Actiontec®

802.11ac
MoCA 2.0

Wireless Ethernet Bridge

Model # WCB5000

User Guide

0535-00xx-000 rev. 1

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Introduction

The Actiontec WCB5000 is a wireless network extender with dual concurrent radios supporting both 2.4GHz and 5GHz operation in 802.11 a/b/g/n, and also 5GHz in 802.11ac. This allows the Extender to connect to everything from legacy wireless laptops, computers, and gaming platforms, up to the most current (and future) Apple and Android tablets, laptops, media platforms, and smartphones.

The Extender works by being placed in a central location of the home, or in a location where the existing wireless signal is weak, and then being physically connected directly to your gateway/modem. This physical connection not only extends the signal, but allows the Extender to import and automatically configure itself with the same network ID/SSID and password currently in use and configured on the existing gateway/modem. This means that wherever you are in your house, your WiFi tablet, laptop, phone, or wireless device will automatically connect to Internet without anyone having to find a new network name or enter security keys.

For users with newer mobile devices, tablets, and laptops, connections through the 5GHz radio can markedly increase the performance and speed of your WiFi connection, while freeing up the 2.4GHz band for legacy or older devices.

Features

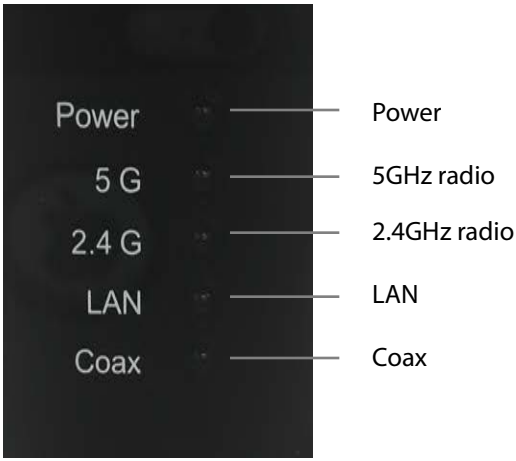
- 2.4GHz and 5GHz dual concurrent 802.11 a/b/g/n WiFi radios
- 5GHz 802.11ac WiFi radio
- Four Gigabit Ethernet ports
- One coaxial port (MoCA 2.0)
- Integrated wireless networking with 2x2 802.11n and 2x2 802.11ac access point
- Multiple security offerings, including, MAC address filtering, and WPA
- Other options including WMM, IP address management, carrier remote support and management, and upgradable firmware.

Getting to Know the Extender

This chapter describes the location and uses of the Extender's LEDs, ports, and buttons.

Front Panel

The front panel features LEDs that illuminate green when power, available ports, and/or wireless bands are functioning and in use.



Back Panel

- **Power port**: used to connect the power adapter (external, 12V DC, 1.5A, made by Ktec, model #KSASB0241200150HU) to the Extender.
- **Reset button**: restores the Extender back to the original factory default settings when held down for at least 10 seconds.
- **Coax port**: used for connecting the Extender to a coaxial network.
- **Four-port Gigabit Ethernet switch**: used for directly connecting the Extender to the gateway/modem or other Ethernet devices.
- **Labels:** indicate the factory default GUI access username and password, network SSID names, and security keys.

Installing the Extender

There are two parts to installing an Extender: syncing the Wi-Fi settings, and placing and connecting the Extender.

Syncing Wi-Fi

To sync the Extender with the gateway/modem's Wi-Fi settings:

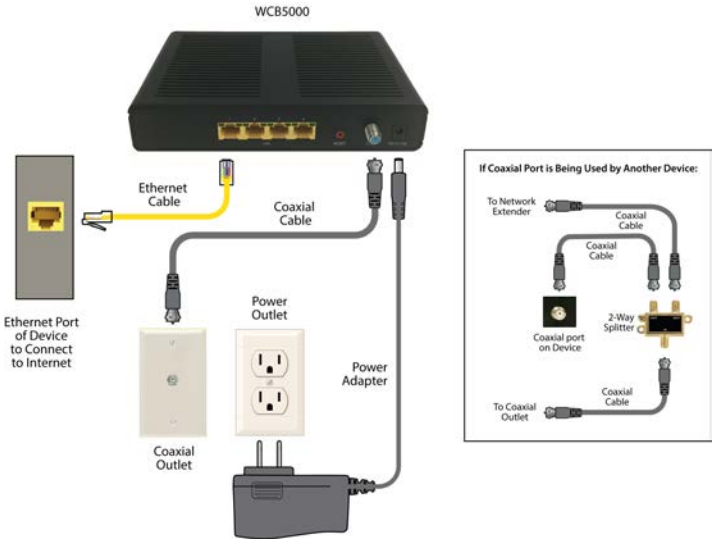
1. Place the Extender next to the gateway/modem.
2. Plug the Extender's power adapter into the *Power* port of the Extender, and the other end into an electrical wall outlet.
3. Press the WPS button on both the Extender and the gateway/modem simultaneously for ten seconds.
4. Make sure the WPS button on the Extender is glowing green. If the WPS button glows red, try syncing the Wi-Fi settings again. The Extender can also be manually configured to connect with the gateway/modem's wireless network (see "Wireless Setup" on page 14).

