WPB3000

Powerline Wireless Network Extender

User Manual

V1.0

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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.

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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.

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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

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- 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 Color De		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
LIIK	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 Security pushbutton for more than 10
	seconds to exit the current network and generate a random
Security	password of network member.
	 Press and hold the Security pushbutton for less than 3
	seconds, and then the Powerline Wireless Network Extender
	becomes a member of the existing AVLN.
Popot	Press the Reset pushbutton for more than 3 seconds and then
Resel	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	
Ethorpot 1	RJ45 LAN interface, for connecting a hub, switch, or
Ethernet	computer on a LAN.
Ethomat O	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	💦 🖉
🔇 Back 🔹 🕥 🕤 🏂 Search 🍋 Folders 💷 -	
Address 🔇 Network Connections	💌 🔁 Go
Network Tasks	
Create a new connection Set up a home or small	
Change Windows Firewall settings	
Clisable this network adsl device	
🗞 Repair this connection	
Rename this connection LAN or High-Speed Interne	
View status of this connection	
Change settings of this connection	
Other Places	
Control Panel	ons
My Network Places Create Shortcu	
My Documents Delete	
My Computer Properties	
Details	
Local Area Connection 🚽	

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.

'ou can get IP settings assigned his capability. Otherwise, you ne he appropriate IP settings.	automatically if your network supports ed to ask your network administrator fo
O Obtain an IP address autom	natically
Use the following IP addres	s:
IP address:	192.168.10.123
S <u>u</u> bnet mask:	255 . 255 . 255 . 0
Default gateway:	192.168.10.1
O Obtain DNS server address	automatic allu
Use the following DNS serv	er addresses:
Preferred DNS server:	2 2 2

 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:

CTAL PROPORTING TO A PHILIP CAC	<u> </u>
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.

Username : admin v Password : Remember my password		
Password : Remember my password	Username : 🔤 😒	
Remember my password Login	Password :	
Login	Remember my password	
Login	Teste	
	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
eless Setup	WIRELESS SETUP				Helpful Hints
ietup	This section allows you	u to setup your wireless i	network on the router devi	te.	1. Every device in the
					must use the same SSID.
	WIRELESS BASIC				2. To avoid wireless
	This setting is designe button below to begi	d to assist you in connec n the basics settings.	ting your wireless device to	your router. Click the	specific and different channel is needed.
		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
			MP S		

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
device has successfully cloned the wireless configuration parameter from
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".

For ease of use, it is home router. Please	recommended that you configure your v enter your home router's wireless setting	Ni-Fi extender to use the same network settings as your gs below.
Note: If the wireless	security mode is WEP or WPA-PSK(TKIP) or SSID is invisibled, the WPS function will be disabled.
VIRELESS NETW	ORK SYNCHRONIZATION WIZARD)
	Enable Wireless Interface	
	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	Helpful Hints					
LAN Setup	This section allows y	This section allows you to setup your wireless network on the router device.					
Logout					must use the same SSID.		
	WIRELESS BASI	B			2. To avoid wireless		
	This setting is design button below to be	This setting is designed to assist you in connecting your wireless device to your router. Click the button below to begin the basics settings.					
		 Make sure security used by every device in the same wireless network is compatible with the 					
	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	Helpful Hints				
	Through this page, yo	Through this page, you can configure the SCID, handwidth wireless cost with etc.				
igout .	Note: The wireless clie modify the configurati	ent configuration param ion parameters.	eters need to be consistent	: with this page to	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			We recommend that you enable Auto Scan Channe	
	Wireless Network	k Name (SSID) :	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)		wireless device that you connect to your wireless	
	WIRELESS SECUR	ITY MODE			network.	
	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	 If Visible is selected, the Powerline Wireless Network Extender broadcasts its SSID on the wireless network. If Invisible is selected, the Powerline Wireless Network 					

