



User  
Guide

Linksys PLWK400 | Powerline AV Wireless Network Extender Kit

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# Overview

Thank you for choosing this Linksys Powerline network adapter kit. These adapters provide easy setup and let you connect wired and wireless network devices to your home network. You need at least two Powerline adapters to create a Powerline network. This kit includes:

- One **PLE400** single-port Powerline adapter
- One **PLW400** wireless single-port Powerline adapter

Connect the PLE400 to your network router, and connect the PLW400 to any wireless or wired network device in any room of the house. You can find more help from our award-winning, 24/7 customer support at [Linksys.com/support](https://Linksys.com/support).

## Features

### PLE400



**Powerline**—The Powerline LED turns on when the adapter is connected to the Powerline network. The LED flashes to indicate network activity.



**Ethernet**—The Ethernet LED turns on when a wired network device is turned on and connected to the adapter's Ethernet (network) port. The LED flashes to indicate network activity.



**Power**—The power LED turns on when the adapter is powered on.



**Ethernet**—This connects to computers or other wired network devices. In a basic home Powerline network setup, you would connect this to one of your router's available Ethernet ports.



**HomePlug Simple Connect Button**—Configures advanced security (the network password) for your Powerline network.



**Standby/Reset**—To restore the factory default settings (including the advanced security settings and the network password), use a pointed object to press and hold the **Standby/Reset** button for at least ten seconds.

## PLW400



**Wi-Fi Protected Setup** button—Press this button to connect with other wireless network devices that have a Wi-Fi Protected Setup button.



**HomePlug Simple Connect** button—Configures advanced security (the network password) for your Powerline network.



**Reset** button (recessed)—To restore the factory default settings (including the advanced security settings and the network password), use a pointed object to press and hold the **Reset** button for at least ten seconds.



**Powerline** LED—The Powerline LED turns on when the adapter is connected to the Powerline network. The LED flashes to indicate network activity.



**Ethernet** LED—The Ethernet LED turns on when a wired network device is turned on and connected to the adapter's Ethernet (network) port. The LED flashes to indicate network activity.



**Wireless** LED—The Wireless LED turns on when a wireless network device is connected to your PLW400.



**Wi-Fi Protected Setup™** LED—This LED flashes while a wireless network device is connecting with your PLW400 using Wi-Fi Protected Setup.



**Power** LED—The power LED turns on when the adapter is connected to a powered electrical outlet.



**Ethernet** port—Use a network (Ethernet) cable to connect this port to a wired network device.

## How Powerline networking works

Electrical wiring runs through your home or office, carrying power to electrical outlets in every room. The typical wired Ethernet network uses Ethernet network cables to connect your wired network devices. A Powerline network uses your existing household wiring as the wiring for your Powerline network.

To create your Powerline network, use two or more Powerline adapters. Each device on your Powerline network requires a connection (either wired or wireless) to a Powerline adapter.

