Wireless 11n Smart Repeater AP (2T2R)

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1. Introduction

The Wireless AP is IEEE 802.11b/g/n solution; setting SOHO and enterprise standard for high performance, secure,

manageable and reliable wireless networks.

1.1 Package contents

The package of the wireless smart repeater AP includes the following items

- ✓ Smart Repeater AP
- ✓ DC 12V Power Adapter
- ✓ CD : User Manual
- ✓ QIG
- ✓ External 5dBi Omni Antenna   x2
- ✓ RJ-45 Cable

1.2 Product Features

- ✓ Support advanced 2*2 MIMO Technology with up to 300Mbps for wireless transmission
- ✓ Complies with 2.4GHz IEEE802.11n and IEEE802.11b/g standards
- ✓ Support 20MHz and 40MHz bandwidth
- ✓ Easy quick setup wizard with web-based utility
- ✓ Two Detachable 5dBi antennas
- ✓ Increased Wireless Coverage
- ✓ Add additional Ethernet connections
- ✓ Smart Wizard for configuration and security
- ✓ The repeater works with 802.11 b/g/n Wi-Fi networks

1.3 Front Panel Description
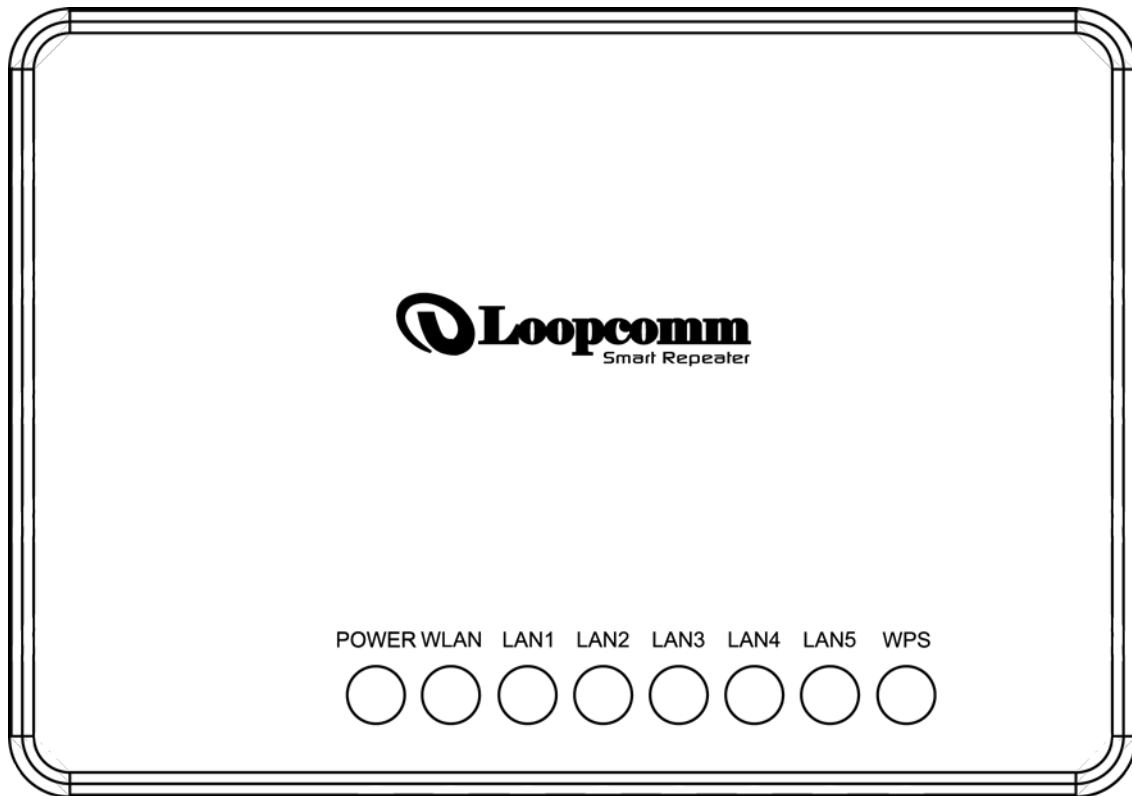
LED Indicator	State	Description
POWER	on	The Wireless AP Router is power on.
	off	The Wireless AP Router is power off
WLAN	Flashing	Data is transmitting or receiving on the antenna.
	off	No data is transmitting or receiving on the antenna.
LAN 1~5	Flashing	Data is transmitting or receiving on the LAN interface.
	on	Port linked.
	off	No link.
WPS	Flashing	1sec flash light /1sec light dark / attempt to communicate with wireless client
	On	When user press WPS button
	off	Default No link

