

Product Specifications

Industrial 8-Port 10/100TX 802.3at PoE + 2-Port Gigabit TP/SFP Combo Ethernet Switch

IFGS-1022HPT

Version 1.0

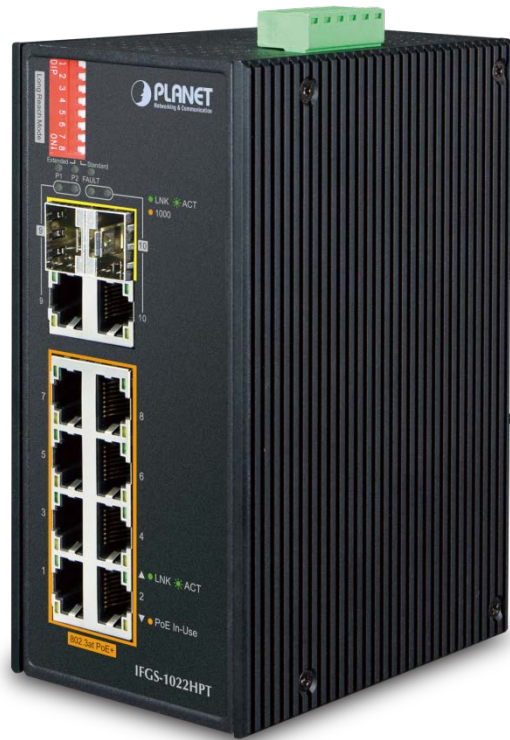
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Change History:

Revision:	Date:	Author:	Change List
Version 1.0	2017/9/29	Marc Liao	Initial Release

Author:	Marc Liao	Editor:	Marc Liao
Reviewed By:		Approved By:	Kent Kang

1. PRODUCT DESCRIPTION



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

Designed to be installed in heavy industrial demanding environments, the IFGS-1022HPT is a new member of PLANET Industrial-grade, DIN-rail type Unmanaged Fast Ethernet PoE+ Switch family with **8 10/100/BASE-TX** ports featuring **30-watt 802.3at PoE+**, and **2 additional Gigabit copper/SFP combo interfaces** for Gigabit Ethernet extension and video uplink.

The IFGS-1022HPT 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 metal housing.

802.3at PoE+ Power and Ethernet Data Transmit Distance Extension

The IFGS-1022HPT has a built-in solid DIP switch providing “**Standard**” and “**Extend**” operation modes. The IFGS-1022HPT operates as a normal IEEE 802.af/at PoE+ Switch in the “**Standard**” operation mode. In the “**Extend**” operation mode, the IFGS-1022HPT operates on a per-port basis at 10Mbps full duplex operation and can support 30-watt PoE power output over a distance of up to **250 meters**, overcoming the 100-meter limit on Ethernet UTP cable.

Two Gigabit Uplink Ports

The IFGS-1022HPT provides 2 extra Gigabit TP/SFP combo interfaces that enable network administrators to increase their network bandwidth to relieve traffic congestion when the 2 uplink ports are used to connect PoE-capable devices, such as NVR, Video Streaming Server, NAS and more. With the combo design, administrators can easily connect and supply power to PoE-capable devices no matter how large the network expansion is.

Flexibility and Long-distance Extension Solution

Through the two shared **Gigabit-speed fiber SFP slots**, it can also connect with the **1000BASE-SX/LX SFP** (Small Form-factor Pluggable) fiber transceiver to uplink to backbone switch and monitoring center in long distance. The distance can be extended from 550 meters (multi-mode fiber) to 10/20/30/40/50/60/70/120 kilometers (single-mode fiber or WDM fiber). They are well suited for applications within the industrial data centers and distributions.

Environmentally Hardened Design

With the IP30 aluminum industrial case, the IFGS-1022HPT 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. Being able to operate under the temperature range from -40 to 75 degrees C, the IFGS-1022HPT can be placed in almost any difficult environment.

