer	12Mbits		
Flow Control	IEEE 802.3x pause frame for full duplex		
	Back pressure for half duplex		
Jumbo Frame	12 Kbytes		
<b>Layer 2 Functions</b>			
Port Mirroring	TX/RX/Both		
	Many-to-1 monitor		
	Up to 4 sessions		
VLAN	802.1Q tagged VLAN		
	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 8 groups with 8 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	
Ring	Supports ERPS, and complies with ITU-T G.8032	
	Recovery time < 450ms	
<b>Layer 3 Functions</b>		
IP Interfaces	Max. 64 VLAN interfaces	
Routing Table	Max. 32 routing entries	
Routing Protocols	IPv4/IPv6 hardware static routing	
<b>Security Functions</b>		
Access Control List	IPv4/IPv6 IP-based ACL/MAC-based ACL	
	IPv4/IPv6 IP-based ACE/MAC-based ACE	
	Max. 256 ACL entries	
Port Security	Built-in RADIUS client to co-operate with RADIUS server	
	RADIUS/TACACS+ user access authentication	
MAC Security	IP-MAC port binding	
	MAC filtering	
	Static MAC address, max. 256 static MAC entries	max. 512 static MAC entries
Enhanced Security	DHCP Snooping and DHCP Option82	
	STP BPDU guard, BPDU filtering and BPDU forwarding	
	DoS attack prevention	
	ARP inspection	
	IP source guard	
<b>Management Functions</b>		
Basic Management Interfaces	USB to RS232 Console	
	Web browser	
	Telnet	
	SNMP v1, v2c	
Secure Management Interfaces	SSHv2, TLSv1.3, SNMP v3	
System Management	Firmware upgrade by HTTP/TFTP protocol through Ethernet network	
	Configuration upload/download through HTTP/TFTP	
	LLDP protocol	
	SNTP	
	PLANET Smart Discovery Utility	
	PLANET NMS System/CloudViewer/CloudViewerPro	
Event Management	Remote/Local Syslog	
	System log	
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	
RFC 3621 Power Ethernet MIB (IGS-4215-8UP4X)		
<b>Standards Conformance</b>		
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 802.3ae 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 802.1ab LLDP
	RFC 768 UDP
	RFC 783 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	
ITU-T G.8032 ERPS Ring	
<b>Environment</b>	
Operating Temperature	-40 ~ 75 degrees C
Storage Temperature	-40 ~ 85 degrees C
Humidity	5 ~ 95% (non-condensing)

Product	IGS-4215-8UP4X	IGS-4215-16P4X
<b>Hardware Specifications</b>		
Copper Ports	8 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports (Ports 1 to 8)	16 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports (Ports 1 to 16)
PoE Injector Port	8 ports with 802.3bt PoE++ injector function (Ports 1 to 8)	16 ports with 802.3at PoE+ injector function (Ports 1 to 16)
SFP+ Ports	4 10GBASE-SR/LR SFP+ interfaces (Port XG1 to Port XG4) Backward compatible with 1G/2.5GBASE-SX/LX/BX SFP transceivers	
Console	1 x USB Type C to RS232 serial port (115200,8, N, 1)	
Reset Button	< 5 sec: System reboot > 5 sec: Factory default	
Connector	Removable 6-pin terminal block Pin 1/2 for Power 1; Pin 3/4 for fault alarm; Pin 5/6 for Power 2 Removable 6-pin terminal block for DI/DO interface Pin 1/2 for DI 1 & 2, Pin 3/4 for DO 1 & 2, Pin 5/6 for GND	
Alarm	One relay output for power failure. Alarm relay current carry ability: 1A @ 24V AC	
Digital input (DI)	2 digital input (DI): Level 0: -24V~2.1V (±0.1V) Level 1: 2.1V~24V (±0.1V) Input load to 24V DC, 10mA max.	
Digital output (DO)	2 digital output (DO): Open collector to 24V DC, 100mA max.	
Power Requirements	48~54V DC, 8A (max.)	48~54V DC, 9A (max.)
Power Consumption/ Dissipation	DC (system on)	
	Max. 10.2 watts / 34.8BTU	Max. 9.1 watts / 31.06BTU
	DC (Full loading)	DC (Full loading)
	Max. 398.6 watts/1,360.1BTU	Max. 402 watts/1,372.1BTU

