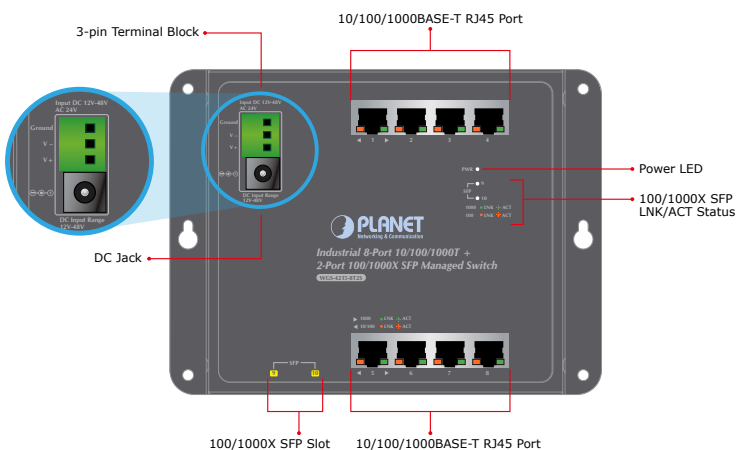# Industrial 8-Port 10/100/1000T + 2-Port 100/1000X SFP Wall-mount Managed Switch

Easily-deployed and Expanded Network

Designed to be installed in a wall enclosure or simply mounted on a wall at any convenient location, PLANET WGS-4215-8T2S, an innovative, Industrial 8-port 10/100/1000T + 2-port 100/1000X SFP Wall-mount Managed Switch, offers IPv6/IPv4 dual stack management, intelligent Layer 2 management functions, and user-friendly interface. The WGS-4215-8T2S is able to operate reliably, stably and quietly in any environment without affecting its performance. Featuring ultra networking speed and operating temperature ranging from -40 to 75 degrees C in a compact but rugged IP30 metal housing, the WGS-4215-8T2S 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

Physical Port

- 8-port 10/100/1000BASE-T Gigabit RJ45 copper
- 2 100/1000BASE-X mini-GBIC/SFP slots

Industrial Case / Installation

- Compact size, wall-mounted, magnetic wall mount and DIN-rail design
- IP30 metal case protection
- Supports -40 to 75 degrees C operating temperature
- Supports EFT protection of 6KV DC for power line
- Supports ESD 6KV DC Ethernet protection
- Redundant power design
  - 12V~48V DC/24V AC terminal block/12V~48V DC jack power input
  - 12V~48V DC input range for booting with polarity reverse protect function

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
- 9K jumbo frame
- Automatic address learning and address aging
- Supports CSMA/CD protocol

Layer 2 Features

- Supports VLAN
  - IEEE 802.1Q tagged VLAN
  - Provides bridging (VLAN Q-in-Q, IEEE 802.1ad) support
  - Protocol VLAN
  - Voice VLAN
  - Private VLAN (Protected port)
  - Management VLAN

3-pin Terminal Block

10/100/1000BASE-T RJ45 Port

Power LED

100/1000X SFP LNK/ACT Status

DC Jack

100/1000X SFP Slot

10/100/1000BASE-T RJ45 Port
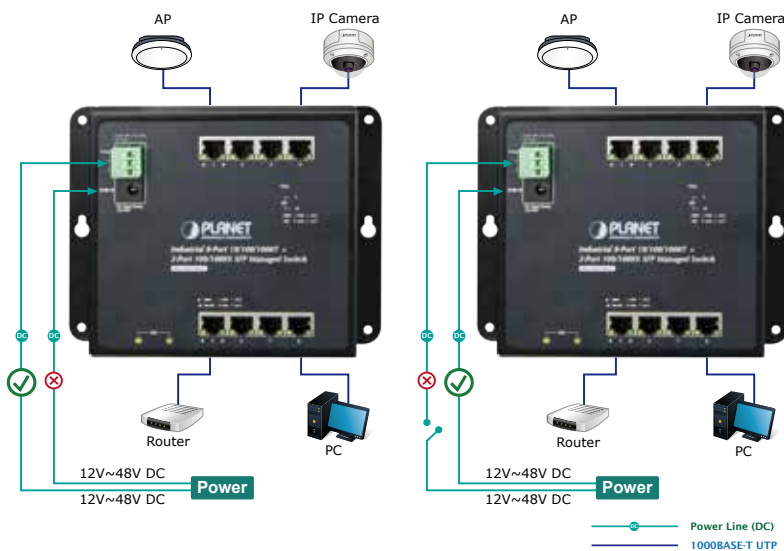
Innovative Wall-mount Installation

