PLANET
Networking & Communication

User's Manual

12-/24-Port Gigabit 802.3at PoE+ Managed Injector Hub

► **POE-1200G/POE-2400G/ HPOE-1200G/HPOE-2400G**

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EU Representative
PLANET Technology Europe B.V.
Address: Posthoornstraat 11, 3011 WD Rotterdam, NL
Email: eu_rep@planet.com.tw
URL: www.planet.com.tw

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FCC Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the Instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE Mark Warning

This device is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

Energy Saving Note of the Device

This power required device does not support Standby mode operation. For energy saving, please remove the power cable to disconnect the device from the power circuit. In view of saving the energy and reducing the unnecessary power consumption, it is strongly suggested to remove the power connection for the device if this device is not intended to be active.

WEEE Warning

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

Revision

PLANET 12-/24-Port Gigabit IEEE 802.3at PoE+ Managed Injector Hub User's Manual

FOR MODELS: POE-1200G/POE-2400G/HPOE-1200G/HPOE-2400G

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1. Introduction

Thank you for purchasing PLANET 12-/24-Port Gigabit IEEE 802.3at PoE+ Managed Injector Hub, POE-1200G, POE-2400G, HPOE-1200G or HPOE-2400G. The descriptions of these models are as follows:

POE-1200G	12-Port Gigabit IEEE 802.3at PoE+ Managed Injector Hub (220 watts)
POE-2400G	24-Port Gigabit IEEE 802.3at PoE+ Managed Injector Hub (440 watts)
HPOE-1200G	12-Port Gigabit IEEE 802.3at PoE+ Managed Injector Hub (360 watts)
HPOE-2400G	24-Port Gigabit IEEE 802.3at PoE+ Managed Injector Hub (720 watts)

"**PoE+ Managed Injector Hub**" mentioned in the manual refers to the above models.

1.1 Package Contents

Open the box of the PoE+ Managed Injector Hub and carefully unpack it. The box should contain the following items:

Model Name / Package Item	POE- 1200G	POE- 2400G	HPOE- 1200G	HPOE- 2400G
The PoE+ Managed Injector Hub	■	■	■	■
QR Code Sheet	■	■	■	■
Rubber Feet	■	■	■	■
Two Rack-mounting Brackets with Attachment Screws	■	■	■	■
Power Cord	■	■	■	■

Note	If any item is found missing or damaged, please contact your local reseller for replacement.

1.2 Product Overview

PLANET's newly-improved **PoE+ Managed Injector Hub series**, a quick high-density rack-mountable managed PoE solution, is designed to perfectly upgrade an existing network infrastructure to IEEE 802.3at Power over Ethernet Plus network system without replacing the existing Ethernet Switch. The PoE+ Managed Injector Hub series' management functions have been enhanced to include TLSv1.2 and TLSv1.3 protocols, PLANET DDNS/Easy DDNS service, PLANET NMS system, PLANET CloudViewer, and more.

Cybersecurity Network Solution to Minimize Security Risks

The cybersecurity feature included to protect the PoE+ Managed Injector Hub series management in a mission-critical network virtually needs no effort and cost to install. Both TLSv1.2 and TLSv1.3 protocols are utilized to provide strong protection against advanced threats. The network administrator can now construct highly-secure corporate networks with considerably less time and effort than before.

Remote Management Solution

PLANET's **Universal Network Management System** (UNI-NMS) and CloudViewer app support IT staff by remotely managing all network devices and monitoring PDs' operational statuses. Thus, they're designed for both the enterprises and industries where deployments of PDs can be as remote as possible, without having to go to the actual location once a bug or faulty condition is found. With the UNI-NMS or CloudViewer app, all kinds of businesses can now be speedily and efficiently managed from one platform.

Perfect Managed PoE+ Injector Hub with Full Power Budget

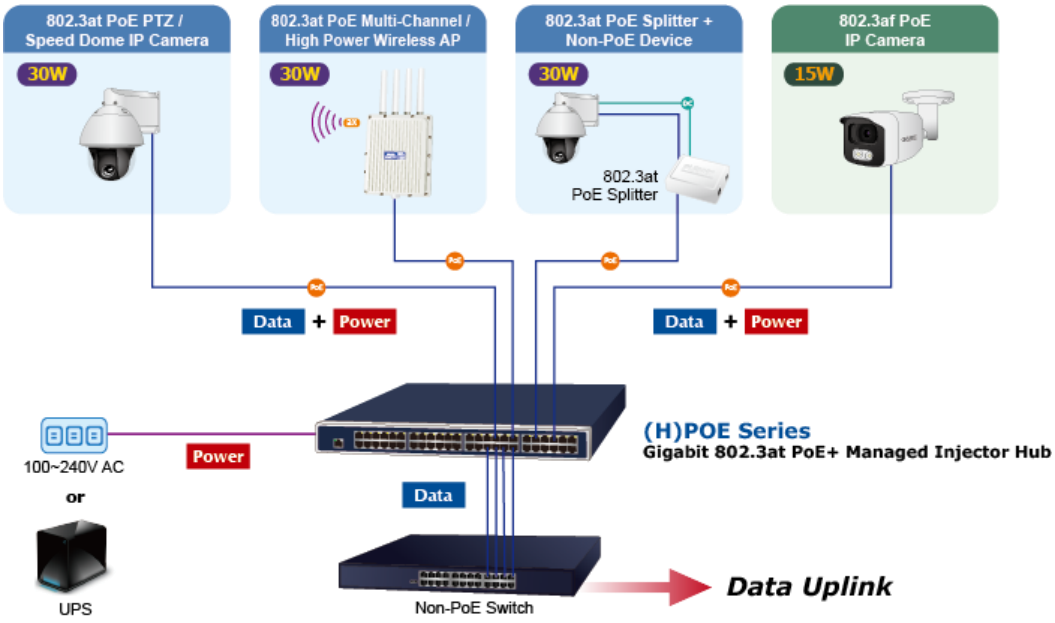
The PoE+ Managed Injector Hub series features PLANET **intelligent** functions where remote management can be done through **web user interface**. It provides 12/24 10/100/1000BASE-T Ethernet ports featuring **802.3at PoE+** injector function with a total PoE budget of 220 to 720 watts. Each PoE port can deliver up to 36-watt power over Cat.5/5e/6 Ethernet UTP cables which allow data and power to transmit simultaneously to a remote 802.3at/af powered device (PD).

The PoE+ Managed Injector Hub series enables centralization of the power supply and optimizes the installation and power management of remote network devices, and provides a quick, safe and cost-effective Power over Ethernet network solution for small businesses and enterprises.

Model	PoE Standard	PoE+ Interface	Total PoE Budget
POE-1200G	IEEE 802.3at PoE+ IEEE 802.3af PoE	12	220 watts
HPOE-1200G		12	360 watts
POE-2400G		24	440 watts
HPOE-2400G		24	720 watts

Quick and Easy PoE Network Deployment

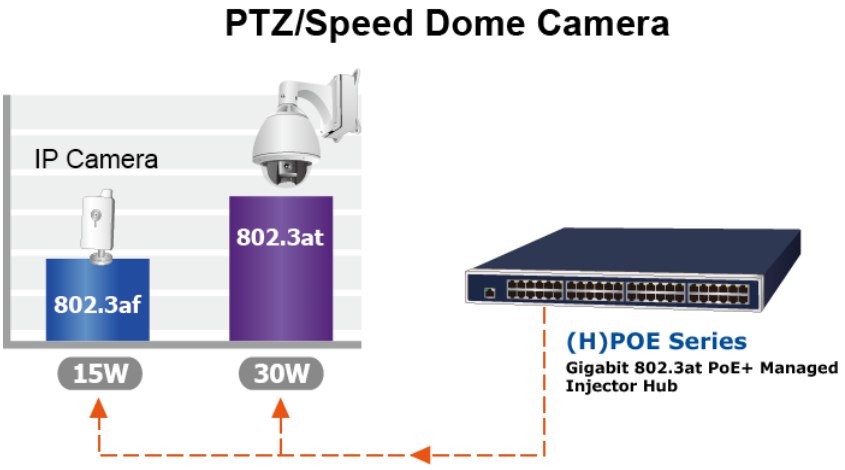
The PoE+ Managed Injector Hub series is installed between a regular Ethernet Switch and the PDs. There are totally 24/48 RJ45 STP ports on the front panel of the PoE+ Managed Injector Hub series, of which the 12/24 ports on the lower part of the hub functioned as "**Data input**" while the other 12/24 ports on the upper part functioned as "**PoE (Data and Power) output**". Both power and data are transmitted simultaneously over the UTP cables to PDs without affecting the existing network performance and functions.



With data and Power over Ethernet from one unit, the PoE+ Managed Injector Hub series can reduce power cable deployment and eliminate the need for dedicated electrical outlets on the wall, ceiling or any unreachable place.

IEEE 802.3at PoE+ Standard Compliance

The PoE in-line power adopting the **IEEE 802.3at Power over Ethernet Plus** standard makes the PoE+ Managed Injector Hub series able to deliver per port up to **36 watts** of power to each remote PoE compliant PD. It possesses double amount of power capability than the conventional 802.3af PoE and is an ideal solution to satisfy the growing demand for higher power consuming network PDs, such as PTZ (pan, tilt and zoom), speed dome network cameras, color touch-screen or video and voice over IP (VoIP) telephones, multi-channel 802.11ac wireless LAN access points and other network devices.



User-friendly Web Management Interface

To efficiently manage the PDs, the PoE+ Managed Injector Hub series provides simple **Web management interface** in which administrators can control the system and PoE functions for PDs. It can automatically detect the power status of each port and show messages on its Web management interface. These features also provide users with a cost-effective way to manage the device via Internet whenever they are at work or at home.

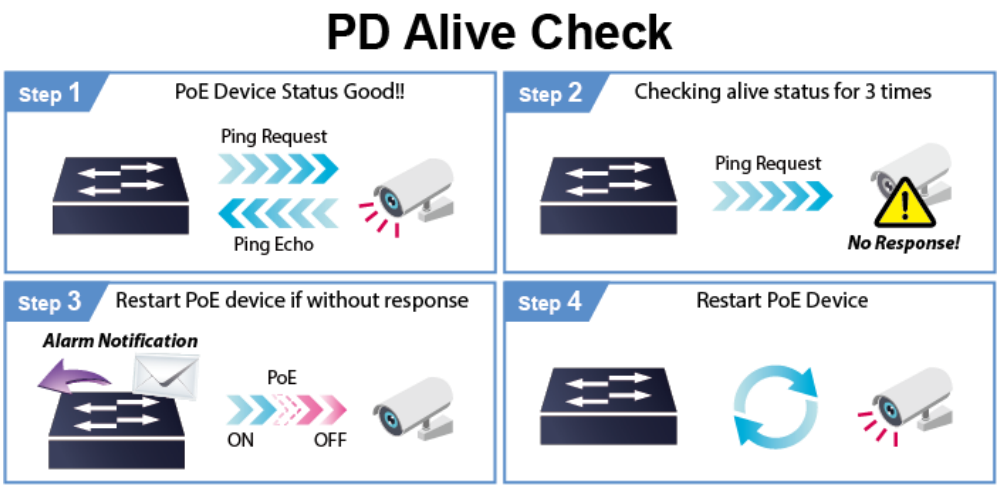
Built-in Unique PoE Functions for Powered Device Management

As it is the managed PoE+ Managed Injector Hub for VoIP, wireless and surveillance networks, the PoE+ Managed Injector Hub series features the following special PoE management functions:

- **PoE schedule**
- **PD alive check**
- **Scheduled power recycling**
- **PoE usage monitoring**

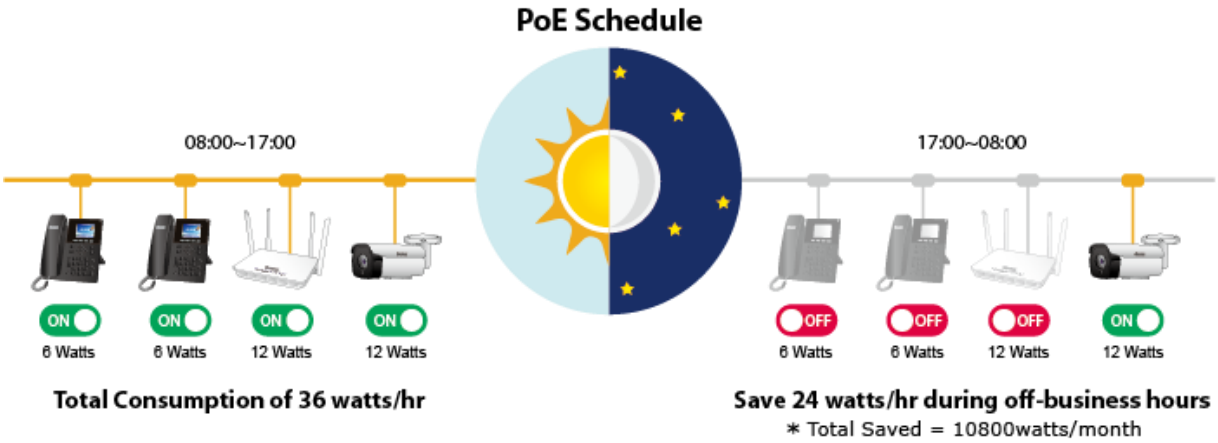
Intelligent Powered Device Alive Check

PLANET's Managed PoE products adopt not only Power over Ethernet technology, but also automated PD monitoring and real-time PoE status. The PoE+ Managed Injector Hub series can be configured to monitor connected PD's status in real time via ping action through the uplinked Ethernet switch. Once the PD stops working and responding, the PoE+ Managed Injector Hub series will recycle the PoE port power and bring the PD back to work. It also will greatly enhance the network reliability in that the PoE port will reset the PD power, thus reducing administrator's management burden.



PoE Schedule for Energy Savings

Under the trend of energy savings worldwide and contributing to environmental protection on the Earth, the PoE+ Managed Injector Hub series 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.



PoE Usage Monitoring

Via the power usage chart in the web management interface, the PoE+ Managed Injector Hub series enables the administrator to monitor the status of the power usage of the connected PDs in real time. Thus, it greatly enhances the management efficiency of the facilities.

High Power Budget for PoE Extension

With 36-watt PoE output capability, the PoE+ Managed Injector Hub series can extend much longer distance by using PLANET PoE Extender for powering up the PoE PD which can be installed over more than 100 meters away. By daisy-chaining multiple PLANET PoE Extenders, it offers the great flexibility of doubling, tripling or quadrupling the distance of PoE network.

Smart Fan Design for Silent Operation

The PoE+ Managed Injector Hub series features a low noise design and an effective ventilation system. It supports the smart fan technology that automatically controls the speed of the built-in fan to reduce noise and maintain the temperature of the PoE+ Managed Injector Hub series for optimal power output capability. The speed of the smart fan is displayed on the monitor. The PoE+ Managed Injector Hub series is able to operate reliably, stably and quietly in any environment without affecting its performance.

Scheduled Power Rebooting

The PoE+ Managed Injector Hub series can be scheduled to reboot at a specified time like every minute, every hour, every day to reduce the chance of PD device crash resulting from buffer overflow.

1.3 Product Features

- **Interface**
  - **24-/48-port RJ45**
    - 12-/24-port 10/100/1000Mbps "**Data input**"
    - 12-/24-port 10/100/1000Mbps "**Data + Power output**"
  - One 10/100/1000BASE-T management port
- **Power over Ethernet**
  - Complies with IEEE 802.3at Power over Ethernet Plus mid-span PSE
  - Up to 12/24 IEEE 802.3at/802.3af devices powered
  - PoE power up to 30.8 watts (802.3at PoE+)/15.4 watts (802.3af PoE) for each PoE port
  - Automatically detects PD
  - Circuit protection prevents power interference between ports
  - Remote power feeding up to 100m
- **PoE Management**
  - Per port PoE power schedule
  - PoE function enable/disable
  - Per port PoE function enable/disable
  - PoE port power feeding priority
  - PD classification detection
  - PD alive check
- **Security**
  - SPI firewall
  - MAC filtering
  - System CA certificate for HTTPS
- **Management**
  - IPv4 and IPv6 dual stack management
  - Web interface for remote management
  - PLANET DDNS and Easy DDNS
  - Network Time Protocol (NTP)
  - System Maintenance
    - Firmware upload via HTTP
    - Configuration upload/download via HTTP
    - Reboot button for system reboot
    - Reset button for system reset to factory default

- PLANET Smart Discovery utility automatically finds PLANET devices on the network
- PLANET NMS system and CloudViewer for deployment management
- SNMP v1, v2c and v3 for system status monitoring
- SNMP trap for alarm notification of events
- System event log/remote syslog
- Scheduled System Power Rebooting
- Network Diagnostic
  - ICMPv6/ICMPv4 Remote Ping
  - Trace Route

➢ **Hardware**

- 19-inch rack mountable; 1U height
- Reset button for resetting to default setting and system reboot
- LED indicators for PoE ready and PoE activity
- LED indicators for power alert and fan alert
- FCC Part 15 Class A, CE

1.4 Product Specifications

Product		POE-1200G	HPOE-1200G	POE-2400G	HPOE-2400G
Hardware					
Hardware Version		6			
Interface	"Data" Input Ports	12 x RJ45	12 x RJ45	24 x RJ45	24 x RJ45
	"Data + Power" Output Ports	12 x RJ45	12 x RJ45	24 x RJ45	24 x RJ45
	Management Port	1 x RJ45; 10/100/1000BASE-T, auto-negotiation, auto-MDI/MDIX			
Data Rate		10/100/1000Mbps			
Power Requirements		100-240V AC, 50/60 Hz, 4A	100-240V AC, 50/60 Hz, 8A	100-240V AC, 50/60 Hz, 8A	100-240V AC, 50/60 Hz, 12A
Power Consumption		251 watts/ 856 BTU	382 watts/ 1303 BTU	514 watts/ 1753 BTU	719 watts/ 2453 BTU
Ventilation		Smart Fan x 2			
Dimensions (W x D x H)		440 x 300 x 44mm			
Weight		3.6kg	3.9kg	4kg	4.3kg
Reset Button		< 5 sec: System reboot > 5 sec: Factory default			
LED		System: SYS PWR x 1 (**Green**) PoE Failure x 1 (**Red**) Fan 1 Failure x 1 (**Red**) Fan 2 Failure x 1 (**Red**) Per PoE Port: PoE-in-use x 1 (**Amber**) Management port x 1: LNK/ACT (**Green**)			
Network Cable		10BASE-T: 4-pair UTP Cat5 up to 100m (328ft) 100BASE-TX: 4-pair UTP Cat5 up to 100m (328ft) 1000BASE-T: 4-pair UTP Cat5e/6 up to 100m (328ft) EIA/TIA- 568 100-ohm STP (100m)			
Power over Ethernet					
PoE Power Supply Type		Mid-span			
PoE Power Output		Per port DC 54V 30.8/15.4 watts			
Power Pin Assignment		4/5(+), 7/8(-)			
PoE Power Budget		220 watts	360 watts	440 watts@0~40℃ 400 watts@41~50℃ Auto power budget control by over temperature protection function	720 watts@0~39 ℃ 670 watts@40~49℃ 620 watts@50℃ Auto power budget control by over temperature protection function
Number of 802.3af PDs (Class 0, 1, 2, 3) can be powered		12	12	24	24
Number of 802.3at PDs (Class 1, 2, 3) can be powered		12	12	14	24
Number of 802.3at PDs (Class 0, 4) can be powered		7	12	14	24
Security					
Firewall		SPI Firewall			

Filtering	MAC Filtering
Certificates	System CA Certificate for HTTPS
Management	
Management Interface	Web, PLANET Smart Discovery Lite
Secure Management Interface	TLSv1.2, TLSv1.3
PoE Management	Power limit by consumption and classification PoE function enable/disable Per port PoE function enable/disable Per port PoE power schedule Power feeding priority PD alive check PD classification detection Current per port usage and status Total power consumption
Management Feature	IPv4 and IPv6 dual stack management Web interface for remote management PLANET DDNS and easy DDNS Network Time Protocol (NTP) System Maintenance ■ Firmware upload via HTTP ■ Configuration upload/download via HTTP ■ Reboot button for system reboot ■ Reset button for system reset to factory default PLANET Smart Discovery utility PLANET NMS system and CloudViewer for deployment management SNMP v1, v2c and v3 for system status monitoring SNMP trap for alarm notification of events System event log/remote syslog Scheduled system power rebooting Network Diagnostic – ICMPv6/ICMPv4 remote ping – Trace route
Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE
Standards Compliance	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3ab 1000BASE-T Gigabit Ethernet IEEE 802.3at Power over Ethernet Plus IEEE 802.3af Power over Ethernet RFC 768: UDP RFC 791: IP RFC 2068 HTTP RFC 1157: SNMP v1 RFC 1902: SNMP v2c RFC 2273: SNMPv3 RFC 5424: Syslog
Environments	
Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 5 ~ 90% (non-condensing)
Storage	Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 90% (non-condensing)

2. Physical Description

This section describes the hardware features and installation of these PoE+ Managed Injector Hub on the desktop or rack mount. For easier management and control of the PoE+ Managed Injector Hub, familiarize yourself with its display indicators, and ports. Front panel illustrations in this chapter display the unit LED indicators. Before deploying the PoE+ Managed Injector Hub, please read this chapter completely.