Dimensions (W x D x H)	76 x 135 x 152 mm	86 x 135 x 152 mm	
Weight	1,403g	1,754g	
Enclosure	IP30 aluminum case		
Installation	DIN-rail kit and wall-mount ear		
ESD Protection	Contact Discharge 6KV DC		
	Air Discharge 8KV DC		
LED	System:		
	Power 1 (Green)		
	Power 2 (Green)		
	Alarm (Red)		
	Ring (Green)		
	R.O.(Green)		
	I/O (Red)		
	Per 10/100/1000T RJ45 PoE++ Port:		
	Up	1000 LNK/ACT (Green)	1000 LNK/ACT (Green)
		10/100 LNK/ACT (Amber)	
	Down	802.3bt (Green)	PoE-in-Use (Amber)
		802.3at (Amber)	
	PoE Usage: 90/180/270/360W (Amber)		-
Per 10G SFP Interface:		Per 10G SFP Interface:	
1G/2.5G LNK/ACT (Green)		1G/2.5G LNK/ACT (Green)	
100/10G LNK/ACT (Amber)		100/10G LNK/ACT (Amber)	

**Switching Specification**

Switch Architecture	Store-and-Forward	
Switch Fabric	96Gbps/non-blocking	112Gbps/non-blocking
Switch Throughput@64 bytes	71.43Mpps @64 bytes	83.33Mpps @64 bytes
MAC Address Table	32K entries	
Shared Data Buffer	12Mbits	
Flow Control	IEEE 802.3x pause frame for full duplex	
	Back pressure for half duplex	
Jumbo Frame	12 Kbytes	

**Power over Ethernet**

PoE Standard	IEEE 802.3bt PoE++ Type-4	IEEE 802.3at Power over Ethernet Plus/PSE
PoE Power Supply Type	End-span	End-span
	Mid-span	-
	BT	-
Power Pin Assignment	802.3bt/UPoE: 1/2(-), 3/6(+), 4/5(+), 7/8(-)	-
	802.3at PoE: End-span: 1/2(-), 3/6(+)	802.3at PoE: End-span: 1/2(-), 3/6(+)
	802.3at PoE: Mid-span: 4/5(+), 7/8(-)	-
PoE Power Output	Per port 48V ~ 54VDC	IEEE 802.3af Standard
	802.3bt Type-4 mode: maximum 95 watts	Per port 48V~51V DC, max. 15.4 watts
	802.3bt Type-3 mode: maximum 60 watts	IEEE 802.3at Standard
	End-span mode: maximum 36 watts	Per port 51V~54V DC, max. 36 watts
	Mid-span mode: maximum 36 watts	-
PoE Power Budget	Force mode: maximum 95 watts	-
	Single power input: 240W maximum (depending on power input)	
	Dual power input: 360W maximum (depending on power input)	
Max. Number of 90W 802.3bt Type 4 PDs	4	-
Max. Number of 60W 802.3bt Type 3 PDs	6	-
Max. Number of 30W 802.3at Type 2 PDs	8	12

**PoE Management Functions**

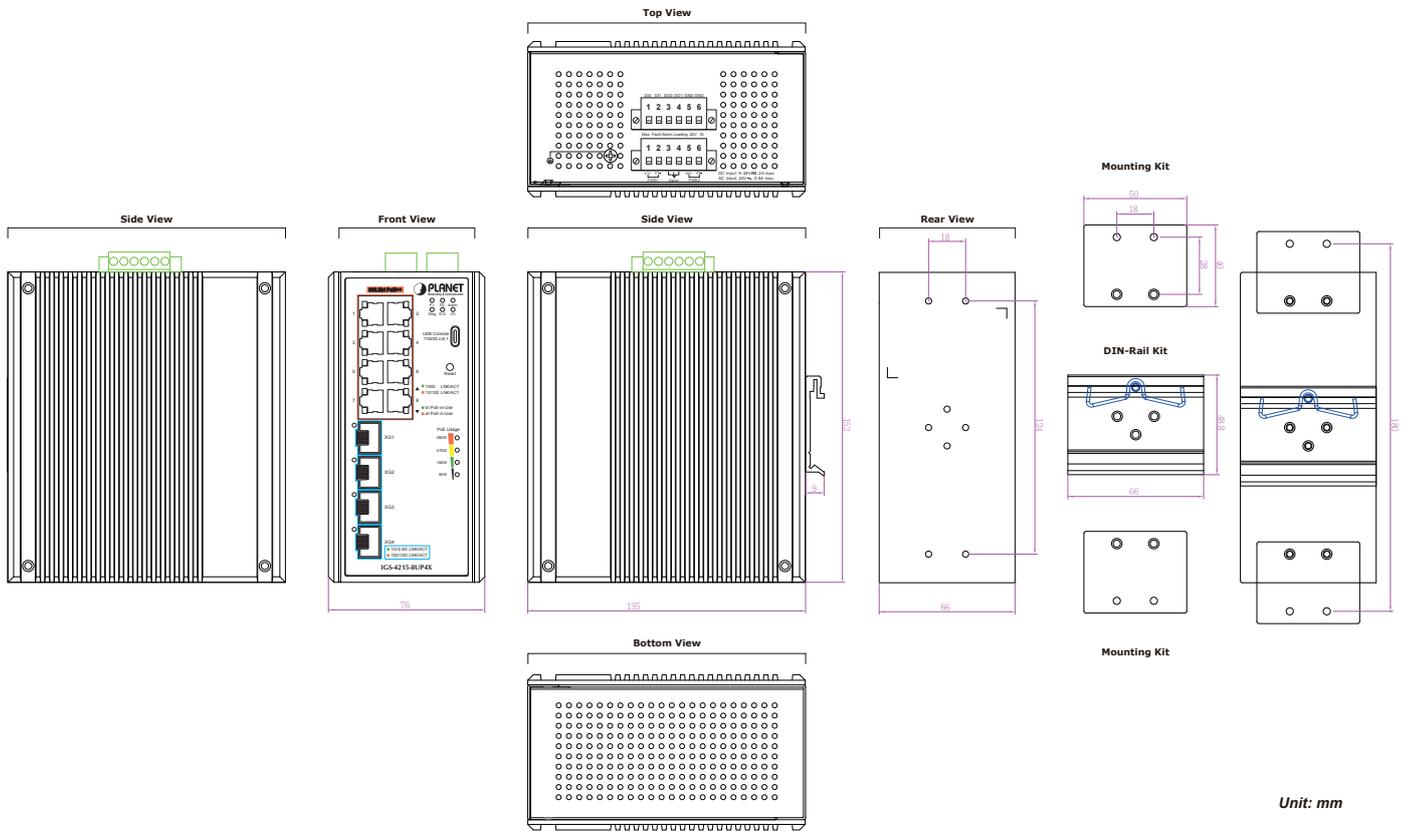
PoE Management	PD Alive Check
	Scheduled Power Recycling
	PoE Schedule
	PoE Usage Monitoring
	PoE Extension
Enhanced PoE Mode	Standard/Legacy/Force
Active PoE Device Live Detection	Yes
PoE Power Recycling	Yes, daily or predefined schedule
PoE Schedule	4 schedule profiles
PoE Extend Mode	Yes, max. up to 250 meters

