

## User's Manual

**PL-501**

# *200Mbps Powerline Ethernet Bridge*



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

## **CE mark Warning**

The is a class B device, In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

## **WEEE**



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## **Revision**

User's Manual for PLANET 200Mbps Powerline Ethernet Bridge  
Model: PL-501

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# Chapter 1: Introduction

## 1.1 Overview

Thank you for purchasing PLANET 200M Powerline Ethernet Bridge. With Planet Powerline communication products, your power outlets are no longer to be viewed only as power receptacles but also as network connection point. The PL-501 is a Powerline to Ethernet Bridge with a RJ-45 Ethernet interface which directly connecting to your computer's network card. With multiple outlets in almost every room, PL-501 allows you to use your existing electrical wiring to give your entire household or Office access to your network connection without the clutter of messy wiring around the house and Office.

By using Planet's Powerline communication products, you will not need to spend time and money to installing Ethernet cabling to share network. It is simply by plugging the PL-501 into the wall anywhere in the house or office. The 128-Bit AES data encryption improves the security and reliability, to protect the data leaked by someone else. Customers will not need to worry about the data will be leaked. The speed up to 200 Mbps data rate which provides customers the highest speed in Powerline data transferring. This product is cost-effective, easy to install, and do not require any new wired.

## 1.2 Features

- ◆ Direct attached to power outlets
- ◆ HomePlug AV compliant
- ◆ Connect 10/100 Ethernet network to Powerline network
- ◆ Up to 200Mbps data rate on the Powerline
- ◆ Up to 200 meters between Powerline nodes
- ◆ 128-Bit AES link Encryption for security and reliability
- ◆ Co-existence with HomePlug 1.0 and HomePlug 1.0 Turbo
- ◆ Built-in QoS
- ◆ Throughout the whole house, just use your power circuit to access the Internet or PC network
- ◆ Up to 64 bridged devices per station
- ◆ IGMP snooping for multicast to multiple uni-cast mapping

## 1.3 Specification

<b>Model</b>	<b>PL-501-EU/UK/US</b>
Standard	HomePlug AV compliant IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX
Ports	One RJ-45 port
Speed	UP to 200Mbps
Encryption	128-Bit AES encryption
Modulation	1024/256/64/16/8 QAM,QPSK, BPSK and ROBO
Forward Error Correction	Turbo Codes
Channel Access	TDMA, CSMA, CA
LED	Power, Ethernet, Data
Powerline Frequency Band	2MHz to 30MHz
Dimensions	55 x 90 x 34 mm(W x D x H)
Weight	108 g
Operating Temperature	0~40 degree C
Operating Relative Humidity	10~90% (non-condensing)
Storage Temperature	-10~70 degree C
Storage Relative Humidity	5~95% (non-condensing)
Power	100~240V AC, 50~60Hz

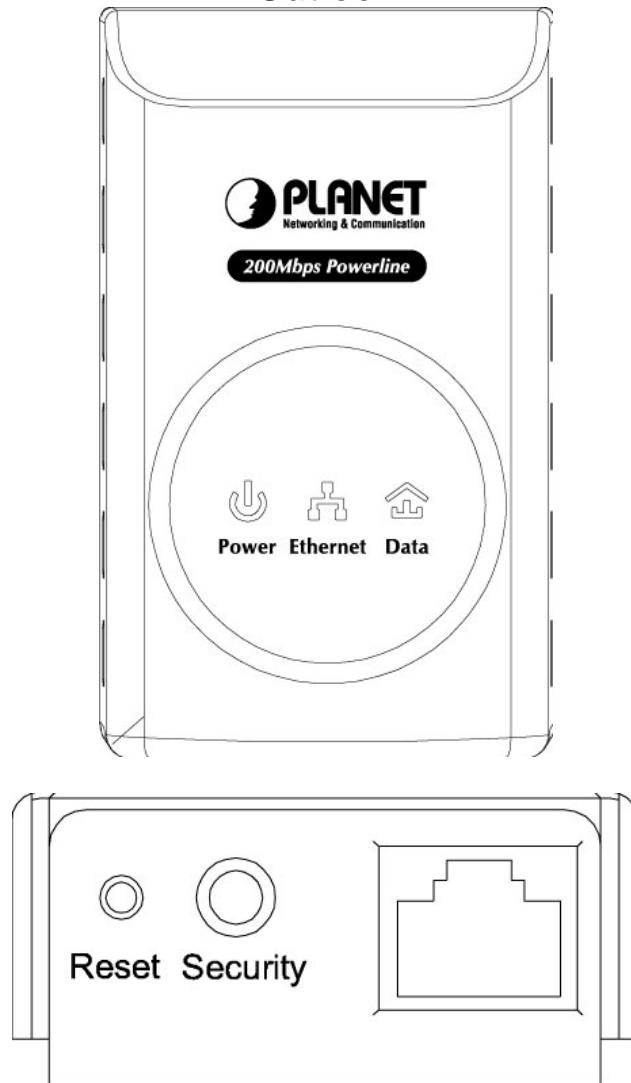
## 1.4 Package Contents

- PL-501 x 1 (PL-501 x 2 for PL-501-KIT)
- CD ROM x 1 (User's Manual, Quick Guide and Utility)
- RJ-45 Cable x 1 (RJ-45 Cable x 2 for PL-501-KIT)
- Quick Installation Guide x 1