2.1 Hardware Description

The section describes the hardware of the PoE+ Managed Injector Hub and gives a physical and functional overview.

2.1.1 Injector Front Panel

The unit front panel provides a simple interface monitoring the PoE+ Managed Injector Hub. Figure 2-1-1, 2-1-2, 2-1-3 & 2-1-4 show the front panel of the PoE+ Managed Injector Hub.

■ **Front Panel of POE-1200G**

Figure 2-1-1: POE-1200G front panel

■ **Front Panel of POE-2400G**

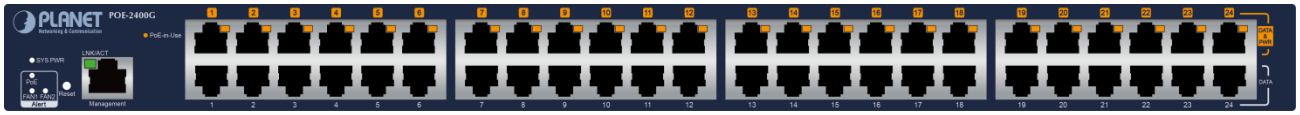


Figure 2-1-2: POE-2400G front panel

■ **Front Panel of HPOE-1200G**

Figure 2-1-3: HPOE-1200G front panel

■ **Front Panel of HPOE-2400G**

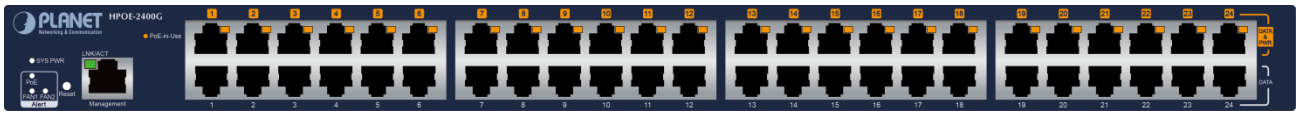


Figure 2-1-4: HPOE-2400G front panel

WARNING: Do not connect any PoE PSE (e.g., PoE switch/injector/midspan) to the DATA IN / Ethernet port or in the data path of this PoE+ Managed Injector Hub. Such connection may interfere with PoE negotiation and may cause abnormal power delivery or permanent equipment damage. If unavoidable, ensure PoE is fully disabled on the external device; operation under this wiring is not guaranteed.

Reset button

At the left of the front panel, the reset button is designed for rebooting the PoE+ Managed Injector Hub without turning off and on the power.

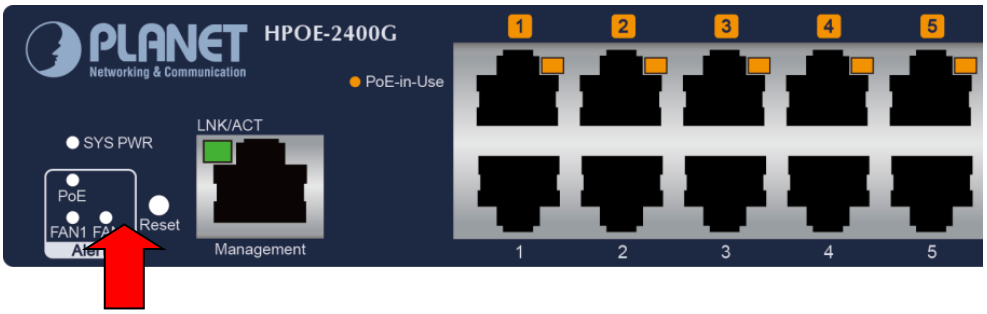


Figure 2-1-5: Reset Button of PoE+ Managed Injector Hub

The following is the summary table of reset button functions:

Reset Button Pressed and Released	Function
About 1 second	Reboot the PoE+ Managed Injector Hub.
About 10 seconds	Reset the PoE+ Managed Injector Hub to Factory Default configuration. The PoE+ Managed Injector Hub will reboot and load the default IP settings as shown below.

Note

Be sure that you back up the current configuration of PoE+ Managed Injector Hub before resetting PoE+ Managed Injector Hub or else the entire configuration will be erased when pressing the ***"RESET"*** button.

2.1.2 LED Indicators

The front panel LEDs indicates instant status of system power, fan, management port Link/Active and PoE port links, thus helping administrator to monitor and troubleshoot when needed.

POE-1200G/HPOE-1200G

- **System**

LED	Color	Function
SYS Power	**Green**	**Lights** to indicate power on.
PoE Failure	**Red**	**Lights** to indicate PoE module failure.
Fan1 Failure	**Red**	**Lights** to indicate Fan 1 has stopped.
Fan2 Failure	**Red**	**Lights** to indicate Fan 2 has stopped.
Management Port	**Green**	**Lights** to indicate the link through that port is successfully established at 10100/1000Mbps.

- **Per 10/100/1000BASE-T 802.3at PoE+ Port (Port 1 to Port 12)**

LED	Color	Function
PoE-in-use	**Amber**	Lights to indicate that the port is in use and supplying PoE in-line power.

POE-2400G/HPOE-2400G

- **System**

LED	Color	Function
SYS Power	**Green**	**Lights** to indicate power on.
PoE Failure	**Red**	**Lights** to indicate PoE module failure.
Fan1 Failure	**Red**	**Lights** to indicate Fan 1 has stopped.
Fan2 Failure	**Red**	**Lights** to indicate Fan 2 has stopped.
Management Port	**Green**	**Lights** to indicate the link through that port is successfully established at 10100/1000Mbps.

- **Per 10/100/1000BASE-T 802.3at PoE+ Port (Port 1 to Port 24)**

LED	Color	Function
PoE-in-use	**Amber**	Lights to indicate that the port is in use and supplying PoE in-line power.

2.1.3 Injector Rear Panel

The rear panel of the PoE+ Managed Injector Hub indicates an AC inlet power socket, which accepts input power from 100 to 240V AC, 50/60Hz. Figures 2-1-6 & 2-1-7 & 2-1-8 & 2-1-9 show the rear panel of the PoE+ Managed Injector Hub.

Figure 2-1-6: POE-1200G Rear Panel

Figure 2-1-7: HPOE-1200G Rear Panel

Figure 2-1-8: POE-2400G Rear Panel

Figure 2-1-9: HPOE-2400G Rear Panel

Note

The PoE+ Managed Injector Hub is a power-required device, meaning PoE+ Managed Injector Hub will not work till it is powered. If your networks should be active all the time, please consider using UPS (Uninterrupted Power Supply) for your device. It will prevent you from network data loss or network downtime.

Note

In some areas, installing a surge suppression device may also help to protect your device from being damaged by unregulated surge or current to the PoE+ Managed Injector Hub or the power adapter.

2.2 Installing the PoE+ Managed Injector Hub

This section describes how to install your PoE+ Managed Injector Hub and make connections to the PoE+ Managed Injector Hub. Please read the following topics and perform the procedures in the order being presented. PLANET PoE+ Managed Injector Hub does not need software configuration.

2.2.1 Desktop Installation

To install a PoE+ Managed Injector Hub on a desktop or shelf, simply complete the following steps:
Step 1: Attach the rubber feet to the recessed areas on the bottom of the PoE+ Managed Injector Hub.
Step 2: Place the PoE+ Managed Injector Hub on a desktop or shelf near an AC power source.
Step 3: Keep enough ventilation space between the PoE+ Managed Injector Hub and the surrounding objects.

Note	When choosing a location, please keep in mind the environmental restrictions discussed in Chapter 1, Section 5, under Specifications.

Step 4: Connect your PoE+ Managed Injector Hub to network 802.3at/802.3af powered devices (PD) and Switch.

A. Connect one end of a standard network cable to the upper stack 10/100/1000T RJ45 ports on the front of the PoE+ Managed Injector Hub.

B. Connect the other end of the cable to the 802.3at / 802.3af powered devices (PD) such as IP phone, wireless access point, IP camera, splitter, or switch etc.

C. Connect one end of a standard network cable to the relative lower stack 10/100/1000T RJ45 port on the front of the PoE+ Managed Injector Hub.

D. Connect the other end of the cable to the port of Switch.

Note	Connecting to the PoE+ Managed Injector Hub requires UTP Category 5e/6 network cabling with RJ45 tips. For more information, please see the Cabling Specification in Appendix A.

Step 5: Supply Power to the PoE+ Managed Injector Hub.

A. Connect one end of the power cable to the PoE+ Managed Injector Hub.

B. Connect the power plug of the power cable to a standard wall outlet.

When the PoE+ Managed Injector Hub receives power, the Power LED should remain solid Green.

2.2.2 Rack Mounting

To install the PoE+ Managed Injector Hub in a 19-inch standard rack, follow the instructions described below.

Step 1: Place your PoE+ Managed Injector Hub on a hard flat surface, with the front panel positioned towards your front side.

Step 2: Attach a rack-mount bracket to each side of the PoE+ Managed Injector Hub with supplied screws attached to the package. Figure 2-2-1 shows how to attach brackets to one side of the PoE+ Managed Injector Hub.

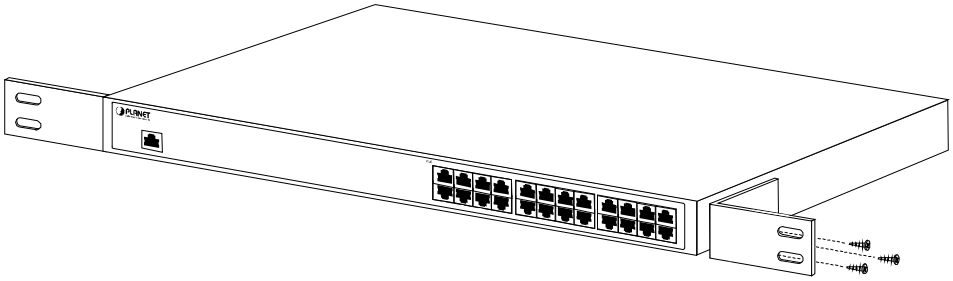


Figure 2-2-1: Brackets attaching to the PoE+ Managed Injector Hub

You must use the screws supplied with the mounting brackets. Damage caused to the parts by using incorrect screws would invalidate the warranty.

Step 3: Secure the brackets tightly.

Step 4: Follow the same steps to attach the second bracket to the opposite side.

Step 5: After the brackets are attached to the Injector, use suitable screws to securely attach the brackets to the rack, as shown in Figure 2-2-2.

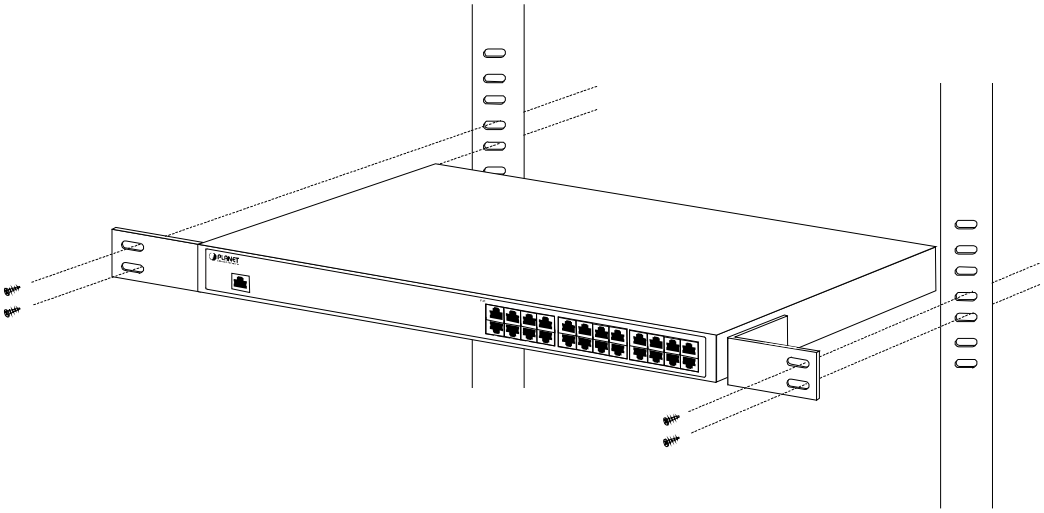


Figure 2-2-2: Mounting the PoE+ Managed Injector Hub in a Rack

Step 6: Proceed with steps 4 and 5 of session **2.2.1 Desktop Installation** to connect the network cabling and supply power to your PoE+ Managed Injector Hub.

2.2.3 Network Application Installation

The PoE+ Managed Injector Hub is not an equipment with data switching function between data ports. To inject PoE power and transmit data packets to PDs, the PoE+ Managed Injector Hub is usually linked to an Ethernet switch. Typically, the Mid-span Injector is installed between regular Ethernet switch and PDs, and mostly it is located close to the Ethernet switch side.

To install a PoE+ Managed Injector Hub on a network environment, simply complete the following steps:

Step 1: Power on the PoE+ Managed Injector Hub and connect the RJ45 cable from the **"Data"** port to the Ethernet switch port.

Step 2: Connect the RJ45 cable from the **"Data + Power"** ports to the PDs, such as VoIP phone and IP camera.

Step 3: Check the link status on both PD and Ethernet switch. Once the Injector starts to deliver 52V power over RJ45 cables to PDs, the PoE-in-Use LED of the PoE+ Managed Injector Hub lights up.

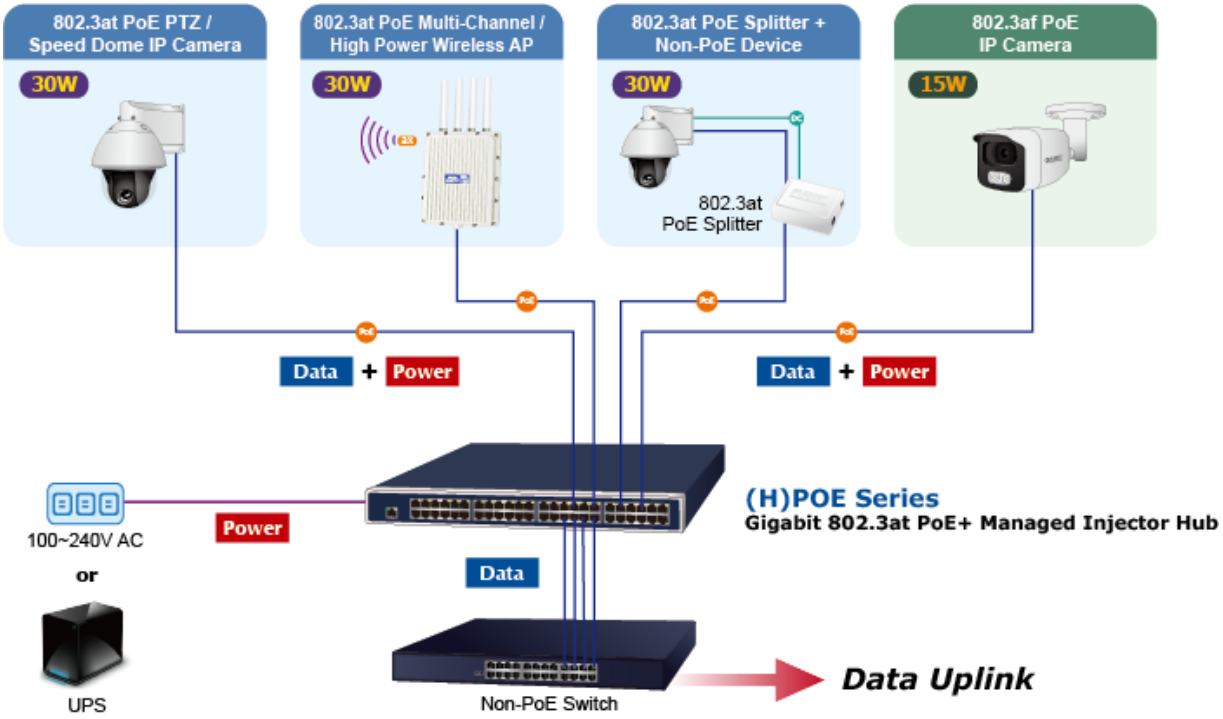


Figure 2-2-3: Network application installation

The PoE+ Managed Injector Hub supports data passive mode, that is, even the PoE+ Managed Injector Hub is manually powered off, the data between **"DATA"** port and **"DATA & PWR"** port can still be transmitted without data loss.

2.2.4 Power over Ethernet Powered Device

 3~5 watts	**Voice over IP phones** Enterprise can install POE VoIP Phone, ATA and other Ethernet/non-Ethernet end-devices in the central area where UPS is installed for un-interruptible power system and power control system.
 6~12 watts	**Wireless LAN Access Points** Museums, sightseeing spots, airports, hotels, campuses, factories, and warehouses can install the Access Point anywhere.
 10~12 watts	**IP Surveillance** Enterprises, museums, campuses, hospitals and banks can install IP camera without the limit of the installation location. Electrician is not needed to install AC sockets.
 3~60 watts	**PoE Splitter** PoE Splitter splits the PoE DC over the Ethernet cable into 5/12/19/24V DC power output. It frees the device deployment from restrictions due to power outlet locations, which eliminate the costs for additional AC wiring and reduces the installation time.
 30~60 watts	**High Power Speed Dome** This state-of-the-art design is considerable to fit in various network environments like traffic centers, shopping malls, railway stations, warehouses, airports, and production facilities for the most demanding outdoor surveillance applications. Electrician is not needed to install AC sockets.