Layer 2 Functions		
Port Mirroring	TX/RX/Both	
	Many-to-1 monitor	
	Up to 4 sessions	
VLAN	802.1Q tagged VLAN	
	802.1ad Q-in-Q tunneling (VLAN stacking)	
	Voice VLAN	
	Protocol VLAN	
	Private VLAN (Protected port)	
	GVRP	
	Management VLAN	
Link Aggregation	Up to 256 VLAN groups, out of 4094 VLAN IDs	
	IEEE 802.3ad LACP and static trunk	
Spanning Tree Protocol	Supports 8 groups with 8 ports per trunk	
	IEEE 802.1D Spanning Tree Protocol (STP)	
	IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)	
	IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)	
IGMP Snooping	STP BPDU Guard, BPDU Filtering and BPDU Forwarding	
	IPv4 IGMP snooping v2, v3	
	IGMP Querier	
MLD Snooping	Up to 256 multicast groups	
	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	
Ring	Ingress/Egress Rate Limit per port bandwidth control	
	Supports ERPS, and complies with ITU-T G.8032	
	Recovery time < 450ms	
Layer 3 Functions		
IP Interfaces	Max. 64 VLAN interfaces	
Routing Table	Max. 32 routing entries	
Routing Protocols	IPv4/IPv6 hardware static routing	
Security Functions		
Access Control List	IPv4/IPv6 IP-based ACL/MAC-based ACL	
	IPv4/IPv6 IP-based ACE/MAC-based ACE	
	Max. 256 ACL entries	
Port Security	Built-in RADIUS client to co-operate with RADIUS server	
	RADIUS/TACACS+ user access authentication	
MAC Security	IP-MAC port binding	
	MAC filtering	
	Static MAC address, max. 256 static MAC entries	
Enhanced Security	DHCP Snooping and DHCP Option82	
	STP BPDU guard, BPDU filtering and BPDU forwarding	
	DoS attack prevention	
	ARP inspection	
Management Functions	IP source guard	
	Basic Management Interfaces	USB to RS232 Console
		Web browser
		Telnet
	Secure Management Interfaces	SNMP v1, v2c
SSHv2, TLSv1.3, SNMP v3		
System Management	Firmware upgrade by HTTP/TFTP protocol through Ethernet network	
	Configuration upload/download through HTTP/TFTP	
	LLDP protocol	
	SNTP	
	PLANET Smart Discovery Utility	
PLANET NMS System/CloudViewer/CloudViewerPro		