The Extender is now synced with the gateway/modem's Wi-Fi settings. Unplug the Extender and its power cable and continue on to the next section of this chapter, "Connecting the Extender."

Connecting the Extender

Now that the Extender is synced with the gateway/modem's wireless network, it can be connected to the gateway/modem's MoCA network and placed in another area or room of the home/office. To do this:

1. Place the Extender in an area where the Wi-Fi signal is weak or spotty. A coaxial outlet must be available nearby.
2. Connect the included coaxial cable into the *Coax* port on the rear panel of the Extender.
3. Connect the other end of the coaxial cable into the nearby coaxial outlet.
4. Plug the Extender's power adapter into the *Power* port of the Extender, and the other end into an electrical wall outlet.
5. If applicable, connect an Ethernet cable between one of the Extender's LAN ports and the Ethernet port of a non-wireless device (wireless devices will connect via the wireless network). The configuration should look similar to the figure, below:



6. Wait until the Coax and Wireless LEDs on the front panel of the Extender glow green. This may take a few minutes.

The Extender is now synced, installed, and extending the gateway/modem's wireless network in a previously weak area.

Using a Coaxial Splitter

If another device is using the coaxial outlet needed from step 3 in the previous procedure, perform the following steps:

1. Disconnect the coaxial cable from the coaxial outlet.
2. Connect a coaxial cable between the coaxial outlet and the single port on a two-way coaxial splitter.
3. Connect the coaxial cable disconnected in step 1of this procedure to one of the dual ports on the splitter.
4. Connect a coaxial cable between the *Coax* port of the Extender and the other dual port on the splitter.

The final configuration should be similar to the inset in the figure on the previous page.

Accessing the Extender's GUI

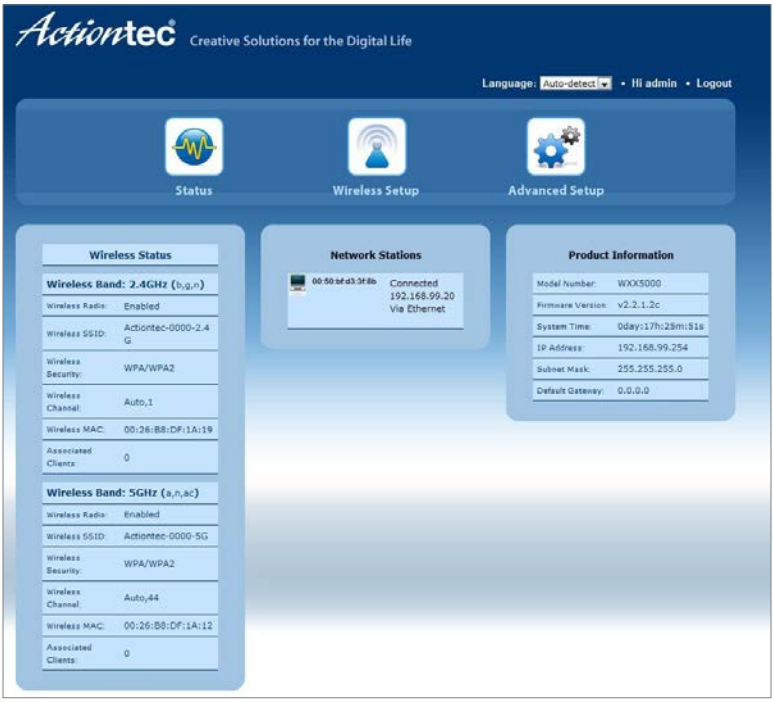
The Extender features an onboard graphical user interface (GUI) that includes user-configurable settings. Some of these settings should be accessed by experienced network technicians only.

To configure the network settings of the Extender:

1. Ensure that the Extender is connected to a gateway/modem's MoCA coaxial network, and that both devices are powered on.
2. On a computer connected to the same network as the gateway/modem and Extender, log in to the gateway/modem's GUI. The IP address for this log in will vary between different gateway/modems.
3. The gateway/modem's GUI appears. Find the Extender by its MAC ID from the list of connected devices or status screen. The MAC ID of the Extender is provided on a sticker located on the rear panel of the Extender.
4. Write down the IP address of the Extender.
5. Enter the IP address written down in step 4 in the address box of the web browser.

