



Powerline Communication

Powerline USB Adapter

PL-102U

USER'S MANUAL



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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.

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Revision

User's Manual for Powerline Communication product

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Chapter 1 Introduction

Powerline communication is revolution in home and small office networking, greatly simplifying the task of installing a high-speed local area network. With PLANET's powerline communication products, you can utilize existing AC power outlets and wires to connect your computers, servers and other devices safely, securely and at true LAN speeds of up to 14 Mega bits per second. No complex and expensive specialized wiring usually associated with LAN's is required, or management, security and interference problems associated with 802.11x wireless technologies – just convenient, reliable, secure and simple networking where you need it most. PLANET's Powerline products allow you to place a computer anywhere in your home or small office with flawless, uninterrupted high-speed network connection, simply by plugging your computer's USB interface into PL-102U equipped power outlet – and you're almost guaranteed to have one of these wherever you need it.

PL-102U is an Powerline USB adapter with an USB type B connector for directly connecting to computer's USB port. It provides a power socket for connecting to wall outlet.

Security of PLANET's Powerline communication technology is assured by the use of 56-bit DES encryption – the same system used to protect banking systems all over the world, and is interference free, avoiding the problems of wireless systems.

1.1 Powerline USB Adapter – PL-102U

The newest and fastest way to network your PCs is through powerline networking, which allows you to turn the powerlines in your home into your network cable. The easiest way to integrate any PC or laptop into such a powerline network is with PLANET Powerline USB Adapter. Use your existing USB port with your existing powerlines. The Plug-and-Play USB Adapter connects directly to virtually any USB-ready PC – just plug it in and you are ready to share data, printers, or high-speed Internet access over your existing powerline network. For desktop installation, you do not have to open your PC case. With user-friendly software, it is simple to set up.

Not only is PL-102U easy to install and use, but it also powerful. You can send and receive data at speeds of up to 12Mbps. Plug it into the USB port; set it up, and you are ready to go. So for full desktop and notebook PC flexibility and powerline convenience, the PL-102U provides the perfect solution.

1.1.1 Features

- ◆ Internal power supply with one power line networking interface
- ◆ Complies with HomePlug Powerline Alliance Specification 1.0
- ◆ Up to 14Mbps bandwidth on powerline interface
- ◆ Support CSMA/CA protocol on powerline interface
- ◆ 56-bit data encryption to ensure data security and reliability
- ◆ Easy to use Windows-based security key configuration utility
- ◆ Significant LED indicators
- ◆ Up to 90 meters between two powerline nodes
- ◆ Able to communicate between different electrical phases
- ◆ Compact size
- ◆ Compatible with Windows 98, ME, 2000 and XP

1.1.2 Package Contents

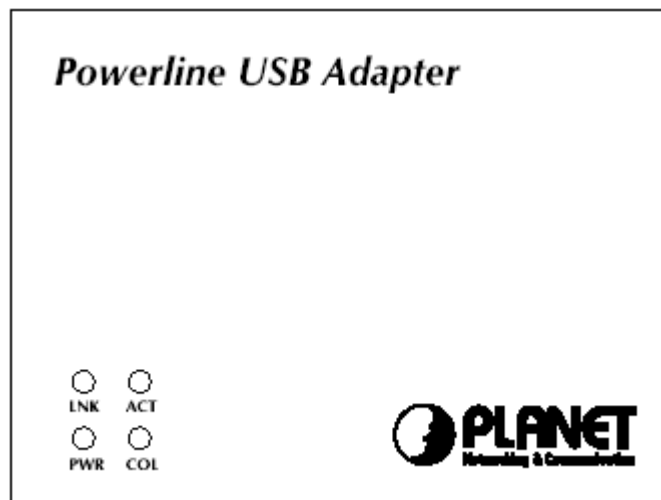
Check the contents of your package for following parts:

- n One Powerline USB adapter
- n One Power Cord
- n One USB cable
- n One Manual and Utility CD-ROM
- n One Quick Installation Guide

If any of these pieces 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.

1.1.3 Hardware Description

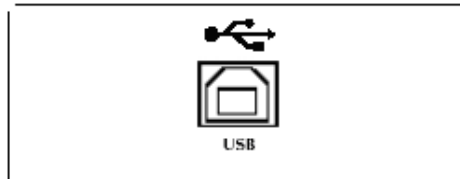
PL-102U top panel



LEDs status

LED	Color	Description
PWR	Green	Steady on indicates PL-102U is connected to a computer.
LNK	Green	Steady on indicates PL-102U has detected other Powerline devices in range.
COL	Orange	Blinking indicates there existing collision in powerline network.
ACT	Green	Blinking indicates there existing powerline network traffic.

