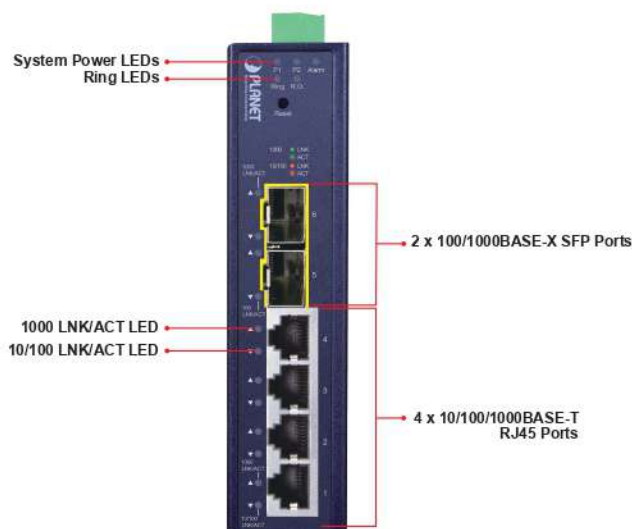# Industrial L2/L4 4-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch

Robustly Designed for Critical Business Applications

Designed to be installed in heavy industrial demanding environments, the IGS-4215-4T2S is the new member of PLANET Industrial-grade, DIN-rail type **L2/L4 Managed Gigabit Switch** family 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, and **2 extra 100/1000BASE-X SFP fiber ports** for data and video uplink. The IGS-4215-4T2S is able to operate reliably, stably and quietly in any hardened environment without affecting its performance. It comes with operating temperature ranging from -40 to 75 degrees C in a rugged **IP30** metal housing.

Unlimited and Flexible Applications!

- ERPS Ring
- PLANET CloudViewer Supported
- Cyber Security
- IPv6/IPv4 ACL/QoS

100/1000X Fiber

System Power LEDs
Ring LEDs

2 x 100/1000BASE-X SFP Ports

1000 LNK/ACT LED
10/100 LNK/ACT LED

4 x 10/100/1000BASE-T RJ45 Ports

Physical Port

- 4-port 10/100/1000BASE-T RJ45 with auto MDI/MDI-X function
- 2-port 100/1000BASE-X SFP transceiver type auto detection

Industrial Case and Installation

- Dual power input, redundant power with reverse polarity protection
  - DC 9 to 48V input or AC 24V input
  - Active-active redundant power failure protection
  - Backup of catastrophic power failure on one supply
  - Fault tolerance and resilience
- IP30 metal case
- DIN-rail and wall-mount designs
- Supports ESD 6KV DC Ethernet protection
- Supports -40 to 75 degrees C operating temperature
- Free fall, shock-proof and vibration-proof for industries

Switching

- 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
  - Up to 256 VLAN groups, out of 4096 VLAN IDs
  - Provider bridging (VLAN Q-in-Q, IEEE 802.1ad) support
  - Private VLAN (Protected port)
  - Protocol-based VLAN
  - MAC-based VLAN
  - Voice VLAN
  - GVRP (GARP VLAN Registration Protocol)
- Supports **Spanning Tree Protocol**
  - IEEE 802.1D Spanning Tree Protocol (STP)
  - IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)

Robust Protection

The IGS-4215-4T2S 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.

Redundant Ring, Fast Recovery for Surveillance System

The IGS-4215-4T2S 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, Spanning Tree Protocol (802.1s MSTP), and redundant power input system into customer's industrial automation network to enhance system reliability and uptime in harsh factory environments. In certain simple Ring network, the recovery time of data link can be as fast as <450ms.
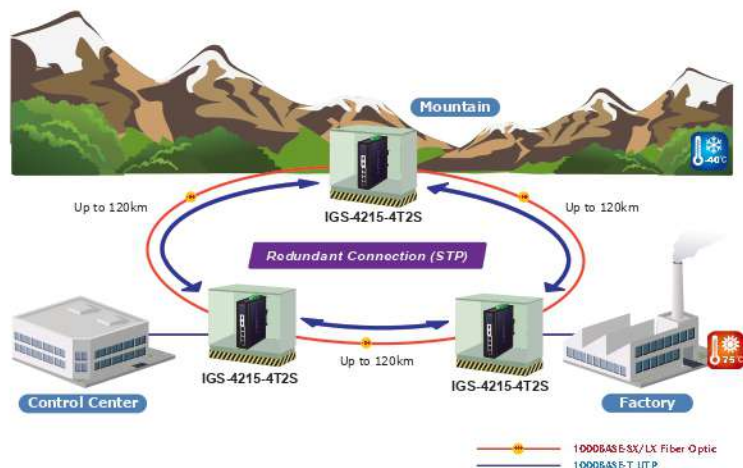
Robust Layer 2 Features

