

# User Manual

## Wireless 802.11 a/b/g/n Module

### Chapter 1: Product Overview

**AzureWave Technologies, Inc.** introduces the advanced **IEEE 802.11a/b/g/n 2x2 dual-band WLAN USB 2.0** module - **AW-NU231**. The module supports both 2.4GHz and 5GHz bands and Multiple Input Multiple Output (MIMO) technology. With MIMO, information is simultaneously sent and received over two antennas in the same frequency band, thus providing greater range and increased throughput while maintaining compatibility with legacy IEEE 802.11a/b/g devices. By using AW-NU231, the customers can easily enable the development of USB 2.0-based Draft-802.11n WLAN client and router subsystem solutions for all WLAN markets that can take advantage of the high throughput and extended range of MIMO.

In Compliance with the IEEE 802.11a/b/g/n standard, the AW-NU231 uses Direct Sequence Spread Spectrum (**DSSS**), orthogonal frequency division multiplexing (**OFDM**), **DBPSK**, **DQPSK**, **CCK** and **QAM** baseband modulation technologies. A high level of integration and full implementation of the power management functions specified in the IEEE 802.11 standard minimize the system power requirements. By using AW-NU231, state-of-the-art security is provided by industry standard system support for **WPA**, **WPA2**, and hardware accelerated **AES** encryption/decryption coupled with **TKIP** and **IEEE 802.1X** support. Embedded hardware acceleration enhances system performance and significantly reduces host-CPU utilization in both client and access point configurations. The AW-NU231 also supports Broadcom's widely accepted and deployed **SecureEasySetup™ (SES)** application for ease-of-use wireless secured networks.

The AW-NU231 module adopts Broadcom's latest Draft-802.11n-based chip, **BCM4323**, innovations designed to increase WLAN system performance and extend range using MIMO technology. The module integrates two dual-band antennas which are used for 2x2 MIMO and supports 2-stream spatial multiplexing up to 300Mbps.

## Chapter 2: Installation

This chapter describes the procedure for installing the NU231

To install the module:

- 1 Insert the CD into your CD-ROM drive



- 2 Click Set up your NU231

If you do not see this, access setup on the CD directly To do so, perform the following steps for your specific operating system:

### Windows 7

- a Go to Start > Computer
- b Double-click your CD-ROM drive

### Windows Vista

- a Go to Start > Computer
- b Double-click your CD-ROM drive

### Windows XP

- a Go to Start > My Computer and select your CD-ROM drive
- b Double-click Setup.exe

- 3 Read the Software End User License Agreement To accept the agreement and continue with the installation, click Next



License Agreement



7 If your network does not use wireless security, go to step 9

If your network uses wireless security, enter the wireless password for your type of security:

•E Wired Equivalent Privacy (WEP): Enter the WEP key

•E Wi-Fi Protected Access ( WPA/WPA2): Enter the passphrase (also known as a pre-shared key) Click Next Go to step 9



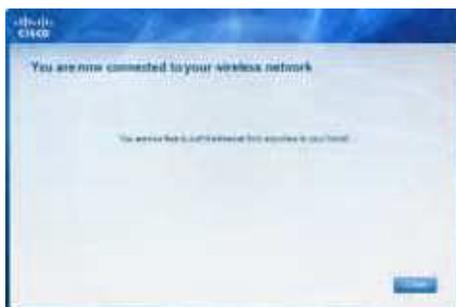
Enter the Wireless Password

8 Follow the on-screen prompts to use your Easy Setup Key Click Next



Insert your Easy Setup Key

9 The installation is complete Click Close



You are Now Connected to Your Wireless Network

**NOTE: If you have any problems during the installation process, refer to the Frequently Asked Questions in the setup software**

## Chapter 3: Wireless Network Configuration

To configure the module's wireless connection settings, use a wireless network installed such a utility on your computer, or if your configuration utility. If you have computer came with one already installed, refer to that utility's documentation for instructions on use. Otherwise, follow the instructions in the appropriate section below to use your operating system's built-in utility: Windows 7,

### Windows 7

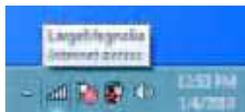
After you have installed the module, the Wireless Network Configuration utility icon appears on your computer's system tray.

After you have installed the module, the Wireless Network Configuration utility icon appears on your computer's



Wireless Network Configuration Utility Icon

(If you do not see the icon, click the Show hidden icons arrow in the system tray.) When your mouse pointer hovers over the icon, the status information of your wireless connection appears.



