## WPB3000

## Powerline Wireless Network Extender

**User Manual** 

V1.0

### Contents

1	Safety	Pre	cautions	1
2	Overvi	ew.		2
	2.1	Pr	oduct Introduction	2
	2.2	Pa	cking List	2
3	Hardw	are	Description and Device Connection	3
	3.1	LE	D Status Description and Pushbutton Description	3
	3.2	Int	erface and Switch Description	6
	3.3	Ha	ardware Installation	6
	3.	3.1	System Requirements	6
	3.	3.2	Before You Begin	6
	3.	3.3	Connecting the Device	7
	3.4	Op	peration Range	8
	3.5	Im	proving the Transmission Performance of Network	8
4	Config	urin	g the LAN PC	9
5	Web C	onfi	guration	14
	5.1	Lo	gging In to the Powerline Wireless Network Extender	14
	5.2	Us	ing WPS clone to sync WPB3000	15
	5.3	Se	tup	16
	5.	3.1	Wireless Setup	16
	5.	3.2	LAN Setup	26
	5.	3.3	Logout	27
	5.4	Ad	lvanced Settings	27
	5.4	4.1	Advanced Wireless	
	5.4	4.2	PLC Setting	
	5.4	4.3	Logout	35
	5.5	Ma	aintenance	
	5.	5.1	Device Management	
	5.	5.2	Backup and Restoration	
	5.	5.3	Firmware Update	
	5.	5.4	Configuration Update	
	5.	5.5	Logout	40
	5.6	Sta	atus	40
	5.	6.1	Device Information	40
	5.	6.2	LAN Client	41

i

5.	6.3 Logout	42
5.7	Help	43
6 Using	the Security Pushbutton	44
6.1	Forming a HomePlug AV Logical Network	44
6.2	Joining an AVLN Network	45
6.3	Leaving an AVLN Network	46
Appendix	A Troubleshooting	48
Appendix	B Specifications	50

ii

### About the User Manual

This user manual mainly describes how to install and configure the WPB3000 Powerline Wireless Network Extender.

Our company reserves the right to modify this manual for product upgrade or other causes without notifying users in advance. This user manual is only for reference.

## Organization

This user manual is organized as follows:

Chapter	Description
Chapter 1 Safety	Provide safety precaution information.
Precautions	
Chapter 2 Overview	Provide a general overview of the WPB3000
	Powerline Wireless Network Extender and the
	packing list.
Chapter 3 Hardware	Mainly describe the hardware of the Powerline
Description and Device	Wireless Network Extender and the procedure
Connection	for connecting the wireless router.
Chapter 4 Configuring the	Describe how to configure your PC and wireless
LAN PC	connection.
Chapter 5 Web	Describe how to log in to the Powerline Wireless
Configuration	Network Extender and configure the parameters
	in the Web pages.
Chapter 6 Using the	Describe how to add a device to an existing
Security Pushbutton	network or remove a device from an existing
	network by the Security pushbutton.

iii

## **Features**

#### **PLC Features**

- Power voltage range is 100 to 240 V AC 50/60Hz.
- Support the HomePlug AV protocol and the IEEE1901 protocol.
- PLC physical link rate is up to 500Mbps.
- Support the following modulation schemes: OFDM QAM 4096/1024/256/64/16/8, QPSK, BPSK, and ROBO.
- Support 128-bit AES link encryption and user NMK authentication, for providing secure power line communication.
- Support windowed OFDM with noise mitigation based on patented line synchronization technique, for improving data integrity in noisy conditions.
- Support channel self-adaptation and channel estimation for maximizing real-time throughput.
- Support priority-based CSMA/CA channel access scheme for maximizing efficiency and throughput.
- Support four-level QoS.
- Support ToS and CoS packet classifications.
- Support IGMP multicast management session.

#### Wireless Features

- Support IEEE802.11b, IEEE802.11g, IEEE802.11n, IEEE802.3, IEEE802.3u, IEEE802.11i and IEEE802.11e.
- Support 2T2R mode. Transmission data rate is up to 300Mbps.
- Support WEP and WPA for secure data transmission.
- Support version upgrade through Web page.
- Support restoring factory default settings.
- Support the following wireless security modes: WEP, WPA-PSK, WPA2-PSK, and WPA/WPA2-PSK
- Support system status display.
- Support WPS & WPS Clone function.

iv

## **1** Safety Precautions

This device is intended for connection to the AC power line. Before using this product, please read the following precautions:

- Follow all warnings and instructions marked on the product.
- Unplug the device from the wall outlet before cleaning. Use a dry cloth for cleaning. Do not use liquid cleaners or aerosol cleaners.
- Do not put this product near water.
- Do not put this product near a radiator or heat source.
- Do not use an extension cord between the device and the AC power source.
- Only a qualified technician should service this product. Opening or removing covers may result in exposure to dangerous voltage points or other risks.
- Unplug the device from the wall outlet and refer the product to qualified service personnel for the following conditions:
  - If liquid has been spilled into the product
  - If the product has been exposed to rain or water
  - If the product does not operate normally when the operating instructions are followed

1

- If the product exhibits a distinct change in performance

## 2 Overview

#### 2.1 Product Introduction

Thank you for purchasing the WPB3000 Powerline Wireless Network Extender. The WPB3000 Powerline Wireless Network Extender is compatible with the HomePlug AV, IEEE1901 and 802.11b/g/n protocols. It supports CCK and OFDM modulation schemes. Its PLC physical link rate is up to 500Mbps, and its wireless physical rate is up to 300Mbps in the 802.11n mode.

The WPB3000 Powerline Wireless Network Extender supports 128-bit AES link encryption of power line communication and wireless security modes including WEP, WPA-PSK, WPA2-PSK, and WPA/WPA2-PSK, which provide secure and reliable communication for users.

## 2.2 Packing List

Please check whether your packing list includes the following items:

- 1 x WPB3000 Powerline Wireless Network Extender
- 1 x RJ45 network cable

# 3 Hardware Description and Device Connection

## 3.1 LED Status Description and Pushbutton Description

There are 5 LED indicators on the front panel of the Powerline Wireless Network Extender. By observing their status, you can check whether the device runs normally.



The following table describes the status of LED indicators on the front panel:

LED Indicator	Color	Description
	Solid	
	green	System runs normally.
Power	Green	System is in the process of password synchronization.
	Off	Device is powered off or system is down.
	Off	Ethernet cable not connected
	Flashing	Packets are received or transmitted
Ethernet 1	green	
	fast	
	On	Ethernet cable is connected
	Off	Ethernet cable not connected
	Flashing	Packets are received or transmitted
Ethernet 2	green	
	fast	
	On	Ethernet cable is connected
	Off	Unable to join powerline network
	Solid	Powerline network rate is greater
	green	than 40 mbps
	Solid	Powerline network rate is between 5
Link	Orange	and 40 mbps
LINK	Solid	Powerline network rate is less than 5
	Red	mbps
	Flashing	Packets are received or transmitted
	[color]	
	fast	
Wireless	Off	Wireless disabled
	On	Wireless enabled
	Flashing	WPS config sync in process
	orange	
	slowly	
	Flashing	WPS config sync success
	orange	

fast	
Solid	WPS config sync fail
red	
Flashing	WPS client pairing in process
green	
slowly	
Flashing	WPS client pairing success
green	
fast	
Solid	WPS client pairing fail
red	
Off	Wireless disabled
On	Wireless enabled

The following table describes pushbuttons on the front panel:

Button	Description
	It is used to set the status of the device members.
	• Press and hold the <b>Security</b> pushbutton for more than 10
	seconds to exit the current network and generate a random
Security	password of network member.
	• Press and hold the <b>Security</b> pushbutton for less than 3
	seconds, and then the Powerline Wireless Network Extender
	becomes a member of the existing AVLN.
Depat	Press the Reset pushbutton for more than 3 seconds and then
Reset	release it. System restores the factory default settings.
	It has the following functions:
	• Press the WPS pushbutton for less than 3 seconds to enable
	the negotiation of PBC mode. The WPS client pairing must
WPS	start even if the WPS button is pressed for less than 1
	seconds.
	Press the WPS pushbutton for 8 seconds to start configure
	WPS Clone function.

### 3.2 Interface and Switch Description



The following table describes interfaces and switch on the Powerline Wireless Network Extender:

Interface	Description
Ethernet 1	RJ45 LAN interface, for connecting a hub, switch, or
Ethemet I	computer on a LAN.
Ethomat 0	RJ45 LAN interface, for connecting a hub, switch, or
Ethernet 2	computer on a LAN.
OFF ON	Turn on or turn off the device.

### 3.3 Hardware Installation

#### 3.3.1 System Requirements

Before installing the device, please ensure that the following items are ready:

- At least one Ethernet RJ45 cable (10Base-T/100Base-T)
- One WPB3000 Powerline Wireless Network Extender
- One PLC device for PLC communication
- A PC that is installed with the TCP/IP protocol and can access the Internet.

