



# **200 Mbps HomePlug® AV To Fast Ethernet Adapter**

**UPL5500-201(K) User Manual**



**Copyright EUSO Technologies, Inc. All rights reserved.**

## FCC Warning

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

## CE Mark Warning

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



# Table of Contents

---

**TABLE OF CONTENTS ..... I**

**INTRODUCTION..... 1**

    ABOUT THE 200M HOMEPLUG® AV TO FAST ETHERNET ADAPTER ..... 1

    TERMS/USAGE ..... 1

    PRODUCT FEATURES..... 1

**IDENTIFYING EXTERNAL COMPONENTS..... 2**

    LED INDICATORS ..... 2

    QUICK SETUP BUTTON ..... 3

**INSTALLATION..... 3**

    CONNECTING TO NETWORK ..... 4

**CONFIGURATION UTILITY ..... 5**

    INSTALL CONFIGURATION UTILITY ..... 5

    USING THE HOMEPLUG AV UTILITY..... 6

*Device Information* ..... 7

*Network Information*..... 7

*QoS* ..... 8

*Network ID* ..... 10

*Upgrade*..... 11

*About*..... 12

**SPECIFICATIONS ..... 13**

# INTRODUCTION

---

Thanks for purchasing of the 200M HomePlug® AV to Fast Ethernet Adapter. This Adapter will allow your Ethernet device to connect to other Ethernet devices through AC power line.

---

## About the 200M HomePlug® AV to Fast Ethernet Adapter

---

The 200M HomePlug® AV to Fast Ethernet Adapter allows user to connect with other Ethernet enabled devices through AC power line at home or office.

The 200M HomePlug® AV to Fast Ethernet Adapter is designed to provide the Plug-and-Play installation, user just connected the Ethernet cable on the Adapter and Ethernet enabled device and plugged the Adapter to AC outlet.

---

## Terms/Usage

---

In this guide, the term “the PLC” refers to the 200M HomePlug® AV to Fast Ethernet Adapter.

---

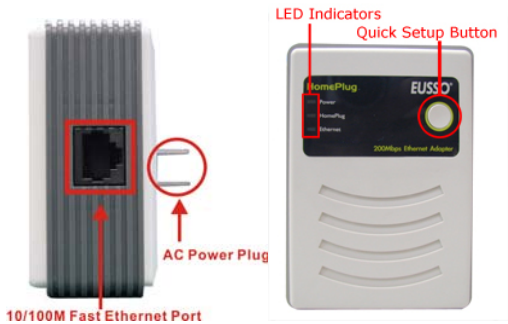
## Product Features

---

- Compliant with 200M HomePlug® AV specifications
- Compliant with IEEE 802.3 10BASE-T Ethernet, IEEE 802.3u 100BASE-TX specification
- ANSI/IEEE 802.3 Auto-negotiation and Auto MDI and MDIX
- Powerline speed up to 200Mbps
- 3 LED indicators for Power, HomePlug Activity and Ethernet port Link/Activity
- Support quickly setup button

# IDENTIFYING EXTERNAL COMPONENTS

This section identifies all the major external components of the 200M HomePlug® AV to Fast Ethernet Adapter.



## 10/100M Fast Ethernet Port

Connect to Ethernet enabled device.

## AC Power Plug

Plugging into the AC power outlet.

## LED Indicators

LED	Display	Status description
Power	On	The PLC is connected to the AC power line and operation normal.
	Off	The PLC is not connected to the AC power line.
	Blinking	The PLC is goes to firmware upgrade or on pairing.
HomePlug	On	The PLC is the PowerLine addresser.
	Off	The PCL is not join to PowerLine group
	Blinking	The PLC is the PowerLine joiner.
Ethernet	On	The PLC is connected to the Ethernet network
	Off	The PLC is not connect to Ethernet network
	Blinking	The PLC is on transmission or receives data to/from Ethernet network.

