PLANET
Networking & Communication

User's Manual

200M Powerline Wireless N Extender

►PL-510W

PLANET
Networking & Communication
PL-510W

Power
Data
Ethernet
WLAN
WPS

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This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against radio interference in a commercial environment. This equipment can generate, use and radiate radio frequency energy and, if not installed and used in accordance with the instructions in this manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will b required to take whatever measure are necessary to correct the interference.

CE mark Warning

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

WEEE

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

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Revision

User's Manual for PLANET 200M Powerline Wireless N Extender
Model: PL-510W

Contents

Chapter 1: Product Introduction

1.1 Package Contents

- PL-510W x 1 (PL-510W x 2 for PL-510W-KIT)
- CD ROM x 1 (User's Manual, Quick Guide and Utility)
- RJ-45 Cable x 1 (RJ-45 Cable x 2 for PL-510W-KIT)
- Quick Installation Guide x 1

✎ **Note**   If any of the above items are missing, please contact your dealer immediately.

1.2 Product Description

High-Speed Ethernet Connection via Home's Power Supply

With HomePlug AV technology, the PLANET PL-510W Powerline Wireless N Extender efficiently shares up to 200/300Mbps high speed In-house connection to any power outlet at home. With hassle-free plug and play installation, it enables users only need to plug a pair of powerline adapters into the house power outlets, and then can immediately enjoy high definition video streaming and network transmission. No more tripping over tangled, messy wires running through your house, the PL-510W is an ideal solution to create a wall-to-wall home network and extend the connection wirelessly.

Faster Wireless speed, Wider Operational Range

The PL-510W features IEEE 802.11n radio with 2T2R antenna technology compliant with 802.11b/g/n standards. With the 300Mbps high speed transmitting rates, the PL-510W can easily integrates the wireless devices with existing wired network. To secure the wireless communication, the PL-510W supports most up-to-date encryptions including WEP / WPA / WPA2-PSK with TKIP/AES.

Data rate up to 300Mbps for wireless 11n networks

Data Transfer Rate up to 200Mbps and Distance up to 300 Meters Wiring

With advanced HomePlug AV technology, the PL-510W provides users with stable, high speed data transfer rates up to 200Mbps on electric powerline length up to 300 meters. Therefore, the PL-510W can transmit multiple HD streams and even Full HD movies to every room, making it a great choice for easily building a multimedia entertainment network.
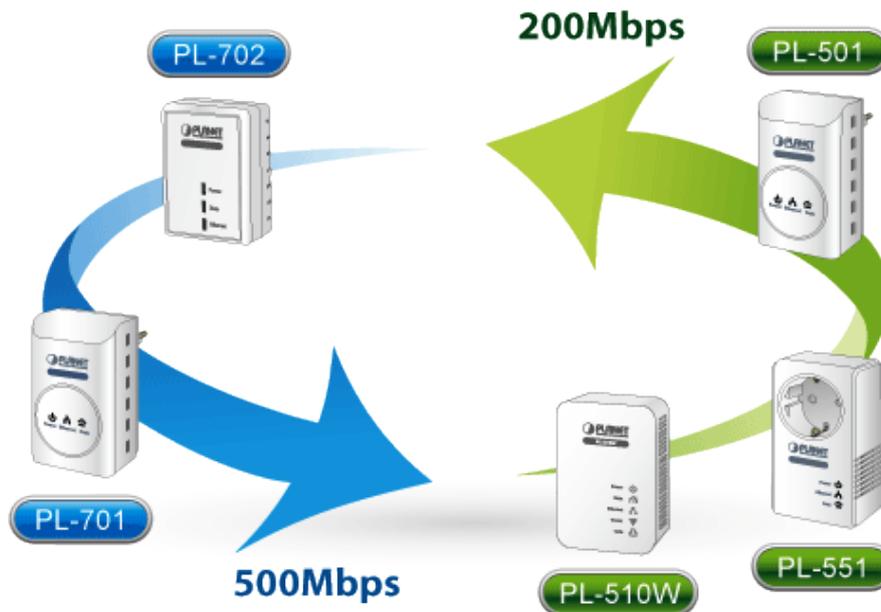
The PLANET 500M Powerline Series are compatible with the PLANET 200M Powerline Series.

Secures the network connection with the touch of a button, no need to remember passwords

Simply by pushing the button on the PL-510W, users can easily set up a hassle-free secure Powerline network within minutes. It provides 128-bit AES encryption for network security and data protection.

128-bit AES Encryption for
Network Security and Data Protection

Quick Wireless Connection via WPS button

The PL-501W supports users to immediately getting access to high speed Wireless sharing via easy WPS setup:

Step 1: Mouse click the WPS button in the PC / Laptop

Step 2: Press the WPS button on the PL-510W

Step 3: Wireless connection is done

WPS (Wi-Fi Protected Setup)-AP Mode
Quick & Easy Wireless Connection

Efficient Bandwidth Management by QoS (Quality of Service)

Quality of Service (QoS) is provided by the PL-510W enabling a network to provide better service to selected network traffic over various technologies. The PL-510W provides 5 priorities of QoS for quick setup such as internet, online game, IPTV, video and VoIP.
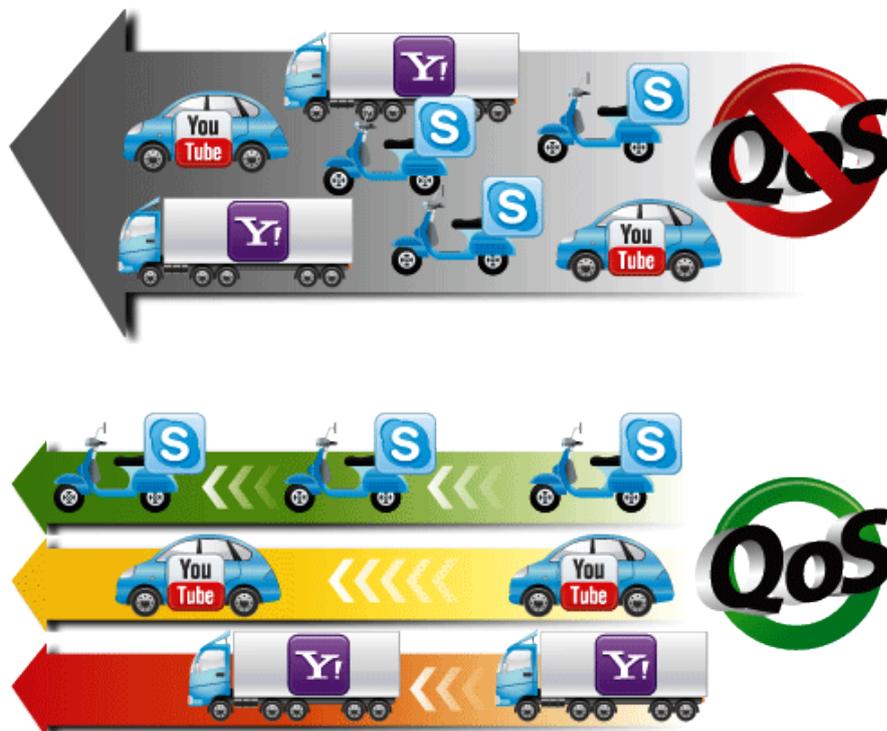
Quality of Service(QoS)
Ensure the quality of bandwidth sensitive applications

1.3 Product Features

IEEE Compliant HomePlug AV & LAN

- Designed for high-definition multimedia streaming
- Data rate up to 200Mbps and distance up to 300 Meters over existing electrical wiring
- IEEE 802.3, IEEE 802.3u, IEEE 802.11n, IEEE 1901 and HomePlug AV standard compliant
- Equipped with 10/100Mbps RJ-45 Ports for LAN/ WAN, Auto MDI/ MDI-X supported

Secure Network Connection

- Plug-and-Play installation in minutes, converts any power socket into a wired connection point
- Simple push-button setup with sophisticated data encryption, 128-bit AES encryption for network protection enhancement
- Easily extends secure wireless network by One-touch Wi-Fi Protected Setup (WPS)

Easy Installation & Management

- Creates a high speed network connection throughout your home without the mess of cables
- Web-Based UI and Quick Setup Wizard for easy configuration
- Up to 8 Powerline Network Adapters can communicate on a single network
- QoS feature efficiently distributes the downloading rate for the clients
- TDMA and priority-based CSMA/CA channel access schemes maximize efficiency and throughput

1.4 Product Specification

Model	PL-510W
Hardware Specification	
Network Interface	One RJ-45 port (10/100Base-T Ethernet) One 200Mbps power line port supporting co-existence with HomePlug 1.0
Antenna	Gain: 2 x Internal 2.5dBi Antenna Orientation: Horizontal and Vertical
Cabling	Cat. 5 UTP cable
LED	Power：On / Off Ethernet： Solid / Blinking / Off Data：Solid / Blinking / Off WLAN：Solid / Blinking / Off WPS：Solid / Blinking / Off
Buttons	One WPS / Reset button One Pair button
Wireless Interface Specification	
Standard	IEEE 802.11b/g/n
Working mode	AP mode
Frequency Band	2.4~2.4835GHz
Data Transmission Rates	802.11b: 11/5.5/2/1Mbps (Dynamic) 802.11g: 54/48/36/24/18/12/9/6Mbps (Dynamic) 802.11n (40MHz): 270/243/216/162/108/81/54/27Mbps 135/121.5/108/81/54/40.5/27/13.5Mbps (Dynamic) 802.11n (20MHz): 130/117/104/78/52/39/26/13Mbps 65/58.5/52/39/26/19.5/13/6.5Mbps (Dynamic)
Transmission Distance	Indoor up to 100m
Channel	America / FCC: 2.412~2.462GHz (11 Channels) Europe / ETSI: 2.412~2.472GHz (13 Channels) Japan / TELEC: 2.412~2.484GHz (14 Channels)
Channel Width	20 / 40MHz
Max. RF Power	802.11b: 17±1.5dBm 802.11g: 14.5±1.5dBm 802.11n (20MHz): 12.5±1.5dBm 802.11n (40MHz): 12.5±1.5dBm
Receive Sensitivity	802.11b: -92dBm @ 1Mbps; -85dBm @ 11Mbps, PER < 8% 802.11g: -88dBm @ 6Mbps; -73dBm @ 54Mbps, PER <10% 802.11n: -90dBm @ MCS8; -70dBm @ MCS15, PER <10%
Encryption Security	WEP (64/128-bit) encryption security WPA / WPA2 (TKIP/AES) WPA-PSK / WPA2-PSK (TKIP/AES)
Standards Conformance	
Computer Interface	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX
Standards	IEEE 1901 / HomePlug AV