1.4 Rear Panel Description
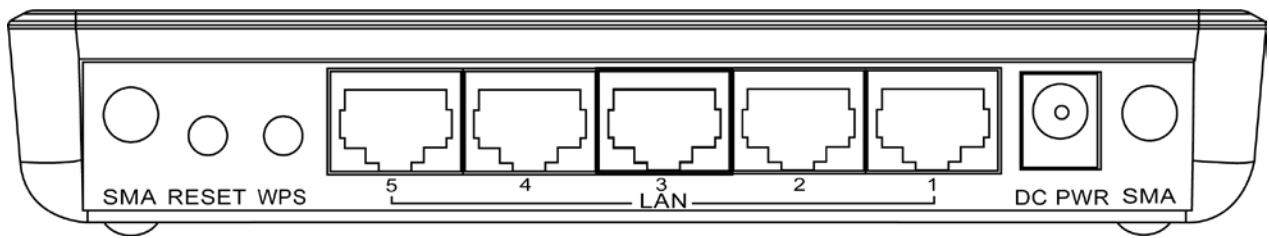
Interfaces	Description
SMA	The Wireless LAN Antenna.
Reset	Push continually the reset button 5 ~ 10 seconds to reset the configuration parameters to factory defaults.
WPS	Push the WPS button implementation to reduce the network configuration steps, and also easy to implement network security.
LAN	The RJ-45 sockets allow LAN connection through Category 5 cables. Support auto-sensing on 10/100M speed and half/ full duplex; comply with IEEE 802.3/ 802.3u respectively.
DC PWR	The power jack allows an external DC power supply connection.
	The external DC adaptor provide adaptive power requirement to the WLAN Broadband Router.

2. Installation

2.1 Hardware Installation

Hardware Installation

Step 1: Place the Wireless Access Point to the optimum transmission location. The best transmission location for your Wireless Access Point is usually at the geographic center of your wireless network, with line of sign to all of your mobile stations.

Step 2: Connect the Wireless Access Point to your wired network. Connect the Ethernet LAN interface of Wireless Access Point by category 5 Ethernet cable to your switch/ hub/ xDSL modem or cable modem. A straight-through Ethernet cable with appropriate cable length is needed.

Step 3: Supply DC power to the Wireless Access Point. Use only the AC/DC power adapter supplied with the Wireless Access Point; it may occur to damage by using a different type of power adapter.

The hardware installation is finished.

2.2 Software Installation

There is no software drivers, patches or utilities installation needed, but only the configuration setting..

Notice: It will take about 1 minute to complete the boot up sequence after powered on the Wireless Access Point; Power LED will be active, and after that the WLAN Activity LED will be flashing to show the WLAN interface is enabled and working now.