## 1.5 System Requirements

Operating System	Windows 98SE, Windows 2000, Windows ME, Windows XP 32/64 bit, Windows Vista 32/ 64bit and Windows 7
CPU	Intel Pentium III or higher and clock rate faster than 2.0 GHz are recommended.
RAM	At least 128 MB
Screen Resolution	Any resolution
Free Disk Space	At least 20 MB
Network Interface	At least one fast Ethernet (100 Mbps) network interface card (NIC) and one Ethernet cord

## Outlook



### LED Definition

LED	Color	Behavior	Description
Power	Green	On	Power is on
	Green	Blink	<ul style="list-style-type: none"> <li>● System enters the power save mode.</li> <li>● System is resetting.</li> <li>● System is in the process of security setup.</li> </ul>
	-	Off	Power is off.
Ethernet	Green	On	The device is connecting to other devices via the Ethernet interface but not communicating with them.
	Green	Blink	The device is receiving or transmitting data via the Ethernet interface.

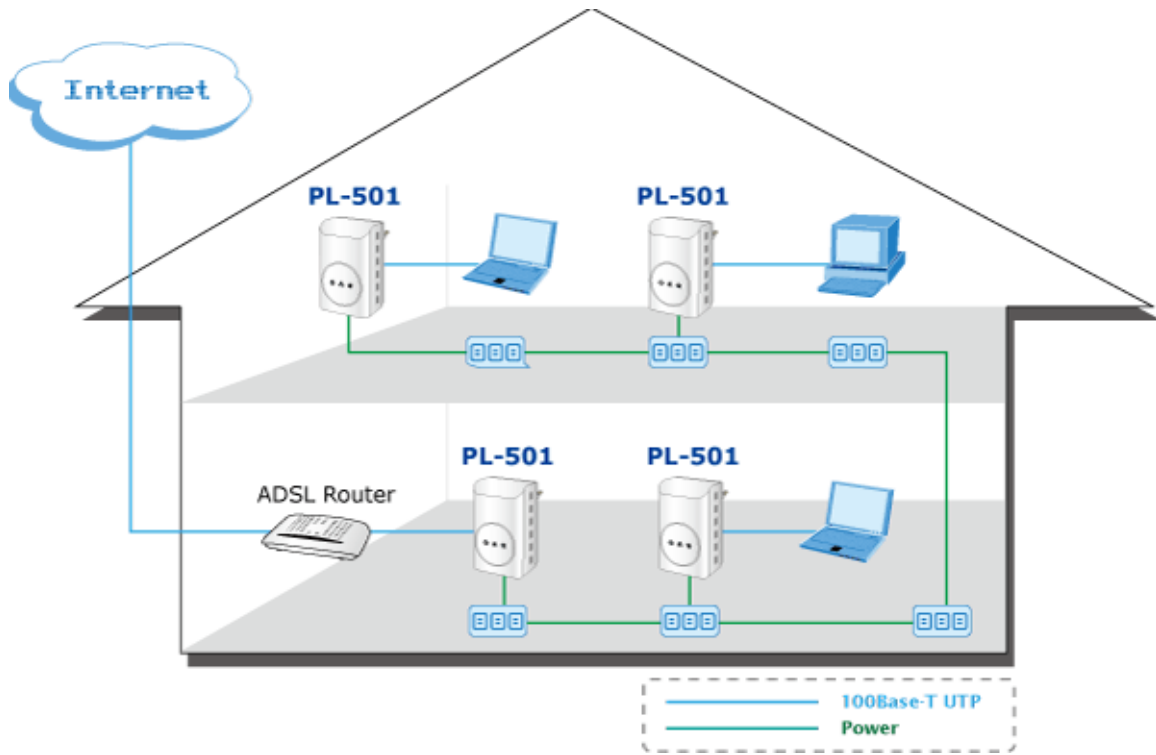
LED	Color	Behavior	Description
	-	Off	The device is not connecting to other devices via the Ethernet interface.
Data	Green/Red	On	The device has connected to the power line network. The <b>Data</b> LED color will vary according to the physical rate. <ul style="list-style-type: none"> <li>● Green: Link Rate &gt; 40 Mbps</li> <li>● Orange: 20 Mbps &lt; Link Rate &lt; 40 Mbps</li> <li>● Red: Link Rate &lt; 20 Mbps</li> </ul>
	Red	Blink	When the device is scanning other PLC devices, the <b>Data</b> indicator blink quickly.
	-	Off	The adapter has not found any other compatible power line devices that use the same encryption key.

### Button Definition

Button	Description	
Reset	Reset to factory default	
Security	Press security button during 1~3 seconds.	Join a another HomePlugAV network
	Press security button more than 10 seconds	Set its security to random value



## 1.6 Wire Diagram



# Chapter 2: Installing

## 2.1 Overview

The installation of 200M Ethernet Bridge will only take minutes. No need to set up long wires through out the house, just simply install the utility, and physically plug the unit into the wall outlet, then to connect RJ-45 to the computer. Users can select to adjust its security functions and the platform of the network after the installation. For further assistance, please read our Frequently Asked Questions section in our Web site.