The IGS-4215-4T2S 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-4215-4T2S allows the operation of a high-speed trunk to combine with multiple ports such as an 8Gbps 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.

- – IEEE 802.1s Multiple Spanning Tree Protocol (MSTP), spanning tree by VLAN
- – BPDU Guard
- Supports **Link Aggregation**
  - – IEEE 802.3ad Link Aggregation Control Protocol (LACP)
  - – Cisco ether-channel (static trunk)
  - – Up to 3 trunk groups
  - – Up to 6 ports per trunk group with 12Gbps bandwidth
- Provides port mirror (many-to-1)
- IPv6 MAC/VLAN/Multicast Address Table
- 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
- Support 8 priority queues on all switch ports
- Traffic classification
  - – IEEE 802.1p CoS
  - – IP TOS/DSCP/IP precedence of IPv4/IPv6 packets
  - – IP TCP/UDP port number
  - – Typical network application
- Strict priority and Weighted Round Robin (WRR) CoS policies
- Supports QoS and In/Out bandwidth control on each port
- Traffic-policing on the switch port
- DSCP remarking

Multicast

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

Security

- Storm Control support
  - – Broadcast/Multicast/Unicast
- Authentication
  - – IEEE 802.1X port-based network access authentication
  - – Built-in RADIUS client to cooperate with the RADIUS servers
  - – DHCP Relay and DHCP Option 82
  - – RADIUS/TACACS+ users access authentication
- Access Control List
  - – IPv4/IPv6 IP-based ACL

IPv6/IPv4 Dual Stack Management

Supporting both IPv6 and IPv4 protocols, the IGS-4215-4T2S 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.

IGS-4215-4T2S
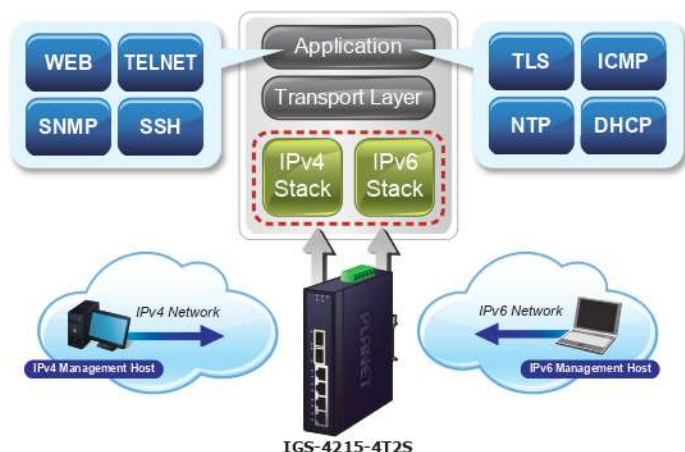
Remotely Manage Solution

PLANET's Universal Network Management System (**UNI-NMS**) and **CloudViewer App** support IT staff to remotely manage all network devices and monitor the PDs' operation statuses. Thus, they're designed for both the enterprises and industries where deployments of PDs can be as remote as possible, without having to go to the actual location once a bug or faulty condition is found. With the UNI-NMS or CloudViewer App, all kinds of businesses can now be speedily and efficiently managed from one platform.

NMS Controller   CloudViewer App

Efficient Traffic Control

The IGS-4215-4T2S 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.

