# Industrial L3 8-Port 10/100/1000T 802.3at PoE + 2-Port 1G/2.5G SFP + 2-Port 10G SFP+ Managed Ethernet Switch Switch

TAIWAN EXCELLENCE 2017

## Layer 3 Capability and 10G Uplinks

PLANET IGS-5225-8P2S2X is the **smallest 10G uplink Layer 3 managed PoE switch** preferably designed for industrial networks. Based on its **10Gbps** big pipe connectivity to core networks, the IGS-5225-8P2S2X, equipped with 8 Gigabit ports featuring **36-watt 802.3at PoE+** and **two 10Gbps SFP+** uplink slots, meets the demands of high power consumption and high bandwidth for 11ac Gigabit Wi-Fi APs and other PoE applications like those requiring heavy traffic loading.

With a rugged IP30 metal case and wide temperature range from -40 to 75 degrees C, the IGS-5225-8P2S2X is able to stably operate in heavy Industrial demanding environments. Thus, the IGS-5225-8P2S2X provides a high level of immunity against electromagnetic interference and heavy electrical surges which are usually found on plant floors or in curbside traffic control cabinets. The IGS-5225-8P2S2X also allows either DIN-rail or wall mounting for efficient use of cabinet space.



Digital Input/Digital Output
RJ45 Console Port
2 x 1G/2.5G/10G SFP+
2 x 100/1G/2.5G SFP
8 x 10/100/1000T 802.3at PoE+
48~54V DC Redundant Power Input
IP30 Rugged Case
PoE Usage LED
-40°C    75°C
IGS-5225-8P2S2X

## Redundant Ring, Fast Recovery for Critical Network Applications

The IGS-5225-8P2S2X 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 a ring network, the recovery time of data link can be as fast as 10ms.

## Physical Port

- **8 10/100/1000BASE-T** Gigabit Ethernet RJ45 ports with IEEE 802.3at PoE+ Injector function
- **2 100/1000/2500BASE-X mini-GBIC/SFP** slots for SFP type auto detection
- **2 10GBASE-SR/LR SFP+ slots**, backward compatible with 1000BASE-SX/LX/BX and 2500BASE-X SFP
- One RJ45 console interface for basic management and setup

## Power over Ethernet

- Complies with IEEE 802.3at Power over Ethernet Plus/end-span PSE
- Up to 8 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 100m
- PoE management features
    - Total PoE power budget control
    - Per port PoE function enable/disable
    - PoE admin-mode control
    - PoE port power feeding priority
    - Per PoE port power limit
    - PD classification detection
    - PoE extend mode supports power feeding at a distance of up to 200 meters
- Intelligent PoE features
    - Temperature threshold control
    - PoE usage threshold control
    - PD alive check
    - PoE schedule

## Industrial Protocol

- Modbus TCP for real-time monitoring in the SCADA system
- IEEE 1588v2 PTP (Precision Time Protocol) transparent clock mode
- Industrial Case and Installation
- IP30 aluminum case
- DIN-rail and wall-mount designs
- 48~54V DC, redundant power with reverse polarity protection
- Supports 6000V DC Ethernet ESD protection
- -40 to 75 degrees C operating temperature

## ERPS Ring for Video Transmission Redundancy
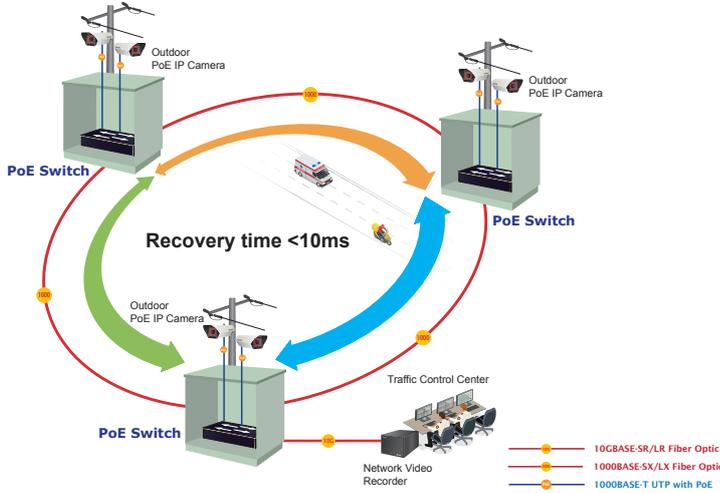


### Flexible and Extendable 10Gb Ethernet Solution

10G Ethernet is a big leap in the evolution of Ethernet. Each of the 10G SFP+ slots in the IGS-5225-8P2S2X supports **triple speed** and **10GBASE-SR/LR**, **2500BASE-X or 1000BASE-SX/LX**, providing broad bandwidth and powerful processing capacity. With its 2-port, 10G Ethernet link capability, the administrator now can flexibly choose the suitable SFP/SFP+ transceiver according to the transmission distance or the transmission speed required to extend the network efficiently.

### Intelligent LED Indicator for Real-time PoE Usage

The IGS-5225-8P2S2X helps users to monitor current status of PoE power usage easily and efficiently by its advanced LED indication. The front panel of the Industrial Gigabit PoE+ Switch has four orange LEDs indicating 60W, 120W, 180W and 240W of PoE power usage.



**PoE Power Usage Display**
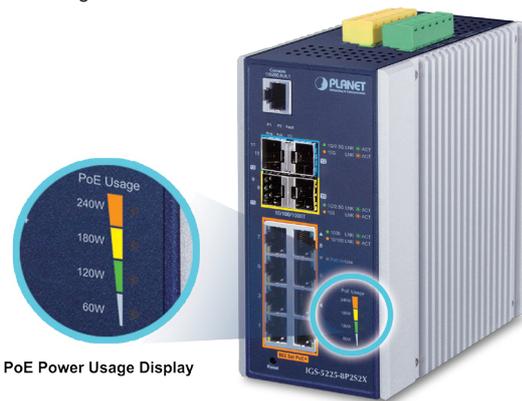
### Intelligent Alive Check for Powered Device

The IGS-5225-8P2S2X PoE Switch can be configured to monitor connected PD's status in real time via ping action. Once the PD stops working and responding, the IGS-5225-8P2S2X will recycle the PoE port power and bring the PD back to work. It also greatly enhances the reliability in that the PoE port will reset the PD power, thus reducing administrator's management burden.

