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Product Specifications

Industrial 8-Port 10/100/1000T 802.3at PoE + 2-Port 100/1000X SFP Ethernet Switch w/ 12V Booster (-40~75 degrees C)

IGS-1020PTF-12V

Version 1.0

Change History:

Revision	Date	Author	Change List
Version 1.0	2020/1/9	Simon	Initial release

Author:	Simon Yeh	**Editor:**	Esther Weng
Reviewed By:	Jonas Yang	**Approved By:**	Kent Kang

1. PRODUCT DESCRIPTION

Cost-effective Full PoE+ Power and Gigabit Extension Solution Ideal for Hardened Environment

Featuring Plug and Play designed to be installed in heavy industrial demanding environments, PLANET IGS-1020PTF-12V is an Industrial-grade, DIN-rail type Unmanaged Gigabit Ethernet PoE+ Switch with **eight 10/100/1000BASE-T** ports featuring **IEEE 802.3at PoE+** and **two 100/1000BASE-X fiber** optic interfaces for uplink connection.

The IGS-1020PTF-12V is designed with redundant power system and is able to operate reliably, stably and quietly in any hardened environment without affecting its performance. It comes with a total power budget of up to **240 watts** for different kinds of PoE applications and operating temperature ranging from **-40 to 75 degrees C** in a rugged IP30 aluminum housing.

Convenient and Reliable Power System

To facilitate the 802.3at PoE+ usage with the commonly-used 12~48V DC power input for transportation and industrial-level applications, the IGS-1020PTF-12V adopts **12~56V DC to 54~56V DC power boost technology** to solve power source issue but does not require special power supplies. Its wide-ranging voltages design is suitable for worldwide operability with high availability applications requiring dual or backup power inputs.

802.3at PoE+ Power and Ethernet Data Transmission Extension

The IGS-1020PTF-12V has a built-in solid DIP switch providing "**Standard**" and "**Extend**" operation modes. The IGS-1020PTF-12V operates as a normal IEEE 802.3at PoE+ Switch in the "**Standard**" operation mode. In the "**Extend**" operation mode, the IGS-1020PTF-12V operates on a per-port basis at 10Mbps full duplex operation and can support 20~25-watt PoE power output over a distance of up to **250 meters**, overcoming the 100-meter limit on Ethernet UTP cable.

Fiber Optic Link Capability for Flexible Distance Extension

The additional two mini-GBIC slots built in the IGS-1020PTF-12V supports SFP auto-detection and dual speed as it features **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 the transmission distance or the transmission speed required to extend the network efficiently. The distance can be extended from 550 meters to 2 kilometers (multi-mode fiber) and 10/20/30/40/50/60/70/120 kilometers (single-mode fiber or WDM fiber). They are well suited for applications to uplink to backbone switch and monitoring center in long distance.

Environmentally-hardened Design

With the **IP30** aluminum industrial case, the IGS-1020PTF-12V provides a high level of immunity against electromagnetic interference and heavy electrical surges which are usually found on plant floors or in

curb-side traffic control cabinets without air conditioning. It features a ventilated construction in which a cooling fan is not necessary, thereby making its operation noiseless. Being able to operate under the temperature range from **-40 to 75 degrees C**, the IGS-1020PTF-12V can be placed in almost any difficult environment.

Robust Protection

The IGS-1020PTF-12V provides contact discharge of ±6KV DC and air discharge of ±6KV DC for Ethernet ESD protection. It also supports ±6KV surge immunity to improve product stability and protects users' networks from devastating ESD attacks, making sure the flow of operation does not fluctuate.

Intelligent LED Indicator for Real-time PoE Usage

The IGS-1020PTF-12V helps users to monitor the current status of PoE power usage easily and efficiently by its advanced LED indication. Called "PoE Power Usage", the front panel of the Industrial Gigabit PoE+ Switch has four orange LEDs indicating 60W, 120W, 180W and 240W of PoE power usage.