---

## **Quick Setup Button**

---

The button is use to setup the PLC to join into the PowerLine network group quickly.

### **Resetting the network ID**

Press the **Quick Setup** button until all LEDs extinguish (more than 10 seconds), the PLC will reset the network ID setting and generate a random network ID. **Always reset the network ID before pairing the PLC.**

### **Pairing the PLC**

When new PLC adapters want to join to existing PowerLine Network, press the **Quick Setup** button on any exist PLC adapter and press the new PLC adapter's **Quick Setup** button within **three seconds** at the same time, the **Power LED** will start blinking, it means the PLC adapters goes to pairing process, when finished the pairing, the Power LED will be steady on.

---

## **INSTALLATION**

---

The 200M HomePlug® AV to Fast Ethernet Adapter is designed to be simple and easy installation.

### **10/100M Fast Ethernet Port**

Connect to Ethernet enabled device.

### **AC Power Plug**

Plugging into the AC power outlet.

### **LED Indicators**

Detailed LED description shows on Page 3.

### **Quick Setup Button**

The button is use to setup the PLC to join into the HomePlug network group quickly.

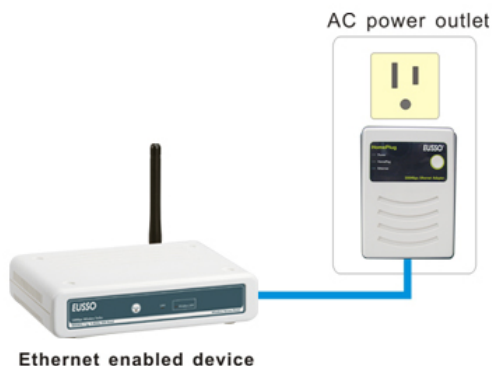
---

## Connecting to network

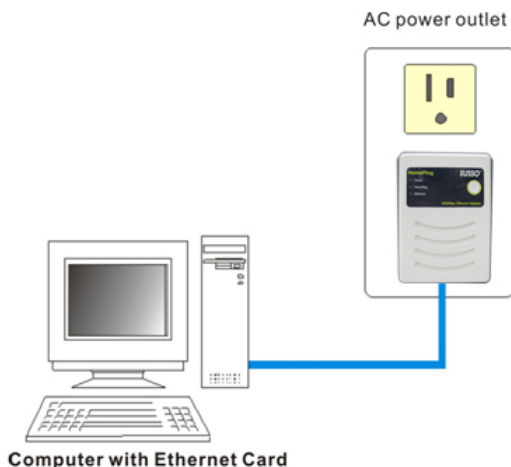
---

You can connect the 200M HomePlug® AV to Fast Ethernet Adapter directly to the PC's network adapter, switch, or any other Ethernet enabled device.

***Note:** The Ethernet port on the Adapter supports 10/100M Auto-MDI/MDIX function, you can use a straight-through or a crossover Ethernet cable when connecting to another Ethernet enabled device.)*



OR



## Configuration Utility

---

The HomePlug AV Utility for Windows OS enables the users to identify PLC devices on the power line network, measures data rate performance, ensures privacy and performs diagnostics by setting user defined secure power line networks.

### Install Configuration Utility

---

Insert the HomePlug AV utility CD into your CD-ROM drive and the Auto-run program will appear. Alternatively this can also be done manually by double clicking the autorun.exe file on the CD.



Click the "Enter" on the menu to open the HomePlug AV Utility, the install wizard will begin the software installation. Follow the install wizard instructions completed the HomePlug AV Utility install.



