

Confidential

Product Specifications

16-Port 10/100TX 802.3at PoE + 2-Port 10/100/1000T + 1-Port Shared 1000X SFP Desktop Switch (185 Watts)

FGSD-1821P

Version 1.0

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Change History:

Revision	Date	Author	Change List
Version 1.0	2021/5/4	Angeline	Initial Release

Author	Angeline	Editor:	Kent Kang
Reviewed by:	Kent Kang	Approved by:	Kent Kang

1. PRODUCT DESCRIPTION



Cost-optimized, Multi-mode Ethernet Switch for PoE Networking

To facilitate 32W PoE power network applications with the transmission, PLANET FGSD-1821P is equipped with **16 10/100BASE-TX** Fast Ethernet ports, 2 extra Gigabit TP ports and 1 1000BASE-X SFP combo interface ideally suitable for centralized power management. With a total of 185 watts of PoE budget, it features high-performance Gigabit uplink and IEEE 802.3at PoE+ (up to 32W) capabilities.

Two Gigabit Uplink Ports

The FGSD-1821P provides two extra **Gigabit TP ports** and one **1000BASE-X SFP combo** interface that enable the network administrators to increase their network bandwidth to relieve traffic congestion when the two 10/100/1000BASE-T or one 1000BASE-X uplink port are used to connect devices, such as NVR, video streaming server, NAS and more. With the combo design, the administrators can easily connect network devices no matter how large the network expansion is.

Perfect Integrated Solution for PoE IP Surveillance

The FGSD-1821P brings you an ideally secure surveillance system at a lower total cost. The FGSD-1821P provides 16 10/100Mbps 802.3at PoE+ ports able to feed sufficient PoE power to 16 IEEE 802.3af/IEEE 802.3at PoE+ IP cameras at the same time. It is also able to connect with one 16-channel NVR or two 8-channel NVRs, uplinked to backbone switch and the monitoring center. With such a high-performance switch architecture, the recorded video files from the PoE IP cameras can be saved to the NVR system where the administrator can control and monitor the surveillance images in both the local LAN and remote sites.

Ethernet Data Transmission Distance Extension

The DIP switch provides “**Standard**”, “**VLAN**” and “**Extend**” operation modes.

- The FGSD-1821P operates as a normal IEEE 802.3at PoE+ switch in the “**Standard**” operation mode.
- The “**VLAN**” operation mode features port-based VLAN function that helps to prevent the IP camera’s multicast or broadcast storm from influencing each other.
- In the “**Extend**” operation mode, the FGSD-1821P operates on a per-port basis at 10Mbps duplex operation but supports 20-watt PoE power output over a distance of up to 250 meters overcoming the 100m limit on Ethernet UTP cable.

With this brand-new feature, the FGSD-1821P provides an additional solution for 802.3at PoE+ distance extension, thus saving the cost of Ethernet cable installation.

Powered Device Alive Check

The FGSD-1821P adopts not only Power over Ethernet technology, but also automated PD monitoring and real-time PoE status.

The PD alive check feature is applied in Standard, VLAN and Extend modes. After the PoE of the port is powered on, the device starts to detect whether the port is transmitting data. If the port does not transmit data and the duration exceeds a specific time, PoE will automatically power off and then re-power. It also will greatly enhance the network reliability in that the PoE port will reset the PD power, thus reducing administrator’s management burden.

Flexible Extension Solution

The two mini-GBIC slots built in the FGSD-1821P are compatible with the 1000BASE-SX/LX SFP (Small Form-factor Pluggable) fiber transceiver, uplinked 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 enterprise data centers and distributions.

2. PRODUCT FEATURES

➤ Physical Port

- 16-port 10/100BASE-TX RJ45 ports with IEEE 802.3at PoE+ injector function (ports 1~16)
- 2-port 10/100/1000BASE-T Gigabit RJ45 ports interfaces (ports 17~18)
- 1-port 1000BASE-X SFP interface (ports 17)

➤ Power over Ethernet

- Complies with IEEE 802.3at Power over Ethernet Plus end-span PSE
- Up to 16 ports of IEEE 802.3af/802.3at devices powered (ports 1~16)
- Supports PoE power up to 32 watts for each PoE port, with a total PoE budget of 185W.
- Each port supports 55V DC power to PoE powered device.
- Auto detects powered device (PD)
- Supports PD alive function.
- Circuit protection prevents power interference between ports.
- Remote power feeding up to 100m in standard mode with 250m in extend mode

