

# TP-LINK®

## User Guide

**TL-PA4020P**

**AV600 2-port Passthrough Powerline Adapter**



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## Chapter 1 Introduction

This device is an AV600 2-port Passthrough Powerline Adapter which transforms your house's existing electrical wiring into a ubiquitous networking infrastructure. Simply plug this AV600 2-port Passthrough Powerline Adapter into an ordinary AC power outlet which will easily extend your Cable/xDSL broadband connection or existing Ethernet (LAN) network to any other electrical outlet on the same electrical circuit of a house without the need of any new cabling.

This Powerline Adapter supports up to 600Mbps data rate over the existing household power circuit. With data rates of 600Mbps, full multimedia application can easily be supported throughout the whole house in addition to Internet access. This Powerline Adapter uses the existing power lines installed in a home as a path to transmit digital data, voice, audio and video between devices.

To ensure data communication's security and multimedia applications, this Powerline Adapter support built-in 128-bit AES encryption.

The new Powerline Adapter TL-PA4020P from TP-LINK provides extra convenience and better performance for your home network with its integrated electrical socket and mains filter. The common problem of wasting an electrical outlet is solved and additional terminal devices or multiple sockets can be connected to the adapter just like to a normal wall socket. What's more, the data transmission in the network can be significantly improved by the integrated mains filter. With minimum setup, you can install and use this Powerline Adapter within minutes. The adapter adds two useful functions.

1. Existing connection with a new unassociated device added via the **Pair Button**.
2. Reset to default setting via the **tpPLC** or the **Pair Button**.

### Note:

TP-LINK tpPLC Utility is provided to manage powerline devices. For detailed instructions, please refer to the tpPLC Utility's User Guide.

### 1.1 System Requirement

- a) At least two power outlets (100V–240V~, 50/60Hz) with standard home power wiring
- b) A computer with the following:
  - Operating System with TCP/IP installed
  - Pentium III compatible processor and above
  - Ethernet LAN card installed with TCP/IP protocol
  - 64 MB RAM or more
  - 50 MB of free disk space (Minimum)

### 1.2 Important Safety Instructions

1. Do not open this product or attempt to service it; it may expose you to dangerous high voltage or other risks.
2. Do not operate this product near water.
3. Do not place or operate this product near a radiator or a heat register.
4. Do not expose this product to dampness, dust or corrosive liquids.
5. Do not connect this product or disconnect it from a wall socket during a lightning or a thunderstorm.
6. Do not block the ventilation slots of this product, for insufficient airflow may harm it.

7. Do not put anything on this product.
8. Plug this product directly into a wall socket (100V–240V~, 50/60Hz). Do not use an extension cord between this product and the AC power source.
9. When plugging this product into a wall socket, make sure that the electrical socket is not damaged, and that there is no gas leakage.
10. Place the connecting cables properly so that people won't stumble or walk on it.
11. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult the qualified technician.
12. Unplug this product from the mains and refer the product to qualified service personnel for the following conditions:
  - If liquid has been spilled on the product
  - If the product has been exposed to rain or water
13. Unplug this product from the wall socket before cleaning. Use a damp cloth for cleaning. Do not use liquid cleaners or aerosol cleaners.
14. The specification of the fuse is **T4AL250V**. To avoid damage, please do not change the fuse.
15. The Operating temperature is 0°C~40°C (32°F~104°F).
16. The Storage temperature is -40°C~70°C (-40°F~158°F).

### **1.3 Conventions**

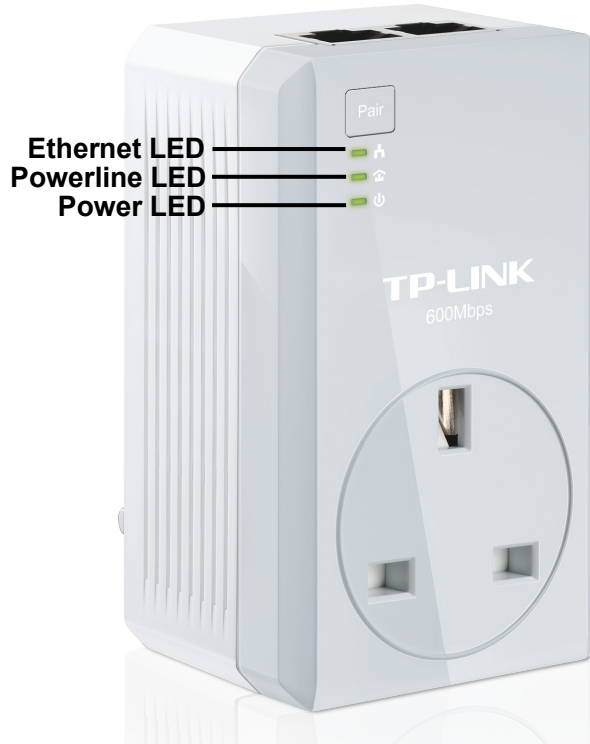
The powerline adapter or AV600 2-port Passthrough Powerline Adapter mentioned in this guide stands for TL-PA4020P AV600 2-port Passthrough Powerline Adapter without any explanation.




