

User's Manual

500M Nano Powerline Ethernet Bridge

▶ **PL-702**



Copyright

Copyright (C) 2012 PLANET Technology Corp. All rights reserved.

The products and programs described in this User's Manual are licensed products of PLANET Technology, This User's Manual contains proprietary information protected by copyright, and this User's Manual and all accompanying hardware, software, and documentation are copyrighted.

No part of this User's Manual may be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form by any means by electronic or mechanical. Including photocopying, recording, or information storage and retrieval systems, for any purpose other than the purchaser's personal use, and without the prior express written permission of PLANET Technology.

Disclaimer

PLANET Technology does not warrant that the hardware will work properly in all environments and applications, and makes no warranty and representation, either implied or expressed, with respect to the quality, performance, merchantability, or fitness for a particular purpose.

PLANET has made every effort to ensure that this User's Manual is accurate; PLANET disclaims liability for any inaccuracies or omissions that may have occurred. Information in this User's Manual is subject to change without notice and does not represent a commitment on the part of PLANET. PLANET assumes no responsibility for any inaccuracies that may be contained in this User's Manual. PLANET makes no commitment to update or keep current the information in this User's Manual, and reserves the right to make improvements to this User's Manual and/or to the products described in this User's Manual, at any time without notice.

If you find information in this manual that is incorrect, misleading, or incomplete, we would appreciate your comments and suggestions.

FCC Compliance Statement

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 measures 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



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.

Trademarks

The PLANET logo is a trademark of PLANET Technology. This documentation may refer to numerous hardware and software products by their trade names. In most, if not all cases, these designations are claimed as trademarks or registered trademarks by their respective companies.

Revision

User's Manual for PLANET 500Mbps Nano Powerline Ethernet Bridge
Model: PL-702

Contents

CHAPTER 1: PRODUCT INTRODUCTION.....	5
1.1 PACKAGE CONTENTS	5
1.2 PRODUCT DESCRIPTION	5
1.3 PRODUCT FEATURES	9
1.4 PRODUCT SPECIFICATION.....	10
1.5 PHYSICAL DESCRIPTION.....	11
1.6 WIRE DIAGRAM	12
CHAPTER2: INITIAL UTILITY INSTALLING	13
2.1 OVERVIEW	13
2.2 RUNNING THE INSTALL SHIELD WIZARD	13
CHAPTER 3: CONFIGURATION.....	17
3.1 OVERVIEW	17
3.2 MAIN SCREEN	17
3.3 PRIVACY	20
3.4 DIAGNOSTICS	23
3.5 SECURITY BUTTON	24
3.6 RESET BUTTON	26
APPENDIX A TROUBLESHOOTING	27

Chapter 1: Product Introduction

1.1 Package Contents

- PL-702x 1 (PL-702 x 2 for PL-702-KIT)
- CD ROM x 1 (User's Manual, Quick Guide and Utility)
- RJ-45 Cable x 1 (RJ-45 Cable x 2 for PL-702-KIT)
- Quick Installation Guide x 1

Note

If any of the above items are missing, please contact your dealer immediately.

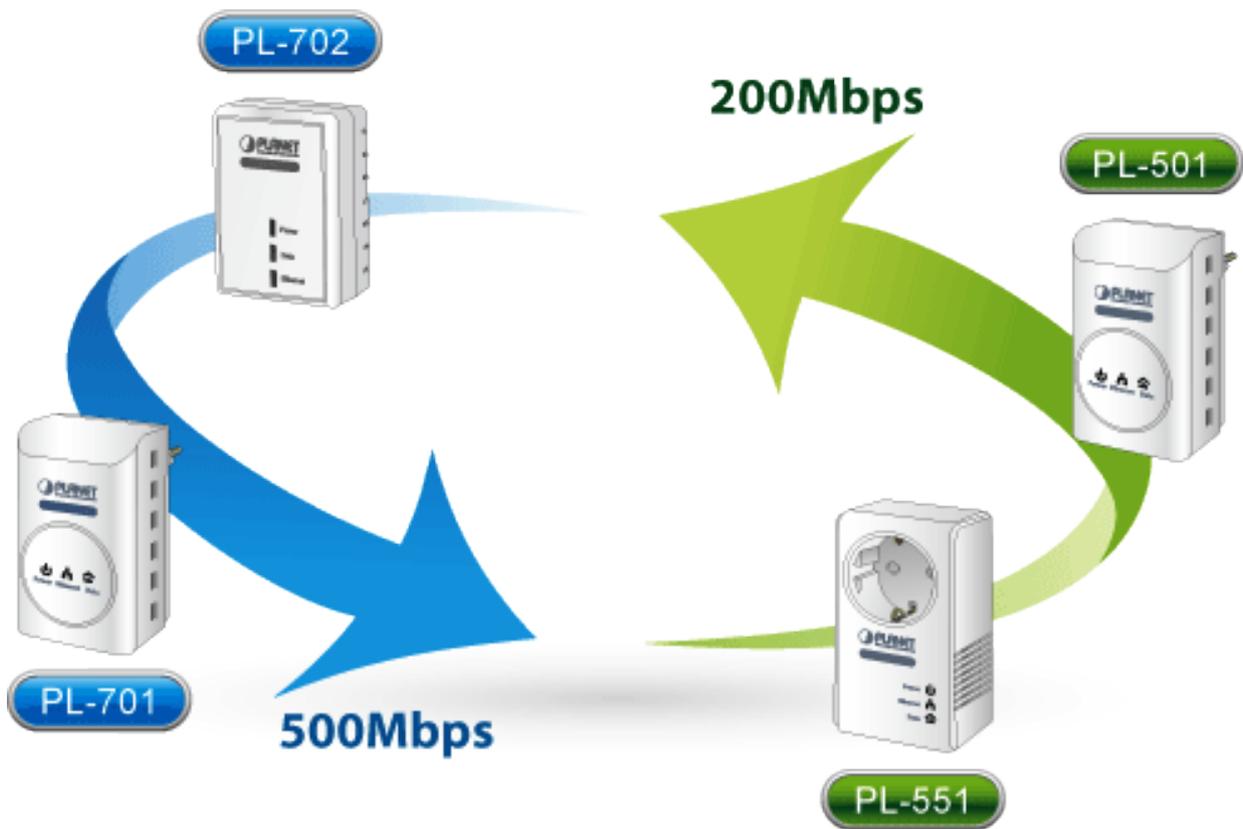
1.2 Product Description

High-Speed Ethernet Connection via Home's Power Supply

With HomePlug AV technology, the PLANET PL-702 Nano Powerline Adapter extends a high-speed Internet connection to any power outlet. With hassle-free plug and play installation and provides fast reliable wired speed of up to 500Mbps. Just plug a pair of powerline adapters into your house power outlets, and easily enjoy high definition video streaming and network transmission. No more tripping over tangled, messy wires running through your house, the PL-702 is an ideal solution to create a wall-to-wall home network.

Data Transfer Rate up to 500Mbps and 300 Meters

With advanced HomePlug AV technology, PL-702 provides users with stable, high-speed data transfer rates of up to 500Mbps on a line length of up to 300 meters. With a speed of up to 500Mbps, the PL-702 transmits multiple HD streams and even Full HD movies to every room, making it a great choice for an easy to build multimedia entertainment network.



The PLANET 500M Powerline Series are compatible with the PLANET 200M Powerline Series.

