

# SINEOJI

## User Manual

### **PL500EP**

500Mbps Mini HomePlug AV with Pass Through

# 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

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HomePlug Powerline is an excellent solution that can be used to extend your network. In the home or small office building, use HomePlug Ethernet Bridges to link multiple locations without the need to run long Ethernet cables. Combined with a broadband Fiber/DSL/Cable connection, every room with electrical power outlets will have easy access to high-speed Internet connection. With the HomePlug AV speed of up to 500Mbps, this easy-to-setup solution can provide fast streaming HD movies, online multiplayer games, and other data intensive activities for today's HD Entertainment Center demand.

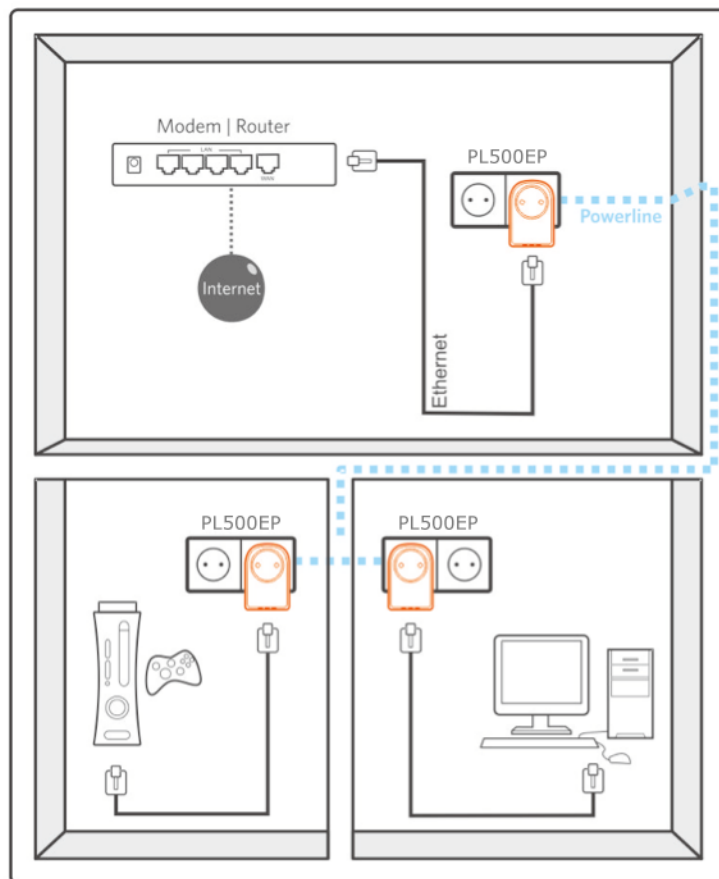
## 1.1 Introduction

Each HomePlug AV 500Mbps nano Pass Thru allows you to connect one device that has an Ethernet port to a Powerline network. This nano Pass Thru comes with a built-in noise filtering AC socket. As a result, another device needing power can be plugged into the AC socket on this product without taking up another wall socket space. Using the HomePlug Powerline technology turns your electrical outlets into wired network connections by simply plugging a pair of HomePlug Ethernet Bridges into sockets without pulling any extra cables which will save time and money on installation cost and cable material cost.

## 1.2 System Diagram

Add high-speed Internet access to any room in your home with this HomePlug AV 500Mbps nano Pass Thru. You can stream HD movies and music, play online multi-player games and much more.