3. Preparation

Before getting into the device's web UI, user has to check the network setting and configure PC's IP address.

3.1 System Requirements

- Workstations running Windows XP/2003/2008/2012/Vista/7/8/10/11, MAC OS X or later, Linux, UNIX, or other platforms are compatible with TCP/IP protocols.
- Workstations are installed with Ethernet NIC (Network Interface Card)
- **Ethernet Port Connection**
  - Network cables -- Use standard network (UTP) cables with RJ45 connectors.
  - The above PC is installed with Web browser.

Note

It is recommended to use Chrome 98.0.xxx or above to access the PoE+ Managed Injector Hub. If the Web interface of the PoE+ Managed Injector Hub is not accessible, please turn off the anti-virus software or firewall and then try it again.

3.2 Management Method

User can manage the PoE injector Hub by Web Management via network connection.

3.2.1 Web Management

Summary:

- The PoE Injector Hub can be configured through an Ethernet connection.
- The factory default IP address is 192.168.0.100 with subnet mask 255.255.255.0.
- Please make sure the manager PC must be set on the same IP subnet address.
- The POE Injector Hub IP address is set to factory default, then your manager PC should be set at 192.168.0.x (where x is a number between 1 and 254, except 100) with a subnet mask of 255.255.255.0.
- Use Chrome 98.0.xxx or above Web browser and enter IP address http://192.168.0.100 (the factory default IP address or the one that you have just changed in web) to access the Web interface.

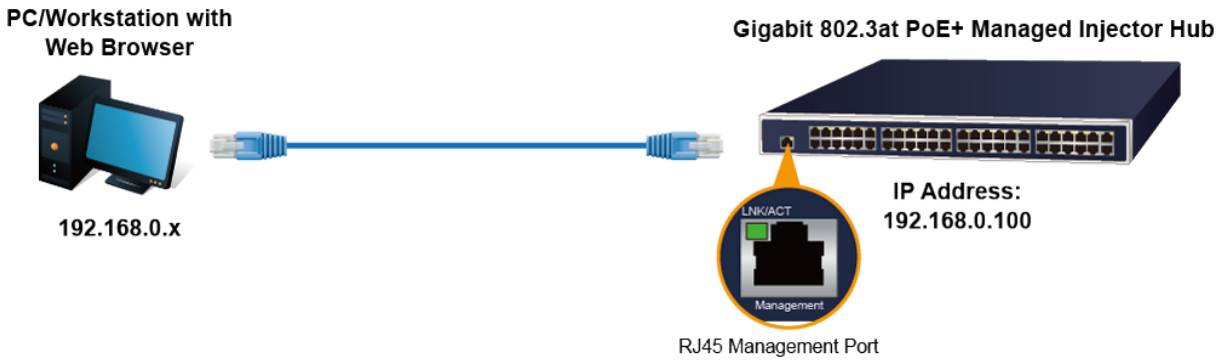


Figure 3-2-1: Web Management over Ethernet Connection

- When the following dialog box appears, please enter the default user name and password “admin” (or the password you have changed via console). The web login screen in Figure 3-2-2 appears.

  - Default IP Address: **192.168.0.100**
  - Default Username: **admin**
  - Default Password: **admin**

Note	1. For security reason, please change and memorize the new password after this first setup. 2. Only accept command in lowercase letter under Web interface.

Figure 3-2-2: PoE+ Managed Injector Hub Web Login Screen

3.2.2 PLANET Smart Discovery Utility

For easily listing the PoE+ Managed Injector Hub in your Ethernet environment, the search tool -- PLANET Smart Discovery Utility -- is an ideal solution.

The following installation instructions are to guide you to running the PLANET Smart Discovery Utility.

1. Download the PLANET Smart Discovery Utility in administrator PC.
2. Run this utility as the following screen appears.

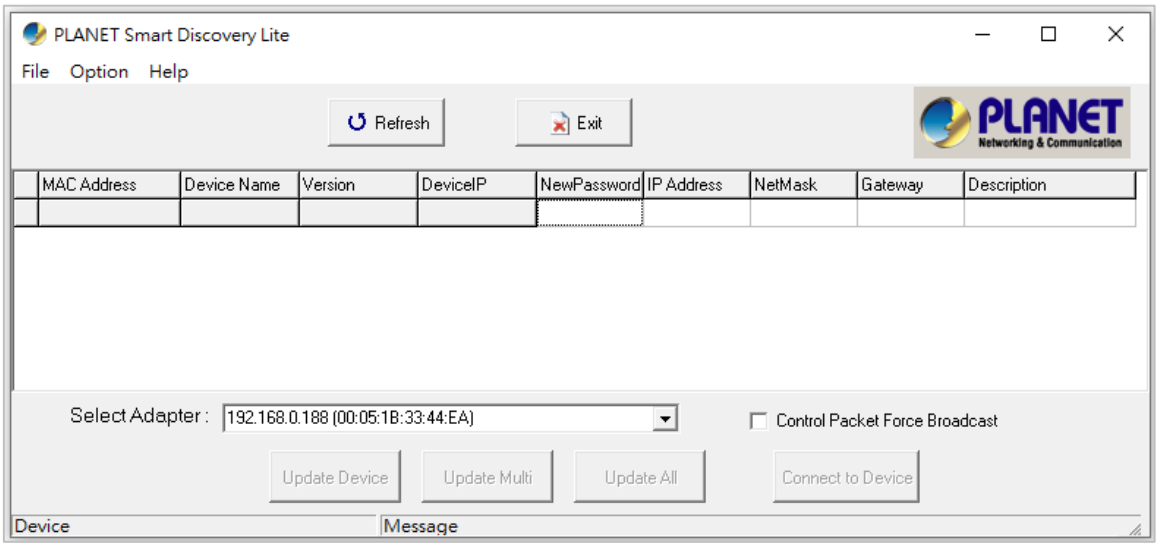


Figure 3-2-3: PLANET Smart Discovery Utility Screen

If there are two LAN cards or above in the same administrator PC, choose a different LAN card by using the **"Select Adapter"** tool.

3. Press the **"Refresh"** button for the currently connected devices in the discovery list as the screen shows below:

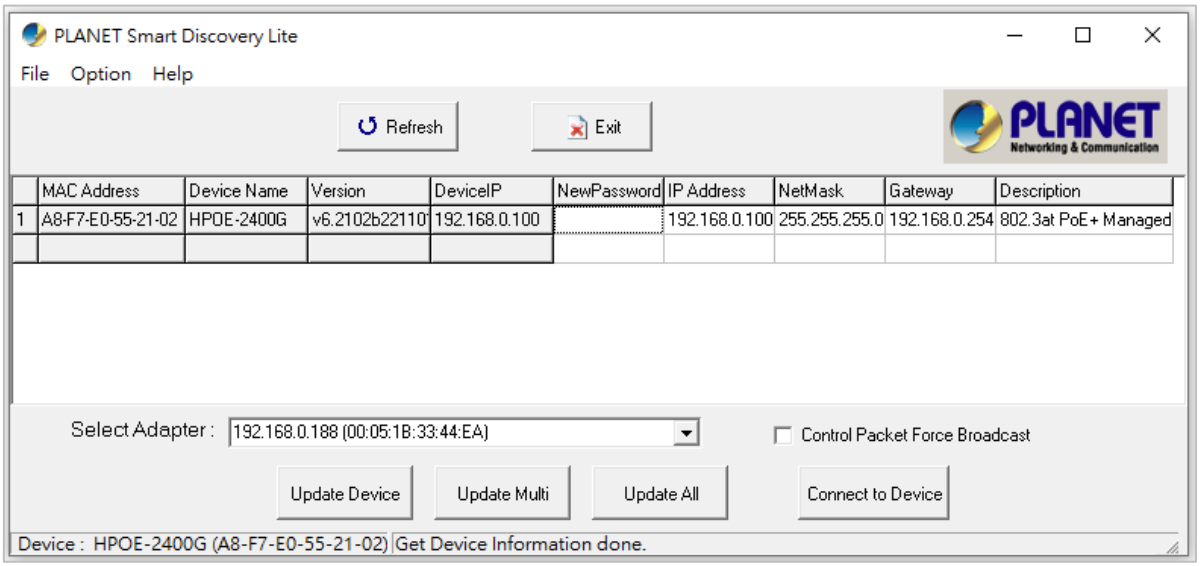


Figure 3-2-4: PLANET Smart Discovery Utility Screen

1. This utility shows all necessary information from the devices, such as MAC address, device name, firmware version, and device IP subnet address. It can also assign new password, IP subnet address and description to the devices.

2. After setup is completed, press the "**Update Device**", "**Update Multi**" or "**Update All**" button to take effect. The functions of the 3 buttons above are shown below:
   - **Update Device**: use current setting on one single device.
   - **Update Multi:** use current setting on choose multi-devices.
   - **Update All:** use current setting on whole devices in the list.

   The same functions mentioned above also can be found in "**Option**" tools bar.

3. To click the "**Control Packet Force Broadcast**" function, it allows you to assign a new setting value to the device under a different IP subnet address.

4. Press the "**Connect to Device**" button and the Web login screen appears.

Press the "**Exit**" button to shut down the PLANET Smart Discovery Utility.

3.3 Starting Setup in the Web UI

It is easy to configure and manage the PoE+ Managed Injector Hub with the web browser.

Step 1. To access the configuration utility, open a web-browser and enter the default IP address http://192.168.0.100 in the web address field of the browser.

Step 2. When the login window pops up, please enter username and password. The default username and password are "**admin**". Then click the **LOGIN** button to continue.

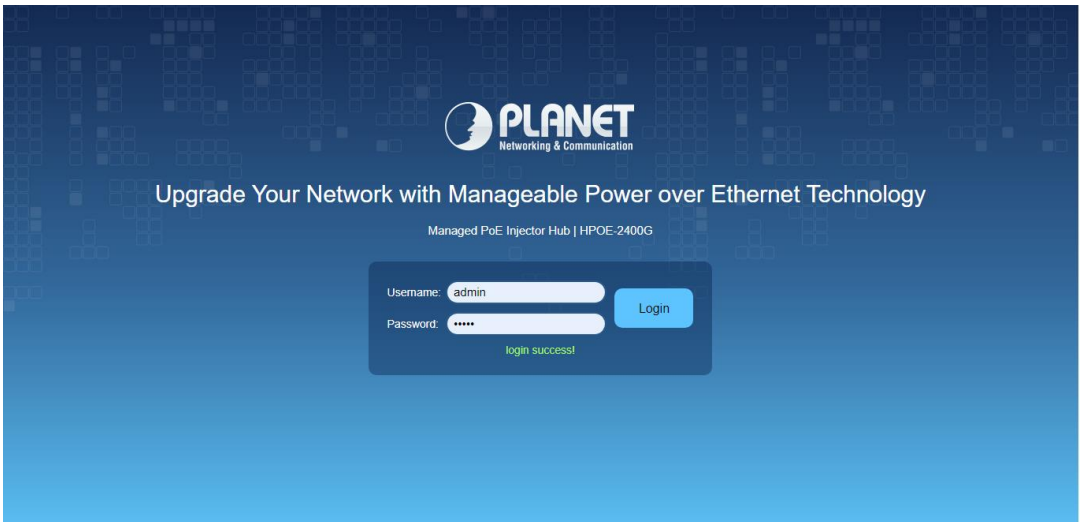


Figure 錯誤! 所指定的樣式的文字不存在文件中。**-3-1:** Web Login Screen

Note

The following screen is based on the HPOE-2400G. For the POE-1200G/POE-2400G /HPOE-1200G, the web screen is the same as that of the HPOE-2400G.

4.Web-based Management

This chapter delivers a detailed presentation of PoE+ Managed Injector Hub's functionalities and allows you to manage the PoE+ Managed Injector Hub with ease.

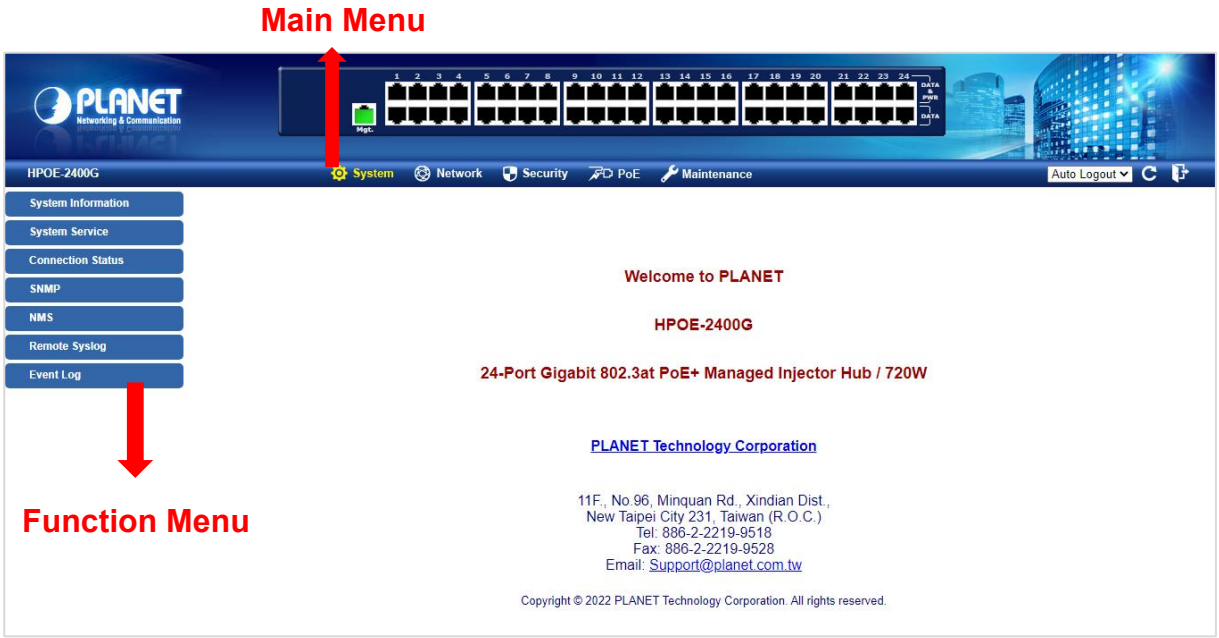


Figure 錯誤! 所指定的樣式的文字不存在文件中。**-1:** Main Web Page

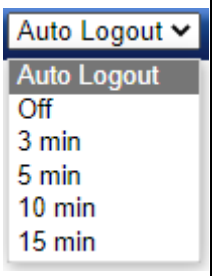
■ Main Menu

The main menu displays the product name, function menu, and main information in the center. Via the Web management, the administrator can set up the device by selecting the functions those listed in the function menu and button as shown in Figures 4-2 and 4-3.

Figure 4-2: Function Menu

Main Menu	
Object	**Description**
System	Provides system information of the PoE+ Managed Injector Hub.
Network	Provides LAN and network configuration of the PoE+ Managed Injector Hub.
Security	Provides firewall and security configuration of the PoE+ Managed Injector Hub.
PoE	Provides PoE Management configuration of the PoE+ Managed Injector Hub.
Maintenance	Provides firmware upgrade and setting file restore/backup configuration of the PoE+ Managed Injector Hub.

Figure 4-3: Function Button

Auto Logout	
Object	**Description**
	Provide various Web Logout time options, the available options are shown as below: **Auto Logout (Default mode)** Off 3 min 5 min 10 min 15 min
	Click the "**Refresh button**" to refresh the current web page.
	Click the "**Logout button**" to log out the web UI of the PoE+ Managed Injector Hub.

4.1 System

Use the system menu items to display and configure basic administrative details of the PoE+ Managed Injector Hub. The System menu shown in Figure 4-1-1 provides the following features to configure and monitor system.

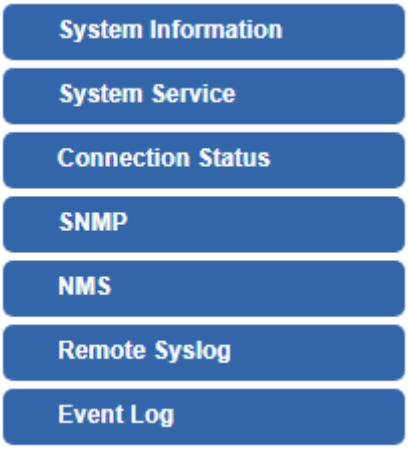
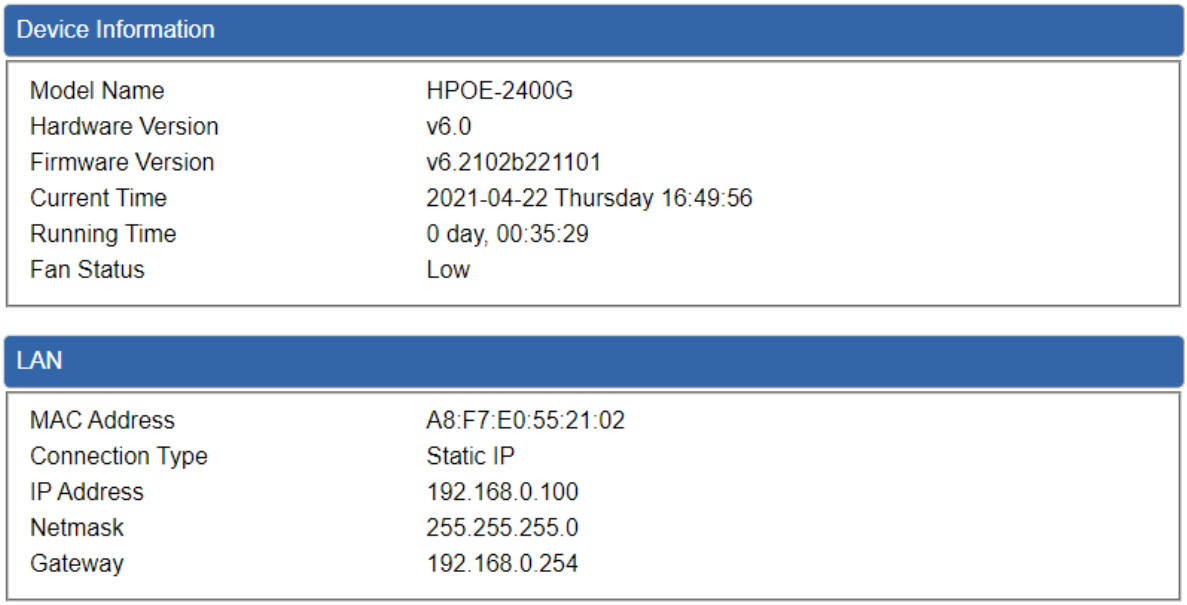


Figure 4-1-1: System Menu

System	
Object	**Description**
System Information	Display the status of the Device Information and LAN Information.
System Service	Display the status of the Service and Secured Service information.
Connection Status	Display the ARP table information.
SNMP	Display SNMP system information.
NMS	Enable/Disable NMS on PoE+ Managed Injector Hubs.
Remote Syslog	Enable Remote syslog on PoE+ Managed Injector Hubs.
Event Log	Display Event Log information on PoE+ Managed Injector Hubs.