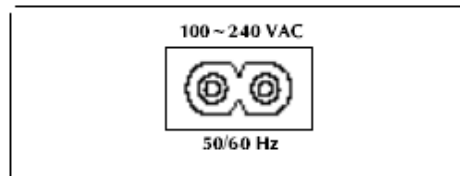
PL-102U front panel



USB port

The USB port is where you will connect your USB cable. To work with USB ports, your computer must be running Windows98, ME, 2000 and XP.

PL-102U rear panel



One 2-pin power inlet for both powerline network and power supply

1.1.4 Specification

Model	PL-102U
Standards	HomePlug 1.0 USB 1.1
Ports	One Powerline Port One USB Type B Connector
Cabling Type	Powerline: Power Cord USB: USB cable
Speed	Powerline: 14Mbps (actual throughput is about 6Mbps) USB : 12 Mbps
Powerline Frequency Band	4.3MHz to 20.9MHz
Encryption	56-bit DES with Key configuration software
LEDs	PWR, LNK, ACT, COL
Dimension	93 x 70 x 25 mm
Certifications	FCC Class B, CE
Operating Temp.	0 ~ 50 degree C
Storage Temp.	-20 ~ 70 degree C
Operating Humidity	10~90% non-condensing
Storage Humidity	5~95% non-condensing
OS support	Windows 98, 2000, Me and XP

1.1.5 System Requirements

§ Pentium-class 90 MHz or higher

§ Minimum 32 MB RAM

§ USB-ready PC

§ Windows 98, ME, 2000 and XP

§ CD-ROM Drive (for installing Encryption Utility)

Chapter 3 Powerline USB Adapter Installation

3.1 Connecting USB to Powerline Network Adapter

1. Plug the other end of the USB cable into the computer's USB port.
2. Plug the USB cable into the USB port on PL-102U.
3. Plug the power cord into the powerline port on PL-102U.
4. Plug the other end of the power cord into a power outlet.

w Use only the supplied power cord to connect PL-102U to the power outlet.

Note!

w Windows 95 and NT do not support the USB adapter.

Note!

3.2 Powerline USB Adapter Installation

The installation procedure for the network driver will vary depending on which operating system you are using on your computer. The following procedure is for installation under Windows 2000. Installation on other operation system is similar.

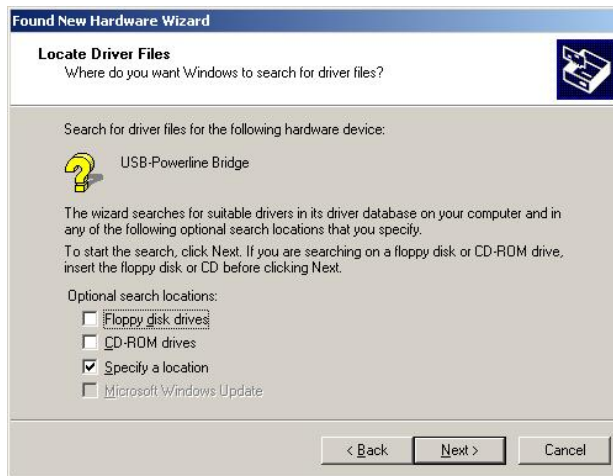
1. Windows will automatically detect the presence of the USB Adapter hardware in your computer once you have completed the hardware installation. Click the **Next** button.



2. Select "**Search for the suitable driver for my device. (recommended)**" and click the **Next** button.



3. Windows will look for new drivers and ask you which locations you want to search. Select **Specify a location**. Click the **Next** button to continue.



4. Enter the path as **E:\Driver\PL-102U** (if "E" is the letter of your CD-ROM drive). Click the **Next** button to continue.



5. Windows will show the information of the driver it found. Click the **Next** button to continue.



NOTE: Windows 2000 and XP will inform you that there is no digital signature found. Click the **Yes** button to continue the installation.