Security	128-bit AES link encryption with key management
Data PHY Rate	200Mbps over Powerline and 10/100Mbps over Ethernet
Modulation Schemes	OFDM symbol modulation on line synchronization 1024/256/64/16/8 - QAM, QPSK, BPSK, ROBO carrier modulation
Frequency Band	2 ~ 30 MHz
Additional Protocols	Mix of TDMA and CSMA/CA channel access scheme; CO device generates a periodic beacon carrier for channel access scheme QoS prioritizes both wired and wireless Internet traffic to bandwidth-sensitive applications like online gaming, IPTV or stream multimedia
Operation Range	Estimated range of 300 meters in wall powerline
Environment Specifications	
Operating	Temperature: 0~40 Degree C Relative Humidity:10~90% (non-condensing)
Storage	Temperature: -40~70 Degree C Relative Humidity: 0~90% (non-condensing)
Power Supply	100~240V AC, 50~60Hz internal
Housing Dimension (W x D x H)	94 x 29.85 x 32 mm
Weight	94 g
Emission	FCC, CE

1.5 Physical Description

Front View

LED Definition

LED	Status	Description
Power	On	Steady on indicate the PLC connect to the power outlet.
	Off	Power off.
Data	On	The PLC connection is in the communication state, but not transmitting and receiving data.
	Off	The PLC connection is in the non-communication state.
	Quick blink	Data is being transmitted.
	Slow blink	A terminal is attempting to connect to the PL-510W.
Ethernet	On	The Ethernet port is in the communication state.
	Off	The Ethernet port is in the non-communication state.
	Blink	The Ethernet port is transmitting and receiving data.
WLAN	On	The WLAN connection is in the communication state.
	Off	The WLAN connection is in the non-communication state.
	Blink	Data is being transmitted and received in the WLAN.
WPS	On	The WPS session is up.
	Off	The WPS session is down.

11

|	Blink	A terminal is attempting to connect to the PL-510W through WPS.

Button Definition

Button	Description
Reset	Hold the Reset button more than 6 seconds.
WPS	For enabling WPS PBC mode.
Pair	Press Pair button during 1~3 seconds to connect PLC. Press Pair button during 6~9 seconds to exit the network.

1.6 Wire Diagram

High Speed Ethernet Connection via Home's Powerline

PLANET provides several types of powerline products to meet various demands on Internet access sharing at home. As illustrated, users may connect an 802.11n Wireless IP STB to the Powerline Wireless N Extender PL-510W, or connect a PC to the PL-510W in the house freely. With the PLANET powerline products applied, no messy network cables and additional switches are required at home and users can entirely enjoy home broadband network from now on.
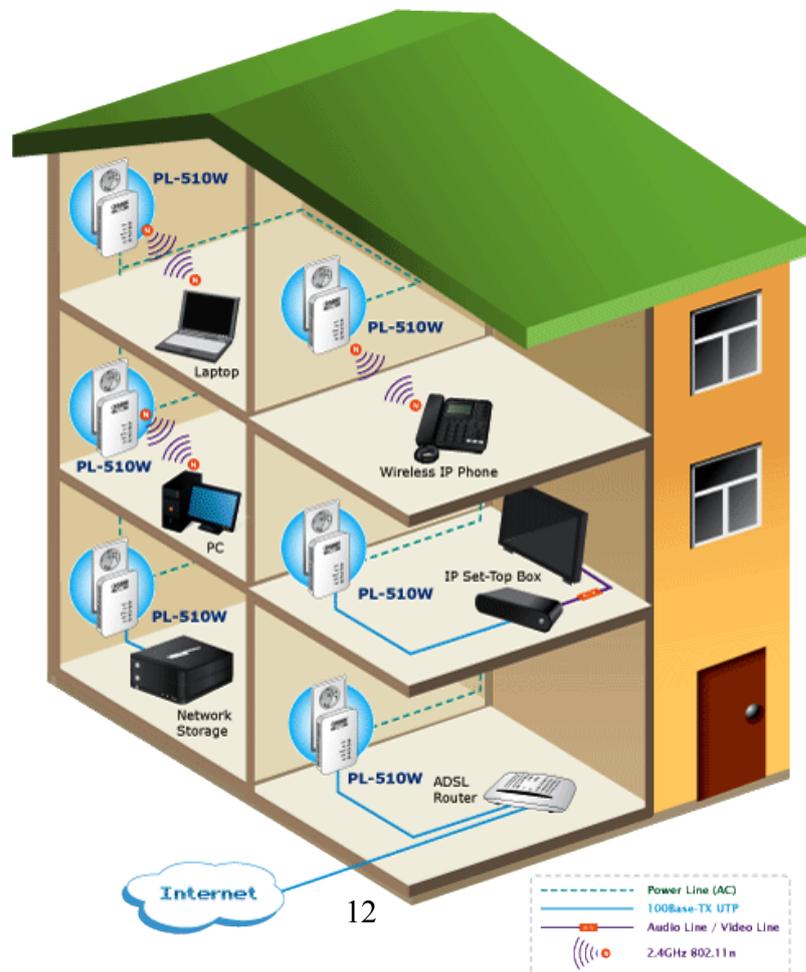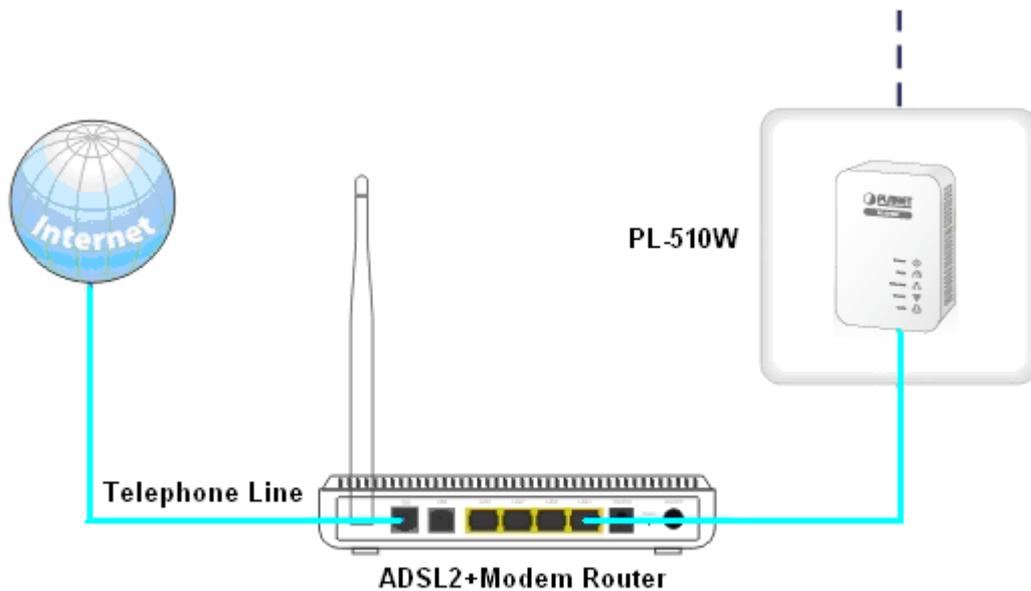
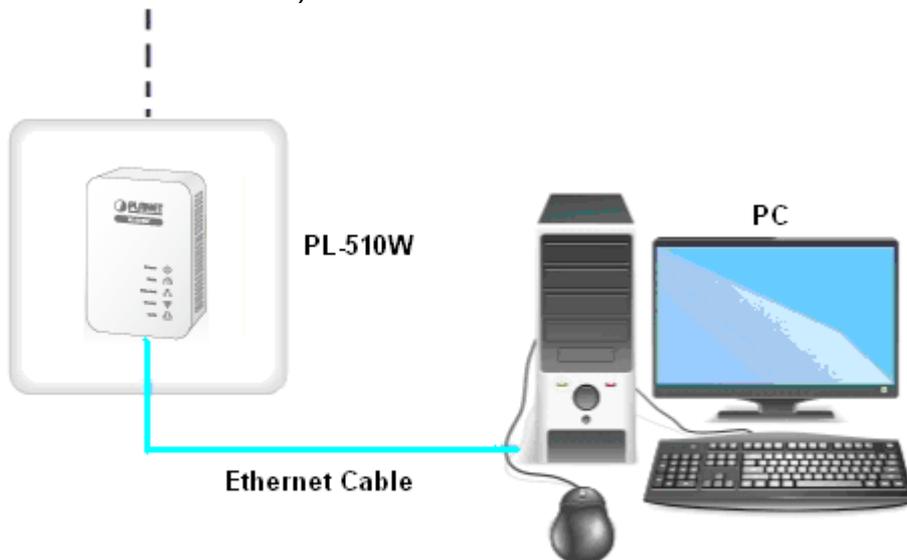# Chapter 2: Hardware Installation

2.1 Installation Instructions

Step1

Connect a Powerline adapter PL-510W, to an Internet-enabled Router and then plug it into a wall outlet.

Step2

Plug the PL-510W to a wall outlet within the same power circuitry as another PL-510W and connect your PC to it via a wireless or wired connection (The latter requires an Ethernet cable).

