

Industrial L3 16-Port 10/100/1000T 802.3at PoE + 4-Port 1G/2.5G SFP Managed Ethernet Switch



Advanced Manageable PoE Solution for Hardened Environment

PLANET IGS-6325-16P4S L3 Industrial Managed PoE+ Switch boasts **16 10/100/1000BASE-T 802.3at PoE+** ports with each capable of providing up to **36 watts** of power. Featuring a robust power budget of **up to 360 watts**, this switch ensures abundant power for all connected devices. In addition to its PoE+ ports, it comes equipped with **4 100/1000/2500BASE-X** fiber ports, housed within a rugged IP30 metal case. This design not only enhances its durability but also makes it suitable for deployment in the most challenging settings. It features intuitive yet advanced **IPv6/IPv4** management interfaces, empowering users with efficient control and configuration. Its feature-rich design includes a plethora of L2/L4 switching functions, Layer 3 OSPFv2/v3 dynamic routing capability, and cutting-edge **ITU-T G.8032 ERPS Ring** technology, ensuring seamless connectivity and rapid self-recovery in the event of network disruptions.



Cybersecurity Network Solution to Minimize Security Risks

The IGS-6325-16P4S supports SSHv2, TLS and SSL protocols to provide strong protection against advanced threats. It includes a range of cybersecurity features such as **DHCP Snooping**, **IP Source Guard**, **ARP Inspection** Protection, **802.1x port-based** and **MAC-based** network access control, **RADIUS** and **TACACS+** user accounts management, **SNMPv3** authentication, and so on to complement it as an all-security solution.

Physical Port

- **16 10/100/1000BASE-T** Gigabit Ethernet RJ45 ports with **IEEE 802.3at PoE+** Injector function
- **4 100/1000/2500BASE-X** slots for SFP type auto detection
- 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 16 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 control to support power feeding up to a distance of up to 160 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)

Industrial Case and Installation

- IP30 aluminum case
- DIN-rail or wall-mount design
- 48~54V DC, redundant power with reverse polarity protection
- Supports 6KV DC Ethernet ESD protection
- -40 to 75 degrees C operating temperature

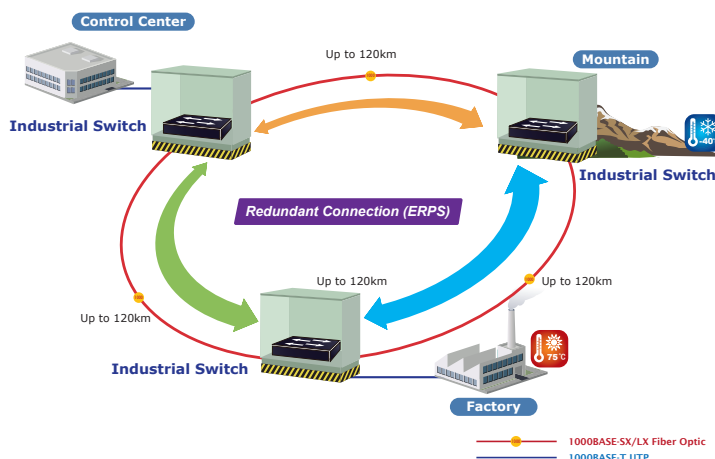
Digital Input and Digital Output

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



Redundant Ring, Fast Recovery for Critical Network Applications

The IGS-6325-16P4S 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 simple Ring network, the recovery time of data link can be as fast as 10ms.



High Power PoE for Security and Public Service Applications

As the whole system comes with a total **360-watt** PoE budget, the IGS-6325-16P4S is designed specifically to satisfy the growing demand of higher power consuming network PDs (powered devices) such as multi-channel (802.11ac/ax/be) wireless LAN access points, PTZ (pan, tilt, zoom) speed dome network cameras and other PoE network devices.