#### 3.3.2 Before You Begin

Before you install the device, please pay attention to the following items:

• When the device is connected to a computer, hub, router, or switch, the Ethernet cable should be shorter than 100 meters.

- Place this device on a stable surface or support. Do not put this device on the ground.
- Keep the device clean. Keep away the device from direct sunshine. Avoid any metal in the device.
- Place the device in the center of the placement area, and try to optimize the wireless coverage.

### 3.3.3 Connecting the Device

To connect the device, do as follows:

Step 1 Connect one end of the RJ45 cable to the LAN interface of the Powerline Wireless Network Extender.

- Step 2 Connect the other end of the RJ45 cable to your PC.
- **Step 3** Insert the power plug of the device into the wall socket directly.

### 3.4 Operation Range

The operation range of the Powerline Wireless Network Extender depends on the actual environment. The path and effect of signal transmission may vary with the deployment in a house or an office. In theory, the maximum PLC transmission distance can reach 300 meters. But for the practical application, the PLC transmission distance may vary due to the number of PLC devices connected to the power line network. For wireless transmission, straight transmission distance in the open air for some devices can reach 300 meters and indoor transmission distance can reach 100 meters.

## 3.5 Improving the Transmission Performance of Network

In order to improve the transmission performance of network, it is recommended that you insert the power plug of the device into the wall socket directly. Do not use the patch board.



## 4 Configuring the LAN PC

When the adapter is not connected with the uplink router, the LAN IP address of the Powerline Wireless Network Extender is **192.168.10.1** and the subnet mask is **255.255.255.0** by default. Please setting as following steps:

#### Dote:

The configuration steps and figures on Windows XP are depicted as an example. The configuration process may vary depending on operation system of your PC.

To manually set the network adapter on Windows XP system, do as follows:

Step 1 Right-click the icon of My Network Places and choose Properties from the menu. The Network Connections window appears.



Step 2 Right-click the network adapter icon and choose Properties from the menu. The Local Area Connections Properties window appears.

S Network Connections		
File Edit View Favorites Tools	Advanced Help	<b>1</b>
🜀 Back + 🌍 - 🍺 🔎	iearch 🍋 Folders 🔢 🗸	
Address 🔕 Network Connections		💌 🛃 Go
Network Tasks	Broadband	
Create a new connection Set up a home or small office network	<b>2</b>	
Change Windows Firewall settings		
Oisable this network device	adsl	
🔦 Repair this connection		
Rename this connection	LAN or High-Speed Internet	
View status of this connection		
Change settings of this connection	Disable	
Other Places 🛞	Repair	
Control Panel	Local Area Bridge Connections	
My Network Places	Create Shortcut	
🗎 My Documents	Rename	
My Computer	Properties	
Control Panel My Network Places My Documents My Computer  Details  Cocal Area Connection		
Local Area Connection	R	

#### D Note:

If multiple network cards are installed on your PC, a window other than the **Local Area Connections Properties** window may appears.

 Step 3
 Double-click Internet Protocol (TCP/IP) and the Internet Protocol (TCP/IP)

 Properties window appears.



Step 4 Select Use the following IP address and enter the IP address of the network adapter. Set the IP address to 192.168. 10.X ('X' is a number in the range of 2 to 254) and set the subnet mask to 255.255.255.0. Configure the default gateway and IP addresses of the DNS servers according to your actual network, or leave them blank. After setting the parameters, click OK.

	l automatically if your network supports ed to ask your network administrator fo	
O Obtain an IP address autom	natically	
<ul> <li>Use the following IP addres</li> </ul>	s:	
IP address:	192.168.10.123	
S <u>u</u> bnet mask:	255.255.255.0	
 Default gateway:	192.168.10.1	
Obtain DNS server address	automaticallu	
Use the following DNS serv		
Preferred DNS server:		

 Step 5
 Ping the default IP address of the Powerline Wireless Network Extender, to check whether the current connection between your PC and the Powerline Wireless Network Extender is normal. Choose Start > Run from the desktop and enter ping 192.168.10.1. See the following figure:

Run	? 🔀
-	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	ping 192.168.10.1
	OK Cancel Browse

Dote:

**192.168.10.1** in the ping command is the default IP address of the LAN interface. If the IP address changes, enter the current IP address instead.

Step 6 If your PC can ping through the default IP address of the Powerline Wireless Network Extender, the following page appears, indicating that the connection between your PC and the Powerline Wireless Network Extender is normal:

Pinging 192.168.10.1 with 32 bytes of data:	
Reply from 192.168.10.1: bytes=32 time=1ms TTL=64	
Reply from 192.168.10.1: bytes=32 time<1ms TTL=64 Reply from 192.168.10.1: bytes=32 time<1ms TTL=64	
-	

#### Note:

When the adapter is connected with the uplink router and DHCP server open in uplink router, please set automatically get the IP in the PC in LAN side.

## **5 Web Configuration**

This chapter describes how to log in to the Powerline Wireless Network Extender as a super user and how to configure the parameters in the Web pages.

## 5.1 Logging In to the Powerline Wireless Network Extender

If you log in to the Powerline Wireless Network Extender for the first time, do as follows:

Step 1 Open the IE browser, and enter <u>http://192.168.10.1</u> in the address bar.

in 💟
ember my password
Login

Note:

When the adapter is connected with the uplink router and DHCP server open in uplink router, please use"http://myextender"

**Step 2** In the login page, enter the user name and password.

#### Dote:

• Both the default user name and password of super user are **admin**.

Step 3 Click Login, and the following page appears.

	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP		
Setup	WIRELESS SETUP				Helpful Hints		
up	This section allows you	u to setup your wireless i	network on the router devi	ce.	1. Every device in the same wireless network		
				4	must use the same SSID.		
	WIRELESS BASIC				2. To avoid wireless network overlap, a		
		This setting is designed to assist you in connecting your wireless device to your router. Click the button below to begin the basics settings.					
		Wirele	ss Basic		3. Make sure security used by every device in		
					the same wireless network is compatible with the		
	WPS				wireless AP.		
	Configure your WPS s	ettings.			More		
			PPS .				

#### D Note:

The LAN user is allowed to access the Powerline Wireless Network Extender by user names and passwords (admin/admin).

### 5.2 Using WPS clone to sync WPB3000

If you want to sync WPB3000 wireless configuration parameter from uplink Router, you can consider WPS clone function. Steps as followed:

Step 1Press "WPS" button over 10s, until "Wireless" LED blink with RED color. If the<br/>device has successfully cloned the wireless configuration parameter from<br/>Router, then the "Wireless" LED will blink with orange color.

If the synchronization failed, the "Wireless" LED will blink with RED color with high frequency. Then you can set the same wireless configuration parameter as Router in the website as below:

- Step 1 Open the IE browser, and enter <u>http://192.168.10.1</u> in the address bar. Note: When the WPB3000 is connected with the uplink router and DHCP server open in uplink router, please use "http://myextender"
- Step 2 In the following page, you can set wireless configuration parameter of the Router (eg, SSID, security mode, password) , and then click "Apply".

	t is recommended that you configure your v ase enter your home router's wireless setting	Vi-Fi extender to use the same network settings as your gs below.
Note: If the wire	less security mode is WEP or WPA-PSK(TKIP	) or SSID is invisibled, the WPS function will be disabled.
WIRELESS NE	TWORK SYNCHRONIZATION WIZARD	
	Enable Wireless Interface	V
	Wireless Network Name (SSID) :	Actiontec
	Wireless Security Mode :	WPA/WPA2-PSK
	Wireless Password :	•••••
	Show encryption key :	The PassPhrase should be 8 to 63 ASCII, or 64 hexadecima numbers.

## 5.3 Setup

## 5.3.1 Wireless Setup

Choose SETUP > Wireless Setup, and the following page appears.

	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP	
Wireless Setup	WIRELESS SETU	p			Helpful Hints	
LAN Setup	This section allows y	ou to setup your wireless	network on the router devic	ce.	1. Every device in the same wireless network	
Logout					must use the same SSID.	
	WIRELESS BASI	C			2. To avoid wireless network overlap, a	
		This setting is designed to assist you in connecting your wireless device to your router. Click the button below to begin the basics settings.				
		<ol> <li>Make sure security used by every device in the same wireless network is compatible with the</li> </ol>				
	WPS				wireless AP.	
	Configure your WPS	settings.			More	
			WPS			

### 5.3.1.1 Wireless Basic Settings

Choose Wirelss Setup > Wireless Basic on the left pane or click Wireless Basic in the WIRELESS SETUP page to display the following page.

