8-Port 10/100Mbps + 2G TP / SFP Combo Managed 802.3at PoE Switch

High Power PoE for Security and Public Service PoE Applications

PLANET FGSD-1022HP, the next generation Managed PoE Switch, features **IEEE 802.3af** and **High Power IEEE 802.3at** Power over Ethernet (PoE) that combines up to **30 watts** power output and data per port over one CAT 5E/6 Ethernet cable. It is designed specifically to satisfy the growing demand of higher power consuming network PD (powered devices) such as **PTZ** (Pan, Tilt & Zoom) / **Speed Dome network cameras**, multi- channel (802.11a / b / g / n) wireless LAN access points and other network devices by providing double PoE power than conventional 802.3af PoE currently.

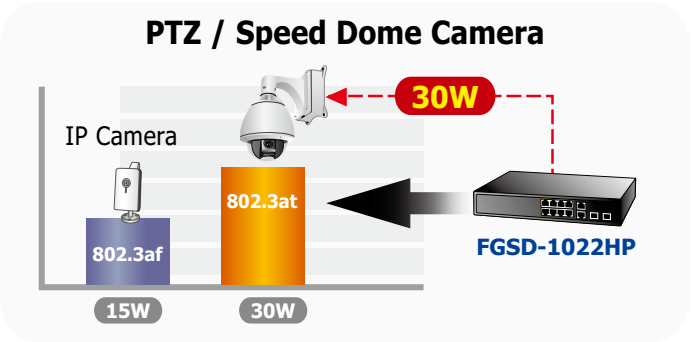
Flexible and Centralized Power Management

The 8 PoE ports in the FGSD-1022HP support both 802.3af and 802.3at PoE standards and allows users flexibly connect standard and high powered devices simultaneously. By offering 150 watts PoE budget, eight 15.4 watts IEEE 802.3af devices or five 30 watts IEEE 802.3at devices can be easily installed without the power-socket limitation.

To facilitate power management, the FGSD-1022HP is implemented powerful PoE management features such as **over temperature protection**, **usage threshold alert** and **auto power allocate** to prevent power budget overloading. The PoE power budget can be allocated by priorities or classification and sent alert event logs when power usage reaches the defined threshold. The FGSD-1022HP enables centralization of the power supply and optimizes the installation and power management of remote network devices; therefore, it eliminates costs for additional AC wiring and reduces installation time.

IEEE 802.3at Power over Ethernet Pre-Standard Compliant

Till today, the IEEE 802.3af Power over Ethernet Standard has become popular yet the PoE demand still grows for increasing network-powered applications. With many critical applications appears, the IEEE 802.3af PoE standard may not afford the trend of higher power demand. Hence, the IEEE 802.3at Power over Ethernet pre-standard is defined to allow delivery of maximum up to 30 Watts input power to per PoE device. The IEEE 802.3at Power over Ethernet pre-standard is an ideal solution to fulfill the high power requirements directly via the RJ-45 Port interface. Compliant with IEEE 802.3at, the FGSD-1022HP possesses stronger power capability than the existing 802.3af PoE Switch.



Full-Functioned / Robust Layer 2 Features

The FGSD-1022HP can be programmed for basic switch management functions such as port speed configuration, Port aggregation, VLAN, Spanning Tree protocol, QoS, bandwidth control and IGMP Snooping. It provides IEEE 802.1Q Tagged VLAN and the VLAN groups allowed on the FGSD-1022HP will be maximally up to 256. Via aggregation of supporting port, the FGSD-1022HP allows the operation of high-speed trunk combining multiple ports and supports fail-over as well. In addition, SNTP, System log and Remote syslog provide alarm event record to the administrator for security monitoring.

Excellent Traffic Control

The PLANET FGSD-1022HP is loaded with powerful traffic management and QoS features to enhance services offered by Service Providers. The functionality includes QoS features such as wire-speed Layer 4 traffic classifiers and bandwidth limiting applications that are particular useful for multi-tenant unit, multi business unit, Telco, or Network Service Provider. It also empowers the enterprises to take full advantages of the limited network resources and guarantees the best performance in VoIP and Video conferencing transmission.