Parameters provided in the pictures are just references for setting up the product. They may differ from the actual situation.

You can set the parameters according to your demand.

### 1.4 LED Indicator

The LED indicator displays information about the device's status.



Item	Status	Indication
 Power LED	Solid	The adapter is on.
	Blinking	The adapter is in power-saving mode or in pairing procedure.
	Off	The adapter is off.
 Powerline LED	Solid	The adapter is connected to a powerline network.
	Off	The adapter isn't connected to any powerline network or is in Power-Saving mode.*
 Ethernet LED	Solid	At least one Ethernet port is connected, but there is no data being transferred.
	Off	No Ethernet port is connected.

 **Note:**

5 minutes after all the devices connected to the adapter's Ethernet ports are turned off, the adapter will automatically switch to the Power-Saving Mode. In power-saving mode, the Homeplug cannot be accessed via the electrical wiring, but its integrated electrical socket can supply the power normally. After the device connected to the Homeplug is switched on again, your Homeplug will leave the power-saving mode and the three LEDs will flash simultaneously.

### 1.5 Physical Interface

There are four physical interfaces on this Powerline Adapter.



Interface	Description
Pair Button*	<p>Press and hold for 1 second to set up or join a secure powerline network.</p> <p>Press and hold for 8 seconds to leave an existing powerline network.</p> <p>Press and hold for at least 15 seconds to reset the powerline adapter.</p>
Ethernet Port	It is a 10/100Mbps Ethernet port on the adapter for connecting it to the PC or the broadband device with the network cable.
Power Plug	A Power Plug for connecting the adapter to an AC power socket (100V–240V~, 50/60Hz)
Integrated Electrical Socket	The integrated electrical socket allows additional devices or multiple sockets to be connected to the adapter just like to a normal wall socket. No electrical socket is lost.

**Note:**

For detailed information about the pair button, please refer to [Chapter 3 Advanced Feature: How to Use the Pair Button](#).

## Chapter 2 Connecting Mechanism

### 2.1 Introduction

The Powerline Adapter supports up to 600Mbps data rate. With this high speed connection rate, this Powerline Adapter allows you to set up a high speed home network by using your home existing electrical wiring. Simply plug this Powerline Adapter into an ordinary power outlet to extend your Cable/xDSL broadband connection or existing LAN network to any other electrical outlet in any room of your house.

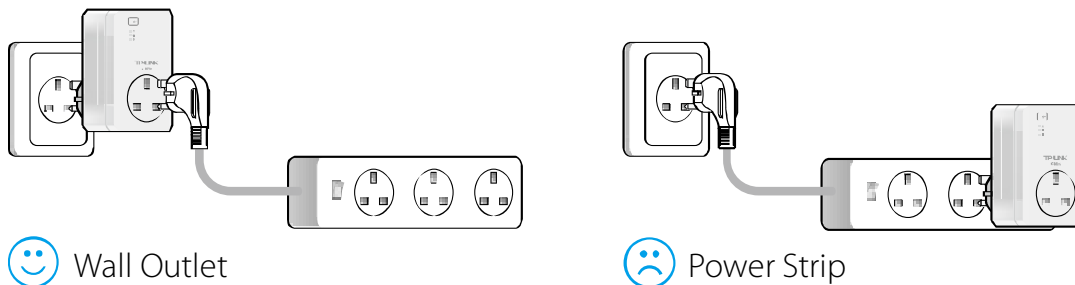
Note that this Powerline Adapter works in pairs. You need to plug one Powerline Adapter into a power outlet for client devices; you also need another Powerline Adapter connected to your Cable/xDSL broadband so as to extend your broadband connection or Internet surfing. With clean power line, the distance between two Powerline Adapters can reach 300 meters at most, but the actual distance may vary due to the environment.

