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# **Touchstone® WR2100 Wireless Repeater**

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## **Quick Installation Guide**

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## Package Contents

The following items should be included: If any of these items are damaged or missing, please contact your service provider immediately.

1. The WR2100 Wireless Repeater



2. Quick Installation Guide



3. End User License Agreement



## What You Need

If you chose to configure the WR2100 Wireless Repeater using a PC and a web browser, you will need an Ethernet cable long enough to connect the WR2100 Wireless Repeater to your PC.

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# Chapter 1

## Introduction



*This Chapter provides details of the WR2100 Wireless Repeater's features, components and capabilities.*

### Overview

The Touchstone® WR2100 Wireless Repeater is designed to enhance and extend the wireless network coverage, range, and connectivity by repeating and boosting the wireless signal between the existing Wireless Gateway/Router and hard to reach wireless client devices (e.g. IP camera, laptop computer) and mobile devices in the home. This provides consumers with an improved wireless experience on tablets, smartphones, and other wireless client devices. With its easy setup and operation, this high-speed 802.11n device works seamlessly with all ARRIS Wireless Gateways and most other wireless routers and access points.

### Features

- **Easy Setup.** Use either push button WPS (Wi-Fi Protected Setup) or your PC and web browser for configuration.

### Wireless Features

- **Supports 11n Wireless Stations:** Provides backward compatibility with the 802.11b and 802.11g standards, so 802.11n, 802.11b and 802.11g wireless clients can be used simultaneously.
- **WPS Support:** WPS (Wi-Fi Protected Setup) can simplify the process of connecting any device to the wireless network by using the WPS configuration button on the device.
- **Security Support:** Full WEP (64/128 Bit), WPA and WPA2 Personal standards are supported on the wireless interface, allowing advanced encryption of wireless data.

### Location Considerations

For best performance, locate the WR2100 Wireless Repeater away from known interfering devices such as microwave ovens and baby monitors.

## Chapter 2

# Basic Setup

# 2

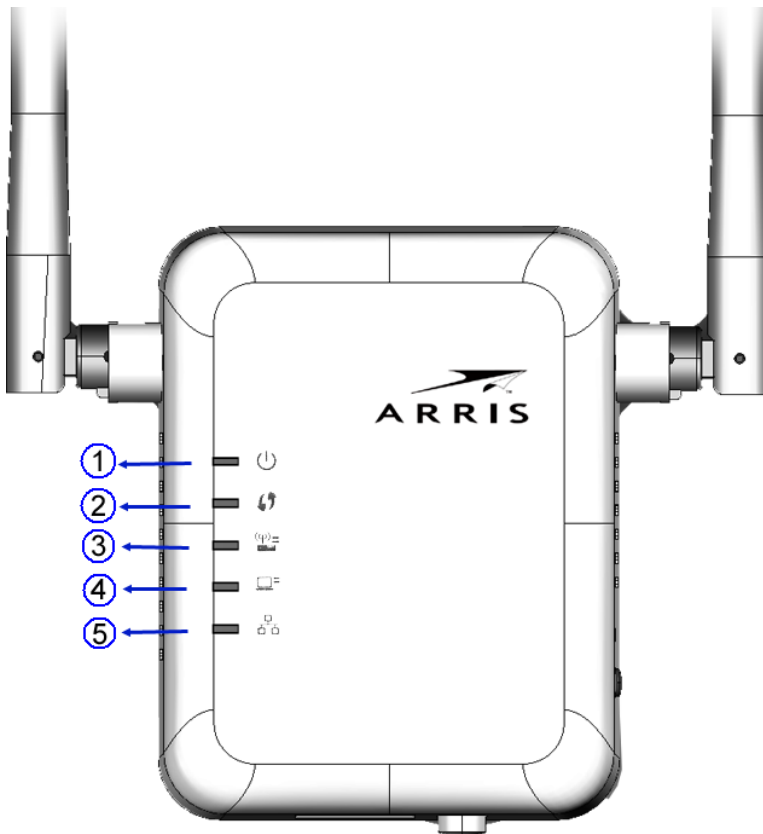
*This Chapter provides details on how to setup the WR2100 Wireless Repeater.*






### System Requirement

- To use the wireless interface on the WR2100 Wireless Repeater, other wireless devices must be compliant with the IEEE 802.11b, IEEE 802.11g or IEEE 802.11n specifications. All wireless stations must use compatible settings.