	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP
ireless Setup	WIRELESS BASIC	S			Helpful Hints
	Through this page, yo	Through this page, you can configure the SSID, bandwidth, wireless security etc.			
ogout		ent configuration param	eters need to be consistent		Network Name is the first step in securing your wireless network. We recommend that you change it to a familiar
	WIRELESS NETWO	RK SETTINGS			name that does not contain any personal
	Enable Wireless	Interface			information. We recommend that you enable Auto Scan Channe
	Wireless Network Visibility Status		Actiontec		so that the router can select the best channel fo your wireless network.
	Country :				If you have enabled Wireless Security, make
	802.11 Mode :		Mixed 802.11b/g/n 💌		sure you write down WEP or Passphrase Key that
	Band Width :		20M		you have configured. You will need to enter this
	Wireless Channe	D:	Auto Scan(recommended)		information on any wireless device that you connect to your wireless
	WIRELESS SECUR	ITY MODE			network. More
	Wireless Security	Mode :	WPA/WPA2-P5K 💌		Morein
	PRE-SHARED KEY				
	Pre-Shared Key	:	1234567890		
			The pre-shared key should be hexadecimal numbers.	8 to 63 ASCII, or 64	
		Apply	Cancel		

In this page, you can configure the basic wireless parameters.

The following table describes parameters in this page:					
Field	Description				
Enable Wireless Interface	Enable or disable the wireless interface.				
Wireless Network Name (SSID)	The wireless network name (SSID) can contain up to 32 characters and can be letters, numerals, underlines, and any combinations of them. The SSID is case-sensitive.				
Visibility Status	<ul> <li>If Visible is selected, the Powerline Wireless Network Extender broadcasts its SSID on the wireless network.</li> <li>If Invisible is selected, the Powerline Wireless Network</li> </ul>				

Field	Description
	Extender does not broadcast its SSID on the wireless network.
Country	Select the country where you are from the drop-down list.
802.11 Mode	<ul> <li>Select the appropriate wireless mode. The default is Mixed 802.11b/g/n.</li> <li>802.11b only: The maximum rate is 11Mbps.</li> <li>802.11g only: The maximum rate is 54Mbps.</li> <li>802.11n only: For 20M bandwidth, the maximum rate is 130Mbps (150Mbps for short preamble); for 40M Upper (+) or 40M Lower (-) bandwidth, the maximum rate is 270Mbps (300Mbps for short preamble).</li> <li>Mixed 802.11b/g: It is compatible with 802.11b and 802.11g.</li> <li>Mixed 802.11b/g/n: It is compatible with 802.11b, 802.11p, and 802.11g.</li> </ul>
Band Width	Only in the 802.11 mode that is compatible with 802.11n, can you set the band width. For <b>20M</b> bandwidth, the maximum rate is 130Mbps (150Mbps for short preamble); for <b>40M</b> <b>Upper (+)</b> or <b>40M Lower (-)</b> bandwidth, the maximum rate is 270Mbps (300Mbps for short preamble).
Wireless Channel	Select the working channel of the wireless network. The default is <b>Auto Scan</b> , which indicates that the Powerline Wireless Network Extender automatically searches for the best channel among the available channels.

In this page, you can also configure the wireless security parameters.

Wireless security settings are very important in protecting the wireless base stations on your network and wireless communication between your router and wireless network. The Powerline Wireless Network Extender provides 5 types of wireless security modes, which contain **None**, **WEP**, **WPA-PSK**, **WPA2-PSK**, and **WPA/WPA2-PSK**.

(1) None

Select **None** from the drop-down list of wireless security mode to display the following page.

	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP	
less Setup	WIRELESS BASICS				Helpful Hints	
	Through this page, you	can configure the SS	ID. bandwidth.wireless securi	tv etc	Changing your Wireless	
t		t configuration param	eters need to be consistent		Network Name is the first step in securing your wireless network. We recommend that you change it to a familiar name that does not	
	WIRELESS NETWOR	WIRELESS NETWORK SETTINGS				
	Enable Wireless In	terface	V		information. We recommend that you enable Auto Scan Channe	
	Wireless Network I	Name (SSID) :	Actiontec		so that the router can select the best channel for your wireless network.	
	Visibility Status :		💿 Visible 🔘 Invisible			
	Country :		USA 💌		If you have enabled Wireless Security, make	
	802.11 Mode :		Mixed 802.11b/g/n 💌		sure you write down WEP or Passphrase Key that	
	Band Width :		20M 💉		you have configured. You will need to enter this	
	Wireless Channel :		Auto Scan(recommended) 💌	l	information on any wireless device that you connect to your wireless	
	WIRELESS SECURIT	Y MODE			network.	
	will cless decurity ridue .		None 🔽		More	
		Apply	WEP WPA-P5K WPA2-P5K WPA/WPA2-P5K			

**None** means data encryption is not adopted and the network is not secure. Any station can access the network. This option is not recommended.

#### (2) WEP

Select **WEP** from the drop-down list of wireless security mode to display the following page.



Wireless Security Mode :	
WEP	
If you choose the WEP security op mode (802.11B/G).	otion this device will ONLY operate in Legacy Wireless
router and the wireless stations. Fo box. For 128 bit keys you must en	ndard. To use it you must enter the same key(s) into the or 64 bit keys you must enter 10 hex digits into each key ter 26 hex digits into each key box. A hex digits either a m A to F. For the most secure use of WEP set the y' when WEP is enabled.
a hexadecimal key using the ASCII	into a WEP key box, in which case it will be converted into values of the characters. A maximum of 5 text characters d a maximum of 13 characters for 128 bit keys.
WEP Key Length :	64 bit 💉 (length applies to all keys )
Default Tx Key :	1 💌
WEP Key Format :	HEX (10 characters) 💌
WEP Key1 :	666666666
WEP Key2 :	777777777
WEP Key3 :	888888888
WEP Key4 :	9999999999
Authentication :	Open 💌

The following table describes parameters related to the WEP mode:

Field	Description
WEP Key Length	Select the encryption length of WEP key. You can select 64
WEI Key Lengti	bit or 128 bit.
Default Tx Key	Select one from the four keys as the default key of the
Delault TX Key	wireless network.
	• When the key format is 64 bit, you need to enter 5
WEP Key Format	ASCII characters or 10 hexadecimal digits.
WEF Key Format	• When the key format is <b>128 bit</b> , you need to enter 13
	ASCII characters or 26 hexadecimal digits.
WEP Key 1/2/3/4	Set 64-bit or 128-bit key according to the key format.
Authoption	Select the proper authentication mode. You can select Open
Authentication	or Share Key.

(3) WPA-PSK

Select **WPA-PSK** from the drop-down list of wireless security mode to display the following page.

s SSID, bandwidth, wireless security etc. rameters need to be consistent with this page to	Helpful Hints Changing your Wireless
	Changing your Wireless Network Name is the firs
rameters need to be consistent with this page to	step in securing your wireless network. We recommend that you change it to a familiar name that does not
	contain any personal information.
V	We recommend that yo
	enable Auto Scan Chan so that the router can
Actiontec	select the best channel f your wireless network.
	If you have enabled
USA	Wireless Security, make
Mixed 802.11b/g/n 💌	sure you write down WE or Passphrase Key that
20M	you have configured. Yo will need to enter this
Auto Scan(recommended) 😵	information on any wireless device that you connect to your wireless
	network.
WPA-PSK 💌	More
1234567890	
The pre-shared key should be 8 to 63 ASCII, or 64 hexadecimal numbers.	
	Actiontec Visible Invisible USA Mixed 802.11b/g/n V 20M Auto Scan(recommended) V WPA-PSK 1234567890 The pre-shared key should be 8 to 63 ASCII, or 64

The following table describes parameters related to the WPA mode:

Field	Description
WPA Mode	Only WPA-Personal is available.
Encryption Mode	Only <b>TKIP</b> is available.
Group Key Update Interval	Set the update interval of group key.
Pre-shared Key	Set the pre-shared key. The Powerline Wireless Network Extender uses this key to authenticate the identity of workstation.

(4) WPA2-PSK

Select **WPA2-PSK** from the drop-down list of wireless security mode to display the following page.