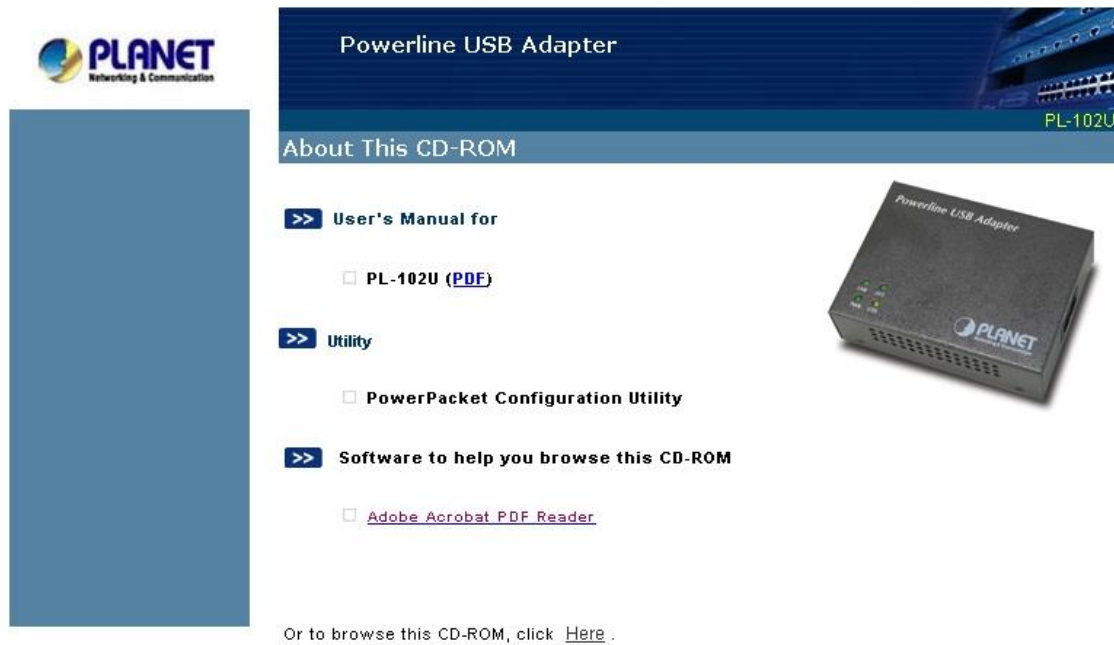
5. Click the **Finish** button to complete the installation.



Chapter 4 Encrypting Your Powerline Network

4.1 PowerPacket Configuration Utility Installation

1. Insert the CD-ROM into the CD-ROM drive to initiate the autorun program. Once completed, a menu screen will appear as follows:



2. To install the utility, click on the "**PowerPacket Configuration Utility**" hyperlink to activate the installation procedure for the application program.

If the above screen is not shown, you can start the installation as follows.

- Click on **Start Menu/ Run**.
- Enter "E:\Utility\PL-102U\setup.exe" in the appeared box, where "E" is the letter of your CD-ROM drive.

Click on "**OK**" button.

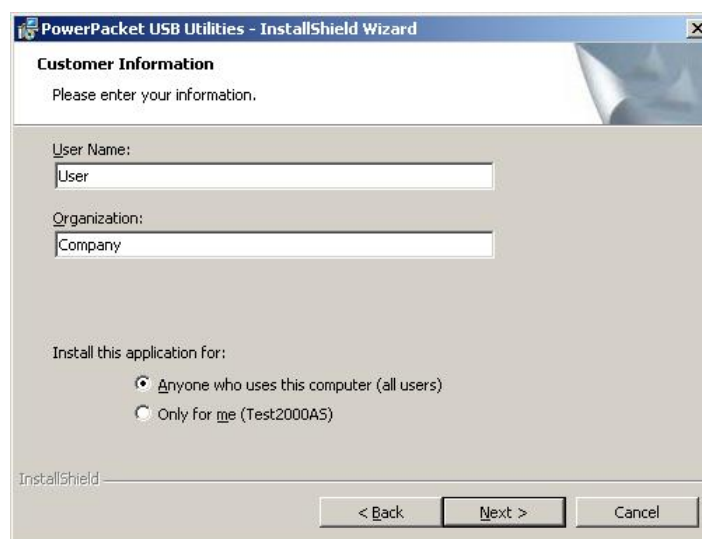
3. On the *Welcome* screen, click the **Next** button.



