Product Specifications

Industrial L2+ 4-Port 10/100/1000T Ultra PoE + 1-Port 10/100/1000T Managed Switch with 2-Port 100/1000X SFP

IGS-5225-4UP1T2S

Version 4.0

Change History:

Revision	Date	Author	Change List
4.0	2019/10/03	Kent Kang	1. PoE PSE change to PD69208T4 2. PoE controller upgrade to support IEEE 802.3bt standard
3.0	2018/09/10	Calvin Chao	FW upgrade to Linux 4.4, NOR FLASH changed to 64M
2.0	2017/01/10	Calvin Chao	Modify PCB design
1.0	2016/12/05	Neo Tsai	Initial release

Author	Calvin Chao	Editor:	
Reviewed by:	Mark Kao	**Approved by:**	Kent Kang

1. PRODUCT DESCRIPTION

Outstanding 802.3bt PoE++ Solution for Hardened Environment

Complying with the IEEE 802.3bt Power over Ethernet Plus Plus technology, the latest version of PLANET IGS-5225-4UP1T2S 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 100/1000BASE-X SFP** interfaces in a rugged IP30 metal case for stable operation in heavy industrial demanding environments. It supports rich PoE operation modes including **90-watt 802.3bt type-4 PoE++ ports**, **95-watt PoH** (Power over HD-BASE-T) mode and 4-pair **force mode** to solve the incompatibility of non-standard 4-pair PoE PDs in the field.

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

802.3bt PoE++ – 90~95-watt Power over 4-pair UTP Solution

As the IGS-5225-4UP1T2S adopts the IEEE 802.bt PoE++ standard and PoH 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). It possesses triple amount of power capability than the conventional 802.3at PoE+ and is an ideal solution to satisfy the growing demand for higher 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

Advanced PoE Power Output Mode Management

To meet the demand of various powered devices consuming stable PoE power, the IGS-5225-4UP1T2S provides five different PoE power output modes for selection.

- **90W 802.3bt PoE++ Power Output Mode**(Pins 1, 2, 3, 6 + Pins 4, 5, 7, 8)
- **95W UPOE/PoH Power Output Mode**(Pins 1, 2, 3, 6 + Pins 4, 5, 7, 8)
- **30W End-span PoE Power Output Mode**(Pins 1, 2, 3, 6)
- **30W Mid-span PoE Power Output Mode**(Pins 4, 5, 7, 8)
- **60W Force Power Output Mode**

Intelligent Alive Check for Powered Device

The IGS-5225-4UP1T2S 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-5225-4UP1T2S 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.

PoE Schedule for Energy Saving

Under the trend of energy saving worldwide and contributing to environmental protection on the Earth, the IGS-5225-4UP1T2S 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-5225-4UP1T2S 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.

Redundant Ring, Fast Recovery for Critical Network Applications

The IGS-5225-4UP1T2S 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 certain simple Ring network, the recovery time of data link can be as fast as 10ms.

Network with Cybersecurity Helps Minimize Security Risks

The IGS-5225-4UP1T2S comes with enhanced cybersecurity to fend off cyberthreats and cyberattacks. Served as a key point to transmit data and offering over 95-watt PoE output to customer's critical equipment in a business network, the cybersecurity feature of the IGS-5225-4UP1T2S protects the switch management and enhances the security of the mission-critical network without any extra deployment cost and effort.

## 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-5225-4UP1T2S 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, allowing to locate surveillance devices for easier inspection and planning. Moreover, clients can get real-time surveillance's information and online/offline status, and also allows PoE reboot control from GUI.