## 2.2 Running the InstallShield Wizard

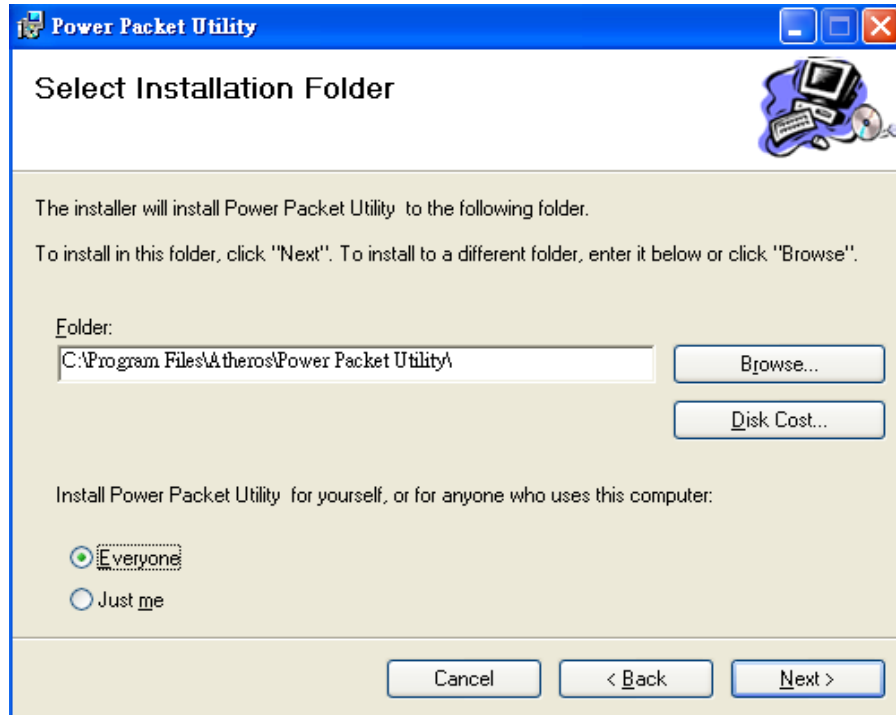
Please verify that no other Powerline Management Utilities are installed before installing this product. If other utilities were installed, uninstall them and restart before installing this software.

To install, insert the utility CD into the computer's CD-ROM drive. The main page shall pop up, then to press the link to install the software. Alternatively this can also be done manually by double clicking the setup.exe file on the CD.

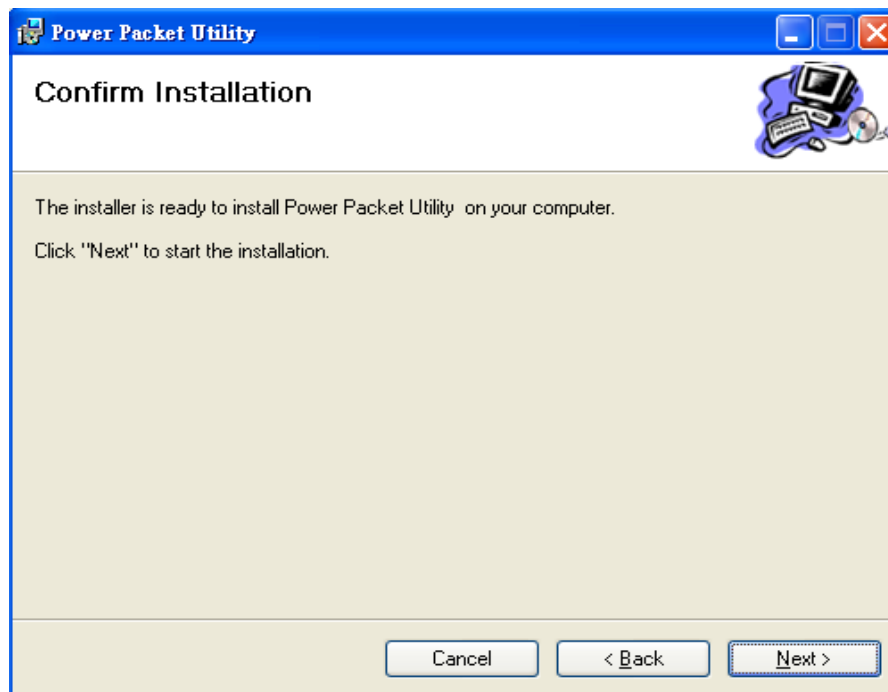
Once the software is loaded, it will display a dialog as following, and please click on '**Next**' to continue the installation.