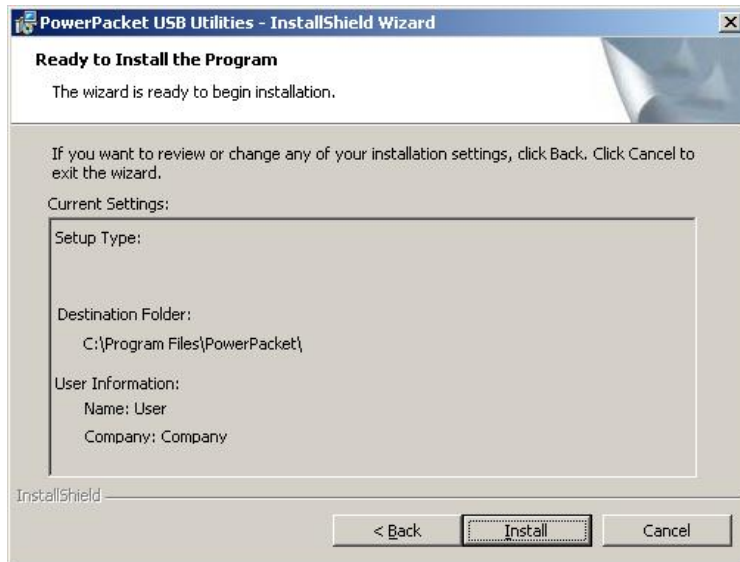
4. When the *License Agreement* screen is displayed, read the License Agreement, then click the radio button to the left of “**I accept the terms in the license agreement**” and click the **Next** button.



5. On the *Customer Information* screen, enter the required information and select whom this application is installed for. Then click the **Next** button.



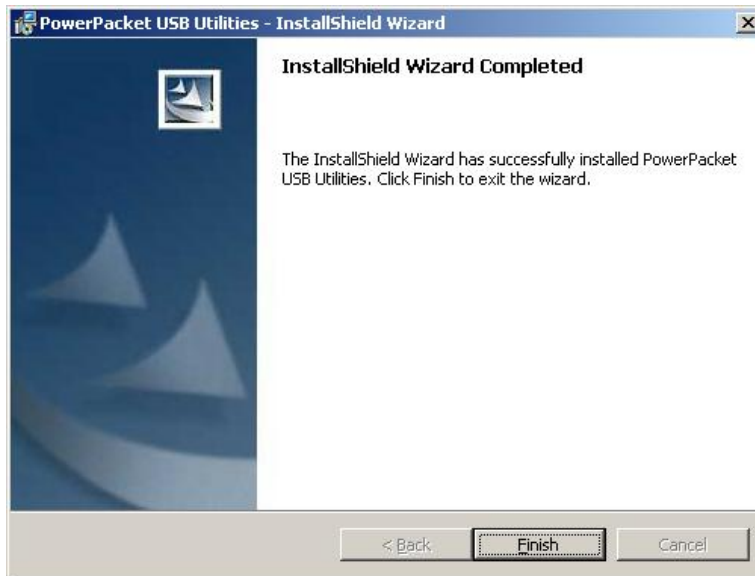
6. The InstallShield Wizard shows your current settings in next screen. If you need to review or change any settings, click the **Back** button. Click the **Cancel** button to exit the Wizard. Otherwise, click the **Install** button.



7. The InstallShield Wizard would ask you to plug your PL-102U to PC to complete the installation. After ensuring PL-102U is well connected, click the **OK** button