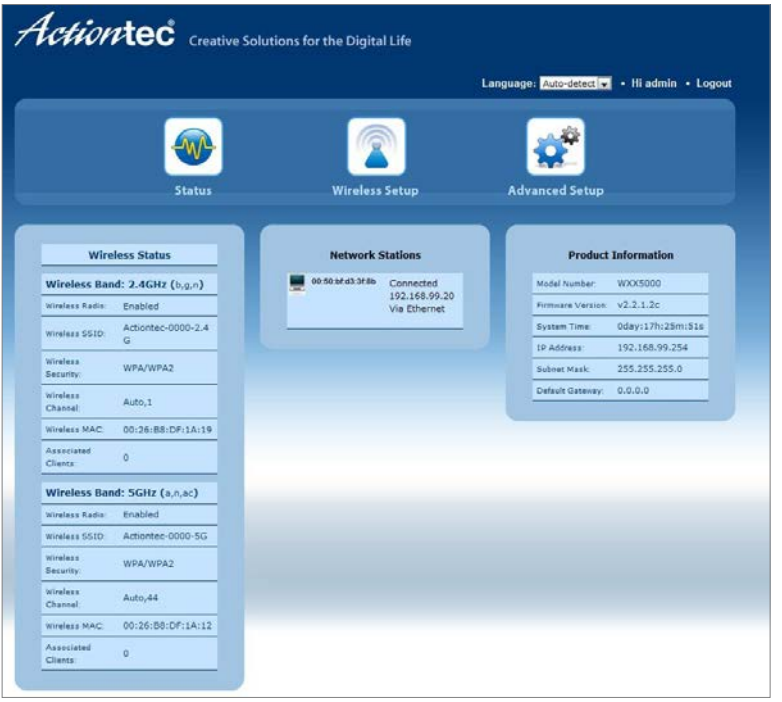
6. The Extender's *Status* screen appears. Enter the Extender's *Username* and *Password* (found on the label located on the back panel of the Extender), in the *User Name* and *Password* text boxes in the upper right corner of the *Status* screen.

The Extender's GUI's *Status* screen appears, as shown below:



Status

The first GUI screen that appears is the *Status* screen, which can also be generated by clicking the *Status* icon in the menu bar. This screen contains basic information about the Extender's wireless status, network stations, and product information about the Extender. There are no configurable settings available in this screen.



Wireless Setup

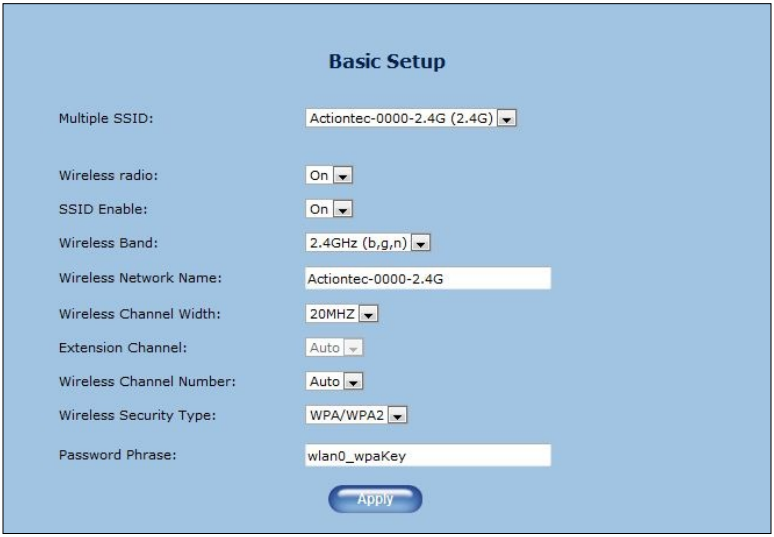
Clicking the *Wireless Setup* icon from the menu bar of any of the Extender's GUI screens generates the *Wireless Network List* screen. Additional wireless settings can be accessed from the menu on the left side. These settings configure various aspects of the Extender's wireless network, and the majority of them should be adjusted by an experienced network technician only. The exceptions are the settings contained in the *Basic Setup* screen.

Wireless Network List

Selecting **Wireless Network List** generates the *Wireless Network List* screen (above). This screen displays various characteristics of the Extender's wireless networks.

Basic Setup

The *Basic Setup* wireless network screen contains various settings regarding the Extender's wireless network. When finished adjusting the settings in this screen, click **Apply**.



