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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 whose own expense.

CE Mark Warning

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Revision

PLANET IEEE802.3af Power over Ethernet Injector Hub User's Manual

FOR MODELS: POE-1200/POE-2400

Part No.: 2010-000041-000

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Chapter 1

INTRODUCTION

1.1 Package Contents

Check the contents of your package for following parts:

- IEEE802.3af Power over Ethernet Injector Hub x1
- Manual x1
- Quick installation guide x1
- 19" rack mounting kit x1
- Power cord x1
- Rubber feet x 4

If any of these are missing or damaged, please contact your dealer immediately, if possible, retain the carton including the original packing material, and use them against to repack the product in case there is a need to return it to us for repair.

1.2 How to Use This Manual

This Web Smart Gigabit Ethernet Switch User Manual is structured as follows:

Chapter 2, Installation

It explains the functions of POE-1200/2400 and how to physically install the POE-1200/2400.

Chapter 3, Console Configuration

It contains information about the console Smart function of POE-1200/2400.

Chapter 4, Web Configuration

It contains information about the web Smart function of POE-1200/2400.

Chapter 5, PoE power Provision Process

It contains specifications of POE-1200/2400.

Appendices

It contains cable information of POE-1200/2400.

In the following section, terms **Injector** with upper case mean the two injectors, i.e. POE-1200 or POE-2400. Terms with lower case **injector** means any 802.3af power injectors. **PD** means the abbreviated from 802.3af powered device.

1.3 Product Features

- 12/24-Port 802.3af in-line mid-span power injector box
- Complies with IEEE802.3, IEEE802.3u, 10/100Base-TX
- Complies with IEEE802.3af, 48VDC power over unused twisted-pair wires.
- Full power support for per PoE port
- Auto detect powered device and consumption levels
- Circuit protection prevent power interference between ports
- 19-inch rack mountable; 1U height
- LED indicators for PoE ready and PoE activity
- 100~240VAC, 50/60Hz, universal power supply
- Smart feature for PD on/off/by-pass, PD detection, power level, PD status and PD powering priority
- 100~240VAC, 50~60Hz universal Power input
- FCC, CE class A compliant

1.4 Product Specifications

Model	POE-1200	POE-2400
Hardware Specification		
PoE Network ports	24 x RJ-45 STP Data: 12 Data + Power out: 12	48 x RJ-45 STP Data: 24 Data + Power out: 24
Number of 802.3af device can be powered	12	24
PoE Power supply Type	Mid-span	
PoE Power Type	Per port 48VDC @ 270mA maximum	
Management port	1 x RJ-45; 10/100Base-TX, auto-negotiation, auto-MDI	
Network Cable	10BASET: 2-pair UTP Cat. 3, 4, 5 (100 m), EIA/TIA-568 100-ohm STP (100 m) 100BASE-TX: 2-pair UTP Cat. 5 (100 m), EIA/TIA-568 100-ohm STP (100 m)	
Console Port	1 x RS-232; DB-9	
Flow Control	Back pressure for half duplex, IEEE 802.3x Pause Frame for full duplex	
Dimensions (mm)	440 x 200 x 44 (1U height)	
Weight	2.7kg	3.3kg
Power Requirement	100-240V AC, 50-60 Hz	
Power consumption	130 watts max.	260 watts max.
Standards Conformance		
Network Standards	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100 Base-TX Fast Ethernet IEEE 802.3af, Power over Ethernet	
Operating Temperature	0°C ~ 50°C	
Storage Temperature	-40°C ~ 70°C	
Humidity	5% to 95% (Non-condensing)	
Regulation Compliance	FCC Part 15 Class A, CE	



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Chapter 2

INSTALLATION

This chapter describes the functionalities of the Switch's components and guides how to install it on the desktop or shelf. Basic knowledge of networking is assumed. Please read this chapter completely before continuing.

2.1 Product Description

The PLANET POE-1200 / POE-2400 are 12 / 24-Port IEEE802.3af Power over Ethernet injector hub complies with IEEE802.3, IEEE802.3u and IEEE802.3af standards. It is equipped with 12 / 24 10/100BASE-TX Fast Ethernet ports that support full 48VDC power for any remote IEEE802.3af powered device (PD) like Wireless LAN Access Point, IP phone, LAN Camera or any other network devices. With support for 130 / 260 watts power supply, POE-1200 / POE-2400 should provide the sufficient power to the 12 / 24 remote devices.