Convenient and Smart ONVIF Devices with Detection Feature

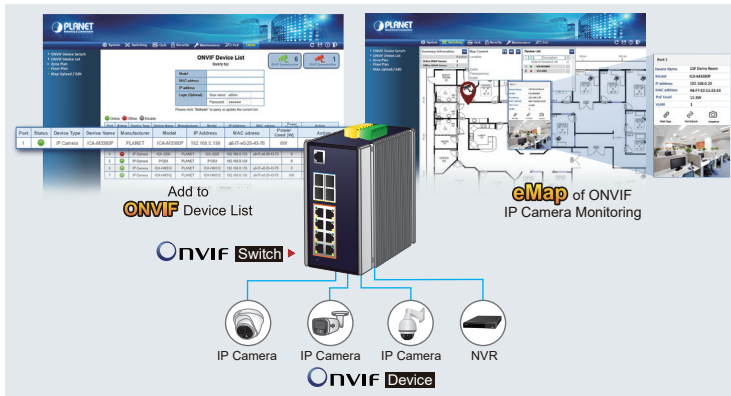
PLANET has newly developed an awesome feature -- ONVIF Support -- which is specifically designed for co-operating with video IP surveillances. From the IGS-6325-16P4S GUI, clients just need one click to search and show all of the ONVIF devices via network application. In addition, clients can upload floor images to the switch series, making the deployments of surveillance and other devices easy for planning and inspection purposes. Moreover, clients can get real-time surveillance's information and online/offline status; the PoE reboot can be controlled from the GUI.

Layer 3 IP Routing Features

- Supports maximum 128 static routes and route summarization.
- IPv4 dynamic routing protocol supports RIPv2 and OSPFv2.
- IPv6 dynamic routing protocol supports OSPFv3.
- IPv4/IPv6 hardware static routing
- Routing interface provides per VLAN routing mode.

Layer 2 Features

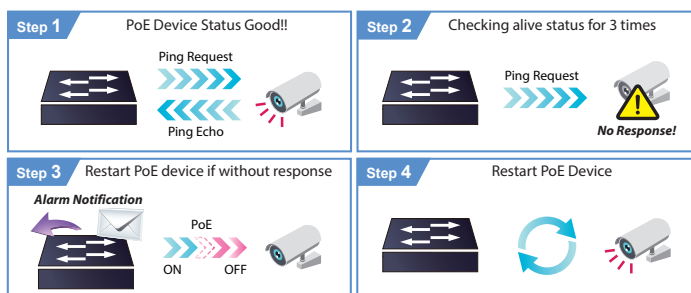
- Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x pause frame flow control (full-duplex)
- High performance of Store-and-Forward architecture, and runt/CRC filtering eliminates erroneous packets to optimize the network bandwidth
- Storm Control support
 - Broadcast/Multicast/Unicast
- Supports **VLAN**
 - IEEE 802.1Q tagged VLAN
 - Up to 4K VLANs groups, out of 4094 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 10 trunk groups with 20 ports per trunk group
 - Up to 8Gbps 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
- Supports 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)



Intelligent Alive Check for Powered Device

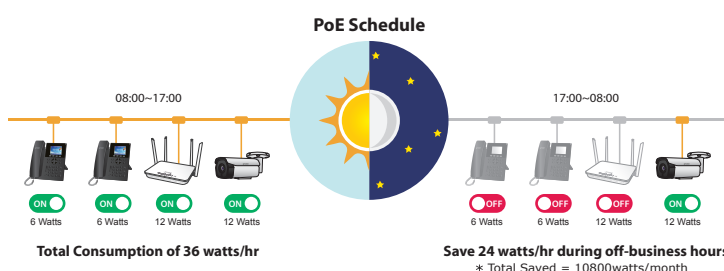
The IGS-6325-16P4S PoE Switch can be configured to monitor connected PD's status in real time via ping action. Once the PD stops working and responding, the IGS-6325-16P4S will recycle the PoE port power and bring the PD back to work. It also greatly enhances the reliability in that the PoE port will reset the PD power, thus reducing administrator's management burden.

PD Alive Check



PoE Schedule for Energy Saving

Under the trend of energy saving worldwide and contributing to environmental protection on the Earth, the IGS-6325-16P4S 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.