The WGS-4215-8T2S 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-4215-8T2S placed in an enclosure very convenient for technicians. The WGS-4215-8T2S can be installed by fixed wall mounting, magnetic wall mounting or DIN rail, thereby making its usability more flexible.

Dual Power Input for High Availability Network System

The WGS-4215-8T2S features a strong dual power input system (12V~48V DC or 24V AC) incorporated into customer's automation network to enhance system reliability and uptime. In the example below, when the 3-pin terminal block fails to work, the hardware failover function will be activated automatically to keep powering the WGS-4215-8T2S via the DC plug power alternatively without any loss of operation.

Dual Power Input with Auto Failover

AP   IP Camera   AP   IP Camera

Router   PC   Router   PC

12V~48V DC   12V~48V DC
12V~48V DC   **Power**   12V~48V DC   **Power**

● Power Line (DC)
── 1000BASE-T UTP

- – 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 8 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
- Access Control List
  - – IPv4/IPv6 IP-based ACL
  - – IPv4/IPv6 IP-based ACE
  - – MAC-based ACL
  - – MAC-based ACE

Environmentally Hardened Design

With IP30, flat but rugged metal housing protection, the WGS-4215-8T2S 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 WGS-4215-8T2S can be placed in almost any difficult environment.

IPv6 / IPv4 Dual Stack Management

Supporting both IPv6 and IPv4 protocols, the WGS-4215-8T2S 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-4215-8T2S 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-4215-8T2S 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 WGS-4215-8T2S 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 at VoIP and video stream transmission, and empowers the enterprises to take full advantage of the limited network resources.

- 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 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
- 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

Friendly and Secure Management

For efficient management, the WGS-4215-8T2S is equipped with web, Telnet and SNMP management interfaces. With the built-in web-based management interface, the WGS-4215-8T2S 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-4215-8T2S 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-4215-8T2S 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-4215-8T2S 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-4215-8T2S 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-4215-8T2S 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.

Ready to Go with IoT Generation

Internet is very popular the world over as users surf online daily with their mobile devices, such as smart phones, tablets, or laptop computers. However, users expect more from the convenience of Internet, like how to use their mobile devices to control something via the Internet, thus making life more convenient. The WGS-4215-8T2S is based on such concept to help users implement the Internet of things (IoT) on the SOHO/Home network. Home automation is no longer a dream as Gigabit network can easily cloud IoT equipment, making it a smart home.