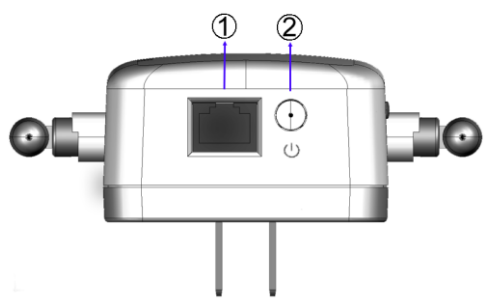
### Physical Details


#### Front Panel

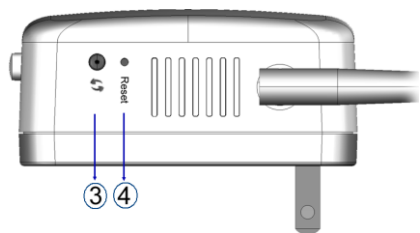



1.  <b>Power LED</b> <b>(Green/Amber)</b>	<b>On (Green)</b> - Power on. <b>Off</b> - No power. <b>Blinking (Green)</b> - The <i>Power</i> LED will blink during start up. This will take 15 to 20 seconds. <b>On (Amber)</b> - System failure.
2.  <b>WPS LED (Green)</b>	<b>On (Green)</b> - When WPS button is pressed, the LED will be on for 2 minutes. <b>Off</b> - WPS feature is not in use. <b>Slow Blinking (Green)</b> - WPS is activating. <b>Quick Blinking (Green)</b> - WPS failure.
3.  <b>Access Point/ Repeater LED</b> <b>(Green/Red)</b>	<b>On (Green)</b> – Access Point connection is available and the signal strength is good. <b>Off</b> – Access Point connection is not established. <b>On (Amber)</b> - The signal strength is normal. <b>On (Red)</b> - The signal strength is poor. <b>Note:</b> if the LED indicator shows red, you need to install the device in a better location.
4.  <b>Repeater/Client LED (Green)</b>	<b>On (Green)</b> - Client connection is available and the signal strength is good. <b>Off</b> - Client connection is not established.
5.  <b>Ethernet LED</b> <b>(Green)</b>	<b>On (Green)</b> - LAN connection is available. <b>Off</b> - LAN is not connected. <b>Blinking (Green)</b> - Data is being transmitted or received via the LAN connection.

Bottom & Side Panel



1. LAN port	Use a standard Ethernet cable to connect your WR2100 Wireless Repeater to a PC.
2.  Power On/Off Switch	Press this button to turn on/off the WR2100 Wireless Repeater.



3.  WPS Button	<p>Press the WPS button on the device and on your other wireless device to perform WPS setup that easily creates an encryption-secured wireless connection automatically.</p> <ul style="list-style-type: none"><li>• <b>Access Point Connection.</b> When pressed and held over 3 seconds, the WR2100 Wireless Repeater performs WPS setup with the wireless router/access point.</li><li>• <b>Client Connection.</b> When pressed and released (less than 3 seconds), the WR2100 Wireless Repeater will perform WPS setup with the client devices.</li></ul>
4. Reset Button	<p>This button is recessed. Use a pointed non-metallic object to press this button. It can be activated at any time the WR2100 Wireless Repeater is in the "ready" mode.</p> <ul style="list-style-type: none"><li>• <b>Reset to manufacturer default values and reboot.</b> When pressed and held for over 10 seconds, the settings of the WR2100 Wireless Repeater will be reset to their default values.</li></ul>

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## Setting Up the WR2100 Wireless Repeater

The installation allows the WR2100 Wireless Repeater to directly connect to a wireless router (or Wireless Access Point). You can extend the range of your wireless network without running cables and reduce “dead spots” in the house where the router/access point signal is weak.

### Automatic Configuration Using WPS



**Step 1:** Locate the WR2100 Wireless Repeater near the Wireless Access Point while doing the configuration.

**Step 2:** Make sure the Wireless Access Point is on and working properly and with good signal strength to WR2100 Wireless Repeater.


**Step 3:** Plug the WR2100 Wireless Repeater into the power outlet and press the *Power* button to power it on.

**Step 4:** The LED stays on for a few seconds then starts blinking. Wait for the *Power* LED to be static on again. The WR2100 Wireless Repeater is now ready for use.