2.3 Browser to Access the Setup Wizard
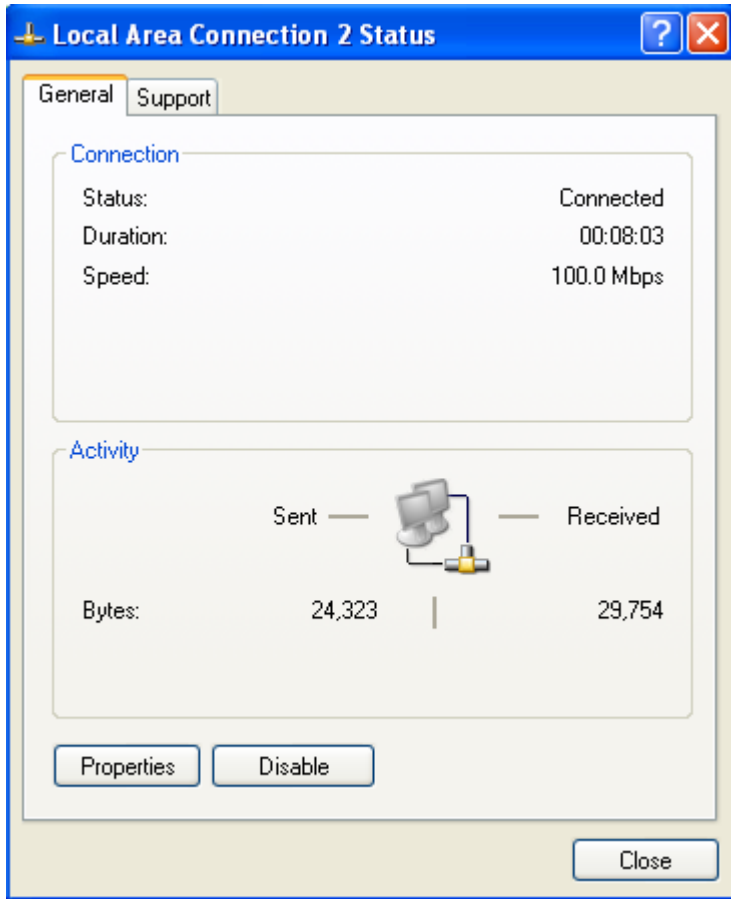
1. into local area connection status
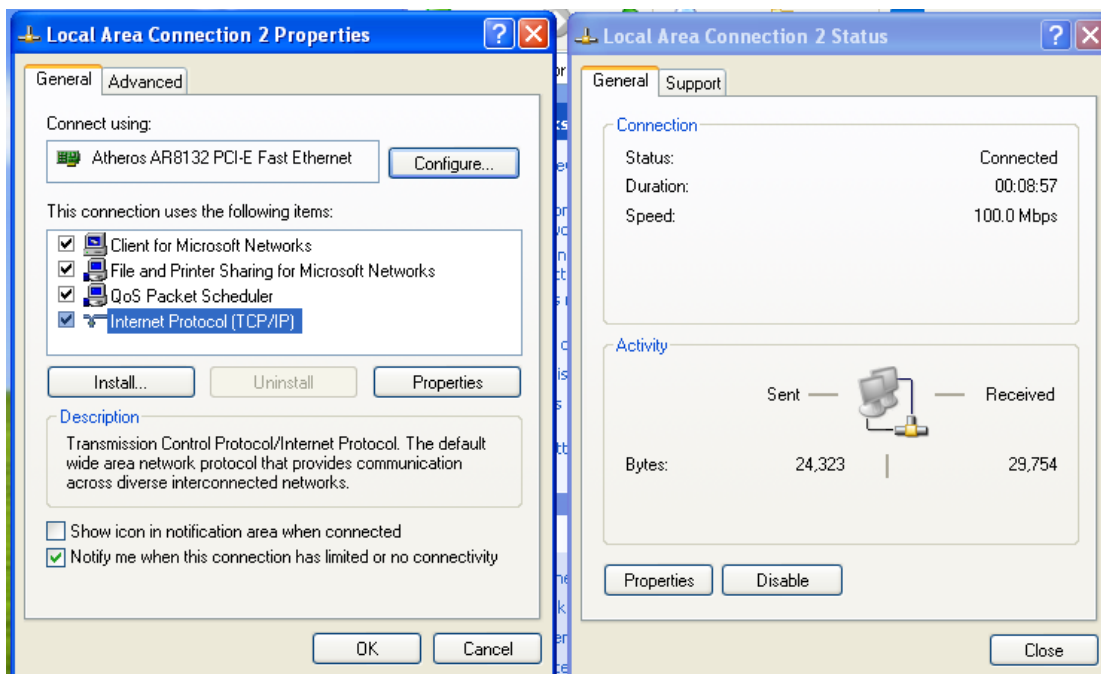
2. Setting Internet Protocol (TPC/IP)
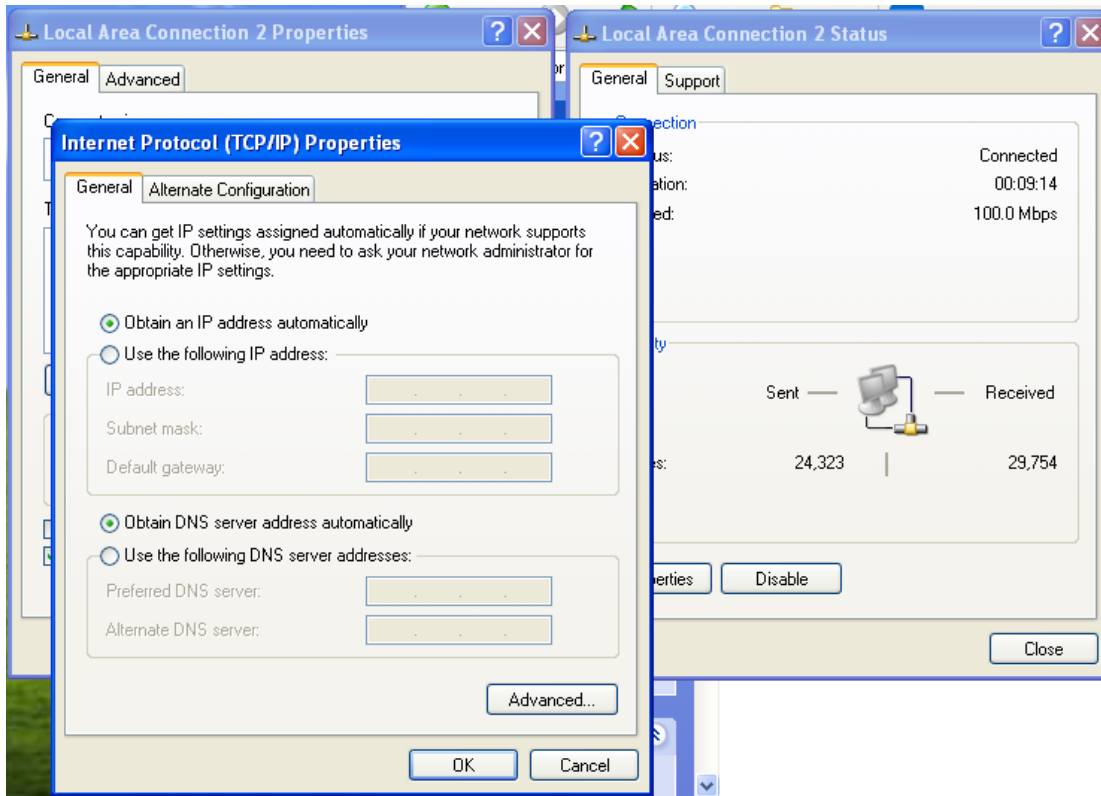
3. Choosing IP and DNS to automatically address.

