

Wireless Network Extender

Model # WxB6x40Q

User Guide

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Introduction

The Actiontec WxB6x40Q 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 extends the Wi-Fi signal.

If you would like to use the same Wi-Fi Network Name and Password as your Wi-Fi Router, you can sync them using the WPS buttons on the Router and the Extender. As a result, the Wireless Network Extender will take your router's current Wi-Fi network name and add "-Ext" for the 2.4 GHz frequency and "-Ext-5G" for the 5 GHz frequency. The Wi-Fi password for both the 2.4 GHz and 5 GHz Wi-Fi extender networks will be the same as your existing Wi-Fi router.

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



Features

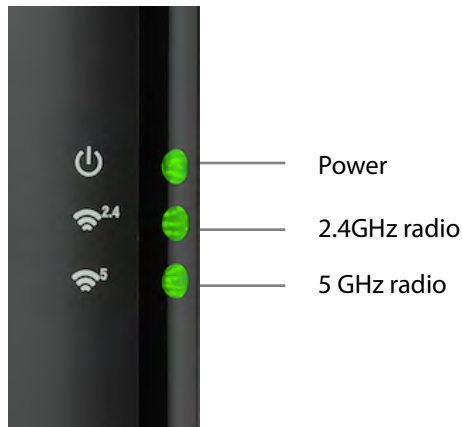
- Fast 802.11ac/n Wi-Fi wherever you need it
- Upgrade to 802.11ac speeds without replacing your router
- Dual band concurrent radio for wireless throughput up to 2 Gbps
 - 4x4 802.11ac 5 GHz solution
 - 2x2 2.4 GHz radio
- Gigabit Ethernet ports
- WPA2, WPA security with AES encryption
- Wi-Fi Protected Setup (WPS)

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, 2A, made by Actiontec, model #NBS24J120200VU) 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, using Bonded MoCA 2.0. (*Available on the WCB6240Q*)
- **Gigabit Ethernet switch:** used for directly connecting the Extender to the gateway/modem.
- **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. Wait until the WPS button on the Extender is glowing green.
4. Press the WPS button on the Extender for ten seconds.
5. Press the WPS button on the gateway/modem for 2-3 seconds.
6. 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.

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 or Ethernet network. To do this:

1. For Coax: Connect the included coaxial cable into the *Coax* port on the rear panel of the Extender. Connect the other end of the coaxial cable into the nearby coaxial outlet. (*25 ft/lbs torque max*)
2. For Ethernet: Connect the included ethernet cable into a *Yellow* port on the rear panel of the Extender. Connect the other end of the ethernet cable into an ethernet port on the back of the Wi-Fi Router.
3. Plug the Extender's power adapter into the *Power* port of the Extender, and the other end into an electrical wall outlet.
4. 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).
5. Wait until the 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.

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. Find the list of devices that are connected to your gateway/modem.
3. 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, as shown below.

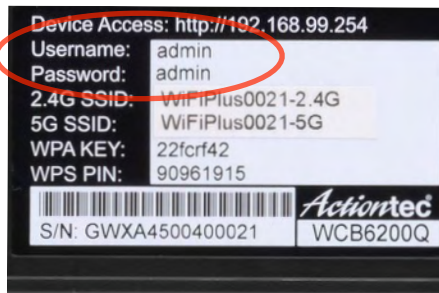


Example

4. Write down the IP address of the Extender.

WxB6x40Q Wireless Network 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; see second figure, below), in the *User Name* and *Password* text boxes in the upper right corner of the *Status* screen.



Example

Accessing the Extender's GUI

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

The screenshot displays the Status screen of the Extender's GUI. The interface features a blue header with four navigation icons: Status, Wireless Setup, MoCA Setup, and Advanced Setup. The main content area is divided into three panels: Wireless Status, Network Stations, and Product Information.

Wireless Status

Wireless Band: 2.4GHz (G+N)

Wireless Radio:	Enabled
Wireless SSID:	WIFI000530
Wireless Security:	WPA2
Wireless Channel:	Auto,11
Wireless MAC:	4C:8B:30:D0:2F:71
Associated Clients:	0

Wireless Band: 5GHz (A+N+AC)

Wireless Radio:	Enabled
Wireless SSID:	WIFI000530-5G
Wireless Security:	WPA2
Wireless Channel:	Auto,161
Wireless MAC:	4C:8B:30:D0:2F:76
Associated Clients:	0

Network Stations

70:11:96:00:05:30	Connected
	192.168.1.1
	Via MoCA
00:50:14:d3:3f:8b	Connected
	192.168.1.99
	Via MoCA

Product Information

Model Number:	WCB6200
FCC ID:	LNQWXB6X00Q
Firmware Version:	1.1.06.24ea
System Up Time:	0day:0h:9m:54s
IP Address:	192.168.1.3
Subnet Mask:	255.255.255.0
Default Gateway:	192.168.1.1

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.



The screenshot displays the Status page of the WxB6x40Q Wireless Network Extender. The page is organized into a header with navigation icons and three main content panels.