Secures the network connection with the touch of a button, no need to remember passwords

Simply by pushing the button on the PL-702, users can easily set up a hassle-free Powerline network within minutes, complete with 128-bit AES encryption for network security and data protection.

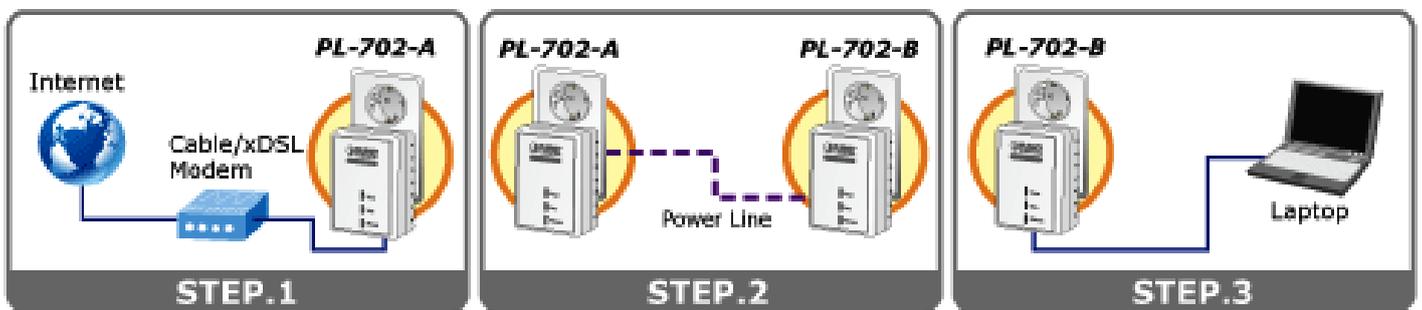


**128-bit AES Encryption for
Network Security and Data Protection**

Getting started is as easy at 1-2-3

1. Connect one Powerline Ethernet bridge to your ADSL or Cable modem's Ethernet port and plug it into the nearest power socket.
2. Plug in the second Powerline Ethernet Bridge in your room or office.
3. Connect the PC via the network cable to the Powerline Ethernet Bridge.

Quick & Easy Connection



Convenient nano-design blends in nicely with any surrounding

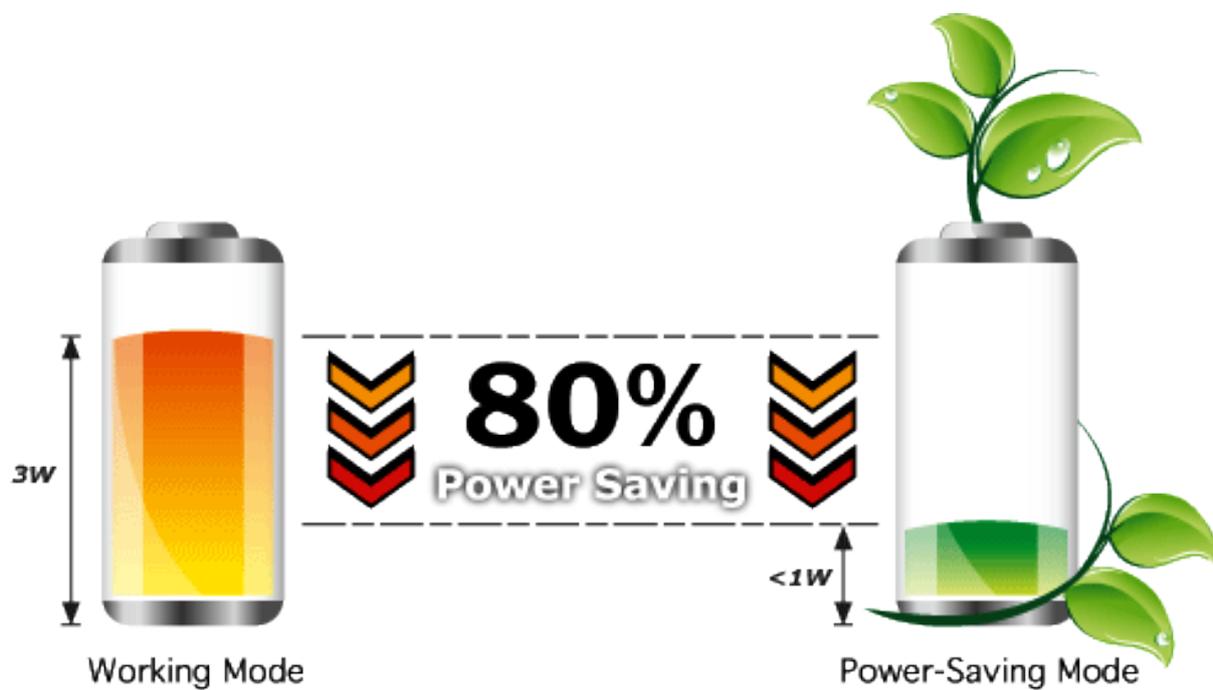
With a dimension of 65*47*24mm only, the PL-702 features a super compact and sleek design that blends in nicely with any



Reduce Power Consumption Up to 80%

The PL-702 consumes less power when comparing to the existing Powerline Ethernet Adapters. Moreover, when there is no Ethernet link, the PL-702 will enter the "Power-saving" mode that reduces energy wasting for over 80% when comparing to the adapters without this feature.

*Actual data will vary because of the network conditions and environmental factors.



1.3 Product Features

IEEE Compliant HomePlug AV & LAN

- Designed for high-definition multimedia streaming
- Data rate of up to 500Mbps and 300 Meters over existing electrical wiring
- IEEE 802.3, IEEE 802.3u, IEEE 1901 and HomePlug AV standard compliant
- Backwards compatible with HomePlug AV (200mbps) including PLANET Powerline products
- Equipped with 10/100Mbps RJ-45 Ports for LAN/ WAN, Auto MDI/ MDI-X supported

Secure Network Connection

- Converts any power socket into a wired connection point Plug-and-Play installation in minutes, no need to configure software
- Simple push-button setup with sophisticated data encryption 128-bit AES encryption for network protection enhancement

Easy Installation & Management

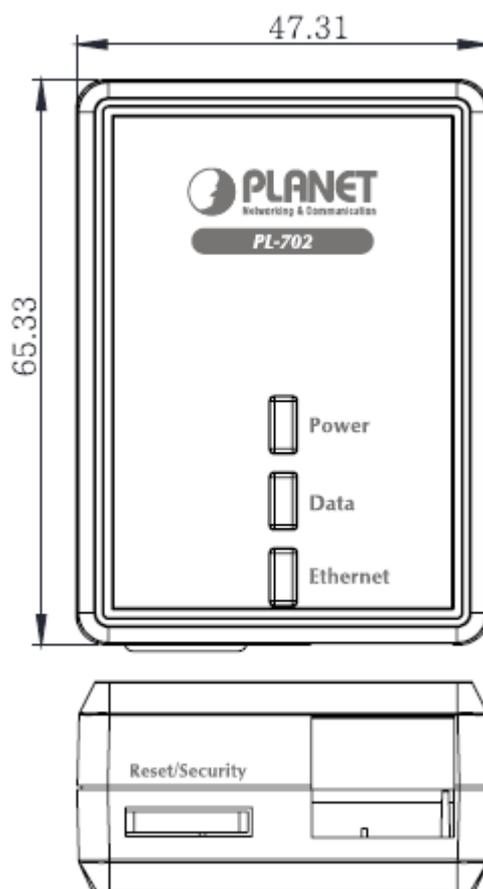
- Create a network connection throughout your home without the mess of cables
- Easy-to-use utility for powerline network management
- Up to 16 Powerline Network Adapters can communicate on a single network
- Green technology helps conserve energy when no data link is detected
- TDMA and priority-based CSMA/CA channel access schemes maximize efficiency and throughput