4.1.1 System Information

This page displays system information as shown in Figure 4-1-2.



Device Information

Model Name	HPOE-2400G
Hardware Version	v6.0
Firmware Version	v6.2102b221101
Current Time	2021-04-22 Thursday 16:49:56
Running Time	0 day, 00:35:29
Fan Status	Low

LAN

MAC Address	A8:F7:E0:55:21:02
Connection Type	Static IP
IP Address	192.168.0.100
Netmask	255.255.255.0
Gateway	192.168.0.254

Figure 4-1-2: System Information Web Page

Device Information	
Object	**Description**
• **Model Name**	Displays the PoE+ Managed Injector Hub model name.
• **Hardware Version**	Displays the PoE+ Managed Injector Hub hardware version.
• **Firmware Version**	Displays the PoE+ Managed Injector Hub firmware version.
• **Current Time**	Display the PoE+ Managed Injector Hub current time information.
• **Running Time**	Display the PoE+ Managed Injector Hub operation time information.
• **Fan Status**	Display the PoE+ Managed Injector Hub current fan operation speed status information.

Table 4-1-1: Descriptions of the Device Information Objects Screen

LAN	
Object	**Description**
• **MAC Address**	Displays the PoE+ Managed Injector Hub MAC address.
• **Connection Type**	Displays the PoE+ Managed Injector Hub current IP connection type information.
• **IP Address**	Displays the PoE+ Managed Injector Hub current IP address.
• **Netmask**	Displays the PoE+ Managed Injector Hub current subnet mask address.
• **Gateway**	Displays the PoE+ Managed Injector Hub current gateway address.

Table 4-1-2: Descriptions of the LAN Objects Screen

4.1.2 System Service

This page displays the system service status of the PoE+ Managed Injector Hub, the system service are shown in Figure 4-1-3.

Service

#	State	Service	Detail
1	Disabled	DDNS Service	Not enabled
2	Enabled	SNMP Service	

Secured Service

#	State	Service	Detail
1	Enabled	Cybersecurity	TLS 1.2, TLS 1.3
2	Enabled	SPI Firewall	
3	Disabled	MAC Filtering	(Active / Maximum Entries) 0 / undefined

Figure 4-1-3: System Service Web Page

Service	
Object	**Description**
• **State**	Displays the PoE+ Managed Injector Hub service state information.
• **Service**	Displays the PoE+ Managed Injector Hub service type information. DDNS Service and SNMP Service.
• **Detail**	Displays the PoE+ Managed Injector Hub service detail information.

Table 4-1-3: Descriptions of the Service Objects Screen

Secure Service	
Object	**Description**
• **State**	Displays the PoE+ Managed Injector Hub service state information.
• **Service**	Displays the PoE+ Managed Injector Hub service type information. Cybersecurity/SPI Firewall/MAC Filtering.
• **Detail**	Displays the PoE+ Managed Injector Hub service detail information.

Table 4-1-4: Descriptions of the Secure Service Objects Screen

4.1.3 Connection Status

The page will show the ARP Table, the connection status is shown in Figure 4-1-4.

ARP Table

IP Address	MAC Address	ARP Type
192.168.0.254	00:00:00:00:00:00	unknown
192.168.0.188	00:05:1b:33:44:ea	dynamic

Figure 4-1-4: Connection Status Web Page

ARP Table	
Object	**Description**
• **IP Address**	Displays the PoE+ Managed Injector Hub IP Address Information.
• **MAC Address**	Displays the PoE+ Managed Injector Hub MAC Address information.
• **ARP Type**	Displays the PoE+ Managed Injector Hub ARP Type information.

Table 4-1-5: Descriptions of the ARP Table Objects Screen

4.1.4 SNMP

This page provides SNMP setting of the PoE+ Managed Injector Hub as shown in Figure 4-1-5.

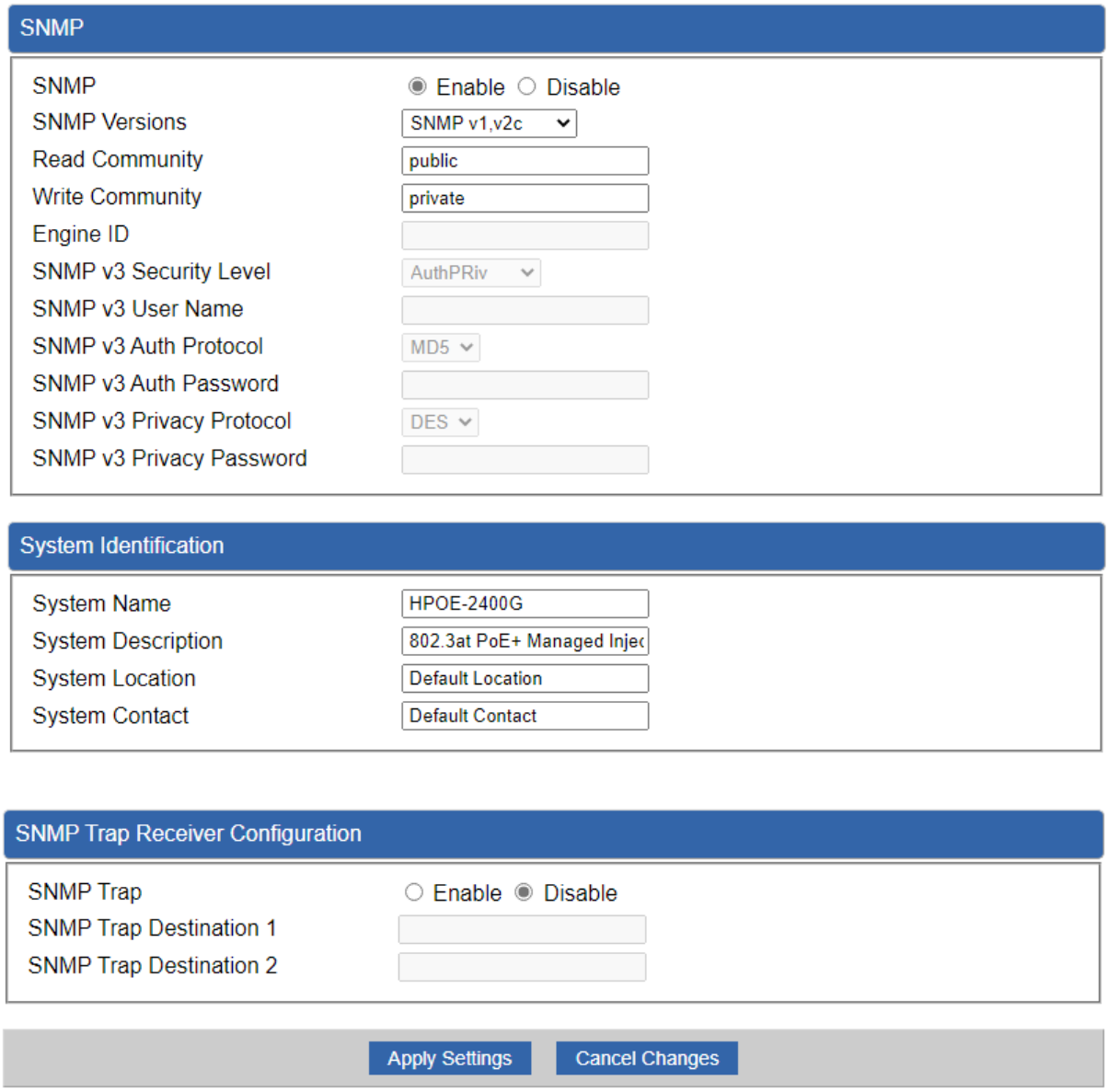


Figure 4-1-5: SNMP Web Page Screen

SNMP	
Object	**Description**
SNMP	Disable or enable the SNMP function. The default configuration is enabled.
SNMP Versions	Choose specific SNMP version. The default configuration is SNMPv1, v2c.
Read/Write Community	Allows entering characters for SNMP Read/Write Community of the PoE+ Managed Injector Hub.
Engine ID	This function with SNMP v1, v2c.v3.
SNMP v3 Security Level	This function with SNMP v1, v2c.v3, the default configuration is AuthPRiv.
SNMP v3 User Name	This function with SNMP v1, v2c.v3.
SNMP v3 Auth Protocol	This function with SNMP v1, v2c.v3, the default configuration is MD5.
SNMP v3 Auth Password	This function with SNMP v1, v2c.v3.
SNMP v3 Privacy Protocol	This function with SNMP v1, v2c.v3, the default configuration is DES.
SNMP v3 Privacy Password	This function with SNMP v1, v2c.v3.

Table 4-1-6: Descriptions of the SNMP Objects Screen

System Identification	
Object	**Description**
System Name	Allows entering characters for system name of the PoE+ Managed Injector Hub.
System Description	Allows entering characters for system descrip of the PoE+ Managed Injector Hub.
System Location	Allows entering characters for system location of the PoE+ Managed Injector Hub.
System Contact	Allows entering characters for system contact of the PoE+ Managed Injector Hub.

Table 4-1-7: Descriptions of the SNMP System Identification Objects Screen

SNMP Trap Receiver Configuration	
Object	**Description**
SNMP Trap	Allows disable or enable SNMP trap function of the PoE+ Managed Injector Hub.
SNMP Trap Destination 1	Allows to send SNMP trap to an assigned workstation.
SNMP Trap Destination 2	Allows to send SNMP trap to an assigned workstation.

Table 4-1-8: Descriptions of the SNMP Trap Receiver Configuration Objects Screen

4.1.5 NMS

The NMS provide NMS Controller and CloudViewer Server – Internet screens – is shown in Figure 4-1-6.

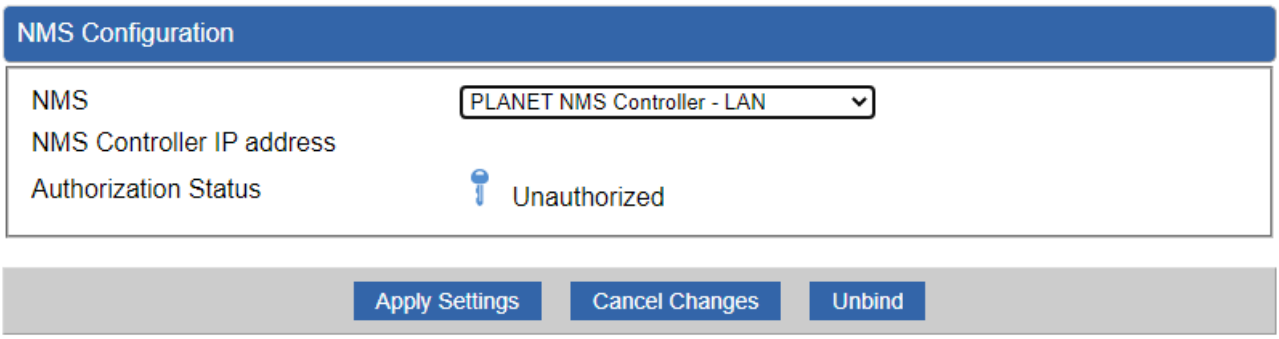


Figure 4-1-6: NMS Configuration Web Page Screen

NMS Configuration	
Object	**Description**
NMS	Allow to choose NMS Controller or Cloudviewer Server, the default is PLANET NMS Controller- LAN.
NMS Controller IP Address	Display NMS Controller IP Address information.
Authorization Status	Indicates the status of connecting NMS Controller-LAN or CloudViewer Server.

Table 4-1-9: Descriptions of the NMS Configuration Objects Screen

4.1.6 Remote Syslog

The Remote Syslog provides remote system log function, the screen shown in Figure 4-1-7.

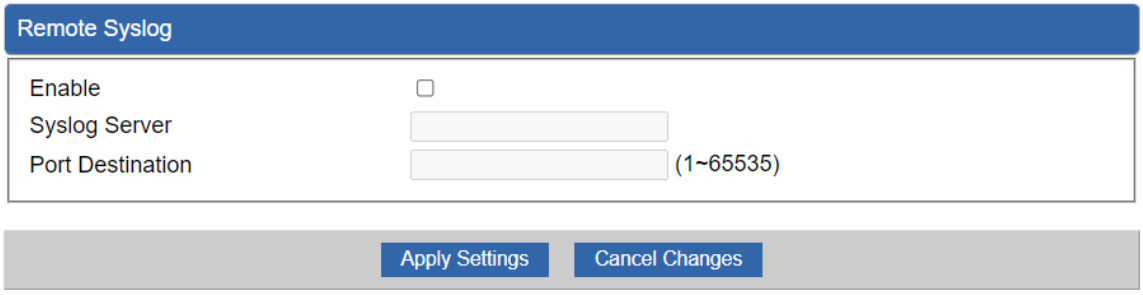


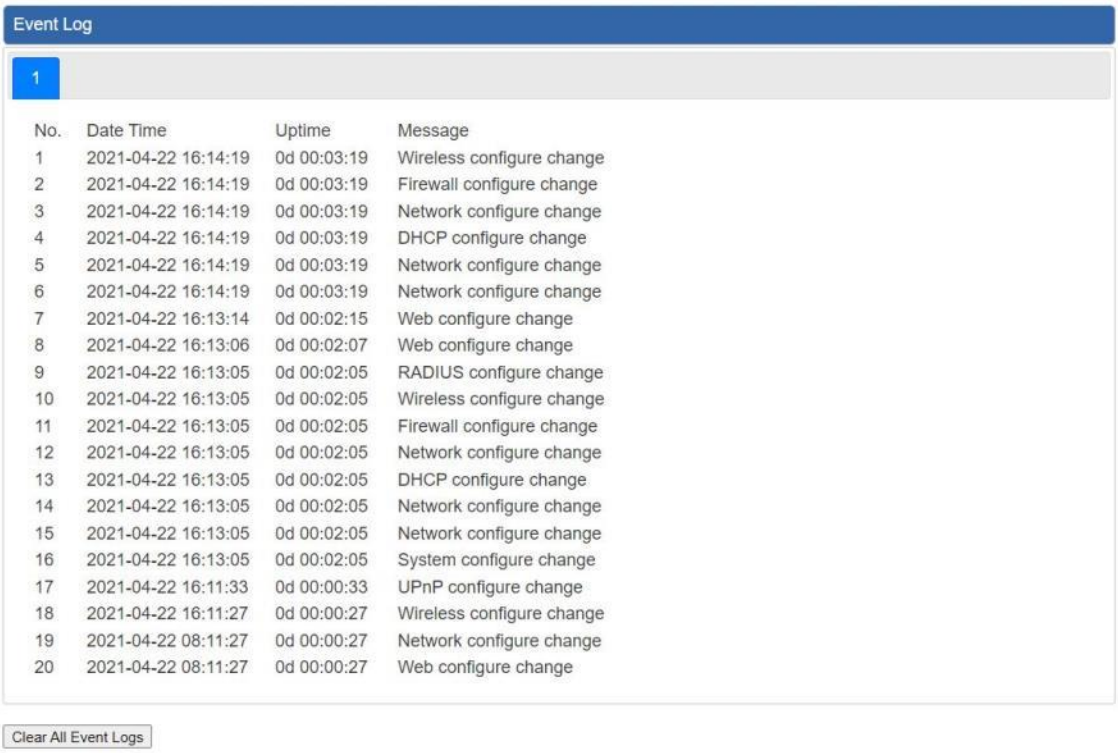
Figure 4-1-7: Remote Syslog Web Page

Remote Syslog	
Object	**Description**
Enable	Allows disable or enable Remote Syslog function of the PoE+ Managed Injector Hub.
Syslog Server	Input Syslog Server IP Address.
Port Destination	Input the Port Destination value and the available range is 1-65535.

Table 4-1-10: Descriptions of the Remote Syslog Objects Screen

4.1.7 Event Log

The Event log provides display system event log, the screen shown in Figure 4-1-8.



Event Log

1

No.	Date Time	Uptime	Message
1	2021-04-22 16:14:19	0d 00:03:19	Wireless configure change
2	2021-04-22 16:14:19	0d 00:03:19	Firewall configure change
3	2021-04-22 16:14:19	0d 00:03:19	Network configure change
4	2021-04-22 16:14:19	0d 00:03:19	DHCP configure change
5	2021-04-22 16:14:19	0d 00:03:19	Network configure change
6	2021-04-22 16:14:19	0d 00:03:19	Network configure change
7	2021-04-22 16:13:14	0d 00:02:15	Web configure change
8	2021-04-22 16:13:06	0d 00:02:07	Web configure change
9	2021-04-22 16:13:05	0d 00:02:05	RADIUS configure change
10	2021-04-22 16:13:05	0d 00:02:05	Wireless configure change
11	2021-04-22 16:13:05	0d 00:02:05	Firewall configure change
12	2021-04-22 16:13:05	0d 00:02:05	Network configure change
13	2021-04-22 16:13:05	0d 00:02:05	DHCP configure change
14	2021-04-22 16:13:05	0d 00:02:05	Network configure change
15	2021-04-22 16:13:05	0d 00:02:05	Network configure change
16	2021-04-22 16:13:05	0d 00:02:05	System configure change
17	2021-04-22 16:11:33	0d 00:00:33	UPnP configure change
18	2021-04-22 16:11:27	0d 00:00:27	Wireless configure change
19	2021-04-22 08:11:27	0d 00:00:27	Network configure change
20	2021-04-22 08:11:27	0d 00:00:27	Web configure change

Clear All Event Logs

Figure 4-1-8: Event Log Web Page

Event Log	
Object	**Description**
Event Log	Display Event Log information.
Clear All Event Logs	Clean all current event log information.

Table 4-1-11: Descriptions of the Event Log Objects Screen

4.2 Network

The Network function provides LAN, IPv6 and DDNS configuration of the PoE+ Managed Injector Hub as shown in Figure 4-2-1.

Figure 4-2-1: Network Menu

Network	
Object	**Description**
LAN	Allows setting LAN interface.
IPv6	Allows setting IPv6 interface.
DDNS	Allows setting DDNS and PLANET DDNS.

4.2.1 LAN

This page is used to configure the parameters for local area network which connects to the LAN port of your PoE+ Managed Injector Hub as shown in Figure 4-2-2. Here you may change the settings for IP address, subnet mask, DNS, etc.