## 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 email and SNMP trap

## Layer 3 IP Routing Features

- IP dynamic routing protocol supports RIP, OSPFv2 and OSPFv3
- Supports maximum 128 static routes and route summarization
- IPv4 dynamic routing protocol supports OSPFv2
- IPv4/IPv6 hardware static routing
- Routing interface provides per VLAN routing mode

## Layer 2 Features

- Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x pause frame flow control (full-duplex)
- High performance of Store-and-Forward architecture, and runt/CRC filtering that eliminates erroneous packets to optimize the network bandwidth
- Storm Control support
  – Broadcast/Multicast/Unicast
- Supports **VLAN**
  – IEEE 802.1Q tagged VLAN
  – Up to 4K VLANs groups, out of 4095 VLAN IDs
  – Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
  – Private VLAN Edge (PVE)
  – 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)
  – IEEE 802.1s Multiple Spanning Tree Protocol (MSTP), spanning tree by VLAN
  – BPDU Guard
- Supports **Link Aggregation**
  – 802.3ad Link Aggregation Control Protocol (LACP)
  – Cisco ether-channel (static trunk)
  – Maximum 6 trunk groups with 4 ports per trunk group
  – Up to 16Gbps bandwidth (duplex mode)
- Provides port mirror (many-to-1)
- Port mirroring to monitor the incoming or outgoing traffic on a particular port
- Loop protection to avoid broadcast loops

# PD Alive Check

| Step 1 | PoE Device Status Good!! | Step 2 | Checking alive status for 3 times |
|---|---|---|---|
| | Ping Request / Ping Echo | | Ping Request / **No Response!** |
| Step 3 | Restart PoE device if without response | Step 4 | Restart PoE Device |
| | **Alarm Notification** / PoE ON OFF | | |
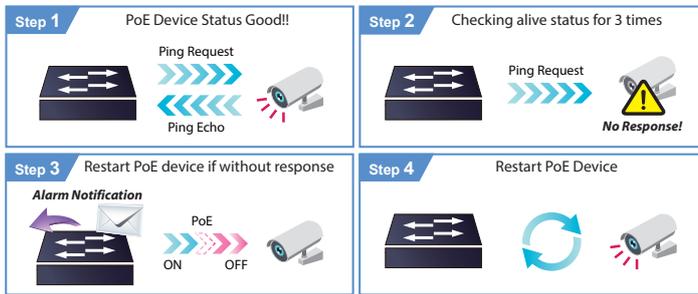
## Scheduled Power Recycling

The IGS-5225-8P2S2X 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.

IP Camera
AP Router
IP Phone
PoE lighting
Door Phone

S M T W T F S

***Automatically Reboot***

## PoE Schedule for Energy Savings

Under the trend of energy savings worldwide and contributing to environmental protection on the Earth, the IGS-5225-8P2S2X can effectively control the power supply besides its capability of giving high watts power. The built-in **"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 money.

**PoE Schedule**

08:00~17:00                                                           17:00~08:00

| ON | ON | ON | ON | | OFF | OFF | OFF | ON |
| 6 Watts | 6 Watts | 12 Watts | 12 Watts | | 6 Watts | 6 Watts | 12 Watts | 12 Watts |

**Total Consumption of 36 watts/hr**        **Save 24 watts/hr during off-business hours**
＊Total Saved = 10800watts/month
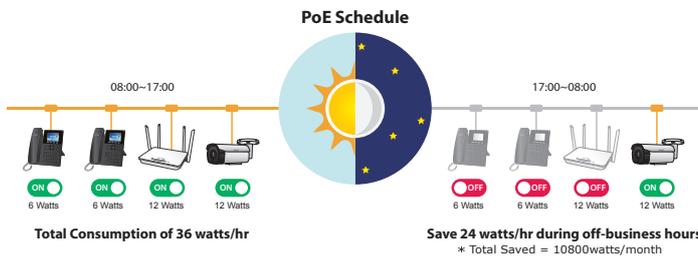
## PoE Usage Monitoring

Via the power usage chart in the web management interface, the IGS-5225-8P2S2X 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.

- Supports G.8032 ERPS (Ethernet Ring Protection Switching)
- Compatible with Cisco Uni-directional link detection(UDLD) that monitors a link between two switches and blocks the ports on both ends of the link if the link fails at any point between the two devices
- Link Layer Discovery Protocol (LLDP)

## Quality of Service

- Ingress Shaper and Egress Rate Limit per port bandwidth control
- 8 priority queues on all switch ports
- Traffic classification
  - IEEE 802.1p CoS
  - 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 IGMP snooping v1, v2 and v3
- Supports MLD snooping v1 and v2
- Querier mode support
- IGMP snooping port filtering
- MLD snooping port filtering
- Multicast VLAN Registration (MVR) support

## Security

- Authentication
  - IEEE 802.1x Port-based / MAC-based network access authentication
  - Built-in RADIUS client to co-operate with the RADIUS servers
  - TACACS+ login users access authentication
  - RADIUS / TACACS+ users access authentication
- Access Control List
  - IP-based Access Control List (ACL)
  - MAC-based Access Control List
- Source MAC / IP address binding
- **DHCP Snooping** to filter un-trusted 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

## Convenient and Smart ONVIF Devices with Detection Feature

PLANET has newly developed an awesome feature -- ONVIF Support -- which is specifically designed for cooperating with video IP surveillances. From the IGS-5225-8P2S2X GUI, you just need one click to search and show all of the ONVIF devices via network application. In addition, you can upload floor images to the switch and remotely monitor what is going on in the production line. Moreover, you can get real-time surveillance's information and online/offline status, and can have PoE reboot control from GUI.

## 1588 Time Protocol for Industrial Computing Networks

The IGS-5225 series is ideal for telecom and Carrier Ethernet applications, supporting MEF service delivery and timing over packet solutions for IEEE 1588 and synchronous Ethernet.

## Layer 3 Network Routing Support

The IGS-5225-8P2S2X allows administrators to boost network efficiency by configuring Layer 3 IPv4/IPv6 VLAN static routing manually or automatically through the **Routing Information Protocol (RIP)** or **Open Shortest Path First (OSPF)** settings.

- The RIP uses hop count as a routing metric and prevents routing loops by setting a limit on the number of hops allowed in a path from source to destination.
- The OSPF is an interior dynamic routing protocol for autonomous systems based on link state. The protocol creates a database of link states by exchanging link states among Layer 3 switches and then uses the Shortest Path First algorithm to generate a route table based on that database.