1.4 Product Specification

Model	PL-702
Hardware Specification	
Main Chipset	Qualcomm 7420
Network Interface	One RJ-45 port (10/100Base-T Ethernet) One 500Mbps power line port supporting co-existence with HomePlug 1.0 (14/85Mbps)
Cabling	Cat. 5 UTP cable
LED	Power: On / Off Ethernet: Red / Orange / Green / Off Data: Solid / Blinking / Off
Standards Conformance	
Computer Interface	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX
Standards	IEEE 1901 / HomePlug AV
Security	128-bit AES link encryption with key management
Data PHY Rate	500Mbps over Powerline and 10/100Mbps over Ethernet
Modulation Schemes	OFDM symbol modulation on line synchronization 1024/256/64/16/8 - QAM, QPSK, BPSK, ROBO carrier modulation
Frequency Band	2 ~ 50 Mhz
Additional Protocols	Mix of TDMA and CSMA/CA channel access scheme; CO device generates a periodic beacon carrier for channel access scheme
Operation Range	Estimated range of 300 meters in wall power lines
Software Utility	Device detect/diagnostic, Windows 98 SE, ME, 2000, NT, XP, Vista, and Window 7
Environment Specifications	
Operating	Temperature: 0~40 Degree C Relative Humidity:10~90% (non-condensing)
Storage	Temperature: -20~70 Degree C Relative Humidity: 5~95% (non-condensing)
Power Supply	100~240V AC, 50~60Hz inernal
Housing Dimension (W x D x H)	Plastic (65.3 x 47.3 x 24.5 mm)
Weight	57 g
Emission	FCC, CE

1.5 Physical Description

Front View



LED Definition

LED	Status	Description
Power	On	Steady on indicate the Powerline device connect to the power outlet
	Off	Power off
Ethernet	Green	Device in standby mode
	Off	Ethernet Link not active
Data	Green	Steady on indicates the RJ-45 port has correctly connected to the network card of your PC or the Ethernet network
	Off	This HomePlug Ethernet Bridge is not connected
	Red	Minimum connection indicates weak signal and slower network speed: less than 50Mbps
	Orange	Normal signal with standard network speed: 50-99Mbps
	Green	Excellent signal with optimal network speed: 100Mbps+

Button Definition

Button	Description	
Reset	Hold the Reset button until the status lights begin to flash	
Security	Press security button during 1~3 seconds.	Join a another HomePlug AV network
	Press security button more than 10 seconds	Set its security to random value

1.6 Wire Diagram

High-Speed Ethernet Connection via Home's Power Supply

PLANET provides several types of powerline products to meet various demands on Internet access sharing at home. As illustrated, users may connect an IP STB to the PL-702, or connect a PC to the PL-702 in the house freely. With the PLANET powerline products applied, no messy network cables and additional switches are required at home and users can entirely enjoy home broadband network from now on.



Chapter2: Initial Utility Installing

2.1 Overview

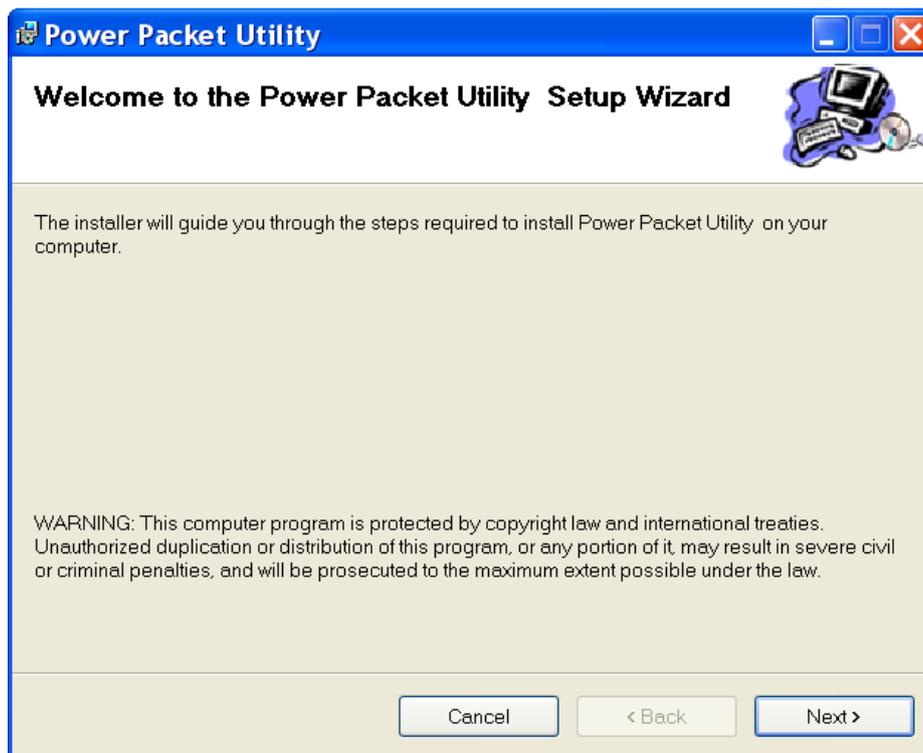
The installation of 500M Ethernet Bridge will only take minutes. No need to set up long wires through out the house, just simply install the utility, and physically plug the unit into the wall outlet, then to connect RJ-45 to the computer. Users can select to adjust its security functions and the platform of the network after the installation. For further assistance, please read our Frequently Asked Questions section in our Web site.

2.2 Running the Install Shield Wizard

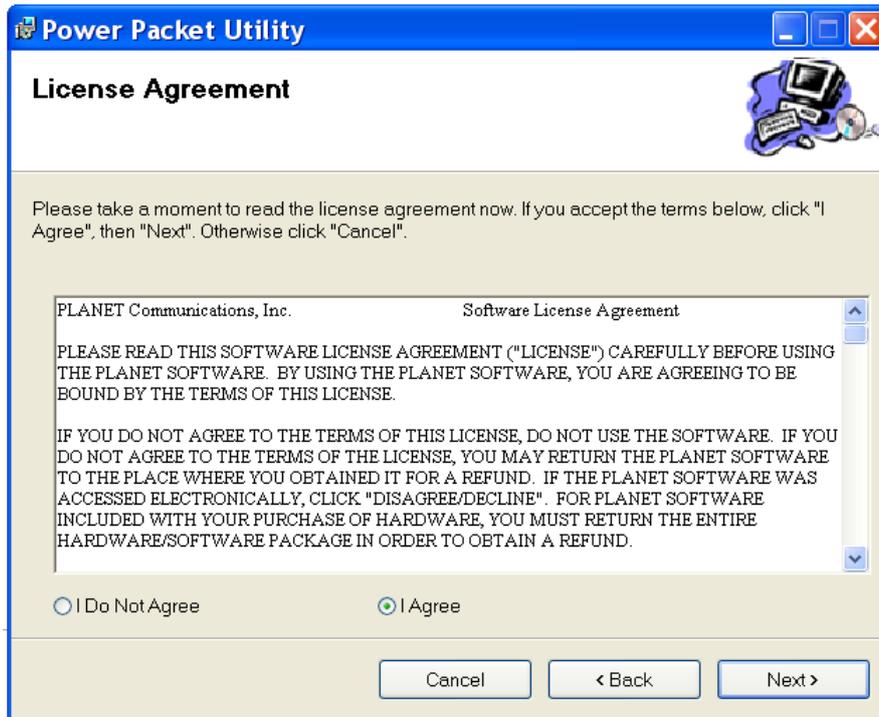
Please verify that no other Powerline Management Utilities are installed before installing this product. If other utilities were installed, uninstall them and restart before installing this software.