Applications

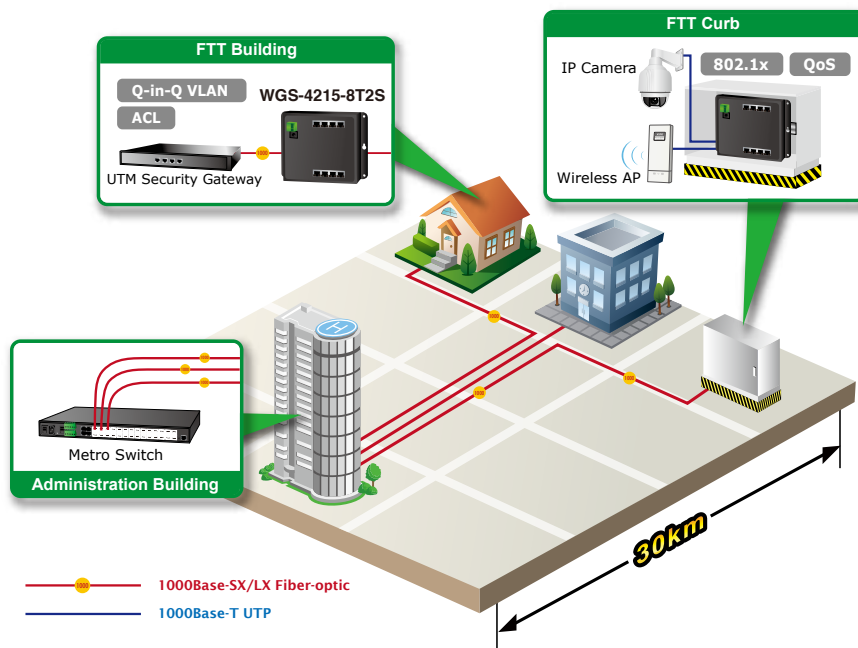## Security Building Automation Switch

Suitable for buildings where security is strictly to be enforced, the WGS-4215-8T2S Industrial Wall-mount Managed Switch offers a comprehensive Layer 2 to Layer 4 Access Control List (ACL). The switch can restrict network access by denying packets based on source and destination IP address, TCP/UDP ports or defined typical network applications. With the WGS-4215-8T2S, a tightly-controlled network can be easily had in no time.
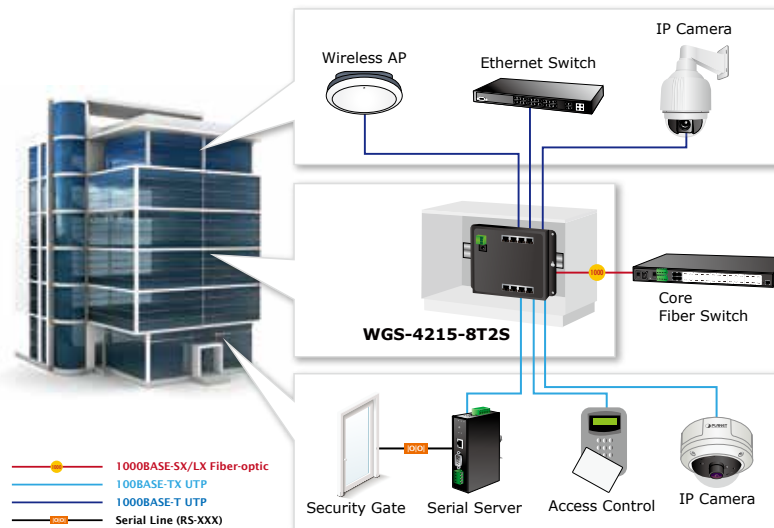

FTTX / MAN Application

The WGS-4215-8T2S adopts the double tag VLAN (Q-in-Q) technology to provide low cost and easy operation for service providers carrying traffic for multiple customers across their networks. With two dual-speed SFP slots built in, the deployment distance of the WGS-4215-8T2S can be extended up to 120 kilometers (single-mode fiber), which provides a high-performance edge service for FTTx solutions.

To build a network solution of FTTH (Fiber to the Home) or FTTC (Fiber to the Curb) for ISPs, and FTTB (Fiber to the Building) for enterprises, the various distances of SFP and Bidi (WDM) transceivers are optional for customers. For security and various applications, the 8 Gigabit ports of the WGS-4215-8T2S can be configured with VLAN settings and connected to different units, offices, floors, houses and departments.