**Step 5:** Press the *WPS* button on the Wireless Access Point and make sure the Wireless Access Point is in WPS mode. (The LED on the access point will blink for 2 minutes.)


**Step 6:** Press and hold the *WPS* button on the WR2100 Wireless Repeater for **MORE than 3 seconds**. The *WPS* LED on the device will blink for 2 minutes. The WR2100 Wireless Repeater will automatically associate to the Wireless Access Point on which you initiated WPS and make connection. Make sure to press the button within 120 seconds (2 minutes) after pressing the Wireless Access Point WPS button.

**Step 7:** The connection of the WR2100 Wireless Repeater and

Wireless Access Point is successfully established after the  LED remains on.

**Step 8:** Now you can select a suitable location for the WR2100 Wireless Repeater. It's preferable to place the device near the center of your wireless coverage area. Check the LED color and make sure it's not red. Next go to "Setting Up Your Client Devices".



**Locate the WR2100 Wireless Repeater in another place for better wireless reception and performance if the signal strength is weak (the  LED is red).**

## Manual Configuration with a PC



**Step 1:** Make sure the PC is connected to the Wireless Access Point with a good signal.

**Step 2:** Prepare an Ethernet cable. It should be long enough to connect the WR2100 Wireless Repeater to your PC.

**Step 3:** Plug the WR2100 Wireless Repeater into the power outlet and press the Power button to power it on.

**Step 4:** The LED stays on for a few seconds then starts blinking. Wait for the *Power* LED to be static on again. The WR2100 Wireless Repeater is now ready for use.

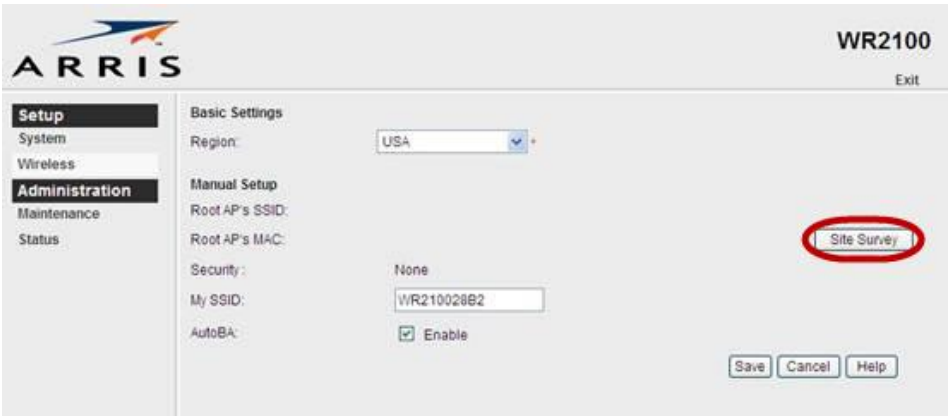
**Step 5:** Connect the Ethernet cable to the WR2100 Wireless Repeater and the PC.

**Step 6:** Launch the browser and enter <http://www.mywifirepeater.net/> in the Address box.

**Step 7:** You will then be prompted for a username and password. If using the default values, enter `admin` for the username, and `password` for the password.

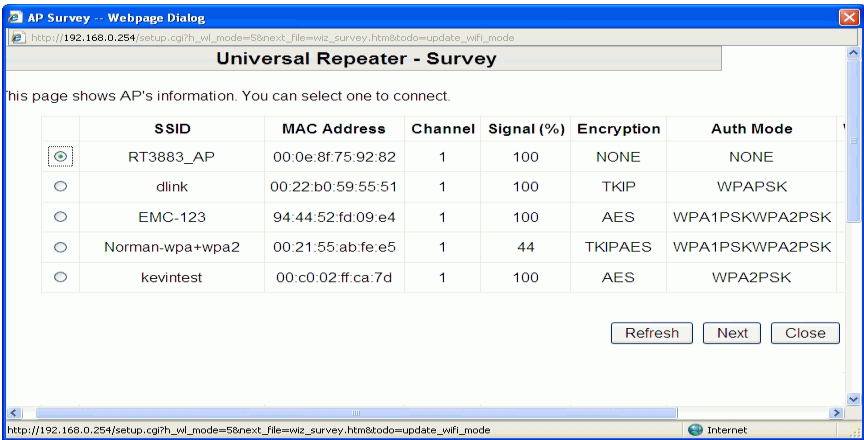
**Step 8:** Choose the *Wireless* page and click the "Site Survey" button. The WR2100 Wireless Repeater will start to search the existing wireless networks.