Flexible and Easy Installation with Limited Space

The IGS-1020PTF-12V is designed to be installed in different environments, such as wall enclosure. It can be installed by fixed wall mounting or DIN rail mounting, thereby making its usability more flexible and easier in any space-limited location.

2. PRODUCT FEATURES

Physical Port

- **Eight 10/100/1000BASE-T** Gigabit Ethernet RJ45 ports with **IEEE 802.3af/at PoE+** Injector (Ports 1 to 8)
- **Two 100/1000BASE-X SFP** slots for SFP transceiver type auto detection (Ports 9 and 10)

Power over Ethernet

- Complies with IEEE 802.3at Power over Ethernet Plus, end-span PSE
- Backward compatible with IEEE 802.3af Power over Ethernet
- Up to 8 ports of IEEE 802af/802.3at devices powered
- 240-watt PoE budget
- Supports PoE power up to 30 watts for each PoE port
- Auto detects powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100 meters

Industrial Case and Installation

- IP30 aluminum case
- DIN-rail and wall-mount designs
- 12~56V DC, redundant power with reverse polarity protection
- Supports 6KV DC Ethernet ESD protection
- -40 to 75 degrees C operating temperature

Switching

- Hardware-based 10/100Mbps (half/full duplex), 1000Mbps (full duplex), auto-negotiation and auto MDI/MDI-X
- Features Store-and-Forward mode with wire-speed filtering and forwarding rates
- IEEE 802.3x flow control for full duplex operation and back pressure for half duplex operation
- 8K MAC address table size
- 20Gbps switch fabric
- 9K jumbo frame
- Hardware-based DIP switch for "**Standard**" and   "**Extend**" mode selection; the "**Extend**" mode features 30-watt PoE transmission distance of 250m at speed of 10Mbps
- Automatic address learning and address aging

3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

Converter Controller	RTL-8370MBI	x 1
PoE PSE	PD69200 PD69208M	x 1

3.2 FUNCTION SPECIFICATIONS

Model	IGS-1020PTF-12V
Hardware Specifications	
Copper Ports	8 10/100/1000BASET RJ45 auto-MDI/MDI-X ports
PoE Injector Ports	8 ports with 802.3at PoE+ injector function (Ports 1 to 8)
SFP Slots	2 1000BASE-SX/LX/BX SFP interfaces (Ports 9 and 10) Compatible with 100BASE-FX SFP
Connector	Removable 6-pin terminal block Pin 1/2 for Power 1; Pin 3/4 for fault alarm; Pin 5/6 for Power 2
DIP Switch	Standard/Extend mode (Extend mode for Ports 5 to 8 only)
LED Indicators	3 x LED for System and Power: ● Green: DC Power 1 ● Green: DC Power 2 ● Red: Power Fault Alarm 8 x LED for PoE Copper Port (Ports 1 to 8): ● Green: LNK/ACT (10/100/1000Mbps) ● Amber: PoE-in-Use 2 x LED for 100/1000X Fiber Port (Ports 9 to 10): ● Green: LNK/ACT (100/1000Mbps) ● Amber: 1000Mbps 4 x LED for PoE Usage ● Amber: 60W, 120W, 180W and 240W
Power Requirements	12~56V DC, 6A (max.)
Power Consumption	Max. 5.6 watts/19BTU@56V DC input (System) Max. 8.4 watts/29BTU@56V DC input (Ethernet Full Loading) Max. 252.1 watts/860BTU@56V DC input (Ethernet + PoE Full Loading)
Dimensions (W x D x H)	77 x 106 x 152mm
Weight	1164g