Header: Status, Wireless Setup, MoCA Setup, Advanced Setup

Wireless Status

Wireless Band: 2.4GHz (G+N)	
Wireless Radio:	Enabled
Wireless SSID:	WIFI000530
Wireless Security:	WPA2
Wireless Channel:	Auto,11
Wireless MAC:	4C:8B:30:D0:2F:71
Associated Clients:	0

Wireless Band: 5GHz (A+N+AC)	
Wireless Radio:	Enabled
Wireless SSID:	WIFI000530-5G
Wireless Security:	WPA2
Wireless Channel:	Auto,161
Wireless MAC:	4C:8B:30:D0:2F:76
Associated Clients:	0

Network Stations

	70:11:96:00:05:30	Connected	192.168.1.1	Via MoCA
	00:50:b4:d3:3f:8b	Connected	192.168.1.99	Via MoCA

Product Information

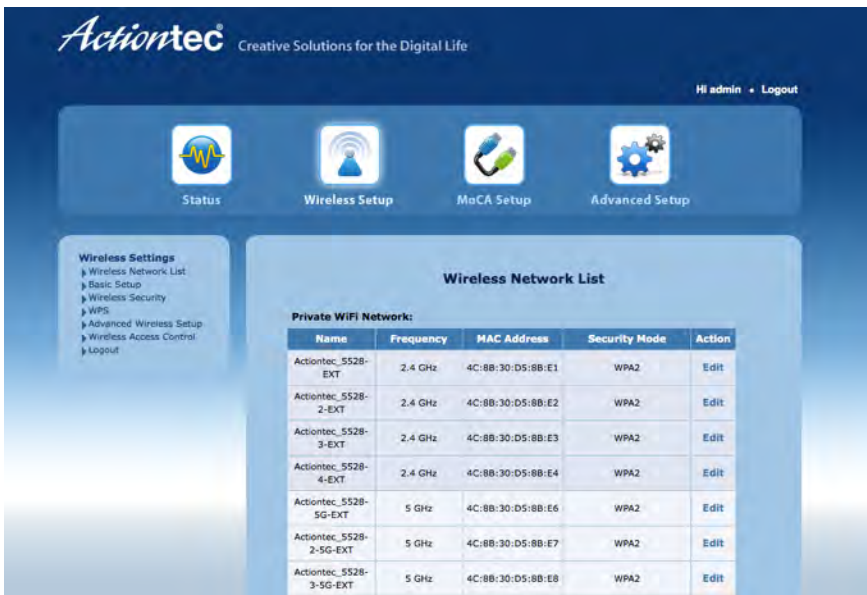
Model Number:	WCB6200
FCC ID:	LNQWXB6X00Q
Firmware Version:	1.1.06.24ea
System Up Time:	0day:0h:9m:54s
IP Address:	192.168.1.3
Subnet Mask:	255.255.255.0
Default Gateway:	192.168.1.1

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.



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Hi admin • Logout

Status Wireless Setup MoCA Setup Advanced Setup

Wireless Settings

- Wireless Network List
- Basic Setup
- Wireless Security
- WPS
- Advanced Wireless Setup
- Wireless Access Control
- Logout

Wireless Network List

Private WiFi Network:

Name	Frequency	MAC Address	Security Mode	Action
Actiontec_5528-EXT	2.4 GHz	4C:8B:30:D5:8B:E1	WPA2	Edit
Actiontec_5528-2-EXT	2.4 GHz	4C:8B:30:D5:8B:E2	WPA2	Edit
Actiontec_5528-3-EXT	2.4 GHz	4C:8B:30:D5:8B:E3	WPA2	Edit
Actiontec_5528-4-EXT	2.4 GHz	4C:8B:30:D5:8B:E4	WPA2	Edit
Actiontec_5528-5G-EXT	5 GHz	4C:8B:30:D5:8B:E6	WPA2	Edit
Actiontec_5528-2-5G-EXT	5 GHz	4C:8B:30:D5:8B:E7	WPA2	Edit
Actiontec_5528-3-5G-EXT	5 GHz	4C:8B:30:D5:8B:E8	WPA2	Edit

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**.



The screenshot shows the 'Basic Setup' configuration page for the wireless network. It features a light blue background and a title 'Basic Setup' at the top center. The settings are as follows:

- Multiple SSID:** Actiontec_5528-EXT (2.4G)
- Wireless radio:** On
- SSID Enable:** On
- SSID Broadcast:** Enable (selected), Disable
- Transmit Power:** 100%
- Wireless Band:** 2.4GHz (G,N)
- Wireless Network Name:** Actiontec_5528-EXT
- Wireless Channel Width:** 20MHZ
- Wireless Channel Number:** Automatic
- Wireless Security Type:** WPA2
- Password Phrase:** npspx39p

An 'Apply' button is located at the bottom center of the form.

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 makes the Extender's wireless network name visible or not.

SSID Broadcast

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.

Transmit Power

This option controls the power of the Extender's wireless radio. We recommend leaving this setting at 100%.

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.

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.