	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP
Wireless Setup	WIRELESS BASICS	Helpful Hints			
LAN Setup	Through this page, yo	u can configure the SSID	, bandwidth,wireless secu	rity etc.	Changing your Wireless Network Name is the first step in securing your wireless network. We recommend that you change it to a familiar
Logout		nt configuration paramet	ers need to be consistent	in million	
	WIRELESS NETWO	RK SETTINGS			name that does not contain any personal information.
	Enable Wireless I	nterface	V		We recommend that you enable Auto Scan Channe so that the router can
	Wireless Network	Name (SSID) :	Actiontec		select the best channel fo
	Visibility Status :		💿 Visible 🔘 Invisible		If you have enabled
	Country :		USA 💌		Wireless Security, make sure you write down WEP
	802.11 Mode :		Mixed 802.11b/g/n 👻		or Passphrase Key that you have configured. You
	Band Width :		20M		will need to enter this
	Wireless Channel	:	Auto Scan(recommended)		information on any wireless device that you connect to your wireless
	WIRELESS SECURI	ITY MODE			network.
	Wireless Security	Mode :	WPA2-PSK		More
	PRE-SHARED KEY				
	Pre-Shared Key :		1234567890		
			The pre-shared key should be hexadecimal numbers.	8 to 63 ASCII, or 64	
		Åpply	Cancel		

The following table describes parameters related to the WPA2 mode:

Field	Description
WPA Mode	Only WPA2-Personal is available.
Encryption Mode	Only <b>AES</b> is available.
Group Key Update Interval	Set the update interval of group key.
Pre-shared Key	Set the pre-shared key. The Powerline Wireless Network Extender uses this key to authenticate the identity of workstation.

(5) WPA/WPA2-PSK

Select **WPA/WPA2-PSK** from the drop-down list of wireless security mode to display the following page.

///	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP
Wireless Setup	WIRELESS BASICS	3			Helpful Hints
LAN Setup	Through this page, yo	u can configure the SSID	, bandwidth, wireless secu	rity etc.	Changing your Wireless
Logout	Note: The wireless clie modify the configuration	Network Name is the first step in securing your wireless network. We recommend that you change it to a familiar			
	WIRELESS NETWO	RK SETTINGS			name that does not contain any personal information.
	Enable Wireless I	nterface	<b>V</b>		We recommend that you enable Auto Scan Channe
	Wireless Network	Name (SSID) :	Actiontec		so that the router can select the best channel for
	Visibility Status :	í.	💿 Visible 🔘 Invisible		your wireless network.
	Country :		USA 💌		If you have enabled Wireless Security, make
	802.11 Mode :		Mixed 802.11b/g/n 💌		sure you write down WEF or Passphrase Key that
	Band Width :		20M		you have configured. You will need to enter this
	Wireless Channel	:	Auto Scan(recommended)		information on any wireless device that you connect to your wireless
	WIRELESS SECUR	ITY MODE			network.
	Wireless Security	Mode :	WPA/WPA2-P5K 💌		More
	PRE-SHARED KEY				
	Pre-Shared Key :		1234567890 The pre-shared key should be hexadecimal numbers.	8 to 63 ASCII, or 64	
		Åpply	Cancel		

The following table describes parameters related to the WPA/WPA2 Mixed mode:

Field	Description
WPA Mode	Only WPA/WPA2 Mixed-Personal is available.
Encryption Mode	You can only select <b>Both</b> . <b>Both</b> indicates that it is compatible with <b>TKIP</b> or <b>AES</b> .
Group Key Update Interval	Set the update interval of group key.
Pre-shared Key	Set the pre-shared key. The Powerline Wireless Network Extender uses this key to authenticate the identity of workstation.

After setting the parameters, click **Apply** to save the settings.

2	,	2
2		

#### 5.3.1.2 WPS Settings

WPS refers to Wi-Fi Protected Setup. You can use the WPS setup function to add a wireless client to a network, without setting some specific parameters, such as SSID, security mode, and password. To use this function, a wireless client must support WPS. If the wireless client does not support WPS, you must manually configure the wireless settings of wireless client, and ensure that its SSID and other wireless security settings are the same as that of the Powerline Wireless Network Extender.

Choose Wirelss Setup > WPS on the left pane or click WPS in the WIRELESS SETUP page to display the following page.

	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP
Wireless Setup	WPS				Helpful Hints
LAN Setup	Enable the wireless fu	unction , the WPS condit	ion must be WPA2-PSK or V	VPA/WPA2-PSK	Enable the wireless
Logout	security mode , and t	the SSID should be broad security mode is WEP or			function, the WPS condition must be WPA2-PSK or WPA/WPA2-PSK security mode, and the SSID should be broadcasted.
	WPS				More
	Wir	eless SSID :	Actiontec 💌		
	WP	S Config State :	Configured		
	WPS CONFIG				
	Ena	bled WPS	V		
	PBC	Button :	PBC		
		ut Station PIN :		PIN	
	WP	S Session Status :			
	Dev	rice PIN :	12345670 Generat	e	
	Res	et Configured :	Reset		
		Apply	Cancel		

The following table describes parameters in this page:

Field	Description
Wireless SSID	Select a wireless SSID from the drop-down list.
WPA Mode	Display current WPA mode.
Enabled WPS	Enable or disable WPS.

2	4
-	-

Field	Description
	Click the PBC button in this page, and then click
	the PBC button in the configuration utility page of
Push Button	wireless network card or press the WPS
	pushbutton on the wireless network card within 2
	minutes to finish WPS configuration.
Innut Otation DIN	Enter the PIN code that is generated randomly by
Input Station PIN	the configuration utility of wireless card.
WPS Session Status	Display current WPS connection status.

## ⚠ Caution:

If you want to use WPS, you must select the WPA-PSK, WPA2-PSK or WPA/WPA2-PSK mode and the SSID must be broadcasted.

WPS modes contain PBC mode and PIN mode.

PBC Mode

Click the **PBC** button in the WPS page or press the **WPS** button on the Powerline Wireless Network Extender to start WPS connection.

	WPS is connecting ,please wait for a moment. [ ]
WPS Session Status :	WPS session in progress ==> Inprogress
Input Station PIN :	PIN
Push Button :	PBC

Press the **WPS** button on the network card or click the **PBC** button in the configuration utility page of network card within two minutes to start WPS connection. After WPS connection is established, the following page appears. The client can now visit the LAN.

2	5
4	2

WPS Session Status :	Add new device success! ==> Success
Input Station PIN :	PIN
Push Button :	PBC

#### • PIN Mode

Enter the PIN of the network card in the WPS page (refer to the client of the network card), and then click **PIN** to start WPS connection. The following page appears:

	WPS is connecting	,please wait for a moment.
WPS Session Status :	WPS session in pro	ogress ==> Inprogress
Input Station PIN :	28388654	PIN
Push Button :	PBC	

Click the **PIN** button in the configuration utility page of network card within two minutes to start WPS connection. After WPS connection is established, the following page appears. The client can now visit the LAN.

WPS Session Status :	Add new device	success! ==> Success
Input Station PIN :	28388654	PIN
Push Button :	PBC	

### 5.3.2 LAN Setup

Choose SETUP > LAN Setup, and the following page appears.

Wireless Setup     LAN SETTINGS     Helpful Hints       LAN Setup     This section allows you to configure the LAN Setup settings of your router.     The IP address of your router.       Lopoid     This section allows you do not need to modify the default configuration of this page.     The IP address of your router.       BRIDGE SETTING     BRIDGE SETTING     addresses on your network or a guera path IP address on your router. If you router. I

In this page, you can configure the LAN settings of the Powerline Wireless Network Extender. You can modify the IP address of the LAN interface according to the actual network environment. The default IP address is **192.168.10.1**. Please note that this is an optional operation. Usually, you need not to modify the default settings in this page.

The following table describes parameters in this page:

Field	Description
Router IP Address	Set the IP address that a LAN user uses to access the router. The default IP is <b>192.168.10.1</b> . You can change it if necessary.

After setting the parameters, click **Apply** to save the settings.

## 5.3.3 Logout

Choose **SETUP** > **Logout** to log out of the Web configuration page.

## 5.4 Advanced Settings

2	7
2	1
-	1

#### 5.4.1 **Advanced Wireless**

Usually, it is not recommended to modify the default settings of advanced wireless configuration page. The default settings can provide the optimal wireless performance. Improper modifications may influence the wireless performance. Choose ADVANCED > Advanced Wireless, and the following page appears.



	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP
Advanced Wireless	ADVANCED WIR	ELESS			Helpful Hints
PLC Setting	This section allows y	ou to configure advanced	features of the wireless.		If you are not familiar with
Logout		-			the following functions, keep the default
	ADVANCED				parameters. In some cases, incorrect settings may reduce wireless
	Allows you to config	ure advanced features of	the wireless LAN interface.		performance.
		Âd	vanced		More
	ADVANCED SECU	IRITY			
	Allows you to config	ure security of the wirele:	s LAN interface. d Security		
	ACCESS CONTRO	IL.			
	Allows you to config	ure access control of the	wireless LAN interface. s Control		
	1				

#### 5.4.1.1 Advanced Wireless Settings

Choose Advanced Wireless > Advanced on the left pane or click Advanced in the ADVANCED WIRELESS page to display the following page.