Scheduled Power Recycling

The IGS-6325-16P4S 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.

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
 - IP TOS/DSCP/IP precedence
 - 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

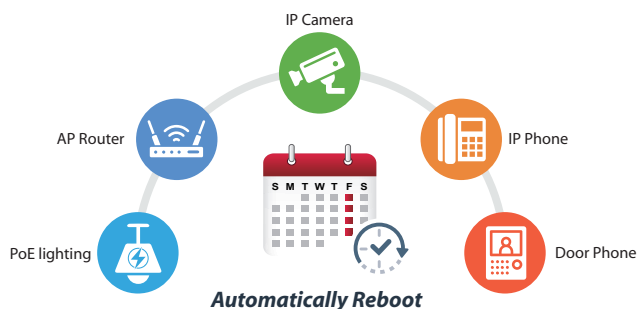
- Supports IPv4 IGMP snooping v1, v2 and v3
- Supports IPv6 MLD snooping v1 and v2
- Querier mode support
- IPv4 IGMP snooping port filtering
- IPv6 MLD snooping port filtering
- MVR (Multicast VLAN Registration)

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
 - Guest VLAN assigns clients to a restricted VLAN with limited services
- 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

Management

- IPv4 and IPv6 dual stack management
- Switch Management Interfaces
 - Console/Telnet Command Line Interface
 - Web switch management



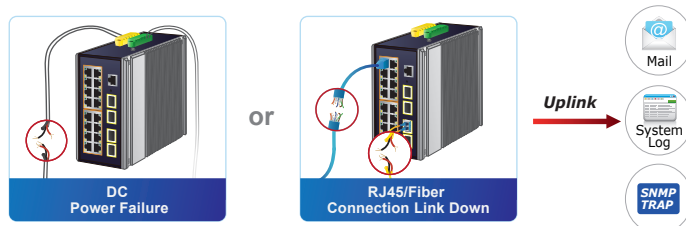
SMTP/SNMP Trap Event Alert

The IGS-6325-16P4S 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.

Effective Alarm Alert for Better Protection

The IGS-6325 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



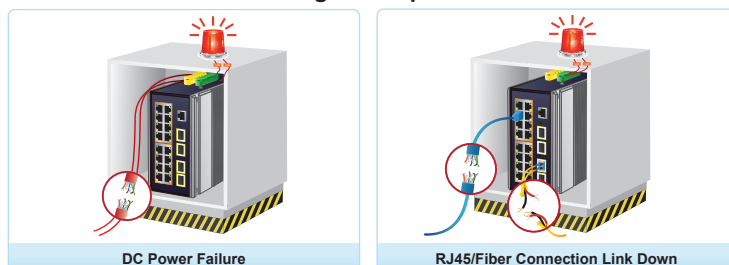
Digital Input and Digital Output for External Alarm

The IGS-6325 Series supports Digital Input and Digital Output 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-6325 Series' port shows link down, link up or power failure.

Digital Input



Digital Output



- SNMP v1 and v2c and v3 switch management
- SSHv2, TLSv1.2 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 Functions:
 - DHCP Relay
 - DHCP Option 82
 - DHCP Server
- User Privilege levels control
- Network Time Protocol (NTP)
- Network Diagnostic
 - SFP-DDM (Digital Diagnostic Monitor)
 - ICMPv6/ICMPv4 Remote Ping
 - Cable diagnostic technology provides the mechanism to detect and report potential cabling issues
- PLANET NMS System and Smart Discovery Utility for deployment management
- SMTP/Syslog remote alarm
- System Log
- Provides ONVIF for co-operating with PLANET video IP surveillances