## Cybersecurity Network Solution to Minimize Security Risks

The IGS-5225-8P2S2X comes with enhanced cybersecurity to fend off cyber threats and cyber attacks. It supports SSHv2 and TLSv1.2 protocols to provide strong protection against advanced threats. Served as a key point to transmit data to customer's critical equipment in a business network, the cybersecurity feature of the IGS-5225-8P2S2X protects the switch management and enhances the security of the mission-critical network without any extra deployment cost and effort.
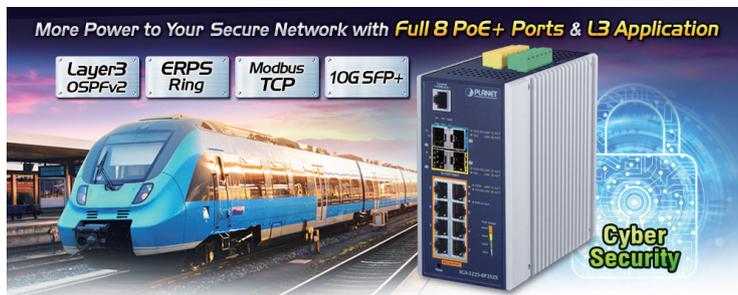


## Management

- IPv4 and IPv6 dual stack management
- Switch Management Interfaces
    - Console/Telnet Command Line Interface
    - Web switch management
    - SNMP v1 and v2c switch management
    - SSHv2, TLSv1.2,and SNMP v3 secure access
- SNMP Management
    - Four RMON groups (history, statistics, alarms, and events)
    - SNMP trap for interface Link Up and Link Down notification
- **IPv6** IP address/NTP/DNS management
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- System Maintenance
    - Firmware upload/download via HTTP/TFTP
    - Reset button for system reboot or reset to factory default
    - Dual Images
- DHCP Relay and DHCP Option 82
- DHCP Server
- User Privilege levels control
- Network Time Protocol (NTP)
- SFP-DDM (Digital Diagnostic Monitor)
- Network Diagnositc
    - ICMPv6/ICMPv4 Remote Ping
    - Cable diagnostic technology provides the mechanism to detect and report potential cabling issues
- PLANET UNI-NMS (Universal Network Management) and CloudViewer app for deployment management
- Provides ONVIF for cooperating with PLANET IP video surveillance
- SMTP/Syslog remote alarm
- System Log

### Effective Alarm Alert for Better Protection

The IGS-5225 series supports a Fault Alarm feature which can alert the users when there is something wrong with the switches. With this ideal feature, the users would not have to waste time finding where the problem is. It will help to save time and human resource.

## *Fault Alarm Feature*



DC/DC Power Failure

RJ45/Fiber Connection Link Down

Mail

System Log
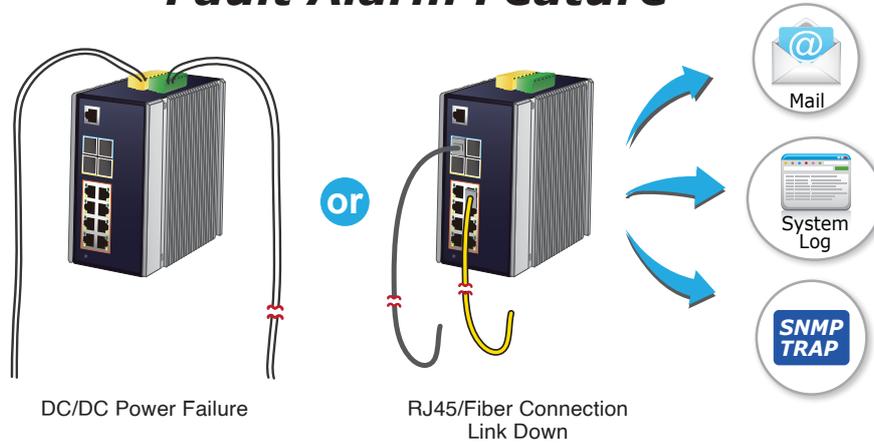
SNMP TRAP

### SMTP/SNMP Trap Event Alert

The IGS-5225 series provides event alert function to help to diagnose the abnormal device owing to whether or not there is a break of the network connection, or the rebooting response.

## *SMTP/SNMP Trap Event Alert*

**IGS-5225-8P2S2X**

E-mail Alert



Malfunction

IP Camera     IP Camera

PLANET-event from PoE Switch

tests@planet.com.tw
tests@planet.com.tw
Yesterday, 5:40 PM
To: me, kent.kang

Alarm Level:INFOMATION
Information:ID1, Link down on port 8

tests@planet.com.tw
tests@planet.com.tw
Yesterday, 5:40 PM
To: me, kent.kang

Alarm Level:WARNING
Information:ID2, Port8 PD Reboot due to alive check failure

tests@planet.com.tw
tests@planet.com.tw
Yesterday, 5:45 PM
To: me, kent.kang

Alarm Level:INFOMATION
Information:ID9, Link up on port 8

## Digital Input and Digital Output for External Alarm

The IGS-5225 series supports Digital Input and Digital Output on its front 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-5225 series port shows link down, link up or power failure.