The image shows the ARRIS WR2100 Setup Utility interface. On the left is a navigation menu with options: Setup, System, Wireless, Administration (highlighted), Maintenance, and Status. The main area is titled 'Basic Settings'. It includes a 'Region' dropdown set to 'USA', a 'Manual Setup' section with 'Root AP's SSID' and 'Root AP's MAC' fields, a 'Security' dropdown set to 'None', a 'My SSID' text box containing 'WR21002882', and an 'AutoBA' checkbox that is checked and labeled 'Enable'. A red circle highlights a 'Site Survey' button on the right. At the bottom right are 'Save', 'Cancel', and 'Help' buttons.

**Step 9:** Select the desired SSID that you want to connect to. Click *Next*. If you can't find the SSID, make sure the Wireless Access Point SSID is being advertised. (You can enter the SSID manually if necessary.)

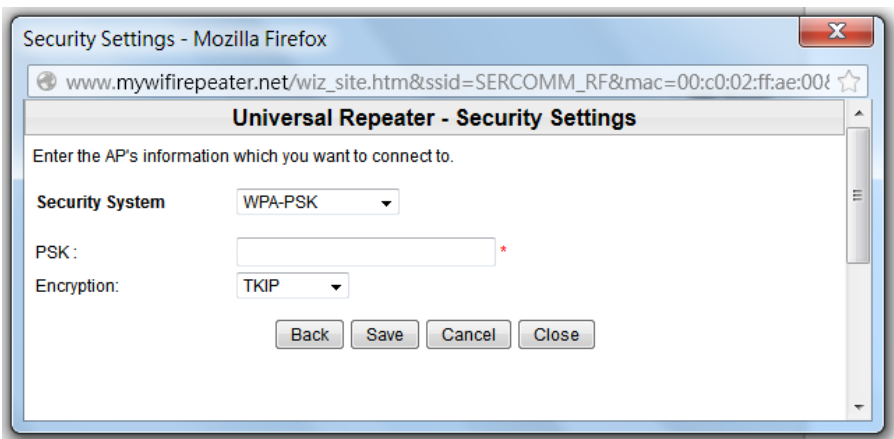


The image shows a 'Webpage Dialog' window titled 'AP Survey'. The URL bar shows 'http://192.168.0.254/setup.cgi?h\_wl\_mode=5&next\_file=wiz\_survey.htm&todo=update\_wifi\_mode'. The main heading is 'Universal Repeater - Survey'. Below it, a message says 'This page shows AP's information. You can select one to connect.' A table lists available APs:

	SSID	MAC Address	Channel	Signal (%)	Encryption	Auth Mode
<input checked="" type="radio"/>	RT3883_AP	00:0e:8f:75:92:82	1	100	NONE	NONE
<input type="radio"/>	dlink	00:22:b0:59:55:51	1	100	TKIP	WPAPSK
<input type="radio"/>	EMC-123	94:44:52:fd:09:e4	1	100	AES	WPA1PSKWPA2PSK
<input type="radio"/>	Norman-wpa+wpa2	00:21:55:ab:fe:e5	1	44	TKIPAES	WPA1PSKWPA2PSK
<input type="radio"/>	kevintest	00:c0:02:ff:ca:7d	1	100	AES	WPA2PSK

At the bottom right of the table are 'Refresh', 'Next', and 'Close' buttons. The status bar at the bottom shows 'Internet'.

**Step 10:** The *Security Settings* screen will be prompted automatically if the security is on. Enter the required encryption keys. Click *Save*.




The image shows a 'Security Settings' window from Mozilla Firefox. The address bar shows 'www.mywifirepeater.net/wiz\_site.htm&ssid=SERCOMM\_RF&mac=00:c0:02:ff:ae:00'. The main heading is 'Universal Repeater - Security Settings'. Below it, a message says 'Enter the AP's information which you want to connect to.' The 'Security System' dropdown is set to 'WPA-PSK'. There is a 'PSK' text box with a red asterisk next to it. The 'Encryption' dropdown is set to 'TKIP'. At the bottom are 'Back', 'Save', 'Cancel', and 'Close' buttons.