Layer 3 Routing Support

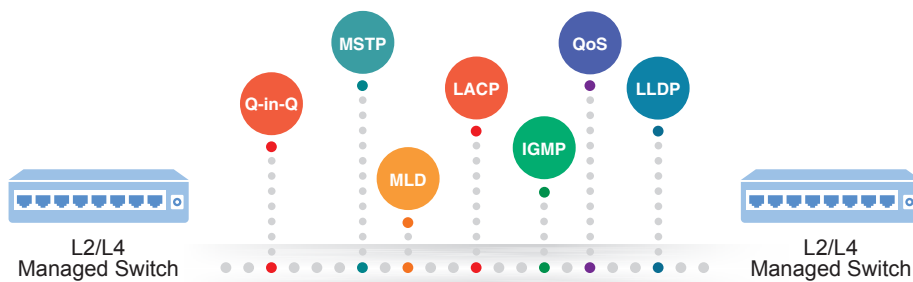
The IGS-6325 Series enables the administrator to conveniently boost network efficiency by configuring Layer 3 IPv4/IPv6 VLAN static routing manually, the **RIP** (Routing Information Protocol) or **OSPF** (Open Shortest Path First) settings automatically.

The RIP can employ the hop count as a routing metric and prevent routing loops by implementing a limit on the number of hops allowed in a path from the source to a destination.

The OSPF is an interior dynamic routing protocol for autonomous system based on link state. The protocol creates a database for link state 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.

Robust Layer 2 Features

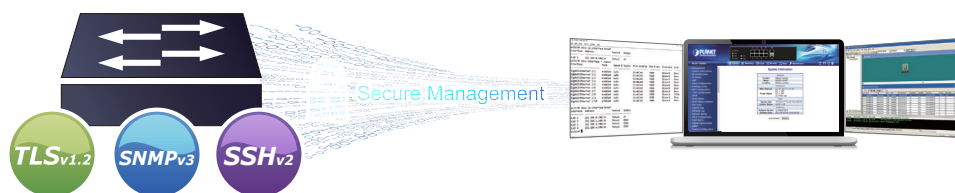
The IGS-6325 Series can be programmed for advanced switch management functions such as dynamic port link aggregation, Q-in-Q VLAN, private VLAN, Rapid Spanning Tree Protocol, Layer 2 to Layer 4 QoS, bandwidth control and IGMP snooping. The IGS-6325 Series provides 802.1Q tagged VLAN, and the VLAN groups allowed will be maximally up to 255. Via aggregation of supporting ports, the IGS-6325 Series 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.



Efficient Management

For efficient management, the IGS-6325 Series is equipped with console, Web and SNMP management interfaces.

- With the built-in **Web-based** management interface, the IGS-6325 Series 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.



Powerful Security

The IGS-6325 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.

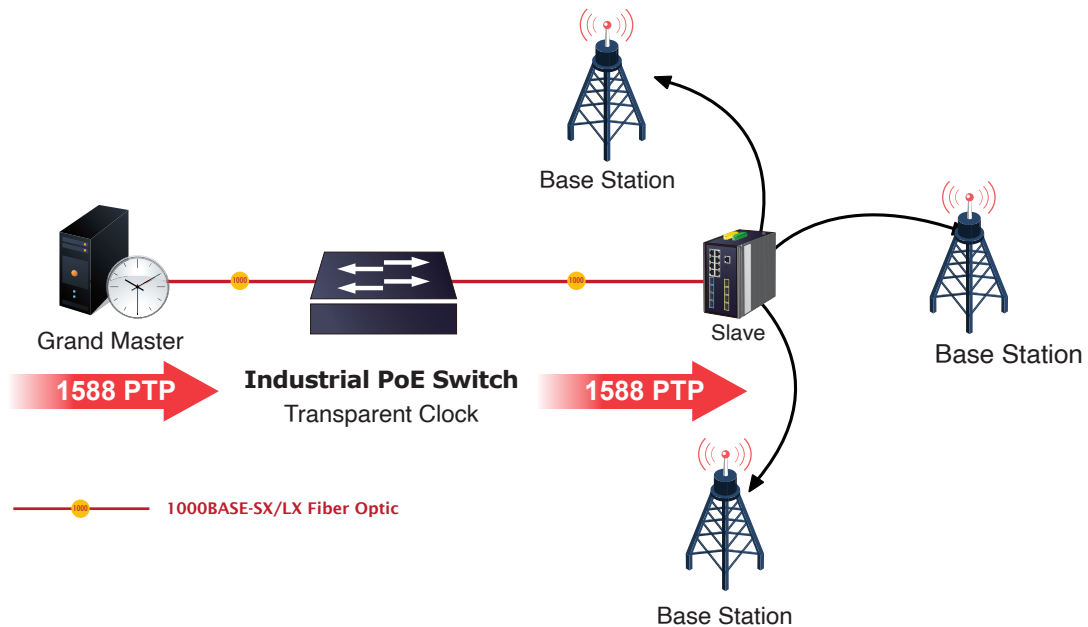
Modbus TCP Provides Flexible Network Connectivity for Factory Automation