Step3

Then the PL-510W pairs automatically with another PL-510W to establish a Powerline network. A successful connection may be established. If relevant LEDs do not display lights the way they should be, double check the connection.
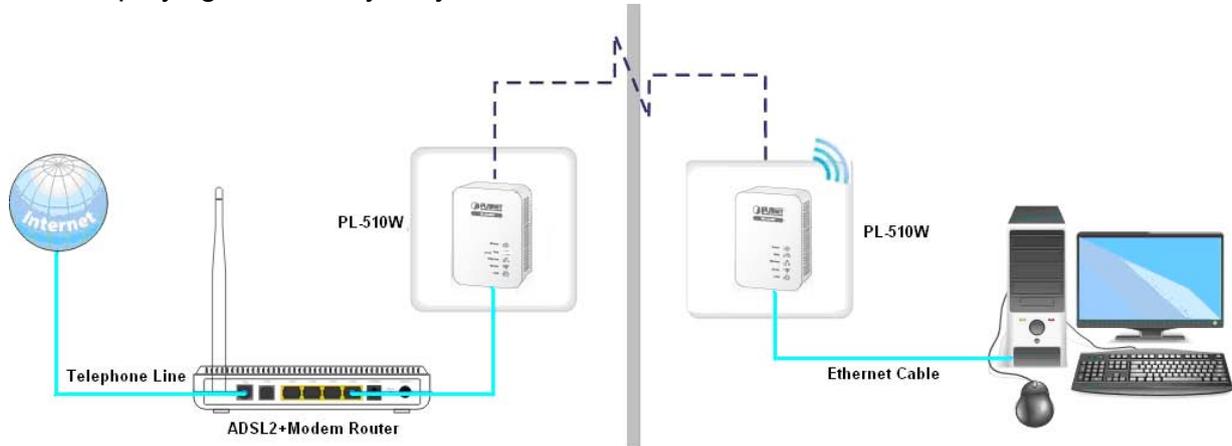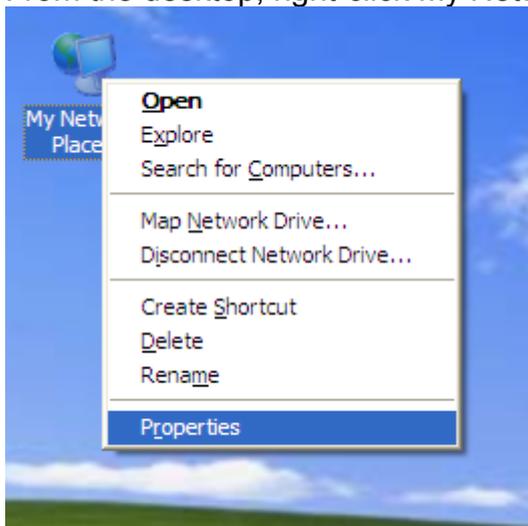

Step4

Simply set all PCs connected to the PL-510W to "Obtain an IP address automatically", and they may be able to access Internet then.
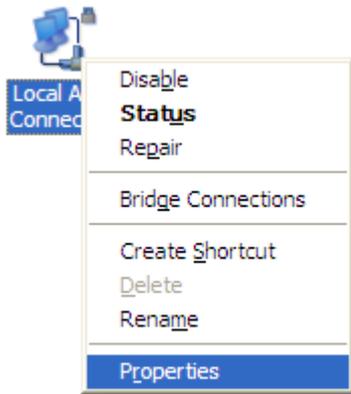
2.2 Internet Connection Setup

2.2.1 Config TCP/IP settings on your PC

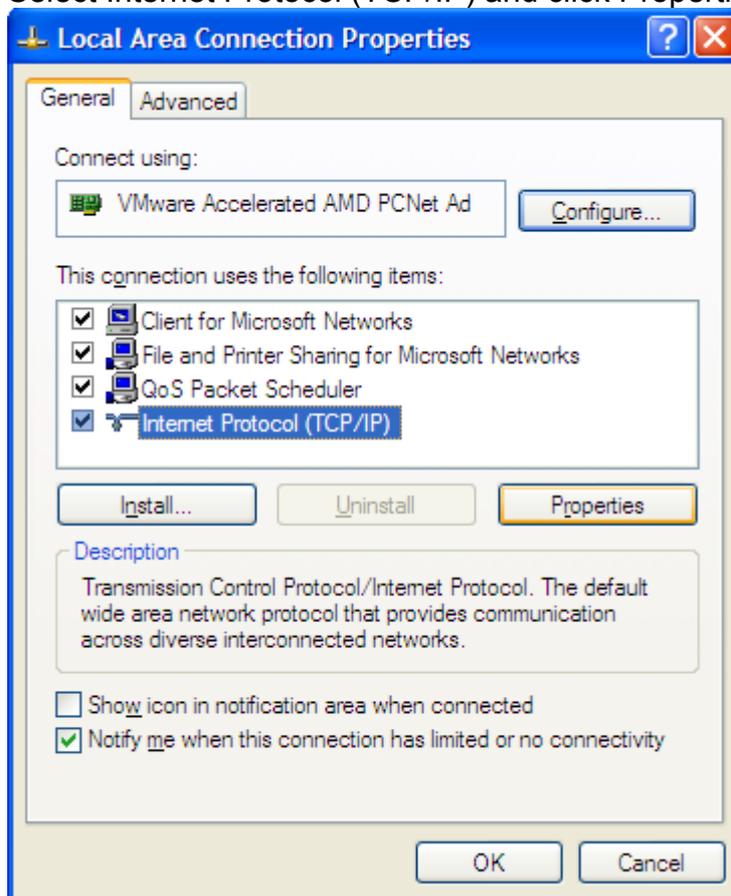If you are using Windows XP, do as follows:

1. From the desktop, right-click My Network Places > Properties.

2. Right-click on the Local Area Connection and select Properties.

3. Select Internet Protocol (TCP/IP) and click Properties.

4. Select "Use the following IP address".
    IP address: Enter 192.168.0.xxx where xxx can be any number between 2 and 253).
    Subnet mask: Enter 255.255.255.0.
    Default gateway: Enter 192.168.0.1
    Preferred DNS server: Set Preferred (Primary) DNS the same as the LAN IP Address of your Device (192.168.0.1) if you don't know your local DNS server's Address (Or consult your ISP). The Alternate (Secondary) DNS is not needed or

15

you may enter one from your ISP.
Click OK twice to save your settings.

If you are using Windows 7, do as follows:

1. Click on Start > Control Panel > Network and Internet > Network and Sharing Center.

2. Click "Change adapter settings".
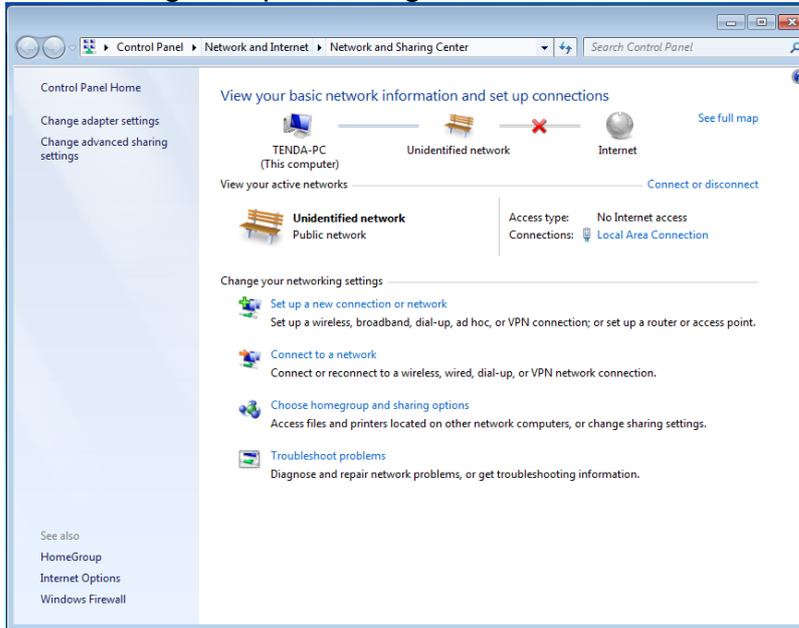
3. Right-click on the Local Area Connection and select Properties.
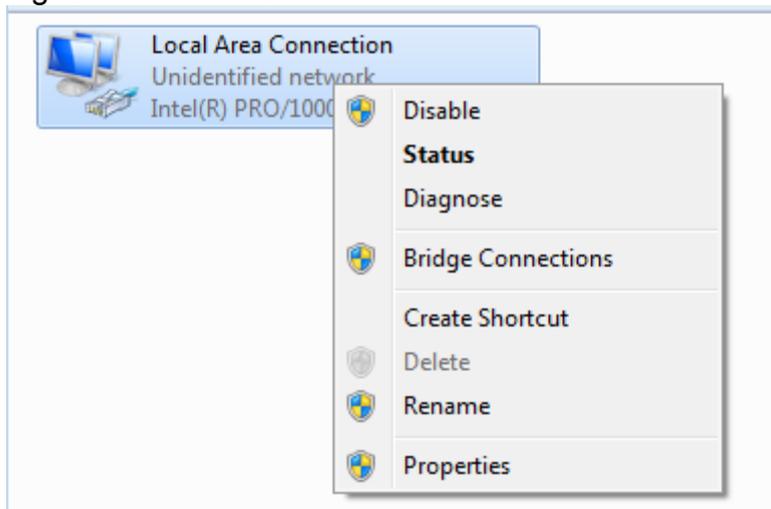
4. Select Internet Protocol Version 4 (TCP/IPv4) and click Properties or directly double-click on Internet Protocol Version 4 (TCP/IPv4).
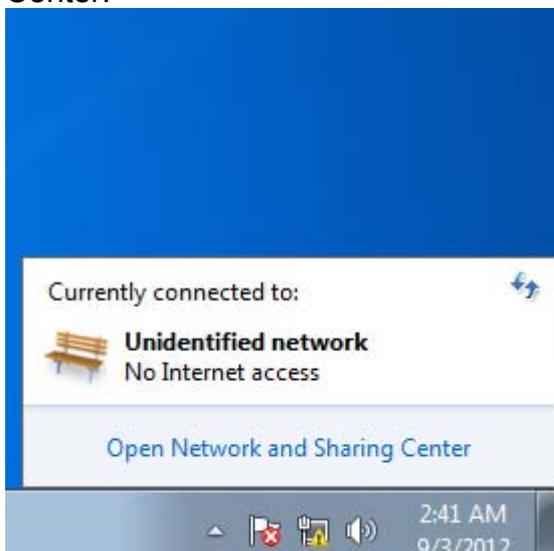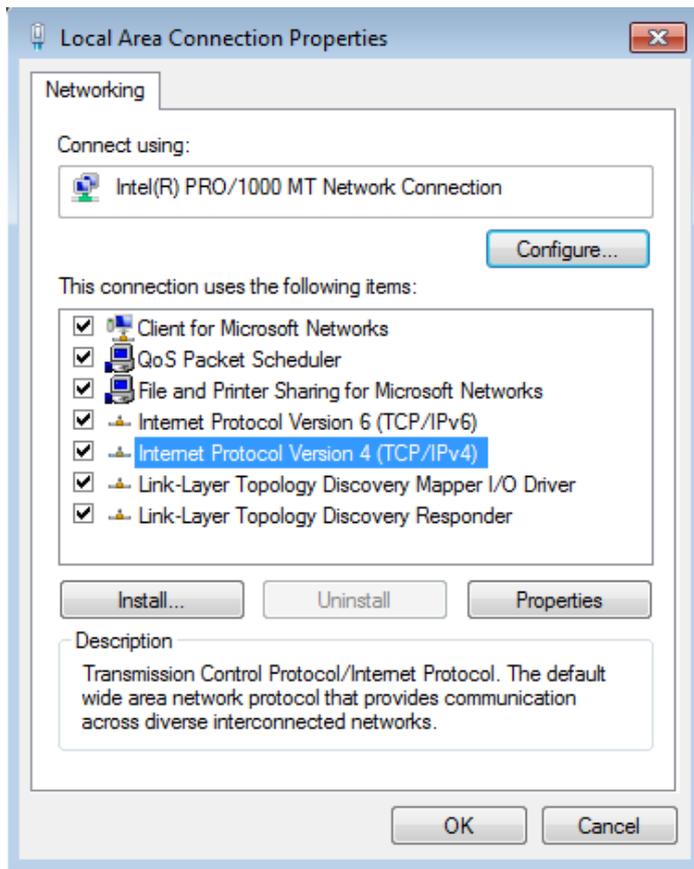
5. Select "Use the following IP address".
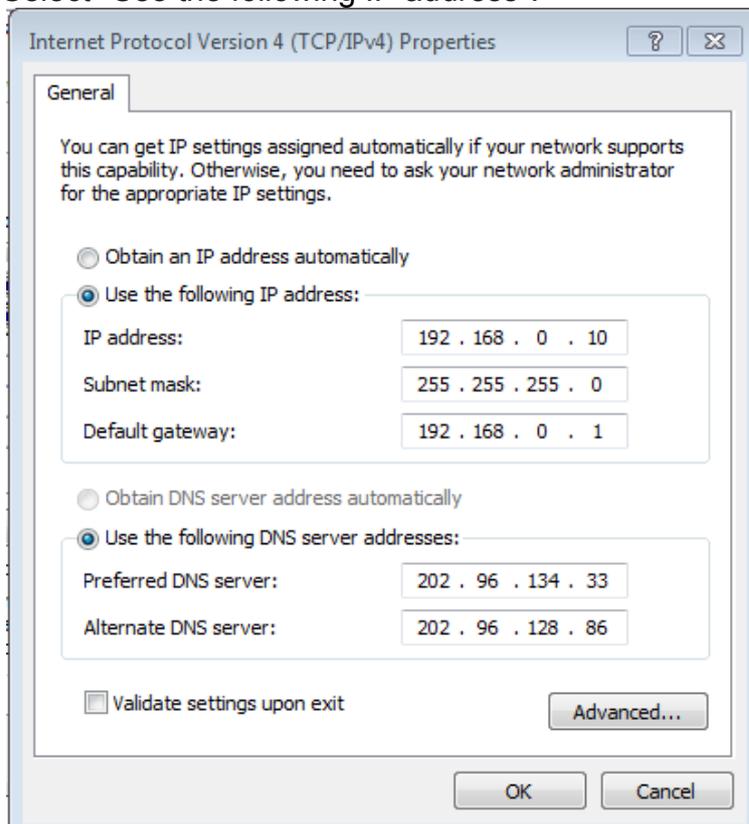
18

IP address: Enter 192.168.0.xxx where xxx can be any number between 2 and 253).
Subnet mask: Enter 255.255.255.0.
Default gateway: Enter 192.168.0.1.
Preferred DNS server: Set Preferred (Primary) DNS the same as the LAN IP address of your Device (192.168.0.1) if you don't know your local DNS server's address (Or consult your ISP). The Alternate (Secondary) DNS is not needed or you may enter one from your ISP.
Click OK twice to save your settings.

2.2.2 Login to Web Utility

Step1
 Launch a web browser, in the address bar, input 192.168.0.1 and press "Enter".

Step2
Enter "admin" in both User Name and Password fields and then click OK.
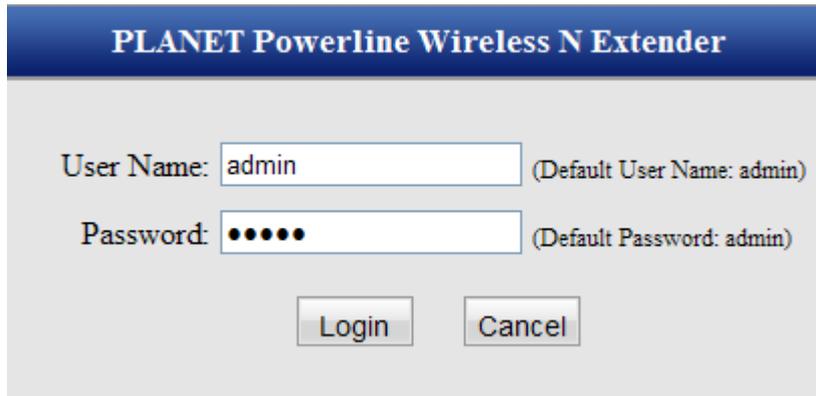
Step3
If you entered a correct user name and a correct password, you will see the home page of the Device's web utility.

2.2.1 Quick Encryption

On the home page, you can quickly encrypt your wireless network. The default security settings preset on this page are as follows:
Security Mode: WPA2-PSK
Cipher Type: AES
Security Key: 12345678
The security key is configurable. You can change it to something catchy or meaningful.
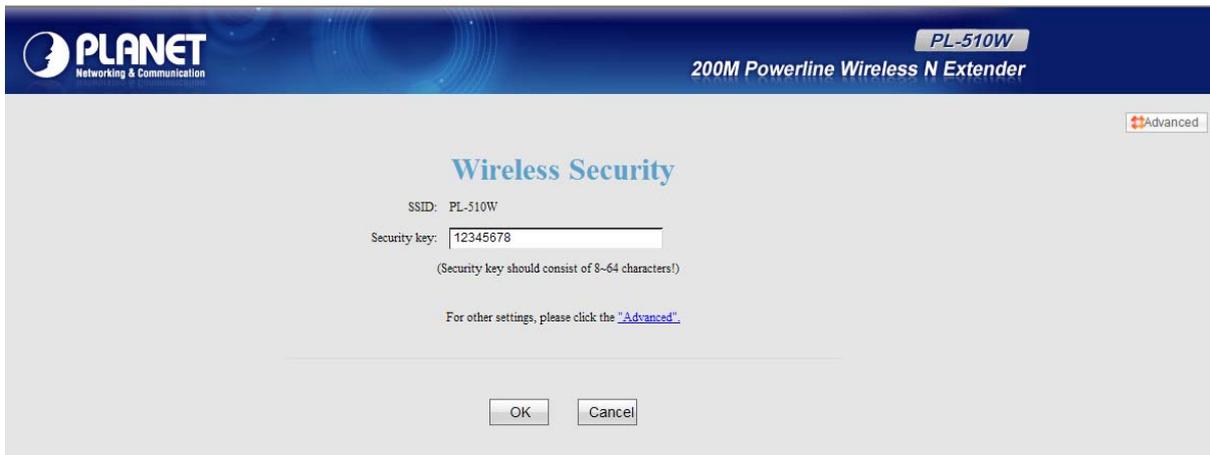
SSID	Displays Device's current wireless network name.
Security Key	Specify a security key of 8-63 ASCII or 64 Hex characters and enable WPA2-PSK/AES to encrypt your wireless network. The security key is configurable. You can change it to something catchy or meaningful to yourself.
Advanced	Click the "Advanced" button to enter Device's main Interface as seen below.

Chapter 3: Status

3.1 LAN Status

LAN Status

IP Address	10.1.1.226
Subnet Mask	255.255.255.0
LAN MAC Address	00:30:4F:33:42:9F

IP Address	Displays Device's LAN IP, namely the management IP.
Subnet Mask	Displays Device's LAN subnet mask.
LAN MAC Address	Displays Device's LAN MAC address.

3.2 PLC Status

PLC Status

Network Name	HomePlugAV
Device Password	OMIP-GCCL-PLLT-XYSY
PLC MAC Address	00:30:4F:66:2F:33

Network Name	Displays Device's network name.
Device Password	Displays Device's password.
PLC MAC Address	Displays Device's PLC MAC address.