Open your web browser.

Type in: www.smartrepeater.com

Into the web address

3. Management and configuration on the Wireless AP Router

3.1 Smart Setup Wizard

Welcome to the smart setup wizard. When the web menu appears, click next to continue to the next page.

3.1.1 Scan for Network

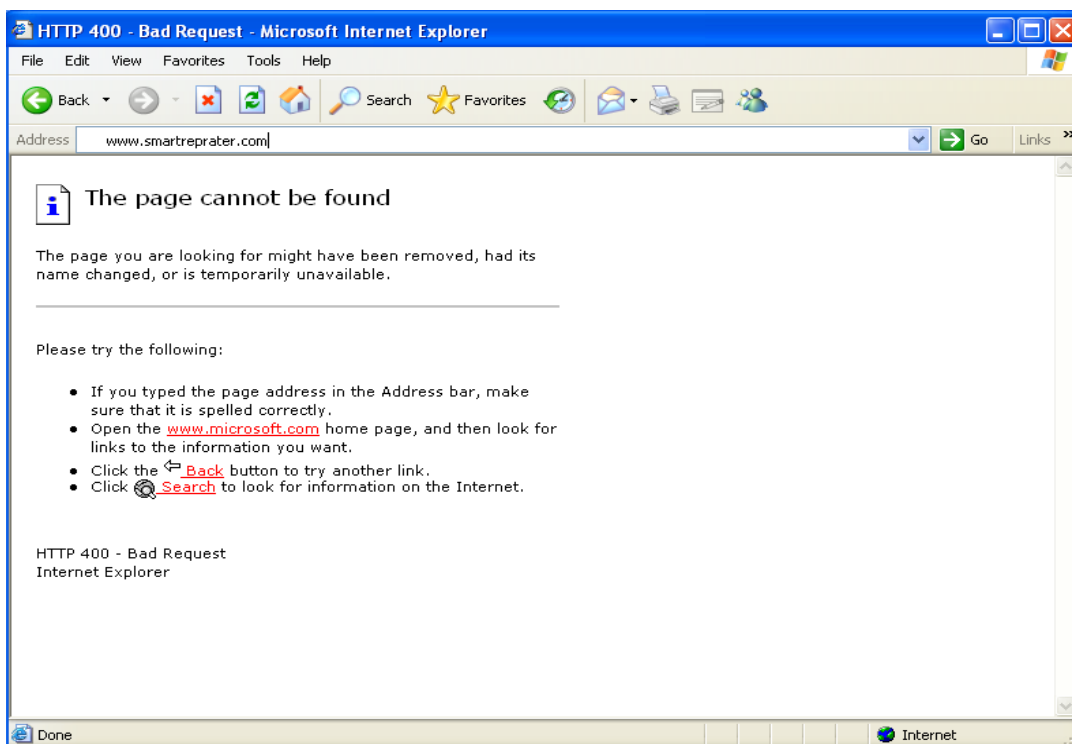

1.   Click SCAN to begin searching for available wireless networks to repeat.

2.   Select your network and click "Next" to continue.

3.   If you fail to find any wireless networks, the Smart Repeater may be placed too far from the wireless network that you are trying to repeat.

4.   Move your Smart Repeater closer to the wireless network that you are trying to repeat and click SCAN again.

5.   The Scan results page will display information regarding the name of the network (SSID), the channel which the wireless network is operating on and the type of network that it is.