### *Digital Input*



**Security OK!!**

Enclosure

*Door Detector (Door Closed)*

**Alarm Warning**

Enclosure

*Door Detector (Door Open)*

**Alarm Messaging**

*Uplink*

Mail    System Log    SNMP TRAP

### *Digital Output*



*DC Power Failure*

*RJ45 Cable Link Down*    *Fiber Cable Link Down*
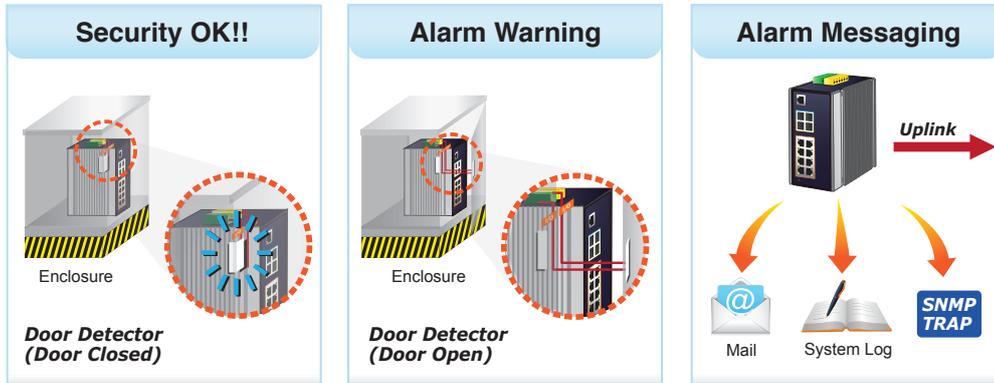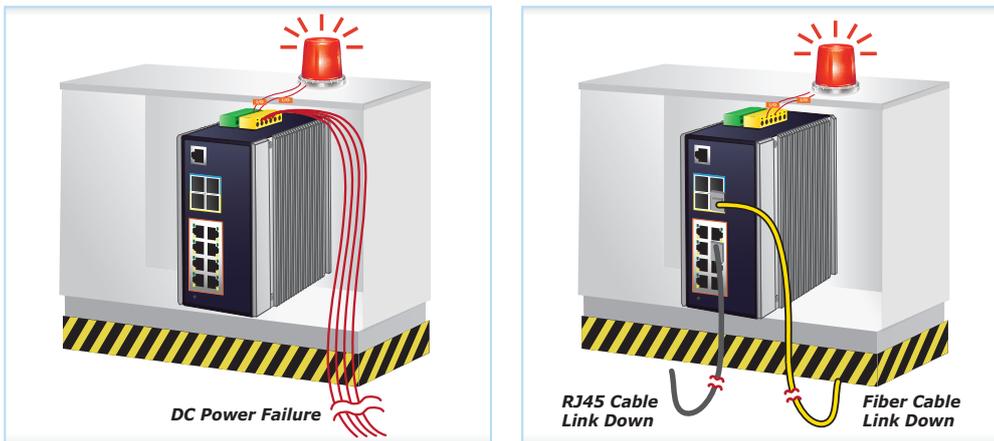
## Robust Layer 2 to Layer 4 Features

The IGS-5225 series can be programmed for advanced switch management functions such as dynamic port link aggregation, Q-in-Q VLAN, private VLAN, Rapid Spanning Tree Protocol, Layer 2 to Layer 4 QoS, bandwidth control and IGMP snooping. The IGS-5225 series provides 802.1Q tagged VLAN, and the VLAN groups allowed will be maximally up to 4000. Via aggregation of supporting ports, the IGS-5225-8P2S2X allows the operation of a high-speed trunk combining multiple ports. It enables a maximum of up to 6 trunk groups with 4 ports per trunk group, and supports fail-over as well.



MSTP    QoS    LACP    LLDP    Q-in-Q    IGMP    MLD

L2/L4 Managed Switch    L2/L4 Managed Switch
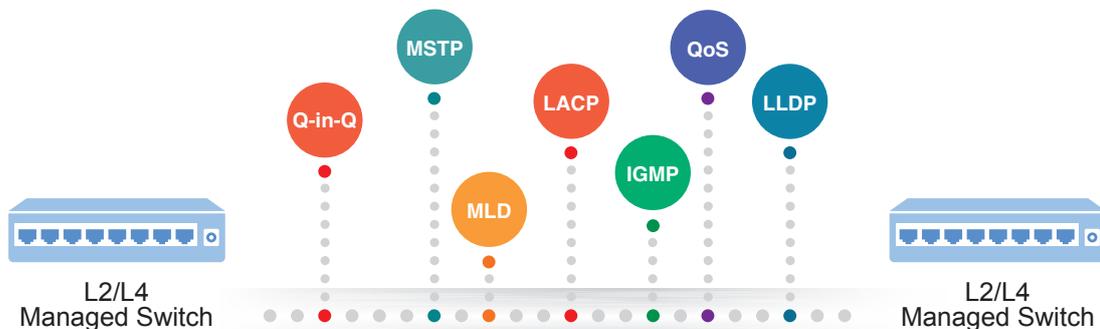
## User-friendly Secure Management

For efficient management, the IGS-5225 series 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, it can be accessed via Telnet and the console port.
- For standard-based monitor and management software, it offers SNMPv3 connection which encrypts the packet content at each session for secure remote management.



## Remote Management Solution

PLANET's **Universal Network Management System (UNI-NMS)** and CloudViewer app support IT staff by remotely managing all network devices and monitoring PDs' operational 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 CloudViewerPro app, all kinds of businesses can now be speedily and efficiently managed from one platform.



NMS Controller      CloudViewerPro App

## Powerful Security

The IGS-5225 series offers comprehensive 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 and MAC-based user and device authentication. With the private VLAN function, communication between edge ports can be prevented to ensure user privacy. The network administrators can now construct highly-secure corporate networks with considerably less time and effort than before.

## Flexibility and Extension Solution

The additional two mini-GBIC slots built in the IGS-5225-8P2S2X support triple-speed 100/1000/2500BASE-X SFP (small form-factor pluggable) fiber-optic modules, meaning the administrator now can flexibly choose the suitable SFP transceiver according to not only the transmission distance but also the transmission speed required. The distance can be extended from 300 meters to 2 kilometers (multi-mode fiber) and 10/20/40/60/80/120 kilometers (single-mode fiber or WDM fiber). They are well suited for applications to uplink to backbone switch and monitoring center in long distance.

## Intelligent SFP Diagnosis Mechanism

The IGS-5225 series 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.