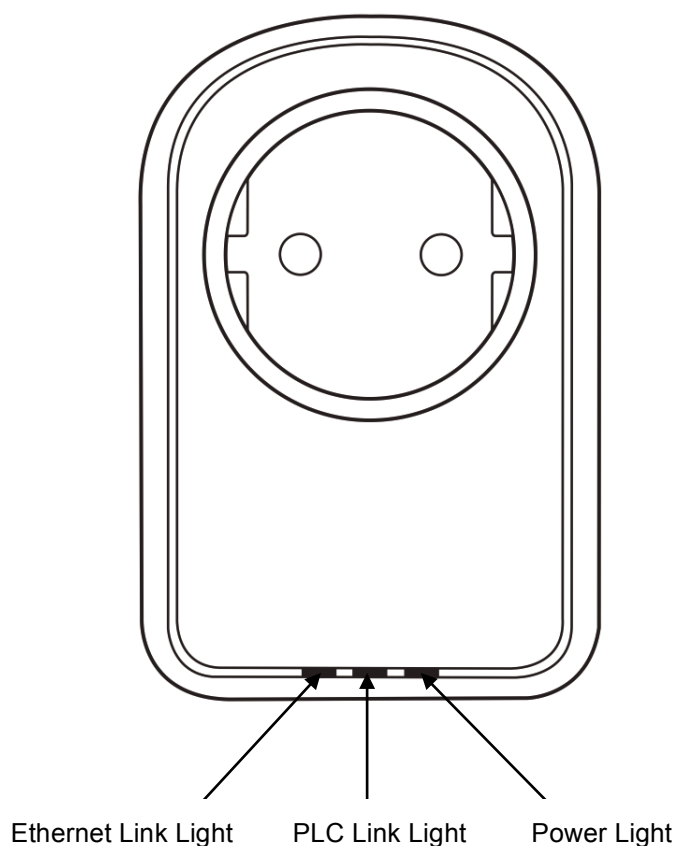
Note: HomePlug AV Ethernet Bridge needs to pair with at least one other HomePlug AV compatible device such as this one in order to create a working system.



## 1.3 Casing Details

### Front Casing

The front casing contains 3 status lights: Power, PLC Link, and Ethernet Link.



### Status Lights

#### Power

On: This HomePlug AV 500Mbps nano Pass Thru is receiving electrical power

Off: Power off

Flashing Green (1 second ON, 14 second OFF) : Device in standby mode

#### PLC Link

The PLC (Powerline) Link light will indicate the overall speed of your network with 3 colors:

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+

Off: No activity. This HomePlug AV 500Mbps nano Pass Thru is not connected

#### Ethernet Link

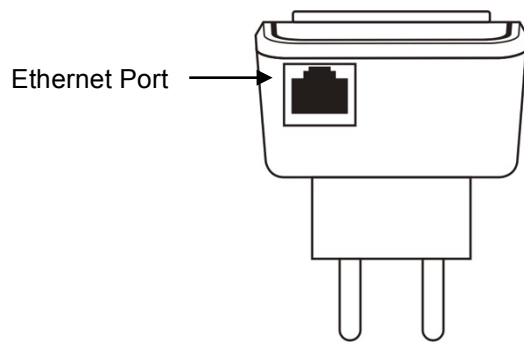
Solid Green: 10/100 Mbps port linked

Off: Ethernet Link not active

Flashing Green: Data sending

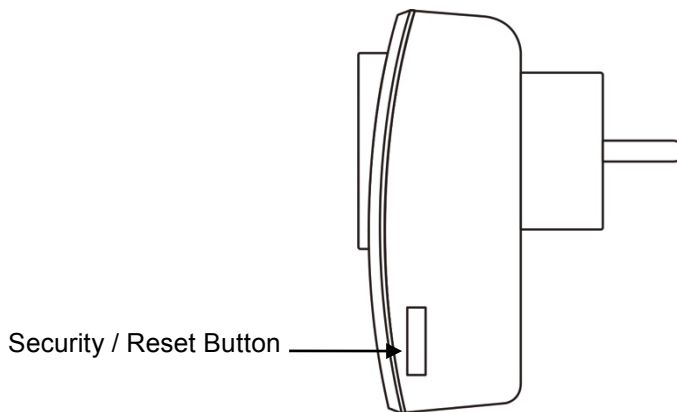
### Bottom Casing

The bottom casing contains an Ethernet Port.



## Right Casing

The right casing contains a Security/Reset Button (dual function)



### Security

This function is designed to generate an individual HomePlug AV network group under multiple nodes environment. Please refer to the optional **Individual HomePlug AV Network Setup** section below for more details.

### Reset

This function is used to clear ALL data and restore ALL settings to the factory default values.

Note: The HomePlug AV 500Mbps nano Pass Thru must be plugged in to restore it to factory defaults. Hold the Reset button for 13 sec then release.