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Enclosure	IP30 aluminum case
Installation	DIN-rail/ wall-mount
ESD Protection	6KV
Switch Specifications	
Switch Architecture	Store-and-Forward
Switch Fabric	20Gbps
Throughput (packet per second)	14.8Mpps@64bytes
Address Table	8K entries
Buffer Memory	4M bits on-chip buffer memory
Jumbo Frame	9Kbytes
Flow Control	Back pressure for half duplex IEEE 802.3x pause frame for full duplex
Power over Ethernet	
PoE Standard	IEEE 802.3at Power over Ethernet Plus/PSE
PoE Power Supply Type	End-span
Power Pin Assignment	1/2 (+), 3/6 (-)
PoE Power Output	Per port 54V DC Max. 30 watts
PoE Power Budget (max.)	240W maximum @54V DC 120W maximum@24V DC 60W maximum@12V DC
Max. Number of Class 3 PDs@25W	8
Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE
Stability Testing	IEC 60068-2-32 (free fall) IEC 60068-2-27 (shock) IEC 60068-2-6 (vibration)
Standards Compliance	IEEE 802.3 Ethernet IEEE 802.3u Fast Ethernet IEEE 802.3ab Gigabit Ethernet IEEE 802.3z Gigabit Ethernet over Fiber Optic IEEE 802.3az Energy Efficient Ethernet (EEE) IEEE 802.3at Power over Ethernet Plus IEEE 802.3af Power over Ethernet

| Environment	
Temperature	Operating: -40~75 degrees C Storage: -40~85 degrees C
Humidity	Operating: 5~90% (non-condensing) Storage: 5~90% (non-condensing)

3.3 PHYSICAL SPECIFICATIONS:

■ **Dimensions (W x D x H):**

   77 x 106 x 152 mm

■ **Weight:**

   1164g

■ **Diagram**
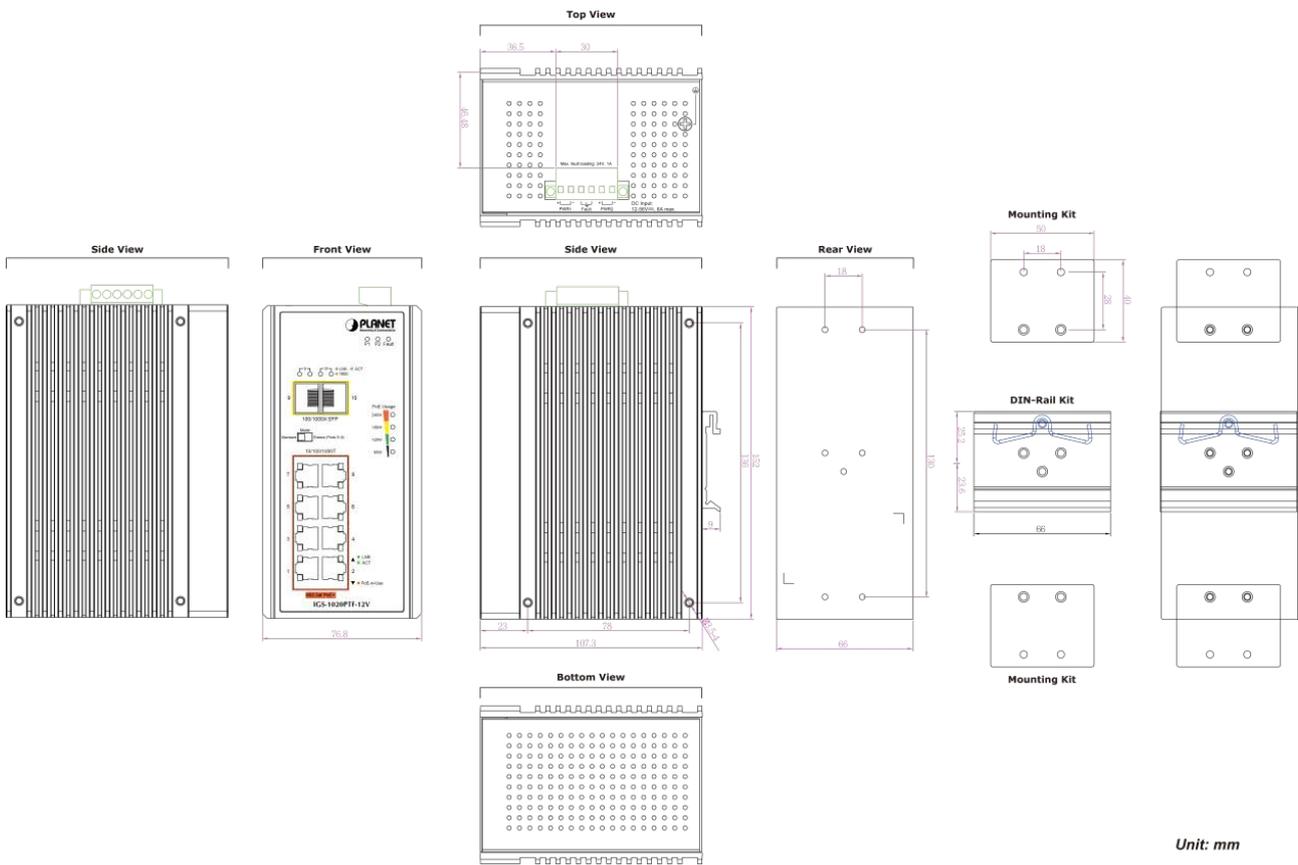
LED Definition:
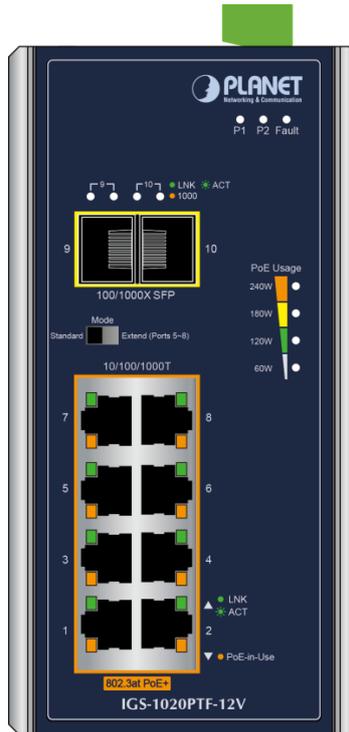
■ **System**