- 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
- IP address access management to prevent unauthorized intruder

Management

- IPv4 and IPv6 dual stack management
- Switch Management Interface
  - IPv4/IPv6 Web switch management
  - Console and telnet Command Line Interface
  - SNMP v1, v2c, v3
  - SSH, TLS secure access
- IPv6 IP address/NTP/DNS management
- Built-in Trivial File Transfer Protocol (TFTP) client
- Static and DHCP for IP address assignment
- System Maintenance
  - Firmware upload/download via HTTP/TFTP
  - Hardware reset button for system reboot or reset to factory default
  - Dual images
- User Privilege levels control
- Network Time Protocol (NTP)
- Link Layer Discovery Protocol (LLDP) and LLDP-MED
- Syslog remote alarm
- SNMP Management
  - SNMP trap for interface link up and link down notification
  - Four RMON groups (history, statistics, alarms and events)
- PLANET Smart Discovery Utility for deployment management
- PLANET UNI-NMS (Universal Network Management) and Smart Discovery Utility for deployment management
- Network diagnostic
  - SFP-DDM (Digital Diagnostic Monitor)
  - Cable diagnostic technology provides the mechanism to detect and report potential cabling issues
  - ICMPv6 / ICMPv4 remote pin

User-friendly and Secure Management

For efficient management, the IGS-4215-4T2S is equipped with console, Web and SNMP management interfaces. With the built-in Web-based management interface, it offers an easy-to-use, platform-independent management and configuration facility. For text-based management, the IGS-4215-4T2S can be accessed via Telnet and the console port. Moreover, it also offers secure remote management via any standard-based management software by supporting SNMPv3 connection which encrypts the packet content at each session.

## Powerful Security from Layer 2 to Layer 4

PLANET IGS-4215-4T2S 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. 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, **Port Security** function allows limiting the number of network devices on a given port.

Advanced Network Security

The IGS-4215-4T2S 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. 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 additional SFP slots built in the IGS-4215-4T2S support 100BASE-FX /1000BASE-SX/LX SFP (Small Form-factor Pluggable) fiber transceivers to uplink to backbone switch in long distance. The distance can be extended from 550 meters to 2 kilometers (multi-mode fiber) and up to 120 kilometers (single-mode fiber or WDM fiber). They are well suited for applications within the enterprise data centers and distributions.

IGS-4215-4T2S

IGS-4215-4T2S

Fiber Optic Cable up to 120km

1000BASE-SX/LX Fiber Optic
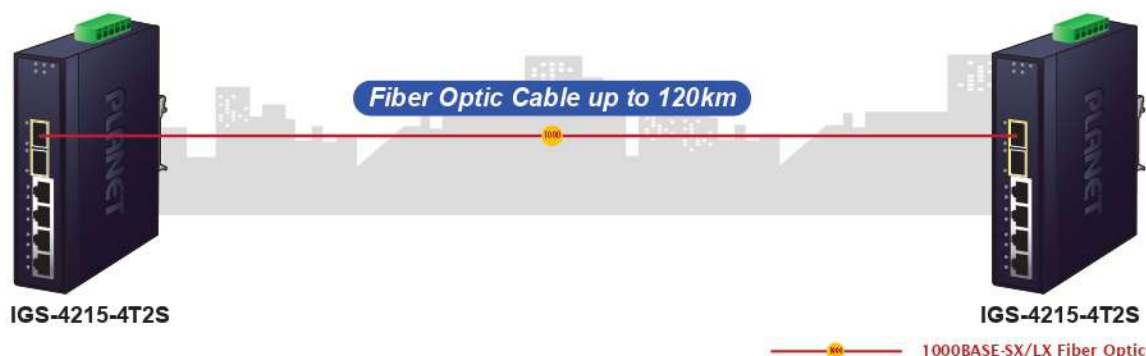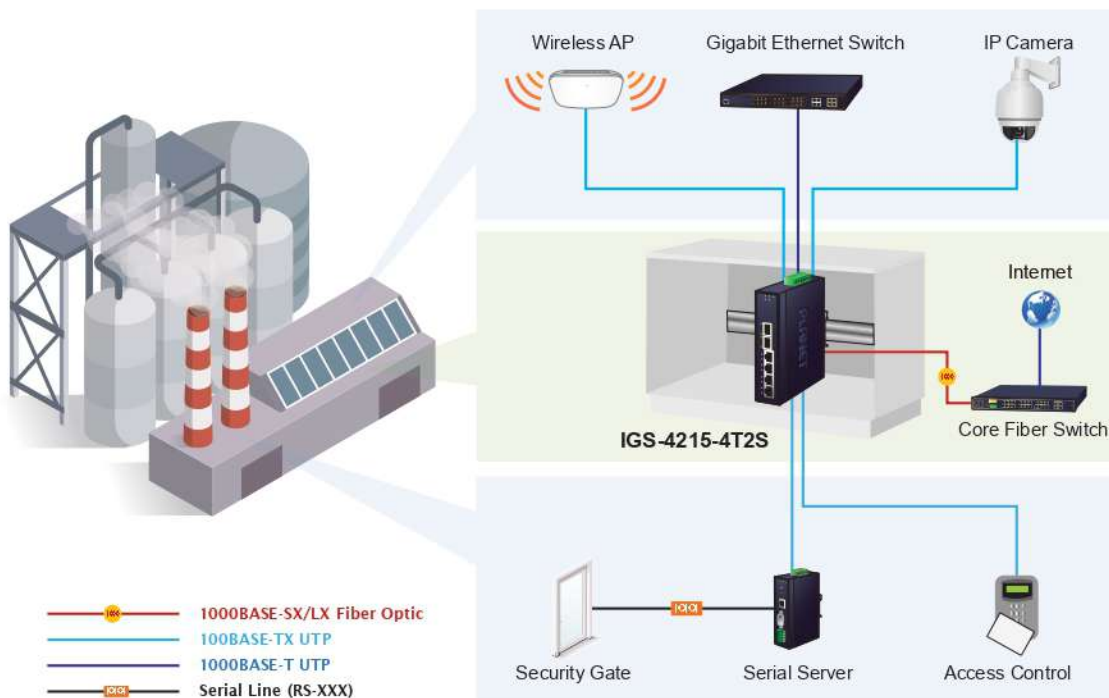
Intelligent SFP Diagnosis Mechanism