## 1.4 Initial Setup

HomePlug is a plug and play device; user is able to plug and play without any complex configuration and settings. You can use HomePlug AV 500Mbps nano Pass Thru to connect networkable devices like computers and game consoles directly to each other. You can also connect devices like a computer or Blu-ray Disc™ player to a router or modem for Internet access.

### Connect the HomePlug AV 500Mbps nano Pass Thru to a Computer or Modem/Router

1. Plug one end of the Ethernet Cable into the Ethernet Port on the bottom of the HomePlug AV 500Mbps nano Pass Thru
2. Plug the HomePlug AV 500Mbps nano Pass Thru into a AC Wall Power Outlet near the device you want to connect

*Warning: Do not plug this HomePlug AV 500Mbps nano Pass Thru into a powerstrip that has surge protection. Doing so will degrade Powerline performance. For best performance, plug all HomePlug AV Ethernet Bridges directly into a wall outlet.*

3. For connecting to a computer: Plug the other end of the Ethernet Cable into an OPEN Ethernet Port located on your computer.
4. For connecting to a Modem or Router for Internet access: Plug the other end of the Ethernet Cable into an

OPEN Ethernet Port on your Modem or Router.

5. Make sure that the PLC Link light on each HomePlug AV 500Mbps nano Pass Thru turns solid green.
6. Your HomePlug AV 500Mbps nano Pass Thru are now connected forming a HomePlug AV network.

## 2 Individual HomePlug AV Network Setup (Optional)

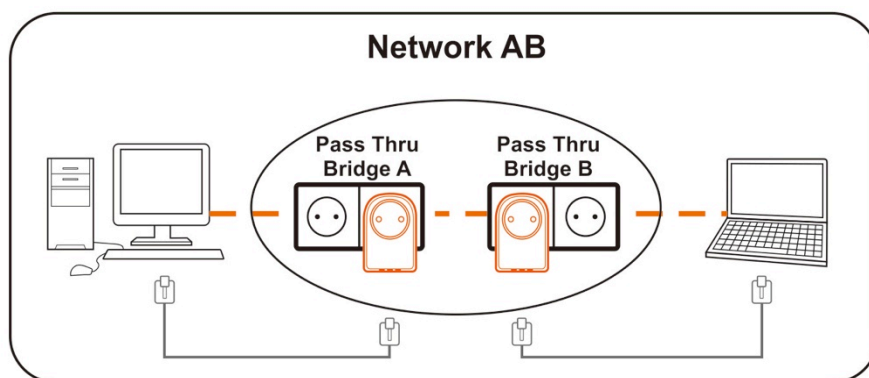
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All HomePlug AV 500Mbps nano Pass Thru ship with a default security key so they will automatically link to all other HomePlug AV 500Mbps nano Pass Thru or Ethernet Bridges sharing the same electrical lines. If there are other HomePlug AV 500Mbps nano Pass Thru or Ethernet Bridges in the building (such as in an office or apartment building), you may want to create your own individual HomePlug AV network group so other HomePlug AV Ethernet Bridges cannot connect to your network.

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

### 2.1 Creating a new individual HomePlug AV network (Network AB)

Two unassociated Bridges (**Bridge A** and **Bridge B**) are forming a new network—Network AB