Multiple SSID

This option allows the user to setup different SSIDs (wireless networks) with different parameters. Select the option desired from the *Multiple SSID* drop-down menu.

Wireless Radio

This option turns the Extender's wireless radio on and off.

SSID Enable

This option controls whether or not the name of the network is broadcast to other wireless devices (usually, in the device's available

wireless network list). Select *Enable* or *Disable* by clicking in the appropriate radio button.

Wireless Band

This option allows the user to select the bandwidth at which the Extender's wireless radio will operate.

Wireless Network Name

Enter the name of the wireless network in this text box.

Wireless Channel Width

This option allows the user to select the channel width at which the Extender's wireless radio will operate. We recommend using the default setting.

Extension Channel

This option allows the user to select the extension channel for the Extender's wireless radio. We recommend using the default setting.

Wireless Channel Number

This option allows the user to select the channel number at which the Extender's wireless radio will operate. We recommend leaving the channel number as is. The Extender and gateway automatically scan for the best channel at every boot up

Wireless Security Type

This option allows the user to select the type of security applied to the Extender's wireless network.

Password Phrase

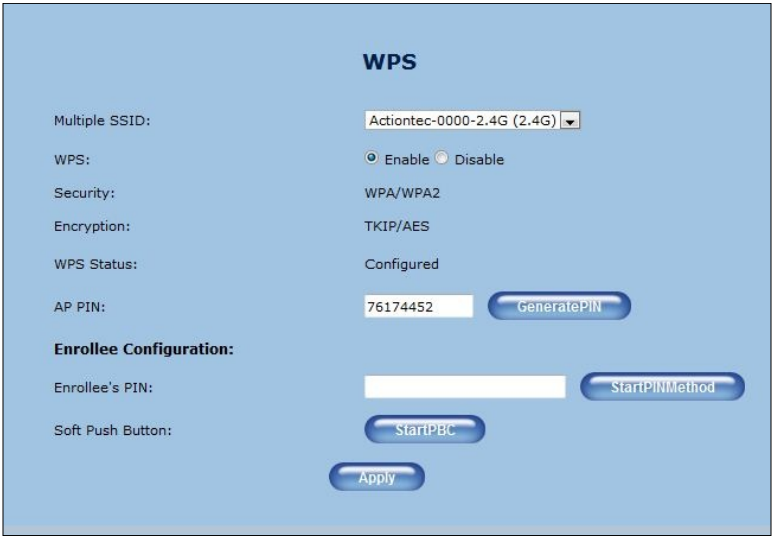
This option allows the user to enter a custom password phrase or value.

Wireless Security

The *Wireless Security* screen allows the user to apply wireless security to the Extender's wireless network. This screen should be accessed by experienced network technicians only.

WPS

The *WPS* screen allows the Extender to accept wireless clients via Wi-Fi Protected Setup (WPS), an automatic wireless network connection protocol. Only experienced network technicians should configure the settings in this screen.



Advanced Wireless Setup

The *Advanced Wireless Setup* screen allows the Extender to be configured with multiple SSIDs.

Wireless Access Control

The *Wireless Access Control* screen contains a number of advanced settings regarding the Extender's wireless network. Only experienced network technicians should configure these settings.

Advanced Setup

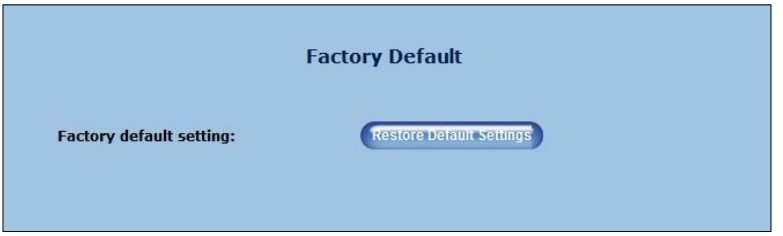
Clicking the *Advanced Setup* icon from any of the Extender's GUI screens generates the *Management* screen, along with other advanced settings accessed through the menu on the left side. These settings configure various administrative aspects of the Extender and its GUI. They should be adjusted by an experienced network technicians only.

Management

The *Management* screen (above) allows the Extender's IP address settings to be modified. Only experienced network technicians should change these settings.