LED	Color	Function
P1	**Green**	**Lights:** Indicates power 1 has power.
P2	**Green**	**Lights:** Indicates power 2 has power.
Fault	**Red**	**Lights:** Indicates either power 1 or power 2 has no power.
60W	**Amber**	**Off:** Indicates the PoE usage is less than 30W. **Blinks:** Indicates that the PoE usage is around 30W to 59W. **Lights:** Indicates the PoE usage is around/over 60W.
120W	**Amber**	**Blinks:** Indicates that the PoE usage is around 60W to 119W. **Lights:** Indicates the PoE usage is around/over 120W.
180W	**Amber**	**Blinks:** Indicates that the PoE usage is around 120W to 179W. **Lights:** Indicates the PoE usage is around/over 180W.
240W	**Amber**	**Blinks:** Indicates that the PoE usage is around 180W to 239W. **Lights:** Indicates the PoE usage is at the maximum.

■ **Per 802.3at PoE+ 10/100/1000BASE-T Interface (Ports 1 to 8)**

LED	Color	Function
LNK/ACT	Green	**Lights:** Indicates the link through that port is successfully established at 10Mbps, 100Mbps or 1000Mbps. **Blinks:** Indicates that the switch is actively sending or receiving data over that port.
PoE-in-Use	Amber	**Lights:** Indicates the port is providing DC in-line power. **Off:** Indicates the connected device is not a PoE powered device (PD).

