

8 Port PoE Injector Hub

802.3af

PN: POE-32108T-1



USER'S MANUAL

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1. Introduction

Power-over-Ethernet (PoE) eliminates the need to run 110/220 VAC power to other devices on a wired LAN. Using Power-over-Ethernet system, installers need to run only a single Category 5e Ethernet cable that can carry both power and data to each device. This allows great flexibility in the locating of network devices and significantly decreases installation time and costs.

There are two system components in PoE. Power Sourcing Equipment (PSE) initiates the connection to the second component, the Powered Device (PD). The current is transmitted over two of the four twisted pairs of wires in a Category 5e cable.

Power over Ethernet is compliant with IEEE 802.3af and is completely compatible with existing Ethernet switches and networked devices. Because the Power Sourcing Equipment (PSE) tests whether a networked device supports PoE, power is never transmitted unless a Powered Device is available at the other end of the cable. It also continues to monitor the channel. If the Powered Device does not draw a minimum current, because it has been unplugged or physically turned off, the PSE shuts down the power to that port. Optionally, the standard permits Powered Devices to signal to the PSEs exactly how much power they need.

Features

- Centralized power distribution for PoE Powered Devices (PD) and system support over 130Watts
- IEEE 802.3af Compliance, Power over Ethernet Mid-Span mode
- Remote power feeding up to 100 meters for IEEE802.3 10Base-T and IEEE 802.3u 100Base-TX standard
- PD Auto Detection and power consumption level classification
- Supports IEEE 802.3af non-compliant devices and PD manual detection
- Supports manual control of port detection and classification
- Supports system calibration
- Supports Auto MDI/MDIX (Auto Crossover)
- High safety short circuit protection to prevent cable short
- Plug and Play feature for PD with Automatic port status refresh
- Legacy detection supported

Package Contents

Unpack the contents of the 8 Port Power over Ethernet Hub and verify them against the checklist below.

- 8 Port Power over Ethernet Hub
- RS-232 cable
- Power Cord
- User Guide
- Software Utility CD-ROM



8 Port Power over Ethernet Hub



RS-232 Cable



Power Cord



User Guide



Software Utility CD-ROM

Figure 1-2. Package Contents

Compare the contents of your 8 Port Power over Ethernet Hub package with the standard checklist above. If any item is missing or damaged, please contact your local dealer for service.

2. Hardware Description

This Section describes the hardware of the 8 Port Power over Ethernet Hub and gives a physical and functional overview.

Physical Dimensions

The 8 Port Power over Ethernet Hub's physical dimensions are: 440mm x 224mm x 44mm (L x W x H)

Front Panel

The Front Panel of the 8 Port PoE Hub consists of Eight (8) RJ-45 Ethernet ports for DATA IN and Eight (8) RJ-45 Ethernet ports for DATA OUT and POWER OUT, LED indicators, and one console port. When the Power over Ethernet Hub connects with a powered device, please make sure the DATA IN, DATA OUT and POWER OUT ports are connected correctly. Otherwise, the PoE function will not work.



Figure 2-1. The Front panel of 8 Port Power over Ethernet Hub

LED Indicators

The LED Indicators give real-time information of systematic operation status. The following table provides descriptions of LED status.

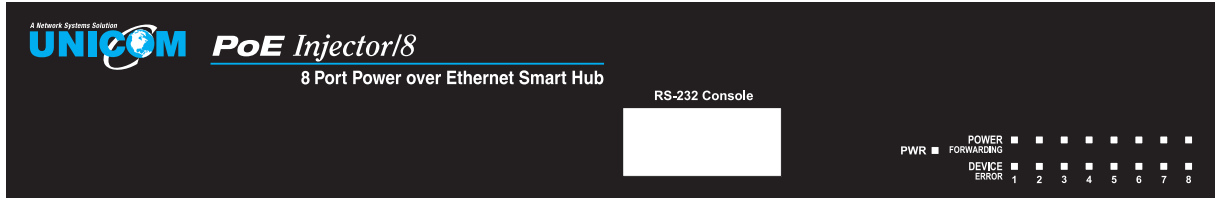


Figure 2-2. LED indicators

LED	Status	Color	Description
Power	On	Green	Power On
	Off	--	Power is not connected
Power Forwarding	On	Green	Power is transmitting to the device
	Off	--	Power is not transmitting to the device
Power Off	On	Orange	Device is overloaded or shorted
	Blinking	Orange	It is detecting the Powered Device
	Off	--	No device attached