With the supported **Modbus TCP/IP** protocol, the IGS-6325 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.

1588 Time Protocol for Industrial Computing Networks

The IGS-6325 Series is ideal for telecom and Carrier Ethernet applications, supporting MEF service delivery and timing over packet solutions for IEEE 1588 and synchronous Ethernet.

Time Synchronization in Network

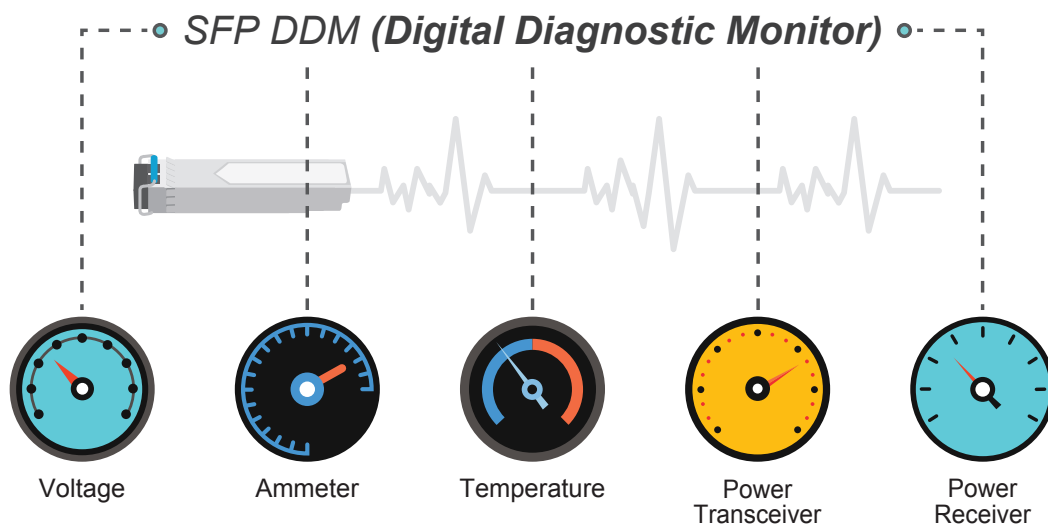


Flexibility and Extension Solution

The additional four mini-GBIC slots built in the IGS-6325-16P4S 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-6325 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.



Remote Management Solution

PLANET's **Universal Network Management System (UNI-NMS)** and **CloudViewerPro 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, NMSViewerPro app or CloudViewerPro app, all kinds of businesses can now be speedily and efficiently managed from one platform.