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	 Select the appropriate wireless mode. The default is Mixed 802.11b/g/n. 802.11b only: The maximum rate is 11Mbps. 802.11g only: The maximum rate is 54Mbps. 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). Mixed 802.11b/g: It is compatible with 802.11b and 802.11g. Mixed 802.11b/g/n: It is compatible with 802.11n and 802.11g. Mixed 802.11b/g/n: It is compatible with 802.11b, 802.11n, and 802.11g.
Band Width	Only in the 802.11 mode that is compatible with 802.11n, can you set the band width. 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).
Wireless Channel	Select the working channel of the wireless network. The default is Auto Scan , 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		
ess Setup	WIRELESS BASICS				Helpful Hints		
	Through this page, you	Through this page, you can configure the SSID, handwidth wireless security etc.					
ıt	Note: The wireless client modify the configuration	with this page to	Network Name is the first step in securing your wireless network. We recommend that you change it to a familiar				
	WIRELESS NETWOR	K SETTINGS			name that does not contain any personal		
	Enable Wireless Interface		V		information. We recommend that you enable Auto Scan Channe		
	Wireless Network N	Name (SSID) :	Actiontec		so that the router can select the best channel fo		
	Visibility Status :		💿 Visible 🔘 Invisible		your wireless fielwork.		
	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) 💙		information on any wireless device that you connect to your wireless		
	WIRELESS SECURIT	WIRELESS SECURITY MODE					
	Wireless Security N	1ode :	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.



Willess Security Fisher .	
WEP	
If you choose the WEP security op mode (802.11B/G).	otion this device will ONLY operate in Legacy Wireless
WEP is the wireless encryption stat router and the wireless stations. Fr box. For 128 bit keys you must en number from 0 to 9 or a letter fror authentication type to "Shared Ke	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 into each m A to F. For the sonst secure use of WEP set the y' when WEP is enabled.
You may also enter any text string a hexadecimal key using the ASCII can be entered for 64 bit keys, an	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 :	7777777777
WEP Key3 :	888888888
WEP Key4 :	9999999999
Authoritication :	Open 💌

The following table describes parameters related to the WEP mode:

Field	Description
	Select the encryption length of WEP key. You can select 64
WEF Key Lengui	bit or 128 bit.
Default Tx Kov	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
	ASCII characters or 10 hexadecimal digits.
WEF Key Folliat	• When the key format is 128 bit , 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.
Authoptiontion	Select the proper authentication mode. You can select Open
Aumentication	or Share Key.

(3) WPA-PSK

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

SETUP	ADVANCED	MAINTENANCE	STATUS	HELP
WIRELESS BAS	ICS			Helpful Hints
Through this page	, you can configure the S	SID. bandwidth.wireless securit	v etc.	Changing your Wireless
Note: The wireles modify the configu	: client configuration para ration parameters.	neters need to be consistent w	ith this page to	Network Name is the first step in securing your wireless network. We recommend that you change it to a familiar page bat dear pat
WIRELESS NET	WORK SETTINGS			contain any personal
Enable Wirele	ss Interface			We recommend that you
				enable Auto Scan Chan so that the router can
Wireless Netv	vork Name (SSID) :	Actiontec		select the best channel i
Visibility Stat	us :	💿 Visible 🔘 Invisible		If you have enabled
Country :		USA 💌		Wireless Security, make
802.11 Mode	:	Mixed 802.11b/g/n ⊻		or Passphrase Key that
Band Width :		20M 💌		will need to enter this
Wireless Char	inel :	Auto Scan(recommended) 💌		wireless device that you
WIRELESS SEC	URITY MODE			network.
Wireless Secu	rity Mode :	WPA-PSK		More
PRE-SHARED K	EY			
Pre-Shared K	ey :	1234567890		
		The pre-shared key should be 8 hexadecimal numbers.	to 63 ASCII, or 64	
	[App1;	hexadecimal numbers.		

The following table describes parameters related to the WPA mode:

Field	Description
WPA Mode	Only WPA-Personal is available.
Encryption Mode	Only TKIP is available.
Group Key	Set the update interval of aroun key
Update Interval	Set the update interval of group key.
	Set the pre-shared key. The Powerline Wireless Network
Pre-shared Key	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
Logout	Note: The wireless clie modify the configuration	nt configuration paramet on parameters.	ers need to be consistent	with this page to	Network Name is the first step in securing your wireless network. We recommend that you change it to a familiar
	WIRELESS NETWO	RK SETTINGS			contain any personal
	Enable Wireless I	nterface	V		We recommend that you enable Auto Scan Channe
	Wireless Network	Name (SSID) :	Actiontec		select the best channel fo
	Visibility Status :		💿 Visible 🔘 Invisible		The your barrie an abled
	Country :		USA 🔽		Wireless Security, make
	802.11 Mode :		Mixed 802.11b/g/n 👻		or Passphrase Key that
	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-P5K		Plore
	PRE-SHARED KEY				
	Pre-Shared Key :		1234567890		
			The pre-shared key should be hexadecimal numbers.	8 to 63 ASCII, or 64	
		Apply	Cancel		

The following table describes parameters related to the WPA2 mode:

Field	Description
WPA Mode	Only WPA2-Personal is available.
Encryption Mode	Only AES 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, you can configure the CCID, handwidth wireless sequrity 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			contain any personal
	Enable Wireless I	nterface	V		We recommend that you enable Auto Scan Channe
	Wireless Network	Name (SSID) :	Actiontec		so that the router can select the best channel fo
	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 💌		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	
	3	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 Both . Both indicates that it is compatible with TKIP or AES .
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.