---

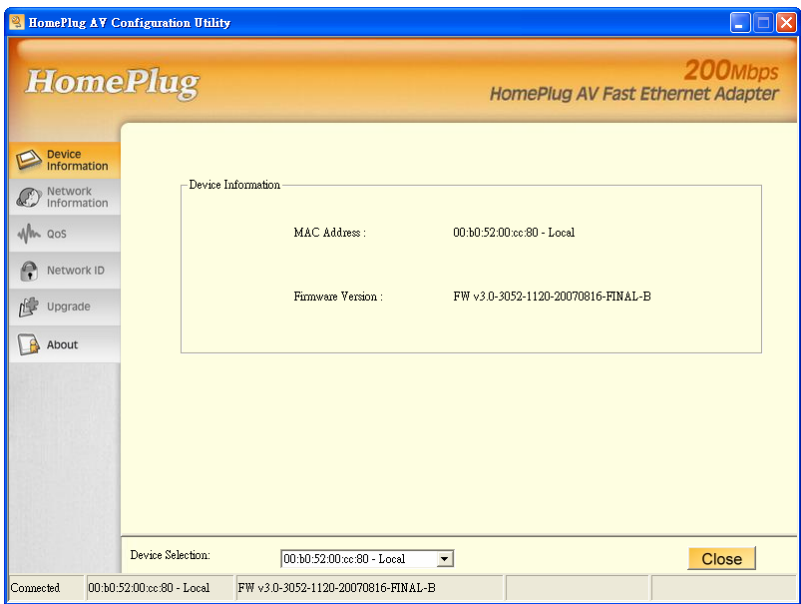
# Using the HomePlug AV Utility

---



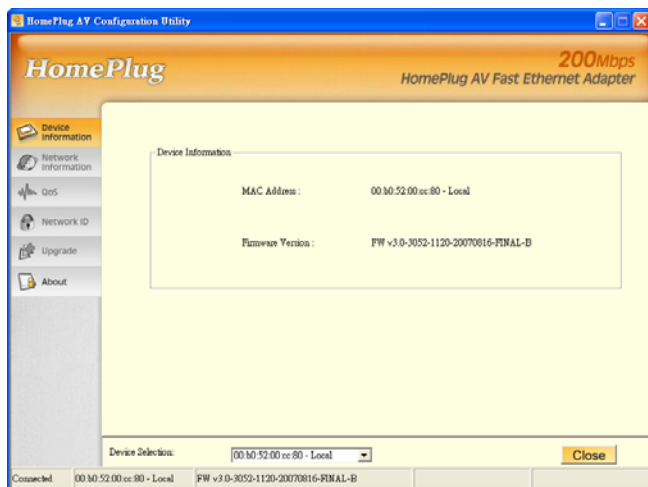
To start the HomePlug AV Utility, double click the icon on the desktop, the Configuration Utility will be executed.

The Configuration Utility was divided into four functions, Device Information, Network Information, QoS, Security, Upgrade and About, for details instruction, follow the below section.



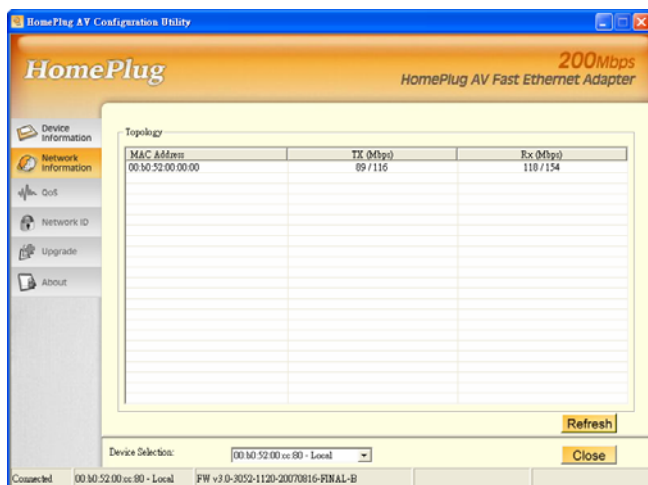
## Device Information

The Device Information screen shows the device information including the MAC address, Firmware Version and the connected PLC device.



## Network Information

The Network Information screen shows all devices that were on the power line network are listed here. Devices that are active on the current logical network will show a transfer rate and receiver rate.