Powerful Management and Easy To Use

For efficient management, the FGSD-1022HP is equipped with console, WEB and SNMP management interfaces. With its built-in Web-Based management interface, the FGSD-1022HP offers an easy-to-use, platform-independent management and configuration facility. For text-based management, the FGSD-1022HP can be accessed via Telnet and the console port. It supports standard Simple Network Management Protocol (SNMP) and can be managed via any standard-based management software. Moreover, the FGSD-1022HP offers secure remote management by supporting SNMPv3 and SSL connection which encrypts the packet content at each session.

Powerful Security

The PLANET FGSD-1022HP offers comprehensive Access Control List (ACL) for enforcing security to the edge. Its protection mechanism also comprises Port-Based IEEE 802.1x user and device authentication. The Port-security is effective in limiting the numbers of clients pass through so that network administrators can now construct highly secured corporate networks with considerably less time and effort than before.

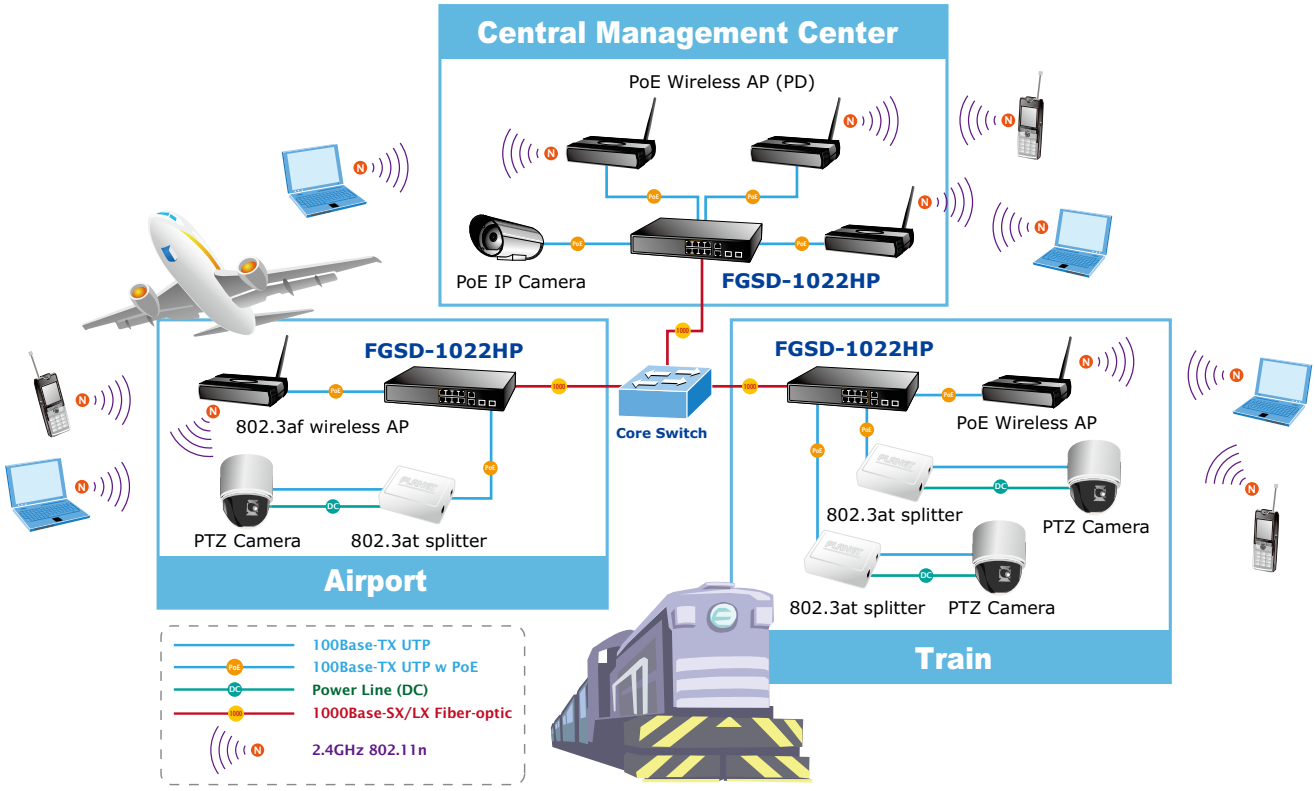
Flexibility and Extension solution

The two mini-GBIC slots are compatible with 1000Base-SX/LX and WDM SFP (Small Form Factor Pluggable) fiber-optic modules. The distance can be extended from 550 meters (Multi-Mode fiber cable) up to 10/30/50/70/120 kilometers (Single-Mode fiber or WDM fiber cable). They are well suited for applications within the enterprises data centers, distributions or remote PoE equipments data link.

