Industrial L2+ 4-Port 10/100/1000T 802.3bt PoE + 1-Port 10/100/1000T + 2-Port 1G/2.5G SFP Managed Ethernet Switch w/ 12V Booster

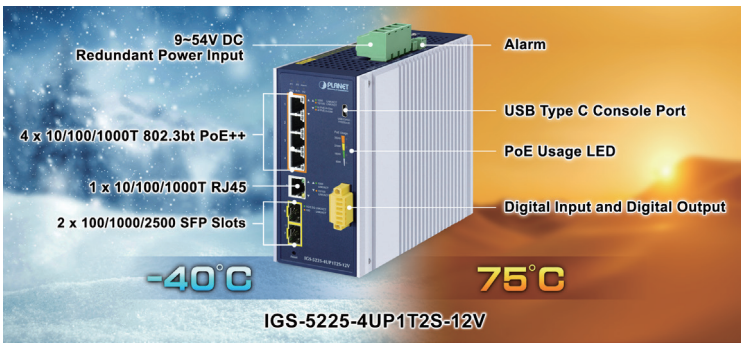
Renewable Energy for Powering the Switch

PLANET's newly-launched Industrial Managed Ethernet Switch, the IGS-5225-4UP1T2S-12V, can be powered by the inexhaustible and natural source of energy, such as solar, wind and hydroelectric power to conserve energy so as to economically power these remote IP cameras and wireless APs.

Complying with the IEEE 802.3bt Power over Ethernet Plus Plus technology, PLANET's improved IGS-5225-4UP1T2S-12V L2+ Industrial Managed PoE++ Switch features four 10/100/1000BASE-T 802.3bt PoE++ ports with each port powering up to **95 watts**, one extra 10/100/1000BASE-T copper port and **two 100/1000/2500BASE-X SFP interfaces** in a rugged IP30 aluminum case for stable operation in heavy industrial environments.

The IGS-5225-4UP1T2S-12V adopts **DC 9~ 48V** power boost technology to solve power source issue but does not require special power supplies. It supports rich PoE operation modes including 95-watt 802.3bt type-4 PoE++ ports, 95-watt legacy mode and force mode to solve the incompatibility of non-standard 4-pair PoE PDs in the field. With a total power budget of up to 360 watts with dual power input for different kinds of PoE applications, it is designed to efficiently handle power distribution for a versatile array of connected devices which meet the Environmental, Social, and Governance (ESG) principles. Leveraging cutting-edge IP-based technology, PLANET has transformed conventional Power Over Ethernet (PoE) into genuine network devices that align with sustainable and responsible business practices.

Being able to operate under wide temperature range from **-40 to 75 degrees C**, the IGS-5225-4UP1T2S-12V can be placed in almost any difficult environment. The IGS-5225-4UP1T2S-12V also allows either DIN-rail or wall mounting for efficient use of cabinet space.



Physical Port

- **4 10/100/1000BASE-T** Gigabit Ethernet RJ45 ports with **802.3bt PoE++** Injector function
- **1 10/100/1000BASE-T** Gigabit Ethernet RJ45 port
- **2 100/1000/2500BASE-X** SFP slots for SFP type auto detection
- One USB Type C serial port (115200,8, N, 1) for basic management and setup

Power over Ethernet

- Complies with IEEE 802.3bt Power over Ethernet Plus Plus Type-4 PSE
- Backward compatible with IEEE 802.3at PD device
- Up to 4 ports of IEEE 802.3at/IEEE 802.3bt PoE++ devices powered
- Supports PoE power up to 95 watts for each PoE port
- Total of 360-watt PoE budget
- Auto detects powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100m in standard mode and 250m in extend mode
- PoE management features
  - PoE admin-mode control
  - PoE management mode selection
  - Per port PoE function enable/disable
  - PoE port power feeding priority
  - Per PoE port power limit
  - PoE Port Status monitoring
  - PD classification detection
  - Sequence port PoE
- Intelligent PoE features
  - PoE Legacy/Force mode enable/disable
  - Temperature threshold control
  - PoE usage threshold control
  - PoE schedule
  - PD alive check
  - LLDP PoE Neighbors

Industrial Protocol

- Modbus TCP for real-time monitoring in a SCADA system
- IEEE 1588v2 PTP (Precision Time Protocol) transparent clock mode

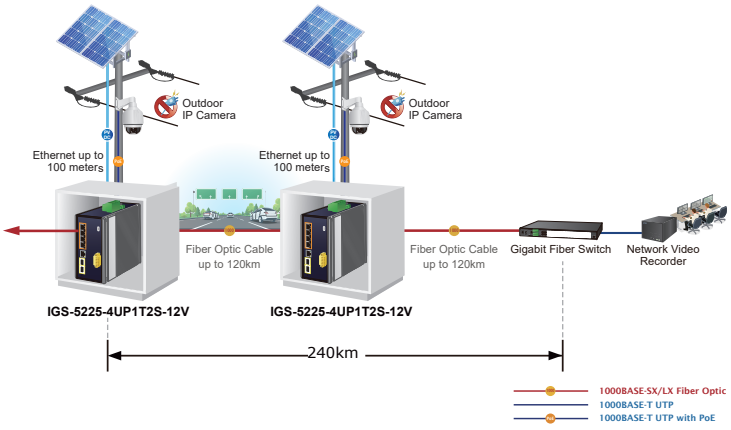
Industrial Case and Installation

- IP30 aluminum case
- DIN-rail and wall-mount designs

Wide Range of Power Input Suitable for Renewable Energy and Automotive Markets

The IGS-5225-4UP1T2S-12V industrial-grade managed switch is designed to deliver exceptional performance and versatility for a variety of industrial applications. With support for a wide DC power input range of **9-54V** and a **power boost of up to 54V**, this switch ensures stable and reliable operation even in demanding environments. It also supports **802.3bt PoE++** with a maximum total p**ower budget of 360W**, making it ideal for powering high-demand devices such as IP cameras, Wi-Fi access points, and other networked equipment. Thanks to its excellent energy conversion efficiency, it reduces power loss and maximizes operational performance.