The IGS-4215-4T2S 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.

SFP DDM *(Digital Diagnostic Monitor)*

| Voltage | Ammeter | Temperature | Power Transceiver | Power Receiver |
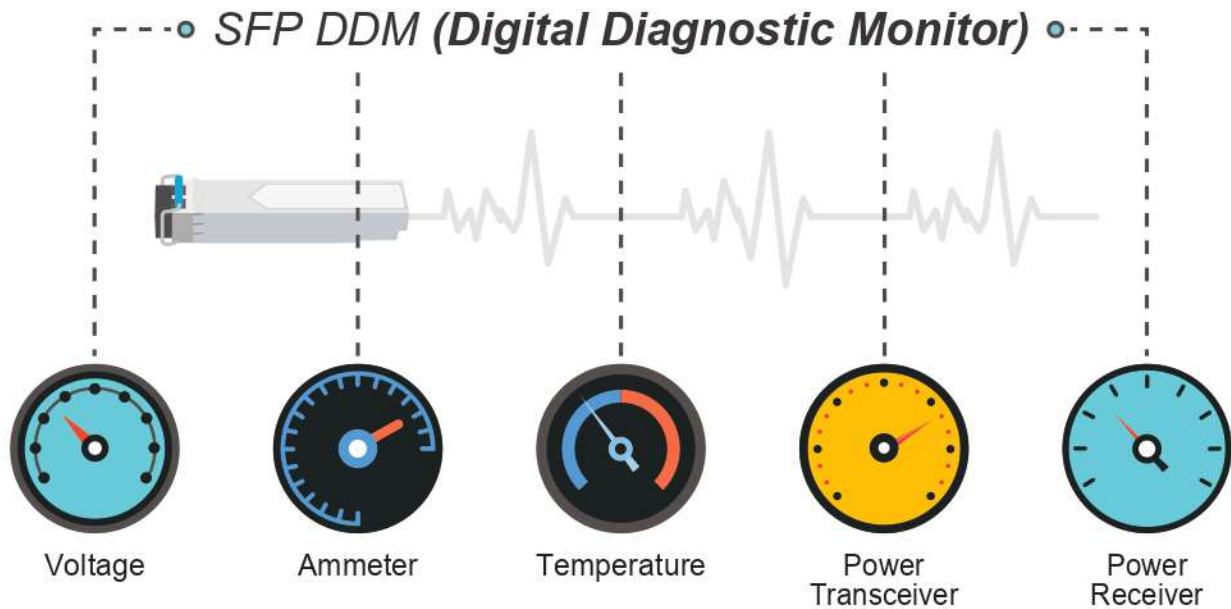
Applications

Industrial-grade Switch for Building Automation and Security

Suitable for buildings where security is strictly to be enforced, the IGS-4215-4T2S, with eight high-speed Gigabit Ethernet 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.