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.

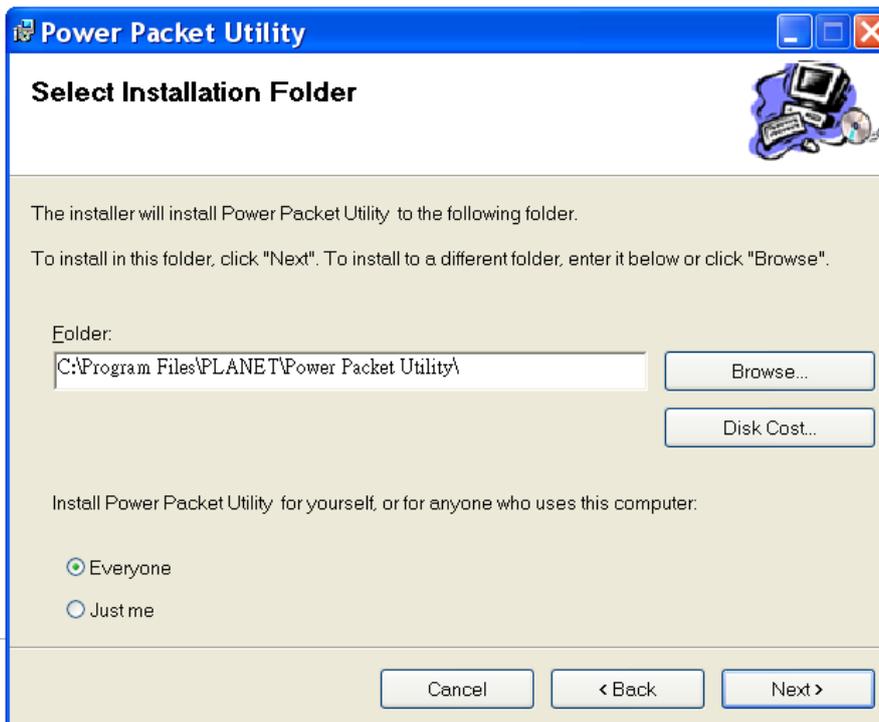
Once the software is loaded, it will display a dialog as following, and please click on ‘**Next**’ to continue the installation.



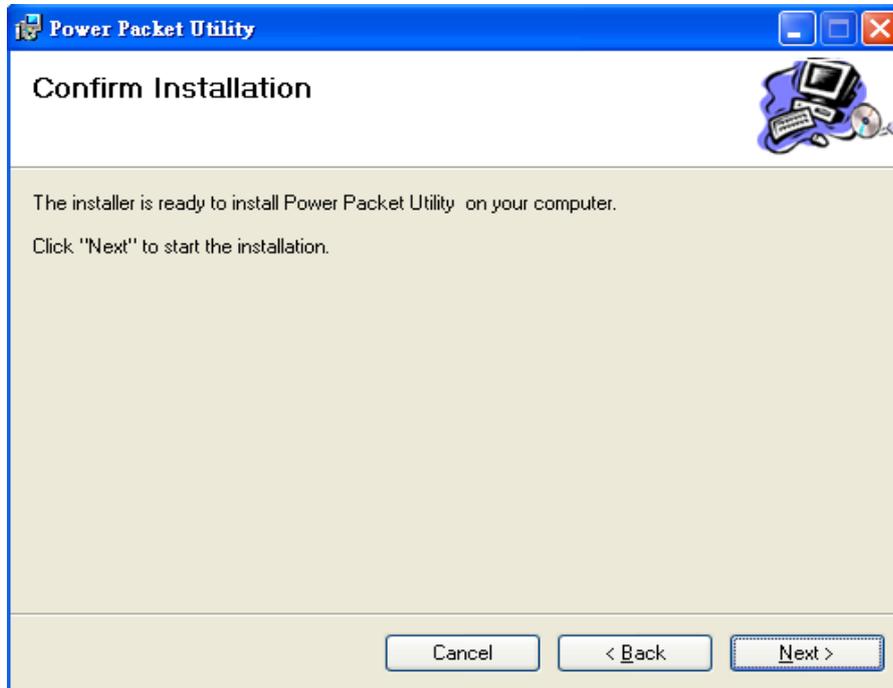
Please take a moment to read the license agreement now. If you accept the terms below, click "I Agree". Then "**Next**". Otherwise click "Cancel".



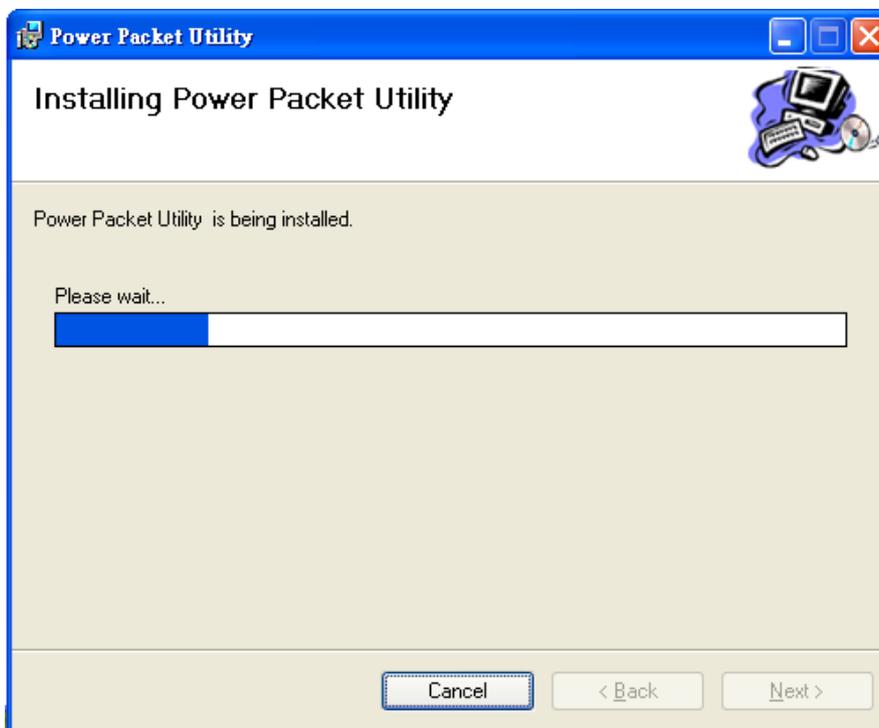
This section allows you to change the default directory where the program is installed. Or go '**Back**'. If you don't want to change it, click on **Next** to continue the installation.