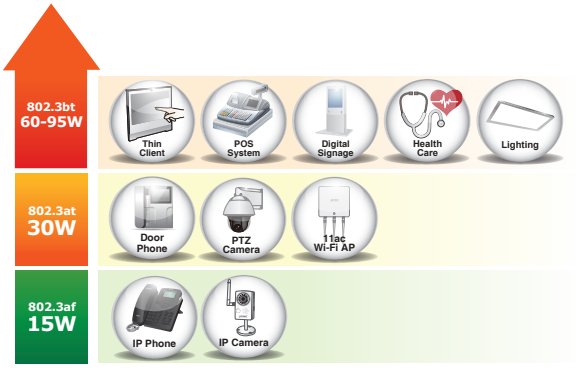
This switch, using solar, is a robust, energy-efficient solution for transportation markets. Furthermore, it complies with **ESG (Environmental, Social, and Governance)** standards, highlighting its commitment to sustainable practices and reducing environmental impact. More importantly, it can enhance system's efficiency and reliability, as well as support a greener, more responsible future.



802.3bt PoE++ 95-watt Power over 4-pair UTP Solution

As the IGS-5225-4UP1T2S-12V adopts the IEEE 802.bt PoE++ standard technology, it is capable to source up to 95 watts of power by using all the four pairs of standard Cat5e/6 Ethernet cabling to deliver power and full-speed data to each remote PoE compliant powered device (PD). Its power capability is three times more than that of the conventional 802.3at PoE+ and it is an ideal solution for those high power consuming network PDs, such as:

- PoE PTZ speed dome cameras
- Network devices
- Thin clients
- AIO (all-in-one) touch PCs, point of sale (POS) and information kiosks
- Remote digital signage displays
- PoE lightings



- DC 9-54V, redundant power with reverse polarity protection
- Supports 6000 VDC 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

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
  - Supports provider Bridging (VLAN Q-in-Q, IEEE 802.1ad)
  - Private VLAN Edge (PVE)
  - Port Isolation
  - MAC-based VLAN
  - Protocol-based VLAN
  - Voice VLAN
  - VLAN Translation
  - GVRP
- 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 3 trunk groups with 7 ports per trunk group
  - Up to 14Gbps 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) and LLDP-MED

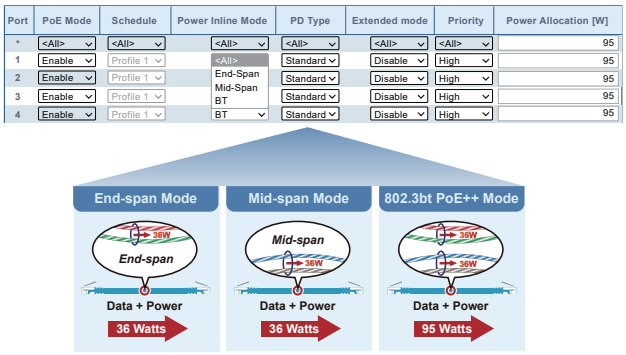
802.3bt PoE++ and Advanced PoE Power Output Mode Management

To meet the demand of various powered devices consuming stable PoE power, the IGS-5225-4UP1T2S-12V supports multi-PoE operation modes that include 95-watt 802.3bt type-4 PoE++ mode, 4-pair legacy and force modes to solve the incompatibility of non-standard 4-pair PoE PDs in the field.

- **95W 802.3bt PoE++ Power Output Mode**
- **36W End-span 802.3at PoE+ Power Output Mode**
- **36W Mid-span 802.3at PoE+ Power Output Mode**

PoE Watts	PoE Operation Mode	Power Output Mode
95W	**802.3bt PoE++**	(Pins 1, 2, 3, 6 + Pins 4, 5, 7, 8)
36W	End-span 802.3at PoE	(Pins 1, 2, 3, 6)
36W	Mid-span 802.3at PoE	(Pins 4, 5, 7, 8)

Selectable End-span/Mid-span/UPoE 802.3bt PoE++ Power Inline Mode



Cybersecurity Network Solution to Minimize Security Risks

The cybersecurity features that virtually need no effort and cost to have include the protection of the switch management and the enhanced security of the mission-critical network. Both SSHv2 and TLSv1.2 protocols are utilized to provide strong protection against advanced threats. The network administrator can now construct highly-secure corporate networks with considerably less time and effort than before.

Redundant Ring, Fast Recovery for Critical Network Applications

The IGS-5225-4UP1T2S-12V 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.

- Provides ONVIF for co-operating with PLANET video IP surveillances

Layer 3 IP Routing Features

- Supports maximum 32 static routes and route summarization

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 policies 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
- 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

Management

- IPv4 and IPv6 dual stack management