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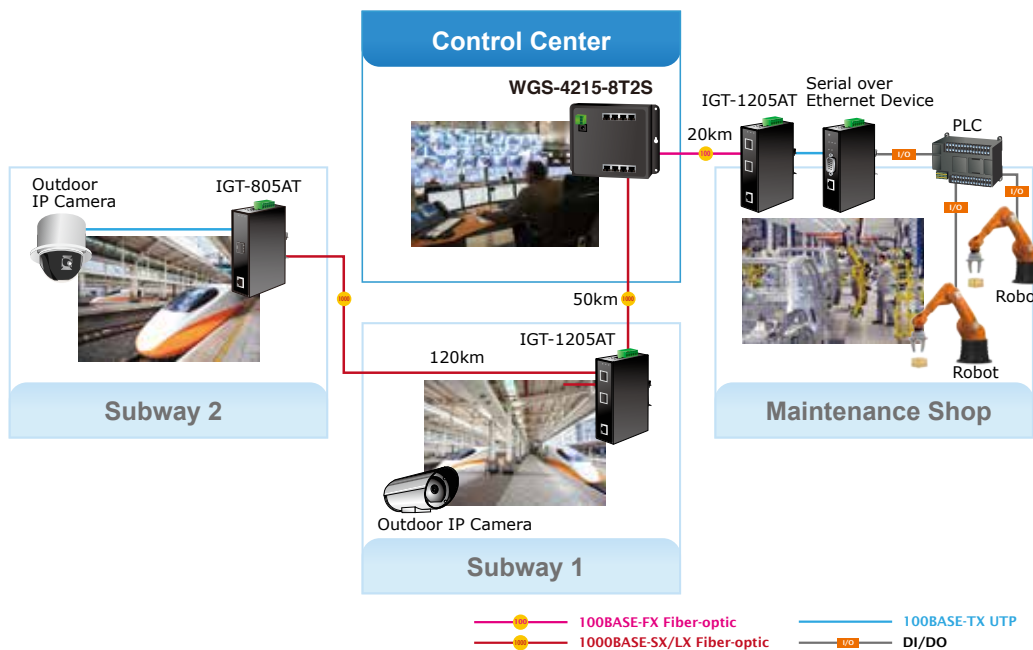
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Redundant Connection for Continuous Data Transmission

The WGS-4215-8T2S 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.
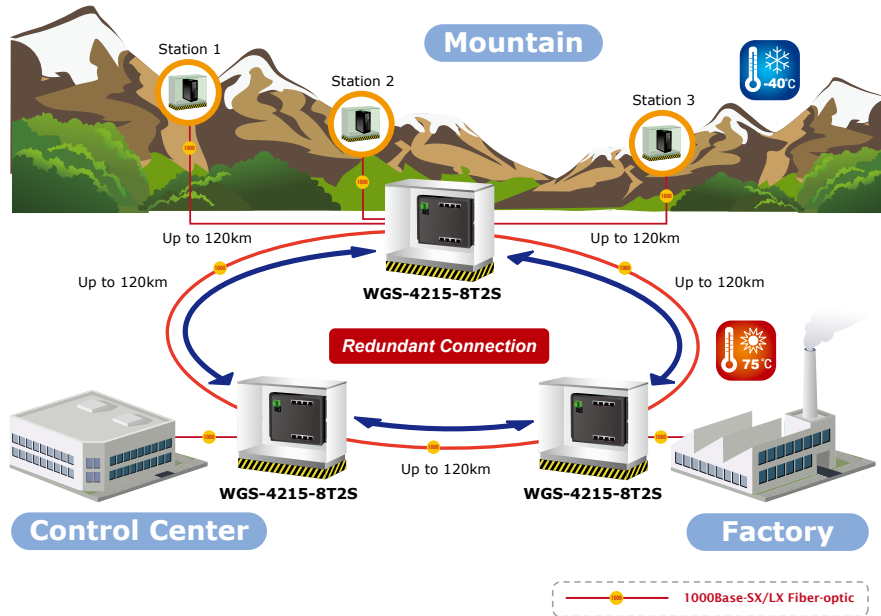
Industrial Area Switch for Data Collection and Forwarding