Wireless AP   Gigabit Ethernet Switch   IP Camera

Internet

IGS-4215-4T2S

Core Fiber Switch

1000BASE-SX/LX Fiber Optic
100BASE-TX UTP
1000BASE-T UTP
Serial Line (RS-XXX)

Security Gate   Serial Server   Access Control

Model that Withstands Harsh Operation and Extends Distance

The IGS-4215-4T2S is made to withstand any harsh operation in such environments as traffic control cabinets, factory floors, and indoor and outdoor locations where temperatures are extremely high or low. With a non-blocking design and compact size, the installation of the IGS-4215-4T2S is easy and helpful to build a Gigabit high-bandwidth switched network quickly.
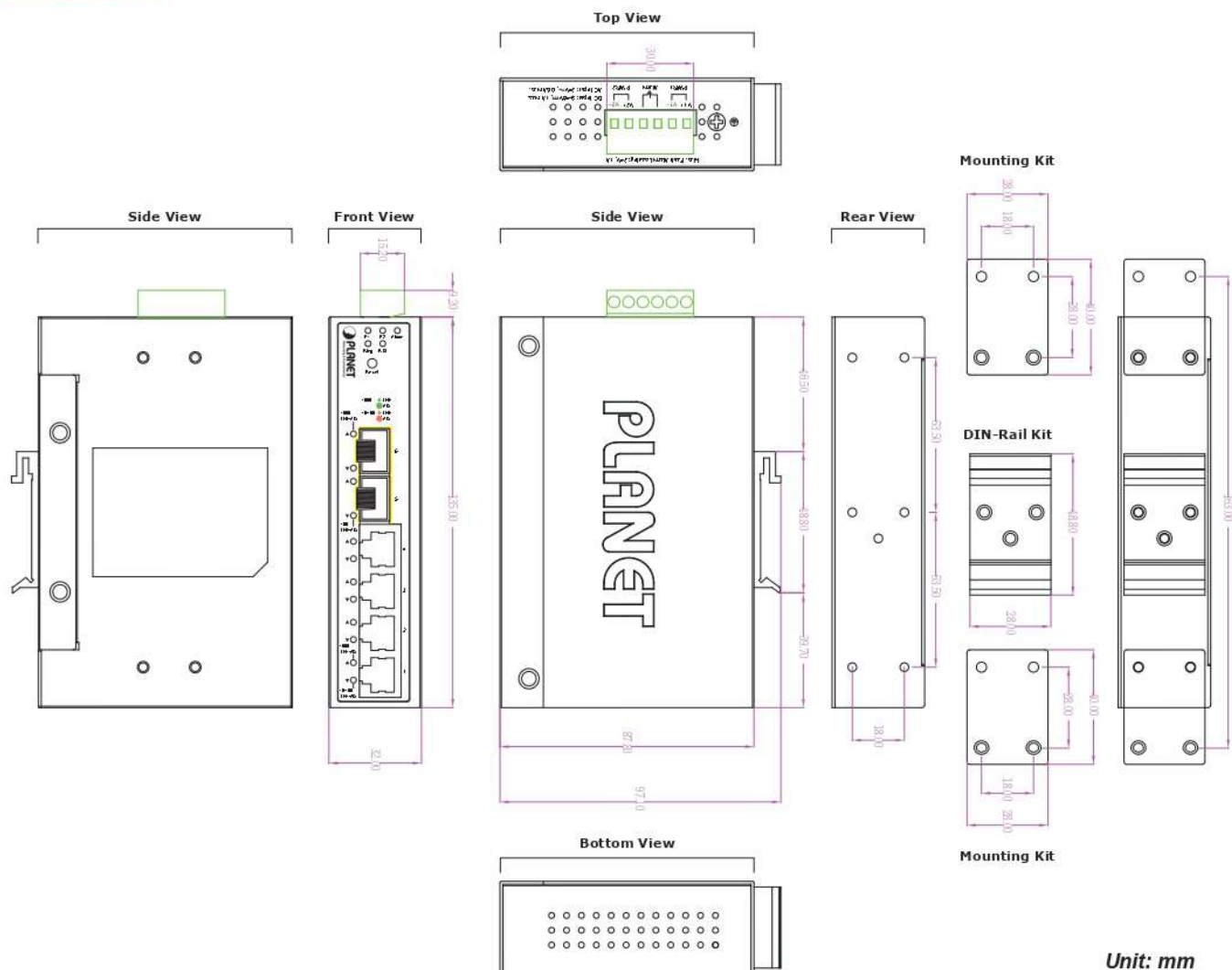