2.1.1 Product Overview

There are 24 / 48 RJ-45 STP ports on the front panel of hub, 12 / 24 of them on lower stack are "Data" port and the other 12 / 24 ports on upper stack are "Data + Power output" port. Each of the "Data + Power output" port on upper stack functions as an injector which inserts DC Voltage into the CAT 5 cable allowing the cable between the Injector and Splitter to transfer data and power simultaneously.

To manage your powered devices, POE-1200 / POE-2400 provides both Web and Console management interfaces in which administrators can manage functions such as port Enable/Disable, port priority, system configuration, and Password changing and with smart feature for powered device, the Hub can auto detect the power status on each port and show messages on both Web and Console management interface. These features also provide a cost-effective way to manage the devices from Internet whenever you are at work or at home.

2.1.2 Injector Front Panel

Figure 2-1 & 2-2 shows a front panel of the POE-1200 / POE-2400.



Figure 2-1 POE-1200 front panel

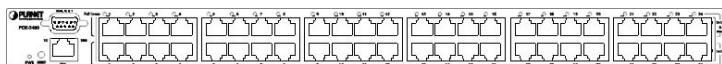


Figure 2-2 POE-2400 front panel

2.1.3 LED Indicators

LED	Color	Function
POWER	Green	Lights to indicate power on.
Manage	Amber and Green	Light (both amber and green indicators) to indicate the management port Linked. Blink to indicate that the port is transmitting data in 10Mbps (Amber) or 100Mbps (Green) speed respectively.
PoE In-use	Green	Lights to indicate that the port is in use and supplying 48V DC power

2.1.4 Injector Rear Panel

The rear panel of the Injector indicates an AC inlet power socket, which accepts input power from 100 to 240VAC, 50-60Hz.



Figure 2-3 POE-1200 Rear Panel



Figure 2-4 POE-2400 Rear Panel



Power
Notice:

1. The device is a power-required device, it means, it will not work till it is powered. If your networks should 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.
2. In some area, installing a surge suppression device may also help to protect your switch from being damaged by unregulated surge or current to the Injector or the power adapter.

2.2 Installing the Injector

This section describes how to install your POE-1200/POE-2400 802.3af Power over Ethernet Injector and make connections to the Injector. Please read the following topics and perform the procedures in the order being presented. To install the Switch on a desktop or shelf, simply complete the following steps.

2.2.1 Desktop Installation

To install an Injector on a desktop or shelf, simply complete the following steps:

Step1: Attach the rubber feet to the recessed areas on the bottom of the Injector.

Step2: Place the Injector on a desktop or shelf near an AC power source.

Step3: Keep enough ventilation space between the Injector and the surrounding objects.



When choosing a location, please keep in mind the environmental restrictions discussed in Chapter 1, Section 4, in Specification.

Step4: Connect your Injector to network 802.3af powered devices (PD) and Switch.

- A. Connect one end of a standard network cable to the upper stack 10/100 RJ-45 ports on the front of the Injector.
- B. Connect the other end of the cable to the 802.3 powered devices (PD) such as IP phone, wireless access point, IP camera, splitter, or switch etc.
- C. Connect the one end of a standard network cable to the relative lower stack 10/100 RJ-45 port on the front of the Injector.
- D. Connect the other end of the cable to the port of Switch.



Connection to the Switch requires UTP Category 5 network cabling with RJ-45 tips. For more information, please see the Cabling Specification in Appendix A.

Step5: Supply power to the Switch.

- A. Connect one end of the power cable to the Injector.
- B. Connect the power plug of the power cable to a standard wall outlet.

When the Injector receives power, the Power LED should remain solid Green.

2.2.2 Rack Mounting

To install the switch in a 19-inch standard rack, follow the instructions described below.

Step1: Place your Injector on a hard flat surface, with the front panel positioned towards your front side.

Step2: Attach a rack-mount bracket to each side of the Injector with supplied screws attached to the package. Figure 2-5 shows how to attach brackets to one side of the Injector.

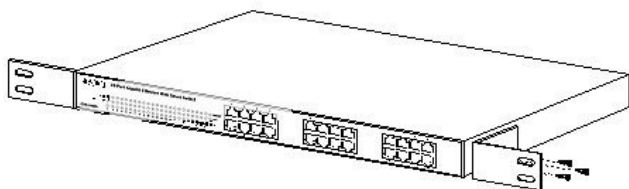


Figure 2-5 Attaching the brackets to the POE-1200/POE-2400

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

Step3: Secure the brackets tightly.

Step4: Follow the same steps to attach the second bracket to the opposite side.