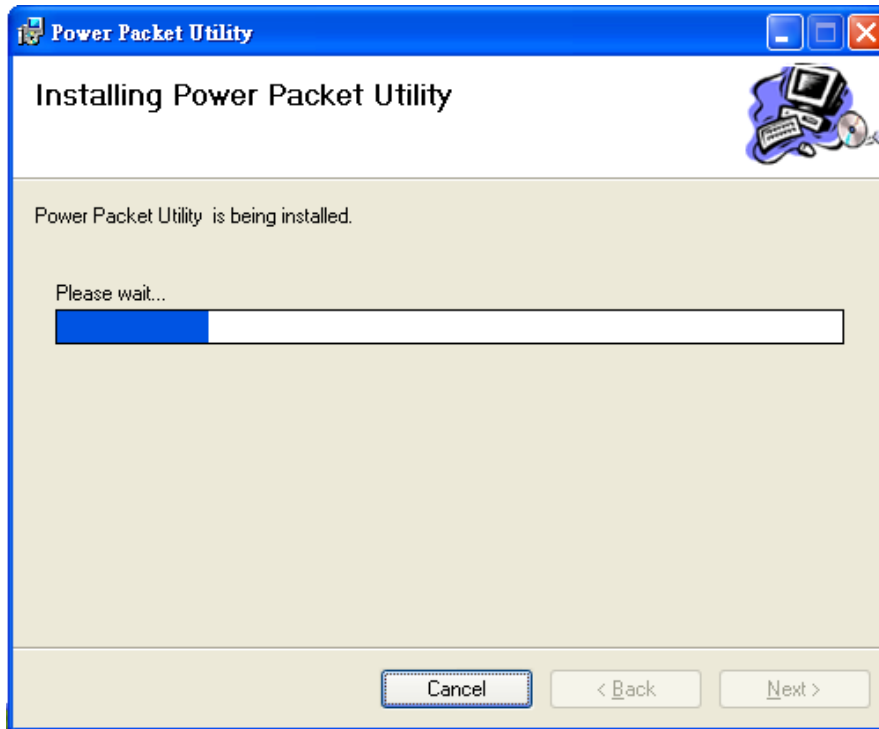
This section allows you to change the default directory where the program is installed. Or go **'Back'**. If you don't want to change it, click on **Next** to continue the installation.



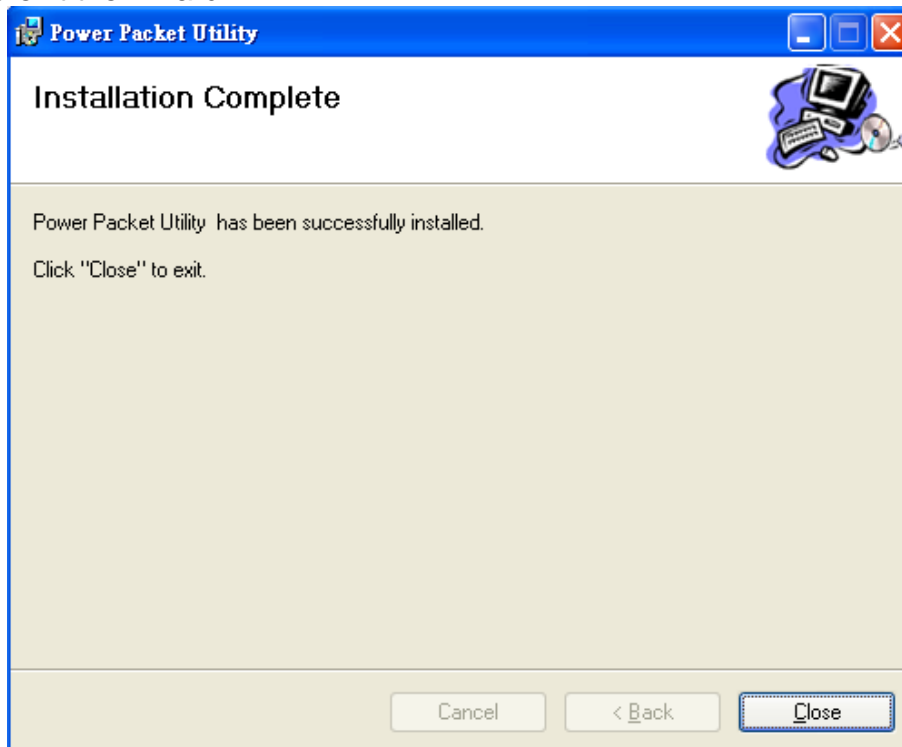
Please click on **'Next'** to confirm the installation.



Powerline Utility is being installed, and please waits for installation.



This screen shows that the installation was completed successfully. Click on **Close** to exit the wizard.