6.   AP stands for Access Point and is the standard type of wireless network.

7.   The results page will also display whether or not your network has security and what the signal strength is coming from each specific network detected.

3.1.2 Setup Security (if necessary)

Setup Security (if necessary)

The Wi-Fi network (Home Network) that you are trying to connect to has security enabled. Please enter the security key below. If your Home Network does not have security, leave this field blank and click Next..

Your Home Network

Extended Repeated Network

Internet

Your Home/Office Wireless Router

Smart Repeater

Home Network Security Key:

Leave blank for networks without security

BACK   NEXT
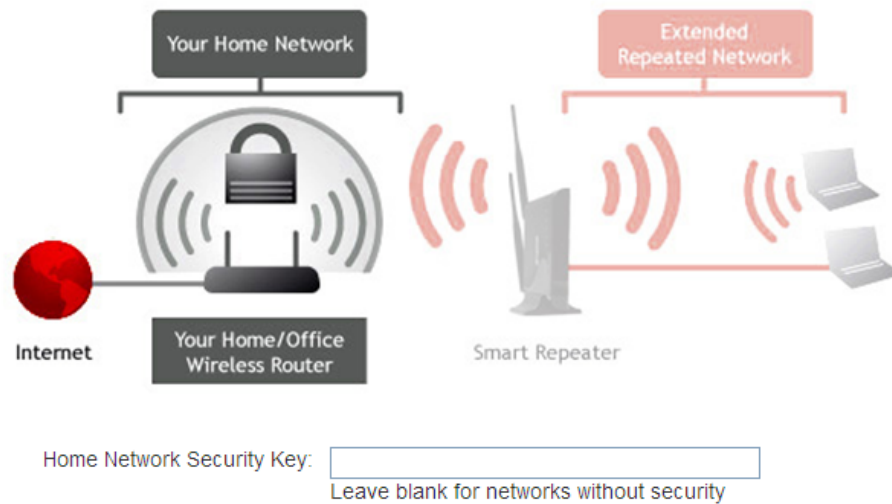
1. If the wireless network you are trying to repeat has wireless security enabled, you will be prompted to enter a security key.

2. If you did not select a secure network, continue to the next step.

3. Enter the security key in the space provided.

4. You do not need to select what type of security it is, just simply type in the key and click next.

5. The Smart Setup Wizard will automatically take care of the rest. If the key you entered is incorrect it will prompt you to enter the key again.

6. If you do not know the key to the network you are trying to repeat, then click Back and select another network.

3.1.3 Repeater Settings

Repeater Settings

Configure the settings for your Extended Network:

Extended Network ID

The identification name of your "Extended" wireless network is "**SmartRepeater**." This is the name that wireless users will use to connect to your network. You may change the settings below:

Extended Wireless Network ID (SSID): SmartRepeater

Extended Network Security Key

Your Extended Network is secured with the following key. You must enter this key when connecting wirelessly for the first time to the Smart Repeater. You may change the key below.

Extended Network Security Key: wireless
8 Character Minimum
Leave blank for no security

Click Next to confirm your settings and continue. The Smart Repeater will reboot and perform a connection test. Please do not disconnect the Smart Repeater during reboot.

BACK   **NEXT**

Extended Network ID

1. The default SSID of the Smart Repeater is "SmartRepeater"

2. This SSID for the Extended Network may be changed by adjusting the name in the field for the Extended Wireless Network ID.

3. This ID will be used by wireless users connecting to the Smart Repeater to identify the Smart Repeater's Extended Network.

4. It is recommended to use the default settings

Extended Network Security Key

1. By default, the Extended Network has security enabled.

2. The WPA security key is "wireless." Users trying to connect to the Smart Repeater wirelessly will be prompted to enter this key.

3. It is recommended that you use the default settings for the wireless security key.

4. To change the security key, simply retype your new key in the field and click next.

5. Write your security key down somewhere safe for future reference.

6. No security key is necessary for computers connecting to the Smart Repeater using a wired connection to the LAN ports.

7. After clicking Next, the Smart Repeater will reboot and apply your settings. Be patient and do not make any changes or adjustments to the Smart Repeater at this time.