8. When finished, click **Finish** to end the Installation Wizard.



9. Remember to restart your computer to have the new configuration take effect.

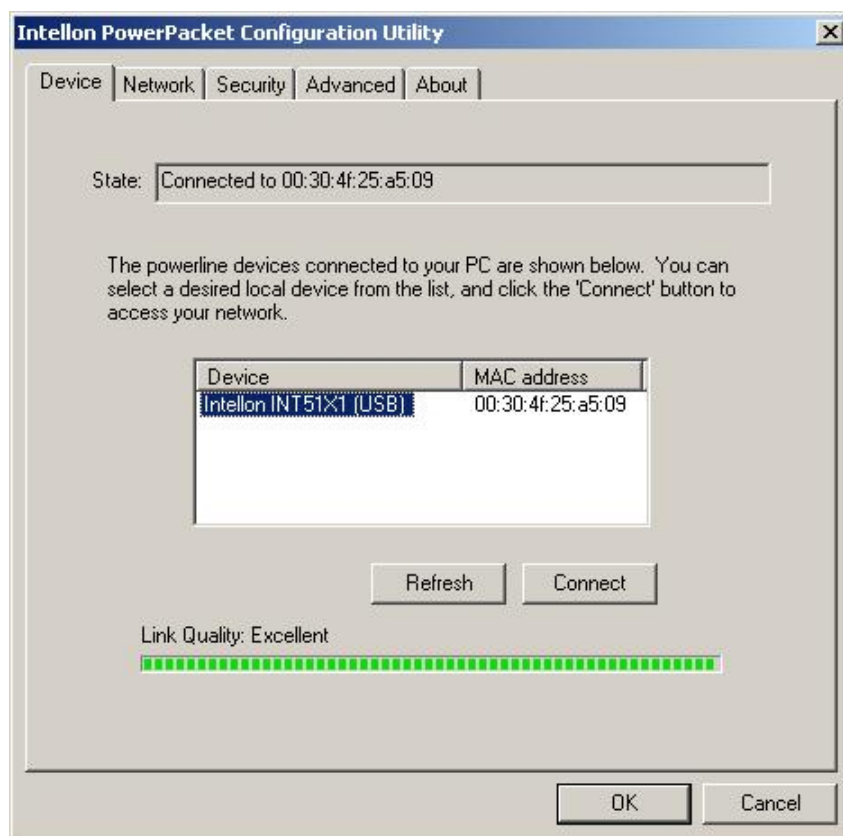


4.2 PowerPacket Configuration Utility Usage

After successfully installing the utility, your computer desktop will display this icon, , PowerPacket Configuration Utility. Double-click the icon to activate the utility.

Note: Make sure your TCP/IP protocol is set up appropriately on your computer before running PowerPacket configuration utility.

4.2.1 Device Screen



When initiating the program, it will analyze your powerline network. Once the analysis is done, the Device screen will be shown as above. In the text list box, it reports all PowerPacket™ devices found that are locally connected to the computer where the utility is running. In most cases, one device only is listed. In case you have more, click on one of them and hit **Connect**. Make sure that the **State** box indicates that your PC is connected to the same device. Now you are ready to manage the powerline network connected to this device, ensure its privacy and measure its data rate performance. Press **Refresh** button to refresh the search of the powerline devices connected to your computer.

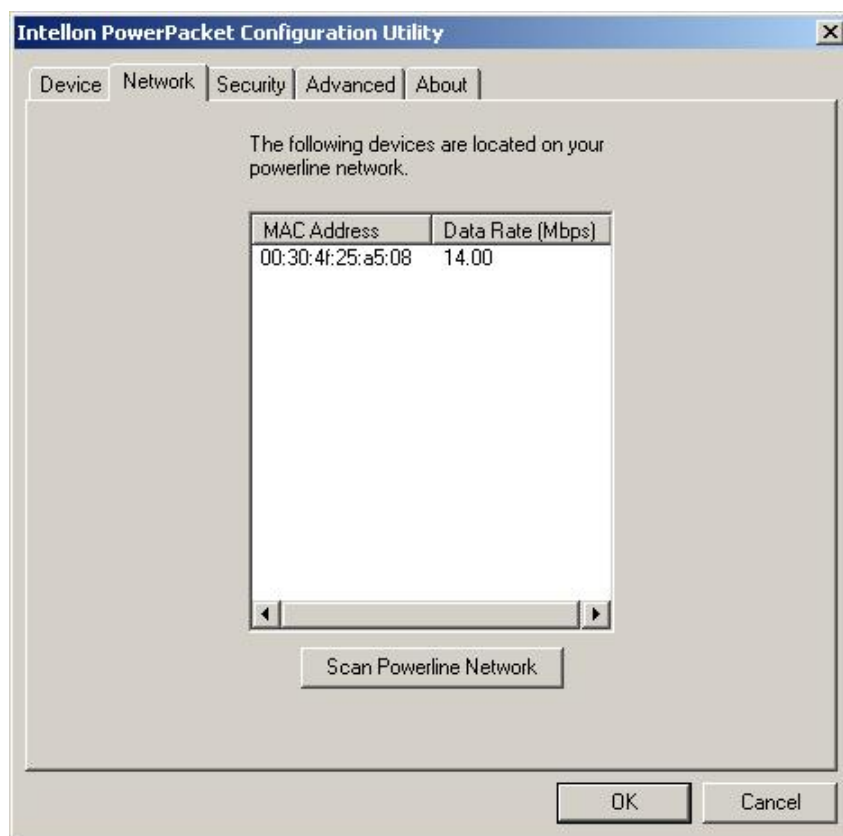
The progress bar will change into a status bar indicating the network average data rate. The color of the bar reflects the average performance of the powerline network :