3.3 Wireless Status

Wireless Status	
Wireless Status	Enable
802.11Mode	802.11b/g/n mixed
SSID	PL-510W
Current Channel	Auto-Select Channel
Security Mode	None

Wireless Status	Displays whether wireless is enabled on the Device.
802.11 Mode	Displays current network mode.
SSID	Displays Device's wireless network name.
Current Channel	Displays the channel on which Device is currently operating.
Security Mode	Displays the security mode enabled on the Device.

3.4 General Info

General Info	
Up Time	0 day 01:52:11
Client Count	3
Firmware Version	V1.0.5_PLA01
Hardware Version	V1.0

Up Time	Displays uptime.
Client Count	Displays the number of connected clients.
Firmware Version	Displays Device's firmware version.
Hardware Version	Displays Device's hardware version.

Chapter 4: LAN Settings

This section allows you to configure Device's LAN settings.

LAN

basicSet ip	10.1.1.226
basicSet mask	255.255.255.0

Save   Cancel

IP Address	Device's LAN IP, namely the management IP. The default is **192.168.0.1**. You can change it according to your need.
Subnet Mask	Device's LAN subnet mask. The default is 255.255.255.0. You can change it according to your need.

NOTE

1. If you change the Device's LAN IP address, you will need to set IP addresses of PCs on LAN to the same IP net segment as Device's new IP address and enter the new IP in your browser to get back to the web-based configuration utility.

2. If you want to manage the Device while accessing Internet in the meantime, you will need to set Device's LAN IP to the same IP net segment as the Internet-enabled router. For example, assuming the Internet-enabled router is at the IP address of 192.168.0.1, then, you may set Device's LAN IP address to "192.168.0.254" and set your PC to "Obtain an IP address automatically". And now you will be able to manage the Device while surfing Internet.

Chapter 5: Wireless Settings

5.1 Wireless Basic Settings

Wireless	Check/uncheck to enable/disable the wireless feature. If disabled, all wireless-dependent features will be disabled accordingly.
Region	Select your location (country or region).
802.11 Mode	Select a right mode according to your wireless client. The default mode is 11b/g/n mixed. **11b mode:** Select it if you have only Wireless-B clients in your wireless network. **11g mode:** Select it if you have only Wireless-G clients in your wireless network. **11b/g mixed mode:** Select it if you have only Wireless-B and Wireless-G clients in your wireless network.

	11b/g/n mixed mode: Select it if you have Wireless-B, Wireless-G and Wireless-N clients concurrently present in your wireless network.
SSID	A SSID (Service Set Identifier) is the unique name of a wireless network. This field is configurable.
SSID Broadcast	Select "Enable"/"Disable" to make your wireless network visible/ invisible to any wireless clients within coverage when they perform a scan to see what's available. By default, it is enabled. When disabled, this SSID becomes invisible to any wireless clients within the coverage. Manually enter the SSID if you want to connect to it.
Channel	For an optimal wireless performance, you may select the least interferential channel. It is advisable that you select an unused channel or "Auto" to let device detect and select the best possible channel for your wireless network to operate on from the drop-down list.
Channel Bandwidth	Select a proper channel bandwidth to enhance wireless performance. When there are 11b/g and 11n wireless clients, please select the 802.11n mode of 20/40M, when there are only non-11n wireless clients, select 20M frequency band mode; when the wireless network mode is 11n mode, please select 20/40 frequency band to boost its throughput.
Extension Channel	Available only in 11b/g/n mixed mode.
WMM-Capable	WMM is QoS for your wireless network. Enabling this option may better stream wireless multimedia data (such as video or audio).
ASPD Capable	Select to enable/disable the auto power saving mode on WMM. By default, this option is disabled.

5.2 Wireless Security

This section allows you to encrypt your wireless network to block unauthorized accesses and malicious packet sniffing.
The Device provides multiple security modes: WEP (Open and Shared), WPA-PSK, WPA2-PSK and Mixed WPA/WPA2-PSK.

Wireless - Security

SSID PL-510W

Security Mode None ▾

None
Open WEP
Shared WEP
WPA - PSK
WPA2 - PSK
Mixed WPA/WPA2 - PSK

Note: Wireless - Security

1.802.11n only defines No[ ]   , and WPA2 personal-AES encryption modes. Other encryption modes are non-standard and thus may not be mutually compatible among different manufacturers.

2. For better security, it is advisable to use the WPA2-PSK - AES encryption to guard your wireless network against unauthorized accesses.

3. Selecting Open WEP, Shared WEP or WPA-PSK will automatically disable the WPS encryption while selecting other security modes will automatically enable the WPS encryption.

NOTE *Selecting Open WEP, Shared WEP or WPA-PSK will automatically disable the WPS encryption while selecting None, WPA2-PSK or Mixed WPA/WPA2-PSK will automatically enable the WPS encryption.*

WEP	WEP is intended to provide data confidentiality comparable to that of a traditional wired network. **Security Mode:** Select a proper security mode from the drop-down list. **Default Key:** Select a key from the preset keys 1-4 for current use. **Default Key:** Select a key from the preset keys 1-4 for current use. **WEP Key:** Select ASCII or Hex. ASCII: When selected, define a WEP key of 5 or 13 ASCII characters; **Hex:** When selected, define a WEP key of 10 or 26 hex characters.
WPA-PSK	The WPA protocol implements the majority of the IEEE 802.11i standard. **Cipher Type:** Select AES (advanced encryption standard) or TKIP (temporary key integrity protocol). **Security Key:** Enter a security key, which must be between 8-63 ASCII characters long or 64 HEX characters long. **Key Renewal Interval:** Specify a valid time interval for the key to be updated. Do not change the default value unless necessary.
802.11 Mode	The later WPA2 protocol features compliance with the full IEEE 802.11i standard and uses Advanced Encryption Standard (AES). **Cipher Type:** Select AES (advanced encryption standard), TKIP

(temporary key integrity protocol) or TKIP &AES.

Security Key: Enter a security key, which must be between 8-63 ASCII characters long or 64 HEX characters long.

Key Renewal Interval: Specify a valid time interval for the key to be updated. Do not change the default value unless necessary.

5.3 Wireless Access Control

The MAC-based Wireless Access Control feature can be used to allow or disallow clients to connect to your wireless network.

Wireless Access Control	To deactivate the Wireless Access Control feature, select "Disable" means; to only allow wireless clients included in list to connect to your wireless network, select "Allow"; to only block wireless clients included in list to connect to your wireless network, select "Deny".
MAC Address	Enter the MAC address of a wireless client.
Add	Click to add a new MAC to the list.
MAC Address List	Displays added MAC address entries. You can add new entries or delete existing entries according to your needs.

5.4 WPS Settings

Wi-Fi Protected Setup makes it easy for home users who know little of wireless security to establish a home network, as well as to add new devices to an existing network without entering long passphrases or configuring complicated settings. Simply enter a PIN code or press the software PBC button or hardware WPS button (if any) and a secure wireless connection is established.

WPS Settings

SSID	PL-510W
AP PIN Code	12719365
WPS Settings	○ Disable ⊙ Enable
WPS Mode	⊙ PBC ○ PIN

Reset OOB

Note: 1. The WPS can be used only when security mode: None, WPA2-PSK or Mixed WPA/WPA2-PSK and cipher type: AES or TKIP&AES are selected.

    2. When connected to the Powerline AP via WPS encryption, SSID and security key will change randomly; security mode will change to Mixed WPA/WPA2-PSK automatically and cipher type will change to TKIP&AES automatically.

Save   Cancel

SSID	Displays Device's current SSID.
AP PIN Code	Displays Device's PIN code; this option is not configurable.
WPS	Select to enable/disable the WPS feature. This option is disabled by default.
WPS Mode	Select PBC (Push-Button Configuration) or PIN.
PBC	To use the PBC option, select it and click "Save"; or press the WPS hardware button on Device's back panel for about one second while enabling WPS >PBC on the intended client simultaneously. **Operation Instructions:** Press the WPS button for one second and the WPS LED starts blinking. Within 2 minutes thereafter, enable WPS >PBC on the intended wireless client. When authentication between Device and the intended wireless client completes, the WPS LED will display a solid

	light, which indicates the wireless client has connected to the Device successfully. Repeat steps mentioned above if you want to connect more wireless clients to the Device.
PIN	To use this option, you must know the wireless client's PIN code and enter it in the corresponding field on your device while using the same PIN code on client side for connection.
Reset OOB	When clicked, Device's wireless settings including SSID, security mode and WPS, etc will be reset to factory default values.

NOTE

1. To use the WPS encryption, the wireless adapter must be WPS-capable.

2. Upon successful WPS connection, the Device's SSID and security key will change randomly; security mode will change to Mixed WPA/WPA2-PSK automatically and cipher type will change to TKIP&AES automatically.

5.5 Connection Status

This section displays the info of connected wireless clients including MAC addresses and frequency width.

Connection Status

This section displays client info.

Hosts Connected Currently:

Refresh

ID	MAC Address	Bandwidth

MAC Address	Displays MAC addresses of wireless clients connected to the Device.
Bandwidth	Displays channel bandwidth used by currently connected hosts (wireless clients).

NOTE

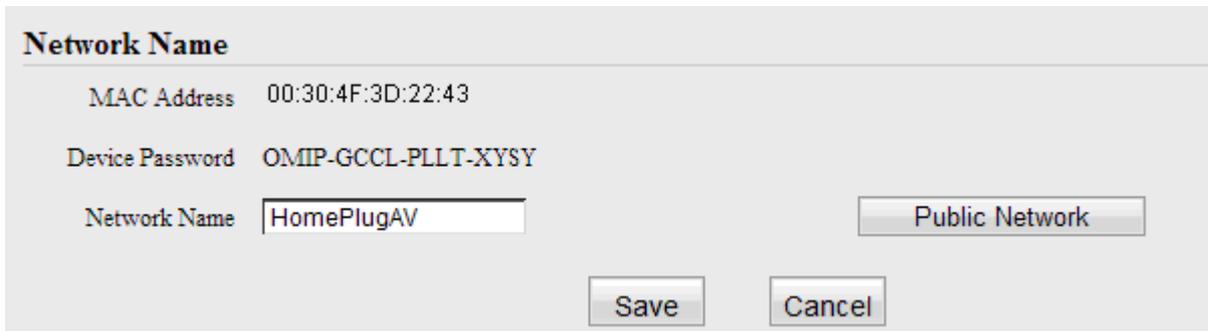*The bandwidth here refers to the channel bandwidth instead of wireless connection rate.*

Chapter 6: PLC Settings

This section presents you how to config and manage the PLC features of the Device using the Web UI.