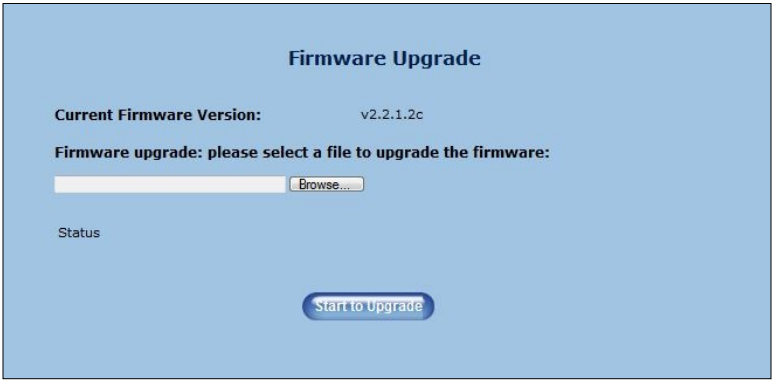
Factory Default

The *Factory Default* advanced setup screen allows the Extender's factory default settings to be reapplied, erasing all current settings. Click **Restore Default Settings** to restore the Extender to its factory default state.



Factory Default

The *Firmware Upgrade* advanced setup screen allows the Extender's firmware to be upgraded. Once the upgrade file has been downloaded and located, click **Start to Upgrade**.



Language

The *Language* advanced setting screen allows the user to apply another language to the Extender's GUI. Select the language from the *Language* drop-down menu, then click **Apply**.

Specifications

Model Number

WCB5000

Wireless

Wi-Fi (a, b, g, n, ac)

WPA, WPA2

WMM

Wi-Fi Protected Setup

IP

Wi-Fi 802.11 a/b/g/n/ac IEEE standard 5GHz/2.4GHz

LAN Connections

Ethernet ports (4): 10/100/1000

Coaxial port (1): MoCA 2.0

LED Indicators

Power, WiFi 2.4 GHz, WiFi 5 GHz, LAN, Coax, WPS

Antennas

2x2: internal 2.4 GHz
2**x2**: internal, 5 GHz

Power

External, 12V DC, 1.5A, made by Ktec, model #KSASB0241200150HU

Regulatory

FCC part 15B and 15C, UL

Environmental

Operating temperature - 0°C to 40°C (32°F to 104°F)

Storage temperature - 0°C to 70°C (32°F to 158°F)

Operating humidity - 10% to 85% non-condensing

Storage humidity - 5% to 95% non-condensing

Altitude: -197 ft. to 7000 ft.

Note: Specifications are subject to change without notice.

Notices

Warranty

This product has a one-year Limited Hardware Warranty and 90-day free software updates from date of purchase.

Local Law

This Limited Warranty Statement gives the customer specific legal rights. The customer may also have other rights which vary from state to state in the United States, from province to province in Canada, and from country to country elsewhere in the world.

To the extent that this Limited Warranty Statement is inconsistent with local law, this Statement shall be deemed modified to be consistent with such local law. Under such local law, certain disclaimers and limitations of this Warranty Statement may not apply to the customer.

Go to http://www.actiontec.com/products/warranty.php for more information.

Important Safety Instructions

This device is restricted to indoor operations only.

Basic safety precautions should always be followed to reduce the risk of fire, electrical shock, and personal injury, including the following:

- Do not use this product near water – for example, near a bathtub, kitchen sink, laundry tub, or swimming pool, or in a wet basement; only clean with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus including amplifiers that produce heat.
- Do not use the telephone to report a gas leak in the vicinity of the leak.
- Use only the power cord indicated in this manual if applicable.

Coaxial Cable

If applicable, the coaxial cable screen shield needs to be connected to the Earth at the building entrance per ANSI/NFPA 70, the National Electrical Code (NEC), in particular Section 820.93, “Grounding of Outer Conductive Shield of a Coaxial Cable,” or in accordance with local regulation

FCC Class B Equipment

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 and correct the interference by implementing one or more of the following measures:

- Reorient or relocate the device;
- Increase the separation between the equipment and receiver;
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected (applicable only to powerline products);
- Consult the dealer or an experience radio or television technician for help.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Actiontec Electronics, Inc., may void the user's authority to operate the equipment.

Declaration of Conformity for Products Marked with the FCC Logo

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;
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

Important Note on WiFi

If applicable, this equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

The radio has been found to be compliant to the requirements set forth in CFR 47 Sections 2.1091, 15.247 (b) (4),15.407 addressing RF Exposure from radio frequency devices as defined in Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields. The equipment should be installed more than 30 cm (~12 in.) from your body or nearby persons.

Only channel 1~11 can be operated for the 2.4 GHz ISM band and channels 36 to 48 and 149-165 for the UNII and ISM Bands. (Channels 52-64 and 100-144 are available if the device is enabled for DFS Band) Channels 124-128 are currently permanently disabled for weather radar. Selection of other channels is not possible.