Step5: After the brackets are attached to the Injector, use suitable screws to securely attach the brackets to the rack, as shown in Figure 2-6

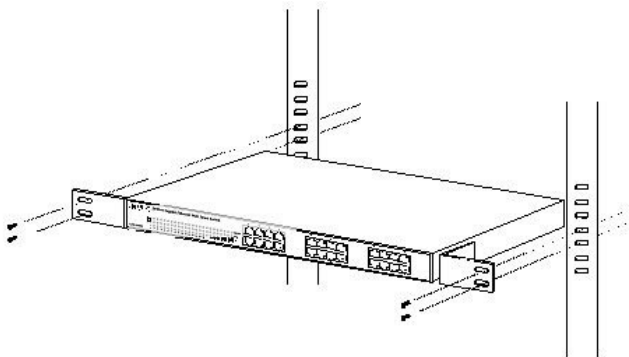


Figure 2-6 Mounting the Injector in a Rack

Step6: Proceeds with the steps 4 and steps 5 of session 2.2.1 Desktop Installation to connect the network cabling and supply power to your Injector.

Chapter 3

CONSOLE CONFIGURATION

Unlike the one-port 802.3af Power over Ethernet power injector, the POE-1200/POE-2400 performs series smart functions that make the Injector operate more effectively. This Chapter describes the common usage of the Injector's Smart Configuration.

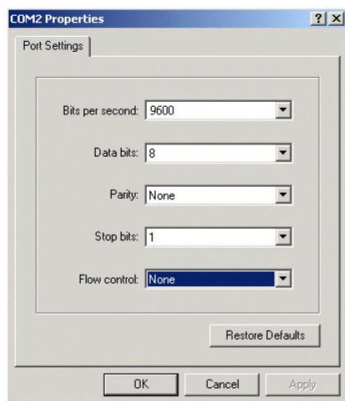
When you are ready to configure the smart functions of the Switch, make sure you had connected the supplied RS-232 serial cable to the RS-232 port at the front panel of your POE-1200/2400 Switch and your PC.

3.1 Connect to PC's RS-232 serial port

Hyper Terminal

In Windows 98/2000/XP, launch HyperTerminal , create a new connection, and adjust settings as below:

- Baud per second: 9600
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow Control: None



Once the terminal has connected to the device, power on the POE-1200/2400, the terminal will display that it is running testing procedures. After boot, the following screen displayed.

```

EEPROM: Data valid
PLANET POE-2400 24-port IEEE 802.3af PoE Injector Hub
Software: Version 1.0
Hardware: Version 1.0
MAC: 00-30-4f-66-77-88
IP: 192.168.99.234
Web server is running...
login: _

```

Figure 3-1 Console Main Screen of POE-1200/2400

1. Enter default username `admin` and password `admin` to login POE-1200/2400. As show in Figure 3-2.

Login: admin

Password: *****

```

EEPROM: Data valid
PLANET POE-2400 24-port IEEE 802.3af PoE Injector Hub
Software: Version 1.0
Hardware: Version 1.0
MAC: 00-30-4f-66-77-88
IP: 192.168.99.234
Web server is running...
login: admin
password: *****
POE2400>

```

Figure 3-2 Login POE-1200/2400 screen

2. After login successfully, the prompt will become `POE2400>` (In case of POE-1200, the prompt will become `POE-1200>`).On `POE2400>` prompt, enter `help` or `?` command to list all commands available for console management. As show in Figure 3-3.

`POE2400> ?`

```

POE2400> ?
show port [n]
show class [n]
show current [n]
show power [n]
show priority
show ip
show system
set port [n] enable:disable
set port all enable:disable
set priority [n] [n]
set priority allzero
set ip xxx.xxx.xxx.xxx mmm.mmm.mmm.mmm 999.999.999.999
set pass [oldpass] [newpass]
factory reset
reboot
logout
POE2400> _

```

Figure 3-3 Help screen

3.2 Change IP Address

1. Enter `set ip A.B.C.D E.F.G.H I.J.K.L` to add a new IP address. Note that A.B.C.D is your new IP address, E.F.G.H is the subnet mask and I.J.K.L is the default gateway. For example, enter `set ip 192.168.99.123 255.255.255.0 192.168.99.254` will add a new IP address to POE-1200/2400. As show in Figure 3-4.