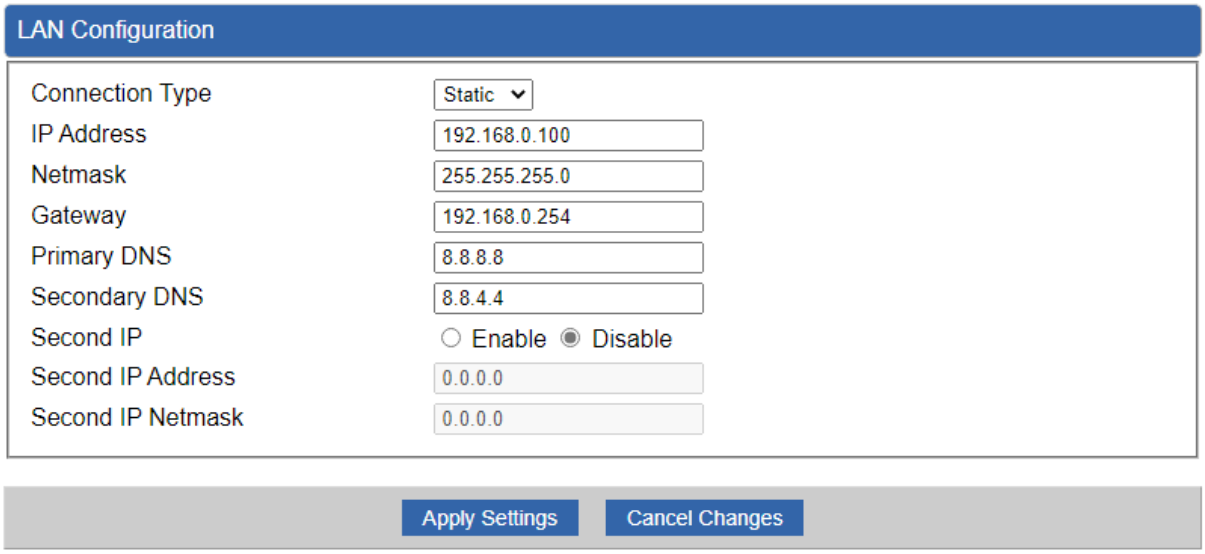


Figure 4-2-2: LAN Configuration Setup Web Page

LAN Configuration	
Object	**Description**
Connection Type	Provide Static and DHCP for IP connection type, the default is Static.
IP Address	The LAN IP address of the PoE+ Managed Injector Hub and default is **192.168.0.100**.
Netmask	Default is **255.255.255.0**.
Gateway	Default is **192.168.0.254.**
Primary DNS	Default is **8.8.8.8.**
Secondary DNS	Default is **8.8.4.4.**
Second IP	Provide Disable and Enable for second IP, the default is Disable.
Second IP Address	Default is **0.0.0.0.**
Second IP Netmask	Default is **0.0.0.0.**
Apply Settings	Save current configuration.
Cancel Settings	Ignore current configuration.

Table 4-2-1: Descriptions of the LAN Configuration Objects Screen

4.2.2 IPv6

This page is used to configure parameter for IPv6 internet network which connects to LAN port of the PoE+ Managed Injector Hub as shown in Figure 4-2-3. It allows you to enable IPv6 function and set up the parameters of the PoE+ Managed Injector Hub's LAN. In this setting you may change LAN connection type and other settings.

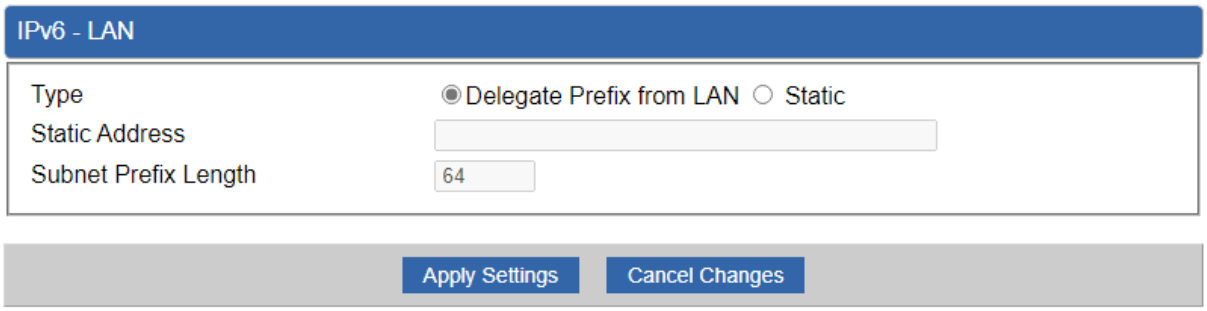


Figure 4-2-3: IPv6-LAN Web Page

IPv6 - LAN	
Object	**Description**
Type	Select IPv6 type either by using DHCP or Static.
IPv6 Address	Enter the IPv6 address.
Subnet Prefix Length	Enter the subnet prefix length.

Table 4-2-2: Descriptions of the IPv6 Configuration Objects Screen

4.2.3 DDNS

The PoE+ Managed Injector Hub offers the DDNS (Dynamic Domain Name System) feature, which allows the hosting of a website, FTP server, or e-mail server with a fixed domain name (named by yourself) and a dynamic IP address, and then your friends can connect to your server by entering your domain name no matter what your IP address is. Before using this feature, you need to sign up for DDNS service providers such as **PLANET DDNS (**http://www.planetddns.com**)** and set up the domain name of your choice.

PLANET DDNS website provides a free DDNS (Dynamic Domain Name Server) service for PLANET devices. Whether the IP address used on your PLANET device supporting DDNS service is fixed or dynamic, you can easily connect the devices anywhere on the Internet with a meaningful or easy-to-remember name you gave. PLANET DDNS provides two types of DDNS services. One is **PLANET DDNS** and the other is **PLANET Easy DDNS** as shown in Figure 4-2-4.

PLANET DDNS

For example, you've just installed a PLANET IP camera with dynamic IP like 210.66.155.93 in the network. You can name this device as “Mycam1” and register a domain as Mycam1.planetddns.com at PLANET DDNS (http://www.planetddns.com). Thus, you don't need to memorize the exact IP address but just the URL link: Mycam1.planetddns.com.

PLANET Easy DDNS

PLANET Easy DDNS is an easy way to help user to get your Domain Name with just one click. You can just log in to the Web Management Interface of your devices, say, your PoE+ Managed Injector Hub, and check the DDNS menu and just enable it. You don’t need to go to http://www.planetddns.com to apply for a new account. Once you enabled the Easy DDNS, your

PLANET Network Device will use the format PLxxxxxx where xxxxxx is the last 6 characters of your MAC address that can be found on the Web page or bottom label of the device. (For example, if the PoE+ Managed Injector Hub’s MAC address is A8-F7-E0-81-96-C9, it will be converted into pt8196c9.planetddns.com)

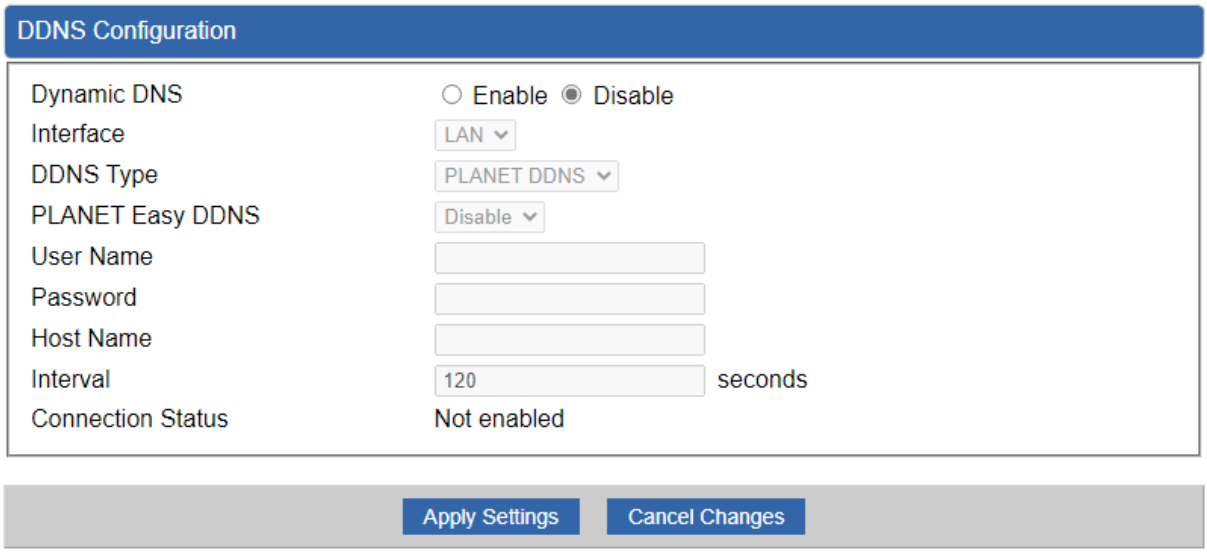


Figure 4-2-4: PLANET DDNS Configuration Web Page

DDNS Configuration	
Object	**Description**
DDNS Service	By default, the DDNS service is disabled. If user needs to enable the function, please set it as enable.
Interface	User is able to select the interface for DDNS service. By default, the interface is LAN.
DDNS Type	There are three options: 1. PLANET DDNS: Activate PLANET DDNS service. 2. DynDNS: Activate DynDNS service. 3. NOIP: Activate NOIP service. Note that please first register with the DDNS service and set up the domain name of your choice to begin using it.
Easy DDNS	When the PLANET DDNS service is activated, user is able to select to enable or disable Easy DDNS. When this function is enabled, DDNS hostname will appear automatically. User doesn't go to http://www.planetddns.com to apply for a new account.
User Name	The user name is used to log into DDNS service.
Password	The password is used to log into DDNS service.
Host Name	The host name as registered with your DDNS provider.
Interval	Set the update interval of the DDNS function.
Connection Status	Show the connection status of the DDNS function.

Table 4-2-3: Descriptions of the PLANET DDNS Configuration Objects Screen

4.3 Security

The Security menu provides Firewall, Access Filtering and other functions as shown in Figure 4-3-1. Please refer to the following sections for the details.

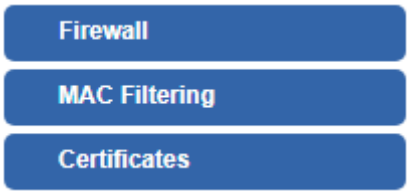


Figure 4-3-1: Security Menu

Security	
Object	**Description**
Firewall	Allows setting DoS (Denial of Service) protection as enable.
MAC Filtering	Allows setting MAC Filtering.
Certificates	Allows download System CA Certificate.

4.3.1 Firewall

A "Denial-of-Service" (DoS) attack is characterized by an explicit attempt by hackers to prevent legitimate users of a service from using that service. The PoE+ Managed Injector Hub can prevent specific DoS attacks as shown in Figure 4-3-2.

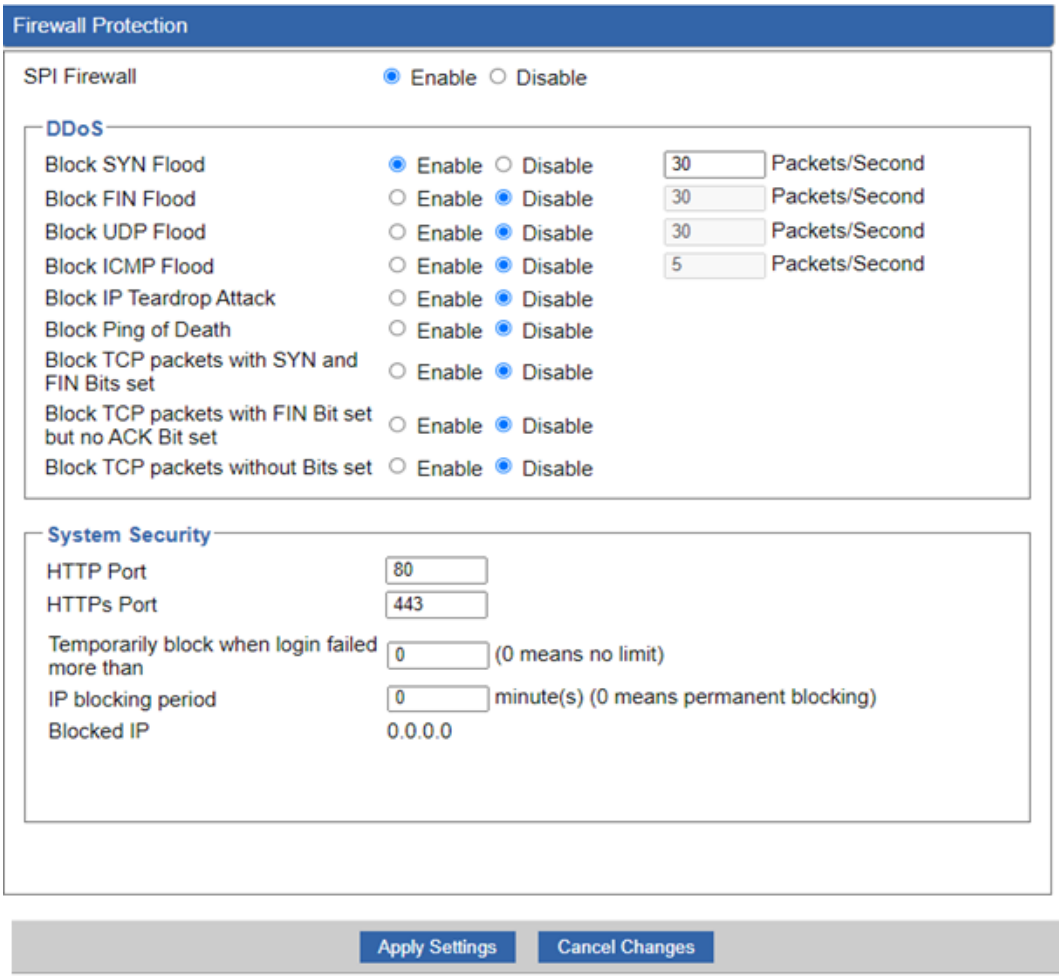


Figure 4-3-2: Firewall Protection Web Page

Firewall Protection	
Object	**Description**
SPI Firewall	The SPI Firewall prevents attack and improper access to network resources. The default configuration is enabled.
Block SYN Flood	SYN Flood is a popular attack way. DoS and DDoS are TCP protocols. Hackers like using this method to make a fake connection that involves the CPU, memory, and so on. The default configuration is enabled.
Block FIN Flood	If the function is enabled, when the number of the current FIN packets is beyond the set value, the PoE+ Managed Injector Hub will start the blocking function immediately. The default configuration is disabled.

Block UDP Flood	If the function is enabled, when the number of the current UPD-FLOOD packets is beyond the set value, the PoE+ Managed Injector Hub will start the blocking function immediately. The default configuration is disabled.
Block ICMP Flood	ICMP is kind of a pack of TCP/IP; its important function is to transfer simple signal on the Internet. There are two normal attack ways which hackers like to use, Ping of Death and Smurf attack. The default configuration is disabled.
IP TearDrop	If the function is enabled, the PoE+ Managed Injector Hub will block Teardrop attack that is targeting on TCP/IP fragmentation reassembly codes.
Ping Of Death	If the function is enabled, the PoE+ Managed Injector Hub will block Ping of Death attack that aims to disrupt a targeted machine by sending a packet larger than the maximum allowable size causing the target machine to freeze or crash.
TCP packets with SYN and FIN Bits set	Set the function as enable or disable.
TCP packets with FIN Bit set but no ACK Bit set	Set the function as enable or disable.
TCP packets without Bits set	Set the function as enable or disable.
HTTP Port	The default is 80.
HTTPs Port	The default is 443.
Temporarily block when login failed	The default is 0. (0 means no limit).
IP blocking period	The default is 0. (0 means permanent blocking).
Blocked IP	0.0.0.0.

Table 4-3-1: Descriptions of the Firewall Protection Objects Screen

4.3.2 MAC Filtering

Entries in this table are used to restrict certain types of data packets from your local network or Internet through the PoE+ Managed Injector Hub. Use of such filters can be helpful in securing or restricting your local network as shown in Figure 4-3-3.

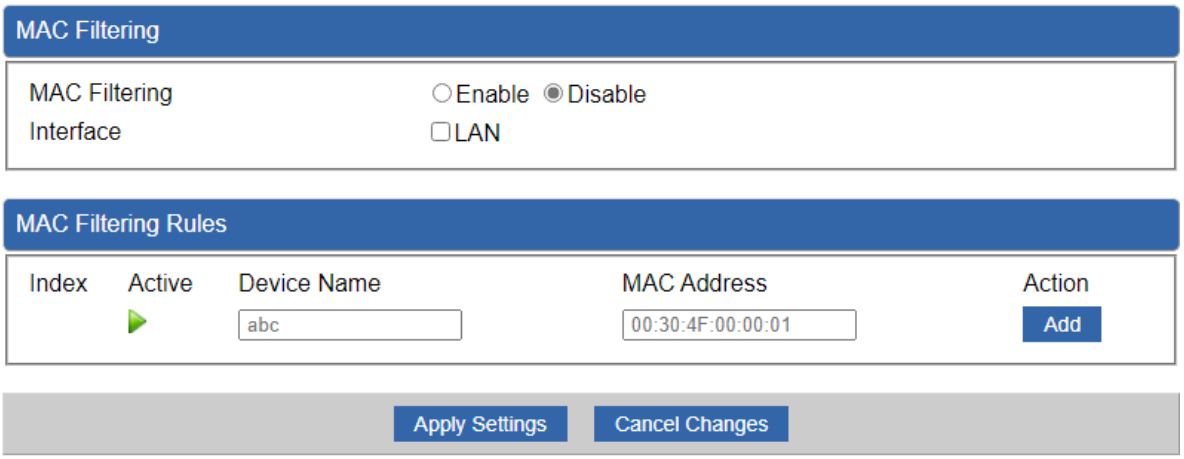


Figure 4-3-3: MAC Filtering Web Page

MAC Filtering	
Object	**Description**
Enable MAC Filtering	Set the function as enable or disable. When the function is enabled, the PoE+ Managed Injector Hub will block traffic of the MAC address on the list.
Interface	Select the function works on LAN. To block a LAN device's MAC address.
MAC Address	Input a MAC address you want to control, such as A8:F7:E0:00:06:62.
Add	When you input a MAC address, please click the "Add" button to add it into the list.

Table 4-3-2: Descriptions of the MAC Filtering Objects Screen

4.3.3 Certificates

This web page provides to download the certificates and shown in Figure 4-3-4.

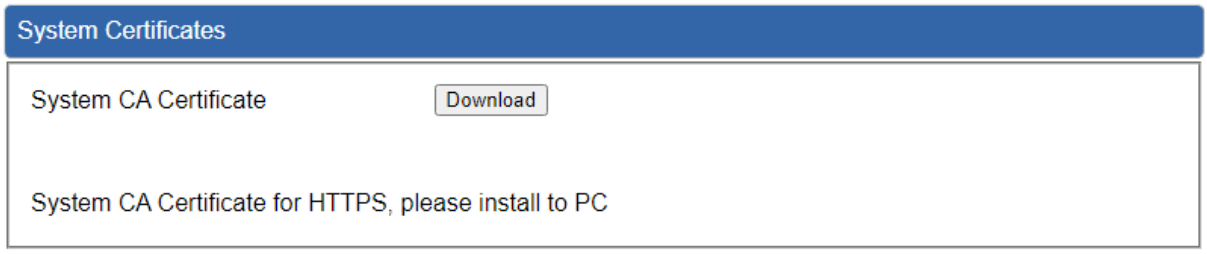


Figure 4-3-4: System Certificates Web Page

System Certificates	
Object	**Description**
Download	Press this button to download the system CA certificate file.