Robust Protection

The IFGS-1022HPT provides contact discharge of $\pm 6\text{KV}$ DC and air discharge of $\pm 6\text{KV}$ DC for Ethernet ESD protection. It also supports $\pm 6\text{KV}$ surge immunity to improve product stability and protects users' networks from devastating ESD attacks, making sure the flow of operation does not fluctuate.

Safe and Easy PoE Network Deployment

Carrying both Ethernet data and power simultaneously, the IFGS-1022HPT reduces cabling requirements and eliminates the need for dedicated electrical outlets on the wall, ceiling or any unreachable place. It helps users to utilize just one Ethernet cable to install and deploy IP camera, wireless AP or VoIP phone more efficiently and cost-effectively.

2. PRODUCT FEATURES

▶ **Physical Port**

- Eight 10/100BASE-TX Fast Ethernet RJ45 ports with IEEE 802.3at/af PoE+ Injector (Port-1 to Port-8)
- Two 10/100/1000BASE-T Gigabit Ethernet RJ45 ports (Port-9 and Port-10)
- Two 1000BASE-X mini-GBIC/SFP slots for SFP type auto detection (Port-9 and Port-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 802.3af/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 metal case
- DIN rail and wall-mount design
- 48~56V DC, redundant power with polarity reverse protect function
- Supports 6000V 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
- 16K MAC address table size
- 10K jumbo frame
- IEEE 802.1Q VLAN transparency
- Hardware DIP switch for “Standard” and “Extend” mode selection; the “Extend” mode features 30-watt PoE transmit distance of 250m at speed of 10Mbps
- Automatic address learning and address aging
- Supports CSMA/CD protocol

3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

Switch ASIC:	IC Plus IP1810	x 1
PSE Controller:	IC Plus IP808	x 1
Gigabit Port PHY	Atheros AR8033	x 2
SRAM:	Switch ASIC built-in 4Mb	x 1

3.2 FUNCTION SPECIFICATIONS

Product	IFGS-1022HPT
Hardware Specifications	
Fast Ethernet Copper Ports	Eight 10/100BASE-TX RJ45 auto-MDI/MDI-X ports (Port-1 to Port-8)
Gigabit Ethernet Copper Ports	Two 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports (shared with Port-9 and Port-10)
SFP/mini-GBIC Slots	Two 1000BASE-SX/LX/BX SFP interfaces (shared with Port-9 and Port-10)
PoE Injector Port	Eight ports with 802.3af/802.3at PoE+ injector function (Port-1 to Port-8)
Switch Architecture	Store-and-Forward
Switch Fabric	5.6Gbps/non-blocking
Switch Throughput@64 bytes	4.1Mpps @64 bytes
MAC Address Table	16K entries
Shared Data Buffer	4Mb SRAM
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex
Jumbo Frame	10 Kbytes
DIP Switch (Port-1 to Port-8)	Standard mode: 30-watt PoE transmit distance of 100m at speed of 10/100Mbps Extend mode: 30-watt PoE transmit distance of 250m at speed of 10Mbps
LED	<p>3 x LED for System and Power:</p> <ul style="list-style-type: none"> ■ Green: DC Power 1 ■ Green: DC Power 2 ■ Red: Power Fault Alarm <p>2 x LED for PoE Copper Port (Port-1~Port-8):</p> <ul style="list-style-type: none"> ■ Green: LNK/ACT (10/100Mbps) ■ Orange: PoE-In-Use <p>2 x LED for 10/100/1000T Copper Port (Port-9~Port-10):</p> <ul style="list-style-type: none"> ■ Green: LNK/ACT ■ Orange: 1000 <p>2 x LED for per mini-GBIC interface (Port-9~Port-10)</p> <ul style="list-style-type: none"> ■ Green: LNK/ACT ■ Orange: 1000
Connector	Removable 6-pin terminal block <ul style="list-style-type: none"> ■ Pin 1/2 for Power 1 ■ Pin 3/4 for power fault alarm