Advanced Wireless PLC Setting Logout	ADVANCED SETTIN Allows you to configure ADVANCED WIRELE Transmit Pr Beacon Per RTS Thresh	advanced features o ISS SETTINGS In Rate :	of the wireless LAN interface	:e.	Helpful Hints It is recommended that you leave these parameters at their default values. Adjusting them could limit the performance of your
an a	ADVANCED WIRELE Transmissic Transmit Pe Beacon Per	SS SETTINGS	Auto	:e.	you leave these parameters at their default values. Adjusting them could limit the
	Transmissic Transmit Pe Beacon Per	n Rate :		1	default values. Adjusting them could limit the
	Transmit Pe Beacon Per				
	Beacon Per	ower :			wireless network.
			100% 💌		More
	RTS Thresh		100	(40 ~ 1024)	
	100000000000000000000000000000000000000		2346	(256 ~ 2346)	
	DTIM Inter	ion Threshold :	2346	(256 ~ 2346) (1 ~ 255)	
	Preamble T		short V	](1 ~ 255)	
	AP Isolatio		off 💌		
	SSID				
	🗹 Enable	SSID 1			
	SSID 1 :		Actiontec		
	Visibility St	atus :			
	User Isolati		Off 💌		
	Disable WM	M Advertise :	Off 💙		
	GUEST/VIRTUAL A	CESS POINT-1			
	🗌 Enable	SSID 2		-	
	SSID 2 :		Actiontec-2	-	
	Visibility St		Visible     Invisible     Off		
	User Isolati		Off V		
	Disable WM	M Advertise :	OIT M		
	GUEST/VIRTUAL A				
	SSID 3 :	SSID 3	Actiontec-3	1	
		a true a	Visible      Invisible		
	Visibility St User Isolati		Off M		
	100.004 (100.007.00.01.000	un : M Advertise :	Off 💌		
	GUEST/VIRTUAL A				
	SSID 4 :	SSID 4	Actiontec-4	1	
	Visibility St	atus :	Visible      Invisible	-	
	User Isolati		Off VISIBLE		
		M Advertise :	Off 💌		
		Apply	y Cancel		

	of towerine whereas network Extended Oser Manda
following table des	cribes parameters in this page:
Field	Description
Transmission Rate	Set the proper transmission rate.
Transmit Power	Select the proper transmission power from the drop-down list. You can select 100%, 80%, 60%, 40%, or 20%.
Beacon Period	Beacon period indicates the frequency of the Powerline Wireless Network Extender that sends the Beacon frame. By default, the Powerline Wireless Network Extender sends the beacon frame every other 100 ms. The range is 20~1024.
RTS Threshold	Set the CTS/RTS threshold. If the length of a packet is greater than the value, the router sends an RTS frame to the destination station for negotiation. After receiving the RTS frame, the wireless station responds with a Clear to Send (CTS) frame to the router, indicating that they can communicate with each other. The default value is 2346.
Fragmentation Threshold	Set the threshold of fragmentation length. If the length of a packet is greater than the value, the packet is automatically fragmented into several packets. Because too many packets lead to low performance of the wireless network, the value of fragmentation length cannot be too small. The default value is 2346.

he following t	table describes	parameters in	this page:

46. h of ise eless too small. The default value is 2346. DTIM interval indicates the frequency for sending the DTIM Interval wireless packets. The range is 1~255 and the default value is 10. Set the preamble type. The default is short preamble. A preamble defines the length of the CRC correction Preamble Type block that is used for the communication between your router and wireless clients. Shorter preamble should apply to a network with intense traffic. On indicates that the wireless clients connecting to different SSIDs cannot communicate with each other. AP Isolation Off indicates that the wireless clients connecting to different SSIDs can communicate with each other.

Field	Description		
Enable SSID1~4	Enable or disable the wireless function.		
	Set the network name. The SSID can contain up to 32		
SSID1~4	characters and can be letters, numerals, underlines, and		
	any combinations of them. The SSID is case-sensitive.		
	• If Visible is selected, the Powerline Wireless		
	Network Extender broadcasts its SSID on the		
	wireless network, and the clients can scan the SSID.		
Visibility Status	• If Invisible is selected, the Powerline Wireless		
	Network Extender does not broadcast its SSID on the		
	wireless network and the clients cannot scan the		
	SSID.		
	On indicates that the computers wirelessly connecting to		
User Isolation	the same SSID cannot communicate with each other.		
User Isolation	Off indicates that the computers wirelessly connecting to		
	the same SSID can communicate with each other.		
Disable WMM	This function is not available. If this function is disabled,		
	the wireless PLC router adopts WMM to mark priority and		
Advertise	to arrange the order of Wi-Fi network queues.		

After setting the parameters, click **Apply** to save the settings.

### ⚠ Caution:

The settings in this page only apply to professional users who have deeper understanding in the wireless LAN. If you are not aware of the impact caused by the modification, please do not modify the settings in this page.

#### 5.4.1.2 Advanced Security

Choose Advanced Wireless > Advanced Security on the left pane or click Advanced Security in the ADVANCED WIRELESS page to display the following page.
///	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP	
Advanced Wireless	WIRELESS SECUR	ITY			Helpful Hints	
PLC Setting			eless security features. This		If you have enabled Wireless Security, make	
Logout			、WPA2、WPA and WPA2 vides a higher level of secur		sure you write down WEP or Passphrase Key that you have configured. You will need to enter this	
	WIRELESS SSID				information on any wireless device that you	
	Select SS	ID :	Actiontec 💌		connect to your wireless network. More	
	WIRELESS SECUR	ITY MODE				
	Wireless :	Security Mode :	None			
		Apply	Cancel			

For the parameters in this page, refer to 错误! 未找到引用源。 错误! 未找到引用 源。.

## 5.4.1.3 Access Control

Choose Advanced Wireless > Access Control on the left pane or click Access Control in the ADVANCED WIRELESS page to display the following page.

///	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP
Advanced Wireless	ACCESS CONTROL				Helpful Hints
PLC Setting	Allows you to configur	e access control of the w	ireless LAN interface.		Create a list of MAC
Logout					addresses that you would either like to allow or deny
	MODE				users access to the wireless Router.
	Win	eless SSID :	Actiontec 💌		More
	Acc	ess Control Mode :	Disable 🔽		
		Apply	Cancel		
	WLAN FILTER LIST	i.			
	м	AC	Comment	Edit Delete	
			dd		

In this page, you can configure the access control settings of the wireless LAN interface.

SETUP	ADVANCED	MAINTENANCE	STATUS	HELP
ACCESS CON	ROL			Helpful Hints
Allows you to co	nfigure access control of the	wireless LAN interface.		Create a list of MAC addresses that you would
				either like to allow or den users access to the
MODE				wireless Router.
	Wireless SSID :	Actiontec 💌		More
	Access Control Mode :	Disable 🔽		
	1107			
WLAN FILTER				
	MAC	Comment	Edit Delete	
		Add		
INCOMING M	AC FILTER			2
	MAC :	(xx	1001100100010001000)	
	Comment :			
	Comment :	Cancel		J

Click Add to display the following page.

The following table describes parameters in this page:

Field	Description
Wireless SSID	Select a port name of wireless SSID from the drop-down list.
Access control Mode	You can select <b>Disable</b> , <b>Allow</b> , or <b>Deny</b> .
MAC	Enter the MAC address that needs to be filtered in the WLAN.
Comment	Enter the comment about the filtering rule.

After setting the parameters, click **Apply** to save the settings. Advanced Network

## 5.4.2 PLC Setting

Choose ADVANCED > PLC Setting, and the following page appears.

1	2	,	2
4		ŝ	

	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP
Advanced Wireless	POWERLINE SETTI	NGS			Helpful Hints
PLC Setting	Change Powerline sett	ings.			PLC Settings: You can set the basic configuration of
Logout					PLC.
	LOCAL DEVICE CO	NFIGURATION			More
	Configure Local Net	work Password			
	Network Password:	HomePlugAV			
	Local Device MAC:	00:1e:e3:08:ce:95	5		
	Model:	••••••••••••••••••••••••••••••••••••••	s HomePlug AV Device		
	Firmware Version:	MAC-QCA7420-1.1 Normal	0.870-04-20130401-FIN4	AL.	
	Low Power Mode:	Normai			
	REMOTE DEVICE C	ONFIGURATION			
	Powerline Devices D	etected			
	Alias	MAC No Devi	TX(Mbps)	RX(Mbps)	
	L Change Remote Net				
	J.				
		Apply	Cancel		

In this page, you can configure the parameters of PLC settings.

## • Local Device Configuration

The local device configuration allows you to configure the local network password, and to view the information of the local device such as local device MAC, and firmware version.

#### • Remote Device Configuration

The **Remote Device Configuration** allows you to view the configuration information of the remote PLC devices and to set the network passwords of the remote devices.

You can search current remote PLC devices by clicking the Scan button.

Select **Enable** from the drop-down list of **Change Remote NetworkPwd** to display the following page.

-	
- 3	4
-	-

#### Change Remote NetworkPwd Enable V

Device Name	Remote MAC	Password(DEK)	Remote NetworkPwd

You can set the passwords of remote PLC devices according to their MAC addresses and DEKs (Device Equipment Key).