Event Management	Remote/Local Syslog	
	System log	
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	
	RFC 3621 Power Ethernet MIB (IGS-4215-8UP4X)	
	Standards Conformance	
<b>Standards Conformance</b>		
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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	IEEE 802.3z Gigabit SX/LX	
	IEEE 802.3ab Gigabit 1000BASE-T	
	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 802.1ab LLDP	
	IEEE 802.3af Power over Ethernet	IEEE 802.3af Power over Ethernet
	IEEE 802.3at Power over Ethernet Plus	IEEE 802.3at Power over Ethernet Plus
	IEEE 802.3bt Power over Ethernet Plus Plus	
	IEEE 802.3az for Energy-Efficient Ethernet	
	RFC 768 UDP	
	RFC 783 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		
ITU-T G.8032 ERPS Ring		
<b>Environment</b>		
Operating Temperature	-40 ~ 75 degrees C	
Storage Temperature	-40 ~ 85 degrees C	
Humidity	5 ~ 95% (non-condensing)	

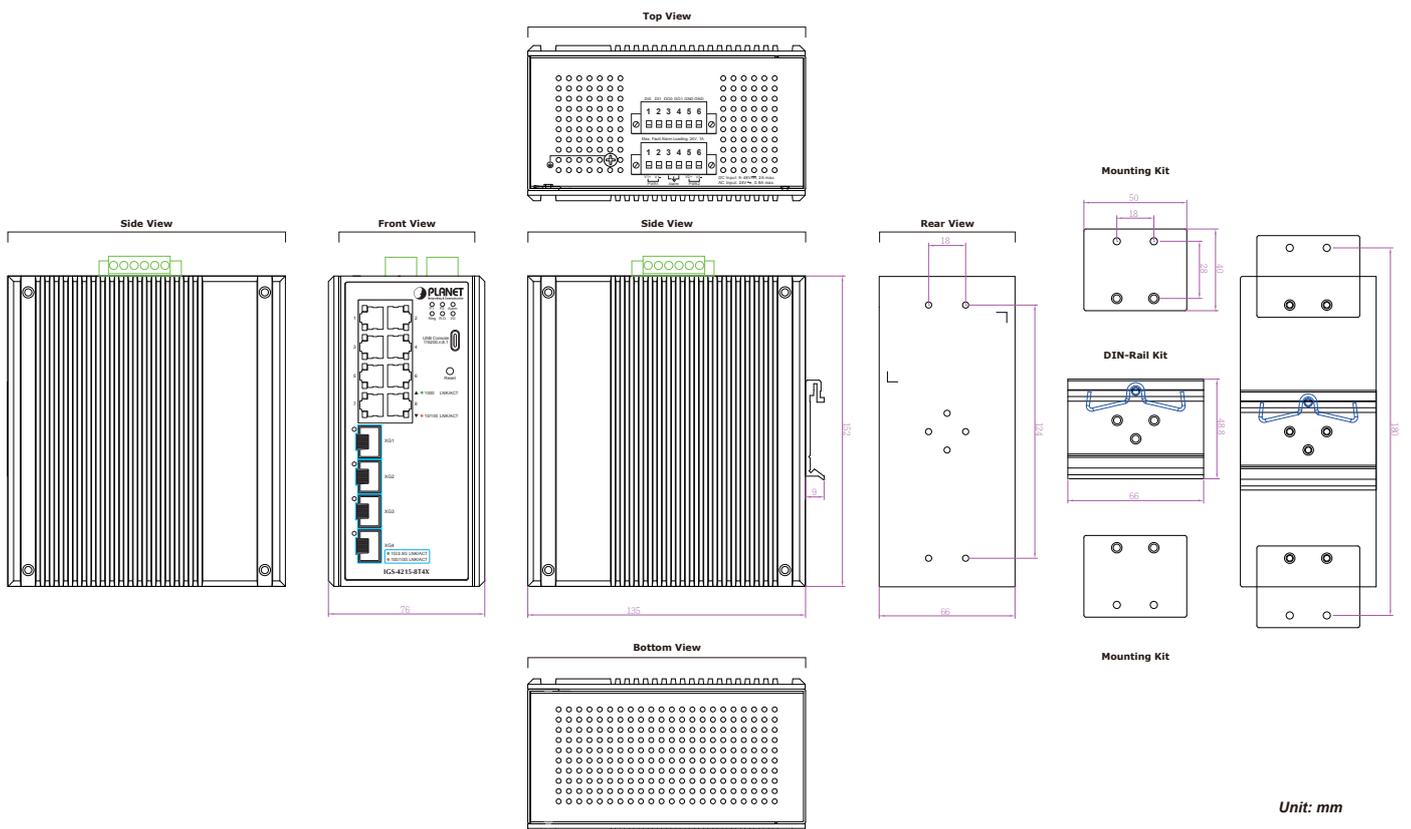
## Dimensions

### ■ IGS-4215-8UP4X



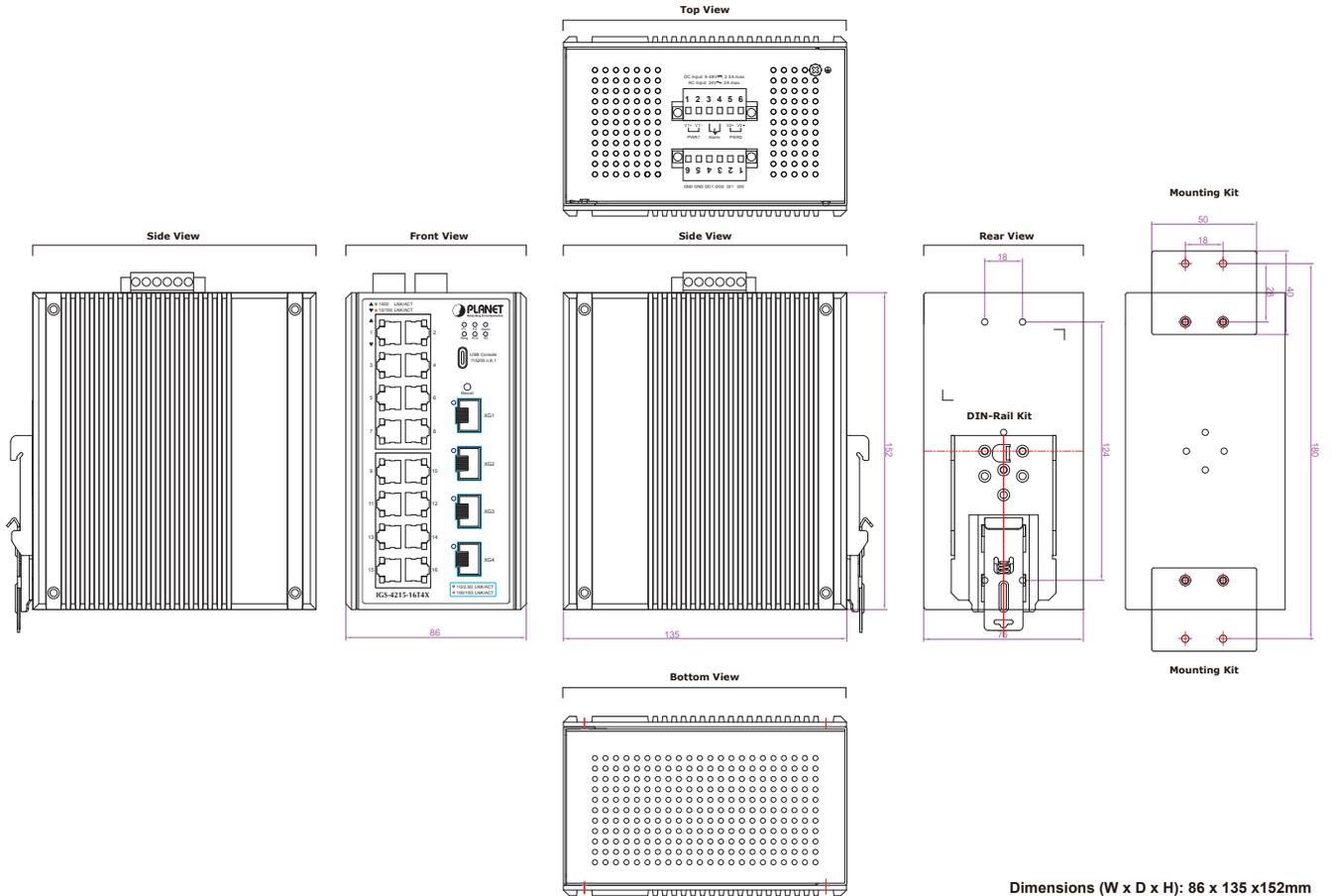
Unit: mm

### ■ IGS-4215-8T4X



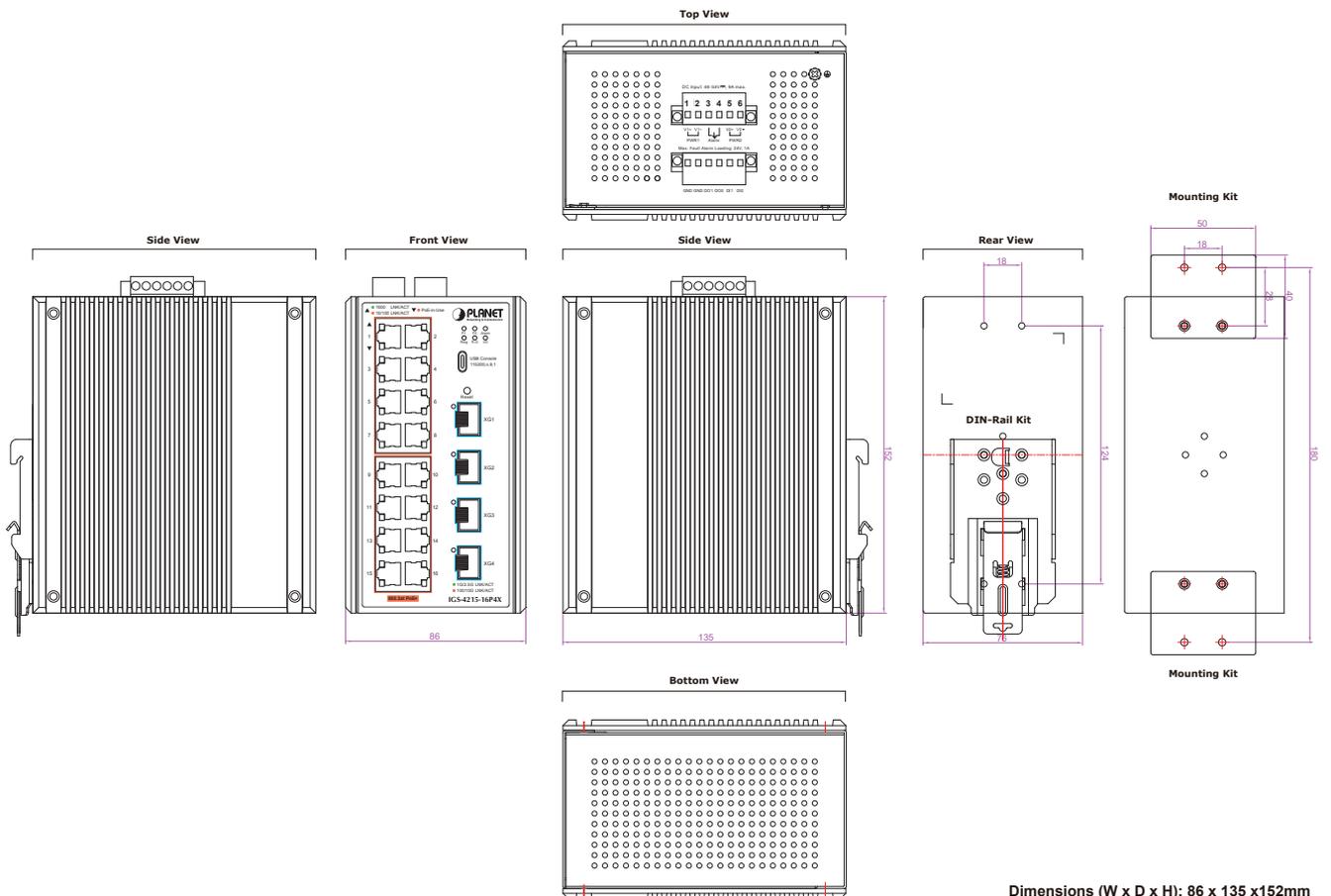
Unit: mm

■ IGS-4215-16T4X



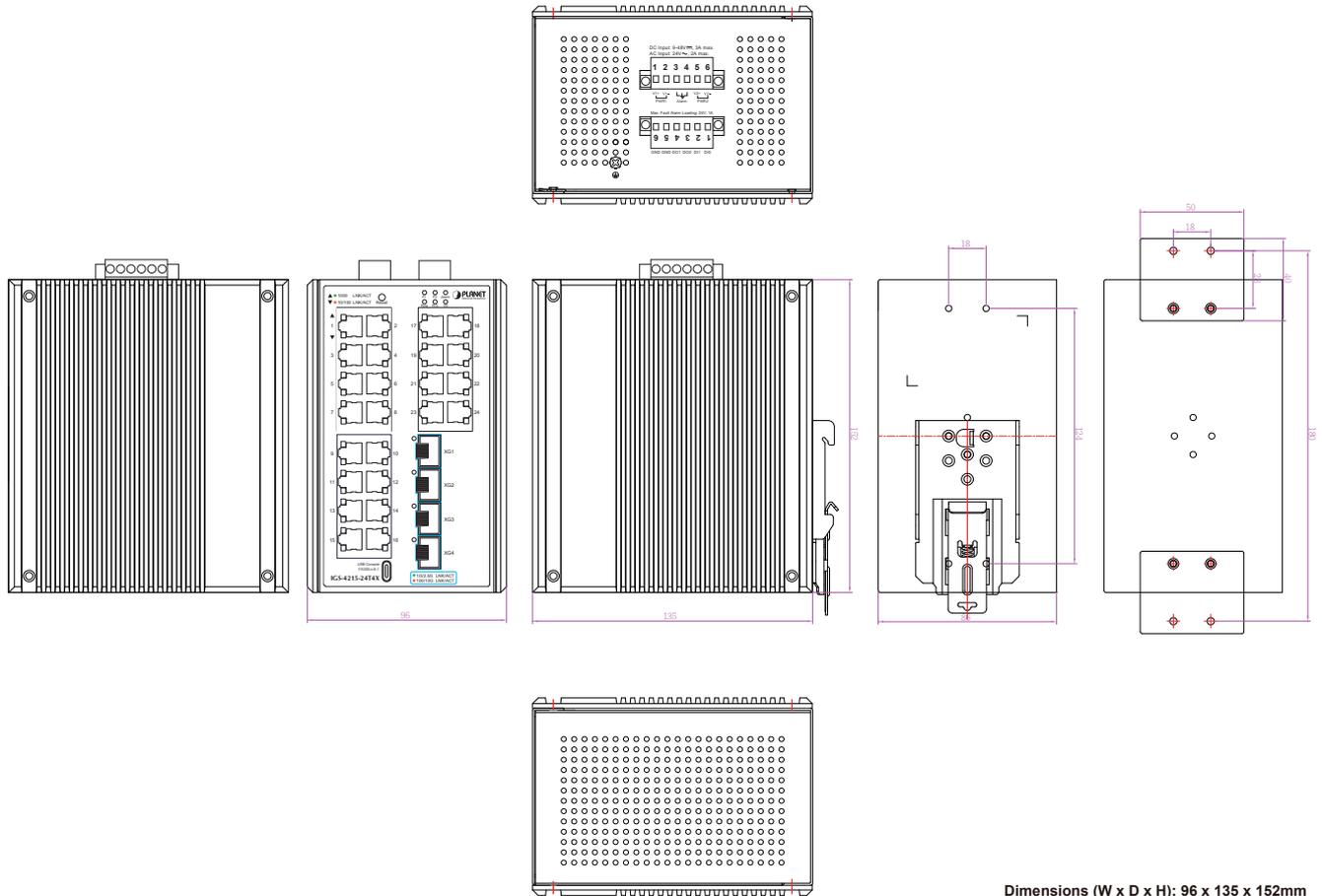
Dimensions (W x D x H): 86 x 135 x 152mm