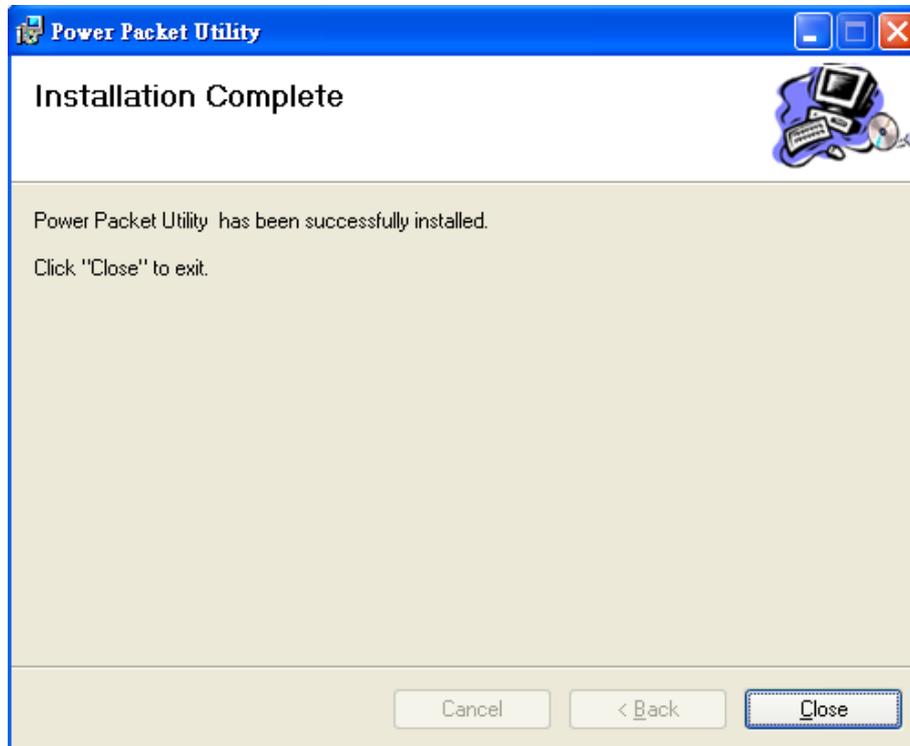
Please click on **'Next'** to confirm the installation.



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.



Chapter 3: Configuration

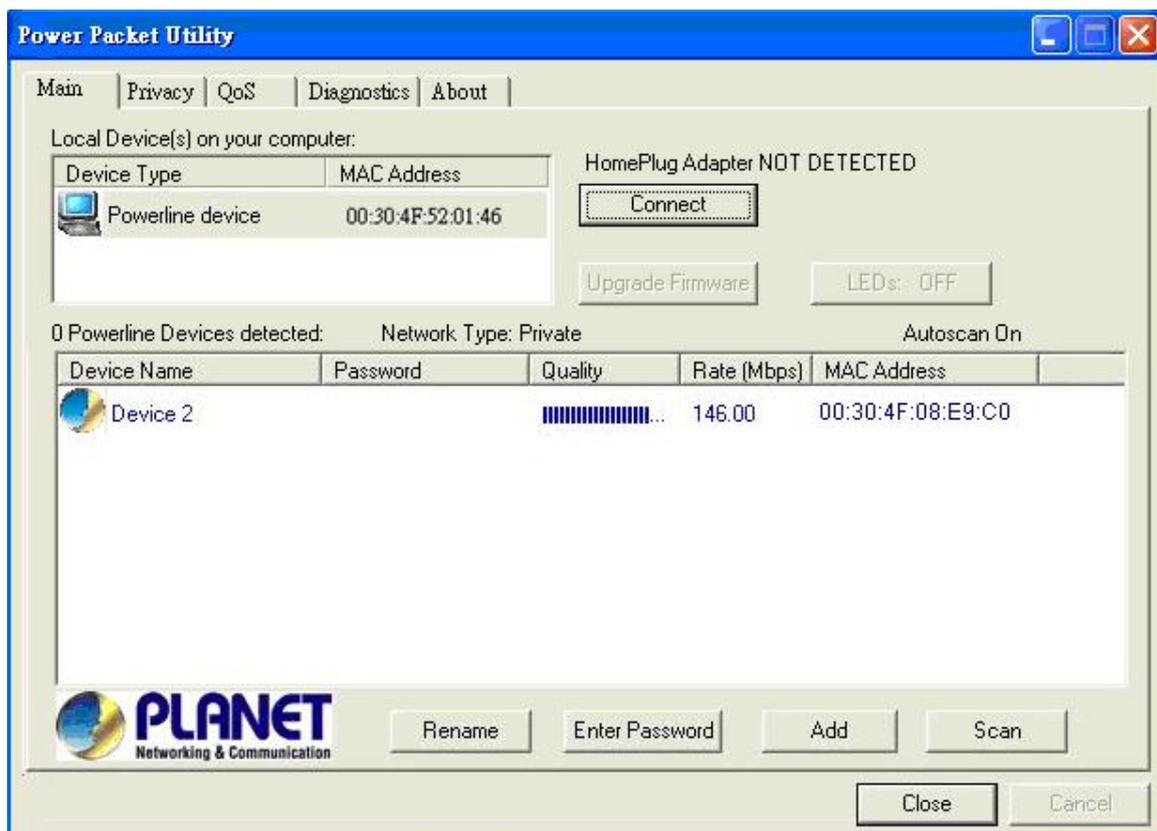
3.1 Overview

The PL-702 uses 128-bit AES encryption to block outside access. The key is set by using the Configuration Utility on the CD. By default, the protection is enabled, however, it is recommended to change the default network password. All your Powerline devices must use the same network password in order to be connected together.

3.2 Main Screen

■ Part 1: Scan a Local Powerline device

Double click the **PowerPacket Utility** icon on your desktop and utility screen will show up as below:



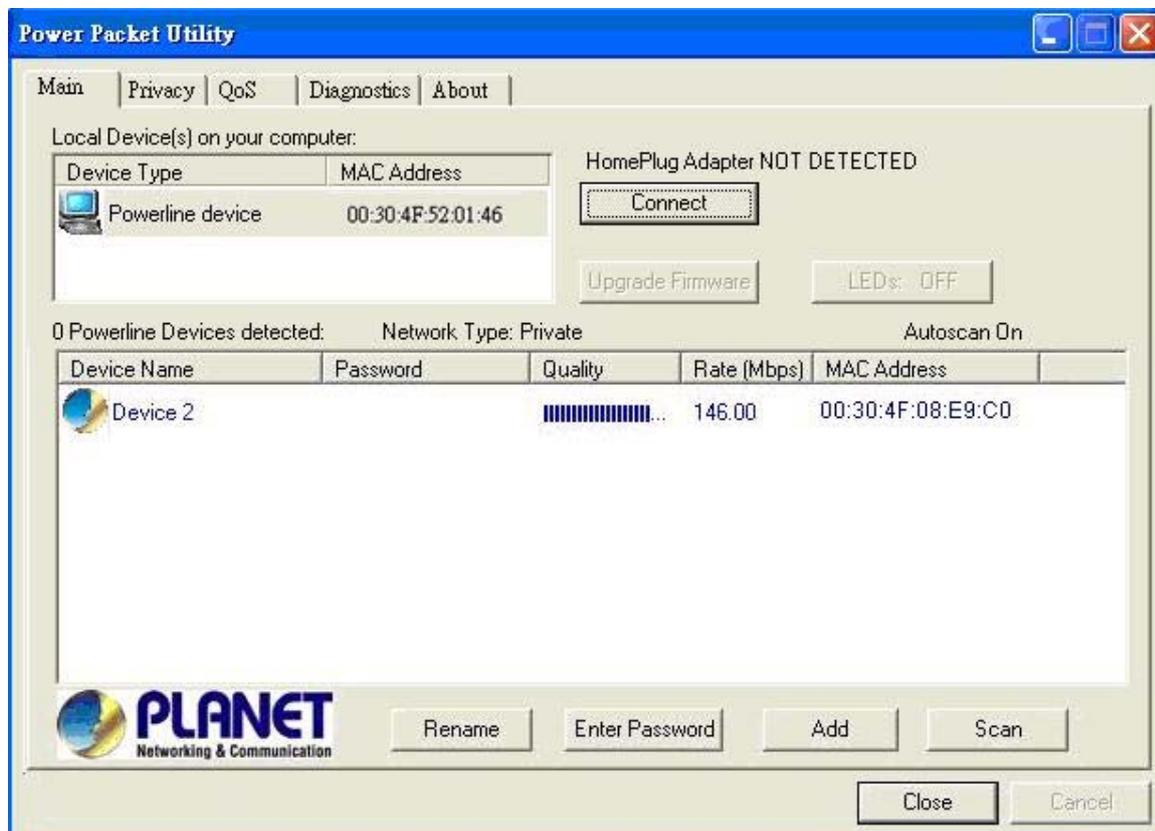
The Main tab shows the Powerline units that are connected to the current computer and other Powerline devices on the home network, and it will also display Mac Address of each device.