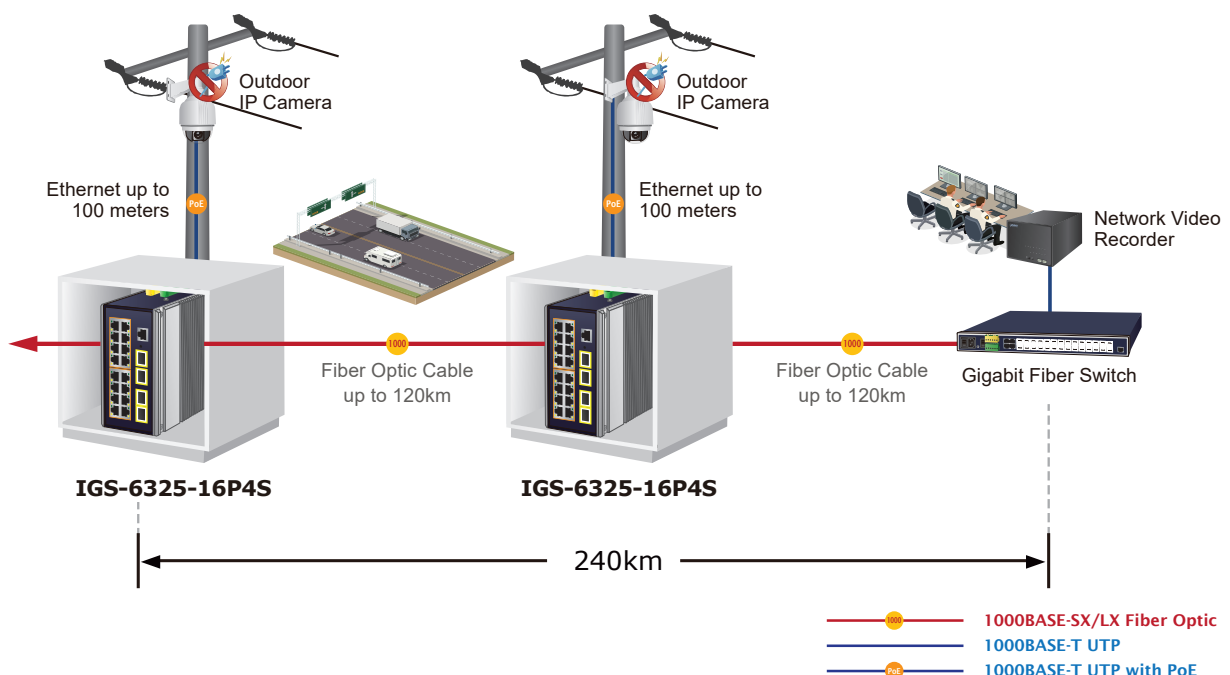


Applications

Industrial Area Department/Workgroup PoE Switch

Providing up to 16 PoE+, in-line power interfaces, the IGS-6325-16P4S can easily build a power centrally controlled for IP phone system, IP camera system, or wireless AP group for Industrial network. For instance, 16 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-6325-16P4S makes the installation of IP cameras or wireless AP easier and more efficient.

Extending Ethernet Distance



Specifications

Product	IGS-6325-16P4S
Hardware Specifications	
Copper Ports	16 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports
SFP Slots	4 1000BASE-SX/LX/BX SFP interfaces (Port-17 to Port-20) Compatible with 100BASE-FX and 2500BASE-X SFP
PoE Injector Port	16 ports with 802.3at/af PoE injector function (Port-1 to Port-16)
Console	1 x RJ45-to-RS232 serial port (115200, 8, N, 1)
Reset Button	< 5 sec: System reboot > 5 sec: Factory default
ESD Protection	6KV DC
Enclosure	IP30 aluminum case
Installation	DIN-rail kit and wall-mount kit
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 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 DC
Digital Input	2 digital input (DI) Level 0: -24V~2.1V ($\pm 0.1V$) Level 1: 2.1V~24V ($\pm 0.1V$) Input load to 24V DC, 10mA max.
Digital Output	2 digital output (DO) Open collector to 24V DC, 100mA max.
Dimensions (W x D x H)	76 x 135 x 152 mm
Weight	1530g
Power Requirements	Dual 48~54V DC (>51V DC for PoE+ output recommended)
Power Consumption	Max. 17.4 watts/59.334BTU (Power on without any connection) Max. 394 watts/1343.54BTU (Full loading with PoE function)
LED Indicator	System: - Power 1 (Green) - Power 2 (Green) - Fault Alarm (Red) - Ring (Green) - Ring Owner (Green) - DIDO (Red) Per 10/100/1000T RJ45 PoE+ Ports: - PoE-in-Use (Amber) - LNK/ACT (Green) Per SFP Interface: - 100 LNK/ACT (Amber) - 1G/2.5G LNK/ACT (Green)
Switching Specifications	
Switch Architecture	Store-and-Forward
Switch Fabric	52Gbps/non-blocking
Throughput (packet per second)	38.6Mpps@ 64 bytes packet
Address Table	16K entries, automatic source address learning and aging
Shared Data Buffer	32Mbits
Jumbo Frame	10K bytes
Flow Control	IEEE 802.3x pause frame for full duplex Back pressure for half duplex
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 - Per port 48V~51V DC, max. 15.4 watts IEEE 802.3at Standard - Per port 51V~54V DC, max. 36 watts
Power Pin Assignment	1/2(+), 3/6(-)
PoE Power Budget	Signal Power input - 240W maximum (depending on power input) Dual Power input - 360W maximum (depending on power input) *Dual power input must be the same as DC voltage, like dual 54V