POE2400> set ip 192.168.99.123 255.255.255.0 192.168.99.254

```
show port [n]
show class [n]
show current [n]
show power [n]
show priority
show ip
show system
set port [n] enable|disable
set port all enable|disable
set priority [n] [n]
set priority allzero
set ip XXX.XXX.XXX.XXX XXX.XXX.XXX.XXX 999.999.999.999
set pass [oldpass] [newpass]
factory reset
reboot
logout

POE2400> set ip 192.168.99.123 255.255.255.0 192.168.99.254
The IP sets to 192.168.99.123
The netmask sets to 255.255.255.0
The gateway sets to 192.168.99.254
POE2400>
```

Figure 3-4 Change IP screen

2. Enter `show ip` to check if the IP address is changed correctly. As show in Figure 3-5.

POE2400> show ip

```
show system
set port [n] enable|disable
set port all enable|disable
set priority [n] [n]
set priority allzero
set ip XXX.XXX.XXX.XXX XXX.XXX.XXX.XXX 999.999.999.999
set pass [oldpass] [newpass]
factory reset
reboot
logout

POE2400> set ip 192.168.99.123 255.255.255.0 192.168.99.254
The IP sets to 192.168.99.123
The netmask sets to 255.255.255.0
The gateway sets to 192.168.99.254
POE2400> show ip
IP: 192.168.99.123
Netmask: 255.255.255.0
Gateway: 192.168.99.254
POE2400>
```

Figure 3-5 Show IP address

3.3 Change Password

1. Enter `set pass old_pass new_pass` to change your admin password. Note that old_pass is your old password and new_pass is the new password. For example, enter `set pass admin 12345` will change the old password admin to 12345. As show in Figure 3-6.

POE2400> set pass admin 12345

```

show priority
show ip
show system
set port [n] enable|disable
set port all enable|disable
set priority [n] [n]
set priority allzero
set ip xxx.xxx.xxx.xxx nnn.nnn.nnn.nnn 999.999.999.999
set pass [oldpass] [newpass]
factory reset
reboot
logout
POE2400> set ip 192.168.99.123 255.255.255.0 192.168.99.254
The IP sets to 192.168.99.123
The netmask sets to 255.255.255.0
The gateway sets to 192.168.99.254
POE2400> set pass admin 12345
Change password from admin to 12345 successfully!
POE2400>

```

Figure 3-6 Change password

2. Enter `logout` to exit. The prompt `POE2400` will change to `login:` and ask for login.
3. Enter username `admin` with old password to check if the password is changed. As show in Figure 3-7.

```

show priority
show ip
show system
set port [n] enable|disable
set port all enable|disable
set priority [n] [n]
set priority allzero
set ip xxx.xxx.xxx.xxx nnn.nnn.nnn.nnn 999.999.999.999
set pass [oldpass] [newpass]
factory reset
reboot
logout
POE2400> logout
login: admin
password: *****
POE2400> logout
login: admin
password: *****
incorrect password!
login:

```

Figure 3-7 Login with old password screen

4. Enter username `admin` with new password, it will login successful. As show in Figure 3-8.

```

show ip
show system
set port [n] enable|disable
set port all enable|disable
set priority [n] [n]
set priority allzero
set ip xxx.xxx.xxx.xxx nnn.nnn.nnn.nnn 999.999.999.999
set pass [oldpass] [newpass]
factory reset
reboot
logout
POE2400> logout
login: admin
password: *****
incorrect password!
login: admin
password: *****
POE2400> _

```

Figure 3-8 Login with new password screen

3.4 Show Port Status

To show port status, enter `show port`. It will show all ports that are using PoE or not. On means that the POE-1200/2400 is supplying 48VDC to the port and Off means the power is stop provision to the port. You can also figure out the single port status by entering `show port [n]`, where [n] is the port number that you want to check. As show in Figure 3-9

POE2400> show port

```
reboot
logout
POE2400> show port
```

Port	Status	Port	Status
Port 1	Off	Port13	Off
Port 2	Off	Port14	Off
Port 3	Off	Port15	Off
Port 4	Off	Port16	Off
Port 5	Off	Port17	Off
Port 6	Off	Port18	Off
Port 7	Off	Port19	Off
Port 8	Off	Port20	Off
Port 9	Off	Port21	Off
Port10	Off	Port22	Off
Port11	Off	Port23	Off
Port12	Off	Port24	Off

```
POE2400> _
```

Figure 3-9 Show port status screen

3.5 Enable/Disable port

To do power management, you can enable/disable power provision on each port of the POE-1200/2400. Enter `set port [n] enable/disable` to enable/disable single port number n power provision, enter `set port all enable/disable` to enable/disable all port power provision at a time. As show in Figure 3-10, 3-11 and 3-12

POE2400> set port 3 disable

```
set port [n] enable|disable
set port all enable|disable
set priority [n] [n]
set priority allzero
set ip xxx.xxx.xxx.xxx nnn.nnn.nnn.999.999.999.999
set pass [oldpass] [newpass]
factory reset
reboot
logout
POE2400> show ip
```