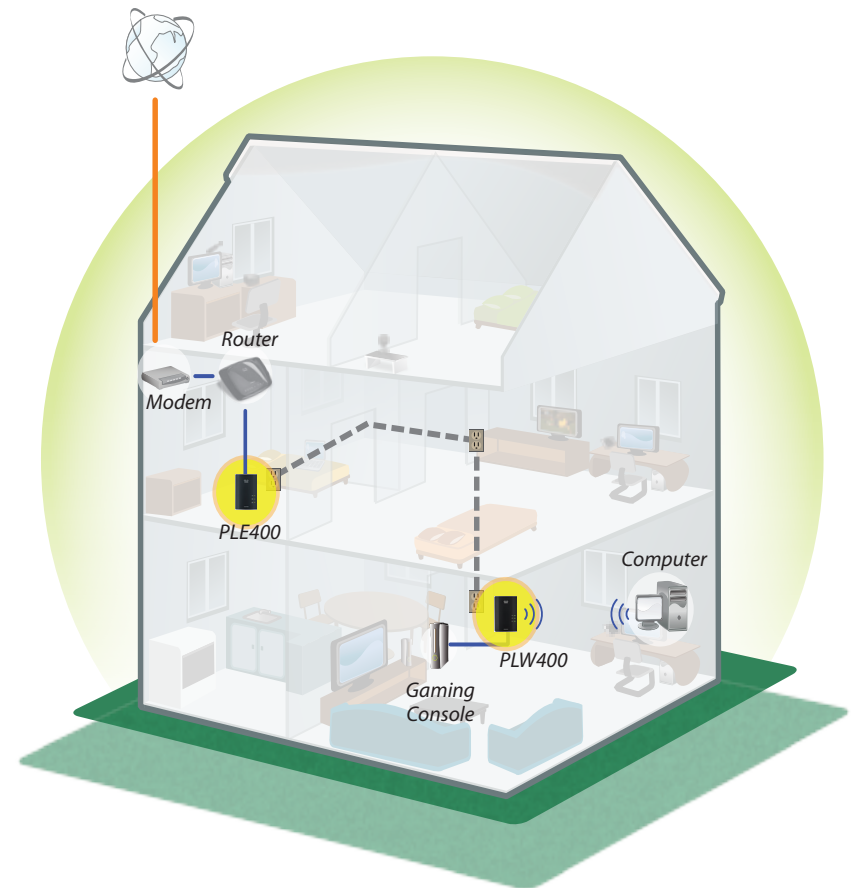
- The **PLE400** has one Ethernet port. One of these devices is typically used in a Powerline network to connect your network's wireless router to the household wiring.
- The **PLW400** contains one Ethernet port and an access point. You can connect one wired device and several wireless devices to it.

When adding a Powerline network to an existing network, the connections between the Internet, modem, and router stay the same.

### Example installation

This diagram shows a basic Powerline network in a house. The router upstairs is connected to the PLE400, which is plugged into an electrical outlet. Downstairs, a gaming console and a computer are connected to the PLW400, which is plugged into an electrical outlet.

Using the household wiring of the home, the router expands the local network to include the gaming console and desktop computer in the living room. Internet access, files, and printers can be shared between the computers and other networked devices. For online gaming, you can play downstairs in the comfort of your living room, while using the high-speed Internet connection of the router and modem upstairs.



# Installing the Adapters

## Installation overview

### To set up your Powerline network, you should:

- Make sure you already have Internet access and a working home network.
- Share Internet access with your Powerline network.
- Install Powerline adapters near the network devices that you want to connect to your home network.
- Make sure that the wireless devices that you want to connect to the PLW400 have a working wireless feature. An easy way to test this is to first try to connect the wireless network device to your home's wireless router while near the router.

## Tips

- If possible, connect Powerline adapters directly to a wall power outlet, and not to an extension cord, power strip, or surge protector.
- If a Powerline adapter must be installed onto a power strip, make sure that no other electronic devices are connected to the same power strip.
- If possible, position the PLW400 near the wireless devices that you want to connect.
- Avoid obstructions (such as metal file cabinets, mirrors, and thick walls) between the PLW400 and any wireless device you want to connect.

## How to share Internet access

To share Internet access over the Powerline network, connect your router to the Powerline network (typically with a single-port Powerline adapter such as the PLE400).

### To connect your wireless router to your Powerline network:

1. Connect your PLE400 (or another single-port Powerline adapter) to a power outlet near your wireless router. The adapter's power LED turns on.
2. Use the included Ethernet network cable to the port on the adapter and to an available port on the back of the wireless router. The adapter's Ethernet LED turns on. You are now ready to extend your Powerline network to the rest of your home.

### NOTE

For advanced security setup, see "Setting up advanced security" on page 8.

## How to connect your PLE400

You can use your PLE400 to provide Internet access to the rest of your Powerline network (see “How to share Internet access” above). Or, if you used a different Powerline adapter to share Internet access, you can install your PLE400 elsewhere in your home.

### TIP

You can also set up and configure all of your Linksys Powerline devices using the configuration utility. For more information, see “Using the Utility” on page 8.

### To add a PLE400 to your Powerline network:

1. Connect the adapter to a power outlet near the network device you want to connect. The adapter's power LED turns on. The Powerline LED flashes, and continues flashing until it connects to a second Powerline adapter.
2. Connect the network device's network cable to an available port on the Powerline adapter. The adapter's Ethernet LED flashes, then stays on when the connection is finished.

## How to connect your PLW400

After your existing network's router is connected to a Powerline adapter, you can install your PLW400 elsewhere in your home.