Table 4-3-3: Descriptions of the System Certificates Objects Screen

4.4 PoE

The PoE menu provides PoE Configuration, PoE Status, PoE Schedule and PoE Alive Check as shown in Figure 4-4-1. Please refer to the following sections for the details.

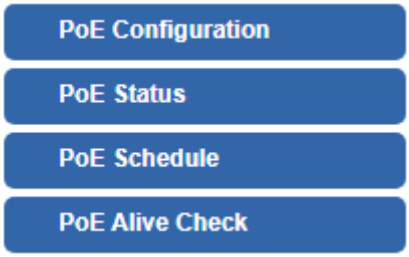


Figure 4-4-1: PoE Menu

PoE	
Object	**Description**
PoE Configuration	Allow to centralize management PoE power for PDs
PoE Status	Display the current PoE usage.
PoE Shedule	Allow to centralize management PoE power for providing schedule.
PoE Alive Check	Allow to centralize management PoE power for checking PDs alive.

PoE Power Budget list for PoE+ Managed Injector Hub Series.

Model Name	PoE Budget
POE-1200G	220 watts
POE-2400G	440 watts@0~40 degrees C 400 watts@41~50degrees C Auto power budget control by over temperature protection function
HPOE-1200G	360 watts
HPOE-2400G	720 watts@0~39 degrees C 670 watts@40~49 degrees C 620 watts@50 degrees C Auto power budget control by over temperature protection function

4.4.1 PoE Configuration

This section provides PoE (Power over Ethernet) Configuration and PoE output status of PoE Injector Hub; screen in Figure 4-4-2 appears. Table 4-4-1 describes the PoE Configuration object of PoE+ Managed Injector Hub.

PoE Configuration

System PoE Admin Mode	Enable
Power Supply	53 V
Power Limit Mode	Consumption
Over Temperature Protection	Deactivate
Smart Fan	Low Speed

Power Allocation 0 / 720 W

Port	Description	PoE Function	Schedule	Power Mode	Force Power	Priority	Device Class	Current Used [mA]	Powered Used [W]	Power Limit [W]
All		<All>	<All>	AT/AF	<All>	<All>				
1		Enable	None	AT/AF	OFF	High	--	0	0	36
2		Enable	None	AT/AF	OFF	High	--	0	0	36
3		Enable	None	AT/AF	OFF	High	--	0	0	36
4		Enable	None	AT/AF	OFF	High	--	0	0	36
5		Enable	None	AT/AF	OFF	High	--	0	0	36
6		Enable	None	AT/AF	OFF	High	--	0	0	36
7		Enable	None	AT/AF	OFF	High	--	0	0	36
8		Enable	None	AT/AF	OFF	High	--	0	0	36
9		Enable	None	AT/AF	OFF	High	--	0	0	36
10		Enable	None	AT/AF	OFF	High	--	0	0	36
11		Enable	None	AT/AF	OFF	High	--	0	0	36
12		Enable	None	AT/AF	OFF	High	--	0	0	36
13		Enable	None	AT/AF	OFF	High	--	0	0	36
14		Enable	None	AT/AF	OFF	High	--	0	0	36
15		Enable	None	AT/AF	OFF	High	--	0	0	36
16		Enable	None	AT/AF	OFF	High	--	0	0	36
17		Enable	None	AT/AF	OFF	High	--	0	0	36
18		Enable	None	AT/AF	OFF	High	--	0	0	36
19		Enable	None	AT/AF	OFF	High	--	0	0	36
20		Enable	None	AT/AF	OFF	High	--	0	0	36
21		Enable	None	AT/AF	OFF	High	--	0	0	36
22		Enable	None	AT/AF	OFF	High	--	0	0	36
23		Enable	None	AT/AF	OFF	High	--	0	0	36
24		Enable	None	AT/AF	OFF	High	--	0	0	36
Total								0	0	

Apply Settings Cancel Changes

Figure 4-4-2: PoE Configuration Web Page

<table>
<tr><th>Object</th><th>Description</th></tr>
<tr><td>• System PoE Admin Mode</td><td>Allows user to disable/enable PoE function.</td></tr>
<tr><td>• Power Supply</td><td>Displays PoE power supply status.</td></tr>
<tr><td>• Power Limit Mode</td><td>Allows user to configure power limit mode, which can be chosen.
Consumption: Based on the real device power consumption where PoE power is delivered as system default setting is in this mode.
Classification: Based on port priority setting and device class where PoE power is delivered.</td></tr>
<tr><td>• Over Temperature Protection</td><td>Prevent system from being too hot that may cause damage. When PoE unit temperature rises over the temperature threshold value, PoE power budget will be reduced.
Please refer to the table below for knowing the OTP level:
<table>
<tr><th></th><th>POE-1200G</th><th>POE-2400G</th><th>HPOE-1200G</th><th>HPOE-2400G</th></tr>
<tr><td>OTP1</td><td>NA</td><td>PSE > 70° C => 400W</td><td>NA</td><td>PSE > 70° C => 670W
PSE < 65° C => 720W</td></tr>
<tr><td>OTP2</td><td>NA</td><td>NA</td><td>NA</td><td>PSE > 80° C => 620W
PSE < 75° C => 670W</td></tr>
</table></td></tr>
<tr><td>• Smart Fan</td><td>Display Smart Fan operation status.</td></tr>
<tr><td>• Power Allocation</td><td>Displays the current total power consumption status.</td></tr>
<tr><td>• Description</td><td>This function provides input per port description and the available letters is 30.
NOTE: The total maximum letters are only 800. Some of special words will count as 5 per word, like ‘, “, \, < and >.</td></tr>
<tr><td>• PoE Function</td><td>Allows user to disable or enable per port PoE function.</td></tr>
<tr><td>• PoE Schedule</td><td>Indicates the scheduled profile mode. Possible profiles are:
■ Profile1
■ Profile2
■ Profile3
■ Profile4</td></tr>
<tr><td>• Force Power</td><td>Provide to disable or enable PoE Force mode.
The force power function will directly deliver power over UTP cable.
Please be careful when using force power function and make sure the remote device is PoE powered device (PD).</td></tr>
<tr><td>• Priority</td><td>Allows user to set PoE port priority. There are 3 levels that could be configured and they are Critical, High and Low. The Critical is the highest priority and Low is the lowest priority.</td></tr>
</table>

	This function is worked under **Priority** power limit mode only.
• **Device Class**	Displays PoE class level. The IEEE 802.3af standard offers PoE class level from **1 to 3** and IEEE 802.3at standard offers the class from **1 to 4**.
• **Current Used [mA]**	Displays PoE device current.
• **Power Used [W]**	Displays PoE device power consumption.
• **Power Limit [W]**	Allows user to custom-power for port. This function is worked under **Total Limit** power limit mode. This function is also related to **Power Mode**. If Power mode is 802.3af, then user can allocate to 15.4 watts at the maximum; otherwise, user can allocate to 36 watts.
• **Apply**	Press this button to take effect.

Table 4-4-1: Descriptions of the PoE Configuration Objects Screen

4.4.2 PoE Status

This page displays to per port PoE usage status, the screen in Figure 4-4-3 appears.

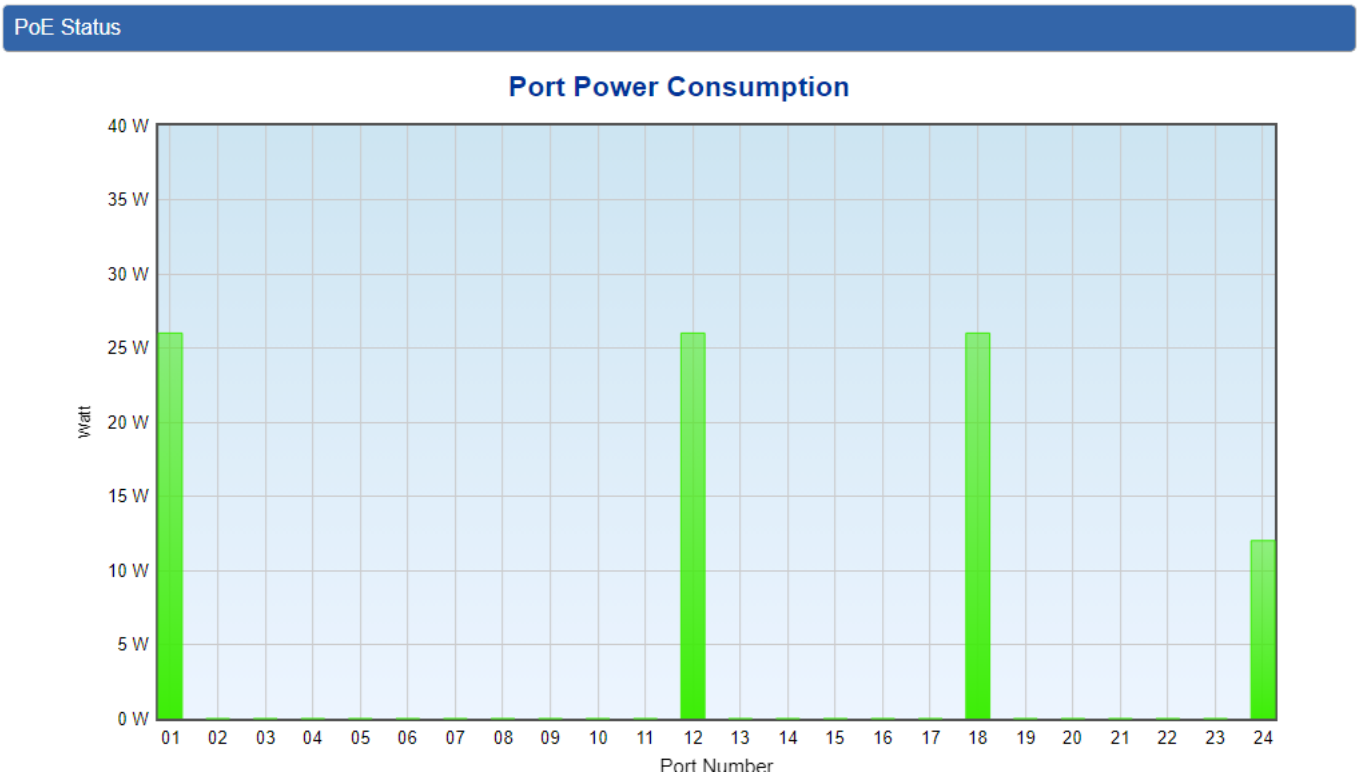


Figure 4-4-3: PoE Status Screenshot

The page includes the following fields:

PoE Status	
Object	**Description**
Port Number	Displays per port status.
Watt	Displays per port PoE usage.

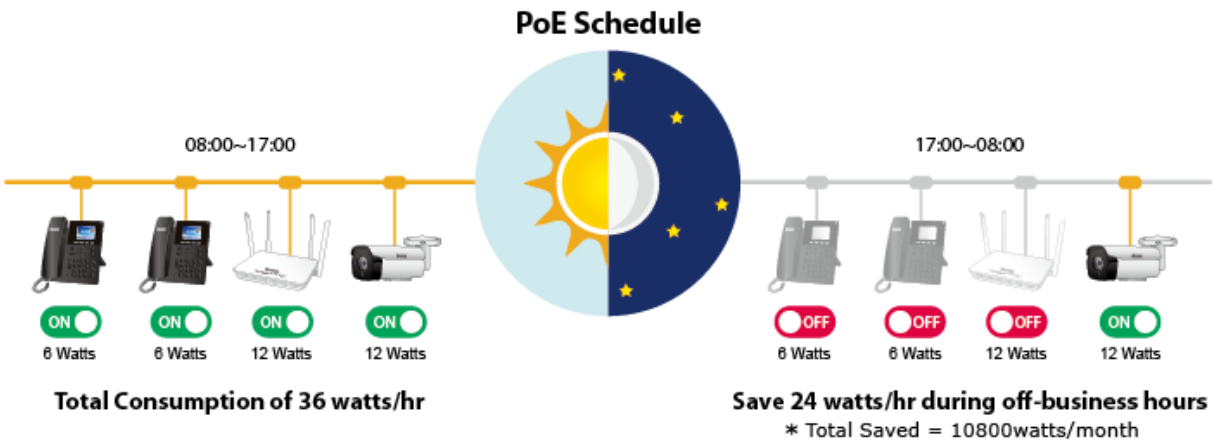
Table 4-4-2: Descriptions of the PoE Status Objects Screen

4.4.3 PoE Schedule

This page allows the user to define PoE schedule and scheduled power recycling.

PoE Schedule

Besides being used as an IP Surveillance, the PoE+ Managed Injector Hub is certainly applicable to construct any PoE network including VoIP and Wireless LAN. Under the trend of energy saving worldwide and contributing to the environmental protection on the Earth, the PoE+ Managed Injector Hub can effectively control the power supply besides its capability of giving high watts power. The "**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 SMB or Enterprise saving power and money.



Scheduled Power Recycling

The PoE+ Managed Injector Hub allows each of the connected PoE IP cameras to reboot at a specified time each week. Therefore, it will reduce the chance of IP camera crash resulting from buffer overflow.

The screen in Figure 4-4-4 appears.

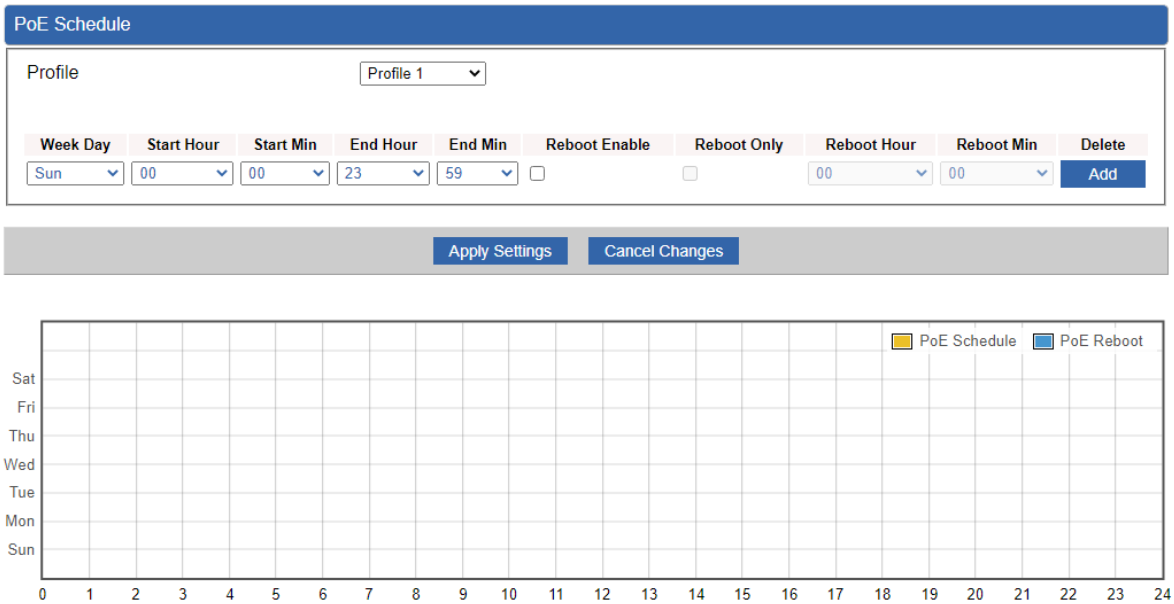


Figure 4-4-4: PoE Schedule Screenshot

Please press **Add** button to start setting PoE Schedule function. You have to set PoE schedule to profile and then go back to PoE Port Configuration, and select "**Schedule**" mode from per port "**PoE Mode**" option to enable you to indicate which schedule profile could be applied to the PoE port.
The page includes the following fields:

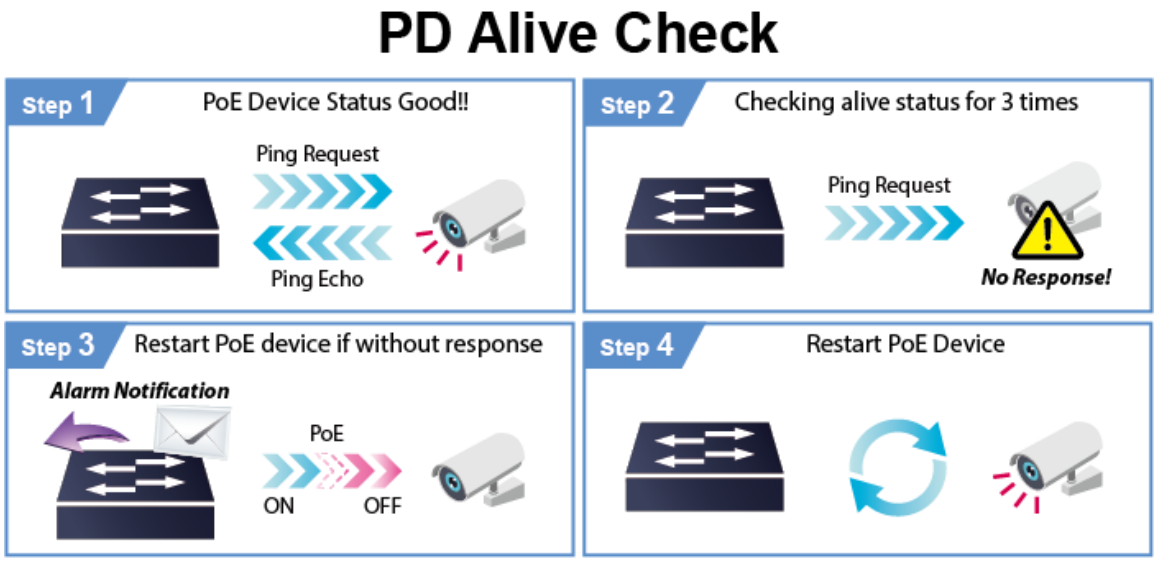
PoE Schedule	
Object	**Description**
Profile	Set the schedule profile mode. Possible profiles are: **Profile1** **Profile2** **Profile3** **Profile4**
Week Day	Allows user to set week day for defining PoE function by enabling it on the day.
Start Hour	Allows user to set what hour PoE function does by enabling it.
Start Min	Allows user to set what minute PoE function does by enabling it.
End Hour	Allows user to set what hour PoE function does by disabling it.
End Min	Allows user to set what minute PoE function does by disabling it.
Reboot Enable	Allows user to enable or disable the whole PoE port reboot by PoE reboot schedule. Please note that if you want PoE schedule and PoE reboot schedule to work at the same time, please use this function, and don't use **Reboot Only** function. This function offers administrator to reboot PoE device at an indicated time if administrator has this kind of requirement.
Reboot Only	Allows user to reboot PoE function by PoE reboot schedule. Please note that if administrator enables this function, PoE schedule will not set time

	to profile. This function is just for PoE port to reset at an indicated time.
Reboot Hour	Allows user to set what hour PoE reboots. This function is only for PoE reboot schedule.
Reboot Min	Allows user to set what minute PoE reboots. This function is only for PoE reboot schedule.