### *SFP DDM (Digital Diagnostic Monitor)*

| Voltage | Ammeter | Temperature | Power Transceiver | Power Receiver |
|---|---|---|---|---|
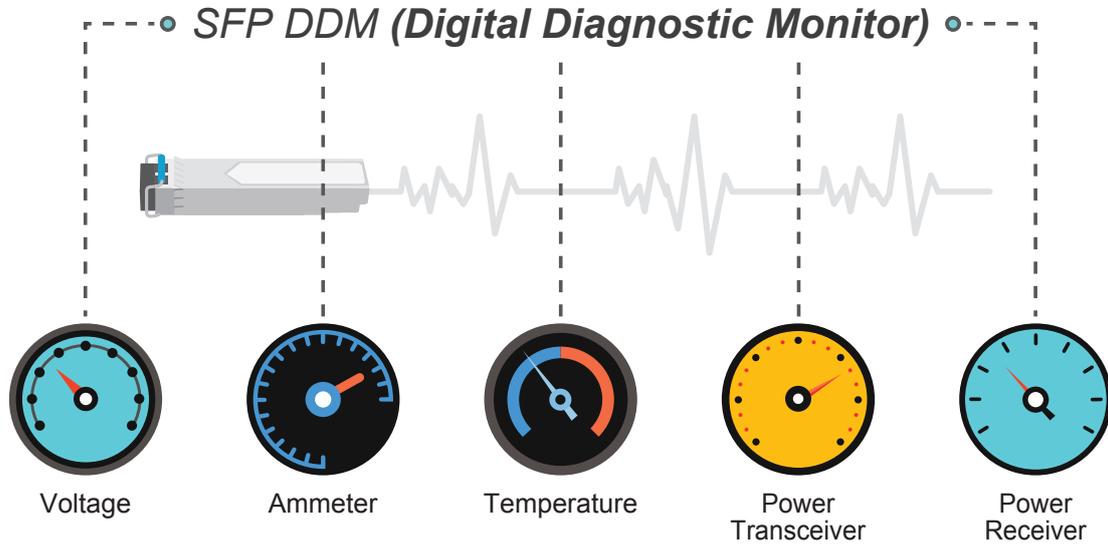
## Modbus TCP provides Flexible Network Connectivity for Factory Automation

With the supported **Modbus TCP/IP** protocol, the IGS-5225 series can easily integrate with **SCADA** systems, **HMI** systems and other data acquisition systems in factory floors. It enables administrators to remotely monitor the industrial Ethernet switch's **operating information**, **port information** and **communication status**, thus easily achieving enhanced monitoring and maintenance of the entire factory.

# Applications

### Industrial Area Department/Workgroup PoE Switch

Providing up to 8 PoE+, in-line power interfaces, the IGS-5225-8P2S2X can easily build a power centrally controlled for IP phone system, IP camera system, or wireless AP group for Industrial network. For instance, 8 PoE IP cameras or wireless access points can be easily installed around the corner in the industrial environment for surveillance demands or for a wireless roaming network. Without the power-socket limitation, the IGS-5225-8P2S2X makes the installation of IP cameras or wireless AP easier and more efficient.
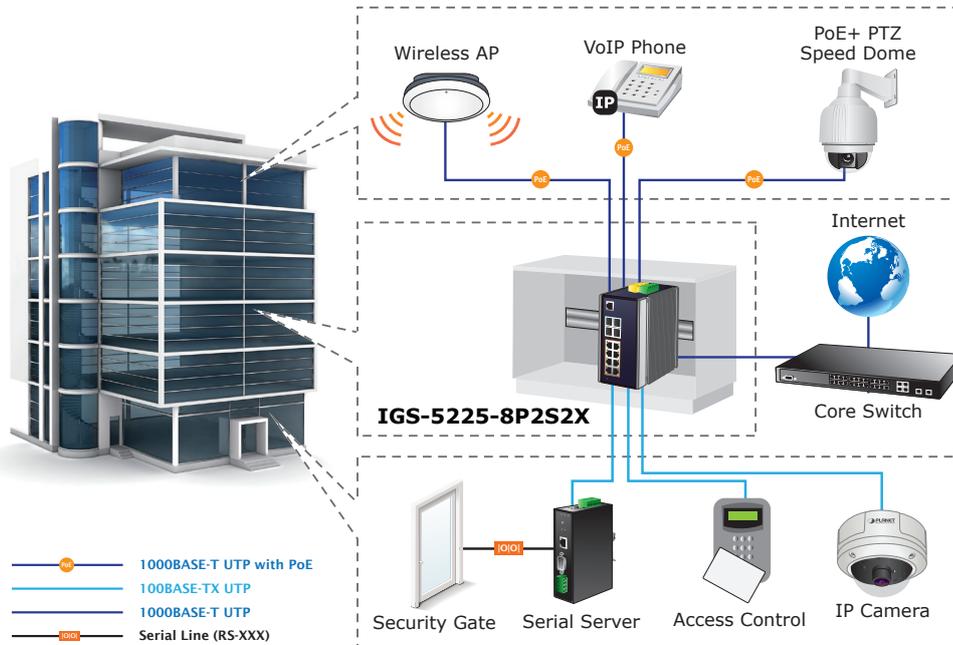


### Excellent 10Gbps High Bandwidth Solution to Core Network

The IGS-5225-8P2S2X performs 66Gbps non-blocking switch fabric, so it can easily provide a local 10Gbps high bandwidth Ethernet network for the backbone of your department. With the two built-in SFP+ ports, the IGS-5225-8P2S2X provides the uplink to the backbone network through the 10G Ethernet LR/SR SFP+ modules. It further improves the network efficiency and protects the network clients by offering the security and QoS features.



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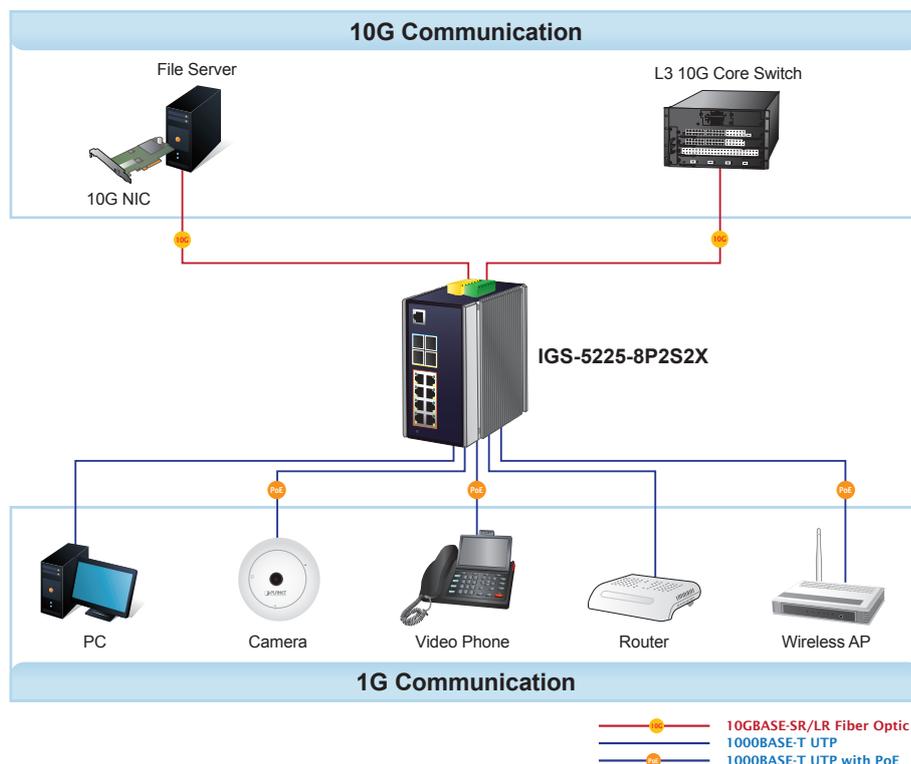
### Layer 3 VLAN Routing and 10G Uplink Application

With the built-in, robust Layer 3 routing protocols, the IGS-5225-8P2S2X ensures reliable routing between VLANs and network segments. The routing protocols can be applied by VLAN interface with up to 32 routing entries. The IGS-5225-8P2S2X, certainly an ideal solution for industries, offers greater security, control and bandwidth conservation, and high-speed uplink.