3.2 Wireless Settings
3.2.1 Home Network Settings

Home Network Settings

Manually configure the settings for your Home Network connection
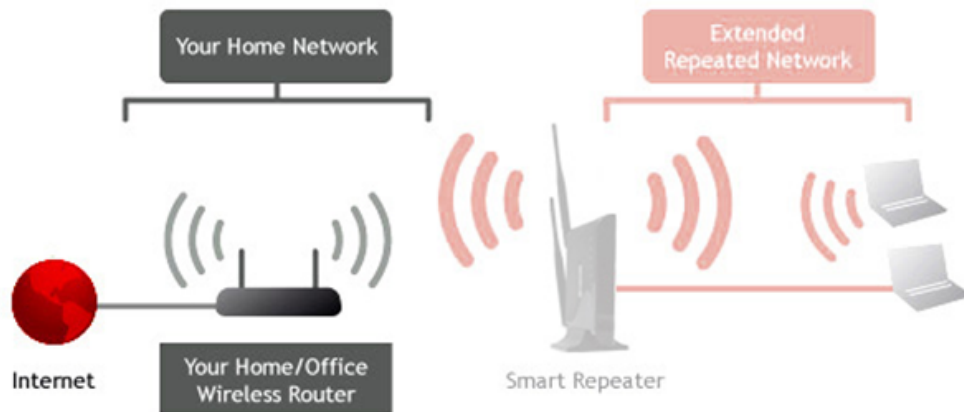
Home Wireless Connection

Home Network SSID: `8014PW_RD_TEST`

Channel Number: `1` ▾ Must be same as your Home Network router

Channel Width: `40MHz` ▾

Control Sideband: `Lower` ▾

If you are manually setting your Home Network connection, you will need to enter the security setting in the Security page for your Home Network. After clicking Apply on this page, click Reboot Later and go to the Security page to set your security settings. Click Reboot Now after all settings are applied. (The Smart Repeater cannot connect to your Home Network until all settings have been set and applied)

APPLY **RESET**

1.   The Home Network Settings page allows you to adjust settings for your Home Network connection. These settings are for adjusting the Smart Repeater after you have already gone through the Smart Setup Wizard and wish to adjust your current configurations.

2.   Home Network SSID: Manually enter the Identification name of the Home Network you wish to connect to Channel Number:

3.   Enter the channel number of the Home Network.

4.   If the channel number does not match, a connection will not be established.

5.   Channel Width: Wi-Fi operates in two separate channel widths, 20Hz and 40Hz. 20Hz allows operation on channels 1-11, while 40Hz is 5-11. 40Hz allows for faster speeds. Select the channel width you wish to use for your network. This setting must match that of your Home Network for a successful connection.

3.2.2 Extended Network Settings

Extended Network Settings

Extended Wireless Network Settings

Disable Wireless LAN Interface: ☐

Band: 2.4 GHz (B+G+N) ▾

Broadcast SSID: ⦿ Enable ○ Disable

Date Rate: Auto ▾

SSID of Extended Network: SmartRepeater   [Multiple AP]

Channel Number: (same as Home Network)

WMM: Enabled ▾

Associated Clients: [Show Active Clients]

[APPLY]   [RESET]

1. The Extended Network Settings page allows you to adjust settings for your Extended Network.

2. Band: Allows you to setup access under a specific combination of Wi-Fi speed standards.

3. Broadcast SSID: Disabling the broadcasting of your SSID will make it so outside users cannot see your Network when they scan for wireless networks.

4. Users must manual enter the SSID to connect.

5. SSID of Extended Network: This is the name of your Extended Network.

3.2.3 Security

Security

Configure the security settings for your wireless networks.

Select Wireless Network:

Extended: SmartRepeater

APPLY   RESET

Encryption: WPA

Authentication Mode: ○ Enterprise (RADIUS) ⦿ Personal (Pre-Shared Key)

WPA Cipher Suite: ○ TKIP ⦿ AES

Pre-Shared Key Format: Passphrase

Pre-Shared Key: ●●●●●●●●

1. Wireless security allows you to change the type of wireless security settings for your Extended Network or your Home Network.

    Note: If you adjust the security in your Home Network and it is incorrect, you will no longer have a successful connection to your Home Network.

2. Using the drop down menu, you can select which network you wish to configure and adjust the security settings below.

3. If you are using the Multiple AP/SSID feature, you will be able to adjust the security settings for your additional SSID here as well.

3.2.4 Wi-Fi Protected Setup (WPS)

Wi-Fi Protected Setup (WPS)

WPS provides hassle free setup for wireless users connecting to the Smart Repeater. Use one of the following WPS processes to configure WPS.