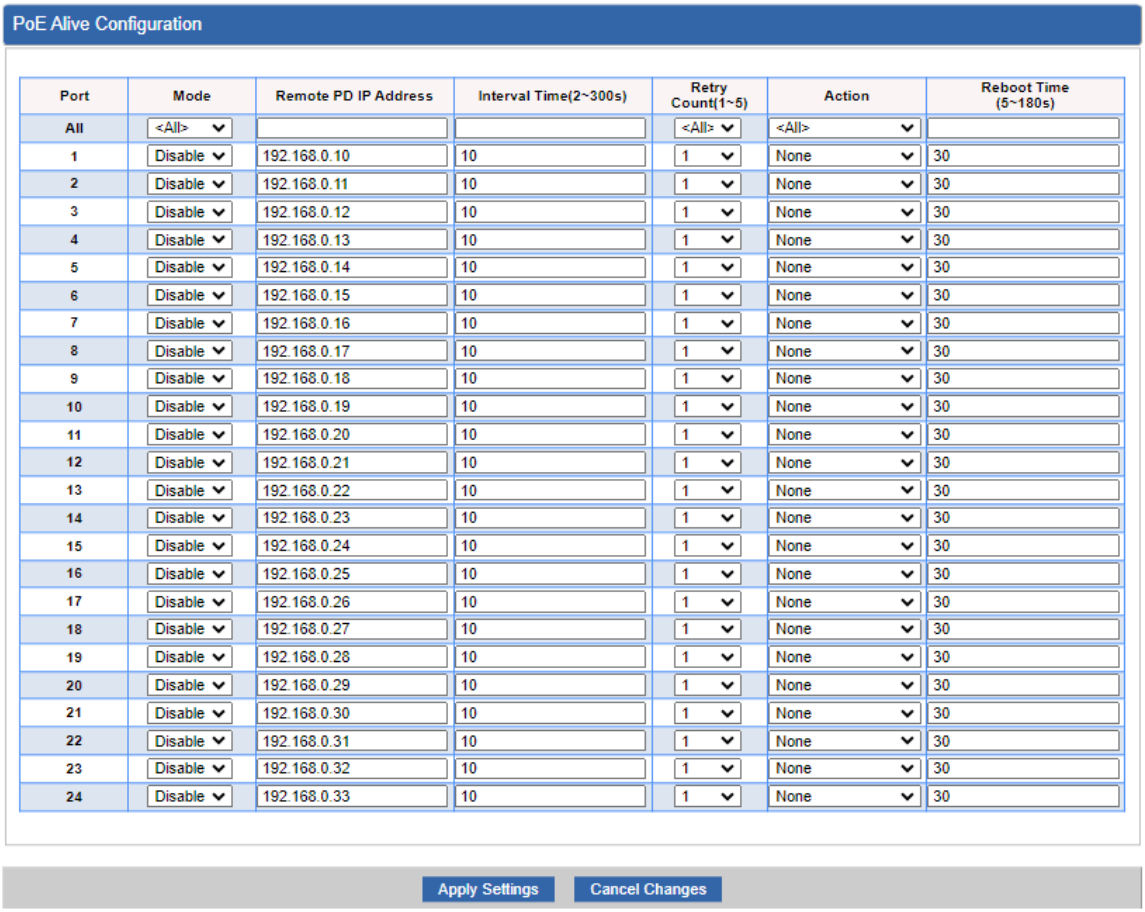
Table 4-4-3: Descriptions of the PoE Schedule Objects Screen

4.4.4 PoE Alive Check

The PoE+ Managed Injector Hub can be configured to monitor connected PD's status in real-time via ping action. Once the PD stops working and without response, the PoE+ Managed Injector Hub is going to restart PoE port power, and bring the PD back to work. It will greatly enhance the reliability and reduces administrator management burden.



This page provides you with how to configure PD Alive Check. The screen in Figure 4-4-5 appears.



PoE Alive Configuration

Port	Mode	Remote PD IP Address	Interval Time(2~300s)	Retry Count(1~5)	Action	Reboot Time (5~180s)
All	<All>			<All>	<All>	
1	Disable	192.168.0.10	10	1	None	30
2	Disable	192.168.0.11	10	1	None	30
3	Disable	192.168.0.12	10	1	None	30
4	Disable	192.168.0.13	10	1	None	30
5	Disable	192.168.0.14	10	1	None	30
6	Disable	192.168.0.15	10	1	None	30
7	Disable	192.168.0.16	10	1	None	30
8	Disable	192.168.0.17	10	1	None	30
9	Disable	192.168.0.18	10	1	None	30
10	Disable	192.168.0.19	10	1	None	30
11	Disable	192.168.0.20	10	1	None	30
12	Disable	192.168.0.21	10	1	None	30
13	Disable	192.168.0.22	10	1	None	30
14	Disable	192.168.0.23	10	1	None	30
15	Disable	192.168.0.24	10	1	None	30
16	Disable	192.168.0.25	10	1	None	30
17	Disable	192.168.0.26	10	1	None	30
18	Disable	192.168.0.27	10	1	None	30
19	Disable	192.168.0.28	10	1	None	30
20	Disable	192.168.0.29	10	1	None	30
21	Disable	192.168.0.30	10	1	None	30
22	Disable	192.168.0.31	10	1	None	30
23	Disable	192.168.0.32	10	1	None	30
24	Disable	192.168.0.33	10	1	None	30

Apply Settings Cancel Changes

Figure 4-4-5: PD Alive Check Configuration Screenshot

The page includes the following fields:

PD Alive Check	
Object	**Description**
Mode	Allows user to enable or disable per port PD Alive Check function. By default, all ports are disabled.
Remote PD IP Address	This column allows user to set PoE device IP address for system making ping to the PoE device. Please note that the PD's IP address must be set to the same network segment with the PoE+ Managed Injector Hub.
Interval Time (2~300s)	This column allows user to set how long system should issue a ping request to PD for detecting whether PD is alive or dead. Interval time range is from 2 seconds to 300 seconds.
Retry Count (1~5)	This column allows user to set the number of times system retries ping to PD. For example, if we set count 2, it means that if system retries ping to the PD and the PD doesn't response continuously, the PoE port will be reset.
Action	Allows user to set which action will be applied if the PD is without any response. The PoE+ Managed Injector Hub Series offers the following 3 actions: ■ **PD Reboot:** It means system will reset the PoE port that is connected to the PD. ■ **PD Reboot & Alarm:** It means system will reset the PoE port and issue an alarm message via Syslog. ■ **Alarm:** It means system will issue an alarm message via Syslog.
PD Reboot Time (5~180s)	This column allows user to set the PoE device rebooting time as there are so many kinds of PoE devices on the market and they have a different rebooting time. The PD Alive-check is not a defining standard, so the PoE device on the market doesn't report reboot done information to the PoE+ Managed Injector Hub. Thus, user has to make sure how long the PD will take to finish booting, and then set the time value to this column. System is going to check the PD again according to the reboot time. If you are not sure of the precise booting time, we suggest you set it longer.

Table 4-4-4: Descriptions of the PD Alive Check Objects Screen

4.5 Maintenance

The Maintenance menu provides the following features for managing the system

Figure 4-5-1: Maintenance

Maintenance	
Object	**Description**
Administrator	Allows changing the login username and password.
Date & Time	Allows setting Date & Time function.
Save/Restore Configuration	Export the PoE+ Managed Injector Hub's configuration to local storage. Restore the PoE+ Managed Injector Hub's configuration from local storage.
Firmware Upgrade	Upgrade the firmware from local storage.
Reboot/Reset	Reboot or reset the system.
Auto Reboot	Allows setting auto-reboot schedule.
Diagnostics	Allows you to issue ICMP PING packets to troubleshoot IP.

4.5.1 Administrator

To ensure the PoE+ Managed Injector Hub's security is secure, you will be asked for your password when you access the PoE+ Managed Injector Hub's Web-based utility. The default user name and password are "**admin**". This page will allow you to modify the user name and passwords as shown in Figure 4-5-2.

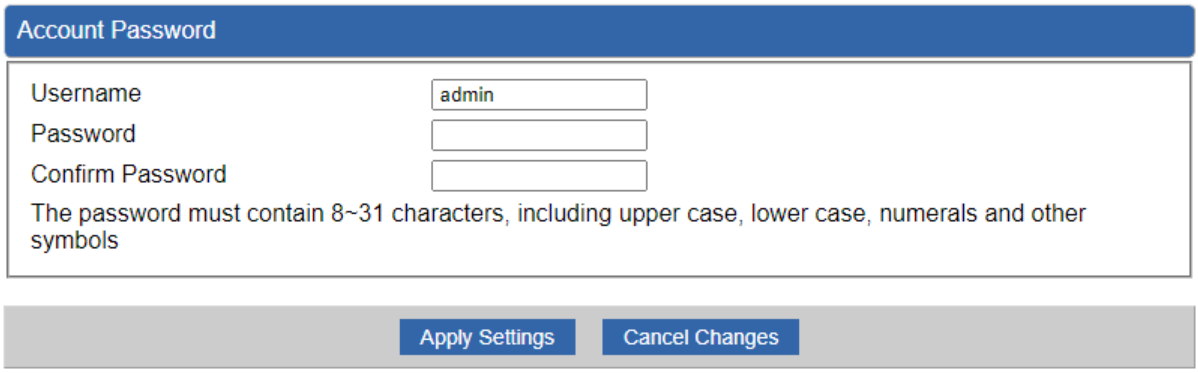


Figure 4-5-2: Administrator Web Page

Administrator	
Object	**Description**
Username	Input a new username.
Password	Input a new password.
Confirm Password	Input password again.

Table 4-5-1: Descriptions of the Administrator Objects Screen

4.5.2 Date and Time

This section assists you in setting the system time of the PoE+ Managed Injector Hub. You are able to either select to set the time and date manually or automatically obtain the GMT time from Internet as shown in Figure 4-5-3.

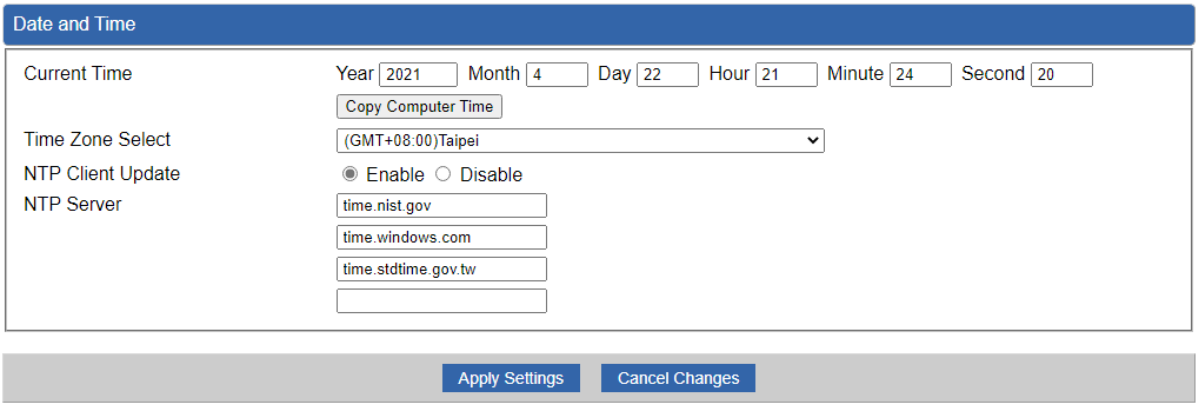


Figure 4-5-3: Date and Time Web Page

Data and Time	
Object	**Description**
Current Time	Show the current time. User is able to set time and date manually.
Time Zone Select	Select the time zone of the country you are currently in. The PoE+ Managed Injector Hub will set its time based on your selection.
NTP Client Update	Once this function is enabled, PoE+ Managed Injector Hub will automatically update current time from NTP server.
NTP Server	User may use the default NTP sever or input NTP server manually.

Table 4-5-2: Descriptions of the Date and Time Objects Screen

4.5.3 Saving/Restoring Configuration

This page shows the status of the configuration. You may save the setting file to either USB storage or PC and load the setting file from USB storage or PC as Figure 4-5-4 is shown below:

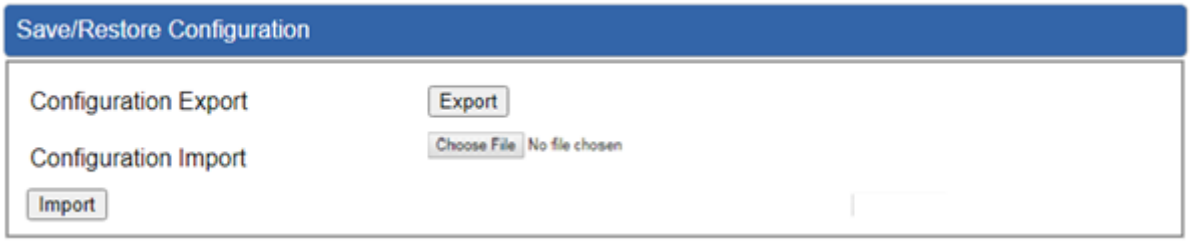


Figure 4-5-4: Save/Restore Configuration

■ **Save Setting to PC**

Save/Restoring Configuration	
Object	**Description**
Configuration Export	Press the Export button to save setting file to PC.
Configuration Import	Press the Choose File button to select the setting file, and then press the Import button to upload setting file from PC.

Table 4-5-3: Descriptions of the Save/Restore Objects Screen

4.5.4 Firmware Upgrading

This page provides the firmware upgrade of the PoE+ Managed Injector Hub as shown in Figure 4-5-5.

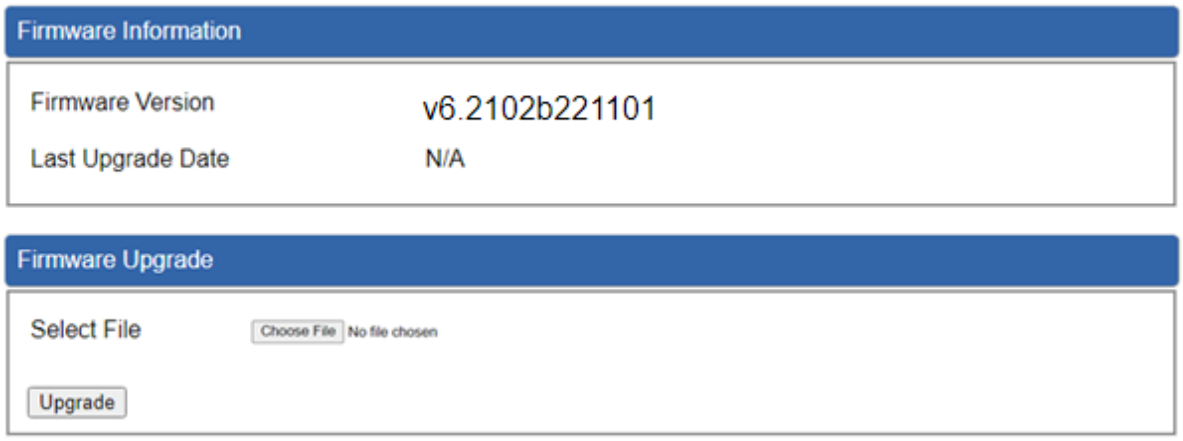


Figure 4-5-5: Firmware Upgrade Web Page

Firmware Upgrading	
Object	**Description**
Choose File	Press the button to select the firmware.
Upgrade	Press the button to upgrade firmware to system.

Table 4-5-4: Descriptions of the Firmware Upgrade Objects Screen

4.5.5 Reboot/Reset

This page enables the device to be rebooted from a remote location. Once the Reboot button is pressed, users have to re-log in the Web interface as Figure 4-5-6 is shown below:

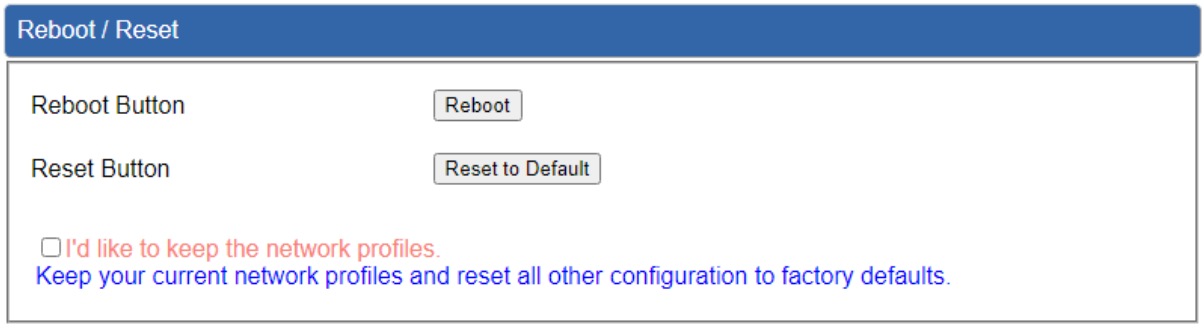


Figure 4-5-6: Reboot/Reset Web Page

Reboot/Reset	
Object	**Description**
Reboot	Press the button to reboot system.
Reset	Press the button to restore all settings to factory default settings.
I'd like to keep the network profiles.	Check the box and then press the Reset to Default button to keep the current network profiles and reset all other configurations to factory defaults.

Table 4-5-5: Descriptions of the Reboot/Reset Objects Screen

4.5.6 Auto Reboot

This page enables the device to be auto rebooted from a specific time settings, the Web interface as Figure 4-5-7 is shown below:

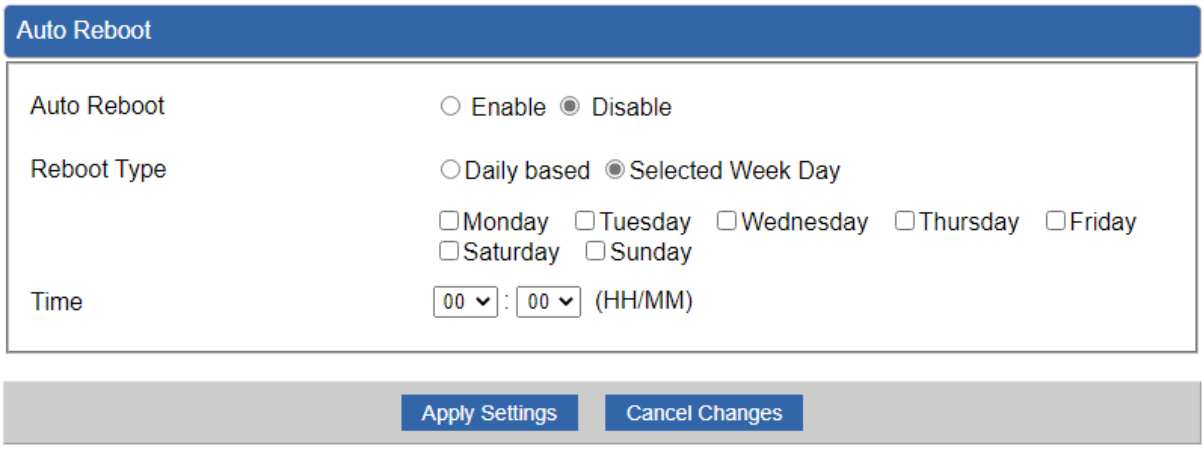


Figure 4-5-7: Auto Reboot Web Page

Auto Reboot	
Object	**Description**
Auto Reboot	Disable or enable the Auto Reboot function.
Reboot Type	Set the function type.
Time	Select reboot time for clock.