## *VLAN Routing + PoE Applications*



VoIP Phone (PoE)
VLAN100 Domain B 192.168.10.x/24

IP Surveillance (PoE)
VLAN300 Domain A 192.168.30.x/24

**IGS-5225-8P2S2X**
Layer3 IP Dynamic Routing

NVR Server
IP PBX Server

Control Center
VLAN1 Domain 192.168.0.x/24

Wireless AP (PoE)
VLAN200 Domain C 192.168.20.x/24

**1000BASE-T UTP with PoE**
**10GBASE-SR/LR Fiber Optic**

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# Specifications

| Product | IGS-5225-8P2S2X |
|---|---|
| **Hardware Specifications** | |
| Hardware Version | 4 |
| Copper Ports | 8 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports |
| SFP/mini-GBIC Slots | 2 1000BASE-SX/LX/BX SFP interfaces (Port-9 and Port-10)<br>Compatible with 100BASE-FX and 2500BASE-X SFP |
| SFP+ Slots | 2 10GbBASE-SR/LR SFP+ interfaces (Port-11 and Port-12)<br>Compatible with 1000BASE-SX/LX/BX and 2500BASE-X SFP transceiver |
| PoE Injector Port | 8 ports with 802.3at/af PoE injector function with Port-1 to Port-8 |
| Console | 1 x RJ45-to-RS232 serial port (115200, 8, N, 1) |
| Reset Button | < 5 sec: System reboot<br> > 5 sec: Factory default |
| Connector | Removable 6-pin terminal block for power input<br>Pin 1/2 for Power 1, Pin 3/4 for fault alarm, Pin 5/6 for Power 2<br>Removable 6-pin terminal block for DI/DO interface<br>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 DC |
| DI & DO | 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.<br>2 Digital Output (DO): Open collector to 24V DC, 100mA max. |
| Installation | DIN rail kit and wall-mount kit |
| Enclosure | IP30 aluminum case |
| Dimensions (W x D x H) | 76.8  x 107 x 152 mm |
| Weight | 1353 g |
| Power Consumption | Max. 11.52  watts/39.31 BTU (Power on without any connection)<br>Max. 267 watts/911.04 BTU (Full loading with PoE function) |
| Power Requirements | Dual 48~54V DC (>51V DC for PoE+ output recommended) |
| ESD Protection | 6KV DC |
| LED Indicator | **System:**<br>Power 1 (Green)<br>Power 2 (Green)<br>Fault Alarm (Red)<br>Ring (Green)<br>R.O. (Green)<br>DIDO (Red)<br>**Per 10/100/1000T RJ45 Port:**<br>LNK/ACT (Green)<br>PoE In-Use (Amber)<br>**Per 100/1000/2500BASE-X SFP Interface:**<br>1G/2.5G LNK/ACT (Green)<br>100 LNK/ACT (Amber)<br>**Per SFP+ Interface:**<br>1G/2.5G LNK/ACT (Green)<br>10G LNK/ACT (Amber) |
| **Switching Specifications** | |
| Switch Architecture | Store-and-Forward |
| Switch Fabric | 66Gbps/non-blocking |
| Throughput (packet per second) | 49.107Mpps@ 64Bytes packet |
| Address Table | 32K entries, automatic source address learning and aging |
| Shared Data Buffer | 16Mbits |
| Flow Control | IEEE 802.3x pause frame for full duplex<br>Back pressure for half duplex |
| Jumbo Frame | 10Kbytes |
| **Power Over Ethernet** | |
| PoE Standard | IEEE 802.3at Power over Ethernet Plus/PSE |
| PoE Power Supply Type | End-span |
| PoE Power Output | IEEE 802.3af Standard<br> - Per port 48V~51V DC (depending on the power supply), max. 15.4 watts<br>IEEE 802.3at Standard<br> - Per port 51V~54V DC (depending on the power supply), max. 36 watts |

| | |
|---|---|
| Power Pin Assignment | 1/2(+), 3/6(-) |
| PoE Power Budget | Dual power input: 240W maximum (depending on power input) |
| Max. number of Class 2 PDs | 8 units |
| Max. number of Class 3 PDs | 8 units |
| Max. number of Class 4 PDs | 8 units |
| PoE Management Functions | |
| PoE System Management | PoE Port status monitoring<br>Total PoE power budget control<br>Over temperature protection<br>PoE usage threshold and temperature threshold |
| PoE Device Live Detection | Per port remote PD IP address<br>4 actions<br>  - None<br>  - PD reboot<br>  - PR reboot and alarm<br>Alarm |
| PoE Power Recycling | Daily or predefined schedule |
| PoE Schedule | 4 schedule profiles |
| PoE Extend Mode | Max. 200 meters |
| Layer 3 Function | |
| IP Interfaces | Max. 128 VLAN interfaces |
| Routing Table | Max. 128 routing entries<br>Max. 4K H/W routing table entries |
| Routing Protocols | IPv4 RIPv1/v2<br>IPv4 OSPFv2<br>IPv4 hardware static routing<br>IPv6 OSPFv3<br>IPv6 hardware static routing |
| Layer 2 Function | |
| Port Configuration | Port disable/enable<br>Auto-negotiation 10/100/1000Mbps full and half duplex mode selection<br>Flow control disable/enable<br>Port link capability control |
| Port Status | Display each port's speed duplex mode, link status, flow control status, auto negotiation status, trunk status |
| Port Mirroring | TX/RX/Both<br>Many-to-1 monitor<br>RMirror – Remote Switched Port Analyzer (Cisco RSPAN)<br>Supports up to 5 sessions |
| VLAN | IEEE 802.1Q tag-based VLAN<br>IEEE 802.1ad Q-in-Q tunneling<br>Private VLAN Edge (PVE)<br>MAC-based VLAN<br>Protocol-based VLAN<br>Voice VLAN<br>MVR (Multicast VLAN Registration)<br>GVRP (GARP VLAN Registration Protocol)<br>Up to 4K VLAN groups, out of 4094 VLAN IDs |
| Spanning Tree Protocol | IEEE 802.1D Spanning Tree Protocol (STP)<br>IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)<br>IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)<br>BPDU Guard |
| Link Aggregation | IEEE 802.3ad LACP/static trunk<br>Supports 6 trunk groups with 4 ports per trunk group |
| IGMP Snooping | IPv4 IGMP (v1/v2/v3) snooping<br>IPv4 IGMP querier mode support<br>IPv4 IGMP Snooping port filtering<br>Up to 255 multicast groups |
| MLD Snooping | IPv6 MLD (v1/v2) snooping<br>IPv6 MLD querier mode support<br>Up to 255 multicast groups |
| Ring | Supports ERPS, and complies with ITU-T G.8032<br>Recovery time < 10ms @ 3 nodes<br>Recovery time <50ms @ 16 nodes<br>Supports major ring and sub-ring |