Field				Description
The following table	describes	para	meters in	this page:
		•	•	• /

Field	Description
Device Name Enter the device names of the remote devices.	
Remote MAC	Enter the MAC addresses of the remote devices.
Password (DEK)	When you set the parameters of the remote devices, you need to enter this password for authentication.
Remote NetworkPwd	Set the network passwords for the remote PLC devices.

#### Dote:

You can set up to 8 network passwords for the remote PLC devices.

You can access the Internet by network password synchronization. But network passwords of the two devices for password synchronization must be the same, and either of the PLC devices must be connected to the Internet.

After setting the parameters, click **Apply** to save the settings.

# 5.4.3 Logout

Choose ADVANCED > Logout to log out of the Web configuration page.

#### 5.5 Maintenance

#### 5.5.1 Device Management

Choose MAINTENANCE > Device Management, and the following page appears.

	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP
Device Management	DEVICE MANAGE	Helpful Hints			
Backup and Restore	It is highly recommen	nded that you create a	password to keep your route	er secure.	For security reasons, it is
Firmware Update					recommended that you change the password for the Admin and User
Configuration Update	ACCOUNT PASSW	VORD			accounts. Be sure to remember the new
Logout	Curre New I Confi	name : nt Password : Password : rm Password :	admin 💌		username and password,otherwise you will need restore the router.
	WEB IDLE TIME				-
	Web	Idle Time Out :		5 ~ 30 minutes)	

In this page, you can modify the password for logging in to the Powerline Wireless Network Extender, set Web idle timeout, and enable or disable the WAN connection service.

#### Account Password

In order to ensure the network security, it is recommended you change the default login password. Please remember the new password if you change the default password. You may write it down and keep it well for future use. If you forget the login password, you need to restore the factory default settings of the Powerline Wireless Network Extender. After the default settings are restored, the PLC router will lose the new settings that you configure.

#### A Note:

For the sake of network security, it is strongly recommended to change the password of **admin**. If you forget the login password, please restore the factory default settings of the Powerline Wireless Network Extender. The default user name and password of the super user are **admin**.



## • Web Idle Time Out Settings

Web idle timeout setting is used to set the time for system automatically exiting the Web configuration page. The range is  $5 \sim 30$  minutes. After setting the parameters, click **Apply** to save the settings.

#### 5.5.2 Backup and Restoration

#### Choose MAINTENANCE > Backup and Restore, and the following page appears.

	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP			
Device Management	BACKUP AND REST	BACKUP AND RESTORE						
Backup and Restore	Through this page, yo	Through this page, you can backup the current configuration or restore the router to factory						
Firmware Update	configuration.		configured the way you want it, you can save the configuration settings to a					
Configuration Update	REBOOT				configuration file.			
Logout	Click the button below BACKUP SETTINGS You can save your rou	You might need this file so that you can load your configuration when you need. This page slotting you to Save the slotting your router configuration or restart your router. More						
	RESTORE DEFAULT	s to the factory defaults.	tore					

In this page, you can reboot the router, backup the configuration file, and restore the factory default settings of the router.

## • Reboot

Click Reboot to reboot the router.

#### Backup Settings

Click **Backup Setting** and select the path to save the configuration file of the router to your local PC.

#### • Restore Default Settings

Click **Restore** to restore the factory default settings of the router. You may also press the **Reset** pushbutton on the front panel for 3 seconds to restore the factory default settings of the router.

▲ Caution:

When operating in this page, do not press the Reset pushbutton.

#### 5.5.3 Firmware Update

Choose MAINTENANCE > Firmware Update, and the following page appears.

	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP	
Device Management	FIRMWARE UPD	ATE			Helpful Hints	
Backup and Restore	The Firmware Ungra	de section can be used to	update to the latest firmwa	are code to improve	Firmware updates are released periodically to	
Firmware Update	functionality and per				improve the functionality of your router and to add features. If you run into a problem with a specific	
Configuration Update		process takes about 2 min rer off your device before	utes to complete, and your the undate is complete	router will reboot.		
Logout	Piesse DO NOT pou	er on your device before	cire opuace is complete.		feature of the router, check if updated firmware is available for your router.	
		Select File : Clear Config Apply	Cancel	Browse		

In this page, you can update the firmware version of the Powerline Wireless Network Extender. You may obtain the firmware from the local server. The following table describes parameters in this page:

Field	Description
Select File	Click Browse to navigate to the latest firmware.
	If you check Clear Config, the PLC router restores to
Clear Config	the default settings after upgrade. Otherwise, the PLC
	router keeps the current settings.

Click **Apply**, and then system begins to upgrade firmware.

After upgrade completes, the Powerline Wireless Network Extender automatically reboots.

▲ Caution:

To avoid losing previous configuration of the router, save the configuration before upgrade.

During upgrade, do not power off the Powerline Wireless Network Extender or press the Reset pushbutton.

The default upgrade mode is Local, and it supports only the firmware with the format '.img'.

## 5.5.4 Configuration Update

Choose **MAINTENANCE** > **Configuration Update**, and the following page appears.

///	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP
Device Management	CONFIGURATION	UPDATE			Helpful Hints
Backup and Restore	The Configuration Up	grade section can be use	d to update to the latest o	onfiguration code to	Configuration updates are released periodically to improve the functionality of your router and to add
Firmware Update	improve functionality				
Configuration Update		rocess takes about 2 minu or off your device before t	utes to complete, and your the undate is complete.	Router will reboot.	features. If you run into a problem with a specific
Logout					feature of the router, check if updated
	s	elect File : Apply	Cancel	Browse	check frupdated configuration available for your router. More

In this page, you can update the configuration file of the Powerline Wireless Network Extender. You may obtain the configuration file from the local server. The following table describes parameters in this page:

Field	Description			

~	0

Field	Description
Select File	Click Browse to navigate to the latest configuration
Select File	file.

Click Apply, and then system begins to upgrade configuration file.

After upgrade completes, the Powerline Wireless Network Extender automatically reboots.

▲ Caution:

During upgrade, do not power off the router or press the Reset pushbutton.

The Powerline Wireless Network Extender supports only the firmware with the format *'.xml'*.

## 5.5.5 Logout

Choose MAINTENANCE > Logout to log out of the Web configuration page.

## 5.6 Status

## 5.6.1 Device Information

Choose STATUS > Device Info, and the following page appears.

///	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP
Device Info	DEVICE INFO				Helpful Hints
	All of your Internet and net	work connection o	letails are displayed on this p	ane. The firmware	This page displays all the
Logout	version is also displayed here			age, the minimate	information of the router, including system, LAN, wireless, and other
	SYSTEM INFO				detailed information. Details include firmware
	Model Name :		WPB3000		version, MAC address, Default gateway, Modem
	Firmware Version :		1.0		IP and etc.
	Hardware Version :		1A		More
	LAN PORT INFORMATIO	DN			
	MAC Address:		00:1e:e3:08:ce:96		
	IP Address:		192.168.10.1		
	Subnet Mask:		255.255.255.0		
	WIRELESS LAN INFORM	MATION			
	Wireless Radio :		Enabled		
	Wireless Network Name (S	5ID):	Actiontec 💌		
	BSSID :		00:1E:E3:08:CE:97		
	802.11 Mode :		Mixed 802.11b/g/n		
	Wireless Channel :		Auto Scan(recommended)		
	Wireless Security Mode :		WAP2 Mixed		
		Re	fresh		-

In this page, you can view basic information of the Powerline Wireless Network Extender, such as the information of system and LAN port, wireless LAN information.

Click **Refresh** to refresh the information in this page.

## 5.6.2 LAN Client

Choose **STATUS** > **LAN Clients**, and the following page appears.

	SETU	JP-	ADVAN	UED.	MAINT	ENANCE	STATUS	HELP
e Info	LAN CLIE	NT						Helpful Hints
	In this secti	ion vou can	see what LAN	V devices a	re currently l	easing IP addres:	ses.	This is a list of all LAN
ut		,						clients that are current connected to your
	WIRELES	S CLIENT	S					wireless Router.
	SSID	Packets Sent	Packets Received	Errors Sent	Errors Received	Discard Packets Sent	Discard Packets Received	More
	Actiontec	41634	60	0	0	277	0	
	Actiontec-2	17	0	0	0	0	0	
	Actiontec-3	8	0	0	0	0	0	
	Actiontec-4	8	0	0	0	0	0	
	ETHERNE	T CLIENTS	5					
	Device Name	Packets Sent	Packets Received	Errors Sent	Errors Received	Discard Packets Sent	Discard Packets Received	
	LAN1	4562	4402	0	0	0	0	
	LAN2	319	0	0	0	0	0	
				Ref	resh			

In this page, you can view the status information of wireless clients, Ethernet clients.