SMTP/SNMP Trap Event Alert

The IGS-5225-4UP1T2S 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-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.
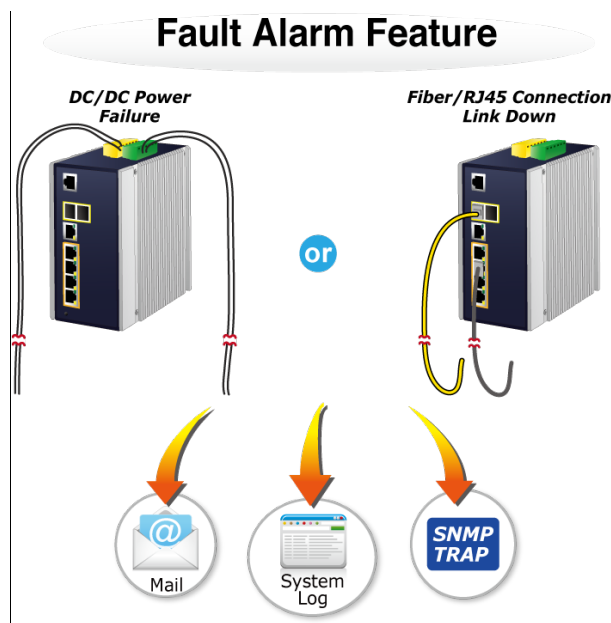
Digital Input and Digital Output for External Alarm

The IGS-5225-4UP1T2S 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-5225-4UP1T2S port shows link down, link up or power failure.
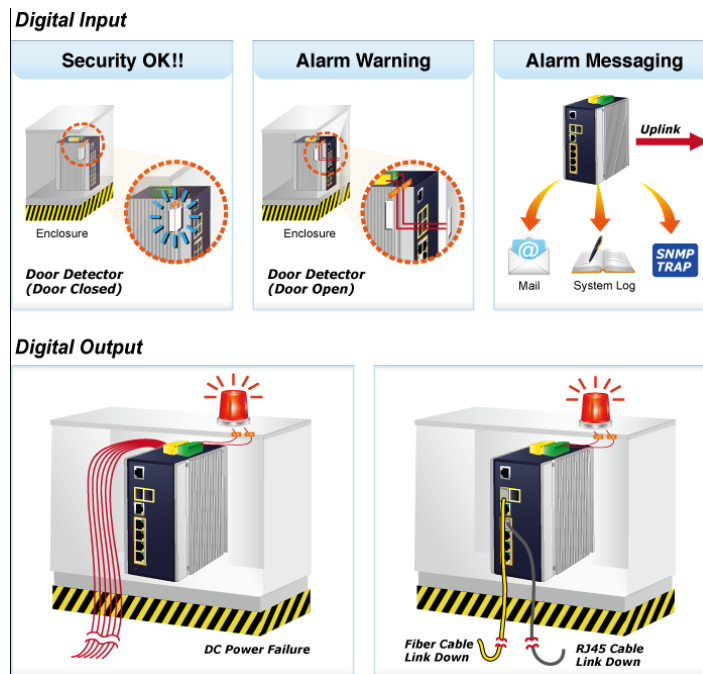
Layer 3 IPv4 and IPv6 Software VLAN Routing for Secure and Flexible Management

To help customers stay on top of their businesses, the IGS-5225 series not only provides ultra high transmission performance and excellent Layer 2 technologies, but also IPv4/IPv6 software VLAN routing feature which allows to cross over different VLANs and different IP addresses for the purpose of having a highly-secure, flexible management and simpler networking application.

Robust Layer 2 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 that can be maximized to 255. Via the aggregation of supporting ports, the IGS-5225-4UP1T2S allows the operation of a high-speed trunk group that comes with multiple ports. For example, it enables a maximum of up to 3 trunk groups with 3 ports per trunk group, and supports fail-over as well.

Efficient Management

For efficient management, the IGS-5225 Managed Ethernet Switch series is equipped with console, Web and SNMP management interfaces. With the built-in Web-based management interface, the IGS-5225 series offers an easy-to-use, platform-independent management and configuration facility. For text-based management, the IGS-5225 series 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

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-5225-4UP1T2S support dual speed, 100BASE-FX and 1000BASE-SX/LX 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 550 meters (multi-mode fiber) to 10/40/80/120 kilometers (single-mode fiber or WDM fiber). They are well suited for applications within the enterprise data centers and distributions.