Table 2-1. The Description of LED Indicators

Rear Panel

The 3-pronged power plug, two (2) Ventilation fans, and on/off switch are located on the rear panel of the 8 Port Power over Ethernet Hub. The device will work with AC power in the range 100-240V AC, 50-60Hz.



Figure 2-3. Rear panel of the 8 Port Power over Ethernet Hub

Power On

Connect the power cord to the power socket on the rear panel of the Switch. The other side of the power cord connects to the power outlet. The switch's internal power supply works with voltage ranges of AC in the 100-240VAC, frequency 50~60Hz. Check the power indicator on the front panel to see if power is properly supplied.

Network Application

The Power over Ethernet Hub can provide power to Powered Devices that follow the IEEE 802.3af standard. It can solve the problems arising from position limitations. With PoE, a network device can be installed in a more appropriate position for better performance without regard to having a power outlet nearby. The following figure is an example of a typical network application for the Power over Ethernet Hub.

[Note] When the Power over Ethernet Hub connects with the Cisco Aironet 350, please use a Crossover cable for connection. For other brand's devices, please use a non-crossover cable.

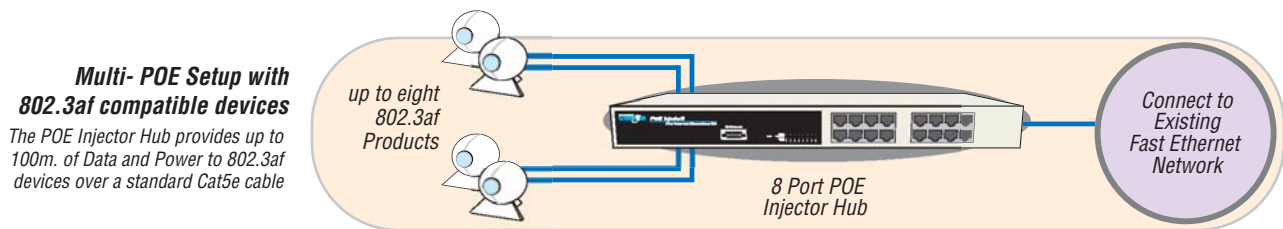


Figure 2-3. Power over Ethernet Hub network application

3. Software Utility Installation

Before you start remotely configuring your Powered Device, please install the software utility. Through the software utility, you can easily view and control the PD parameter information. The software utility provides a GUI interface. The software utility supports the Windows environment -- Windows 98, 2000, and XP. Please follow the steps below to install the software utility.

1. Insert the software utility CD-ROM into your CD-ROM drive and change directory to "8-port PSE Utility"..
2. Run the "setup.exe".
3. You will see the installation screen display.
4. Then, click the "OK" button to go to the next step. See Figure 3-1.

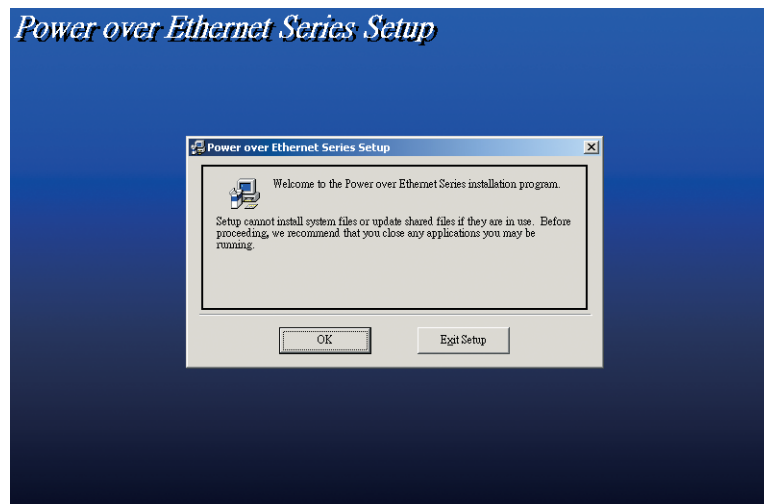



Figure 3-1.