### TIP

You can also set up and configure all of your Linksys Powerline devices using the configuration utility. For more information, see “Using the Utility” on page 8.


### To connect your PLW400:


1. Make sure that the power switch on the right side is set to **I** (on).



2. If your home network already has security set up (recommended):
  - a. Connect the PLW400 to a power outlet near your main wireless router.
  - b. On the PLW400, press and hold the Wi-Fi Protected Setup  button at least one second, until the the Wi-Fi Protected Setup LED flashes.
  - c. Within two minutes, press the Wi-Fi Protected Setup  button on your wireless router. The PLW400 retrieves the security settings from the router and connects to your wireless network.

3. Move your PLW400 to a power outlet near the wireless network device(s) you want to connect. Typically, this area is not covered well by your home's wireless network router.

The Powerline LED  flashes, then stays on when the connection to the rest of the Powerline network is finished. Your home's wireless network is now available in the area surrounding the PLW400.





4. Connect the wireless network device to the wireless network in the usual manner. For instructions, see your wireless network device's user documentation. The PLW400's Wireless LED  flashes, then stays on when a wireless network device successfully connects.

## Setting up advanced security

### NOTE

The devices connected to the Powerline adapters will temporarily lose Internet connection during the security setup.

### To configure your network adapter with advanced security:

1. On one of the existing Powerline adapters that already have advanced security set up, press and hold the HomePlug Simple Connect button  for at least one second, until the Powerline LED  begins flashing slowly.
2. On your PLW400, press and hold the HomePlug Simple Connect button  for at least one second, until the Powerline LED  begins flashing slowly. When the LED stops flashing, the network key has been shared with the PLW400.

### NOTE

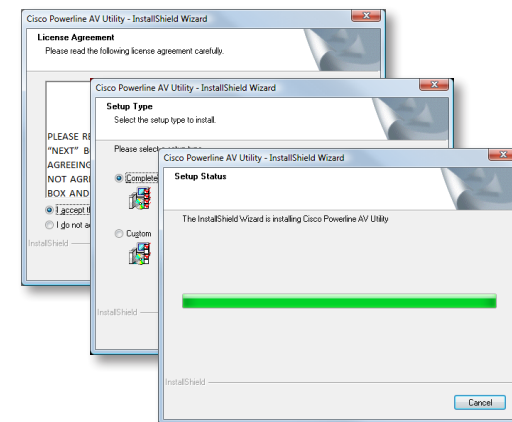
The devices connected to the adapters will regain Internet access within five minutes.

## Using the Utility

If you're having difficulty connecting the adapters using Wi-Fi Protected Setup, or if you'd like to set more advanced options, you can use the configuration utility.

### To install the configuration utility:

1. Connect a computer's Ethernet port to the PLW400's Ethernet port using the provided cable.
2. Insert the setup CD into the computer's CD or DVD drive, then follow the on-screen instructions.



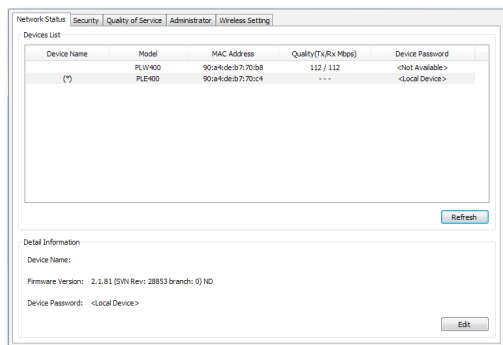
### To use the configuration utility:

1. After the utility is installed:
  - On Windows systems:*
    - a. Click **Start, All Programs, Cisco Systems**, then **Cisco Powerline AV Utility**. The utility opens.
  - On Mac OS X systems:*
    - a. Open the **Applications** folder, then double-click the **Cisco Powerline AV Utility** icon. The utility opens.