Note

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.

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.

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.

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

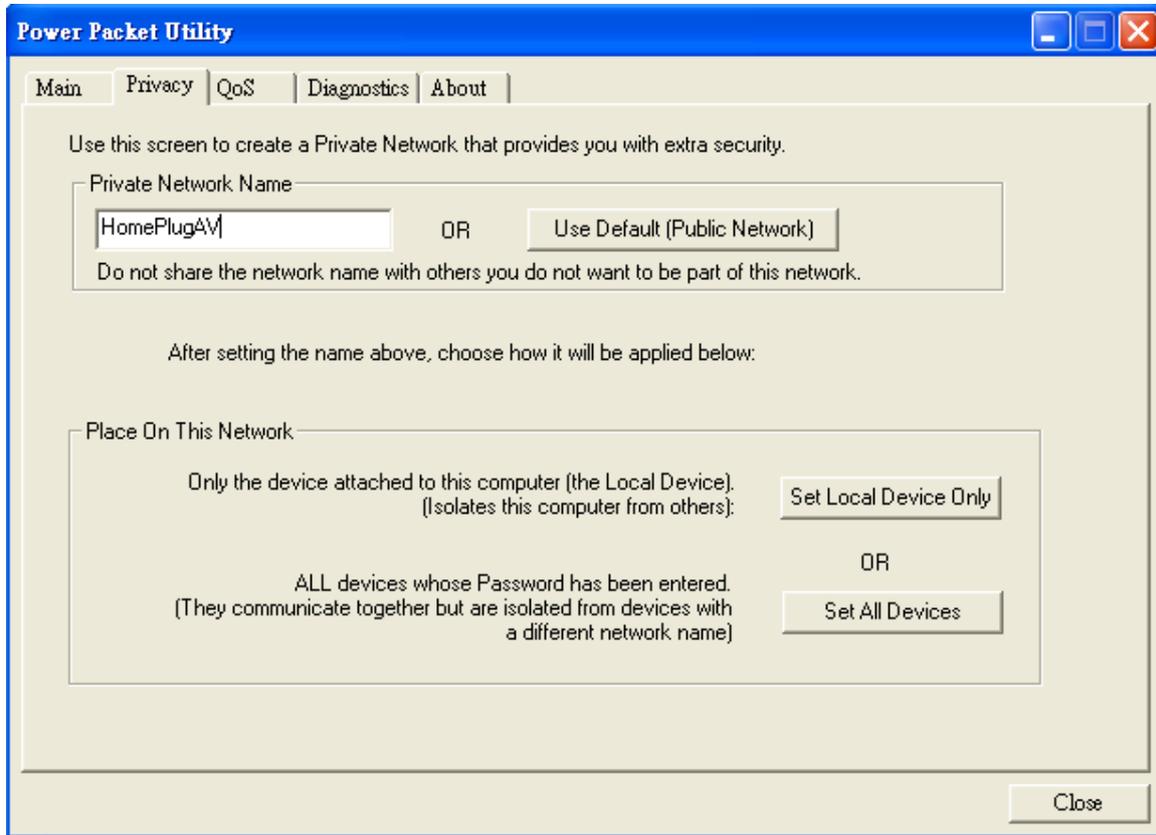
Note If a unit shows MAC Address of all 0's, this unit might not have a solid connection, or might not connect at all.

Note 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.)

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

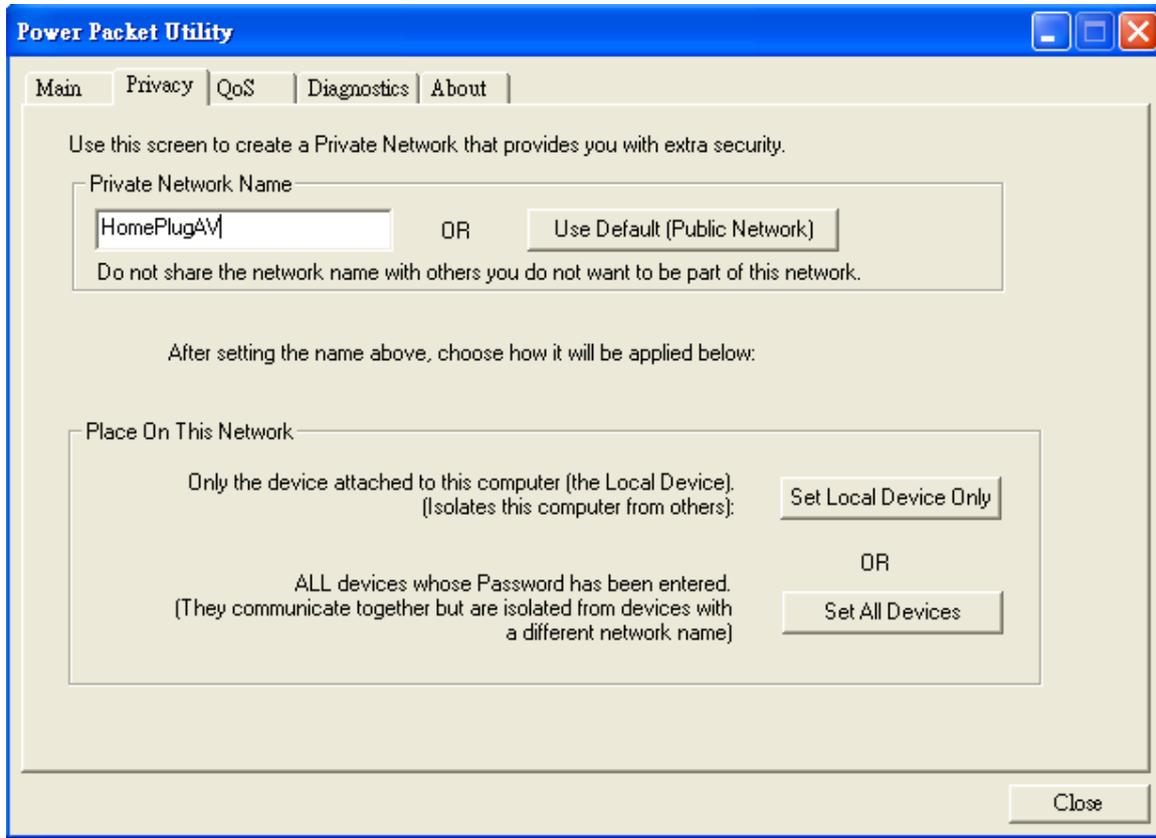


The **Privacy** tab will allow you to change the **Network Password** to the unit that is currently connected to this computer. This network password encrypts all data that is sent from this unit using 128-bit data encryption standard (AES).