Wireless Security

Multiple SSID: Actiontec-0060-2.4G (2.4G) ▼

Security Settings:

OPEN No Security Applied

WPA Enhanced Security for Personal

MODE: WPA WPA 2 Auto

CYPHER: TKIP AES Auto

PSK Key: tuqrkv52

Apply

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.



The screenshot shows the 'WPS' configuration screen. It features a title 'WPS' at the top center. Below the title, there are several settings: 'Multiple SSID:' with a dropdown menu showing 'Actiontec_5528-EXT (2.4G)'; 'WPS:' with radio buttons for 'Enable' (selected) and 'Disable'; 'Security:' with a dropdown menu showing 'WPA2'; 'Encryption:' with a dropdown menu showing 'AES'; 'WPS Status:' with a dropdown menu showing 'Configured'; and 'Soft Push Button:' with a button labeled 'STARTPBC'. At the bottom, there is an 'Apply' button.

Advanced Wireless Setup

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



The screenshot shows the 'Advanced Wireless Setup' configuration screen. It features a title 'Advanced Wireless Setup' at the top center. Below the title, there are two settings: 'Multiple SSID:' with a dropdown menu showing 'Actiontec_5528-EXT (2.4G)'; and 'Beacon Interval:' with a text input field containing '100' and a range '(20-1024 ms)'. At the bottom, there is an 'Apply' button.

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.

Wireless Access Control

Multiple SSID:

Wireless Access Control Mode:

MAC Address:

Current Access Control List:

Multiple SSID	Access	MAC Address	Remove
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MoCA Setup (Optional)

Clicking the *MoCA Setup* icon from any of the Extender's GUI screens generates the *MoCA Coax Setup* screen. The settings in this screen allow the user to configure various options for the Extender's coaxial connection. They should be adjusted by an experienced network technicians only.



The screenshot shows the 'MoCA Coax Setup' configuration page. It features a light blue background and a title 'MoCA Coax Setup' at the top center. The settings are listed on the left, and their current values or controls are on the right:

- Status: Connected
- Channel: Automatic (dropdown menu)
- Beacon Power Reduction(dB): 9 (dropdown menu)
- Network Controller: Enable Disable
- MoCA Privacy: Enable Disable
- Network Password: [masked with dots] 12 Digits Min, 17 Digits Max
- Show Network Password:
- Network Controller MAC: 70:F1:96:00:05:30
- MoCA Link Status: [View](#) (button)

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.



Firmware Restore

The *Firmware Restore* screen lists the active and backup firmware versions available on the Extender. Click **Swap Firmware** to switch the active firmware to the backup firmware, and vice versa.



Firmware Auto Upgrade

The *Firmware Auto Upgrade* screen allows the user to designate a web link that the Extender checks periodically for firmware upgrades. To use, click on the *Enable* button to activate, enter the appropriate web address in the *Check URL* text box, then click *Apply*.



Firmware Upgrade

Actiontec periodically posts firmware upgrades that may include enhancements and/or bug fixes for the Extender. To upgrade the Extender's firmware:

1. Go to <http://www.actiontec.com/support/> to discover the latest firmware available for the Extender. If the version is the same as the current version applied to the Extender, there is no need to upgrade the firmware. If the online version is newer, download it to a notebook computer.
2. Make sure that this computer is connected to the Extender via Ethernet.
3. Locate the firmware file by clicking **Browse**.

Specifications

Model Number

WxB6x40Q

Protocol/Standards/Support

Wireless IEEE 802.11ac

Ethernet IEEE 802.3/802.3u/802.3ab 10/100/1000 Base-T

MoCA 1.0/1.1/2.0 (optional)

LAN Interfaces

Four 10/100/1000 Ethernet

One MoCA 2.0 bonded Coaxial Jack (*optional*)

LED Indicators

Power, Wi-Fi 2.4 GHz, Wi-Fi 5 GHz

Antennas

2x2: internal 2.4 GHz

4x4: internal, 5 GHz

Power Adapter

Input 100-240VAC @ 0.6A

Output 12Vdc @ 2A

Made by Actiontec, model #NBS24J120200VU

Regulatory

FCC 15B, 15C

UL, K.21

Wi-Fi, WPS

MoCA

RoHS

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.

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

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 experienced 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 Wi-Fi

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.

For product available in the USA market, only channel 1~11 can be operated. Selection of other channels is not possible.

The device could automatically discontinue transmission in case of absence of information to transmit, or operational failure. Note that this is not intended to prohibit transmission of control or signaling information or the use of repetitive codes where required by the technology.

The device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems.

The maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.

Notices

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

Contact Information

For questions regarding your product or the FCC declaration, contact:

Actiontec Electronics, Inc

760 North Mary Avenue, Sunnyvale, CA 94085, United States

Tel: (408) 752-7700 Fax: (408) 541-9003

Technical Support

Go to www.actiontec.com/support for product support, updates, and more information including:

- Firmware updates
- Troubleshooting
- Registration
- FAQs

Technical Support Phone Number

United States: 1-888-436-0657