Extending Ethernet Distance
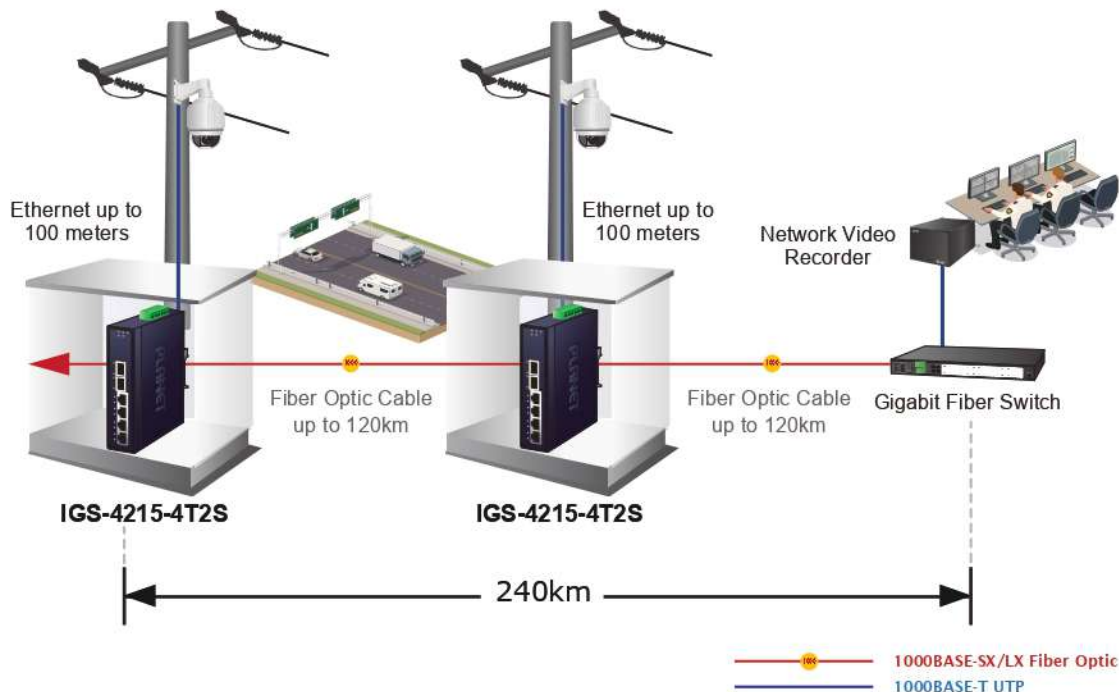
Specifications

Product	IGS-4215-4T2S
Hardware Specifications	
Copper Ports	4 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports
Gigabit SFP Slots	2 100/1000BASE-SX/LX/BX SFP interfaces
Reset Button	< 5 sec: System reboot > 5 sec: Factory default
Connector	Removable 6-pin terminal block for power input ■ 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 DC
Power Requirements	Dual 9~48V DC 24V AC

Power Consumption	DC input:
	  Max. 1.92 watts/6.5BTU (System on)
	  Max. 4.68 watts/15.9BTU (Full loading)
	AC input:
	  Max. 1.6 watts/5.4BTU (System on)
	  Max. 4.3 watts/14.6BTU (Full loading)