APPLICATIONS

Train Station - IEEE 802.3at compliant IP Surveillance and Wireless powered devices

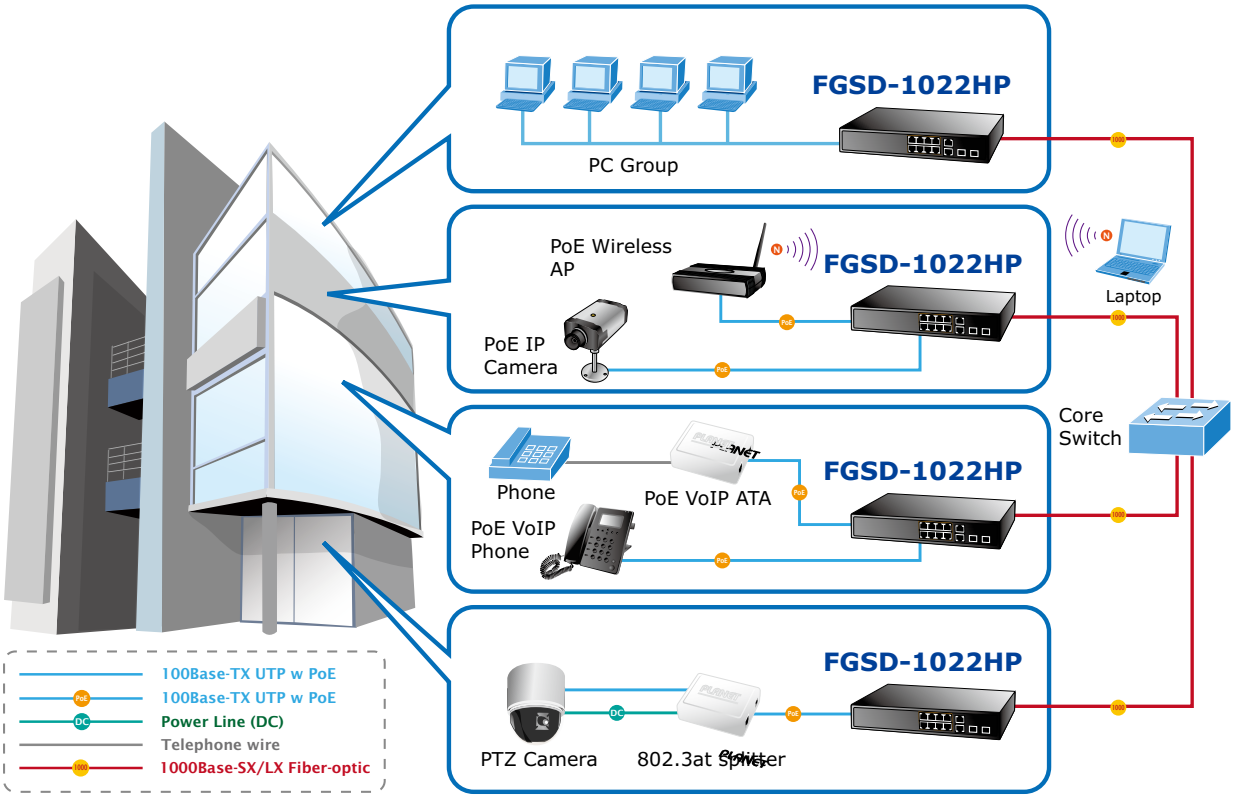
Having the capability of IEEE 802.3at Power over Ethernet pre-standard, the FGSD-1022HP can directly connect with any IEEE 802.3at end-nodes like PTZ (Pan, Tilt & Zoom) network cameras, PTZ Speed Dome cameras, color touch- screen Voice over IP (VoIP) telephones, and multi- channel wireless LAN access points. Besides the wired Internet network, the wireless LAN would be more efficient for the transportation station to provide high-speed and wide area Internet services for travelers. By adopting PoE Wireless LAN structure, the transportation authority gains benefit from less cost while providing better Internet services in wider areas for the travelers.