| | |
|---|---|
| Synchronization | IEEE 1588v2 PTP (Precision Time Protocol)<br>  Peer-to-peer transparent clock<br>  End-to-end transparent clock |
| QoS | Traffic classification based, strict priority and WRR<br>8-level priority for switching<br>  - Port number<br>  - 802.1p priority<br>  - 802.1Q VLAN tag<br>  - DSCP/TOS field in IP packet |
| Bandwidth Control | Per port bandwidth control<br>  Ingress: 500Kb~1000Mbps<br>  Egress: 500Kb~1000Mbps |
| **Security Functions** | |
| Access Control List | IP-based ACL/MAC-based ACL<br>ACL based on:<br>  - MAC Address<br>  - IP Address<br>  - Ethertype<br>  - Protocol Type<br>  - VLAN ID<br>  - DSCP<br>  - 802.1p Priority<br>Up to 512 entries |
| Security | Port security<br>IP source guard, up to 512 entries<br>Dynamic ARP inspection, up to 1K entries<br>Command line authority control based on user level<br>Static MAC address, up to 64 entries |
| AAA | RADIUS client<br>TACACS+ client |
| Network Access Control | IEEE 802.1x port-based network access control<br>MAC-based authentication<br>Local/RADIUS authentication |
| **Management** | |
| Basic Management Interfaces | Console; Telnet; Web browser; SNMP v1, v2c |
| Secure Management Interfaces | SSHv1/SSHv2, TLSv1.2, SNMP v3 |
| System Management | Firmware upgrade by HTTP protocol through Ethernet network<br>Configuration upload/download through HTTP<br>Remote syslog<br>System log<br>LLDP protocol<br>NTP<br>PLANET Smart Discovery Utility<br>PLANET CloudViewer app |
| Event Management | Remote syslog<br>System log<br>SMTP |
| ONVIF | ONVIF device discovery<br>ONVIF device monitoring<br>Floor map |
| SNMP MIBs | RFC 1213 MIB-II      RFC 2933 IGMP-STD-MIB<br>RFC 1493 Bridge MIB      RFC 3411 SNMP-Frameworks-MIB<br>RFC 1643 Ethernet MIB      RFC 4292 IP Forward MIB<br>RFC 2863 Interface MIB      RFC 4293 IP MIB<br>RFC 2665 Ether-Like MIB      RFC 4836 MAU-MIB<br>RFC 2819 RMON MIB (Groups 1, 2, 3 and 9)      IEEE 802.1X PAE<br>RFC 2737 Entity MIB      LLDP<br>RFC 2618 RADIUS Client MIB      MAU-MIB<br>RFC 2863 IF-MIB |
| **Standards Conformance** | |
| Regulatory Compliance | FCC Part 15 Class A, CE |

| Stability Testing | IEC60068-2-32 (free fall) |  |
|---|---|---|
|  | IEC60068-2-27 (shock) |  |
|  | IEC60068-2-6 (vibration) |  |
| Standards Compliance | IEEE 802.3 10BASE-T | IEEE 1588 PTPv2 |
|  | IEEE 802.3u 100BASE-TX/100BASE-FX | RFC 768 UDP |
|  | IEEE 802.3z Gigabit SX/LX | RFC 783 TFTP |
|  | IEEE 802.3ab Gigabit 1000T | RFC 791 IP |
|  | IEEE 802.3x flow control and back pressure | RFC 792 ICMP |
|  | IEEE 802.3ad port trunk with LACP | RFC 2068 HTTP |
|  | IEEE 802.1D Spanning Tree Protocol | RFC 1058 RIP v1 |
|  | IEEE 802.1w Rapid Spanning Tree Protocol | RFC 2453 RIP v2 |
|  | IEEE 802.1s Multiple Spanning Tree Protocol | RFC 1112 IGMP v1 |
|  | IEEE 802.1p Class of Service | RFC 2236 IGMP v2 |
|  | IEEE 802.1Q VLAN tagging | RFC 3376 IGMP version 3 |
|  | IEEE 802.1ad Q-in-Q VLAN stacking | RFC 2710 MLD version 1 |
|  | IEEE 802.1X Port Authentication Network Control | RFC 3810 MLD version 2 |
|  | IEEE 802.1ab LLDP | RFC 2328 OSPF v2 |
|  | IEEE 802.3af Power over Ethernet | RFC 2740 OSPF v3 |
|  | IEEE 802.3at Power over Ethernet Plus | ITU G.8032 ERPS Ring |
|  | IEEE 802.3ah OAM | ITU-T G.8032 ERPS Ring |
|  | IEEE 802.1ag Connectivity Fault Management(CFM) | ITU-T Y.1731 Performance Monitoring |
|  | IEEE 802.3az Energy Efficient Ethernet(EEE) |  |
| **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) |  |

# Dimensions



Top View

Side View     Front View     Side View     Rear View     Mounting Kit

DIN-Rail Kit

Bottom View

Mounting Kit

*Unit: mm*

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# Ordering Information

| | |
|---|---|
| IGS-5225-8P2S2X | Industrial L3 8-Port 10/100/1000T 802.3at PoE + 2-Port 1G/2.5G SFP + 2-Port 10G SFP+ Managed Ethernet Switch (-40~75 degrees C) |

