



LevelOne

User Manual

PLI-2030

200Mbps HomePlug AV

Ver. 2.0.0

Safety

FCC

This equipment has been tested and found to comply with Part 15 Class B of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference
- (2) This device must accept any interference received, including interference that may cause undesired operation.

CE

This equipment is in compliance with the requirements of the following regulations: CE Mark, 89/336/EEC

RoHS

This product is RoHS compliant.



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1 HomePlug PowerLine

HomePlug PowerLine is an excellent solution that can be used to extend your network. In the home or small office building, use HomePlug Ethernet Bridge Adapters to link multiple locations without the need to run Ethernet cable. Combined with a broadband DSL/Cable connection, every room with electrical power outlets will have easy access to high-speed Internet connection.

1.1 Introduction

200Mbps HomePlug AV Ethernet Bridge allows you to connect any device which has an Ethernet port to a Powerline network. In operation, the 200Mbps HomePlug AV Ethernet Bridge is completely transparent, and simply passes data between the Ethernet port and the Powerline network. The Powerline data transfer rate can be reached up to 200Mbps. Any device may be connected to the 200Mbps HomePlug Ethernet Bridge's Ethernet port, but a Windows PC must be used for configuration.

* Strongly recommend Windows 2000/XP/ for utility configuration

1.2 Physical Details



Figure 1: 200Mbps HomePlug AV Ethernet Bridge

Front Panel LEDs

- Power** **On** - Normal operation.
- Off** - No power
- HomePlug** **On** - The Powerline network is active. This means that at least one other HomePlug device was detected.
- Off** - Powerline network is not available - no other HomePlug devices were detected.
- Flashing** - Data is being transmitted or received via the Powerline network.
- * The initial HomePlug device connects to the Powerline is called CO (Coordinator) CO's LED will illuminate under all circumstance.
- Ethernet** **On** - Ethernet connection is active.
- Off** - No Ethernet connection.
- Flashing** - Data is being transmitted or received via the Ethernet Port.
- Security** This button is designed to generate an individual network group under multiple nodes (PLI-2030) environment.
- Please refer to **Security Button** section for more details.
- Reset** This button is used to clear ALL data and restore ALL settings to the factory default values.
- Press and release the reset button to begin restore factory default.

Rear Panel

The rear panel contains only the AC plug and a sticker containing the 200Mbps HomePlug AV Ethernet Bridge's **Password**. (Each HomePlug device contains a unique Password.)

1.3 Setup

Plug and Play Installation for Homes:

HomePlug is plug and play device; user is able to plug and play without any complex configuration and settings.

Please execute the following hardware installation steps 1 to 4.

CO (Coordinator) installation:

1. Connect a standard LAN cable from the 200Mbps HomePlug AV Ethernet Bridge's Ethernet port to your PC or Router (DHCP Server).
2. Plug the 200Mbps HomePlug AV Ethernet Bridge into a power outlet.
3. Wait a few seconds for startup to be completed, and then check the LEDs
 - The **Power** LED should be ON.
 - The **HomePlug** LED will be ON
 - The **Ethernet** LED should be ON.

Client device installation:

Connect a standard LAN cable from the 200Mbps HomePlug AV Ethernet Bridge's Ethernet port to your PC or any other network devices with Ethernet port.

4. Wait a few seconds for startup to be completed, and then check the LEDs
 - The **Power** LED should be ON.
 - The **HomePlug** LED will be ON
 - The **Ethernet** LED should be ON.
5. Hardware Installation is now completed, enjoy HomePlug Powerline connectivity.



Note

The initial HomePlug device connects to the Powerline is called CO (Coordinator)

Central Management and Software Installation

Central management requires software utility, central management is often needed when multiple nodes (HomePlug) available under same powerline circuit environment. Configuration requires the use of Windows PC. Once configured, any device may be connected to the 200Mbps HomePlug AV Ethernet Bridge's Ethernet port. To perform configuration, follow the procedures list below.

1. Connect a standard LAN cable from the 200Mbps HomePlug AV Ethernet Bridge's Ethernet port to your PC or Router (DHCP Server).
2. Plug the 200Mbps HomePlug AV Ethernet Bridge into a power outlet.
3. Wait a few seconds for startup to be completed, and then check the LEDs
 - The **Power** LED should be ON.
 - The **HomePlug** LED will be ON
 - The **Ethernet** LED should be ON.
4. Insert the supplied CD-ROM into your Windows PC, and wait for it to start, select "Utility" from the autorun screen. If it does not start automatically, locate and run SETUP.EXE.
5. Follow the prompts to install the *PLI-2030* utility.
6. **Microsoft .NET Framework 1.1** is needed for installing *PLI-2030* utility. The wizard will check automatically whether the **Microsoft .NET Framework 1.1** was installed on your PC or not. If not, the wizard will pop up a message box. Click *OK* to install **Microsoft .NET Framework 1.1** first.