6.1 Network Name Settings

To change Device's network name, click "Network Name"

Network Name

MAC Address	00:30:4F:3D:22:43
Device Password	OMIP-GCCL-PLLT-XYSY
Network Name	HomePlugAV Public Network
	Save Cancel

MAC Address	Displays the MAC address of Device's PLC interface (equivalent to the identifier on PLC network). This value is unchangeable!
Device Password	Displays Device's password. Each PLANET Powerline device has a factory preset, unique password for authentication on remote management. The device password can also be seen from the label attached to Device's bottom.

6.2 PLC Member Settings

This section allows you to view information of other PLC devices on the same Powerline network. You can also perform authentication on these devices by entering their MAC addresses and Device Passwords as well as view the authentication results.

PLC Member					

PLC Device List

Select	ID	MAC Address	Tx Rate	Rx Rate

<div align="center">Scan</div>

Add PLC Device

MAC Address	
Device Password	Add

PLC Authentication List

ID	MAC Address	Device Password	Authentication Status	Edit

PLC Device List	This section displays the MAC addresses and connection rates of other PLC devices that are connected to the Device. The PLC devices could be Powerline adapters, Powerline APs or Powerline routers. **MAC Address:** Displays MAC addresses of PLC devices on the Powerline network. Each PLC device has a unique MAC address that works as the unique identifier on the Powerline network. **Tx Rate:** Displays PLC Tx (transmit) rate. **Rx Rate:** Displays PLC Rx (receive) rate. **Select:** Click the "Select" radio button to automatically add corresponding PLC device's MAC address to the MAC address field of "Add PLC Device".
Scan	Click to update current PLC device list manually. To automatically update the list, simply reload the web page.
Add PLC Device	To add a PLC device to the PLC Authentication List, simply enter its MAC address and Device Password. **MAC Address:** Enter the MAC address of the PLC device to add or click the "Select" button to add the corresponding PLC device's MAC address automatically. **Device Password:** Enter the correct Device Password of the PLC

	device to add. The Device Password is printed, in the format of XXXX-XXXX-XXXX-XXXX (where X represents a capital English letter), on the label on the back of the Device.
	Add: Click to add corresponding PLC device to the "PLC Authentication List".
PLC Authentication List	This section displays added PLC devices and their authentication status. A wrong Device Password or MAC address will lead to authentication failure.
	MAC Address: Displays the MAC address entered when you add the PLC device.
	Device Password: Displays the Device Password entered when you add the PLC device.
	Authentication Status: Displays whether authentication has passed. To pass authentication, below requirements must be met: a). You must provide a correct MAC address and a correct Device Password for the intended PLC device; b). The intended PLC device must be currently connected with the Device. Otherwise, authentication fails. As seen in above screenshot, the first PLC device passed authentication because both its MAC address and Device Password entered are correct, and it is currently on the Powerline network. While the second PLC device failed because its Device Password entered is wrong. However, the first PLC device will not be able to pass authentication if you disconnect it from the current Powerline network (say, disconnect it from power supply or change its network name).
	Click "Delete" to delete a corresponding entry.

1. When adding a repeated MAC address to the PLC Authentication List, you will be asked whether to update the existing entry.

2. Up to 8 authentication entries can be included.

3. The more authentication entries you add, the longer it takes to authenticate the Powerline devices, open or refresh the web page.

NOTE

4. The PLC authentication feature works only on PLANET Powerline devices. Authentication on Powerline devices of other brands will fail whether a correct MAC address and a correct Device Password are provided or not.

6.3 PLC QoS Settings

QoS prioritizes bandwidth-intensive and latency-sensitive applications and services such as Internet/IPTV/audio/video/VOIP/online game services, ensuring high reliability and least latency in transmission of these real-time data.
The Device provides 4 priority levels: Highest, High, Medium and Low. It is advisable to assign the highest priority to essential data traffic.
Two QoS priority mapping types are provided: Simple Priority Mapping and Advanced Priority Mapping.

6.3.1 Simple Priority Mapping

This section allows you to quickly set any option among Surfing, IPTV, Video/Audio, VOIP and Games to the highest priority. By default, Surfing is prioritized.
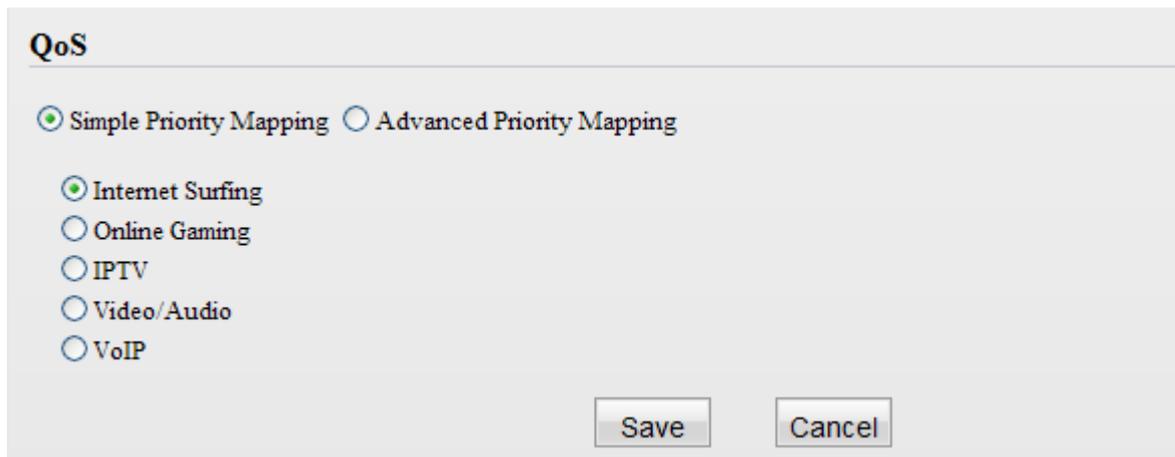
Internet Surfing	Select it to prioritize HTTP data and improve Internet surfing experience. Note: Applications/services such as web video and web gaming, etc, which use HTTP protocol, will also be prioritized.
Online Games	Select it to prioritize and smooth gaming traffic. As there are too many games to be all included in the device QoS engine. So please note that not all gaming traffic can be processed with precedence.
IPTV	Select it to prioritize IPTV data. The device supports RTSP-compliant IPTV data prioritization. However, some IPTV devices from other manufacturers may not adopt the RTSP protocol. So if the device does not prioritize IPTV data from your IPTV device consult your manufacturer for the protocol and port info and send it to our technical staff so that we can include it in later version for better compatibility.
Video/Audio	Select it to prioritize video/audio data streaming.

33

VoIP	Select it to prioritize VoIP data. The device supports SIP-compliant and H.323-compliant data prioritization. However, some VoIP devices from other manufacturers may use different protocols other than the above 2. So if the device does not prioritize VoIP data from your VoIP device consult your manufacturer for the protocol and port info and send it to our technical staff so that we can include it in later version for better compatibility.

6.3.2 Advanced Priority Mapping

The Advanced Priority Mapping allows you to setup IP /MAC based priority policy used by the Powerline AP on a congested Powerline network.

MAC Based Priority	Specify priority based on PC's MAC address.
MAC Address	Enter the MAC address of the intended PC.
IP Based Priority	Specify priority based on PC's IP address.
IP Address	Enter the IP address of the intended PC.
Priority	Specify a priority level for the designated PC.

35

1. The Simple Priority Mapping feature and Advanced Priority Mapping feature can be only used alone instead of concurrently.

2. The QoS feature does not increase your existing bandwidth. It only prioritizes specified data over your existing bandwidth.
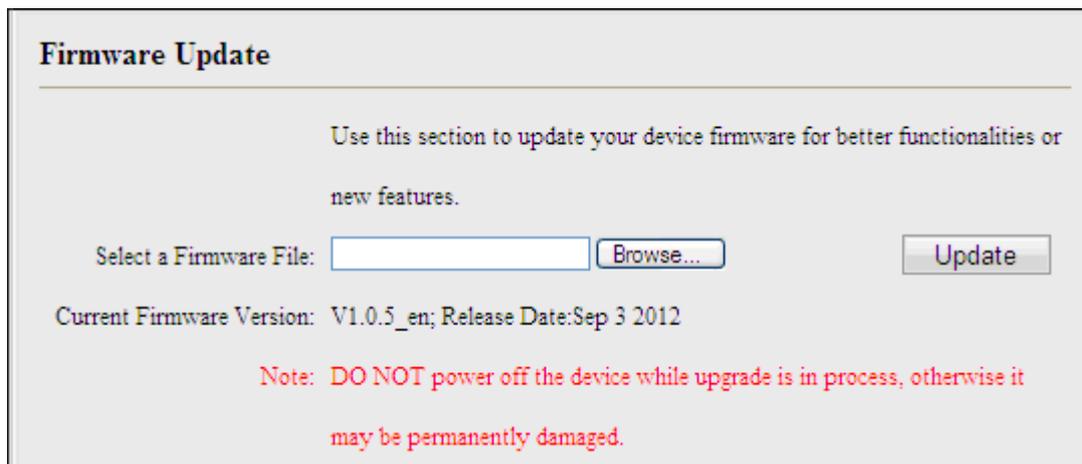
NOTE

3. Advantages of the QoS feature are typically seen on congested networks. Normally, Powerline network is not confronted with congestion as Powerline transmission rate reaches up to 200M while ADSL Internet connection rate is only 12M at most and yet shared by multiple users. So, you may not experience obviously tremendous benefits from your QoS settings if you are enjoying a smooth network. However the QoS feature does bring you more or less benefits, they are just not as tremendous as in a congested network.