## QoS

QoS requirements are different for various data types such as streaming video or music, voice and raw data. To provide higher QoS for streaming data, priority levels can be set using tags at the beginning of data frames. Virtual Local Area Network (VLAN) 802.1p priority tags on Ethernet frames are used to specify 8 (0 – 7) levels of ‘user priority’.

The 200M HomePlug® AV to Fast Ethernet Adapter allows 4 levels of Channel Access Priority (CAP (0 – 3)). Therefore, the 8 levels of VLAN Ethernet tags must be mapped to the 4 levels of CAP priority, where CAP 3 is the highest priority and CAP 0 is the lowest. CAP 3 priority might be used for voice and network management frames, CAP 2 is used for streaming video and music while CAP 1 and CAP 0 are used for data. Mapping VLAN tags or TOS bits to CAP levels is easily done using the VLAN Priority Mapping function on the QoS tab window.

HomePlug AV Configuration Utility

HomePlug

200Mbps  
HomePlug AV Fast Ethernet Adapter

Device Information

Network Information

**QoS**

Network ID

Upgrade

About

Destination MAC Address	CAP	Destination IP Port	CAP
Destination MAC Address		Destination IP Port	

Default CAP - Lowest Priority Classification

IGMP: CAP 3

IGMP managed Multicast Stream: CAP 2

Multicast/Broadcast: CAP 1

Unicast: CAP 1

Priority Mapping

Priority : ☒ VLAN Tags ☐ TOS Bits

0: CAP 1 CAP 1

1: CAP 0 CAP 0

2: CAP 0 CAP 0

3: CAP 1 CAP 1

4: CAP 2 CAP 2

5: CAP 2 CAP 2

6: CAP 3 CAP 3

7: CAP 3 CAP 3

Reset to default

Save changes

Device Selection: 00:40:f4:ff:f1:d6 - Remote 

Close

Connected 00:40:f4:ff:f1:d6 - Remote FW v3.0-3052-1120-20070816-FINAL-B

## **Device Selection**

Select the device from the drop down list and configure the device selected.

## **List View**

The QoS tab includes two list views to provide simple channel access priority (CAP) classification for individual MAC addresses and IP Ports. There is a collective limit of eight across both lists. No delimiters, colons, or dashes are allowed in the MAC address format.

## **Priority Mapping**

The 'Priority Mapping' group contains both VLAN and TOS Bit mapping capability. When selected, packets matching the VLAN or TOS Bit priority will be assigned the Powerline contention priority (Channel Access Priority, CAP) as set in the corresponding dropdown box. If a packet has both VLAN and TOS in it, VLAN will override TOS.

## **Default CAP**

The 'Default CAP' group allows for default priority mapping of packets that do not have a VLAN or TOS bit. Settings are available for Unicast (directed to a host).

- IGMP - (default CAP 3) - sets the channel access priority for IGMP frames - these are the group management frames, not the stream data
- IGMP managed Multicast Stream (default CAP 2) - sets the default channel access priority for stream data belonging to a snooped IGMP multicast group.
- Multicast/Broadcast - sets the default CAP1 for multicast frames not in a snooped group and for broadcast frames.
- Unicast - (default CAP 1) - sets the default channel access priority for unicast frames not matching any other classification or mapping.

**Reset to default**

Press the ***Reset to default*** button to restore the factory default QoS setting.