IP Office

With the business office expansion, the additional telephones required could be installed in less cost via the implementation of PoE IP Telephony system than that of the traditional circuit wiring telephony system. PLANET FGSD-1022HP PoE Managed Switch helps enterprises to create an integrated data, voice, and powered network. PLANET IEEE 802.3af compliant IP Phones can be installed without the need of an additional power cable because the power can be provided via the standard Ethernet cable from the connected FGSD-1022HP. PoE IP Phones and Analog Telephony Adapter work perfectly with the FGSD-1022HP which injects power through the Ethernet cables.

With the FGSD-1022HP, IP Telephony deployment becomes more reliable and cost effective, which helps enterprises save tremendous cost when upgrading from the traditional telephony system to IP Telephony communications infrastructure.



Key Features

PHYSICAL PORT

- **8-Port 10/100Base-TX** Fast Ethernet ports with IEEE 802.3af / IEEE 802.3at PoE injector
- **2 10/100/1000Base-T** TP combo interfaces
- **2 mini-GBIC/SFP** slots, shared with Port-9 and Port-10
- Reset button for system management
- 1 RS-232 male DB9 console interface for Switch basic management and setup

POWER OVER ETHERNET

- Complies with IEEE 802.3af / IEEE 802.3at Power over Ethernet End-Span PSE
- Up to 8 IEEE 802.3af devices powered, supporting PoE Power up to 15.4 Watts for each PoE port
- Up to 5 IEEE 802.3at devices powered, supporting PoE Power up to 30 Watts for each PoE port
- Auto detect powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100m
- PoE Management
  - IEEE 802.3af and IEEE 802.3at mode Switch control
  - 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
  - Over Temperature Protection function
  - Temperature Threshold Control
  - PoE Usage Threshold Control

LAYER 2 FEATURES

- Prevents packet loss Flow Control- IEEE 802.1Q Tag-based VLAN
  - IEEE 802.3x PAUSE Frame flow control for Full-Duplex mode
  - Back-Pressure Flow Control in Half-Duplex mode
- High performance of Store-and-Forward architecture, runt/CRC filtering eliminates erroneous packets to optimize the network bandwidth
- Broadcast / Multicast / Unicast storm control
- 8K MAC address table, automatic source address learning and ageing
- Supports **VLAN**
  - IEEE 802.1Q Tag-Based VLAN
  - Port-Based VLAN
  - Q-in-Q tunneling
  - GVRP for dynamic VLAN Management
  - Private VLAN Edge (PVE / Protect Port)
- Supports **Link Aggregation**
  - Up to 13 trunk groups
  - Up to 8 ports per trunk group with 1.6Gbps bandwidth (Full Duplex Mode)
  - IEEE 802.3ad LACP (Link Aggregation Control Protocol)
  - Cisco ether-channel (Static Trunk)
- **Spanning Tree Protocol**
  - STP, IEEE 802.1D (Classic Spanning Tree Protocol)
  - MSTP, IEEE 802.1s (Multiple Spanning Tree Protocol, spanning tree by VLAN)
- Port Mirroring to monitor the incoming or outgoing traffic on a particular port

QUALITY OF SERVICE

- 4 priority queues on all Switch ports
- Traffic classification
  - IEEE 802.1p CoS
  - IP TOS / DSCP to 802.1p priority mapping
  - Port-Based priority
- Strict priority and Weighted Round Robin (WRR) CoS policies
- Supports QoS and In/Out bandwidth control on each port
- Voice QoS by application source / destination protocol

MULTICAST

- Supports IGMP Snooping v1 and v2
- IGMP Snooping v2 fast leave
- Querier mode support

SECURITY

- IEEE 802.1x Port-Based network access control protocol
- RADIUS users access authentication
- L3 / L4 Access Control List (ACL)
- Source IP-MAC / Port-Binding
- Port Security for Source MAC address entries filtering