Chapter 7: PLC Tools

7.1 Firmware Update

Firmware upgrade is released periodically to improve the functionality of your Device and also to add new features.

1. Click "Browse" to locate and select the firmware.
2. Click "Update" to upgrade your firmware. Do not disconnect Device from the management PC (the PC you use to configure the Device) or power supply while upgrade is in process; otherwise, Device may be permanently damaged. Device will restart automatically when upgrade completes.

7.2 Backup & Restore Settings

This section allows you to backup current settings or to restore the previous settings configured on the Device.

To backup settings
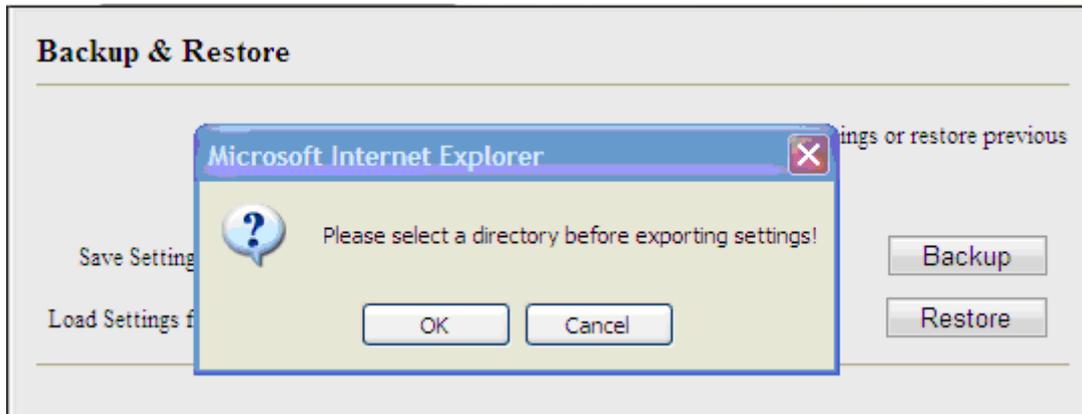
1. Once you have configured the device the way you want it, you can save these settings to a configuration file on your local hard drive that can later be imported to your device in case that the device is restored to factory default settings. Simply click the "Backup" button and then "OK" on appearing window.

Backup & Restore

Save Setting

Load Settings f

Microsoft Internet Explorer

Please select a directory before exporting settings!

OK   Cancel

ings or restore previous

Backup

Restore

2. Click "Save" on the "File Download" window.

File Download

Do you want to save this file?

Name: RouterCfm.cfg
Type: Unknown File Type, 11.6 KB
From: 192.168.0.254

Save   Cancel

While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not save this file. What's the risk?
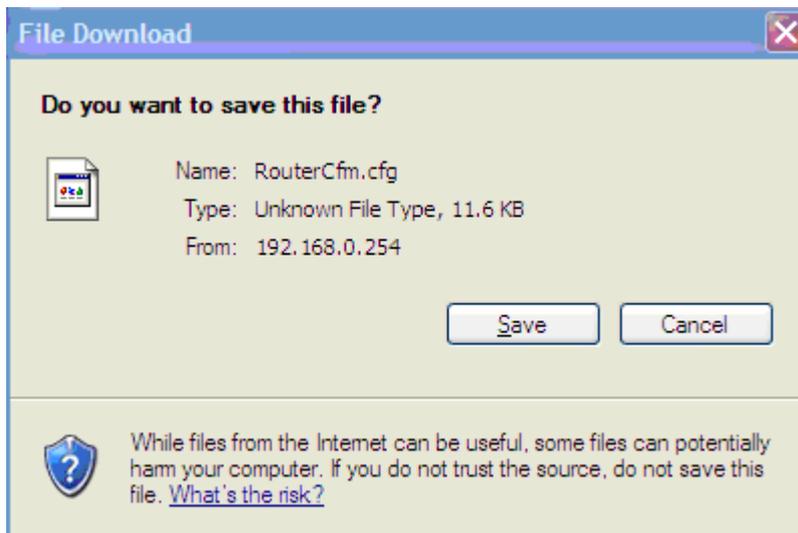
3. Specify a directory to save settings on your local hardware and click "Save".
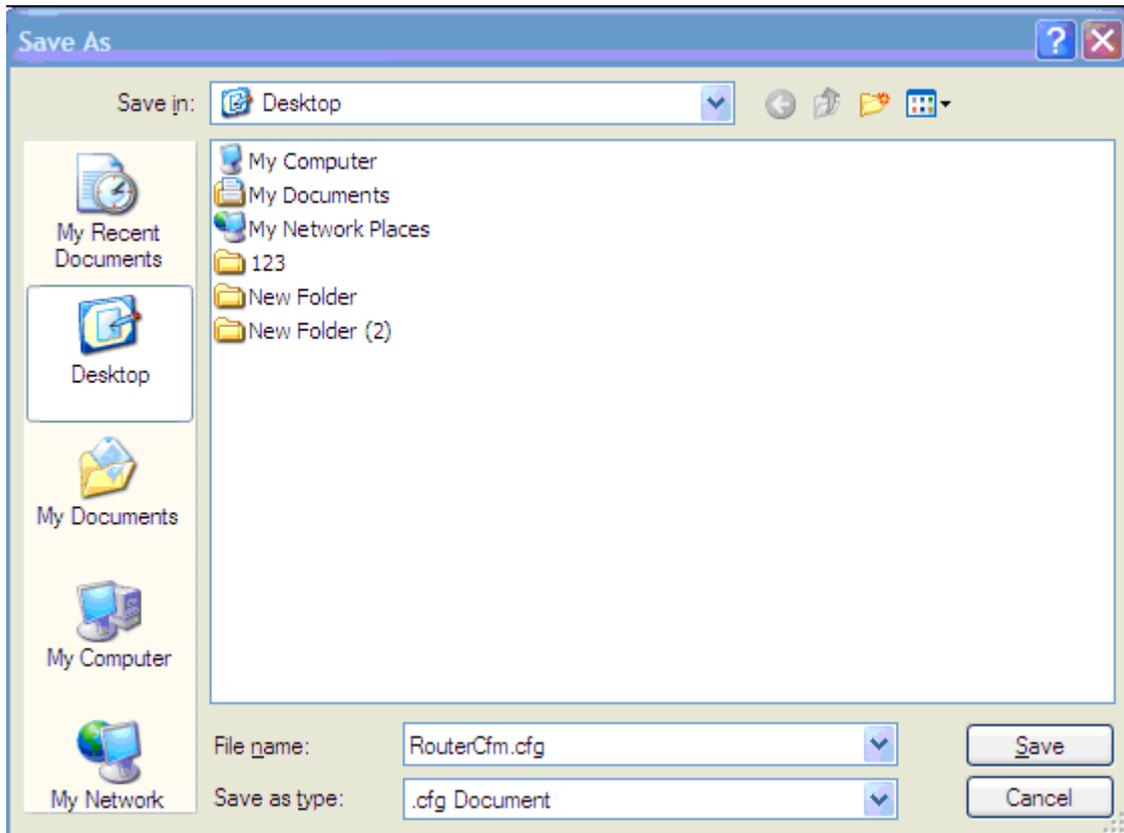
To restore settings