5. Click the  button to start installation. See Figure 3-2.

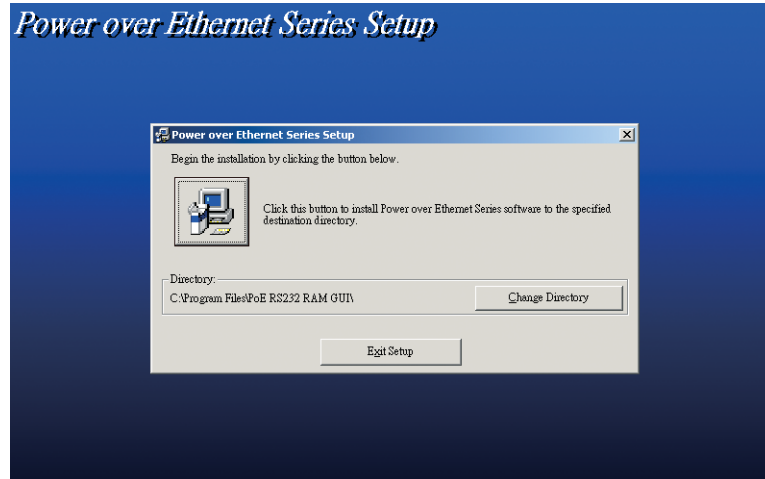


Figure 3-2.

6. When installation finishes, click "OK" button to finish. See Figure 3-3.

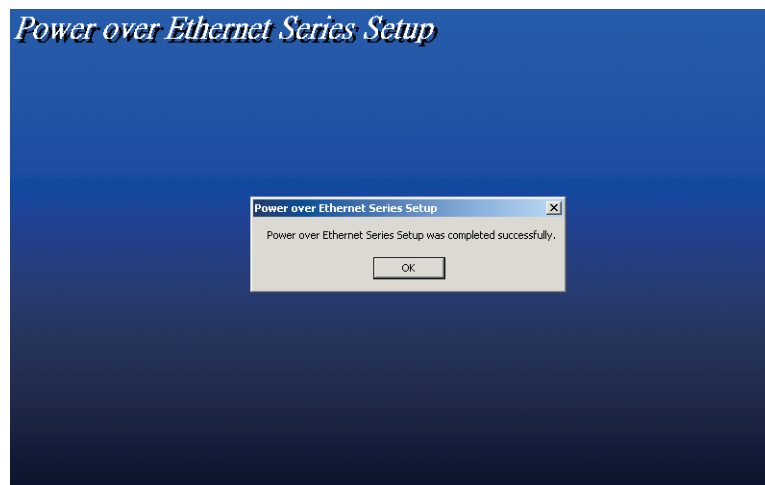


Figure 3-3.

7. To run the software utility, go to "Star" ➡ "Program" ➡ "POE800S v2.0".
8. If you want to remove the software utility, go to "Star" ➡ "Control Panel" ➡ "Remove/ Add application" ➡ "POE800S v2.0".

4. GUI Management

Connecting to PoE

First, connect the PoE to your computer through the console port. Next, connect the PD (Powered Device) to a DATA OUT port of PoE hub using an RJ-45 cable. Run the software utility and select the COM port form Serial Link Setup function.

[Note] Do not use shielded cable to connect the powered device with the POE hub.