Section below describes the connection instructions and hardware connection mechanism.

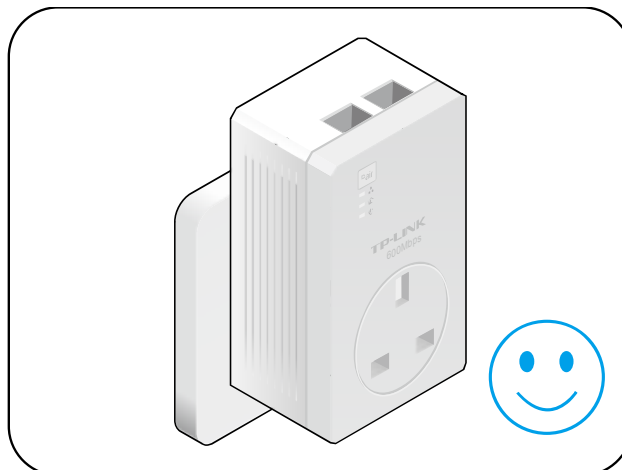
### 2.2 Connection Instruction

To ensure the optimum performance of the Powerline Adapter and significantly improve the transmission capacity of the network, we recommend that you comply with the following connection rules:

- Plug the Powerline Adapter directly into a wall socket but not the multiple sockets.
- To take full advantage of the filter function of the Powerline Adapter and to improve data transmission in the network, always plug the multiple sockets into the integrated electrical socket of the Powerline Adapter.



- Use the powerline adapter only in the below direction.





- All powerline adapters and extenders should be on the same electrical circuit.

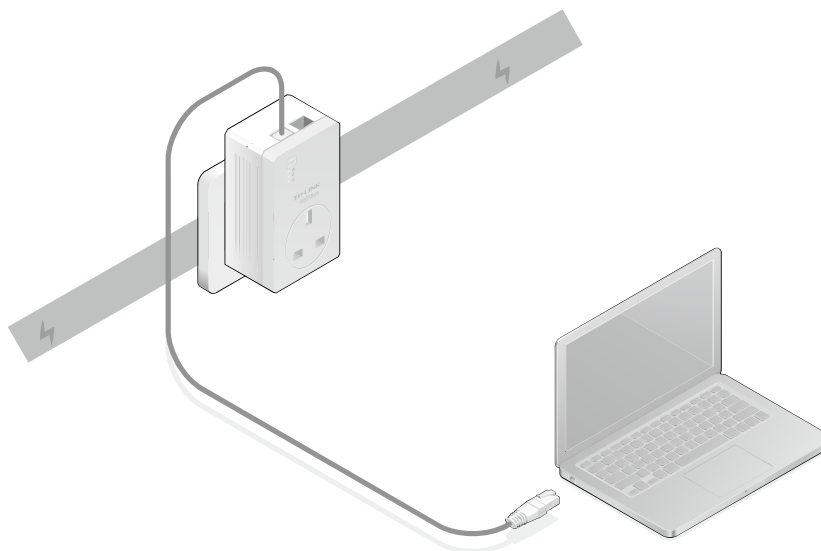
## 2.3 Hardware Connection – Computer

For those computers you wish to be networked by Powerline Adapter, each of the computers must be properly connected with a Powerline Adapter through an Ethernet (RJ45) cable.

Following are the steps to properly connect the Powerline Adapter to your computer:

1. Connect one end of the provided Ethernet (RJ45) cable to the Powerline Adapter's Ethernet port.
2. Connect the other end of the Ethernet (RJ45) cable to your computer's LAN port.
3. Plug the Powerline Adapter into a wall socket.
4. Turn on your computer.
5. Check and confirm that the Power LED  and Ethernet LED  on the Powerline Adapter are **ON**.

The hardware connection mechanism is shown below:






### Note:

Do not connect the Powerline adapter to any extension lead, power strip, extension cord or surge protector, as these may degrade the network performance.