MANAGEMENT

- Switch Management Interface
  - Telnet Command Line Interface
  - Web Switch management
  - SNMP v1, v2c, v3 Switch management
  - SSL Switch management
- Three user privilege levels control (Admin, Operator, viewer)
- DHCP client for IP address assignment
- DHCP Option82 and DHCP Relay
- Link Layer Discovery Protocol (LLDP) for easy network management
- Built-in Trivial File Transfer Protocol (TFTP) client
- Firmware upgrade via TFTP or HTTP
- Configuration restore / backup via TFTP or HTTP
- Event message logging to local file or remote Syslog server
- Four RMON groups 1, 2, 3, 9 (history, statistics, alarms, and events)
- SNMP trap for interface Link Up and Link Down notification
- Supports Ping function
- Supports Simple Network Protocol (SNTP)

Specification

Product	8-Port 10/100Mbps + 2 Gigabit TP / SFP Managed 802.3at PoE Switch
Model	FGSD-1022HP
Hardware Specification	
10/100Mbps Copper Ports	8 10/ 100Base-TX RJ-45 Auto-MDI/MDI-X ports
1000Mbps Copper Ports	2 10/100/1000Mbps RJ-45 Auto-MDI/MDI-X ports
SFP/mini-GBIC Slots	2 1000Base-SX/LX/BX, shared with Port-9~Port-10
Switch Architecture	Store-and-Forward
Switch Fabric	5.6Gbps / non-blocking
Switch Throughput	4.16Mpps @64Bytes
Address Table	8K entries
Share Data Buffer	2 Mbits
Maximum Frame Size	9K Bytes
Flow Control	Back pressure for Half-Duplex IEEE 802.3x Pause Frame for Full-Duplex
LED	System: Power 10/100 PoE Port : Link/Activity (Green), PoE In-Use (Amber) Gigabit Port: 1000 LNK / ACT(Green), 10/100 LNK / ACT(Amber)
Reset Button	< 5 secs: System reboot > 10 secs: Factory Default
Dimension (W x D x H)	330 x 155 x 43.5 mm
Weight	1.74Kg
Power Input	100 - 240VAC, 50 - 60Hz, Auto-sensing
Power Consumption	200W / 686.2BTU
Power over Ethernet	
PoE Standard	IEEE 802.3af / IEEE 802.3at Power over Ethernet / PSE
PoE Power Supply Type	End-Span
PoE Power Output	Per Port 52V DC, 350mA . Max. 15.4 Watts (IEEE 802.3af) Per Port 52V DC, 590mA. Max. 30 Watts (IEEE 802.3at)
IGMP Snooping	IGMP (v1/v2) Snooping, up to 256 multicast Groups
Power Pin Assignment	1/2(+), 3/6(-)
PoE Power Budget	150 Watts
Max. number of Class 2 PD	8
Max. number of Class 3 PD	8
Max. number of Class 4 PD	5
Layer 2 Function	
Management Interface	Console, Telnet, Web Browser, SSL, SNMPv1, v2c, v3
Port Configuration	Port disable/enable Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Flow Control disable / enable Port Description
Port Status	Display each port's speed duplex mode, link status and Flow control status Auto negotiation status, trunk status
Port Mirroring	TX / RX / Both 1 to 1 monitor
Bandwidth Control	Ingress / Egress Rate Control • Allow to configure per 128Kbps
VLAN	IEEE 802.1Q Tag-Based VLAN, up to 255 VLANs groups, out of 4041 VLAN IDs Port-Based VLAN Q-in-Q tunneling GVRP for VLAN Management, up to 128 dynamic VLAN entries Private VLAN Edge (PVE / Protected port) with two protected port groups
Link Aggregation	Static Port Trunk IEEE 802.3ad LACP (Link Aggregation Control Protocol) 13 groups of 8-Port trunk support
QoS	4 priority queue Traffic classification based on: - Port priority - 802.1p priority - DSCP/TOS field in IP Packet
IGMP Snooping	IGMP (v1/v2) Snooping, up to 256 multicast Groups
Access Control List	IP-Based Layer 3 / Layer 4 ACL Up to 200 ACL rule entries