	<ul style="list-style-type: none"> ■ Pin 5/6 for Power 2
Alarm	<p>One relay output for power failure.</p> <p>Alarm relay current carry ability: 1A @ 24V AC</p>
Power Requirements	48~56V DC, 5.5A (max.) (>51V DC for PoE+ output recommended)
Power Consumption/ Dissipation	<p>6.4 watts, 21BTU (Standby without PoE function) at DC 56V power input</p> <p>8.2 watts, 27BTU (Full loading without PoE function) at DC 56V power input</p> <p>241 watts, 822BTU (Full loading with PoE function) at DC 56V power input</p>
ESD Protection	6KV DC
Enclosure	IP30 aluminum case
Installation	DIN-rail kit and wall-mount kit
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	<p>IEEE 802.3af Standard</p> <ul style="list-style-type: none"> - Per port 48V~51V DC (depending on the power supply), max. 15.4 watts <p>IEEE 802.3at Standard</p> <ul style="list-style-type: none"> - Per port 51V~56V DC (depending on the power supply), max. 30 watts
PoE Power Budget	Dual power input: maximum 240W (depending on power input)
Max. Number of Class 2 PDs	8
Max. Number of Class 3 PDs	8
Max. Number of Class 4 PDs	8
Standards Conformance	
Standards Compliance	<p>IEEE 802.3 10BASE-T</p> <p>IEEE 802.3u 100BASE-TX</p> <p>IEEE 802.3ab Gigabit 1000BASE-T</p> <p>IEEE 802.3z Gigabit SX/LX</p> <p>IEEE 802.3x Flow Control and Back Pressure</p> <p>IEEE 802.3af Power over Ethernet</p> <p>IEEE 802.3at Power over Ethernet Plus</p>