 **Note**

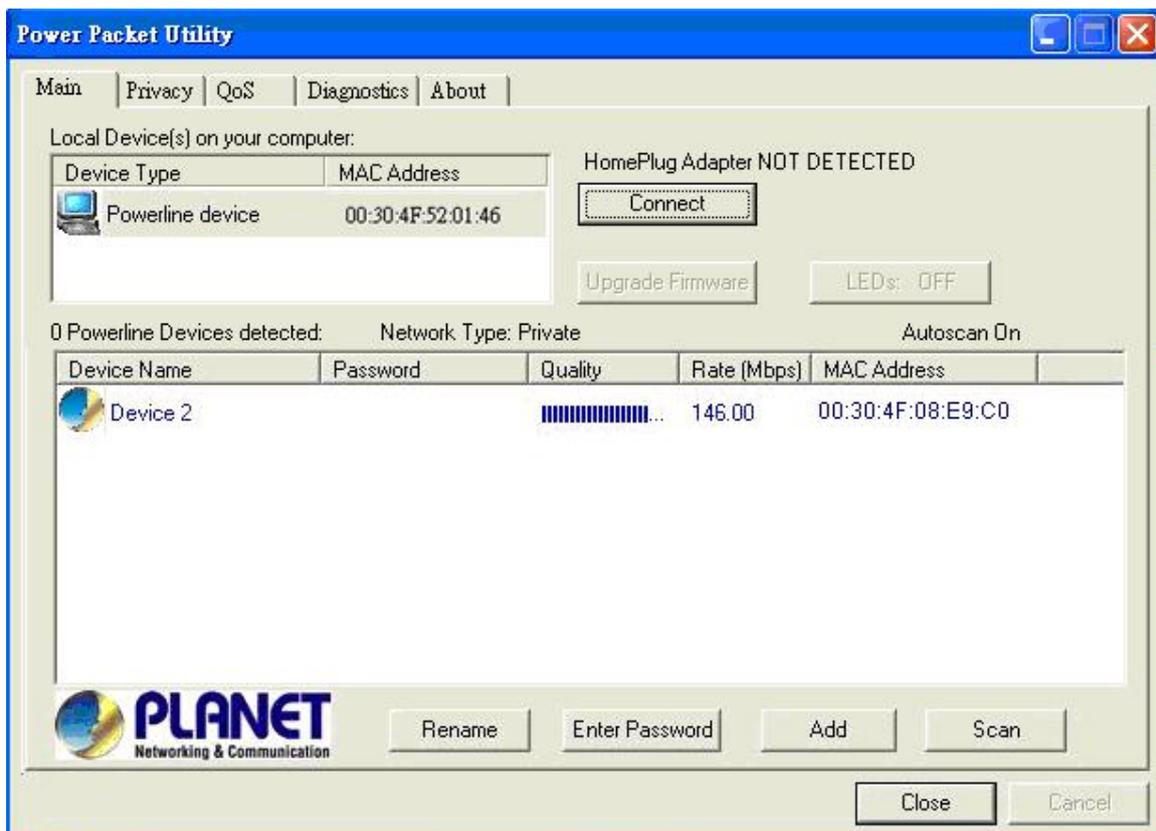
Every unit on your home network **MUST** have the same **Network Password** for connectivity to be established throughout your home. The default network password is "**HomePlugAV**"

■ 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.

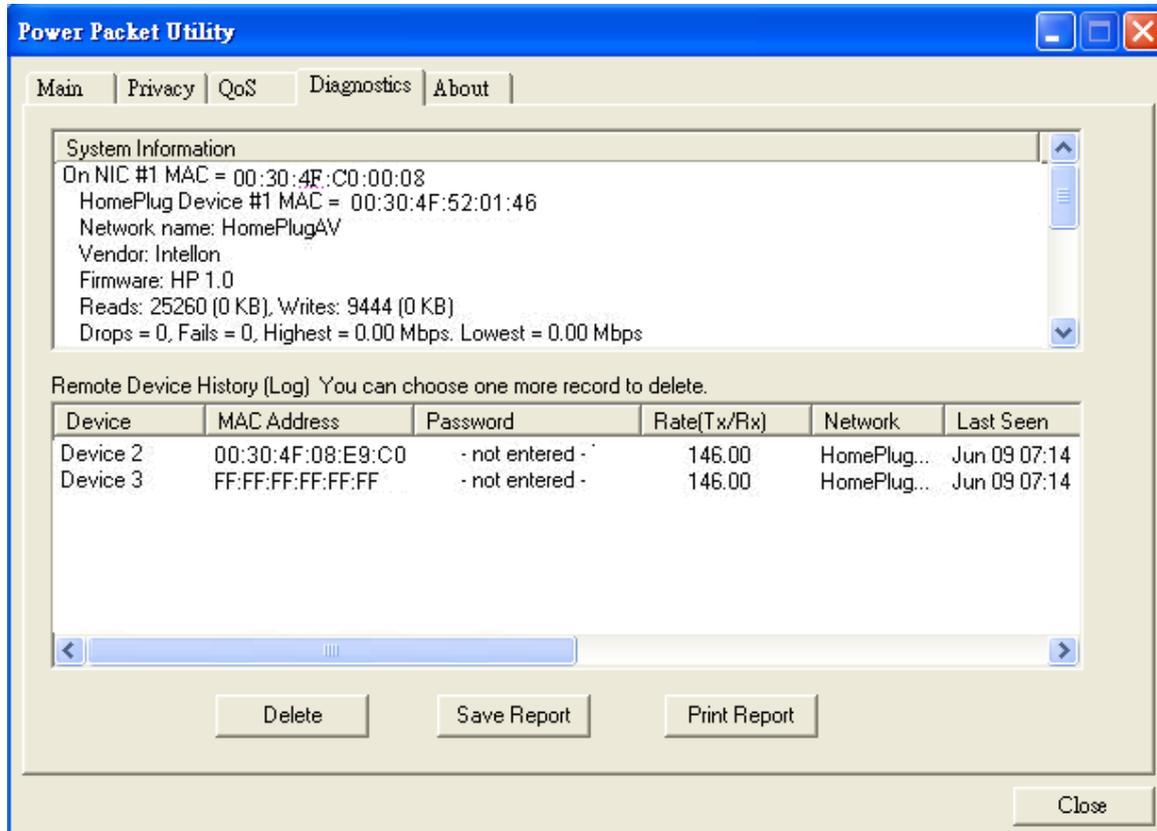


Note

The DEK is unique for EACH Powerline device. To use this you will need to input the DEK for each unit.