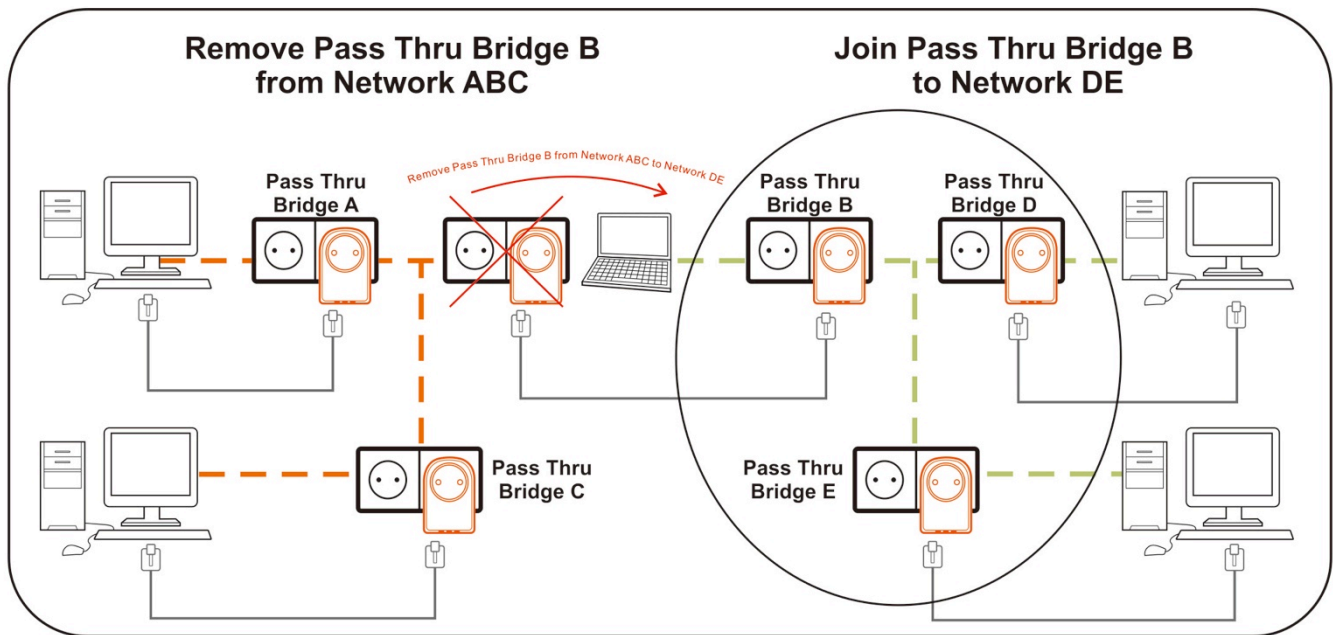


The procedure is as follows:

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.
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.
3. Currently, **Bridge A** and **Bridge B** are not networked
4. Press and hold the Security button on **Bridge A** for 1~3 seconds then release.
5. The Power light on **Bridge A** starts to flash.
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.
7. Both **Bridge A** and **Bridge B** are now networked together.

## 2.2 Adding Bridge C to existing Network AB (Network ABC)

One unassociated **Bridge C** is added to an existing Network AB.



The procedure is as follows:

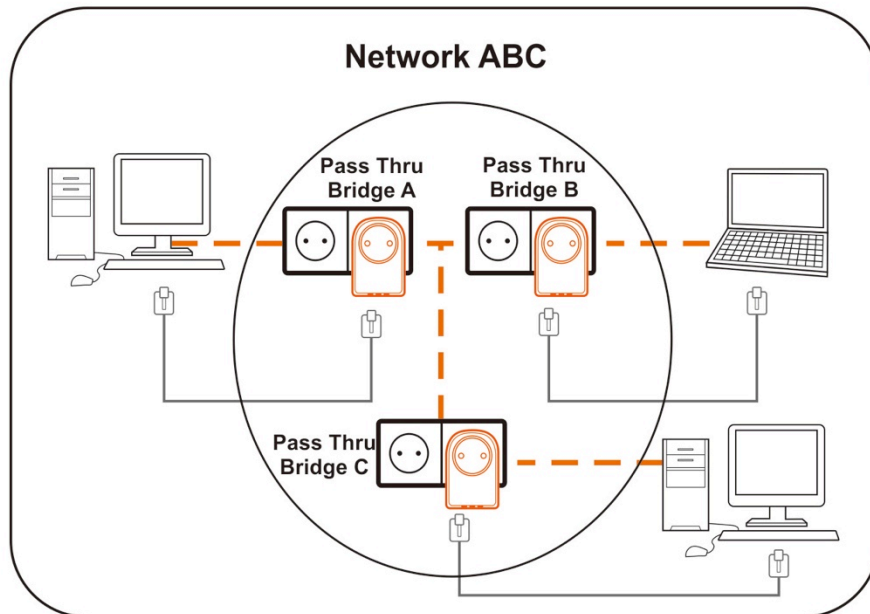
1. Press and hold the Security button on **Bridge C** for no more than 10 seconds. Must release after 10 seconds. Once released, the Power light will flash.

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.

2. Press and hold the security button on **Bridge A** for 1~3 seconds. The Power light on **Bridge A** starts to flash.
3. 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.
4. **Bridge A**, **Bridge B** and **Bridge C** are now networked to each other.