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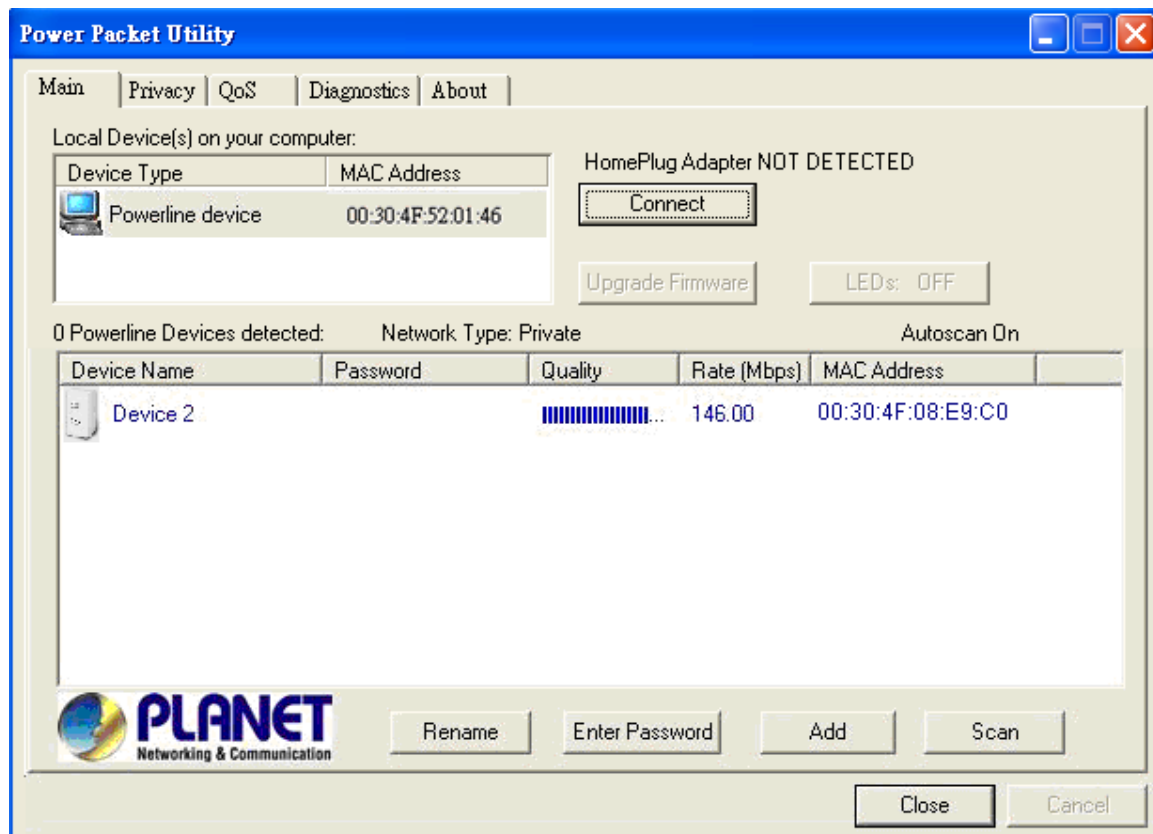
If you do not see ANY unit in the device status but the Powerline device does exist, try to unplug all devices and plug them back.

**Note**

Meanwhile, please make sure the cable is the right type and working correctly. If all seems to be correct, and you still receive nothing in the **Device** window, try rebooting your computer.

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■ **Part 2: Detect the Network Powerline device**



The Main tab shows all the other Powerline units on your home network. It will represent them by MAC Address, and will also show the available bandwidth to each unit (Units farther away from another Powerline device might have a lower Data Rate). If you add or remove units from your home network, click the **“Scan”** button to re-scan the network, and refresh with any changes.

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**Note**

Only units with the same **Network Password** will be shown, (Password case sensitive).

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**Note**

If a unit shows MAC Address of all 0's, this unit might not have a solid connection, or might not connect at all.

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 **Note**

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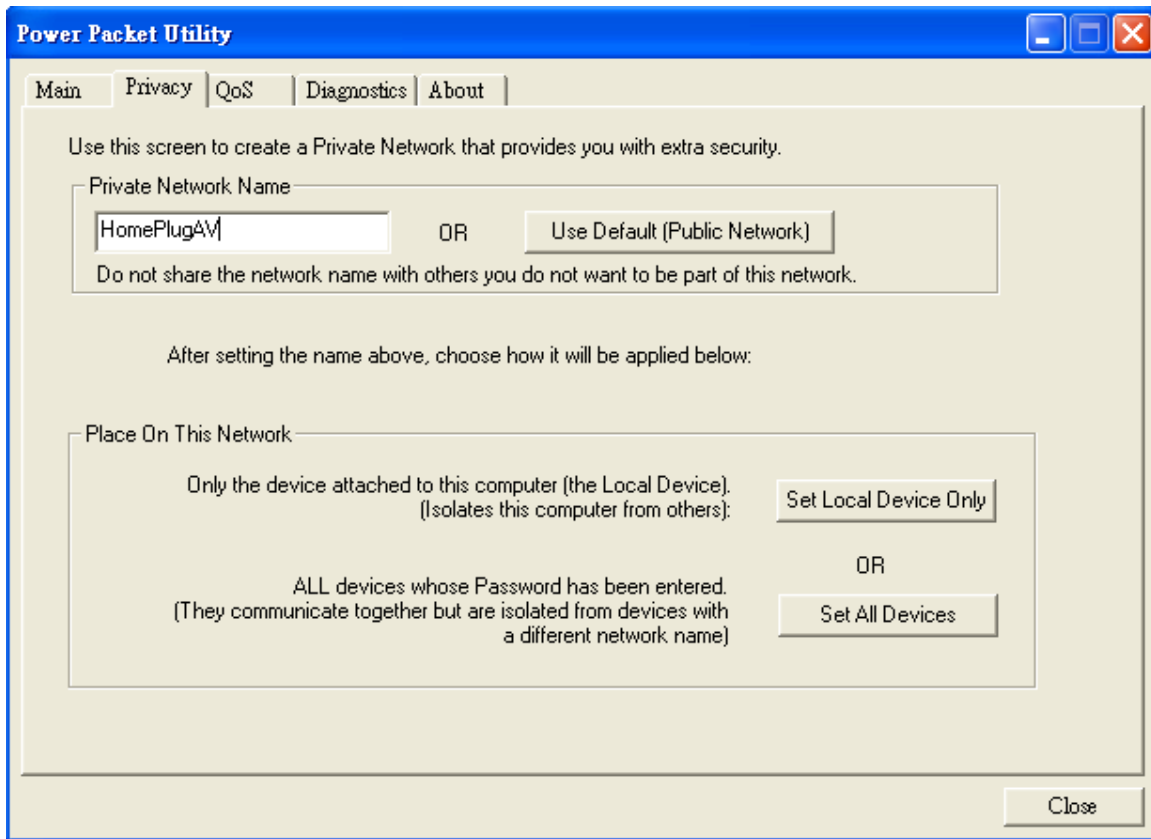
If there are units in the home network, but nothing displays in this Network scan, try to unplug all devices, and plug them back (Only do this with the units that you do not view in the network screen, you don't have to do this with all units.)