Green : Excellent performance

Yellow : Fair performance

Red : Poor performance

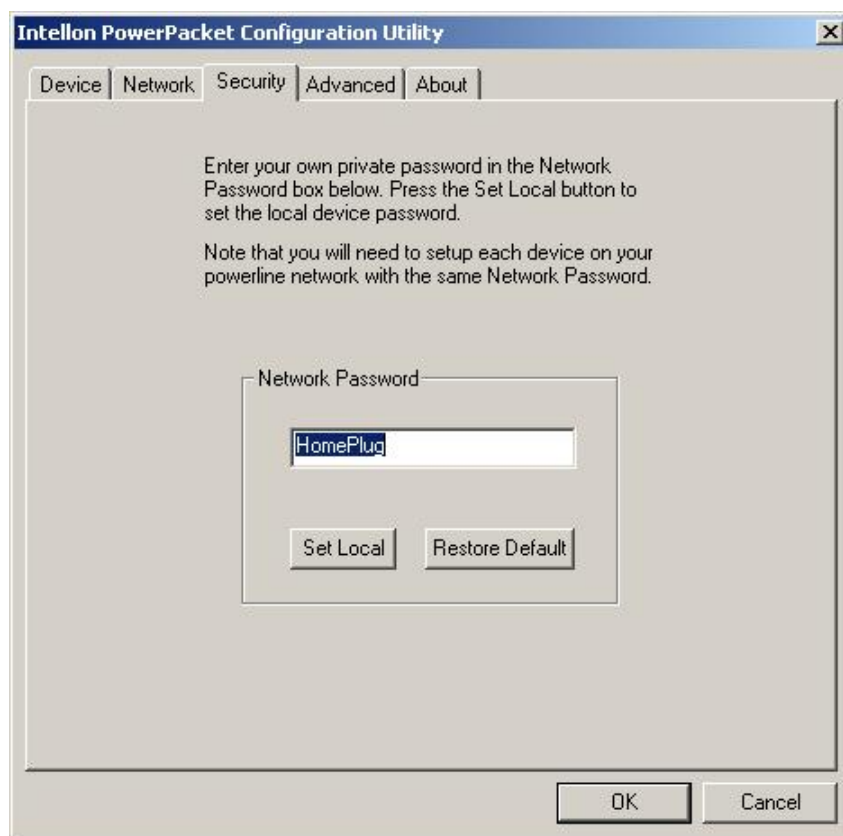
4.2.2 Network Screen



The **Network** screen provides detailed information about your powerline network. The text list box shows all PowerPacket™ devices found on your powerline network identified by their MAC addresses. The second column indicates their data rate measurements in Mbps. Press **Scan Powerline Network** button to refresh the listed information.

In case a PowerPacket™ device in your network is not listed in the screen above, make sure that its network password has not been made private previously with a different password than your current private network password. You can always reset a PowerPacket™ network password to the universal one by running the PowerPacket™ Configuration Utility on the PC attached to this device and use “HomePlug” as the network password.