Enclosure	IP30 metal case
Dimensions (W x D x H)	32 x 87.8 x 135 mm
Weight	400g
Installation	DIN-rail kit and wall-mount ear
ESD Protection	6KV DC

LED	**System** ■ **Green**: Power 1 ■ **Green**: Power 2 ■ **Red**: Alarm ■ **Green**: Ring ■ **Green**: R.O. **Per 10/100/1000T RJ45 Ports** ■ **Green**: 1000 LNK/ACT ■ Amber: 10/100 LNK/ACT **Per 100/1000X SFP Ports** ■ **Green**: 1000 LNK/ACT ■ **Amber**: 100 LNK/ACT
Switching Specifications	
Switch Architecture	Store-and-Forward
Switch Fabric	12Gbps (non-blocking)
Switch Throughput@64 bytes	8.9Mpps@ 64 bytes
MAC Address Table	8K entries
Shared Data Buffer	4.1Mbits
Flow Control	IEEE 802.3x pause frame for full duplex Back pressure for half duplex
Jumbo Frame	9K
Layer 2 Functions	
Port Mirroring	TX/RX/Both Many-to-1 monitor Up to 4 sessions
VLAN	802.1Q tag-based VLAN 802.1ad Q-in-Q tunneling (VLAN stacking) Voice VLAN Protocol VLAN Private VLAN (Protected port) GVRP Up to 256 VLAN groups, out of 4096 VLAN IDs
Link Aggregation	IEEE 802.3ad LACP and static trunk Cisco ether-channel (Static Trunk) Up to 3 trunk groups Up to 6 ports per trunk group with 12Gbps bandwidth
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 v1, v2, v3 IGMP querier IGMP Snooping port filtering Up to 256 multicast groups
MLD Snooping	IPv6 MLD snooping v1, v2 Up to 256 multicast groups
QoS	Ingress/Egress Rate Limit per port bandwidth control 8-level priority for switching ■ Port number ■ 802.1p priority ■ DSCP/IP precedence of IPv4/IPv6 packets ■ Typical network application DSCP remarking
Security Functions	
Access Control List	IPv4/IPv6 IP-based ACL/MAC-based ACL IPv4/IPv6 IP-based ACE/MAC-based ACE
Security	IP-MAC port binding MAC filtering Static MAC address DHCP Relay and DHCP Option 82 STP BPDU guard, BPDU filtering and BPDU forwarding DoS attack prevention ARP inspection IP source guard Storm control support ■ Broadcast / Multicast / Unicast

AAA	Built-in RADIUS client to cooperate with RADIUS server
Network Access Control	IEEE 802.1X port-based authentication
	RADIUS/TACACS+ user access authentication

Management Functions

Basic Management Interfaces	Telnet
	Web browser
	SNMP v1, v2c
Secure Management Interfaces	SSHv2, TLS v1.1/v1.2, SNMPv3
System Management	Firmware upgrade by HTTP protocol through Ethernet network
	Configuration upload/download through HTTP
	LLDP protocol
	SNTP
	PLANET Smart Discovery Utility
	PLANET UNI-NMS (Universal Network Management)
	PLANET CloudViewer app
Event Management	Remote Syslog
	System log
SNMP MIBs	RFC 1213 MIB-II
	RFC 1493 Bridge MIB
	RFC 1643 Ethernet MIB
	RFC 2863 Interface MIB
	RFC 2665 Ether-Like MIB
	RFC 2819 RMON MIB (Groups 1, 2, 3 and 9)
	RFC 2737 Entity MIB
	RFC 2618 RADIUS Client MIB
	RFC 2863 IF-MIB
	RFC 2933 IGMP-STD-MIB
	RFC 3411 SNMP-Frameworks-MIB
	RFC 4292 IP Forward MIB
	RFC 4293 IP MIB
	RFC 4836 MAU-MIB
	IEEE 802.1X PAE
	LLDP
	MAU-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 802.1ab LLDP
	IEEE 802.3u 100BASE-TX/100BASE-FX	IEEE 802.3az for Energy-Efficient Ethernet
	IEEE 802.3z Gigabit SX/LX	RFC 768 UDP
	IEEE 802.3ab Gigabit 1000T	RFC 793 TFTP
	IEEE 802.3x flow control and back pressure	RFC 791 IP
	IEEE 802.3ad port trunk with LACP	RFC 792 ICMP
	IEEE 802.1D Spanning Tree Protocol	RFC 2068 HTTP
	IEEE 802.1w Rapid Spanning Tree Protocol	RFC 1112 IGMP v1
	IEEE 802.1s Multiple Spanning Tree Protocol	RFC 2236 IGMP v2
	IEEE 802.1p Class of Service	RFC 3376 IGMP v3
	IEEE 802.1Q VLAN tagging	RFC 2710 MLD v1
	IEEE 802.1ad Q-in-Q VLAN stacking	FRC 3810 MLD v2
	IEEE 802.1x Port Authentication Network Control	ITU-T G.8032 ERPS Ring