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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 f	unction , the WPS condi	tion must be WPA2-PSK or V	VPA/WPA2-PSK	Enable the wireless
Logout	security mode , and Note: If the wireless function will be disab	the SSID should be broad security mode is WEP or led.	dcasted. WPA-PSK(TKIP) or SSID is in	nvisibled, the WPS	runction, the WPS condition must be WPA2-P5K or WPA/WPA2-P5K security mode, and the SSID should be broadcasted.
	WPS				More
	Wi	eless SSID :	Actiontec 💌		
	WF	S Config State :	Configured		
	WPS CONFIG				
	En	abled WPS			
	PB	C Button :	PBC		
	Ing	out Station PIN :		PIN	
	WF	S Session Status :			
	De	vice PIN :	12345670 Generat	e	
	Re	set 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.	
Insut Clation 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
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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 s	success! ==> Success
Input Station PIN :	28388654	PIN
Push Button :	PBC	

5.3.2 LAN Setup

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

Wreless Setup LAN SETTINGS Helpful Hints LAN Setup This section allows you to configure the LAN Setup settings of your router. The 'P address of your router. Lopoid Note: Generally, you do not need to modify the default configuration of this page. The 'P address of your router. BRIDGE SETTING BRIDGE SETTING addresses on all there is the web addresses on your retwork or are using stating addresses on all there. addresses on all there. MAC Address : 00:EEE3:08:CE:96 addresses on all there. Bridge IP Address : 192:166.10.1 Server on your retwork or are using stating addresses on all there. Apply Cancel More More	///	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP
	Wireless Setup LAN Setup Logout	SETUP LAN SETTINGS This section allows you Note: Generally, you d BRIDGE SETTING MAC Address : Bridge IP Addres	ADVANCED i to configure the LAN S p not need to modify th s : Apply	MAINTENANCE etup settings of your router e default configuration of th 00:1E:E3:08:CE:96 192:166.10.1 Cancel	STATUS	HELP Helpful Hints The IP address of your Pactness you will use to menopement interface of menopement interface of access the value to already have a OHCP server on your network, or are using static IP addresses on alt he devices on your network, feature

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 192.168.10.1 . 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

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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		-			keep the default
	ADVANCED				cases, incorrect settings
	Allows you to config	jure advanced features of	the wireless LAN interface.		performance.
		Ad	vanced		More
	ADVANCED SECU	JRITY			
	Allows you to config	ure security of the wirele:	s LAN interface. d Security		
	ACCESS CONTRO)L			
	Allows you to config	jure access control of the	wireless LAN interface. s Control		

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.

	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP
Advanced Wireless	ADVANCED SETTI	NGS			Helpful Hints
.C Setting	Allows you to configu	re advanced features c	f the wireless LAN interfac	8.	It is recommended that you leave these parameters at their
	ADVANCED WIREL	ESS SETTINGS			default values. Adjusting them could limit the
	Transmissi	ion Rate :	Auto		wireless network.
	Transmit I	Power :	100% 💌	1	Morea
	Beacon Pe	eriod :	100	(40 ~ 1024)	
	Fragment	nuiu : ation Threshold :	2346	(256 ~ 2346)	
	DTIM Inte	rval ·	10	(1 ~ 255)	
	Preamble	Type :	short 💌]()	
	AP Isolati	on :	off 💌		
	SSID				
	🗹 Enabl	e SSID 1		-	
	SSID 1 :		Actiontec		
	Visibility S	itatus :	Visible Invisible		
	User Isola	tion :	Off M		
		MM Advertise :	On (*)		
	GUEST/VIRTUAL 4	ACCESS POINT-1			
	🔲 Enabl	e SSID 2	COMPLEX OF SES	1	
	SSID 2 :		Actiontec-2		
	Visibility S	itatus :	Visible Unvisible		
	Disable W	MM Advertice *	Off Y		
		Ann Advertise :			
	GUEST/VIRTUAL #	ACCESS POINT-2			
	SSID 3 :	e SSID 3	Actiontec-3	1	
	Visibility 5	itatus :	Visible Invisible		
	User Isola	tion :	Off 🛩		
	Disable W	MM Advertise :	Off. 🛩		
	GUEST/VIRTUAL 4	ACCESS POINT-3			
	🗖 Enabl	e SSID 4			
	SSID 4 :		Actiontec-4]	
	Visibility 5	itatus :	Visible O Invisible		
	User Isola	tion :	on v		
	Disable W	MM Advertise :	977 Y		
		Apply	Cancel		