■ **Per 100/1000X SFP Slot (Ports 9 to 10)**

LED	Color	Function
LNK/ACT	Green	**Lights:** Indicates the link through that port is successfully established at 1000Mbps or 100Mbps. **Blinks:** Indicates that the switch is actively sending or receiving data over that port.
1000	Amber	**Lights:** Indicates the link through that port is successfully established at 1000Mbps. **Off:** Indicates the link through that port is not established or is established at 100Mbps.

Top view:
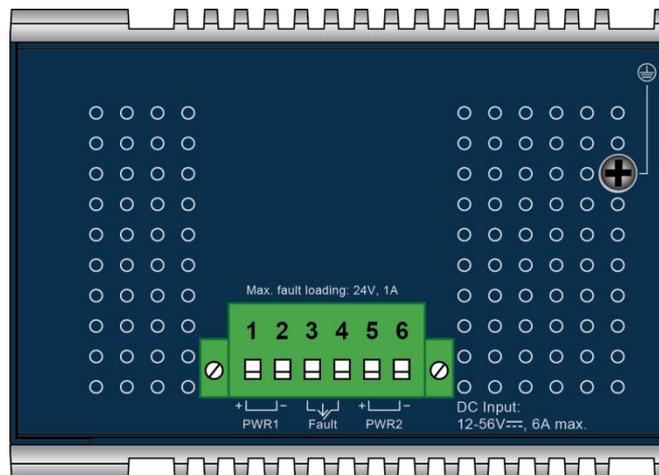
Note	1. The wire gauge for the terminal block should be in the range of 12~24 AWG.
	2. The IGS-1020PTF-12V supports DC input range of 12V to 56V. To avoid damage, please use the IGS-1020PTF-12V according to the following specifications:

DC Input	Max. PoE Budget

12V	60W
24V	120W
48V	240W

DIP Switch:

DIP Switch Mode	Function
Standard 100/1000X SFP Mode Standard / Extend (Ports 5~8) 10/100/1000T	**DIP switch is off** This mode makes the Industrial PoE+ Switch operate as a general switch and all PoE ports operate at 10/100/1000Mbps auto-negotiation.
Extended 100/1000X SFP Mode Standard / Extend (Ports 5~8) 10/100/1000T	**DIP switch is on** This mode makes **Ports 5** to **8** of the Industrial PoE+ Switch operate on a per-port basis at **10Mbps** full duplex operation but can support PoE power output over a distance of up to **250 meters** overcoming the 100m limit on Ethernet UTP cable.
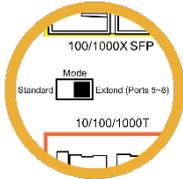
*Note: After changing the DIP switch mode, please reboot the switch to take effect.

3.4 ENVIRONMENTAL SPECIFICATIONS

Operating:

    Temperature: -40 ~75 degrees C

    Relative Humidity: 5% ~ 90% (non-condensing)

Storage:

    Temperature: -40 ~85 degrees C

    Relative Humidity: 5% ~ 90% (non-condensing)

3.5 ELECTRICAL SPECIFICATIONS

    Power Requirements: 12~56V DC power with reverse polarity protection

    Power Consumption:

Condition / Power Input	System ON	Ethernet Full Loading	Ethernet + PoE Full Loading
DC 56V	5.6W	8.4W	252.1W

3.6 REGULATORY COMPLIANCE

FCC Part 15 Class A, CE

3.7 RELIABILITY

MTBF > 100,000hrs @ 25 degrees C

3.8 BASIC PACKAGING

- The IGS-1020PTF-12V   x 1
- User's Manual   x 1
- DIN-rail Kit   x 1
- Wall-mounting Kit   x 1
- RJ45 Dust Cap   x 8
- SFP Dust Cap   x 2

3.9 PACKING INFORMATION

Box Dimensions (W x D x H):	300 × 170 × 90 mm
Weight (gross weight):	1394g
Carton Dimensions (W x D x H):	385 × 340 × 490 mm
Carton Weight (gross weight):	14.74kg
Quantity:	10pcs in one carton