IP:	192.168.99.103
Netmask:	255.255.255.0
Gateway:	192.168.99.253

```
POE2400> set port 3 disable
Set the port3 disable successfully!
POE2400>
```

Figure 3-10 Disable single port screen

POE2400> set port all disable

```
set id XXX.XXX.XXX.XXX AAA.AAA.AAA.AAA 999.999.999.999
set pass [oldpass] [newpass]
factory reset
reboot
logout

POE2400> show ip
IP: 192.168.99.103
Netmask: 255.255.255.0
Gateway: 192.168.99.253

POE2400> set port 3 disable
Set the port3 disable successfully!
POE2400> set port all disable
Set all ports disable successfully!
POE2400>
```

Figure 3-11 Disable all ports screen

POE2400> set port all enable

```
set pass [oldpass] [newpass]
factory reset
reboot
logout

POE2400> show ip
IP: 192.168.99.103
Netmask: 255.255.255.0
Gateway: 192.168.99.253

POE2400> set port 3 disable
Set the port3 disable successfully!
POE2400> set port all disable
Set all ports disable successfully!
POE2400> set port all enable
Set all ports enable successfully!
POE2400>
```

Figure 3-12 Enable all ports screen

3.6 Show PD Power Classification

To view the power classification of Power Device (PD), enter `show class [n]` view the single PD power classification which connected on port n, and `show class` to view all PD power classification connected on POE-1200/2400. As show in Figure 3-13

POE2400> show class

```
Set the port3 disable successfully!
POE2400> set port all enable
Set all ports enable successfully!
POE2400> show class

Port      Class      Port      Class
-----
Port 1    N/A        Port13     N/A
Port 2    N/A        Port14     N/A
Port 3    N/A        Port15     N/A
Port 4    N/A        Port16     N/A
Port 5    N/A        Port17     N/A
Port 6    N/A        Port18     N/A
Port 7    N/A        Port19     N/A
Port 8    N/A        Port20     N/A
Port 9    N/A        Port21     N/A
Port 10   N/A        Port22     N/A
Port 11   N/A        Port23     N/A
Port 12   N/A        Port24     N/A

POE2400>
```

Figure 3-13 Show Class screen

Please refer to chapter 5 for more information about the Class.

3.7 Show PD Power Current Usage

To view the power current usage of Power Device (PD), enter `show current [n]` view the single PD power current usage which connected on port `n`, and `show current` to view all PD power current usage connected on POE-1200/2400. As show in Figure 3-14

POE2400> show current

Port 8	N/A	Port 20	N/A
Port 9	N/A	Port 21	N/A
Port 10	N/A	Port 22	N/A
Port 11	N/A	Port 23	N/A
Port 12	N/A	Port 24	N/A

POE2400> show current

Port	I(mA)	Port	I(mA)
Port 1	0	Port 13	0
Port 2	0	Port 14	0
Port 3	0	Port 15	0
Port 4	0	Port 16	0
Port 5	0	Port 17	0
Port 6	0	Port 18	0
Port 7	0	Port 19	0
Port 8	0	Port 20	0
Port 9	0	Port 21	0
Port 10	0	Port 22	0
Port 11	0	Port 23	0
Port 12	0	Port 24	0

POE2400>

Figure 3-14 Show current screen

3.8 Show PD Power Usage

To view the power current usage of Power Device (PD), enter `show current [n]` view the single PD power current usage which connected on port `n`, and `show current` to view all PD power current usage connected on POE-1200/2400. As show in Figure 3-14

POE2400> show power

Port 8	N/A	Port 20	N/A
Port 9	N/A	Port 21	N/A
Port 10	N/A	Port 22	N/A
Port 11	N/A	Port 23	N/A
Port 12	N/A	Port 24	N/A

POE2400> show power

Port	P(mW)	Port	P(mW)
Port 1	0	Port 13	0
Port 2	0	Port 14	0
Port 3	0	Port 15	0
Port 4	0	Port 16	0
Port 5	0	Port 17	0
Port 6	0	Port 18	0
Port 7	0	Port 19	0
Port 8	0	Port 20	0
Port 9	0	Port 21	0
Port 10	0	Port 22	0
Port 11	0	Port 23	0
Port 12	0	Port 24	0

POE2400>

Figure 3-15 Show Power screen

3.9 Show Power Provision Priority

To view the power provision priority to Power Device (PD), enter `show priority [n]` view the single PD power provision priority to port `n`, and `show priority` to view all PD power provision priority to each port of POE-1200/2400. As show in Figure 3-15