Click **Refresh** to refresh the information in this page.

## 5.6.3 Logout

Choose **STATUS** > **Logout** to log out of the Web configuration page.

## 5.7 Help

Viewing the help information can help you know more about each configuration page of the Powerline Wireless Network Extender.

```
Choose HELP, and the following page appears.
```



In this page, you can click the menu that you are interested in to view the detailed information.

# 6 Using the Security Pushbutton

This chapter describes how to add new devices to, or remove old devices from a HomePlug AV logical network (AVLN). Both can be accomplished by using a **Security** (NMK) pushbutton.

Operation progress and outcome can be monitored by observing the behaviors of the Power and Link LED indicators.

## 6.1 Forming a HomePlug AV Logical Network

When two devices (A and B) with different NMK values are connected to the same power line, you want them to form a logical network. Do as follows:

- Step1 Press the Security pushbutton on A or B for at least 10 seconds. The device will reset and restart with a random NMK.
- Step2 Press the Security pushbutton on the first device A for less than 3 seconds.
- Step3 Press the Security pushbutton on the second device B for less than 3 seconds. Press the pushbutton on B within 2 minutes

Step4 Wait for the connection to complete.

The Power LED indicators on both devices will flash evenly at 1-second interval until the operation succeeds or fails. If the connection is successful, the Power and Link LED indicators on both devices illuminate steadily. If the connection is failed, the Power LED indicators on both devices still illuminate steadily, but the Link LED indicators on both devices go out. In that case, please repeat Step1 to Step4.



## 6.2 Joining an AVLN Network

Assume that a network exists, a new device, the 'joiner', wants to join the network. Any device on the existing network can become the 'adder'.

- Step1 Press the Security pushbutton on the 'joiner' for at least 10 seconds. The device will reset and restart with a random NMK.
- Step2 Press the Security pushbutton on the 'joiner' for less than 3 seconds.
- Step3 Press the Security pushbutton on any network device for less than 3 seconds, making it the 'adder'. Please press this pushbutton within 1 minute.
- Step4 Wait for the connection to complete.

The Power LED indicators on both devices will flash at 1-second interval until the process succeeds or fails. If the connection is successful, the Power and Link LED indicators on both devices illuminate steadily. If the connection is failed, the Power LED indicators on both devices still illuminate steadily, but the Link LED indicators on both devices go out. In that case please repeat Step1 to Step4.





## 6.3 Leaving an AVLN Network

Assume that a network exists. If you want to remove one device, the 'leaver' from an AVLN network, or remove the device from the existing network and have it join another logical network, do as follows:

Step1 Press the Security pushbutton on the 'leaver' for more than 10 seconds. The device will reset and restart with a random NMK.

Step2 Wait for reset to complete.

The Power LED indicator on the 'leaver' will momentarily extinguish during reset and flash during restart, then illuminate steadily. The 'leaver' is removed from the existing network successfully.

Once the process completes, you may disconnect the device from the medium or join it to another logical network on the same medium.



47

## Troubleshooting

#### Why all the LED indicators are off?

Check the connection between the power adapter and power socket.

- (1) Check the connection between the power adapter and power socket.
- (2) Check whether the device is turned on.

#### Why the LAN1 or LAN2/WAN indicator is off?

- Check the connection between your Powerline Wireless Network Extender and computer, hub, or switch.
- (2) Check the running status of your computer, hub, or switch, and verify whether they run normally or not.
- (3) Check the network cable that is connected to the Powerline Wireless Network Extender and other devices.

#### Why you fail to access the Web page?

Follow the steps below to check the connection between the computer and the device:

- Click start > Run and enter ping command ping 192.168.10.1 (the IP address of Powerline Wireless Network Extender).
- (2) If you fail to access the Powerline Wireless Network Extender, check the following settings:
  - The network cable type
  - The connection between your router and the computer
  - TCP/IP settings of PC

How to restore factory defaults after carrying out the incorrect configuration?

- Press the Reset pushbutton for more than 3s and then release it. The Powerline Wireless Network Extender restores the factory default settings.
- (2) The default IP address of the Powerline Wireless Network Extender is 192.168.10.1 and the subnet mask is 255.255.255.0.
- (3) The user name and password of the super user are **admin**.

# Specifications

.....

PLC Module Specification						
Chip	Qualcomm Atheros AR7420/AR1540					
Firmware	Support North America/Europe/APAC/Japan					
	HomePlug AV					
Protocol	IEEE1901					
PTOLOCOI	IEEE 802.3 10/100 Ethernet (100Mbps)					
	IEEE 802.3u Fast Ethernet					
PLC Rate	500Mbps					
Signal Band	2~68MHz					
Modulation Mode	Support OFDM 4096/1024/256/64/16/8-QAM, QPSK,					
Woddiation Wode	BPSK, and ROBO					
Encryption	128-bit AES					
	Support four-level QoS					
QoS	Support VLAN priority					
	Support ToS and CoS packet classifications					
Operation Mode	Support priority-based CSMA/CA channel access scheme					
Multicast	Support IGMP management multicast session.					
Wi-Fi Module Spec	ification					
Chip	Qualcomm Atheros AR9341					
Flash Memory	64Mbps					
DDR SDRAM:	256Mbps					
Protocol	IEEE 802.11b/g/n					
11010001	IEEE 802.3/3x/3u					
Wireless	2.4 GHz~2.484 GHz					
Frequency Range						
Channel	1~11					
	11b: 11/5.5/2/1Mbps					
Wireless Signal	11g: 54/48/36/24/18/12/9/6Mbps					
Rate	11n: up to 300Mbps in 40MHz mode and up to 150Mbps in					
	20MHz mode.					
	11b: 16~17 dBm					
Output Power	11g: 14~17 dBm					
	11n: 11~16 dBm					
Receiving	11b: 11Mbps/-84dBm					
Sensitivity	11g: 54Mbps/-75dBm					
,	11n: 300Mbps/-64dBm					
Operation Mode	2Tx/2Rx					
Multiple SSID	Up to 4 BSSIDs					
Security	WEP, WPA-PSK, WPA2-PSK, and WPA/WPA2-PSK					
Authentication	SSID hiding					
	MAC address access control list					
System Specificati						
	Power: Indicate power status.					
LED Indicator	Ethernet 1: Indicate the connection status of LAN1					
	interface.					
	Ethernet 2: Indicate the connection status of LAN2/WAN					
	interface.					
	Link: Indicate PLC rate.					
	Wireless: Indicate WLAN and WPS connection status.					
Power Socket	Support power sockets of English-style, European-style,					
Ethomot Dant	Japanese-style, and Chinese-style.					
Ethernet Port	2 x RJ45 for 10/100 Ethernet (Auto MDI/MDI-X)					
Antenna	PCB-Antenna x 2					