Field	Description
Transmission	Sat the proper transmission rate
Rate	Set the proper transmission rate.
Tronomit Dowor	Select the proper transmission power from the drop-dowr
	list. You can select 100%, 80%, 60%, 40%, or 20%.
	Beacon period indicates the frequency of the Powerline
	Wireless Network Extender that sends the Beacon frame
Beacon Period	By default, the Powerline Wireless Network Extender
	sends the beacon frame every other 100 ms. The range is
	20~1024.
	Set the CTS/RTS threshold. If the length of a packet is
	greater than the value, the router sends an RTS frame to
PTS Threshold	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.
	Set the threshold of fragmentation length. If the length of
	a packet is greater than the value, the packet is
Fragmentation	automatically fragmented into several packets. Because
Threshold	too many packets lead to low performance of the wireless
	network, the value of fragmentation length cannot be too

he following table describes parameters	in	this page:	
-----------------------------------------	----	------------	--

ge is is e to the ar to an 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.
SSID1~4	Set the network name. The 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	 If Visible is selected, the Powerline Wireless Network Extender broadcasts its SSID on the wireless network, and the clients can scan the SSID. 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.
User Isolation	 On indicates that the computers wirelessly connecting to the same SSID cannot communicate with each other. Off indicates that the computers wirelessly connecting to the same SSID can communicate with each other.
Disable WMM Advertise	This function is not available. If this function is disabled, the wireless PLC router adopts WMM to mark priority and 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	To protect your privac	y you can configure wire	eless security features. This	device supports three	If you have enabled Wireless Security, make
Logout	wireless security mode original wireless encry;	es including: WEP、WPA otion standard. WPA pro	、WPA2、WPA and WPA2 vides a higher level of secur	Mixed. WEP is the rity.	sure you write down WEP or Passphrase Key that you have configured. You
	WIRELESS SSID				information on any wireless device that you
	Select SS	ID :	Actiontec 💌		connect to your wireless network.
	WIRELESS SECUR	ITY MODE			More
	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					either like to allow or deny
	MODE				wireless Router.
	Wire	eless SSID :	Actiontec 💌		More
	Acc	ess Control Mode :	Disable 💌		
		Apply	Cancel		
	WLAN FILTER LIST	i.			
	M	AC	Comment	Edit Delete	

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

AN interface.	Helpful Hints Create a list of MAC addresses that you would ether line to allow or dreft weeks souter. More
AN interface.	Create a let of MAC addresses that you would either like to allow or define user's access to the weeks Router. Morec.
Comment Edit Del	addresses tills jou wou either life to allow and uper socies to the weeks Router. Morea.
Comment Edit Del	More
Comment Edit Del	More
Comment Edit Del	
Comment Edit Del	
Comment Edit Del	
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(xxxxxxxxxxxxxxx)	

Click Add to display the following page.

The following table describes parameters in this page:

U		
Field	Description	
	Select a port name of wireless SSID from the	
WIREless SSID	drop-down list.	
Access control	Veu een eelest Dischle Alleur er Denu	
Mode	You can select Disable , Allow , of Deny .	
	Enter the MAC address that needs to be filtered in the	
MAC	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.

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	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:	Qualcomm Athero	s HomePlug AV Device		
	Firmware Version:	MAC-QCA7420-1.1	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)	
		So	can		
	<u> </u>				
	Change Remote Net	workPwd Disable 💟			
			3.5		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.

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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	parameters ir	n 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	Cat the natively approximate for the remate DLC devices		
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	MENT AND SERVIC	E		Helpful Hints
Backup and Restore	It is highly recommen	nded that you create a	password to keep your rout	er secure.	For security reasons, it is
Firmware Update					change the password for
Configuration Update	ACCOUNT PASSW	ORD			accounts. Be sure to
Logout	Usern Curre New F Confi	ame : nt Password : Password : rm Password :			username and password,otherwise you will need restore the router.
	WEB IDLE TIME (DUT SETTINGS	[-	(5	
	Web	App1:	y Cancel	(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		Helpful Hints		
Backup and Restore	Through this page, yo	u can backup the current	configuration or restore t	he router to factory	Once your router is
Firmware Update	configuration.		want it, you can save the		
Configuration Update	proot				configuration file.
Logout	Click the button below	You might need this life so that you can load your configuration when you need. This page allows you to Save the setting of your router configuration or Restart your router. More			
	RESTORE DEFAULT Restore router setting	SETTINGS s to the factory defaults.	ore .		