Max. Number of Class 2 PDs	16
Max. Number of Class 3 PDs	16
Max. Number of Class 4 PDs	10
PoE Management Functions	
Enhanced PoE Mode	Standard/Legacy/Force
PoE Management	PD Alive Check Scheduled Power Recycling PoE Schedule PoE Usage Monitoring PoE Extension
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 160 meters
Layer 3 Function	
IP Interfaces	Max. 128 VLAN interfaces
Routing Table	Max. 128 routing entries Max. 4K H/W routing table entries
Routing Protocols	IPv4 hardware static routing IPv6 hardware static routing IPv4 RIPv2 IPv4 OSPFv2 dynamic routing IPv6 OSPFv3 dynamic routing
Layer 2 Function	
Port Configuration	Port disable/enable Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Flow control disable/enable Power saving mode 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 Many-to-1 monitor RMirror – Remote Switched Port Analyzer (Cisco RSPAN) Supports up to 5 sessions
VLAN	IEEE 802.1Q tag-based VLAN, up to 255 VLAN groups IEEE 802.1ad Q-in-Q tunneling Private VLAN Edge (PVE) MAC-based VLAN Protocol-based VLAN Voice VLAN MVR (Multicast VLAN Registration) GVRP (GARP VLAN Registration Protocol) Up to 4K VLAN groups, out of 4094 VLAN IDs
Link Aggregation	IEEE 802.3ad LACP/static trunk Supports <ul style="list-style-type: none"> – Static Port Trucking, (20 ports/10 groups max.) – Dynamic LACP-(20 ports/10 groups max.)
Spanning Tree Protocol	IEEE 802.1D Spanning Tree Protocol IEEE 802.1w Rapid Spanning Tree Protocol IEEE 802.1s Multiple Spanning Tree Protocol BPDU Guard
IGMP Snooping	IPv4 IGMP (v1/v2/v3) snooping, up to 255 multicast groups IPv4 IGMP querier mode support IPv4 IGMP Snooping port filtering Multicast VLAN Registration
MLD Snooping	IPv6 MLD (v1/v2) snooping, up to 255 multicast groups IPv6 MLD querier mode support
Bandwidth Control	Per port bandwidth control Ingress: 500Kb~1000Mbps Egress: 500Kb~1000Mbps
RING	Support ERPS, complies with ITU-T G.8032v1 and v2 Recovery time < 50ms

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

Dimensions



Ordering Information

IGS-6325-16P4S	Industrial L3 16-Port 10/100/1000T 802.3at PoE + 4-Port 1G/2.5G SFP Managed Ethernet Switch
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Related Products

IGS-6325-16T4X	Industrial L3 16-Port 10/100/1000BASE-T + 4-Port 10GBASE-X SFP+ Managed Switch
IGS-6325-16T4S	Industrial L3 16-Port 10/100/1000T + 4-Port 1G/2.5G SFP Managed Ethernet Switch
IGS-20160HPT	Industrial L3 16-Port 10/100/1000T 802.3at PoE + 2-Port 10/100/1000T + 2-Port 1G/2.5G SFP Managed Ethernet Switch

Available Modules

MGB2G-Series Transceiver	2500BASE-SX/LX Transceiver
MGB-Series Transceiver	1000BASE-SX/LX Transceiver

Related Power Supply

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