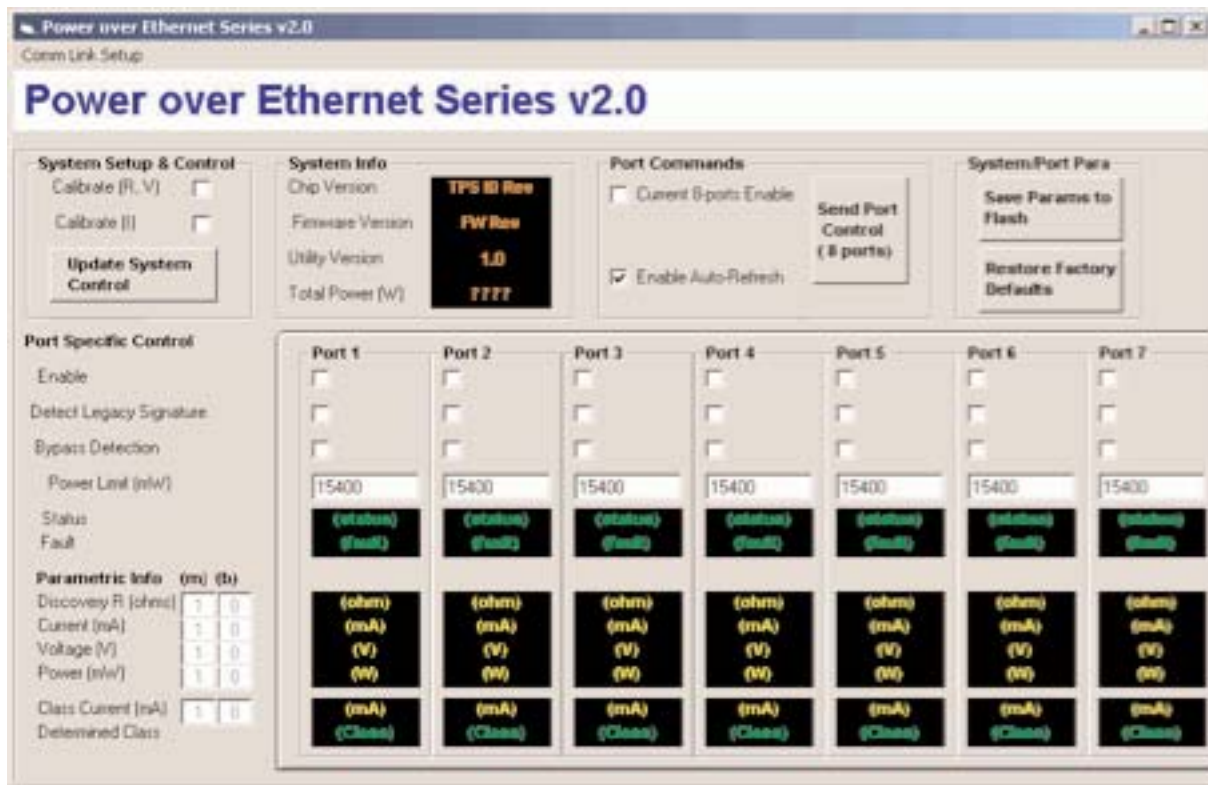


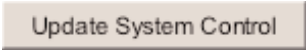
Figure 4-1. The GUI management interface

The management GUI is divided into six parts:

- **System Setup & Control:** Setup of main system level parameters for the PoE system.
- **System Information:** Displays hardware version, firmware version, and utility version.
- **Port Commands:** Enables ports and auto refresh function.

- **System/Port Para:** Saves the configuration to flash and resets the configuration to default value.
- **Port Specific Control:** displays each port's specific function controls and related parameters.
- **Parametric Information:** port parameters information display.

System Setup & Control

- **Calibrate System:** Calibrate (R, V): To calibrate Resistance and Voltage. The calibration is to correct for the hardware anomalies in the measurement components in the system. The calibration greatly improves accuracy of the measurement.
- Calibrate (I): To calibrate Current. The calibration is to correct for the hardware anomalies in the measurement components in the system. The calibration greatly improves accuracy of the measurement.
- : After calibrate action, click this button to send just this section information to system.