➤ Switching

- Hardware-based 10/100Mbps and 10/100/1000Mbps auto-negotiation and auto MDI/MDI-X
- Supports IEEE802.3x flow control in full-duplex mode and backpressure in half-duplex mode
- Integrates address look-up engine, supporting 16K absolute MAC addresses
- 16K jumbo frame supports 1000Mbps speed
- Hardware-based DIP switch for Standard, VLAN or Extend mode selection;
 - VLAN mode: Ports 1 to 16 cannot communicate with each other, but can communicate with the uplink ports 17 to 18 and SFP port 17
 - Extend mode: Ports 1 to 8 have data rate of 10Mbps. The farthest transmission distance is up to 250 meters and all ports can communicate with each other.
- VLAN mode is to isolate ports to prevent broadcast storm and defend DHCP spoofing
- Automatic address learning and address aging
- Supports Energy-Efficient Ethernet (EEE) function (IEEE 802.3az)

➤ Hardware

- 11-inch desktop size, 1U height.
- LED indicators for system power, per port PoE ready and PoE activity, speed, Link/Act
- 1 silent fan to provide stable and efficient power performance
- Supports contact discharge of ± 6 KV DC and air distance discharge of ± 8 KV DC for Ethernet ESD protection
- Supports ± 6 KV surge immunity

3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

Switch ASIC: IP1819 + IP1001C x 2
PoE Control IC Plus IP808AR x 2

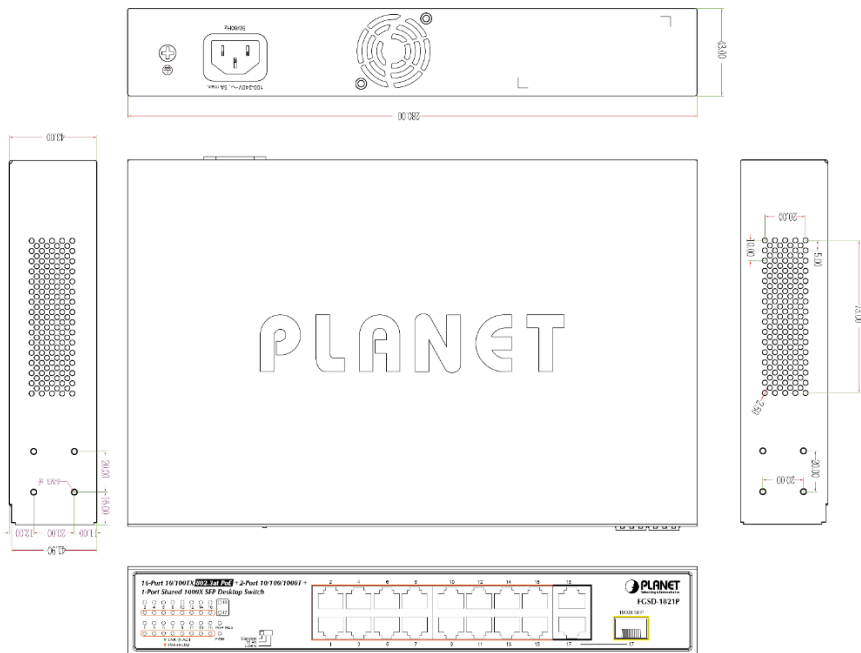
3.2 Functional Specifications

Model	FGSD-1821P
Hardware Specifications	
Fast Ethernet Copper Ports	16 x 10/100BASE-TX RJ45 auto-MDI/MDI-X ports
Gigabit Ethernet Copper Ports	2 x 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports (Port-17 shared with SFP port)
SFP Ports	1 x 1000BASE-SX/LX/BX SFP interface (shared with Port-17)
DIP Switch	Selectable operation mode <ul style="list-style-type: none"> ■ Standard ■ VLAN ■ Extend
Dimensions (W x D x H)	280 x 180 x 44 mm (1U height)
Enclosure	Metal
Weight	1800g
Power Requirements	100~240V AC, 50/60Hz, 5A max.
Power Consumption/Dissipation	Max. 207 watts/706 BTU
Thermal Fan	1
ESD Protection	Contact discharge of ±6KV DC, Air discharge of ±8KV DC
Surge Protection	Differential Mode ±4KV, Common Mode ±6KV
Installation	Desktop or rack-mount installation
LED	<p>System</p> <ul style="list-style-type: none"> Power (Green) PoE Max. (Green) <p>10/100/1000T RJ45 Interfaces</p> <ul style="list-style-type: none"> 10/100/1000 LNK / ACT (Green) PoE-in-Use (Amber) <p>1000X SFP Interfaces</p> <ul style="list-style-type: none"> 1000 LNK / ACT (Green)
Switching	
Switch Architecture	Store-and-Forward
Switch Fabric	7.2Gbps/non-blocking
Switch Throughput@64bytes	5.36Mpps
MAC Address Table	16K entries
Jumbo Frame	16K 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 Injector Ports	16
PoE Power Supply Type	End-span: 1/2 (+), 3/6 (-)
PoE Power Output	Per port 55V DC, 600mA. max. 32 watts