# Related Products

| | |
|---|---|
| IGS-5225-8P2T4S | Industrial L2+ 8-Port 10/100/1000T 802.3at PoE + 2-Port 10/100/1000T + 2-Port 100/1G SFP + 2-Port 100/1G/2.5G SFP Managed Ethernet Switch |
| IGS-5225-8P2T2S | Industrial L2+ 8-Port 10/100/1000T 802.3at PoE + 2-Port 10/100/1000T + 2-Port 100/1G/2.5G SFP Managed Ethernet Switch |
| IGS-5225-8P4S | Industrial L2+ 8-Port 10/100/1000T 802.3at PoE + 2-Port 100/1GSFP + 2-Port 100/1G/2.5G SFP Managed Ethernet Switch |
| IGS-6325-16P4S | L3 Industrial 16-Port 10/100/1000T 802.3at PoE + 4-Port 100/1000X SFP Managed Ethernet Switch (-40~75 degrees C) |
| IGS-20160HPT | L3 Industrial 16-Port 10/100/1000T 802.3at PoE + 2-Port 10/100/1000T + 2-Port 1G/2.5G SFP Managed Ethernet Switch |
| IGS-10020HPT | L2+ Industrial 8-Port 10/100/1000T 802.3at PoE + 2-Port 1G/2.5G SFP Managed Ethernet Switch |

# Available 10Gbps Modules

| | |
|---|---|
| MTB-LB40 | 1-Port 10GBASE-BX SFP+ Fiber Optic Module - 40km (TX:1330nm RX:1270nm) |
| MTB-LA40 | 1-Port 10GBASE-BX SFP+ Fiber Optic Module - 40km (TX:1270nm RX:1330nm) |
| MTB-LB20 | 1-Port 10GBASE-BX SFP+ Fiber Optic Module - 20km (TX:1330nm RX:1270nm) |
| MTB-LA20 | 1-Port 10GBASE-BX SFP+ Fiber Optic Module - 20km (TX:1270nm RX:1330nm) |
| MTB-SR | 1-Port 10GBASE-SR SFP+ Fiber Optic Module - 300m |
| MTB-LR | 1-Port 10GBASE-LR SFP+ Fiber Optic Module - 10km |
| MTB-LA60 | 1-Port 10GBASE-BX SFP+ Fiber Optic Module - 60km (TX:1270nm RX:1330nm) |
| MTB-LB60 | 1-Port 10GBASE-BX SFP+ Fiber Optic Module - 60km (TX:1330nm RX:1270nm) |
| MTB-RJ | 1-Port 10GBASE-T SFP+ Copper Fiber Optic Module - 30m |
| MTB-LR40 | 1-Port 10GBASE-LR SFP+ Fiber Optic Module - 40km |
| MTB-SR2 | 1-Port 10GBASE-SR SFP+ Fiber Optic Module – 2km |
| MTB-LR20 | 1-Port 10GBASE-LR SFP+ Fiber Optic Module - 20km |
| MTB-LR60 | 1-Port 10GBASE-LR SFP+ Fiber Optic Module - 60km |
| MTB-LR80 | 1-Port 10GBASE-LR SFP+ Fiber Optic Module - 80km |
| MTB-LA10 | 1-Port 10GBASE-BX SFP+ Fiber Optic Module - 10km (TX:1270nm RX:1330nm) |
| MTB-LB10 | 1-Port 10GBASE-BX SFP+ Fiber Optic Module - 10km (TX:1330nm RX:1270nm) |

# Available 2500Mbps Modules

| | |
|---|---|
| MGB-2GSR | 2.5G SFP Transceiver (Multi-mode, 850nm, DDM, 0~70 degrees C) - 300m |
| MGB-2GLA20 | 2.5G SFP Transceiver (Single mode WDM, TX:1310nm RX:1550nm, DDM, 0~70 degrees C) - 20km |
| MGB-2GLB20 | 2.5G SFP Transceiver (Single mode WDM, TX:1550nm RX:1310nm, DDM, 0~70 degrees C) - 20km |
| MGB-2GLR20 | 2.5G SFP Transceiver (Single mode, 1310nm, DDM) - 20km |
| MGB-2GLR2 | 2.5G SFP Transceiver (Single mode, 1310nm, DDM) - 2km |

# Available 1000Mbps Modules

| MGB-GT | SFP-Port 1000BASE-T Module |
| --- | --- |
| MGB-LX | SFP-Port 1000BASE-LX Mini-GBIC Module - 20km |
| MGB-SX | SFP-Port 1000BASE-SX Mini-GBIC Module - 550m |
| MGB-SX2 | SFP-Port 1000BASE-SX Mini-GBIC Module - 2km |
| 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-BX (WDM, TX:1310nm) Mini-GBIC Module - 10km |
| MGB-LB10 | SFP-Port 1000BASE-BX (WDM, TX:1550nm) Mini-GBIC Module - 10km |
| MGB-LA20 | SFP-Port 1000BASE-BX (WDM, TX:1310nm) Mini-GBIC Module - 20km |
| MGB-LB20 | SFP-Port 1000BASE-BX (WDM, TX:1550nm) Mini-GBIC Module - 20km |
| MGB-LA40 | SFP-Port 1000BASE-BX (WDM, TX:1310nm) Mini-GBIC Module - 40km |
| MGB-LB40 | SFP-Port 1000BASE-BX (WDM, TX:1550nm) Mini-GBIC Module - 40km |
| MGB-LA80 | SFP-Port 1000BASE-BX (WDM, TX:1490nm) Mini-GBIC Module - 80km |
| MGB-LB80 | SFP-Port 1000BASE-BX (WDM, TX:1550nm) Mini-GBIC Module - 80km |

# Available Modules

| MTB Series | 10GBASE-LR/SR/BX/T Modules |
| --- | --- |
| MGB2G-Series Transceiver | 2500BASE-SX/LX Transceiver |
| MGB-Series Transceiver | 1000BASE-SX/LX Transceiver |
| MFB-Series Transceiver | 100BASE-FX SFP Transceiver |

# Related Power Supply

| PWR-480-48 | 48V, 480W DIN-rail Power Supply (NDR-480-48, adjustable 48-56V DC Output) |
| --- | --- |

**IGS-5225-8P2S2X**