Table 4-5-6: Descriptions of the Auto Reboot Objects Screen

4.5.7 Diagnostics

The page allows you to issue ICMP PING packets to troubleshoot IP connectivity issues. After you press “Ping”, ICMP packets are transmitted, and the sequence number and roundtrip time are displayed upon reception of a reply. The Page refreshes automatically until responses to all packets are received, or until a timeout occurs. The Ping web screen shown in Figure 4-5-8.

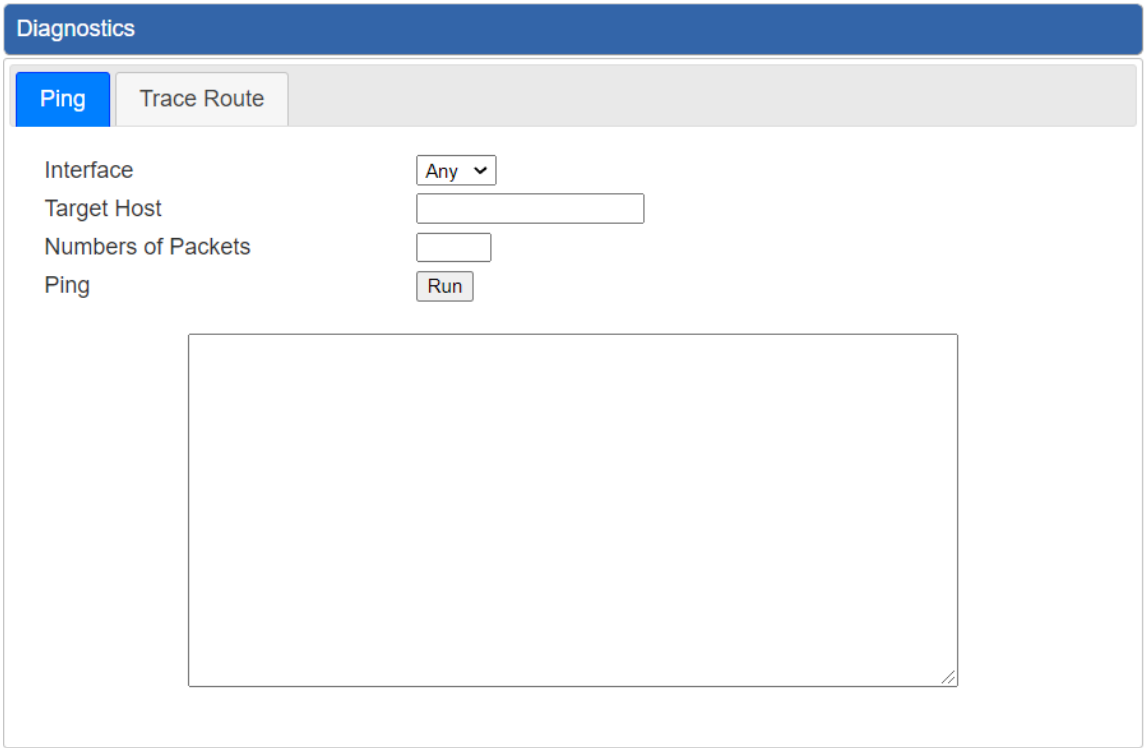


Figure 4-5-8: Ping Web Page

Diagnostics	
Object	**Description**
Interface	Select an interface of the PoE+ Managed Injector Hub.
Target Host	The destination IP Address or domain.
Number of Packets	Set the number of packets that will be transmitted; the maximum is 100.
Ping	The time of ping.

Table 4-5-7: Descriptions of the Ping Objects Screen

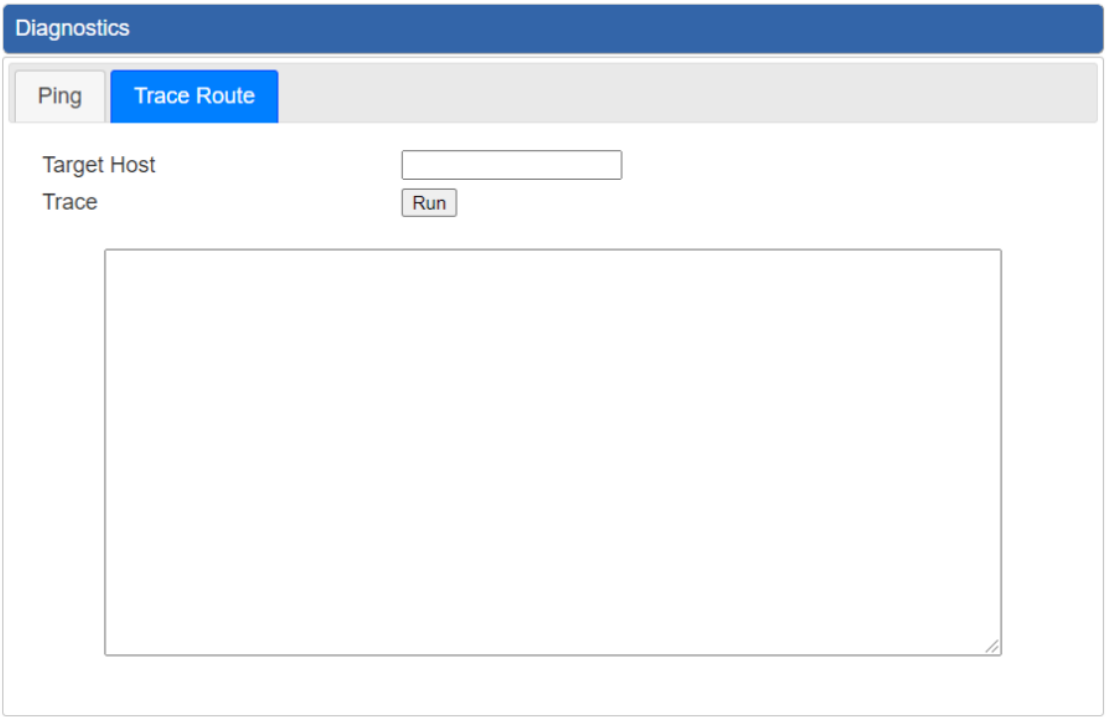


Figure 4-5-9: Trace Route Web Page

Trace Route	
Object	**Description**
Target Host	The destination IP Address or domain.
Trace	The time of ping.

Table 4-5-8: Descriptions of the Trace Route Objects Screen

Note

Be sure the target IP address is within the same network subnet of the PoE+ Managed Injector Hub, or you have to set up the correct gateway IP address.

5. Power over Ethernet Overview

What is PoE?

Based on the global standard IEEE 802.3af, PoE is a technology for wired Ethernet, the most widely installed local area network technology adopted today. PoE allows the electrical power necessary for the operation of each end-device to be carried by data cables rather than by separate power cords. New network applications, such as IP Cameras, VoIP Phones, and Wireless Networking, can help enterprises improve productivity. It minimizes wires that must be used to install the network for offering lower cost, and less power failures.

IEEE802.3af, also called Data Terminal equipment (DTE) power via Media dependent interface (MDI), is an international standard to define the transmission for power over Ethernet. The IEEE 802.3af also defines two types of source equipment: Mid-Span and End-Span.

- **Mid-Span**

Mid-Span device is placed between legacy switch and the powered device. Mid-Span taps the unused wire pairs 4/5 and 7/8 to carry power; the other four are for data transmission

- **End-Span**

End-Span device is directly connected with power device. End-Span could also tap the wire 1/2 and 3/6.

PoE system architecture

The specification of PoE typically requires two devices: the Powered Source Equipment (PSE) and the Powered Device (PD). The PSE is either an End-Span or a Mid-Span, while the PD is a PoE-enabled terminal, such as IP Phones, Wireless LAN, etc. Power can be delivered over data pairs or spare pairs of standard CAT-5e cabling.

How power is transferred through the cable

A standard Cat5e Ethernet cable has four twisted pairs, but only two of these are used for 10BASE-T, 100BASE-T and 1000BASE-T. The specification allows two options for using these cables for power as shown in Figure 5-1-1 and Figure 5-1-2.

The spare pairs are used. Figure 5-1-1 shows the pair on pins 4 and 5 are connected together and form the positive supply, and the pair on pins 7 and 8 are connected and form the negative supply. (In fact, a late change to the spec allows either polarity to be used).

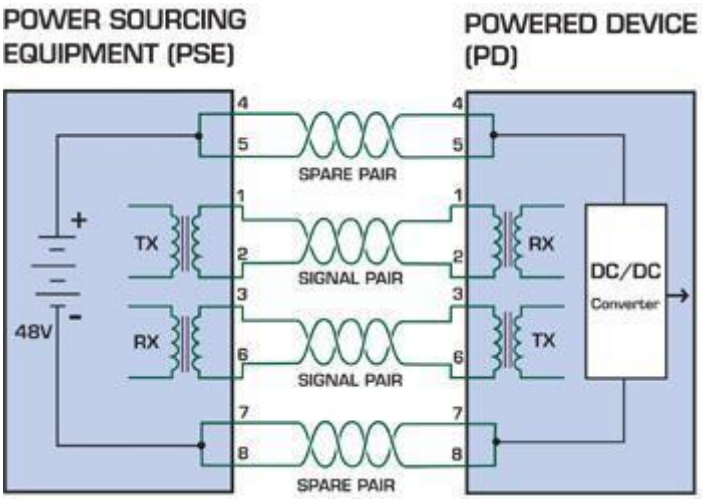


Figure 5-1-1 - Power Supplied over the Spare Pins

The data pairs are used. Since Ethernet pairs are transformer coupled at each end, it is possible to apply DC power to the center tap of the isolation transformer without upsetting the data transfer. In this mode of operation the pair on pins 3 and 6 and the pair on pins 1 and 2 can be of either polarity.

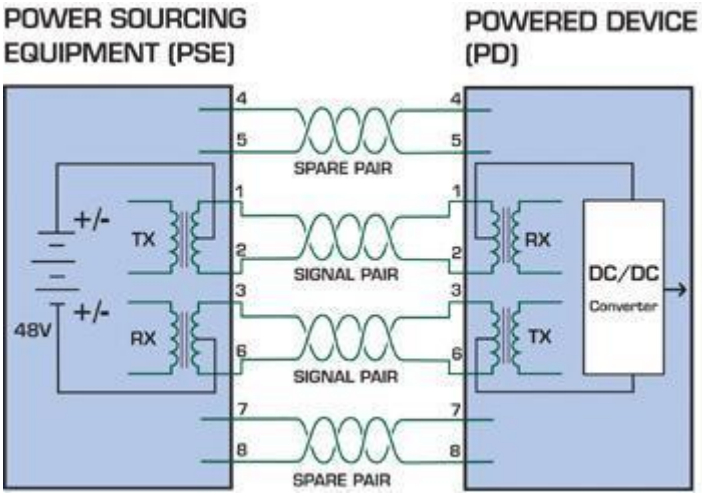


Figure 5-1-2 - Power Supplied over the Data Pins

When to install PoE?

Consider the following scenarios:

• You're planning to install the latest VoIP Phone system to minimize cabling building costs when your company moves into new office next month.

• The company staff has been clamoring for a wireless access point in the picnic area behind the building so they can work on their laptops through lunch, but the cost of electrical power to the outside is not affordable.

• Management asks for IP Surveillance Cameras and business access systems throughout the facility, but they would rather avoid another electrician's payment.

6. The PoE Provision Process

While adding PoE support to networked devices is relatively painless, it should be realized that power cannot simply be transferred over existing Cat5e cables. Without proper preparation, doing so may result in damage to devices that are not designed to support provision of power over their network interfaces.

The PSE is the manager of the PoE process. At the beginning, only small voltage level is induced on the port's output till a valid PD is detected during the Detection period. The PSE may choose to perform classification to estimate the amount of power to be consumed by this PD. After a time-controlled start-up, the PSE begins supplying the 52V DC level to the PD till it is physically or electrically disconnected. Upon disconnection, voltage and power shut down.

Since the PSE is responsible for the PoE process timing, it is the one generating the probing signals prior to operating the PD and monitoring the various scenarios that may occur during operation.

All probing is done using voltage induction and current measurement in return.

1. Stages of powering up a PoE link

Stage	Action	Volts specified		Volts managed by chipset
		802.3af	802.3at	
Detection	Measure whether powered device has the correct signature resistance of 15–33 kΩ	2.7-10.0		1.8–10.0
Classification	Measure which power level class the resistor indicates	14.5-20.5		12.5–25.5
Startup	Where the powered device will startup	>42	>37.2	>38
Normal operation	Supply power to device	44-57	50-57	25.0–60.0

6.1 Line Detection

Before power is applied, safety dictates that it must first be ensured that a valid PD is connected to the PSE's output. This process is referred to as "line detection", and involves the PSE seeking a specific, 25 KΩ signature resistor. Detection of this signature indicates that a valid PD is connected, and that provision of power to the device may commence.

The signature resistor lies in the PD's PoE front-end, isolated from the rest of the PD's circuitries till detection is certified.

6.2 Classification

Once a PD is detected, the PSE may optionally perform classification, to determine the maximal power a PD is to consume. The PSE induces 15.5-25.5V DC, limited to 600 mA, for a period of 10 to 75 ms responded by a certain current consumption by the PD, indicating its power class.

The PD is assigned to one of 5 classes: 0 (default class) indicates that full 15.4 watts should be provided, 1-3 indicate various required power levels and 4 is instead of reserved has a power range of 12.95 – 25.5 watts. PDs that support classification are assigned to class 0. Special care must be employed in the definition of class thresholds, as classification may be affected by cable losses.

Classifying a PD according to its power consumption may assist a PoE system in optimizing its power distribution. Such a system typically suffers from lack of power resources, so that efficient power management based on classification results may reduce total system costs.

6.3 Start-up

Once line detection and optional classification stages are completed, the PSE must switch from low voltage to its full voltage capacity (44-57 Volts) over a minimal amount of time (above 15 microseconds).

A gradual startup is required, as a sudden rise in voltage (reaching high frequencies) would introduce noise on the data lines.

Once provision of power is initiated, it is common for inrush current to be experienced at the PSE port, due to the PD's input capacitance. A PD must be designed to cease inrush current consumption (of over 350 mA / 600mA) within 50 ms of power provision startup.

6.4 Operation

During normal operation, the PSE provides 44-57 VDC, able to support a minimum of 15.4watt / 25.5-watt power.

Power Overloads

The IEEE 802.3af / IEEE 802.3at standard defines handling of overload conditions. In the event of an overload (a PD drawing a higher power level than the allowed 12.95 watts / 25.5 watts), or an outright short circuit caused by a failure in cabling or in the PD, the PSE must shut down power within 50 to 75 milliseconds, while limiting current drain during this period to protect the cabling infrastructure. Immediate voltage drop is avoided to prevent shutdown due to random fluctuations.

6.5 Power Disconnection Scenarios

The IEEE 802.3af / IEEE 802.3at standard requires that devices powered over Ethernet be disconnected safely (i.e. power needs to be shut down within a short period of time following disconnection of a PD from an active port).

When a PD is disconnected, there is a danger that it will be replaced by a non-PoE-ready device while power is still on. Imagine disconnecting a powered IP phone utilizing 52 VDC, and then inadvertently plugging the powered Ethernet cable into a non-PoE notebook computer. What’s sure to follow is not a pretty picture.

The standard defines two means of disconnection, DC Disconnect and AC Disconnect, both of which provide the same functionality - the PSE shutdowns power to a disconnected port within 300 to 400ms. The upper boundary is a physical human limit for disconnecting one PD and reconnecting another.

DC Disconnect

DC Disconnect detection involves measurement of current. Naturally, a disconnected PD stops consuming current, which can be inspected by the PSE. The PSE must therefore disconnect power within 300 to 400 ms from the current flow stop. The lower time boundary is important to prevent shutdown due to random fluctuations.

AC Disconnect

This method is based on the fact that when a valid PD is connected to a port, the AC impedance measured on its terminals is significantly lower than in the case of an open port (disconnected PD).

AC Disconnect detection involves the induction of low AC signal in addition to the 52 VDC operating voltage. The returned AC signal amplitude is monitored by the PSE at the port terminals. During normal operation, the PD's relatively low impedance lowers the returned AC signal while a sudden disconnection of this PD will cause a surge to the full AC signal level and will indicate PD disconnection.

APPENDIX A

A.1 MDI Settings

The Medium-Dependent Interface (MDI or RJ45) serves as the data/power interface between Ethernet elements. As such, it has two optional connection methods to carry the power. Named Alternative A & B, Table 1 details the two power feeding alternatives.

Pin	Alternative A	Alternative B
1	Vport Negative	
2	Vport Negative	
3	Vport Positive	
4		Vport Positive
5		Vport Positive
6	Vport Positive	
7		Vport Negative
8		Vport Negative

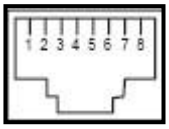
Table -1 Alternative Table

Delivering power through an RJ45 connector's center tap ("Phantom Feeding") guarantees that bi-directional data flow is maintained, regardless of a module's power status.

A.2 Power Device Classification Values

Class	PD Current – Classification Period [mA]	PD Power – Operation Period [W]	Note
0	0 – 4	0.44 – 12.95	Default
1	9 – 12	0.44 – 3.84	Optional
2	17 -20	3.84 – 6.49	Optional
3	26 – 30	6.49 – 12.95	Optional
4	36 - 44	12.95 - 25	Optional

A.3 DATA OUT PoE Injector RJ45 Port Pin Assignments



PIN NO	RJ45 SIGNAL ASSIGNMENT
1	Output Transmit Data +
2	Output Transmit Data -
3	Receive Data +
4	Power -
5	Power -
6	Receive Data -
7	Power +
8	Power +

RJ45 pin assignment of non-802.3af / 802.3at standard PD with PD with Mid-span PoE Mid-span RJ45 assignment

Pin out of Cisco non-802.3af standard PD

PIN NO	SIGNAL
1	RX+
2	RX-
3	TX+
4	VCC-
5	VCC-
6	TX-
7	VCC+
8	VCC+

Pin out of POE Mid-span

PIN NO	SIGNAL
1	RX+
2	RX-
3	TX+
4	VCC-
5	VCC-
6	TX-
7	VCC+
8	VCC+

Before you power PD, please check whether the RJ45 connector pin assignment follows IEEE 802.3af / IEEE 802.3at standard; otherwise, you may need to change one of the RJ45 connector pin assignments, which is attached with the UTP cable.