ButtonSecurity: Set the status of device members. Reset: Restore factory default settings. WPS: Press this pushbutton for less than 3 seconds to enable the negotiation of PBC mode. Press this pushbutton for more than 5 seconds to enable or disable WLAN.Software UpgradeSupport software upgrade by Web page.Consumption6.5WEnvironment RequirementsOperating Temperature0~40°CStorage Temperature-10~70°COperating Humidity10%~85%, non-condensingStorage Humidity5%~90%, non-condensingStorage Humidity5%~90%, non-condensingRated Input100~240 V AC, 50/60HzEMC and Safety AuthenticationULSafety AuthenticationRestDimensionL x W x H: 107mm x 62mm x 48.5mmWeight180g						
ButtonWPS: Press this pushbutton for less than 3 seconds to enable the negotiation of PBC mode. Press this pushbutton for more than 5 seconds to enable or disable WLAN.Software UpgradeSupport software upgrade by Web page.Consumption6.5WEnvironment RequirementsOperating Temperature0~40°CStorage Temperature-10~70°COperating Humidity10%~85%, non-condensingStorage Humidity5%~90%, non-condensingStorage Humidity5%~90%, non-condensingRated Input100~240 V AC, 50/60HzEMC and Safety AuthenticationULGreen StandardRoHSPhysical CharacteriticsULDimensionL x W x H: 107mm x 62mm x 48.5mm		Security: Set the status of device members.				
Buttonenable the negotiation of PBC mode. Press this pushbutton for more than 5 seconds to enable or disable WLAN.Software UpgradeSupport software upgrade by Web page.Consumption6.5WEnvironment RequirementsOperating Temperature0~40°CStorage Temperature-10~70°COperating Humidity10%~85%, non-condensingStorage Humidity5%~90%, non-condensingStorage Humidity5%~90%, non-condensingRated Input100~240 V AC, 50/60HzEMC and Safety AuthenticationULStorage Safety AuthenticationULStorage Safety AuthenticationULDimensionL x W x H: 107mm x 62mm x 48.5mm		Reset: Restore factory default settings.				
Antomenable the negotiation of PBC mode. Press this pushbutton for more than 5 seconds to enable or disable WLAN.Software UpgradeSupport software upgrade by Web page.Consumption6.5WEnvironment RequirementsOperating 0~40°COperating Temperature0~40°CStorage Temperature-10~70°COperating Humidity10%~85%, non-condensingStorage Humidity5%~90%, non-condensingStorage Humidity5%~90%, non-condensingRated Input100~240 V AC, 50/60HzEMC and Safety AuthenticationULGreen Standard Green StandardRoHSPhysical Character: L x W x H: 107mm x 62mm x 48.5mm	Button	WPS: Press this pushbutton for less than 3 seconds to				
disable WLAN.Software UpgradeSupport software upgrade by Web page.Consumption6.5WEnvironment RequrementsOperating Temperature0~40°CStorage Temperature-10~70°COperating Humidity10%~85%, non-condensingStorage Humidity5%~90%, non-condensingStorage Humidity5%~90%, non-condensingRated Input100~240 V AC, 50/60HzEMC and Safety AuthenticationULSafety AuthenticationRoHSPhysical Character: L x W x H: 107mm x 62mm x 48.5mm	Dutton	enable the negotiation of PBC mode. Press this				
Software UpgradeSupport software upgrade by Web page.Consumption6.5WEnvironment RequirementsOperating Temperature0~40°CStorage Temperature-10~70°COperating Humidity10%~85%, non-condensingStorage Humidity5%~90%, non-condensingStorage Humidity5%~90%, non-condensingRated Input100~240 V AC, 50/60HzEMC and Safety AuthenticationULGreen StandardRoHSPhysical CharacteristicsL x W x H: 107mm x 62mm x 48.5mm		pushbutton for more than 5 seconds to enable or				
Consumption   6.5W     Environment Requirements   0~40°C     Operating   0~40°C     Storage   -10~70°C     Temperature   10~70°C     Operating   10%~85%, non-condensing     Humidity   10%~85%, non-condensing     Storage Humidity   5%~90%, non-condensing     Storage Humidity   5%~90%, non-condensing     Rated Input   100~240 V AC, 50/60Hz     EMC and Safety   UL     Compliance   FCC Part 15 Class B, CE     Safety   UL     Authentication   RoHS     Physical Characteristics   Dimension     Dimension   L x W x H: 107mm x 62mm x 48.5mm		disable WLAN.				
Environment Requirements     Operating Temperature   0~40°C     Storage Temperature   -10~70°C     Operating Humidity   10%~85%, non-condensing     Storage Humidity   5%~90%, non-condensing     Storage Humidity   5%~90%, non-condensing     Rated Input   100~240 V AC, 50/60Hz     EMC and Safety   UL     Compliance   FCC Part 15 Class B, CE     Safety Authentication   UL     Green Standard   RoHS     Physical Characteristics   UL × W × H: 107mm × 62mm × 48.5mm	Software Upgrade	Support software upgrade by Web page.				
Operating Temperature   0~40°C     Storage   -10~70°C     Temperature   10%~85%, non-condensing     Operating   10%~85%, non-condensing     Humidity   5%~90%, non-condensing     Storage Humidity   5%~90%, non-condensing     Rated Input   100~240 V AC, 50/60Hz     EMC and Safety   UL     Compliance   FCC Part 15 Class B, CE     Safety   UL     Authentication   RoHS     Physical Characteristics   Dimension     L x W x H: 107mm x 62mm x 48.5mm	Consumption	6.5W				
Temperature   0~40°C     Storage   -10~70°C     Temperature   10%~85%, non-condensing     Operating   10%~85%, non-condensing     Humidity   5%~90%, non-condensing     Storage Humidity   5%~90%, non-condensing     Rated Input   100~240 V AC, 50/60Hz     EMC and Safety   100~240 V AC, 50/60Hz     Compliance   FCC Part 15 Class B, CE     Safety   UL     Authentication   RoHS     Physical Character:stics     Dimension   L x W x H: 107mm x 62mm x 48.5mm	Environment Requ	irements				
TemperatureProvide Provide 10~70°CStorage Temperature-10~70°COperating Humidity10%~85%, non-condensingStorage Humidity5%~90%, non-condensingStorage Humidity5%~90%, non-condensingRated Input100~240 V AC, 50/60HzEMC and Safety ComplianceFCC Part 15 Class B, CESafety AuthenticationULGreen StandardRoHSPhysical CharacterEMCDimensionL x W x H: 107mm x 62mm x 48.5mm	Operating	0,4000				
-10~70°C     Temperature   -10~70°C     Operating   10%~85%, non-condensing     Humidity   5%~90%, non-condensing     Storage Humidity   5%~90%, non-condensing     Rated Input   100~240 V AC, 50/60Hz     EMC and Safety   0     Compliance   FCC Part 15 Class B, CE     Safety   UL     Authentication   RoHS     Physical Character:stics     Dimension   L × W × H: 107mm × 62mm × 48.5mm	Temperature	0~40°C				
TemperatureNon-CondensingOperating Humidity10%~85%, non-condensingStorage Humidity5%~90%, non-condensingRated Input100~240 V AC, 50/60HzEMC and Safety ComplianceFCC Part 15 Class B, CESafety AuthenticationULGreen StandardRoHSPhysical CharacteristicsDimensionL x W x H: 107mm x 62mm x 48.5mm	Storage	10, 70%				
Humidity   10%~85%, non-condensing     Storage Humidity   5%~90%, non-condensing     Rated Input   100~240 V AC, 50/60Hz     EMC and Safety   100~240 V AC, 50/60Hz     Compliance   FCC Part 15 Class B, CE     Safety   UL     Authentication   RoHS     Physical Characteristics     Dimension   L x W x H: 107mm x 62mm x 48.5mm	Temperature	-10~70°C				
Humidity Storage Humidity   Storage Humidity 5%~90%, non-condensing   Rated Input 100~240 V AC, 50/60Hz   EMC and Safety 100~240 V AC, 50/60Hz   Compliance FCC Part 15 Class B, CE   Safety UL   Authentication RoHS   Physical Character:stics   Dimension L x W x H: 107mm x 62mm x 48.5mm	Operating	400/ 050/ non condensing				
Rated Input   100~240 V AC, 50/60Hz     EMC and Safety   Compliance     Compliance   FCC Part 15 Class B, CE     Safety   UL     Authentication   RoHS     Physical Characteristics     Dimension   L × W × H: 107mm × 62mm × 48.5mm	Humidity	10%~85%, non-condensing				
EMC and Safety     Compliance   FCC Part 15 Class B, CE     Safety   UL     Authentication   UL     Green Standard   RoHS     Physical Characteristics     Dimension   L × W × H: 107mm × 62mm × 48.5mm	Storage Humidity	5%~90%, non-condensing				
Compliance FCC Part 15 Class B, CE   Safety UL   Authentication UL   Green Standard RoHS   Physical Characteristics   Dimension L x W x H: 107mm x 62mm x 48.5mm	Rated Input	100~240 V AC, 50/60Hz				
Safety Authentication UL   Green Standard RoHS   Physical Characteristics   Dimension L x W x H: 107mm x 62mm x 48.5mm	EMC and Safety					
Authentication UL   Green Standard RoHS   Physical Characteristics   Dimension L × W × H: 107mm × 62mm × 48.5mm	Compliance	FCC Part 15 Class B, CE				
Authentication Content   Green Standard RoHS   Physical Characteristics   Dimension L x W x H: 107mm x 62mm x 48.5mm	Safety	1.0				
Physical Characteristics   Dimension L × W × H: 107mm × 62mm × 48.5mm	Authentication					
Dimension     L × W × H: 107mm × 62mm × 48.5mm	Green Standard	RoHS				
	Physical Characteristics					
Weight 180g	Dimension	L × W × H: 107mm × 62mm × 48.5mm				
	Weight	180g				

# **FCC Statement**

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 harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures: • Reorient or relocate the receiving antenna. • Increase the separation between the equipment and receiver. • Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. • Consult the dealer or an experienced radio/TV technician for help.FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## **Industry Canada Statement:**

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions: 1) this device may not cause interference and 2) this device must accept any interference, including interference that may cause undesired operation of the

## device.

IC Radiation Exposure Statement: This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment.

## Avis d'Industrie Canada:

Cet appareil est conforme à la norme CNR-210 des règlements d'Industrie Canada. Son fonctionnement est sujet aux deux

conditions suivantes:

1) Cet appareil ne doit pas provoquer d'interférences et 2) Cet appareil doit accepter toutes les interférences, y compris celles pouvant entraîner son dysfonctionnement.

Avis d'Industrie Canada sur l'exposition aux Rayonnements: Cet appareil est conforme aux limites d'exposition aux

rayonnements d'Industrie Canada pour un environnement non contrôlé.