☐ **Disable Wi-Fi Protected Setup (WPS)**

Enable Wi-Fi Protected Setup

Option A: If your wireless user has a Wi-Fi Protected Setup button, click or press the WPS PBC (Push Button Configuration) button here:
Start PBC

Option B: If your wireless user asks for the Smart Repeater's PIN number, use this number on the user's device: **56119039**

Option C: If your wireless user has a Wi-Fi Protected Setup PIN number, enter that number here:
and then click Start PIN

APPLY   RESET

1. WPS is a Wi-Fi feature created to make Wi-Fi setup simpler and easier.

2. Some wireless routers and adapters support this feature with varying names (i.e. one touch setup or WPS).

3. You may enable WPS setup here by selecting the type of WPS setup you wish to use.

4. The Smart Repeater supports all types of WPS setup.

5. Push button: You may push the WPS button on the web menu or use the physical button on the back of the Smart Repeater.

3.2.5 Advanced Setting

Advanced Settings

Advanced wireless settings are for technically advanced users. It is recommended that these settings not be changed unless it is understood what the effects will be on your local wireless network.

Fragment Threshold:	2346 (256-2346)
RTS Thresold:	2347 (0-2347)
Beacon Interval:	100 (20-1024 ms)
Preamble Type:	⦿ Long Preamble ○ Short Preamble
LAPP:	⦿ Enabled ○ Disabled
Protection:	○ Enabled ⦿ Disabled
Aggregation:	⦿ Enabled ○ Disabled
Short GI:	⦿ Enabled ○ Disabled
WLAN Partition:	○ Enabled ⦿ Disabled
STBC:	○ Enabled ⦿ Disabled
20/40MHz Coexist:	○ Enabled ⦿ Disabled

APPLY **RESET**

1. It is recommended that only experts in Wi-Fi configuration adjust the advanced wireless settings for the Smart Repeater.

2. These settings allow you to control the details of your wireless network configuration.

3.3 Smart Features

3.3.1 Access Schedule

1. You can set a schedule for when your Wi-Fi is enabled or disabled (both Home Network and the Extended Network) through the Access Schedule feature.

2. To do so:

    a. Enable Access Schedule

    b. Select which days you wish for your Wi-Fi to be available

    c. Select the time frame during that day that you wish for Wi-Fi to be available

    d. Apply Changes

3. Enabling Access Schedule will also disable internet access for wired connections.

Note: Make sure you have already configured your Time Zone Settings in order for your schedule to work correctly.

Time Zone Settings can be adjusted from the web menu under Management > Time Zone Settings.

3.3.2 User Access Control

User Access Control

Allow or deny wireless access to specific users by entering the MAC address of the device below. The MAC address of a networking device is a 12 digit hex number normally found on a label on the bottom of the device. (i.e. 1A2B3C4F5A6D)

Wireless Access Control Mode: Disable

MAC Address:

Comment:

APPLY   RESET

Current Access Control Table

MAC Address	Comment	Select

Delete Selected   Delete All   Reset

1. User Access allows you to deny access or allow access to specific users connecting wirelessly to the Extended Network.

2. Each networking device has a unique address called a MAC address (a12 digit hex number).

3. By inputting the MAC address into the field, you can define whether that device is allowed into your network or not allowed.

3.3.3 Wireless Coverage Controls

Wireless Coverage Controls

Adjust the output power and range of your Extended Wireless Network. For a smaller coverage area, choose a lower output power percentage. For a larger coverage area, select a higher output power percentage.

Wireless Output Power: ⦿100%   ○70%   ○50%   ○35%   ○15%

APPLY   RESET

1. Adjust the output power of the Smart Repeater to control the coverage distance of your Extended Wireless Network.

2. For a smaller coverage area you can select a lower output power.

3. For the maximum wireless coverage select the 100% selection.

Note that if you select a lower output power, your connection to your Home Network will also decrease in range. So be careful and test your signal strength after each adjustment.

3.4 IP Settings
3.4.1 Extended Network IP Settings (LAN)

IP Address: The IP address of the Smart Repeater Subnet Mask: the subnet of the Smart Repeater

Default Gateway: The access points to another network, normally the Smart Repeater or your router.

DHCP: The Smart Repeater includes a complex AUTO DHCP feature to help manage the IP addresses within your extended network and with your Home Network.

When connected to a Home Network the Repeater will obtain an IP address from your Home Network's router and act as a DHCP Client.

However when there is no connection available, the Repeater will act as a DHCP Server.

You may also manually control the IP settings of the Smart Repeater by choosing, Client, Server or Disabled from the DHCP drop down menu. This is only advanced users.

DHCP Client Range: The range of IP addresses the Smart Repeater's DHCP server will assign to users and devices connecting to the Smart Repeater.

Static DHCP: You may set a static IP address within your DHCP network. The Smart Repeater will track the device via its MAC address and assign it a pre-defined IP address each time the device logs into the network. obtain IP settings from the Home router or to manually enter your IP settings.