■ IGS-4215-16P4X



Dimensions (W x D x H): 86 x 135 x 152mm

■ IGS-4215-24T4X



Dimensions (W x D x H): 96 x 135 x 152mm

## Ordering Information

IGS-4215-8UP4X	Industrial L2+ 8-Port 10/100/1000T 802.3bt PoE + 4-Port 10G SFP+ Managed Ethernet Switch (-40~75 °C)
IGS-4215-8T4X	Industrial L2+ 8-Port 10/100/1000T + 4-Port 10G SFP+ Managed Ethernet Switch (-40~75 °C)
IGS-4215-16T4X	Industrial L2+ 16-Port 10/100/1000T + 4-Port 10G SFP+ Managed Ethernet Switch (-40~75 °C)
IGS-4215-16P4X	Industrial L2/L4 16-Port 10/100/1000T 802.3at PoE + 4-Port 10G SFP+ Managed Ethernet Switch (-40~75 degrees C)
IGS-4215-24T4X	Industrial L2+ 8-/16/24-Port 10/100/1000T + 4-Port 10G SFP+ Managed Ethernet Switch (-40~75 °C)

## Related Products

IGS-R4215-24T4X	Industrial L2+ 24-Port 10/100/1000T + 4-Port 10G SFP+ Managed Ethernet Switch
IGS-R4215-24P4X	Industrial L2+ 24-Port 10/100/1000T 802.3at PoE + 4-Port 10G SFP+ Managed Ethernet Switch
IGS-4215-16P2T2S	Industrial 16-Port 10/100/1000T 802.3at PoE + 2-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Ethernet Switch
IGS-4215-16T2S	Industrial 16-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Ethernet Switch
IGS-4215-8UP2T2S	Industrial 8-Port 10/100/1000T 802.3bt PoE + 2-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Ethernet Switch
IGS-4215-8P2T2S	Industrial 8-Port 10/100/1000T 802.3at PoE + 2-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Ethernet Switch
IGS-4215-8T2S	Industrial 8-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Ethernet Switch
IGS-4215-4P4T2S	Industrial 4-Port 10/100/1000T 802.3at PoE + 4-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch (-40~75 °C)
IGS-4215-4P4T	Industrial 4-Port 10/100/1000T 802.3at PoE + 4-Port 10/100/1000T Managed Switch (-40~75 °C)
IGS-4215-4T2S	Industrial 4-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Ethernet Switch

## Accessories

PWR-240-48	240W 48V DC Single Output Industrial DIN-rail Power Supply (-20 ~ 70 °C)
PWR-480-48	480W 48V DC Single Output Industrial DIN-rail Power Supply (-20 ~ 70 °C)