**Save changes**

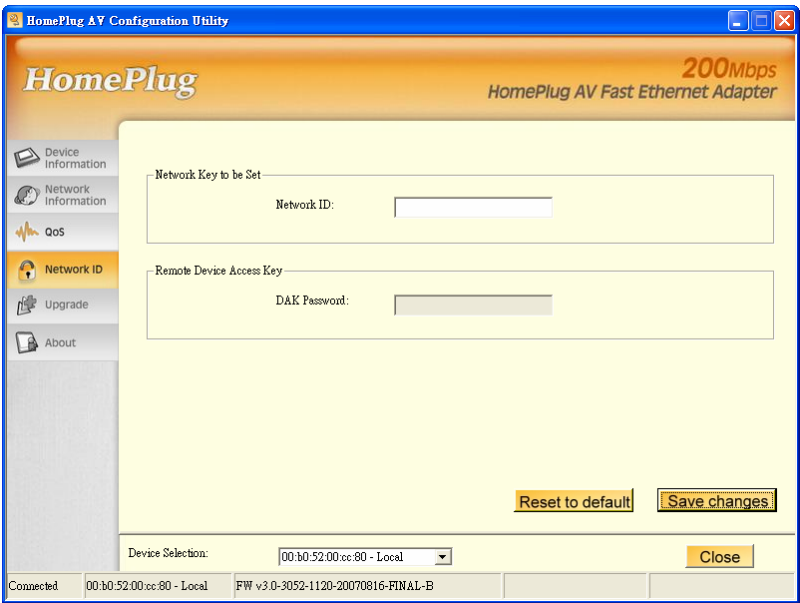
Press the ***Save changes*** button to save and execute the modified QoS setting.

---

**Network ID**

---

This Network ID window is used to set or change the network group id.



**Device Selection**

Select the device form drop down list will be configure.

## Setting the local device Network ID

If the **Device Selection** is selected to **local device** Device Selection: [00:10:52:00:00:80 - Local], enter the network ID in Network ID filed then click **Save changes** button to sets the entered Network ID.

If the **Device Selection** is selected to **remote device** Device Selection: [00:10:52:00:00:00 - Remote], enter the network ID in Network ID filed and enter the remote device access key in DAK password field then click **Save changes** button to sets the entered Network ID. (The DAK password is show on each PLC's device label).

## Reset to Default

Press the **Reset to Default** button to restore the factory default network id setting for "HomePlugAV".

---

## Upgrade

---

### Device Selection

Select the device form drop down list will be configure.

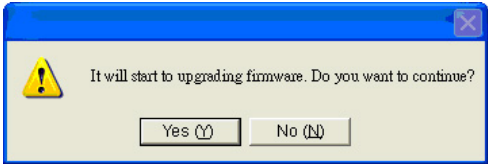
### Reboot Device

Press the **Reboot Device** button to reset the node, which will restore the initial factory configuration.



## Firmware Upgrade

To upgrade the firmware, press the **Firmware Upgrade** button and then locate the two firmware files (PIB file \*.pib and firmware file \*.nvm), the confirmation windows will pop up, click **Yes** to start the firmware upgrade or click **No** to abort the firmware upgrade.



---

## About

The About screen shows the HomePlug AV Configuration Utility information including utility version and release date.



---

# SPECIFICATIONS

---

Standards:	200M HomePlug AV IEEE 802.3 Ethernet IEEE 802.3u Fast Ethernet
Data Speed:	Ethernet: 10/100Mbps (Link speed) PowerLine: Up to 200Mbps
Frequency band:	2MHz ~ 30MHz
Modulation Technology:	OFDM
Secutiry:	128-bit AES. Link Encryption with Key management for secure powerline communications
Range Coverage:	Up 300 meters (depends on environment)
LED indicators:	Power, HomePlug, Ethernet
Ethernet port:	1 x 10/100Mbps Ethernet with Auto negotiation and Auto-MDI/MDIX
EMI Compatibility:	FCC Class B, CE Class B
Safety:	UL, CB
Dimensions:	91.5 x 65 x 40 mm (without AC power plug)
Storage Temperature:	Storage: -10 °C ~ 70 °C Operation: 0 °C ~ 40 °C
Humidity: (non-condensing)	Storage: 10% ~ 90% Operation: 10% ~70%
Power	100 ~ 240VAC, 50 ~ 60Hz
Power Consumption	4.2 watts. (max.)
Configuration Utility:	Windows 2000 XP 32bit/64bit Vista 32bit