## 2.4 Hardware Connection – Internet

This section describes how to connect the Powerline Adapter into your existing ADSL broadband connection via ADSL Ethernet port. Follow the procedures described below to connect the Powerline Adapter to your ADSL broadband connection:

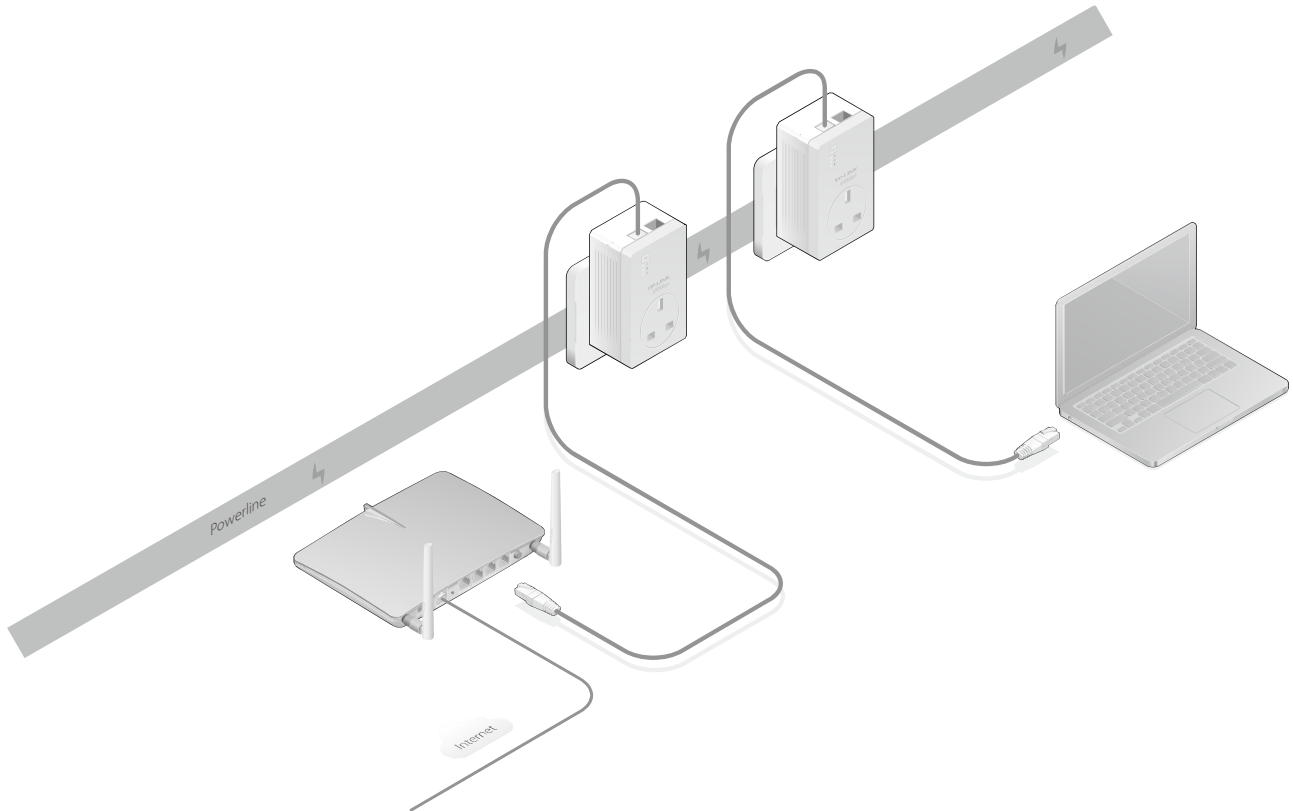
1. Connect one end of the provided Ethernet (RJ45) cable to the Powerline Adapter's Ethernet port.
2. Connect the other end of the Ethernet (RJ45) cable to an available Ethernet port of your ADSL broadband Router.
3. Plug the Powerline Adapter into a wall socket.
4. Check and confirm that the Power LED , Ethernet LED , and Powerline LED  on the Powerline Adapter are **ON**.

### Note:

If any LED does not turn on, refer to [Appendix: Troubleshooting](#).



The hardware connection mechanism is shown below:



**Note:**

Where the MAINS plug or an appliance coupler is used as the disconnected device, the disconnected device shall remain readily operable. The idle wall sockets or electrical outlets in your household electrical circuit can be used normally without interference from the network.