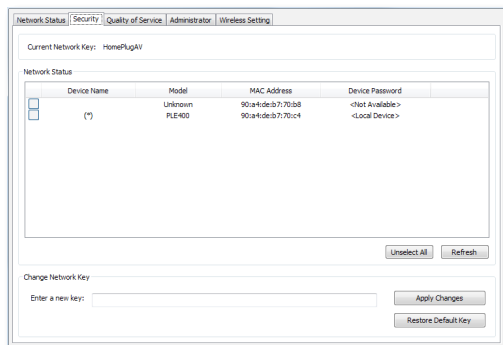
**NOTE**

If you try to change the settings of a Powerline device from a computer that is not connected directly to that device with a cable, you are prompted for a password. The device password is printed on the back of the device.

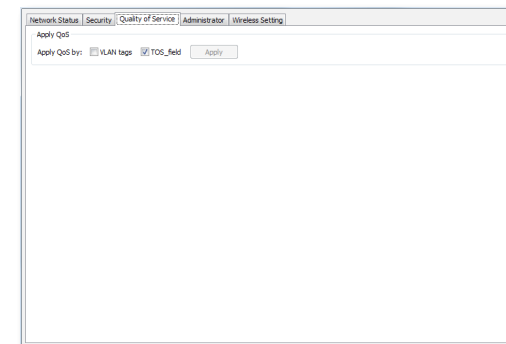
- Click the **Network Status** tab to view details of the Powerline adapters that are connected to your network.



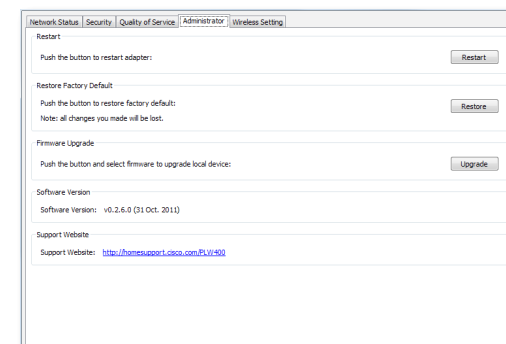
- If a connected adapter is not listed here, click **Refresh**.
  - To change information for any adapter that's listed, select the adapter, then click **Edit**.
- Click the **Security** tab to manually change the network key for each device. If you need to revert to the default key, click **Restore Default Key**.



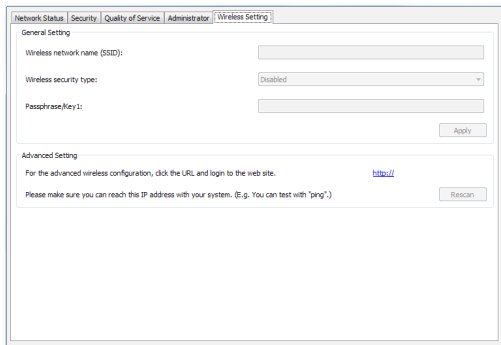
- Click the **Quality of Service** tab to specify how the network prioritizes network bandwidth.



- Click the **Administrator** tab to restart an adapter, restore factory defaults, or upgrade the adapter's firmware.



6. Click the **Wireless Settings** tab to change the wireless network name (SSID), wireless security type, or passphrase/key.



Settings are applied to the adapter(s) immediately. Close the window to exit the utility.

## Troubleshooting

### ***Your wireless network device is not recognized by your network.***

Try the following:

- Make sure that the wireless device is turned on and that its wireless networking is turned on.
- If possible, position the PLW400 near the wireless device that you want to connect.
- Avoid obstructions (such as metal file cabinets, mirrors, and thick walls) between the PLW400 and any wireless device you want to connect.

If you have set up advanced security for the Powerline network, check the following:

- Make sure all adapters on the Powerline network have been configured with the same network password. The network password must be identical in order for them to communicate with each other. See "Setting up advanced security" on page 8 or "Using the Utility" on page 8.

### ***The Ethernet LED does not turn on after you connected a wired Ethernet device to the Powerline adapter.***

Follow these instructions:

1. Make sure that the Ethernet network cable is securely connected to the adapter.
2. Make sure that the Ethernet network cable is securely connected to the network device you are connecting.

Or:

1. Disconnect the adapter from the power outlet.
2. Disconnect the Ethernet network cable from the adapter.
3. Wait five seconds.
4. Re-connect the Ethernet network cable to the adapter.
5. Re-connect the adapter to the power outlet.

6. If this solution does not work, make sure that the electrical outlet is working properly. Plug a different device into the outlet, and try to turn it on.