POE2400> show priority

Port10	0	Port22	0
Port11	0	Port23	0
Port12	0	Port24	0

Total 926 mW

POE2400> show priority

Port	Priority	Port	Priority
Port 1	0	Port13	0
Port 2	0	Port14	0
Port 3	0	Port15	0
Port 4	0	Port16	0
Port 5	0	Port17	0
Port 6	0	Port18	0
Port 7	0	Port19	0
Port 8	0	Port20	0
Port 9	0	Port21	0
Port10	0	Port22	0
Port11	0	Port23	0
Port12	0	Port24	0

POE2400> _

Figure 3-16 Show Priority screen

3.10 Set Power Provision Priority

To set the power provision priority to Power Device (PD), enter `set priority [n] [m]` to view the single PD power provision priority to port n with priority m, and `set priority all zero` to set all PD power provision priority to default value to all ports. For example, if you want the PD connected in port 15 to have a lowest priority, the command will be `set priority 15 11`. As show in Figure 3-16 and 3-17

POE2400> set priority 15 11

Total 926 mW			
POE2400> show priority			
Port	Priority	Port	Priority
Port 1	0	Port13	0
Port 2	0	Port14	0
Port 3	0	Port15	11
Port 4	0	Port16	0
Port 5	0	Port17	0
Port 6	0	Port18	0
Port 7	0	Port19	0
Port 8	0	Port20	0
Port 9	0	Port21	0
Port10	0	Port22	0
Port11	0	Port23	0
Port12	0	Port24	0

POE2400> set priority 15 11

Set priority of port15 to 11 successfully!

POE2400> _

Figure 3-17 Set Priority to a single port screen

POE2400> set priority all zero

Port	Priority	Port	Priority
Port 1	0	Port13	0
Port 2	0	Port14	0
Port 3	0	Port15	0
Port 4	0	Port16	0
Port 5	0	Port17	0
Port 6	0	Port18	0
Port 7	0	Port19	0
Port 8	0	Port20	0
Port 9	0	Port21	0
Port10	0	Port22	0
Port11	0	Port23	0
Port12	0	Port24	0

POE2400> set priority 15 11

Set priority of port15 to 11 successfully!

POE2400> set priority all zero

Set all priorities to zero successfully!

POE2400> _

Figure 3-18 Set Priority to all ports screen



Note:

The priority level is ranged from 0 to 11, 0 is the highest and 11 is the lowest.

3.11 View System Information

To view the system information, enter `show system`. System information such as product name, software version, hardware version, MAC Address and IP address will show as in Figure 3-18.

POE2400> show system

```
POE2400> set priority 15 11
Set priority of port15 to 11 successfully!
POE2400> set priority all zero
Set all priorities to zero successfully!
POE2400> show ip
IP: 192.168.99.234
Netmask: 255.255.255.0
Gateway: 192.168.99.253
POE2400> show system
PLN0ET POE-2400 24-port Power over Ethernet Injector
Software: Test Version 1.0.9 (2005/1/12)
Hardware: Version 1.0
MAC: 00-0b-78-66-77-99
IP: 192.168.99.234
POE2400> _
```

Figure 3-19 View system information screen

3.12 Restore System to Factory Default Settings

The command `factory reset` will reset port priority and port power management to default values. The default port priority value is 0 (highest) and the default port power management value is `enable`.

POE2400> factory reset



Note:

The reest command is the same to the reset button. Hold the reset button for 5 seconds and the system will set back to default as like the command above.



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Chapter 4

WEB CONFIGURATION

Besides the console interface, POE-1200/2400 can be configured through an Ethernet connection, make sure the manager PC must be set on same the IP subnet address with the switch. For example, if you have changed the default IP address of the Switch to 192.168.99.123 with subnet mask 255.255.255.0 via console, then the manager PC should be set at 192.168.99.x (where x is a number between 2 and 254) with subnet mask 255.255.255.0. Or you can use the factory default IP address 192.168.0.100 to do the relative configuration on manager PC.

Use Internet Explorer 5.0 or above Web browser. Enter IP address <http://192.168.0.100> (the factory-default IP address or that you have changed via console) to access the Web interface.

When the following login screen appears, please enter the default username “admin” and password admin (or the password you have changed via console) to login the main screen of Switch. The login screen in Figure 4-1 appears.



Figure 4-1 Login screen

4.1 Main Menu

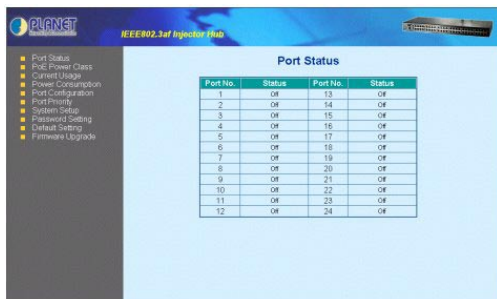
After a successful login, the main screen appears. The main screen displays the product name the function menu, and the main information in the center. As showed in Figure 4-2.