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If the problem persists, try to move the unit closer to this current unit (adjacent plugs on the same wall socket is most preferable). If the problem still persists and that unit is still not shown on the network, then the unit might be defective, please contact technical support. Otherwise if you view the unit working, distance might be the only issue.

## 3.3 Privacy

### ■ Setting Up Security on a Local Powerline device



The **Privacy** tab will allow you to change the **Network Password** to the unit that is currently connected to this computer. This network password encrypts all data that is sent from this unit using 128-bit data encryption standard (AES).

#### Note

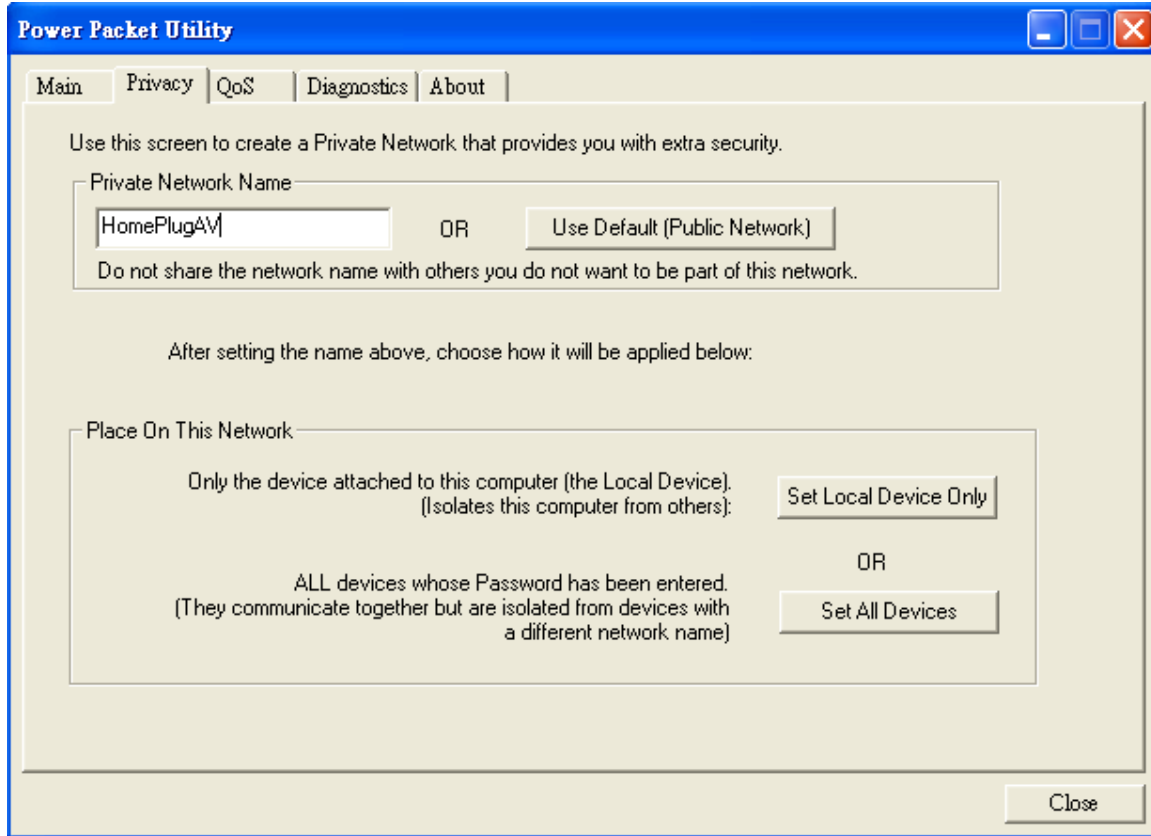
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Every unit on your home network **MUST** have the same **Network Password** for connectivity to be established throughout your home. The default network password is "**HomePlugAV**"

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## ■ Setting Up Security on a Network Powerline device