1. Click the "Browse" button to open "Choose file" window.

2. Select a configuration file that is saved previously to your local hard drive and click "Open".

3. Click the "Restore" button to reset your device to previous settings.

7.3 Restore to Factory Default Settings

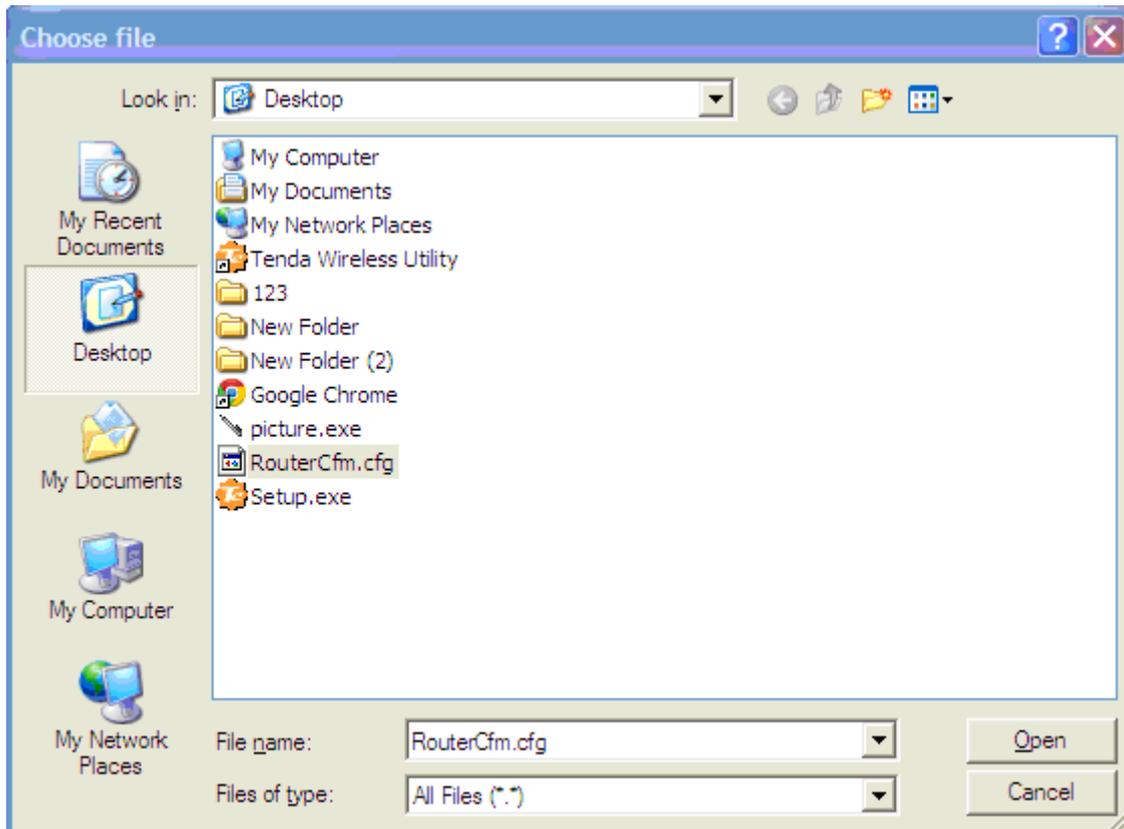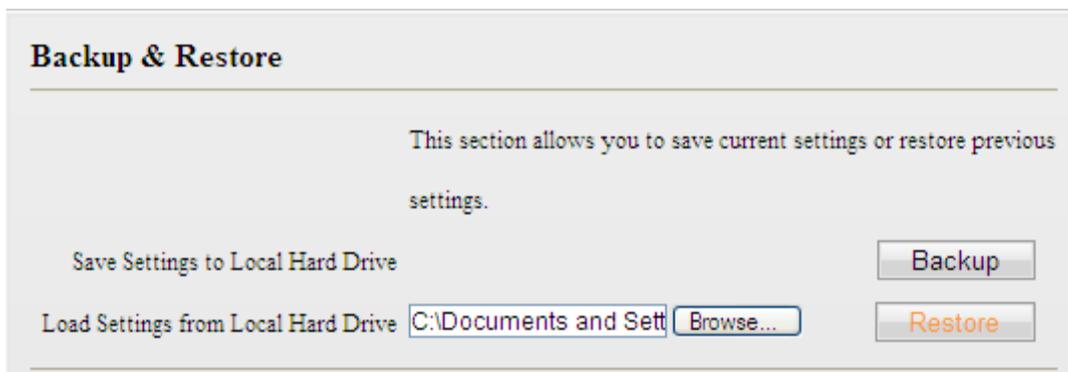Click the "Restore to Factory Default" button to reset Device to factory default settings.

Restore to Factory Default

Click this button to reset the device to factory default values.

[Restore to Factory Default]

NOTE

1. Device will restart automatically after reset.

2. You can also reset Device by pressing the WPS/RST button on its back panel for 6-10 seconds. When wireless LED and WPS LED display a blinking light, it indicates that Device is successfully reset to factory default settings.

7.4 Change Password

This section allows you to change login password and user name for accessing Device's Web-based utility.

Change Password

system notice password tips

new user name [   ]

(User name should consist of 1~14 characters!)

new password [   ]

(Password should consist of 3~12characters!)

new password confirm [   ]

[Save] [Cancel]

New User Name	Enter a new user name.
New Password	Enter a new password.
Confirm New Password	Re-enter the new password for confirmation. Click "Save" and your settings will be activated.

40

NOTE

1. For security purpose, it is highly recommended that you change Device's default login password.

2. If you unfortunately forget the new password/user name, press the hardware WPS/RST button for 6-10 seconds to reset Device.

7.5 Syslog

The Syslog option allows you to view all events that occur upon system startup.

Logs

Refresh	Clear

Index	Log Time	Module	Log Content
1	0 day 00:00:14	system	system start

Page 1

Index	Displays log ID.
Log Time	Displays system uptime when log is made. As seen in the screenshot above, at system uptime of "0 day 00:14:18, Device's network name is changed to "HomePlugAV".
Module	Displays the functional module of a current log entry. As seen in the screenshot above, Device's network name change is implemented in the PLC functional module.
Log Content	Briefly describes an event occurred on the Device.
Refresh	Click to update current logs.
Clear	Click to remove all logs.

7.6 Reboot

Reboot

Click the "Reboot" button to restart your device.

[Reboot]

Reboot	Click to restart Device

📝

NOTE

1. All connections will be disconnected during reboot.

2. The reboot process lasts tens of seconds. When it completes system will be redirected to home page automatically.

Appendix FAQ

Q1: What is Powerline networking?[PL-510W]

A:

Powerline technology upgrades your existing electric wiring, enabling transmission of both network data and electric power in a single power line at a high speed of up to 200Mbps, low cost and with better stability while without new wires required.

Q2: Can a PL-510W be used alone (without a PLC adapter)?

A:

Yes. However, when used alone (without a Powerline adapter), it functions only as a wireless AP instead of a Powerline wireless AP.

Q3: Can a PL-510W access Internet immediately after plugged into a wall outlet?

A:

No. There are two ways to enable clients connected to a Powerline AP, say, PW-510W, to access Internet. A. Connect a second PW-510W or another PLANET Powerline device (200M/500M) to an Internet-enabled broadband router. With a Powerline connection established between the two involved Powerline devices, clients connected wirelessly to the PW-510W are able to access Internet. B. Simply connect the PW-510W to an Internet-enabled broadband router using an Ethernet cable. And clients connected wirelessly to the PL-510W will be able to access Internet.

Q4: Do I need to install a utility to use the device?

A:

No. The device is a plug-&-play Powerline device. Two Powerline devices connected to the same electricity meter are able to interconnect automatically, no configuration required. Yet, there is still an included Web based utility for configuring advanced features.

Q5: I have installed two PL-510W devices under a single electric meter. How am I supposed to manage them?

A:

By default, the two PL-510W devices cannot be managed concurrently as both shares the same IP address of "192.168.0.1". However, below steps may help:

a) Disconnect either PL-510W from the power supply first;

b). Access the connected PL-510W's web utility to change its IP address to a different one such as "192.168.0.2";

c). Connect the disconnected PL-510W back to the power supply. Now, you can manage both PL-510W devices concurrently.

Q6: How many PL-510W at most can be included under a single electricity meter (on a single Powerline network)?

A:

A single Powerline network may include up to 9 Powerline devices, be it Powerline adapter, Powerline AP or Powerline router. However you can create multiple private networks.

Q7: What is the maximum transfer distance of a PL-510W?

A:

Up to 300m can be reached with least interference. However transmission rate decreases gradually beyond 100m.

Q8: Can 510W of different brands communicate with each other?

A:

Yes. This Tenda Powerline device complies with HomePlug AV standard and thus can communicate with other manufacturers' HomePlug AV-compliant Powerline devices.

Q9: Would it be dangerous to use the PL-510W in a thunderstorm?

A:

The device's internal thunder-/lightning-proof facility protects PC or other devices connected against any potential and harmful thunder or lightning attacks even when the building where the Powerline lies is unfortunately thunderstorm-struck.

EC Declaration of Conformity

English	Hereby, **PLANET Technology Corporation,** declares that this **200M Powerline Wireless N Extender** is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.	**Lietuviškai**	Šiuo **PLANET Technology Corporation,**, skelbia, kad **200M Powerline Wireless N Extender** tenkina visus svarbiausius 1999/5/EC direktyvos reikalavimus ir kitas svarbias nuostatas.
Česky	Společnost **PLANET Technology Corporation,** tímto prohlašuje, že tato **200M Powerline Wireless N Extender** splňuje základní požadavky a další příslušná ustanovení směrnice 1999/5/EC.	**Magyar**	A gyártó **PLANET Technology Corporation**, kijelenti, hogy ez a **200M Powerline Wireless N Extender** megfelel az 1999/5/EK irányelv alapkövetelményeinek és a kapcsolódó rendelkezéseknek.
Dansk	**PLANET Technology Corporation,** erklærer herved, at følgende udstyr **200M Powerline Wireless N Extender** overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF	**Malti**	Hawnhekk, **PLANET Technology Corporation,** jiddikjara li dan **200M Powerline Wireless N Extender** jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC
Deutsch	Hiermit erklärt **PLANET Technology Corporation,** dass sich dieses Gerät **200M Powerline Wireless N Extender** in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet". (BMWi)	**Nederlands**	Hierbij verklaart , **PLANET Technology orporation,** dat **200M Powerline Wireless N Extender** in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG
Eesti keeles	Käesolevaga kinnitab **PLANET Technology Corporation,** et see **200M Powerline Wireless N Extender** vastab Euroopa Nõukogu direktiivi 1999/5/EC põhinõuetele ja muudele olulistele tingimustele.	**Polski**	Niniejszym firma **PLANET Technology Corporation,** oświadcza, że **200M Powerline Wireless N Extender** spełnia wszystkie istotne wymogi i klauzule zawarte w dokumencie „Directive 1999/5/EC".
Ελληνικά	*ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ* , **PLANET Technology Corporation,** *ΔΗΛΩΝΕΙ ΟΤΙ ΑΥΤΟ* **200M Powerline Wireless N Extender** *ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ*	**Português**	**PLANET Technology Corporation,** declara que este **200M Powerline Wireless N Extender** está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Español	Por medio de la presente, **PLANET Technology Corporation,** declara que **200M Powerline Wireless N Extender** cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE	**Slovensky**	Výrobca **PLANET Technology Corporation,** týmto deklaruje, že táto **200M Powerline Wireless N Extender** je v súlade so základnými požiadavkami a ďalšími relevantnými predpismi smernice 1999/5/EC.
Français	Par la présente, **PLANET Technology Corporation,** déclare que les appareils du **200M Powerline Wireless N Extender** sont conformes aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE	**Slovensko**	PLANET Technology Corporation, s tem potrjuje, da je ta **200M Powerline Wireless N Extender** skladen/a z osnovnimi zahtevami in ustreznimi določili Direktive 1999/5/EC.
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