3.3 PHYSICAL SPECIFICATIONS:

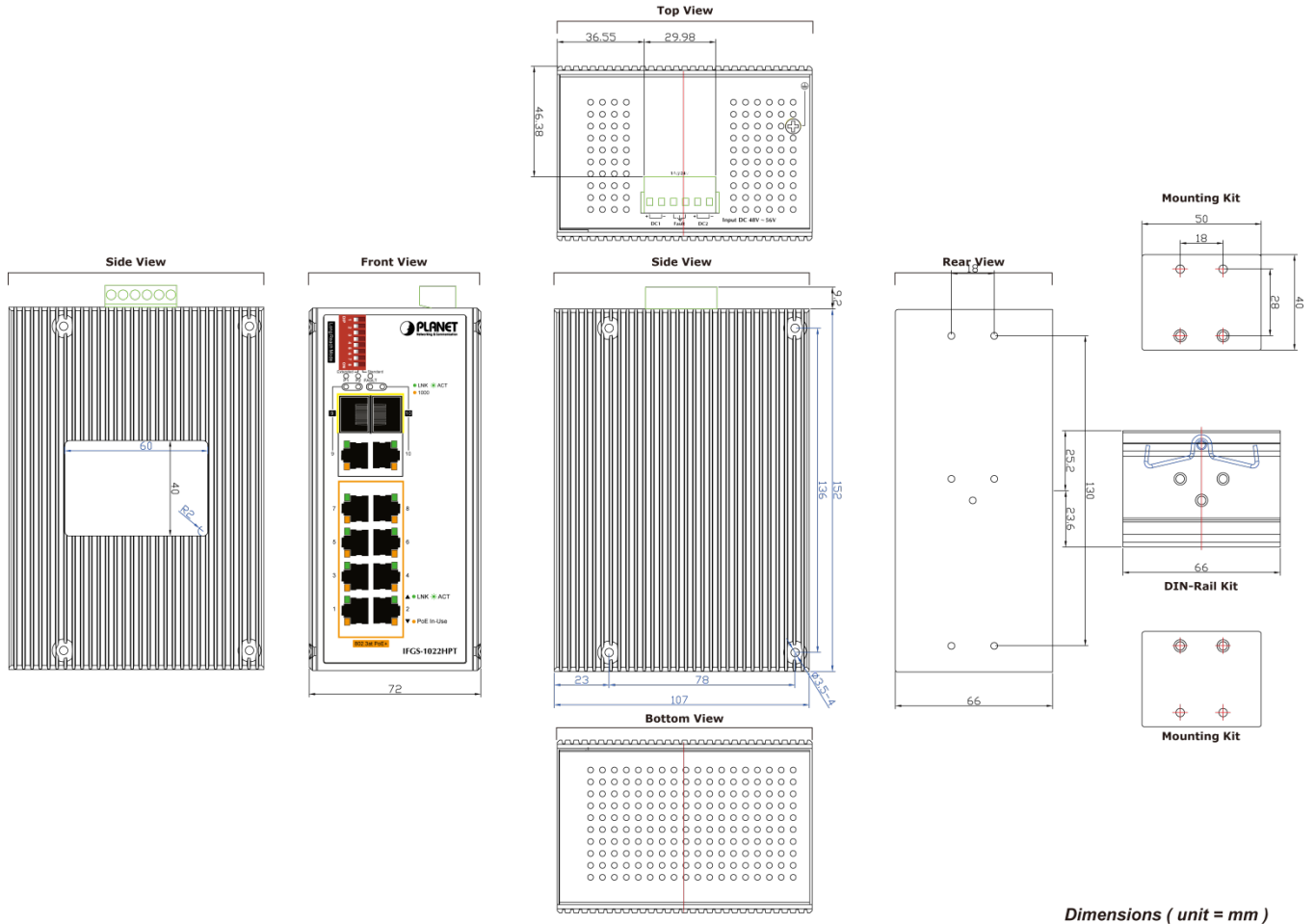
■ **Dimensions:**

72 x 107x 161 mm (W x D x H)

■ **Weight:**

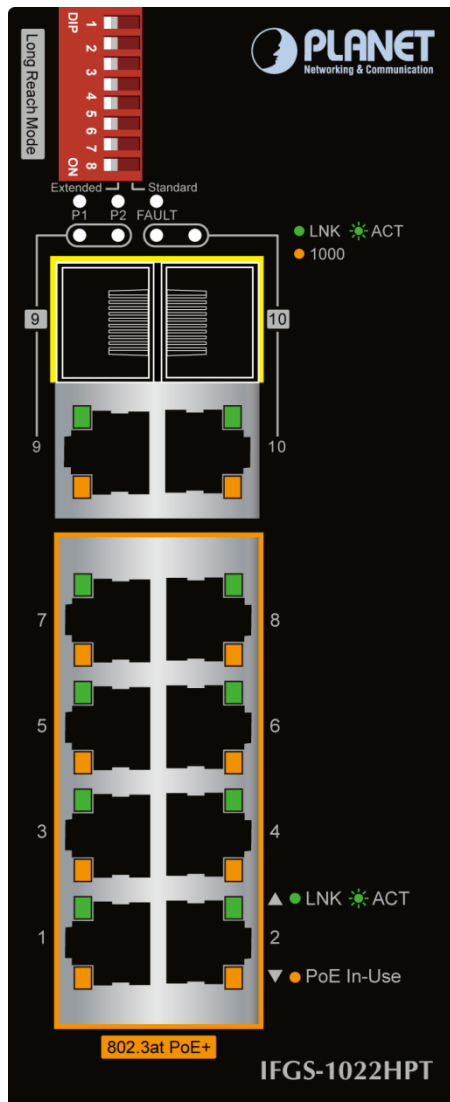
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■ **Diagram**



Dimensions (unit = mm)

■ Front Panel:



■ LED Definition

■ System

LED	Color	Function
P1	Green	Lit: indicates power 1 has power.
P2	Green	Lit: indicates power 2 has power.
FAULT	Red	Lit: indicates either power 1 or power 2 has no power.

■ Per 802.3at PoE+ 10/100BASE-TX Interface (Port 1 to Port 8)

LED	Color	Function
LNK/ACT	Green	Lit: indicates the link through that port is successfully established at 10Mbps or 100Mbps. Blinking: indicates that the switch is actively sending or receiving data over that port.
PoE In-Use	Orange	Lit: indicates the port is providing DC in-line power. Off: indicate the connected device is not a PoE powered device (PD).