Screen content may be different based on access point settings.  
(The PSK should match the configured PSK in your wireless router.)

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**Step 11:** The connection of the WR2100 Wireless Repeater and

Wireless Access Point is successfully established after the  LED remains on. Next go to “Setting Up Your Client Devices”.



**Locate the WR2100 Wireless Repeater in another place for better wireless reception and performance if the signal strength is weak (the  LED is red).**

## Setting Up your Client Devices


You must next configure your client devices to access the repeater.

### Configuring Client Devices without WPS

PCs and laptops typically do not have a WPS function. However, if previously configured to your wireless router/access point, they should automatically access the network through the WR2100 Wireless Repeater without any additional configuration.

If your client was NOT previously configured for your router/access point, perform the following steps:

**Step 1:** Configure the client device (e.g. PC or laptop) with the same SSID and encryption keys using your operating system’s network utility.


**Step 2:** The connection is successfully established after the  LED remains on.


**Step 3:** The client device can then access the wireless network.

### Configuring WPS Enabled Client Devices

**Step 1:** Power on the WPS enabled client device (e.g. IP Camera) and make sure it is in wireless mode

**Step 2:** Press the *WPS* button on the WR2100 Wireless Repeater for **LESS than 3 seconds**. The *WPS* LED will blink for 2 minutes. Then press the *WPS* button on the client device. Make sure to press the button within 120 seconds (2 minutes) after pressing the WR2100 Wireless Repeater *WPS* button.

**Step 3:** Wait for the *WPS* LEDs to be solid on both WR2100 Wireless Repeater and the client device. Then check the  LED again.

**Step 4:** If the  LED remains on the client device can now access the wireless network.

## Troubleshooting

### Devices that do Not Support the Block ACK Feature

Wireless access points and wireless routers that use the older IEEE 802.11g or 802.11b specifications may not support the Block ACK speed accelerator feature.

If you are using one of these devices and experience issues with transfer speeds or sporadic connections with the WR2100 Wireless Repeater, you should disable the AutoBA feature, as follows.

**Step 1:** Follow the procedure under *Manual Configuration with a PC* to access the WR2100 Wireless Repeater configuration screens.

**Step 2:** Select the *Wireless* page and uncheck the *AutoBA Enable* checkbox.

The screenshot shows the ARRIS WR2100 configuration web interface. On the left is a navigation menu with 'Setup' (containing 'System', 'Wireless', and 'Administration') and 'Status'. The 'Wireless' section is selected. The main area is titled 'Basic Settings' and contains fields for 'Region' (set to USA), 'Root AP's SSID', 'Root AP's MAC', 'Security' (set to None), and 'My SSID' (set to WR210028B2). The 'AutoBA' section has an 'Enable' checkbox, which is circled in red. A 'Site Survey' button is located to the right of the 'Security' field. At the bottom right are 'Save', 'Cancel', and 'Help' buttons. The top right corner shows 'WR2100' and an 'Exit' link.

**Step 3:** Click *Save* to save your new configuration, and then click *Exit* to close the session.

# Appendix A

## Specifications



### WR2100 Wireless Repeater

Model	802.11N Wireless Repeater 2.4GHz 2x2:2 MIMO
Dimensions	67mm (W) x 85mm (H) x 36mm (D)
Operating Temperature	0° C to 40° C (32° F to 104° F)
Antenna	External antenna x 2
Storage Temperature	-20° C to 70° C (-4° F to 158° F)
Network Interface	1 Ethernet 10/100BaseT (RJ45) LAN connection
Wireless interface	802.11b: 20 dBm@11Mbps 802.11g: 18 dBm@54Mbps 802.11n: 18 dBm@130Mbps and 270Mbps
LEDs	5
Power	100~240V AC (Build-in Power)

### Regulatory Approvals

#### FCC Statement

This equipment has been tested and found to comply with the requirements for a Class B digital device under Part 15 of the Federal Communications Commission (FCC) rules. These requirements are intended 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.

**Warning:** To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

### **FCC Radiation Exposure Statement**

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 7.9 inches (20 centimeters) between the radiator and your body.

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.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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