Figure 4-2 Main menu screen

4.2 Port Status

This function allows displaying each port's status. On means the port is supplying 48VDC power where Off means the port is disconnected or is disabled. As showed in Figure 4-3.

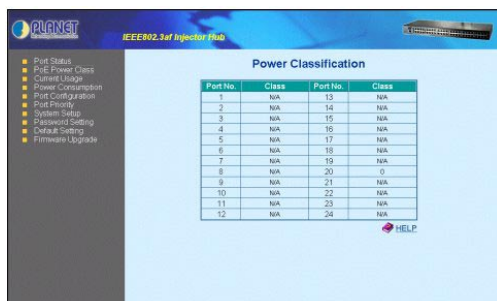


Port No.	Status	Port No.	Status
1	Off	13	Off
2	Off	14	Off
3	Off	15	Off
4	Off	16	Off
5	Off	17	Off
6	Off	18	Off
7	Off	19	Off
8	Off	20	Off
9	Off	21	Off
10	Off	22	Off
11	Off	23	Off
12	Off	24	Off

Figure 4-3 Port status screen

4.3 PoE Power Class

This function displays the PoE PD power classification. As showed in Figure 4-4.



Port No.	Class	Port No.	Class
1	N/A	13	N/A
2	N/A	14	N/A
3	N/A	15	N/A
4	N/A	16	N/A
5	N/A	17	N/A
6	N/A	18	N/A
7	N/A	19	N/A
8	N/A	20	N/A
9	N/A	21	N/A
10	N/A	22	N/A
11	N/A	23	N/A
12	N/A	24	N/A

Figure 4-4 PD power classification screen

A PD may be classified by the PSE based on the classification information provided by the PD. The intent of PD classification is to provide information about the maximum power required by the PD during operation.

Class 0 is the default for PDs. However, to improve power management at the PSE, the PD may opt to provide a signature for Class 1 to 3.

The PD is classified based on power. The classification of the PD is the maximum power that the PD will draw across all input voltages and operational modes. A PD shall return Class 0 to 3 in accordance with the maximum power draw as specified by table below.

Class	Usage	Range of maximum power used by the PD
0	Default	0.44 to 12.95 Watts
1	Optional	0.44 to 3.84 Watts
2	Optional	3.84 to 6.49 Watts
3	Optional	6.49 to 12.95 Watts
4	Not Allowed	Reserved for Future Use



Note:

Class 4 is defined but is reserved for future use. A Class 4 signature cannot be provided by a compliant PD.

4.4 Current Usage

This function displays the PoE PD current usage. As showed in Figure 4-5.

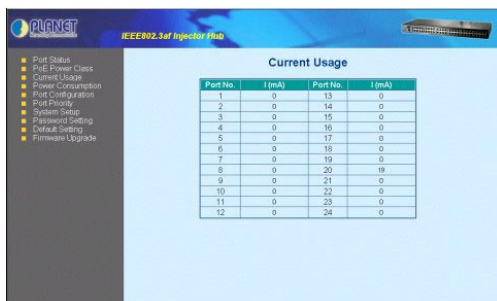


Figure 4-5 PD Current Usage screen

4.5 Power Consumption

This function displays the PoE PD power consumption. As showed in Figure 4-6.

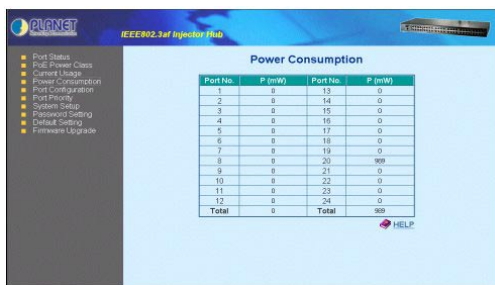


Figure 4-6 Power Consumption screen

4.6 Port Configuration

This function allows enabling or disabling the power inject from the port. Default each port support 48VDC, but sometimes you may want to stop port power supply for management, select the Disable radio button and press Submit button. As showed in Figure 4-7.