[Note] Voltage calibration always precedes Current calibration.

System Information

- **Chip Version:** displays the system chipset version and revision information.
- **Firmware Version:** displays the system firmware version.
- **Utility Version:** displays the system utility version
- **Total Port Power (W):** totals power output that system provided to all PD ports.

Port Commands

- **Current 8-ports Enable:** Enables the ports.
- **Enable Auto-Refresh:** This allows the system to automatically refresh the system parameters. The system Auto-Refreshes every 2 seconds..
- **Send Port Control(8 ports)** Once you have configured the port parameters, click this button to send the new port configuration to all ports.

System/Port Para

- **Save Params to Flash** Click to save the configuration to the system flash.
- **Restore Factory Defaults** Sets the configuration back to the factory default and resets the system.

Port Specific Control

- **Enable:** Enables the selected port
- **Detect Legacy Signature:** System will attempt to detect certain Legacy devices, in addition to IEEE compliant devices. **Especially support Cisco non-802.3af standard device.& Control section for non- compliant devices. PLEASE CLARIFY!**

[Note] Please refer to Appendix for Cisco non-802.3af standard PD pin assignment.

- **Bypass Detection:** This bypasses the detection function. Normally the system will try to detect the 25kΩ resistor in an 802.3af compliant PD device. If the PD doesn't follow the IEEE 802.3af standard, **WHAT HAPPENS IF THE HUB DOESN'T DETECT THE RESISTOR?** Enabling this option, the hub skips the resistor detection on the device and directly transmits the power to it. This function can be coordinated with the "PD discover R (ohms)" function in the System Setup and Control section for non-standard compliant PD devices.

[Note] After setting the Bypass Detection function, unplug and replug the PD device

- **Power Limit (mW):** This represents the power limit per port in units of milliwatts. This power limit is also used by the Power Management algorithm in determining which ports should be powered up and powered down during the execution of the algorithm.
- **Status:** Displays the PD's current operation mode status.
 - *V sample or I sample:* means "Current sample or Voltage sample". When a device is detected and current is supplied, the POE hub will regularly detect and sample current or voltage to ensure that the PD is still present on that port. This is a IEEE 802.3af operating procedure.
 - *R detect:* When the port doesn't connect with a PD, the POE hub will poll each port and detect the resistor.
- **Fault Status:** displays the PD error status message. There are three error status messages as follows:
 - Null: there is no PD connected or the connected PD status is normal.
 - OL: "OL" is overload. This means the current is over the PD current classification limit of (475mA @ 48V DC) and that the situation happens over 50msec.

Parametric Information

- **Discovery R (ohms):** Displays resistance value.
- **Port Current (mA):** Displays current value.
- **Port Voltage (V):** Displays voltage value.
- **Port Power (W):** Displays watt value.
- **Class Current (mA):** Displays class current value. When you enable the "Bypass classification" function, the class current value will not show here. Please refer to the following table for various output values.

Class	Usage	Maximum power levels at output at PSE
0	Default	15.4 Watts
1	Optional	4.0 Watts
2	Optional	7.0 Watts
3	Optional	15.4 Watts
4	Reserved for future use	Treat as class 0

- **Determined Class:** Displays power class. When you enable the "Bypass classification" function, the class value will not show here.