**You cannot connect to other computers on your local network or to the Internet.**

If you did not set up advanced security for the Powerline network, follow these instructions:

1. Locate the Powerline adapter connected to the computer that cannot connect.
2. On the left side of the adapter, use a pointed object to press and hold the **Standby/Reset** button for at least ten seconds. This resets the adapter to its factory default settings.

If you have set up advanced security for the Powerline network, check the following:

- Make sure all adapters on the Powerline network have been configured with the same network password. The network password must be identical in order for them to communicate with each other. See "Setting up advanced security" on page 8 or "Using the Utility" on page 8.
- If you are adding a new adapter to a pre-existing Powerline network with a unique network password, follow the instructions in "Using the Utility" on page 8.

### ***The LEDs are flashing and I don't know what it means.***

Refer to the following table of LED behavior to help diagnose the problem:

Powerline LED	Off	Not connected to Powerline network
	Flashing fast	Send/Receive data
	Flashing slow	Pairing
	Solid	Connected to Powerline network
Ethernet LED	Off	Not connected to Ethernet network
	Flashing	Send/Receive data
	Solid	Connected to Ethernet network
Wireless LED (PLW400 only)	Off	Wireless not connected
	Solid	Wireless enabled
	Flashing	Send/Receive data
Wi-Fi Protected Setup (PLW400 only)	Flashing slow	Connection in progress (up to two minutes)
	Flashing fast	Connection error.
	Solid	Connection successful
Power LED	Off	Device power off
	Solid	Device power on and ready
	Flashing fast momentarily	Factory default (both models), device wakeup from standby mode (PLE400 only)
	Flashing fast indefinitely	Pairing error/system error
	Flashing slow	Device in standby mode (PLE400 only)

### **WEB**

If your questions are not addressed here, go to the Linksys Support website at [Linksys.com/support](https://linksys.com/support).

# Specifications

<b>Model</b>	<b>PLE400</b>
Standards	HomePlug AV, 802.3, 802.3u
Ports	Fast Ethernet (10/100)
Buttons	Easy Connect, Reset
LEDs	Powerline, Ethernet, Power
Security Features	128-Bit AES Link Encryption
Security Key Bits	128
Modulation schemes	1024/256/64/16/8 QAM, QPSK, BPSK, ROBO
<b>Environmental</b>	
Dimensions	101.9 × 71.9 × 52.4 mm (4.0 × 2.83 × 2.06 inches)
Weight	116 g (4.1 oz.)
Power	100-240V AC, 50-60 Hz
Certification	FCC, IC, CE, HomePlug AV
Operating Temp.	0 to 40°C (32°F to 104°F)
Storage Temp.	-20 to 70°C (-4°F to 158°F)
Operating Humidity	10 to 85% Non-condensing
Storage Humidity	5 to 90% Non-condensing

<b>Model</b>	<b>PLW400</b>
Standards	HomePlug AV, IEEE 801.11b/g/n, 802.3, 802.3u
Ports	Fast Ethernet (10/100)
Buttons	Wi-Fi Protected Setup, Easy Connect, Reset
LEDs	Powerline, Ethernet, Wireless, Wi-Fi Protected Setup, Power
Security Features	128-Bit AES Link Encryption, WPA2, WPA, WEP
Modulation schemes	1024/256/64/16/8 QAM, QPSK, BPSK, ROBO
Network client support	Up to 8 Powerline client devices, up to 32 wireless client devices
Utility OS requirements	Windows 7/Vista/XP, Mac OS X v10.5 or higher
Default SSID	"CiscoXXXXX" where XXXXX is the last 5 digits of the adapter's serial number

<b>Environmental</b>	
Dimensions	113 × 73 × 33 mm (4.45 × 2.87 × 1.3 inches)
Weight	158 g (5.6 oz.)
Power	100-240V AC, 50-60 Hz
Certifications	FCC, IC, CE, WiFi, HomePlug AV
Operating Temp.	0 to 40°C (32°F to 104°F)
Storage Temp.	-20 to 70°C (-4°F to 158°F)
Operating Humidity	10 to 85% Non-condensing
Storage Humidity	5 to 90% Non-condensing

## NOTE

Specifications are subject to change without notice.

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