The WGS-4215-8T2S is equipped with 8 10/100/1000Mbps ports offering auto MDI/MDIX feature and 2 Gigabit SFP interfaces (port 9 and port 10), providing 20Gbps non-blocking switch fabric and the 8K MAC address table so that the WGS-4215-8T2S can perform wire-speed packets transfer without the risk of packet loss. The WGS-4215-8T2S with the slim type IP30 metal case is ideal for most heavy industrial demanding environments.
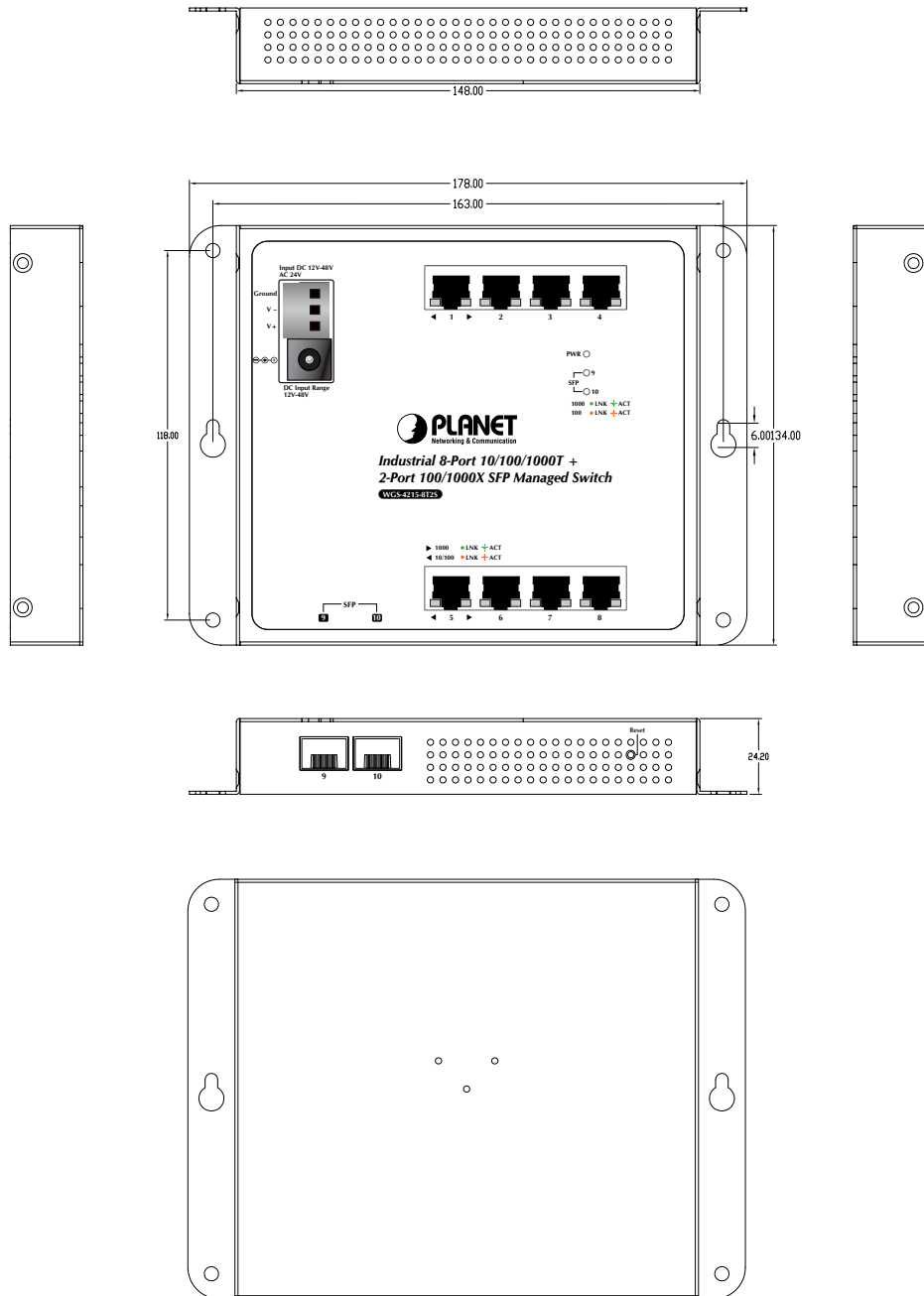
Product Specifications