5. Technical Specification

Standard	<ul style="list-style-type: none"> • IEEE802.3af Power over Ethernet
Connector	<ul style="list-style-type: none"> • Data in: 8 x RJ-45, Data pin 1,2,3,6 • Data and Power Out: 8 x RJ-45. Data pin 1,2,3,6 • Power pin (V+): 4,5, Power pin (V-): 7,8
Power Output	<ul style="list-style-type: none"> • Per port DC: 48V@350mA (Maximum) • Per system: 125Watts (maximum)
Management	<ul style="list-style-type: none"> • Microsoft Windows based application for power management
Power over Ethernet Mode	<ul style="list-style-type: none"> • Mid-Span
Management Utility	<ul style="list-style-type: none"> • Supports Microsoft Windows based application for power management • Plug-and-play for standard Powered Devices
System Setup and Control	<ul style="list-style-type: none"> • System calibrate, AC power line frequency rejection, IEEE 802.3af resistor range adjust
Port Configuration Control	<ul style="list-style-type: none"> • Port Disable / Enable • PD detect control (enable/disable) • Classification detect control (enable/disable)
Legacy Detection	<ul style="list-style-type: none"> • Supports IEEE802.3af Pre-standard PD detection.
Fault Status Detect	<ul style="list-style-type: none"> • Null: No PD present • Overload: Current support over 475mA @ DC 48V and over 50 milliseconds • DR fail: PD discovery resistor is not in the limited range
Mode Status	<ul style="list-style-type: none"> • System detects status: I- sample, V-sample, and R-detection
Parametric information	<ul style="list-style-type: none"> • Shows current PD parameters that include Discover resistor detected value, current, voltage, power consumption, classification current and determined class

5. Technical Specification (continued)

LED	<ul style="list-style-type: none"> • System: power • Per port: power forwarding, power off
Power	<ul style="list-style-type: none"> • AC 100~240V, 50/60 Hz, 130 Watts, IEC power socket with fuse and power switch
Power Consumption	<ul style="list-style-type: none"> • 130 Watts (maximum)
Cooling	<ul style="list-style-type: none"> • 2 x DC fan
Operating Environment	<ul style="list-style-type: none"> • 0°C~45°C, 90%RH
Storage Temperature	<ul style="list-style-type: none"> • -40°C~70°C, 95% RH
Humidity Temperature	<ul style="list-style-type: none"> • 10% ~ 90% (non-condensing)
Dimension	<ul style="list-style-type: none"> • 440mm x 224mm x 44mm (L x W x H)
EMI	<ul style="list-style-type: none"> • Compliance with FCC Class A, CE, UL, cUL
Safety	<ul style="list-style-type: none"> • Compliance with UL, cUL, CE/EN60950

6. Appendix

Console Port Pin Assignments

The female DB-9 serial port on the POE hub front panel is used to connect to the switch for out-of-band console configuration. The web interface configuration program can be accessed from PC running the system utility program. The pin assignments used to connect to the serial port are provided in the following tables.

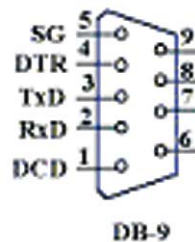


Figure 6-1. DB-9 Console Port Pin Numbers

• DB-9 Port Pin Assignments

EIA Circuit	CCITT Signal	Description	Switch's DB9 DTE Pin #	PC DB9 DTE Pin #
BB	104	RxD (Received Data)	2	2
BA	103	TxD (Transmitted Data)	3	3
AB	102	SGND (Signal Ground)	5	5

No other pins are used

- Console Port to 9-Pin DTE Port on PC

Switch's 9-Pin Serial Port	CCITT Signal PC's 9-Pin	DTE Port
2 RXD	<-----RXD-----	3 TxD
3 TXD	-----TXD----->	2 RxD
5 SGND	-----SGND-----	5 SGND

No other pins are used.

RJ-45 Pin Assignment of non-802.3af standard PD with Mid-Span POE HUB RJ-45 Pin assignment

- Pin out of Cisco non-802.3af standard PD

Pin	Signal
1	RX+
2	RX-
3	TX+
4	VCC-
5	VCC-
6	TX-
7	VCC+
8	VCC+

• Pin out of POE Mid-Span Hub

Pin	Signal / Name
1	RX+
2	RX-
3	TX+
4	VCC+
5	VCC+
6	TX-
7	VCC-
8	VCC-

Before you powered PD, please check the RJ-45 connector pin assignment follow IEEE802.3af standard, otherwise you may need change one of the RJ-45 connector pin assignment , which attached with the UTP cable. **PLEASE CLARIFY!**

Notes



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