802.1X Port Access Control	Supporting EAP-MD5, EAP-TLS and EAP-PEAP authentication types	
SNMP MIBs	RFC-1213 MIB-II RFC-2863 Interface MIB RFC-2665 EtherLike MIB RFC-1493 Bridge MIB RFC-2819 RMON MIB (Group 1, 2, 3,9) RFC-2737 Entity MIB POWER-ETHERNET-MIB	
Standards Conformance		
Standards Compliance	IEEE 802.3	10Base-T
	IEEE 802.3u	100Base-TX
	IEEE 802.3z	1000Base-SX/LX
	IEEE 802.3ab	1000Base-T
	IEEE 802.3x	Flow Control and Back pressure
	IEEE 802.3ad	Port trunk with LACP
	IEEE 802.1D	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 802.3af	Power over Ethernet
	IEEE 802.3at	Power over Ethernet (Pre-Standard)
	RFC 768	UDP
	RFC 783	TFTP
	RFC 791	IP
	RFC 792	ICMP
	RFC 854	Telnet
	RFC 2068	HTTP
	RFC 1112	IGMP version 1
	RFC 1157	SNMPv1
	RFC 1305	NTP
	RFC 1902	SNMPv2c
	RFC 2138	RADIUS
	RFC 2236	IGMP version 2
	RFC 2576	SNMPv3
	RFC 5424	Syslog
Environment		
Operating	Temperature: 0 ~ 50 Degree C Relative Humidity: 20 ~ 95%	
Storage	Temperature: -10 ~ 70 Degree C Relative Humidity: 20 ~ 95% (non-condensing)	

Ordering Information

FGSD-1022HP	8-Port 10/100Mbps + 2 Gigabit TP / SFP combo Managed 802.3at PoE Switch

Available Modules for FGSD-1022HP

MGB-GT	SFP-Port 1000Base-T Module
MGB-SX	SFP-Port 1000Base-SX mini-GBIC module
MGB-LX	SFP-Port 1000Base-LX mini-GBIC module
MGB-L30	SFP-Port 1000Base-LX mini-GBIC module-30km
MGB-L50	SFP-Port 1000Base-LX mini-GBIC module-50km
MGB-L70	SFP-Port 1000Base-LX mini-GBIC module-70km
MGB-L120	SFP-Port 1000Base-LX mini-GBIC module-120km
MGB-LA10	SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module-10km
MGB-LB10	SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module-10km
MGB-LA20	SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module-20km
MGB-LB20	SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module-20km
MGB-LA40	SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module-40km
MGB-LB40	SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module-40km

Relative PoE Products

POE-161S	IEEE 802.3at Gigabit High Power over Ethernet Splitter
POE-151S-5V	IEEE 802.3af Power over Ethernet Splitter with 5V DC output
POE-151S-12V	IEEE 802.3af Power over Ethernet Splitter with 12V DC output
POE-E101	IEEE 802.3af Power over Ethernet Extender
ICA-H312	H.264 25-meter IR Internet Camera
ICA-H610	H.264 Indoor CCD Internet Camera
ICA-HM100	Wired H.264 Mega-Pixel IP Camera
ICA-HM120	H.264 Mega-Pixel Box IP Camera
ICA-HM125	2 Mega-Pixel H.264 Box IP Camera
ICA-HM126	H.264 Full HD Box IP Camera
ICA-HM131	H.264 Full-HD Fixed Dome IP Camera
ICA-HM135	H.264 Mega-Pixel 20M IR Vandal Proof Dome IP Camera
ICA-HM240	H.264 Mega-Pixel Vandal Proof Pan/Tilt IP Camera
IVS-110	1-Channel Internet Video Server
WNAP-1120PE	802.11n Wireless Access Point with PoE
WNAP-3000PE	802.11n Enterprise PoE Access Point
WNAP-4033PE	54Mbps Wireless PoE Access Point
VIP-254PT	SIP PoE IP Phone
VIP-255PT	Multi-Language PoE IP Phone
VIP-360PT	Enterprise PoE IP Phone
VIP-560PT	Professional PoE IP Phone
VIP-560PE	Professional Enterprise PoE IP Phone with Expansion Function
VIP-156PE	802.3af PoE SIP Analog Telephone Adapter

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