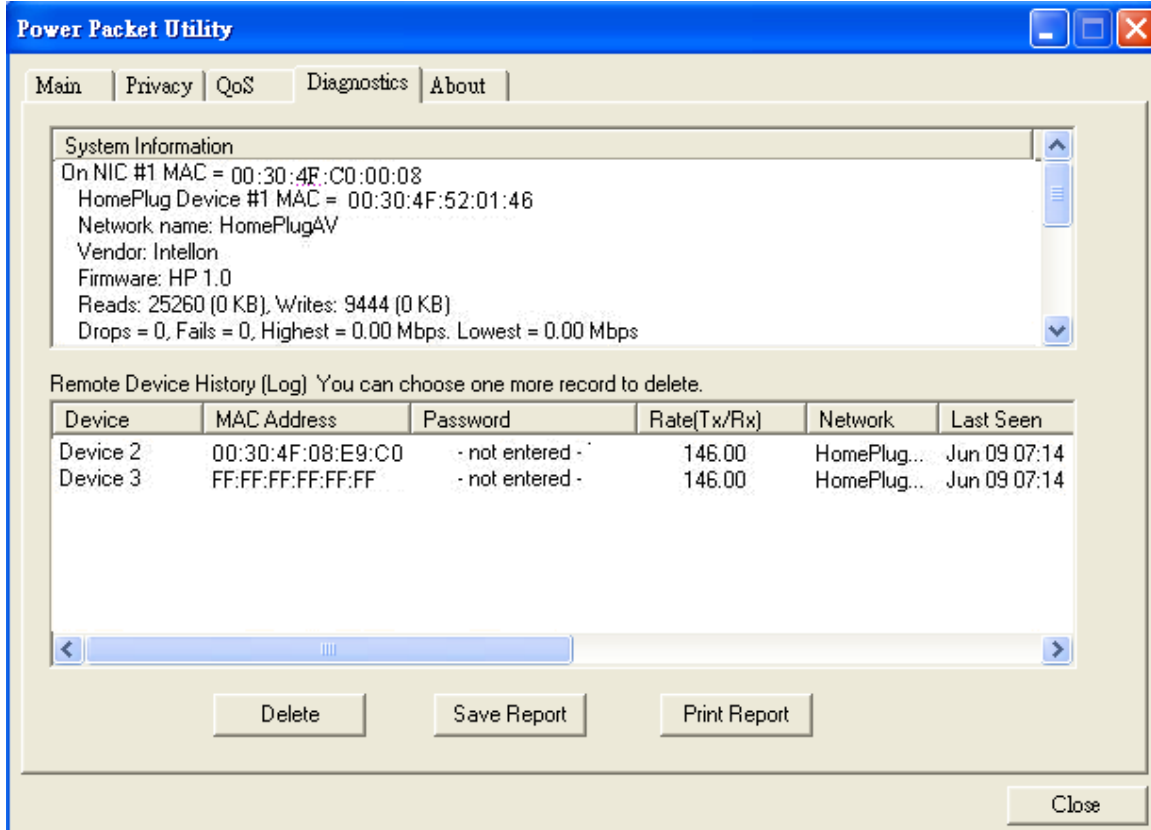
The **Privacy** Tab will allow users to use one primary computer to control the **Network Password** of all units on the home network.

You will have to go back to the **Main Tab** first then find the DEK (Device Encryption Key) Key located on the bottom of each device. Enter this Key into the **Device Password** area. Click **Add**. This Device Key will then appear in the bottom window. Add all the DEK Keys for each unit in your house. You can now go back to the **Main Tab** then change the password remotely from one computer. This will allow you to change the password from one computer, instead of changing the password individually.



### 3.4 Diagnostics

The Diagnostics screen shows system information and a history of all devices seen.



**Diagnostics Screen**

The upper panel shows technical data concerning software and hardware on the host computer used to communicate over HomePlug. It shall include the following:

- Operating System Type/Version
- Host Network Name
- User Name
- MAC Address of all NICs (network interface card)
- Chipset manufacturer name (Turbo Only devices)
- Firmware Version (Turbo Only devices)

The lower panel contains a history of all remote devices. Devices are shown here regardless of whether or not they are on the same logical network.

- Device Name
- MAC Address
- Password
- Rate(Tx/Rx)
- Network
- Last Seen
- Last Known Network
- Chipset manufacturer name (Turbo Only devices)
- Date device last scanned

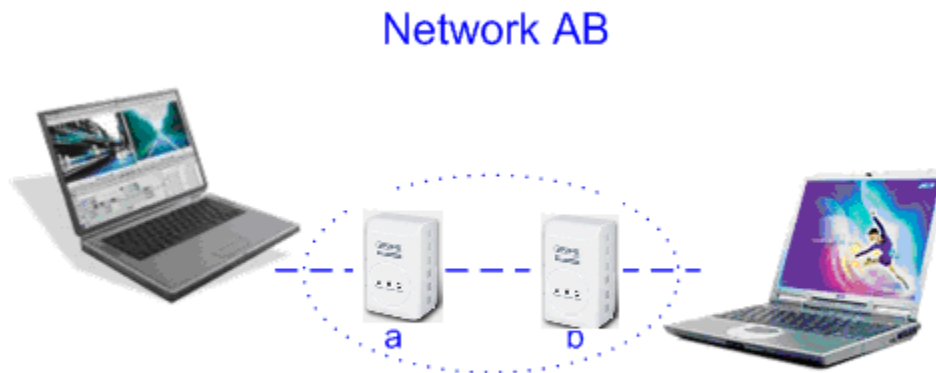
### 3.5 Security Button

This section describes how to use Security button for configuration in the following situations:

- **Establish a new security network (Network AB)**

The procedure is as follows:

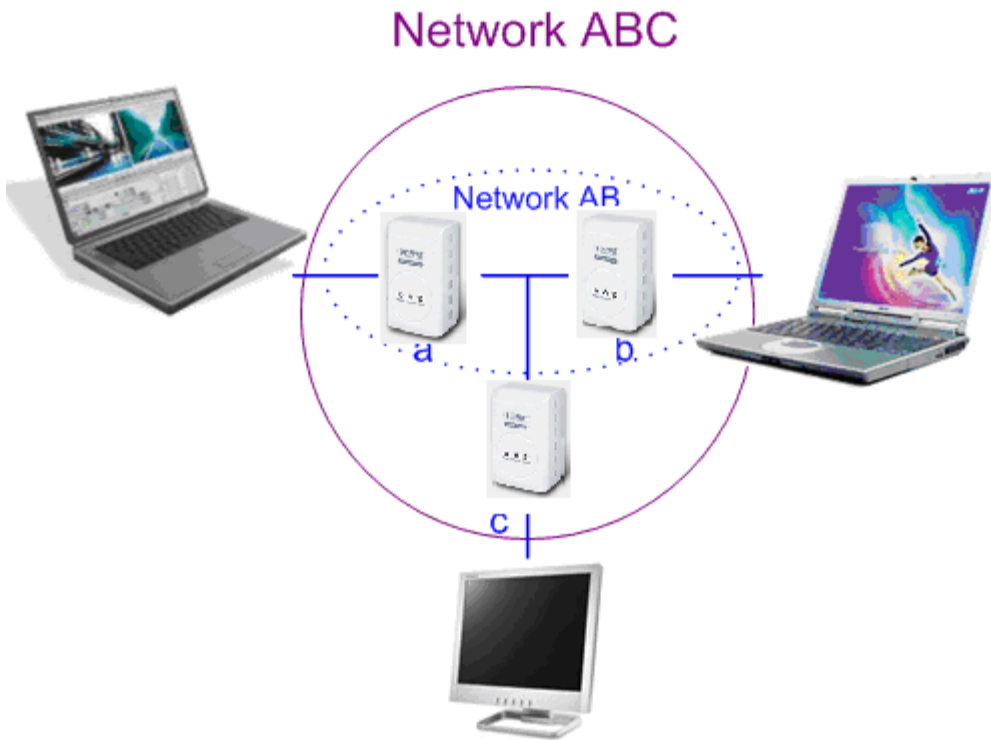
1. Press the security button on the Powerline (a) during 1~3 seconds.
2. Press the security button on the Powerline (b) during 1~3 seconds.
3. The PWR LEDs start to flash.
4. After a few seconds, the PWR and HP LEDs should be on. The connection of Network AB is success.



- **Use random value of security network (Network AB)**

1. Press the security button on Powerline (a) more than 10 seconds until all LEDs off.
2. Press the security button on Powerline (a) during 1~3 seconds.
3. Press the security button on Powerline (b) during 1~3 seconds.
4. The PWR LEDs start to flash.
5. After a few seconds, the PWR and HP LEDs should be on. The connection of Network AB is success.

- **Establish Powerline (c) to join an existing network (Network AB).**



The procedure is as follows:

1. Press the security button on the Powerline (a) or (b) during 1~3 seconds.
2. Press the security button on the Powerline (c) during 1~3 seconds.
3. The PWR LED starts to flash.
4. After a few seconds, the PWR and HP LEDs should be on. The configuration is successful.

## **3.6 Reset Button**

This section describes how to use Reset button, this button can be used to clear ALL data and restore ALL settings to the factory default values.

The procedure is as follows:

1. Hold the reset Button down while Power On for a few seconds.
2. Release the reset button.
3. All the LEDs will off, and then start again.
4. PL-501 is now using the factory default values.

## Appendix A Specifications

<b>Chipset</b>	Intellon INT6405
<b>Protocol</b>	Compliant with HomePlug AV 1.1 Co-existing with existing HomePlug 1.0
<b>System Support</b>	Windows 98SE, Windows 2000, Windows ME, Windows XP 32/64 bit, Windows Vista 32/ 64bit and Windows 7
<b>PLC Rate</b>	200 Mbps
<b>Modulation Band</b>	2MHz~30MHz
<b>Modulation Schemes</b>	Support QAM 1024/256/64/16/8, QPSK, BPSK and ROBO
<b>Encryption</b>	128 AES
<b>LED Indicators</b>	Power :Power on and off Ethernet: Ethernet link and activity Data: PLC link and activity
<b>Buttons</b>	Reset: Restore the default factory settings Security: Set the membership state
<b>Consumption</b>	2.5 W
<b>Operating Temperature</b>	0°C~40°C
<b>Storage Temperature</b>	-10°C~70°C
<b>Operating Humidity</b>	10%~90%, non-condensing
<b>Storage Humidity</b>	5%~95%, non-condensing
<b>Power Supply</b>	100 V~240 V AC, 50Hz~60Hz
<b>Certifications</b>	CE, UL, FCC Part 15 Class B
<b>Green Standard</b>	RoHS
<b>Physical Characteristics</b>	55 x 90 x 34 mm(W x D x H)
<b>Weight</b>	108 g