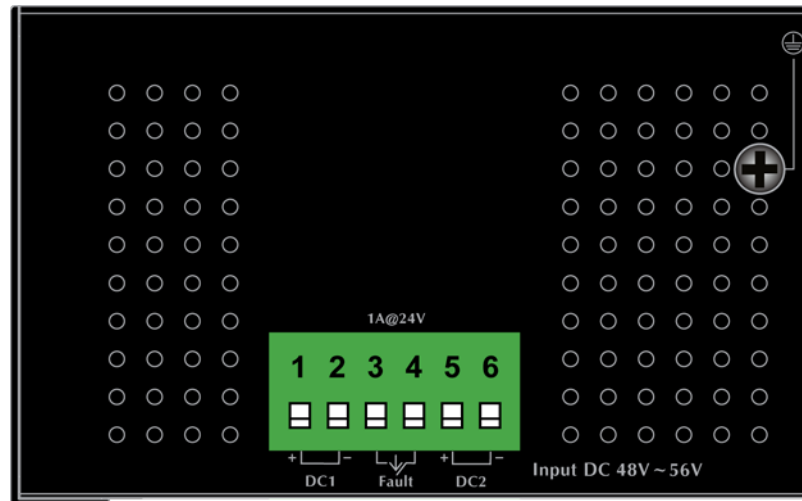
■ Per 10/100/1000BASE-T Interface (Shared with Port 9 to Port 10)

LED	Color	Function
LNK/ACT	Green	Lit: indicates the link through that port is successfully established at 10/100/1000Mbps. Blinking: indicates that the switch is actively sending or receiving data over that port.
1000	Orange	Lit: indicates the link through that port is successfully established at 1000Mbps. Off: indicates the link through that port is successfully established at 10/100Mbps.

■ Per 1000X SFP Slot (Shared with Port 9 to Port 10)

LED	Color	Function
LNK/ACT	Green	Lit: indicates the link through that port is successfully established at 1000Mbps. Blinking: indicates that the switch is actively sending or receiving data over that port.
1000	Orange	Lit: indicates the link through that port is successfully established at 1000Mbps. Off: indicates the link through that port is not established.

■ Top View



3.4 ENVIRONMENTAL SPECIFICATIONS

Operating:

Temperature: -40°C ~ 75 degrees C

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

Storage:

Temperature: -40°C ~ 85 degrees C

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

3.5 ELECTRICAL SPECIFICATION

LOADING INPUT	System on without any devices attached	Port-1~Port-8 & Port-9~Port-10 (TP) Link Operating (without PoE)	Port-1~Port-8 & Port-9~Port-10 (Fiber) Link Operating (without PoE)	Port-1~Port-8 PoE Full Load + Port-9~Port-10 TP Link Operating (Data + PoE)	Port-1~Port-8 PoE Full Load + Port-9~Port-10 Fiber Operating (Data + PoE)
48V DC	5.5 watts/ 18BTU	7.3 watts/ 24BTU	7.3 watts/ 24BTU	180 watts/ 614BTU	180 watts/ 614BTU
52V DC	5.9 watts/ 20BTU	7.7 watts/ 26BTU	7.7 watts/ 26BTU	210 watts/ 716BTU	210 watts/ 716BTU
54V DC	6.2 watts/ 21BTU	8 watts/ 27BTU	8 watts/ 27BTU	225 watts/ 767BTU	225 watts/ 767BTU
56V DC	6.4 watts/ 21BTU	8.2 watts/ 27BTU	8.2 watts/ 27BTU	241 watts/ 822BTU	241 watts/ 822BTU

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 IFGS-1022HPT x 1
- User's Manual x 1
- DIN-rail Kit x 1
- Wall Mounting Kit x 1
- SFP/SFP+ Dust Cap x 2
- RJ45 Dust Cap x 10

3.9 PACKING DIMENSIONS

- Dimensions: Box** 300 (W) x 170 (D) x 90 mm (H)
- Dimensions: Carton** 370 (W) x 325 (D) x 470 mm (H)
- Weight (Total):** TBD (gross weight)
- Carton Unit:** 10pcs in one carton