Intelligent SFP Diagnosis Mechanism

The 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.

Digital Diagnostic Monitor **(DDM)**

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.
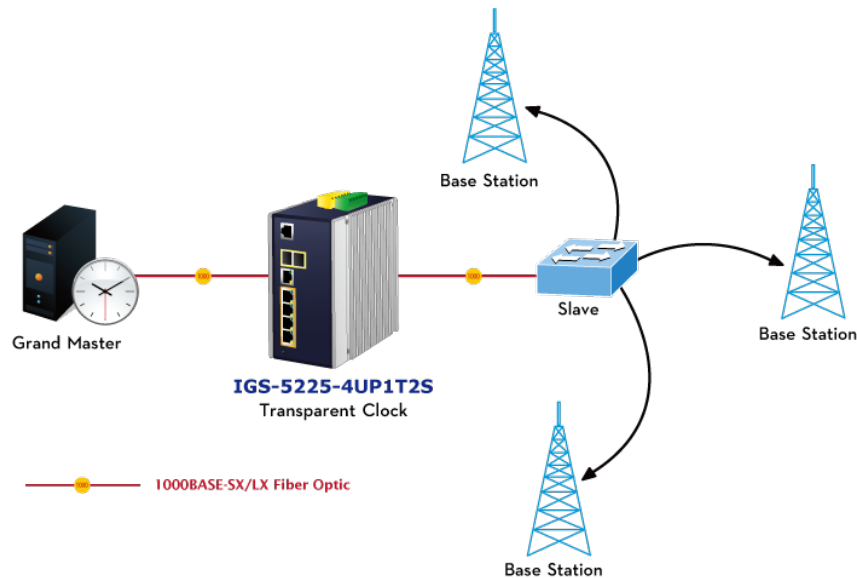
Modbus TCP Provides Flexible Network Connectivity for Factory Automation

With the supported Modbus TCP/IP protocol, the IGS-5225-4UP1T2S 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.

2. PRODUCT FEATURES

➢ 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

- ■ **2 100/1000BASE-X mini-GBIC/SFP** slots for SFP type auto detection

- ■ One RJ45 console interface for basic management and setup

➢ 802.3bt Power over Ethernet

- ■ Complies with IEEE 802.3bt Power over Ethernet Plus Plus Type-4 PSE

- ■ Backward compatible with IEEE 802.3at/af PD device

- ■ Up to 4 ports of IEEE 802.3af/IEEE 802.3at/IEEE 802.3bt PoE++ devices powered

- ■ Supports PoE power up to 95 watts for each PoE port

- ■ Total of 240-watt PoE budget

- ■ 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

- ■ Intelligent PoE features
  - Temperature threshold control
  - PoE usage threshold control
  - PD alive check
  - PoE schedule

➢ Industrial Case and Installation

- ■ IP30 aluminum case

- ■ DIN-rail or wall-mount design

- ■ 48~56V DC, redundant power with reverse polarity protection

- ■ Supports 6000V 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

- ➢ **Layer 2 Features**
  - ■ 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 255 VLANs groups, out of 4095 VLAN IDs
    - −Supports provider bridging (VLAN Q-in-Q 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 3 trunk groups with 3 ports per trunk group
    - −Up to 6Gbps bandwidth (duplex mode)
  - ■ Provides port mirror (1-to-1)
  - ■ Port mirroring to monitor the incoming or outgoing traffic on a particular port
  - ■ Loop protection to avoid broadcast loops
  - ■ 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)

- ➢ **Layer 3 IP Routing Features**
  - ■ IPv4/IPv6 Layer 3 static routing
  - ■ Supports maximum 32 software static routes and route summarization

- ➢ **Quality of Service**
  - ■ Ingress Shaper and Egress Rate Limit per port bandwidth control