## Available SFP Modules

### 10 Gigabit Ethernet Transceiver (10GBASE-X SFP+)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (TX)	Wavelength (RX)	Operating Temp.
MTB-TSR	10G	LC	Multi-Mode	300m	850nm	--	-40 ~ 85°C
MTB-TLR	10G	LC	Single Mode	10km	1310nm	--	-40 ~ 85°C
MTB-TLR40	10G	LC	Single Mode	40km	1310nm	--	-40 ~ 85°C
MTB-TSR2	10G	LC	Single Mode	2km	1310nm	--	-40 ~ 85°C
MTB-TLR20	10G	LC	Single Mode	20km	1310nm	--	-40 ~ 85°C
MTB-TLR60	10G	LC	Single Mode	60km	1310nm	--	-40 ~ 85°C
MTB-TLA20	10G	LC	Single Mode	20km	1270nm	1330nm	-40 ~ 85°C
MTB-TLB20	10G	LC	Single Mode	20km	1330nm	1270nm	-40 ~ 85°C
MTB-TLB40	10G	LC	Single Mode	40km	1330nm	1270nm	-40 ~ 85°C
MTB-TLA40	10G	LC	Single Mode	40km	1270nm	1330nm	-40 ~ 85°C
MTB-TLA60	10G	LC	Single Mode	60km	1270nm	1330nm	-40 ~ 85°C
MTB-TLB60	10G	LC	Single Mode	60km	1330nm	1270nm	-40 ~ 85°C

### 2.5 Gigabit Ethernet Transceiver (2500BASE-X SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (TX)	Wavelength (RX)	Operating Temp.
MGB-2GTSR	2500	LC	Multi-mode	300m	850nm	--	-40 ~ 85°C
MGB-2GTLR2	2500	LC	Single mode	2km	1310nm	--	-40 ~ 85°C
MGB-2GTLA20	2500	LC	Single mode	20km	1310nm	1550nm	-40 ~ 85°C
MGB-2GTLB20	2500	LC	Single mode	20km	1550nm	1310nm	-40 ~ 85°C
MGB-2GTLR20	2500	LC	Single mode	20km	1310nm	--	-40 ~ 85°C

### Gigabit Ethernet Transceiver (1000BASE-X SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (nm)	Operating Temp.
MGB-TGT	1000	Copper	--	100m	--	-40 ~ 85 °C
MGB-TSX	1000	LC	Multi Mode	550m	850nm	-40 ~ 85 °C
MGB-TSX2	1000	LC	Multi Mode	2km	1310nm	-40 ~ 85 °C
MGB-TLX	1000	LC	Single Mode	10km	1310nm	-40 ~ 85 °C
MGB-TL40	1000	LC	Single Mode	40km	1310nm	-40 ~ 85 °C
MGB-TL80	1000	LC	Single Mode	80km	1550nm	-40 ~ 85 °C

### Gigabit Ethernet Transceiver (1000BASE-BX, Single Fiber Bi-directional SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (TX)	Wavelength (RX)	Operating Temp.
MGB-TLA10	1000	WDM(LC)	Single Mode	10km	1310nm	1550nm	-40 ~ 85 °C
MGB-TLB10	1000	WDM(LC)	Single Mode	10km	1550nm	1310nm	-40 ~ 85 °C
MGB-TLA20	1000	WDM(LC)	Single Mode	20km	1310nm	1550nm	-40 ~ 85 °C
MGB-TLB20	1000	WDM(LC)	Single Mode	20km	1550nm	1310nm	-40 ~ 85 °C
MGB-TLA40	1000	WDM(LC)	Single Mode	40km	1310nm	1550nm	-40 ~ 85 °C
MGB-TLB40	1000	WDM(LC)	Single Mode	40km	1550nm	1310nm	-40 ~ 85 °C
MGB-TLA80	1000	WDM(LC)	Single Mode	80km	1310nm	1550nm	-40 ~ 85 °C
MGB-TLB80	1000	WDM(LC)	Single Mode	80km	1550nm	1310nm	-40 ~ 85 °C
MGB-TLA120	1000	WDM(LC)	Single Mode	120km	149nm	1550nm	-40 ~ 85 °C
MGB-TLB120	1000	WDM(LC)	Single Mode	120km	1550nm	1490nm	-40 ~ 85 °C

### Fast Ethernet Transceiver (100BASE-X SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (nm)	Operating Temp.
MFB-TFX	100	LC	Multi Mode	2km	1310nm	-40 ~ 85 °C
MFB-TF20	100	LC	Single Mode	20km	1550nm	-40 ~ 85 °C

Fast Ethernet Transceiver (100BASE-BX, Single Fiber Bi-directional SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (TX)	Wavelength (RX)	Operating Temp.
MFB-TFA20	100	WDM(LC)	Single Mode	20km	1310nm	1550nm	-40 ~ 85 °C
MFB-TFB20	100	WDM(LC)	Single Mode	20km	1550nm	1310nm	-40 ~ 85 °C
MFB-TFA40	100	WDM(LC)	Single Mode	40km	1310nm	1550nm	-40 ~ 85 °C
MFB-TFB40	100	WDM(LC)	Single Mode	40km	1550nm	1310nm	-40 ~ 85 °C