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)

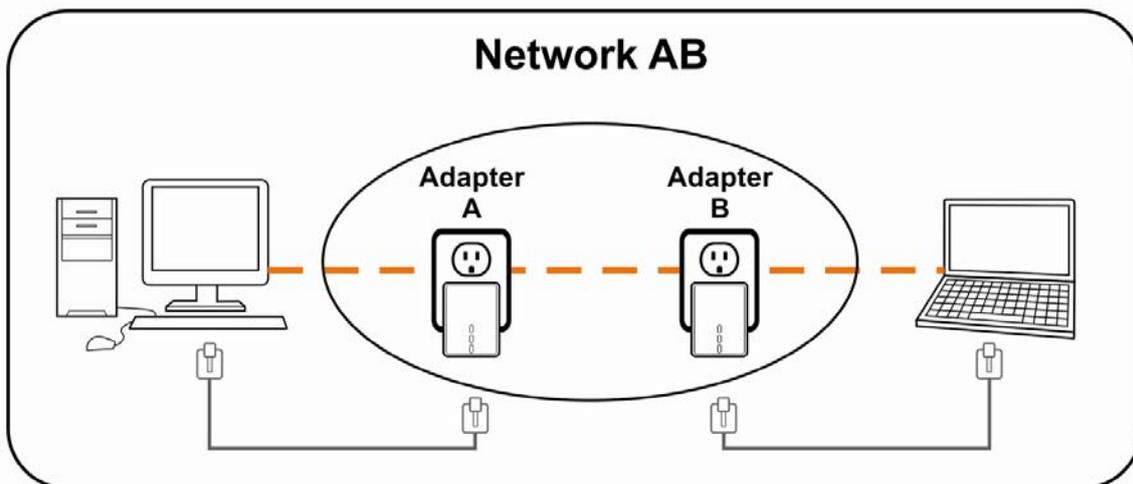
The lower panel contains a history of all remote devices. Devices are shown here regardless of whether or not they are on the same logical network.

- 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:

Step 1 Press and hold the Security button on Bridge A for no more than 10 seconds. Must release after 10 seconds. Once released, the Power light will flash. The password to Bridge A has just been erased and random security key has been generated. It must now be linked to your network to adopt the new network security key.

Step 2 Press and hold the security button on Bridge B for 10 seconds and release it when the Power light flashes. The password to Bridge B has just been

erased and random security key has been generated. It must now be linked to your network to adopt the new network security key.

Step 3 Currently, Bridge A and Bridge B are not networked

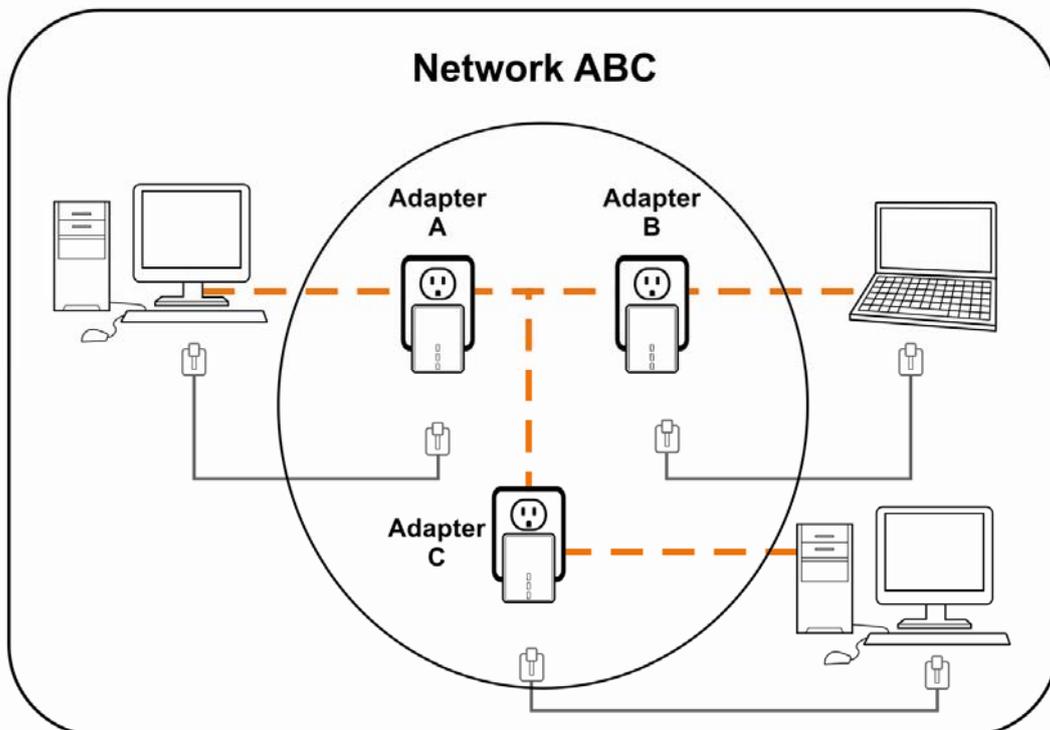
Step 4 Press and hold the Security button on Bridge A for 1~3 seconds then release.

Step 5 The Power lights on Bridge A starts to flash.

Step 6 Within 120 seconds after the Power light on Bridge A starts to flash, press and hold the Security button on Bridge B for 1~3 seconds then release.

Step 7 Both Bridge A and Bridge B are now networked together.

■ **Establish Powerline (C) to join an existing network (Network AB)**



The procedure is as follows:

Step 8 Press and hold the Security button on Bridge C for no more than 10 seconds. Must release after 10 seconds. Once released, the Power light will flash. The password to Bridge C has just been erased and random security key

has been generated. It must now be linked to your network to adopt the new network security key.

Step 9 Press and hold the security button on Bridge A for 1~3 seconds. The Power lights on Bridge A starts to flash.

Step 10 Within 120 seconds after the Power light on Bridge A starts to flash, press and hold the security button on Bridge C for 1~3 seconds then release.

Step 11 Bridge A, Bridge B and Bridge C is now networked to each other.

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:

Step 12 Hold the reset Button down while Power On for a few seconds.

Step 13 Release the reset button.

Step 14 All the LEDs will off, and then start again.

Step 15 PL-702 is now using the factory default values.

Appendix A Troubleshooting

Q1 : If your PL-702 has difficulty communicating with each other, check the following:

A :

- Try power cycling the unit by unplugging it from the wall for 10 seconds and plugging it in again.
- Hold the security/reset button down for more than 15 seconds to reset to default setting. The PL-702 light will flash, the units will reset and attempt to link using default factory settings.
- Try plugging the PL-702 into an adjacent plug.
- HomePlug AV Ethernet Bridges work better when plugged directly into the wall outlet. Connecting these Ethernet Bridges to a power strip or surge protector may degrade network performance or completely stop network signals.
- This HomePlug AV nano Ethernet Bridge should not be used on GFI protected outlets as some outlets will filter out HomePlug Powerline signal.
- This HomePlug AV nano Ethernet Bridge should not be used in areas with excessive heat.
- Certain florescent or incandescent lights are noise sources on the electrical and can degrade performance.
- If your building has more than one circuit breaker box, your HomePlug AV Ethernet Bridges may not be able to connect between the different circuit breaker boxes. In this case, connect one HomePlug AV Ethernet Bridge to a power outlet located on each of the circuit boxes. Connect Ethernet cable between each of the HomePlug AV Ethernet Bridges to link the different circuits together. This will allow the HomePlug AV Ethernet Bridges from different circuit breaker boxes to connect.
- To enter standby mode for this device, simply remove the Ethernet cable and wait about 3 minutes.