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- 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 cooperate with the RADIUS servers
    - TACACS+ login users access authentication
    - RADIUS/TACACS+ users access authentication
- Access Control Lit
    - IP-based Access Control List (ACL)
    - MAC-based Access Control List
- Source MAC/IP address binding
- 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 Interfaces
    - Console/Telnet Command Line Interface
    - Web switch management

- SNMP v1 and v2c switch management
- SSH/SSL and SNMP v3 secure access

■ SNMP Management
- Four RMON groups (history, statistics, alarms, and events)
- SNMP trap for interface Link Up and Link Down noticiation

■ **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
- Reset button for system reboot or reset to factory default
- Dual images

■ DHCP Relay

■ DHCP Option 82

■ DHCP Server

■ User Privilege levels control

■ Network Time Protocol (NTP)

■ Network Diagnostic
- ICMPv6/ICMPv4 remote ping
- Cable diagnostic technology provides the mechanism to detect and report potential cabling issues
- SFP-**DDM** (Digital Diagnostic Monitor)

■ SMTP/Syslog remote alarm

■ System Log

■ PLANET Smart Discovery Utility for deployment management

3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

Switch ASIC	Vitesse VSC7423XJG-02	x 1
CPU	MIPS 416MHz (integrated with VSC7423)	x 1
Flash Size	64M bytes	x 1
DRAM Size	128M bytes	x 1
PoE Chip	Power Design PD69200C	x 1
	Power Design PD69208T4	x 1

3.2 FUNCTION SPECIFICATIONS

Product	**IGS-5225-4UP1T2S**
Hardware Specifications	
Hardware Version	4
Copper Ports	5 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports
SFP/mini-GBIC Slots	2 1000BASE-SX/LX/BX SFP interfaces (Port-6 to Port-7) Compatible with 100BASE-FX SFP
PoE Injector Port	4 ports with 802.3bt PoE++/802.3at PoE injector function with Port-1 to Port-4
Console	1 x RJ45-to-RS232 serial port (115200, 8, N, 1)
Switch Architecture	Store-and-Forward
Switch Fabric	14Gbps/non-blocking
Throughput (packet per second)	10.42Mpps@ 64 bytes packet
Address Table	8K entries, automatic source address learning and aging
Shared Data Buffer	4Mbits
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex
Jumbo Frame	9Kbytes
Reset Button	< 5 sec: System reboot > 5 sec: Factory default
ESD Protection	6KV DC
Enclosure	IP30 aluminum case
Installation	DIN-rail or wall mounting
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
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.
	2 Digital Output (DO) — Open collector to 24V DC, 100mA max.

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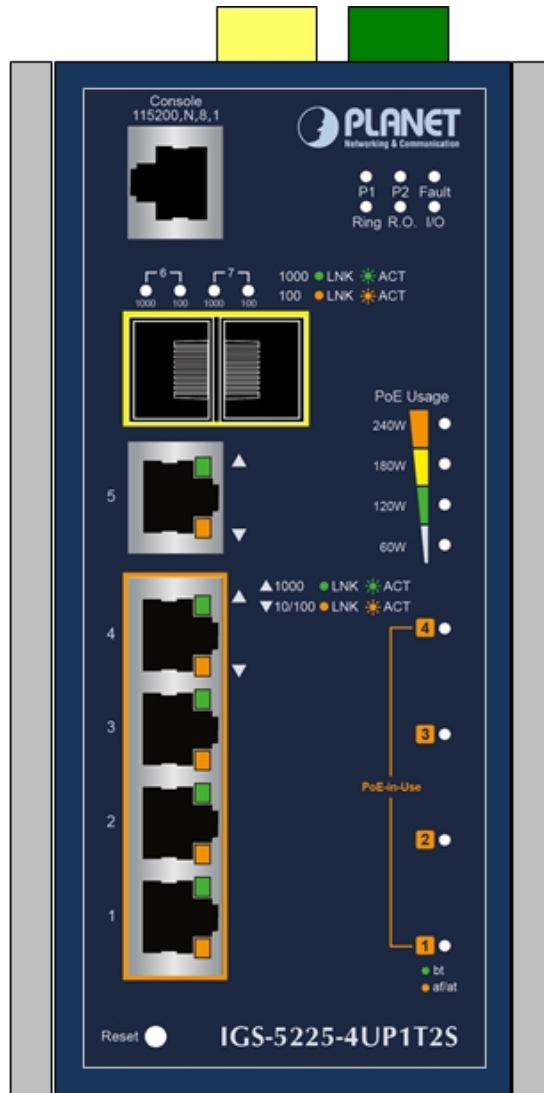|	