## Chapter 3 Advanced Feature: How to Use the Pair Button

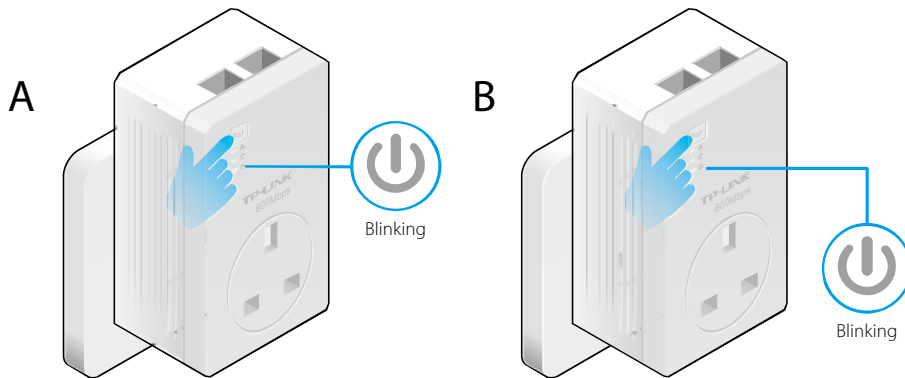
### 3.1 Set Up a Secure Powerline Network

The Homeplug AV standard uses 128-bit AES (Advanced Encryption Standard) to safely transmit data between powerline adapters. For the powerline adapters to communicate with each other they all need to use the same Network Membership Key (NMK). Otherwise, they cannot unscramble the encrypted data sent in the powerline network.

The **Pair** button allows you to set up a secure powerline connection with other HomePlug AV compliant powerline devices which also support the **Pair** feature.

You can connect a number of devices on a powerline network, but you can only use the Pair button on two devices at a time.

**Create a secured powerline network using the Pair button:**

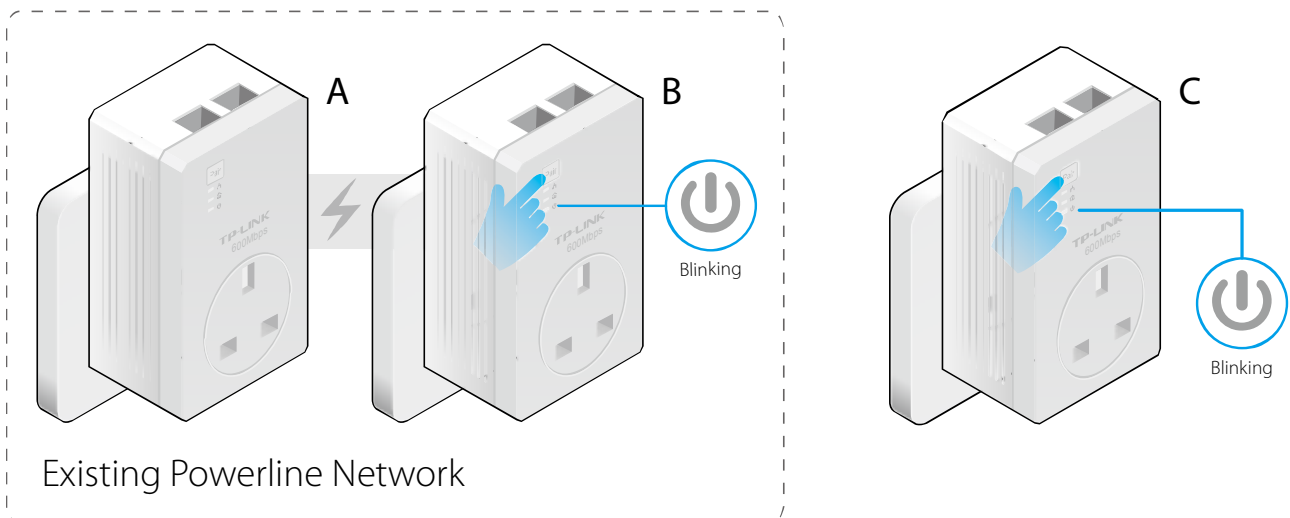


**Step 1.** Press the Pair button of Powerline adapter A for one second, the Power LED will start flashing.

**Step 2.** Within 2 minutes, press the Pair button of Powerline adapter B for one second, the Power LED will start flashing.

**Step 3.** Wait until the Power LED on both adapters stops flashing and the Powerline LED becomes solid on, and the pairing is completed.

**Join an existing secured powerline network:**



Powerline adapter A and Powerline adapter B form a HomeplugAV Network, Powerline adapter C wants to join this network.