Environment

Operating Temperature	-40 ~ 75 degrees C
Storage Temperature	-40 ~ 85 degrees C
Humidity	5 ~ 95% (non-condensing)

Dimensions

Top View

Side View

Front View

Side View

Rear View

Mounting Kit

DIN-Rail Kit

Mounting Kit

Bottom View

Unit: mm

Ordering Information

IGS-4215-4T2S	Industrial L2/L4 4-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch

Related Products

IGS-4215-8T2S	Industrial L2/L4 8-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch
IGS-4215-16T2S	Industrial L2/L4 16-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch (-40~75 degrees C)
IGS-4215-4P4T	Industrial 4-Port 10/100/1000T 802.3at PoE + 4-Port 10/100/1000T Managed Switch (-40~75 degrees C)
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 degrees C)
IGS-4215-8P2T2S	Industrial 8-Port 10/100/1000T 802.3at PoE + 2-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch

Available Gigabit SFP Modules for IGS-4215-4T2S

MGB-GT	SFP-Port 1000BASE-T Module
MGB-SX	SFP-Port 1000BASE-SX mini-GBIC module - 220/550m
MGB-SX2	SFP-Port 1000BASE-SX mini-GBIC module – 2km
MGB-LX	SFP-Port 1000BASE-LX mini-GBIC module - 20km
MGB-L40	SFP-Port 1000BASE-LX mini-GBIC module - 40km
MGB-L80	SFP-Port 1000BASE-LX mini-GBIC module - 80km
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 - 220/550m (-40 ~ 75 degrees C)
MGB-TLX	SFP-Port 1000BASE-LX mini-GBIC module - 20km (-40 ~ 75 degrees C)
MGB-TL40	SFP-Port 1000BASE-LX mini-GBIC module - 40km (-40 ~ 75 degrees C)
MGB-TL80	SFP-Port 1000BASE-LX mini-GBIC module - 80km (-40 ~ 75 degrees C)
MGB-TLA10	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 10km (-40 ~ 75 degrees C)
MGB-TLB10	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 10km (-40 ~ 75 degrees C)
MGB-TLA20	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 20km (-40 ~ 75 degrees C)
MGB-TLB20	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 20km (-40 ~ 75 degrees C)
MGB-TLA40	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 40km (-40 ~ 75 degrees C)
MGB-TLB40	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 40km (-40 ~ 75 degrees C)
MGB-TLA60	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 60km (-40 ~ 75 degrees C)
MGB-TLB60	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 60km(-40 ~ 75 degrees C)

Available Fast Ethernet SFP Modules for IGS-4215-4T2S

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-F120	SFP-Port 100BASE-FX Transceiver (1310nm) - 120km
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)
MFB-FA20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1310nm) - 20km
MFB-FB20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1550nm) - 20km
MFB-TFA20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1310nm) - 20km (-40 ~ 75 degrees C)
MFB-TFB20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1550nm) - 20km (-40 ~ 75 degrees C)
MFB-TFA40	SFP-Port 100BASE-BX Transceiver (WDM,TX:1310nm) - 40km (-40 ~ 75 degrees C)
MFB-TFB40	SFP-Port 100BASE-BX Transceiver (WDM,TX:1550nm) - 40km (-40 ~ 75 degrees C)

FC CE

IGS-4215-4T2S