LED Indicator	System:
	    Power 1 (Green)
	    Power 2 (Green)
	    Fault Alarm (Red)
	    Ring (Green)
	    Ring Owner (Green)
	    DIDO (Red)
	Per 10/100/1000T RJ45 Ports:
	    100 LNK/ACT (Amber)
	    1000 LNK/ACT (Green)
	Per SFP Interface:
	    100 LNK/ACT (Amber)
	    1000 LNK/ACT (Green)
	Per PoE Port:
	802.3bt PoE++-in-use x 1 (Green)
	    802.3at/af PoE-in-use x 1 (Amber)
	PoE Usage:
	60W, 120W, 180W, 240W (Amber)

Dimensions (W x D x H)	76.8 x 107 x 152 mm
Weight	1050g
Power Requirements	Dual 48~56V DC (>52V DC for PoE+ output recommended)
Power Consumption	Max. 6.6 watts/22.52BTU (Power on without any connection) Max. 282 watts/962.22BTU (Full loading with 802.3bt PoE++ function)
Power Over Ethernet	
PoE Standard	IEEE 802.3bt PoE++ Type-4 PSE
PoE Power Supply Type	802.3bt/End-span/Mid-span/UPoE/Force

PoE Power Output	802.3bt PoE++
	  - Per port 52V~56V DC (depending on the power supply), max. 90 watts
	UPoE(PoH)
	  - Per port 52V~56V DC (depending on the power supply), max. 95 watts
	IEEE 802.3at Standard
	  - Per port 52V~56V DC (depending on the power supply), max. 36 watts
	  Force
	  - Per port 52V~56V DC (depending on the power supply), max. 60 watts

Power Pin Assignment	End-span: 1/2(-), 3/6(+) Mid-span: 4/5(+), 7/8(-) 802.3bt/UPoE: 1/2(-), 3/6(+),4/5(+), 7/8(-)
PoE Power Budget	240W maximum (depending on power input)
PoE Ability PD @ 15 watts	4 units
PoE Ability PD @ 30 watts	4 units
PoE Ability PD @ 60 watts	4 units
Layer 2 Functions	
Port Configuration	Port disable/enable Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Flow control disable/enable
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
VLAN	802.1Q tagged VLAN Q-in-Q tunneling Private VLAN Edge (PVE) MAC-based VLAN Protocol-based VLAN Voice VLAN MVR (Multicast VLAN Registration) Up to 255 VLAN groups, out of 4095 VLAN IDs
Link Aggregation	IEEE 802.3ad LACP/static trunk Supports 3 trunk groups with 3 ports per trunk group

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

IGMP Snooping	IPv4 IGMP (v1/v2/v3) snooping, up to 255 multicast groups IPv4 IGMP querier mode support
MLD Snooping	IPv6 MLD (v1/v2) snooping, up to 255 multicast groups IPv6 MLD querier mode support
Access Control List	IP-based ACL/MAC-based ACL Up to 123 entries

Bandwidth Control	Per port bandwidth control
	  Ingress: 500Kb~1000Mbps
	  Egress: 500Kb~1000Mbps