- Step 1.** Press and hold the Pair button on Powerline adapter C for one second.
- Step 2.** Within 2 minutes, press and hold the Pair button on Powerline adapter A/B for one second.
- Step 3.** Wait until the Power LED on both adapters stops flashing and the Powerline LED becomes solid on, and the pairing is completed.

 **Note:**

The sequence of Step 1 and Step 2 can be exchanged.

### 3.2 Leave an existing secured powerline network

As the figure above shown, Powerline adapter A, B and C have formed a HomeplugAV Network. The user wants to remove one device (Powerline adapter A) from this network.

- Step 1.** Press and hold the Pair button on powerline adapter A for about 8 seconds, and then release the button. (All LEDs of powerline adapter A will momentarily go off.)
- Step 2.** Wait until the Powerline LED of powerline adapter A turns off, and the powerline adapter is disconnected from the powerline network.

### 3.3 Reset

To reset the powerline adapter:

Press and hold the Pair button for at least 15 seconds, and then release the button. You will see all LEDs go off momentarily, and then begin to flash. When the Power LED turn solid, the reset process is completed.

Be careful, don't power off the powerline adapter when it is in reset process.

## Appendix: Troubleshooting

The Troubleshooting provides answers to common problems regarding the powerline adapter.

### 1. The Power LED does not light up.

**Ans.** Check the following:

- A. Make sure that the powerline adapter is properly plugged into a power outlet.
- B. Make sure the power outlet is active (working) by plugging another electric device into it.
- C. Re-plug the powerline adapter to the power outlet again. If the Power LED still fails to light up, contact your local dealer for technical support.

### 2. The Ethernet LED does not light up.

**Ans.** Check the following:

- A. Make sure that the Ethernet cable (RJ45) is properly connected to the powerline adapter's Ethernet port.
- B. Make sure that the other end of the Ethernet cable (RJ45) is properly connected to the computer LAN card or to your Cable/xDSL Ethernet port.
- C. Make sure your computer LAN card is properly installed and configured.
- D. Contact your local dealer for technical support if the Ethernet LED still fails to light up after the above procedures.

### 3. The Powerline LED does not light up.

**Ans.** Check the following:

- A. Make sure all powerline adapters are on the same electrical circuit.
- B. Install and open the tpPLC Utility. The utility will automatically detect all other powerline adapters on your powerline network. If only one powerline adapter is detected, the powerline network is not set up successfully. Set up a powerline network again by following "[3.1 Set Up a Secure Powerline Network](#)" and check whether the Powerline LED lights up or not.
- C. Try to add a second powerline adapter to the existing powerline network by plugging a powerline adapter into a nearby power outlet or by following "[3.1 Set Up a Secure Powerline Network](#)" and check whether the Powerline LED lights up or not.
- D. Contact your local dealer for technical support if the Powerline LED still fails to light up after the above procedures.

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<http://www.tp-link.com>

## 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.

## Safety Information

- When product has power button, the power button is one of the way to shut off the product; when there is no power button, the only way to completely shut off power is to disconnect the product or the power adapter from the power source.
- Don't disassemble the product, or make repairs yourself. You run the risk of electric shock and voiding the limited warranty. If you need service, please contact us.
- Avoid water and wet locations.

## Explanation of the symbols on the product label

Symbol	Explanation
	Indoor use only
	AC voltage
	<b>RECYCLING</b> This product bears the selective sorting symbol for Waste electrical and electronic equipment (WEEE). This means that this product must be handled pursuant to European directive 2012/19/EU in order to be recycled or dismantled to minimize its impact on the environment. User has the choice to give his product to a competent recycling organization or to the retailer when he buys a new electrical or electronic equipment.

## DECLARATION OF CONFORMITY

For the following equipment:

Product Description: **AV600 2-port Passthrough Powerline Adapter**

Model No.: **TL-PA4020P**

Trademark: **TP-LINK**

We declare under our own responsibility that the above products satisfy all the technical regulations applicable to the product within the scope of Council Directives:

Directives 2004 / 108 / EC, Directives 2006 / 95 / EC, Directives 2011/65/EU

The above product is in conformity with the following standards or other normative documents :

**EN 55022: 2010 + AC: 2011**

**EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011 +A2: 2013**

**EN 50412-2-1: 2005**

*The product carries the CE Mark*



Person responsible for making this declaration:

A handwritten signature in black ink, appearing to read 'Yang Hongliang', written over a light gray rectangular background.

**Yang Hongliang**

**Product Manager of International Business**

Date of issue: 2016-02-23

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