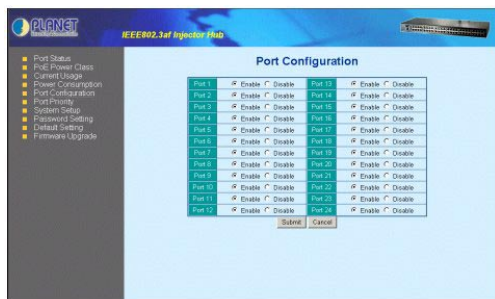
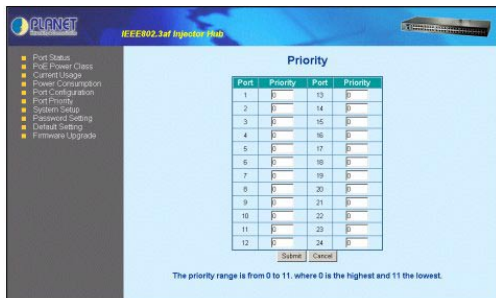


Figure 4-7 Port Configuration screen

4.7 Port Priority

This function allows setting priority for each port. If your environment did not support enough power for all PD at the same time, set port priority to ensure the important power devices with power provision first. As showed in Figure 4-8.



Port	Priority	Port	Priority
1	0	13	0
2	0	14	0
3	0	15	0
4	0	16	0
5	0	17	0
6	0	18	0
7	0	19	0
8	0	20	0
9	0	21	0
10	0	22	0
11	0	23	0
12	0	24	0

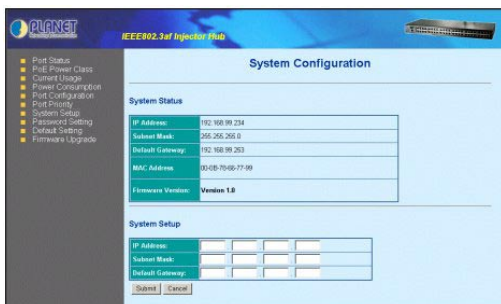
The priority range is from 0 to 11, where 0 is the highest and 11 the lowest.

Figure 4-8 Priority setting screen

The priority range is from 0 to 11, where 0 is the highest and 11 is the lowest.

4.8 System Setup

The System Setup function allows viewing system firmware version, MAC Address, and IP Address and changing the system IP Address. To change system IP Address, fill the System Setup form and click on the Submit button. As showed in Figure 4-9.



System Configuration

System Status

IP Address: 192.168.19.234
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.19.253
MAC Address: 32:0B:75:62:77:89
Firmware Version: Version 1.0

System Setup

IP Address:
Subnet Mask:
Default Gateway:
Submit Cancel

Figure 4-9 System Setting page

4.9 Password Setting

This function allows changing admin password, fill the form and click on the Submit button. As showed in Figure 4-10.

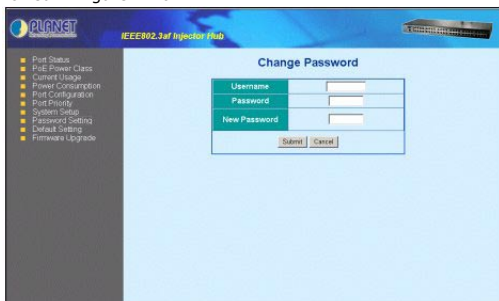


Figure 4-10 Password setting screen

4.10 Default Setting

This function allows setting system configuration parameters to default value. Before processing, a pop up message shows as following:



Click on the OK button, the screen will change to Default Setting screen, as showed in Figure 4-11.



Figure 4-11 Default Setting screen

Click on the Default button, and the system will reset to default settings.



Note:

Default Setting will change all ports to default PoE Enabled , all port priority to default 0 , IP address to default 192.168.0.100 , and password to default admin .

4.11 Firmware Update

This function allows updating POE-1200/2400 firmware, as showed in Figure 4-12.



Figure 4-12 Firmware Update

To update firmware, you need a DHCP server and a well configured TFTP server in the same subnet with POE-1200/2400. The console interface will show processing message during update and reboot after complete. Please check carefully in console and do NOT shut down POE-1200/2400 before update complete.



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Chapter 5

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 CAT-5 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. In 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 48 VDC 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.

5.1 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 K Ω 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 the PD's circuitries till detection is certified.

5.2 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 15.5-20.5 VDC, limited to 100 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 reserved for future use. PDs that do not 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.

5.3 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) within 50 ms of power provision startup.

5.4 Operation

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

Power Overloads

The IEEE 802.3af 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), 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.

5.5 Power Disconnection Scenarios

The IEEE 802.3af standard requires that devices powered over Ethernet be disconnected safely (i.e. power needs 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 48 VDC, 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 48 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-Dependant Interface (MDI or RJ-45) 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. The next table 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

Delivering power through an RJ-45 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	Future use	Future use



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