Layer 3 Functions	
IP Interfaces	Max. 8 VLAN interfaces
Routing Table	Max. 32 routing entries
Routing Protocols	IPv4 software static routing IPv6 software static routing
Management	
Basic Management Interfaces	Console; Telnet; Web browser; SNMP v1, v2c
Secure Management Interfaces	SSHv1/SSHv2, TLS, SSL, SNMP v3
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 2933 IGMP-STD-MIB RFC 3411 SNMP-Frameworks-MIB

	IEEE 802.1X PAE
	LLDP
	MAU-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 802.3u 100BASE-TX/100BASE-FX
	IEEE 802.3z Gigabit SX/LX
	IEEE 802.3ab Gigabit 1000T
	IEEE 802.3x flow control and back pressure
	IEEE 802.3ad port trunk with LACP
	IEEE 802.1D Spanning Tree Protocol
	IEEE 802.1w Rapid Spanning Tree Protocol
	IEEE 802.1s Multiple Spanning Tree Protocol
	IEEE 802.1p Class of Service
	IEEE 802.1Q VLAN tagging
	IEEE 802.1X Port Authentication Network Control
	IEEE 802.1ab LLDP
	IEEE 802.3af Power over Ethernet
	IEEE 802.3at Power over Ethernet Plus
	IEEE 802.3bt Power over Ethernet ready
	IEEE 802.3ah OAM
	IEEE 802.1ag Connectivity Fault Management (CFM)
	RFC 768 UDP
	RFC 793 TFTP
	RFC 791 IP
	RFC 792 ICMP
	RFC 2068 HTTP
	RFC 1112 IGMP v1
	RFC 2236 IGMP v2
	ITU-T G.8032 ERPS Ring
	ITU-T Y.1731 Performance Monitoring
Environment	
Operating Temperature	-40 ~ 75 degrees C
Storage Temperature	-40 ~ 85 degrees C
Humidity	5 ~ 95% (non-condensing)

3.3 PHYSICAL SPECIFICATIONS:

Dimensions:

76.8 x 107 x 152 mm (W x D x H)

Weight:

1050g

Drawing:

Top View

Front View

PLANET
Networking & Communication

LED Definition:

■ **System**

LED	Color	Function
DC1	**Green**	Lights to indicate DC power input 1 has power.
DC2	**Green**	Lights to indicate DC power input 2 has power.
Fault	**Red**	Lights to indicate that Switch DC or port has failed.
Ring	**Green**	Lights to indicate that the ERPS Ring has been created successfully.
R.O.	**Green**	Lights to indicate that Ring state is in idle mode.
		Blinks to indicate that the Ring state is in protected mode.
DI/DO	**Red**	Blinks to indicate that Switch DC or port has failed or DI has event.

■ **Per 10/100/1000BASE-T Port with PoE (Port-1~Port-5)**

LED	Color		Function
1000 LNK/ACT	**Green**	Lights	Indicating the port is running at **1000Mbps** speed and successfully established.
		Blinks	Indicating that the switch is actively sending or receiving data over that port.
10/100 LNK/ACT	**Amber**	Lights	Indicating the port is running at **10/100Mbps** speed and successfully established.
		Off	Indicating that the switch is actively sending or receiving data over that port.