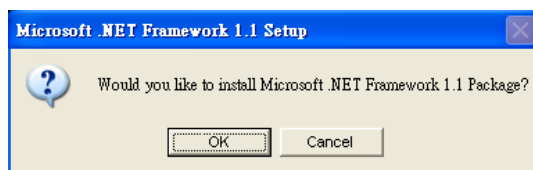


Figure 2: Microsoft .NET Framework 1.1 Screen

7. Once installation is completed, run the *PLI-2030* utility program. The first screen (*Network* Tab) will display information of the compatible devices found.

Choose the desired device from the *Device Selection*, and the information of the selected device will be displayed in the table.

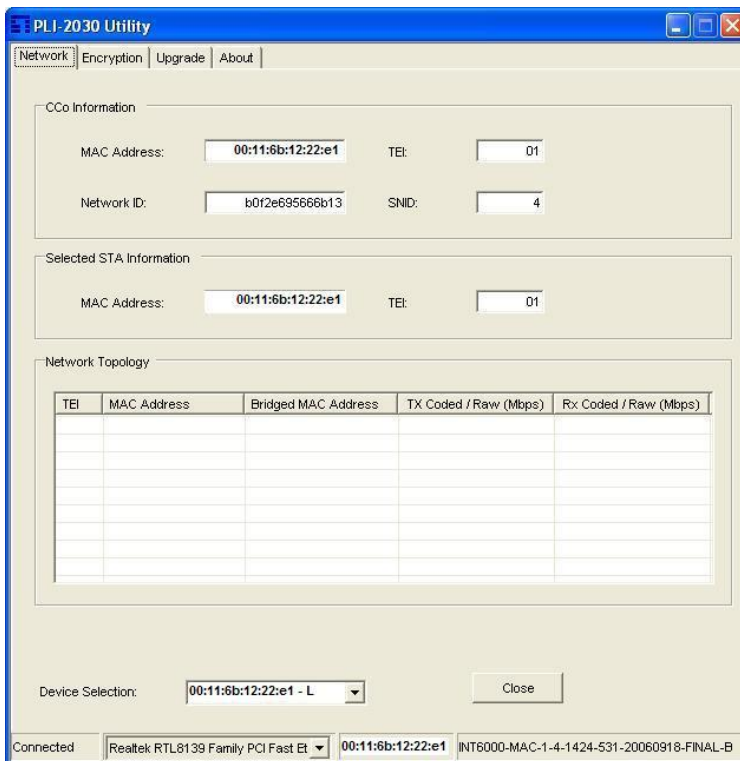


Figure 3: PLI-2030 Utility - Network Tab

8. The status bar (bottom part of the window) indicates the connection status of the HomePlug device. Click the **Encryption** tab. You will see a screen like the example below.

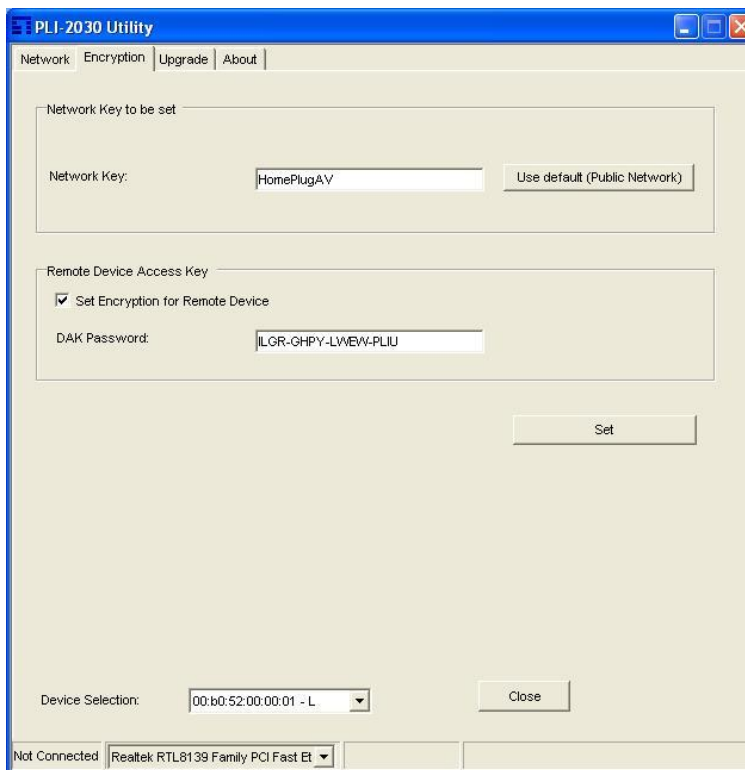


Figure 4: PLI-2030 Utility - Encryption Tab

9. Enter both the Remote Device password in the *DAK Password* field and the desired *Network Key* in the field provided. Click **Set** to save this value to the remote HomePlug device.