## 2.3 Removing Bridge B from Bridge A & C Network and join with Bridge D & E (Network BDE)





The procedure is as follows:

1. Press and hold the Security button on *Bridge B* for no more than 10 seconds. Must release after 10 seconds. Once released, the Power light will flash.  
The password to *Bridge B* has just been erased and removes itself from *Bridge A & C*.
2. Press and hold the Security button on *Bridge D* for 1~3 seconds.
3. Within 120 seconds after the Power light on *Bridge D* starts to flash, press and hold the Security button on *Bridge B* for 1~3 seconds then release.
4. *Bridge B* and *Bridge D* are now connected to each other, which in turn becomes part of Network BDE.

### 3 Troubleshooting and Disclaimer

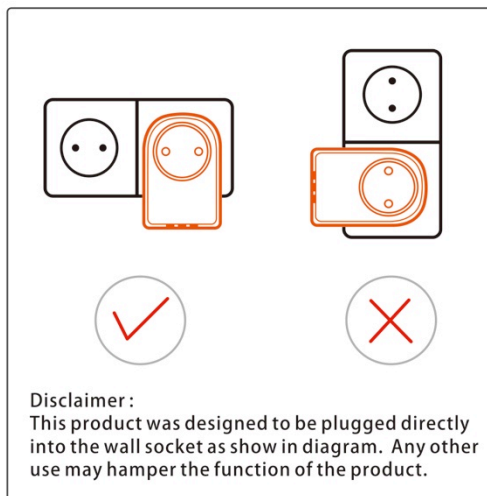
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If your HomePlug AV 500Mbps nano Pass Thru have difficulty communicating with each other, check the following:

- 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 HomePlug AV 500Mbps nano Pass Thru's light will flash, the units will reset and attempt to link using default factory settings.
- Try plugging the HomePlug AV 500Mbps nano Pass Thru into an adjacent plug.
- HomePlug AV 500Mbps nano Pass Thru work better when plugged directly into the wall outlet. Connecting these Pass Thru units or Ethernet Bridges to a power strip or surge protector may degrade network performance or completely stop network signals.
- This HomePlug AV 500Mbps nano Pass Thru should not be used on GFI protected outlets as some outlets will filter out HomePlug Powerline signal.
- This HomePlug AV 500Mbps nano Pass Thru 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 500Mbps nano Pass Thru may not be able to connect between the different circuit breaker boxes. In this case, connect one HomePlug AV 500Mbps nano Pass Thru or Ethernet Bridge to a power outlet located on each of the circuit boxes. Connect Ethernet ca-

ble between each of HomePlug AV 500Mbps nano Pass Thru or Ethernet Bridge to link the different circuits together. This will allow the HomePlug AV 500Mbps nano Pass Thru from different circuit breaker boxes to connect.

- To enter standby mode for this device, simply remove the Ethernet cable and wait about 3 minutes.



## 4 Specification

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Main Chipset	Qualcomm AR7420
Computer Interface	IEEE802.3 ; IEEE802.3u
Data PHY Rate	Up to 500 Mbps
Standards	HomePlug AV
Network Interface	One RJ-45 (10/100Base-T Ethernet) One 500Mbps Power Line Port supporting co-existence with HomePlug 1.0 (14/85Mbps)
Security	128-bit AES Link Encryption with Key Management
Frequency Band	2-50 Mhz
Modulation Schemes	OFDM Symbol Modulation on Line synchronization 1024/256/64/16/8—QAM, QPSK, BPSK, ROBO Carrier Modulation
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
Cabling	100Base-T ; Cat. 5 UTP Cable
Operating Temperature	0° C to 40° C ambient temperature
Storage Temperature	-20° C to 70° C ambient temperature
Humidity	10% to 90% maximum (non-condensing)
Power Input	100 ~ 240V @ 50/60Hz Internal
Housing	Plastic (93.7mm x 62mm x 38mm)
Status Lights	Power: On/Off/Flashing 1 second ON, 14 seconds OFF (Standby Mode) PLC(Powerline) Link: Red/Orange/Green/Off Ethernet Link: Solid/Off/Flashing
Certifications	HomePlug AV Powerline Certification FCC Class B / CE Mark