3.5 Management
3.5.1 Smart Repeater Status

Smart Repeater Status

System Information

Uptime: 0day:0h:41m:9s
Firmware Version: v1.2e
Build Time Wed Sep 28 17:54:04 CST 2011
Current Date / Time 9/28/2011 18:35:11

Home Network Wireless Settings

Band: 2.4 GHz (B+G+N)
SSID: 8014PW_RD_TEST
Channel Number 1
Encryption Disabled
BSSID 00:e0:4c:81:96:b1
Connection State Disconnected

Extended Network Wireless Settings

SSID: SmartRepeater
Encryption WPA
BSSID 00:00:00:00:00:00
Associated Clients 0

Smart Repeater IP Settings

Attain IP Protocol: Fixed IP
IP Address: 192.168.1.250
Subnet Mask: 255.255.255.0
Default Gateway: 0.0.0.0
DHCP Server: Auto
MAC Address: 00:e0:4c:81:96:b1

1. The Management features on the Smart Repeater allow you to view the status of your Home Network and Extended Network.

2. The Repeater Status page provides full information regarding each connection (Home and Extended), including the IP address, current connection SSID and current state. This page is often used to check the health of your Home or Extended Network connection.

3.5.2 Network Statistics

Network Statistics

Connection to Home Network:	Sent Packets: 323
	Received Packets: 5050
Extended Wireless Network	Sent Packets: 3419
	Received Packets: 0
Extended Wired Network	Sent Packets: 788
	Received Packets: 647

REFRESH

The Network Statistics page provides detailed traffic data for each connection type

3.5.3 System Clock

System Clock

Maintain the system clock settings by syncing the system time with the time on your computer. The Smart Repeater's clock is used to make sure your Access Schedules and logs function correctly and on time.

Current Time: Year 2011
Month 9   Day 28   Hour 18   Minute 35   Sec 35
Sync with the time on your computer

APPLY   RESET   REFRESH

Maintain the internal clock for the Smart Repeater by syncing with your computer's time. Your system clock settings need to be accurate in order for logs and wireless access schedules to work correctly.

3.5.4 System Logs

System Logs

View network and system activity for your Smart Repeater.

☐ **Enable Log**

Current Time: ☐ System (ALL) ☐ Wireless
☐ Enable Remote Log   Log Server IP Address: [   ]

APPLY

REFRESH   CLEAR

3.5.5 Upgrade Firmware

Upgrade Firmware

The Wireless Smart Repeater uses software (firmware) to operate. In the event that a new firmware file is available you may update it here. During the upgrade process DO NOT power off the device to avoid damage to the Wireless Smart Repeater.

Select File: [   ] Browse...
Upload   Reset

1. The Wireless Smart Repeater uses internet software (firmware) to operate. In the event that a new firmware file is available you may update it here.

2. During the upgrade process DO NOT power off the device to avoid damage to the Wireless Smart Repeater. To check for new firmware click the Check button. If a new firmware is available you will be given the option to install.

3. To manually upgrade your firmware:

   a. Download the file from the www.loopcomm.com/support website and remember the location where you saved it.

   b. Click Browse and locate the file

   c. Click Upload to begin upgrading.

   Note: Firmware files normally have a .bin file extension.

3.6.6 Save/Reload Settings

Save/Reload Settings

Save your current Wireless Smart Repeater configurations to a file or reload previously saved configurations. If needed, you may also reset your Wireless Smart Repeater to factory default settings.

Save Settings to File: [Save]

Load Settings from File: [   ] [Browse...] [Upload]

Reset Settings to Default: [Reset]

1. Saving your current settings allows you to back-up your current settings which may be reloaded at a later time.

2. This feature may be useful for testing new features and settings without having to worry about returning to a stable platform.

3. To save current settings:

    a. Click Save

    b. Select a file name and location

4. To load previously saved settings:

    a. Click Browse

    b. Locate the previously saved settings file

    c. Click Upload to restore the settings to the saved file.

You may also reset the Smart Repeater's settings to factory settings by pressing Reset. By resetting the Smart Repeater you will lose all previous configurations and will need to run the Smart Setup Wizard again to reconnect to a Home Network.

3.5.7 Password

Password

Prevent unauthorized access to your Wireless Smart Repeater's web-based configuration menu by providing a user name and password. If no protection is necessary, leave these fields blank and you will not be prompted for a login and password when accessing this web menu.

User Name: [   ]

New Password: [   ]

Confirmed Password: [   ]

[APPLY] [RESET]

By default, the Smart Repeater does not require a password to login to the web menu.

If you wish to enable a password to protect unauthorized access to the web menu and Smart Setup Wizard, you may enter one here.