If the *DAK Password* is left blank, the *Network Key* will be saved to the local HomePlug device only.

- All HomePlug devices must use the same *Network Key*, or they will not be able to communicate with each other.
- On this screen, you can also click *Use default* to use the 200Mbps HomePlug AV Ethernet Bridge's default *Network Key*.

10. Click *Close* to exit the *PLI-2030* utility.

Setup is now complete.

If your PC is not the device you wish to use with the 200Mbps HomePlug AV Ethernet Bridge, connect the Ethernet cable from the 200Mbps HomePlug AV Ethernet Bridge to the desired device.

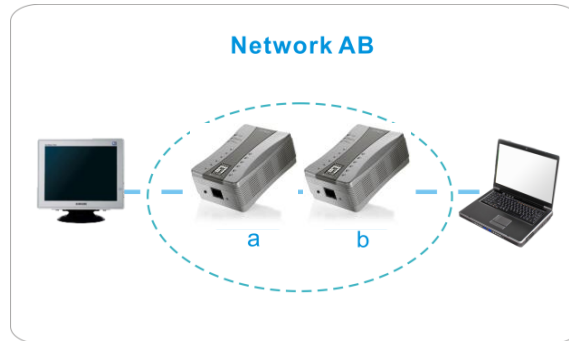
The 200Mbps HomePlug AV Ethernet Bridge Central Management is now ready for use.

2 Security Button

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

Creating a new security network (Network AB)

Two unassociated adapters (a & b) are forming a new network. (Network AB)



The procedure is as follows:

1. Press and hold the security button on the adapter (a) for 10 seconds and release it when device LED auto re-boots.
2. Press and hold the security button on the adapter (b) for 10 seconds and release it when device LED auto re-boots.
3. Press and hold the security button on the adapter (a) for 2 seconds then release.
4. The **Power** LED on adapter (a) starts to flash.
5. Press and hold the security button on the adapter (b) for 2 seconds then release.
6. The **Power** LED on adapter (b) starts to flash.
7. After a few seconds, the flashing Power LEDs should stop blink. The new group has now created and configuration is successful.



Note

After pressing security button on adapter (a), user has 120 seconds to press adapter (b) and forming a new group.



Note

Security network allows maximum of two devices only. If user would like to create groups with more than two devices. Please use utility and simply assign different Network ID.

3 Operation

Operation is completely automatic, and no user intervention is required.

If your HomePlug devices have difficulty communicating with each other, check the following:

- Each HomePlug device must use the same **Network Key**.
You may use the *Encryption* tab of the *PLI-2030* utility to assign a **Network Key** to other HomePlug devices.
- **200Mbps HomePlug AV Ethernet Bridge** works better when plugged into the wall socket. Connect the **200Mbps HomePlug AV Ethernet Bridge** into the power strip or surge protectors may degrade the network performance.

4 Specification

Powerline Standards	HomePlug AV
Transfer Rate	Up to 200 Mbps
Modulation	1024/256/64/16/8 QAM, QPSK, BPSK
Forward Error Correction	Turbo Codes
Protocol	TDMA, CSMA/CA
Security	128-bit AES Encryption
LEDs	1 * Power 1 * HomePlug 1 * Ethernet
Ethernet Interface	1 * RJ45 LAN Port Auto-negotiation, Auto MDI/MDIX
Ethernet Standards	Ethernet specification IEEE802.3, IEEE802.3u, IEEE802.3x
Power	100 - 240VAC, 50/60 Hz
Power Consumption	100mA (max.)
Operating Temperature	0° C to 40° C
Storage Temperature	-25° C to 70° C
Operating Humidity	10-90%RH (max)
Certifications	FCC Part 15 Class B CE Mark, 89/336/EEC
Safety Approvals	UL Listed (UL60950-1)/cUL CSA No.22-60950-01-03 CB, IEC/EN 60950-1;2001
Hardware Operating Systems	Windows 2000, Windows XP, Linux, Mac OS X or any other operating system with network support
Software Utility	Windows 2000, Windows XP