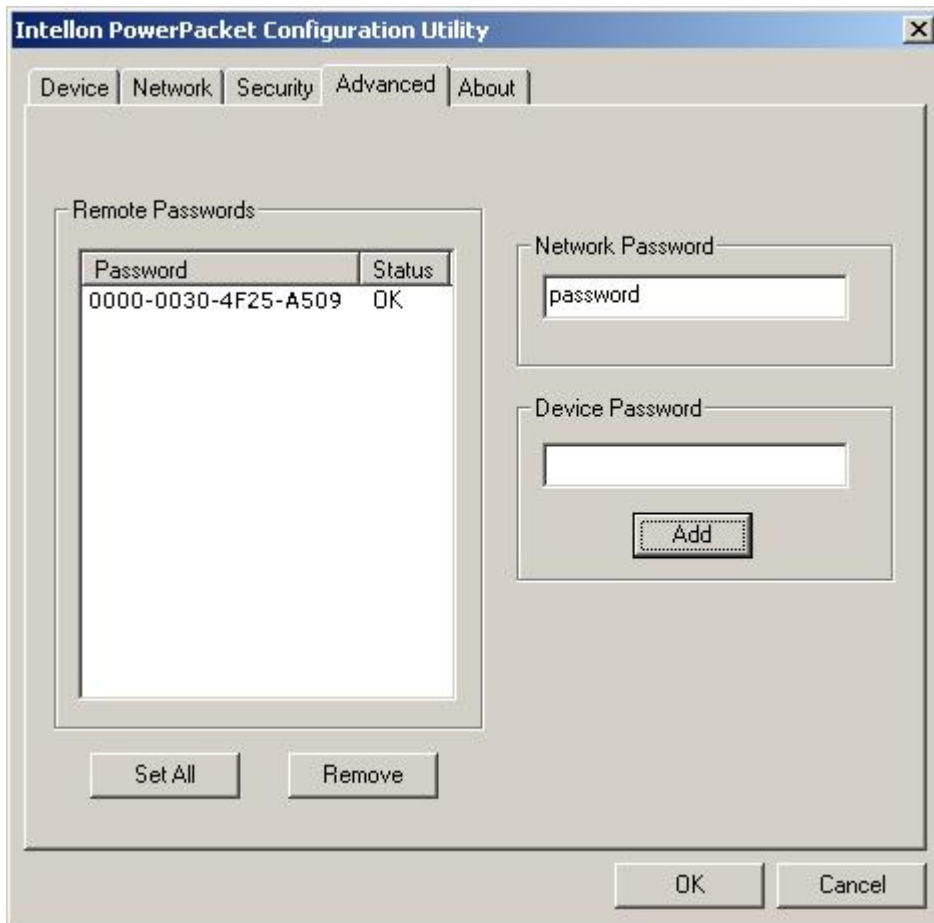
4.2.3 Security Screen



All PL-102U are shipped using “**HomePlug**” as a network password. The **Security** screen allows you to change this network password and set your own private password and apply it to PL-102U connected to the computer where the utility is running. Click **Restore Default** button to restore the original network password “**HomePlug**” and apply it locally. Click **Set Local** button to change the network password locally.

Note: Your private network password must have between 4 and 24 characters. The password is case sensitive. The password can include any letters of the alphabet, numbers or punctuation marks. Remember this password as it will be needed when adding other devices to the network later.

4.2.4 Advanced Screen



The **Advanced** screen allows you to set up a network password remotely on other PL-102U through the powerline. Type your private network password into the **Network Password** text box. The device password of a PL-102U is adding 0000 to its MAC address. For example, the device password of a PL-102U with MAC 00304F25A509 is 0000-0030-4F25-A509. The other device on the network with PowerPacket™ capabilities will have a different device password printed on either the case itself or in the documentation. Find the passwords for all devices you want to manage and type them one by one into the **Device Password** text box and click **Add**. This will add the passwords to **Remote Passwords** text list box and set them to the currently defined Network Password.

Note: The device must be present on the powerline in order for the password to be confirmed and added to the Remote Passwords list.

The **Status** indicates whether each device is successfully set to the **Network Password**. “**OK**” indicates success while “**Fail**” indicates a failure. Click **Set All** to apply your private network password to all devices that are listed in the **Remote Passwords** text list box and to your local device connected to the computer where the utility is running as well. Select a password and

click **Remove** to remove it from the list.

4.2.5 About Screen



The **About** screen shows the software version.

Chapter 5 Troubleshooting

w I can not connect to other computers on my powerline network or to the Internet.

A: Make sure the IP address and TCP/IP protocol are set up correctly for all the powerline networked computers.

w Do the PL-102U device cause interference with other home networking or products?

A: No. PL-102U can co-exist with phone line and wireless networking technologies. PL-102U operates in a different frequency band than powerline control and co-exist with technologies such as X-10, CEBus and LONworks.

w How do the PL-102U devices handle signal interference between two adjacent homes? How is eavesdropping prevented?

A: PL-102U is using 56-bit DES security encryption to ensure network separation between homes. You can use PowerPacket configuration utility to enable and configure the security encryption on local or remote PL-102U in range.

w How does PL-102U handle node address on the network?

A: PL-102U adheres to standard Ethernet addressing protocols using destination and source MAC address.