PoE Power Budget	185 watts
Number of PDs, 7 watts	16
Number of PDs, 15.4 watts	12
Number of PDs, 30 watts	6
Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE
Standards Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3ab Gigabit 1000BASE-T IEEE 802.3z Gigabit SX/LX IEEE 802.3x flow control and back pressure IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet Plus IEEE 802.3az Energy-Efficient Ethernet
Environment	
Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 5~ 95% (non-condensing)
Storage	Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 95% (non-condensing)

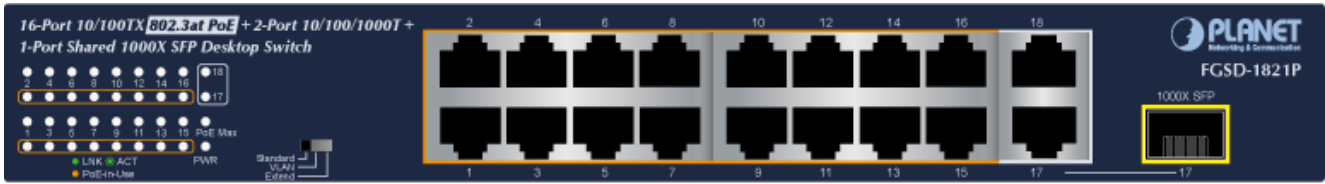
3.3 Physical Specifications

- **Dimensions (D x W x H):**
280 x 180 x 44 mm
- **Weight:**
1800g
- **Dimensions:**



Unit: mm

■ **Front Panel:**



■ **Rear Panel:**



■ **LED Definition**

➤ **System**

LED	Color	Function
PWR	Green	Lights to indicate the Switch has power.
PoE (max.)	Green	Off to indicate the PoE power is less than 80% of total power. Lights to indicate the PoE power is above 80%.

➤ **Per 10/100BASE-TX Port**

LED	Color	Function
10/100 LNK/ACT	Green	Lights to indicate the link through that port is successfully established. Blinks to indicate that the Switch is actively sending or receiving data over that port.
PoE in Use	Amber	Lights to indicate the port is providing PoE DC in-line power.

➤ **Per 10/100/1000BASE-T Port**

LED	Color	Function
10/100/1000 LNK/ACT	Green	Lights to indicate the link through that port is successfully established. Blinks to indicate that the Switch is actively sending or receiving data over that port.

➤ **Per 1000BASE-X SFP Interface**




LED	Color	Function
1000 LNK/ACT	Green	Lights to indicate the link through that port is successfully established at 1000Mbps. Blinks to indicate that the Switch is actively sending or receiving data over that port.

3.4 Multiple Functions of DIP Switch

The front panel of the FGSD-1821P provides one DIP switch for **Standard**, **VLAN** or **Extend** mode selection.

■ **DIP Switch**

The 3 DIP switch settings and descriptions:

DIP Switch Mode	Function
 <p>Standard VLAN Extend</p>	<p>This mode makes the 802.3at PoE+ Switch operate as a general switch and all PoE+ ports operate at 10/100Mbps auto-negotiation. All ports can communicate with one another.</p>
 <p>Standard VLAN Extend</p>	<p>This mode makes the 802.3at PoE+ Switch operate as a VLAN isolation switch and</p> <ol style="list-style-type: none"> 1. Ports 1 to 16 will isolate respectively. 2. Ports 1 to 16 can only communicate with ports 17~18 (uplink ports) and SFP port 17.
 <p>Standard VLAN Extend</p>	<p>This mode makes the 802.3at PoE+ Switch operate as a Long Reach PoE switch and</p> <ol style="list-style-type: none"> 1. Ports 1 to 8 support farthest transmission distance of up to 250 meters 2. Ports 1 to 8 have a data rate of 10Mbps 3. All ports can communicate with one another.

3.5 Environmental Specifications

Operating

Temperature: -40~75 Degree C

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

Storage

Temperature: -40~75 Degree C

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

3.6 Electrical Specification

Power Requirement: 100~240V AC, redundant power with reverse polarity protection

■ **Power Consumption:**

Input Voltage:	100~240V AC, 50/60Hz, 5A max.	
Power Consumption (System on):	110V: 5.2 watts 220V: 5.4 watts	17.7BTU 18.4BTU
Power Consumption (PoE+ Ethernet Full Loading):	110V: 207 watts 220V: 201 watts	706.3BTU 685.8BTU

3.7 Regulatory Compliance

FCC Part 15 Class A, CE

3.8 Reliability

MTBF > 100,000 hrs @ 25 Degree C

3.9 Basic Packaging

■ FGSD-1821P	x 1
■ User's Manual	x 1
■ Power Cord	x 1
■ Rubber Feet	x 1
■ SFP Dust Cap	x 2
■ Screws	x 8
■ Rack-mounting Brackets	x 2

3.10 PACKING INFORMATION

Dimensions (W x D x H):	378 x 234 x 82 mm
Gross Weight:	TBD
Carton Dimensions (W x D x H):	524 x 400 x 264 mm
Total Weight:	TBD
Quality:	6pcs in one carton