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	ide section can be used to	undate to the latest firmwa	are code to improve	Firmware updates are
Firmware Update	functionality and per	rformance.			released periodically to improve the functionality of your router and to add features. If you run into a problem with a specific
Configuration Update	NOTE: The update	process takes about 2 min	utes to complete, and your	router will reboot.	
Logout	Presse bo NoT por	er on your device before	che apuace is complete.		feature of the router, check if updated firmware is available for your router.
		Select File :		Browse	More
		Apply	Cancel		

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.		
Clear Config	If you check Clear Config, the PLC router restores to		
	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 features. If you run into a problem with a specific	
Firmware Update	improve functionality	and performance.				
Configuration Update	NOTE: The update p Please DO NOT nowe	rocess takes about 2 minu or off your device before t	utes to complete, and your the undate is complete.	Router will reboot.		
Logout					feature of the router, check if updated	
	s	elect File : Apply	Cancel)	Browse	Comparison is available for your router.	

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:

The felleting table decenses parameters in the pager				
Field	Description			

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Field	Description
Colort 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 n	ane. The firmware	This page displays all the
Logout	version is also displayed here	l.		age. The minimate	information of the router, including system, LAN, wireless, and other
	SYSTEM INFO				Detailed information.
	Model Name :		WPB3000		version, MAC address,
	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 :				
	Wireless Channel :				
	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	IP	ADVAN	CED	MAINT	ENANCE	STATUS	HELP
	LAN CLIE	NT						Helpful Hints
Clients	In this cost	ion vou con	coo what I AA	L davicos -	ro a groptly l	aaciaa ID addkoo		This is a list of all LAN
	an dis seco	ion you can	See What LAP	v uevices a	ie curenuy i	easing in audres.		clients that are current connected to your
72130	WIRELES	S CLIENT	5					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 Packets	Packets	Errors	Errors	Discard	Discard Packets	
	Name	Sent	Received	Sent	Received	Packets Sent	Received	
	LAN1	4562	4402	0	0	0	0	

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.



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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

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PLC Module Speci	fication
Chip	Qualcomm Atheros AR7420/AR1540
Firmware	Support North America/Europe/APAC/Japan
	HomePlug AV
Destaurt	IEEE1901
Protocol	IEEE 802.3 10/100 Ethernet (100Mbps)
	IEEE 802.3u Fast Ethernet
PLC Rate	500Mbps
Signal Band	2~68MHz
Madulation Mada	Support OFDM 4096/1024/256/64/16/8-QAM, QPSK,
Modulation Mode	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
Destand	IEEE 802.11b/g/n
Protocol	IEEE 802.3/3x/3u
Wireless	
Frequency Range	2.4 GHz~2.484 GHz
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
Dessiving	11b: 11Mbps/-84dBm
Receiving	11g: 54Mbps/-75dBm
Sensitivity	11n: 300Mbps/-64dBm
Operation Mode	2Tx/2Rx
Multiple SSID	Up to 4 BSSIDs
Socurity	WEP, WPA-PSK, WPA2-PSK, and WPA/WPA2-PSK
Authoritori	SSID hiding
Aumentication	MAC address access control list
System Specificat	ion
	Power: Indicate power status.
	Ethernet 1: Indicate the connection status of LAN1
	interface.
LED Indicator	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,
	Japanese-style, and Chinese-style.
Ethernet Port	2 x RJ45 for 10/100 Ethernet (Auto MDI/MDI-X)
Antenna	PCB-Antenna x 2

	Security: Set the status of device members.				
Button	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 Upgrade	Support software upgrade by Web page.				
Consumption	6.5W				
Environment Requ	irements				
Operating	0. 10%				
Temperature	U~4U°C				
Storage	10 70%				
Temperature	-10~70~℃				
Operating	100/ 0E0/ non condensing				
Humidity	10%~85%, non-condensing				
Storage Humidity	5%~90%, non-condensing				
Rated Input	100~240 V AC, 50/60Hz				
EMC and Safety					
Compliance	FCC Part 15 Class B, CE				
Safety	10				
Authentication					
Green Standard	RoHS				
Physical Character	ristics				
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.