■ **Per 100/1000BASE-X SFP Interface (Port-6~Port-7)**

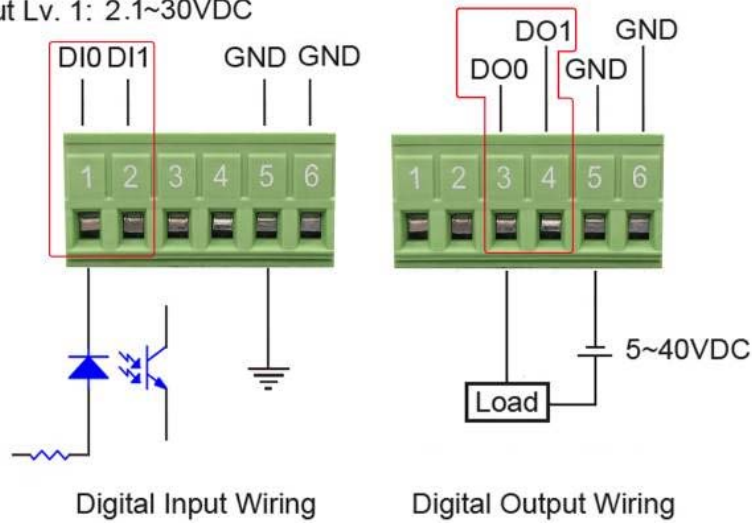| LED	Color		Function
1000 LNK/ACT	**Green**	Lights	Indicating the port is running at **1000Mbps** speed and successfully established.
		Blinks	Indicating that the switch is actively sending or receiving data over that port.
100 LNK/ACT	**Amber**	Lights	Indicating the port is running at **100Mbps** speed and successfully established.
		Blinks	Indicating that the switch is actively sending or receiving data over that port.

■ **PoE-in-use (Port-1~Port-4)**

LED	Color		Function
PoE	**Green**	Lights:	To indicate the port is providing DC in-line power with 802.3bt/UltraPoE/Force PoE mode.
		Off:	To indicate the connected device is not a PoE Powered Device (PD)
	Amber	Lights:	To indicate the port is providing DC in-line power with End-span/Mid-span mode.
		Off:	To indicate the connected device is not a PoE Powered Device (PD)

■ **PoE Power Usage (Unit: Watt)**

LED	Color	Function	
60	Amber	Lights:	To indicate the system consumes over 60-watt PoE power budget
120	Amber	Lights:	To indicate the system consumes over 120-watt PoE power budget
180	Amber	Lights:	To indicate the system consumes over 180-watt PoE power budget
240	Amber	Lights:	To indicate the system consumes over 240-watt PoE power budget

■ **DI/DO connector:**

Input Lv. 0: -30~2.1VDC
Input Lv. 1: 2.1~30VDC

DI0 DI1   GND GND

DO1   GND
DO0   GND

5~40VDC

Load

Digital Input Wiring   Digital Output Wiring

3.4 ENVIRONMENTAL SPECIFICATIONS

Operating:

   Temperature: -40 ~75 degrees C

   Relative Humidity: 5% ~ 95% (non-condensing)

Storage:

   Temperature: -40 ~85 degrees C

   Relative Humidity: 5% ~ 95% (non-condensing)

3.5 ELECTRICAL SPECIFICATIONS

Power Requirements:

48~56V DC, redundant power with reverse polarity protection

Power Consumption:

LOADING / DC INPUT	System on without any devices attached	Ethernet + PoE Full Loading
48V	6.0W, 0.126A	72W, 1.51A
56V	6.6W, 0.119A	282W, 5.04A

3.6 REGULATORY COMPLIANCE

FCC Part 15 Class A, CE

Stability Testing:

- IEC60068-2-32 (Free Fall)
- IEC60068-2-27 (Shock)
- IEC60068-2-6 (Vibration)

3.7 RELIABILITY

MTBF > 100,000hrs @ 25 degrees C

3.8 BASIC PACKAGING

- ☑ The Industrial Managed Switch   x 1
- ☑ Quick Installation Guide   x 1
- ☑ RJ45-to-DB9 RS232 cable   x 1
- ☑ DIN-rail Kit   x 1
- ☑ Wall Mounting Kit   x 1
- ☑ RJ45 Dust Cap   x 6
- ☑ SFP Dust Cap   x 2

3.9 PACKING INFORMATION

Box Dimensions (W x D x H):	300 x 170 x 90mm
Gross Weight:	1.45kg
Carton Dimensions (W x D x H):	385 x 340 x 490mm
Total Weight:	14.5kg
Quantity:	10pcs per carton