Product	WGS-4215-8T2S
Hardware Specifications	
Copper Ports	Eight 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports
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	9216 bytes
Reset Button	< 5 sec: System reboot > 5 sec: Factory default
LED	System: Power (Green) 10/100/1000T RJ45 Interfaces (Port 1 to Port 8): 1000 LNK / ACT (Green), 10/100 LNK/ACT (Orange) 100/1000Mbps SFP Interfaces (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 DC Power (Pin 1: v+ / Pin 2: V-) − Pin 3 for earth ground • DC power jack with 2.0mm central pole
Power Requirements	12V~48V DC,1A / 24V AC,1A terminal block 12V~48V, 1A DC jack power input
Power Consumption/ Dissipation	Max. 7.9 watts/26BTU
Dimensions (W x D x H)	178 x 25 x 134 mm
Weight	663g
ESD Protection	6KV DC
EFT Protection	6KV DC
Enclosure	Metal
Installation	Wall mount, magnetic wall mount and DIN-rail kit
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 8 ports per trunk
Spanning Tree Protocol	STP, IEEE 802.1D Spanning Tree Protocol RSTP, IEEE 802.1w Rapid Spanning Tree Protocol MSTP, IEEE 802.1s Multiple Spanning Tree Protocol 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 ID 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 co-operate 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

Standards Conformance

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

Drawing

Dimensions (unit = mm)

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9

Ordering Information

WGS-4215-8T2S	Industrial 8-Port 10/100/1000T + 2-Port 100/1000X SFP Wall-mount Managed Switch (-40~75 degrees C)

Accessories

PWR-40-24	40W 24V DC Single Output Industrial DIN-rail Power Supply (-20 ~ 70 degrees C)
PWR-60-24	60W 24V DC Single Output Industrial DIN-rail Power Supply (-20 ~ 70 degrees C)
PWR-75-24	75W 24V DC Single Output Industrial DIN-rail Power Supply (-10 ~ 60 degrees C)

Related Products

WGS-4215-8T	Industrial 8-Port 10/100/1000T Wall-mount Managed Switch (-40~75 degrees C)
WGS-803	Industrial 8-Port 10/100/1000T Wall-mounted Gigabit Ethernet Switch (-10~60 degrees C)
WGS-804HP	Industrial 8-Port 10/100/1000T Wall-mounted Gigabit Ethernet Switch with 4-Port PoE+ (-10~60 degrees C)

Available Gigabit SFP Modules

MGB-GT	SFP-Port 1000BASE-T Module
MGB-SX	SFP-Port 1000BASE-SX mini-GBIC module - 550m
MGB-SX2	SFP-Port 1000BASE-SX mini-GBIC module - 2km
MGB-LX	SFP-Port 1000BASE-LX mini-GBIC module - 10km
MGB-L30	SFP-Port 1000BASE-LX mini-GBIC module - 30km
MGB-L50	SFP-Port 1000BASE-LX mini-GBIC module - 50km
MGB-L70	SFP-Port 1000BASE-LX mini-GBIC module - 70km
MGB-L120	SFP-Port 1000BASE-LX mini-GBIC module - 120km
MGB-LA10	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 10km
MGB-LB10	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 10km
MGB-LA20	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 20km
MGB-LB20	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 20km
MGB-LA40	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 40km
MGB-LB40	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 40km
MGB-TSX	SFP-Port 1000BASE-SX mini-GBIC module - 550m (-40 ~ 75 degrees C)
MGB-TLX	SFP-Port 1000BASE-LX mini-GBIC module - 10km (-40 ~ 75 degrees C)
MGB-TL30	SFP-Port 1000BASE-LX mini-GBIC module - 30km (-40 ~ 75 degrees C)
MGB-TL70	SFP-Port 1000BASE-LX mini-GBIC module - 70km (-40 ~ 75 degrees C)

Available 100Mbps Modules

MFB-FX	SFP-Port 100BASE-FX Transceiver (1310nm) - 2km
MFB-F20	SFP-Port 100BASE-FX Transceiver (1310nm) - 20km
MFB-F40	SFP-Port 100BASE-FX Transceiver (1310nm) - 40km
MFB-F60	SFP-Port 100BASE-FX Transceiver (1310nm) - 60km
MFB-FA20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1310nm) - 20km
MFB-FB20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1550nm) - 20km
MFB-TFX	SFP-Port 100BASE-FX Transceiver (1310nm) - 2km (-40 ~ 75 degrees C)
MFB-TF20	SFP-Port 100BASE-FX Transceiver (1310nm) - 20km (-40 ~ 75 degrees C)