Wireless Connection Status

### New Wireless Connection

To connect to a different wireless network:

1. Click the Wireless Network Configuration utility icon. A list of available wireless networks appears.



Available Wireless Networks

2 Select your network, and then click Connect



Select Network

3 If your network does not use wireless security, go to step 5

4 Enter the security key, Wired Equivalent Privacy (WEP) key, or Wi-Fi Protected Access (WPA/WPA2) passphrase (also known as a pre-shared key), depending on your type of security  
Click OK



Secured Network

5 This screen appears while the module connects to your network. Do not cancel, unless you want to end the connection.



Connecting to Network

**NOTE:** For help with the Wireless Network Configuration utility, refer to [Help and Support](#). Click **Start > Help and Support**.



**Your computer is now connected to your wireless network.**

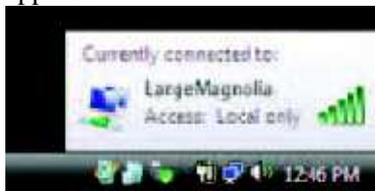
## Windows Vista

After you have installed the module, the Wireless Network Configuration utility icon appears on your computer's system tray.



Wireless Network Configuration Utility Icon

When your mouse pointer hovers over the icon, the status information of your wireless connection appears.

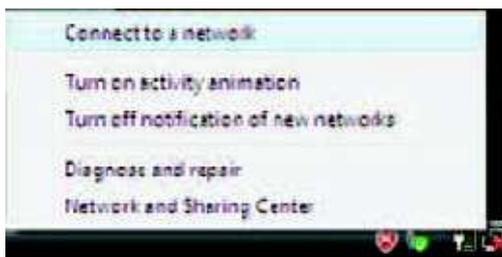


Wireless Connection Status

## New Wireless Connection

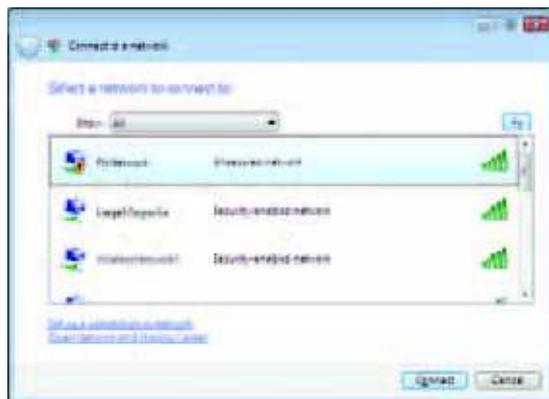
To connect to a different wireless network:

- 1 Right-click the Wireless Network Configuration utility icon.
- 2 Click **Connect to a network**.



Utility Menu

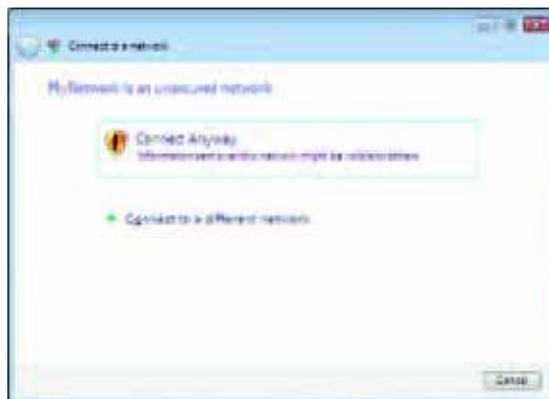
3 Select your network, and then click Connect



Select Network

4 If your network uses wireless security, go to step 5

If your network does not use wireless security, this screen appears To connect to your unsecured network, click Connect Anyway and go to step 7



Unsecured Network

5 Enter the security key, Wired Equivalent Privacy (WEP) key, or Wi-Fi Protected Access (WPA/WPA2) passphrase (also known as a pre-shared key), depending on your type of security Click Connect



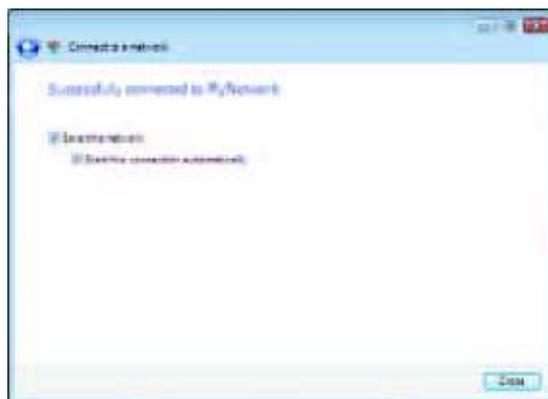
Secured Network

6 This screen appears while the module connects to your network Do not cancel, unless you want to end the installation



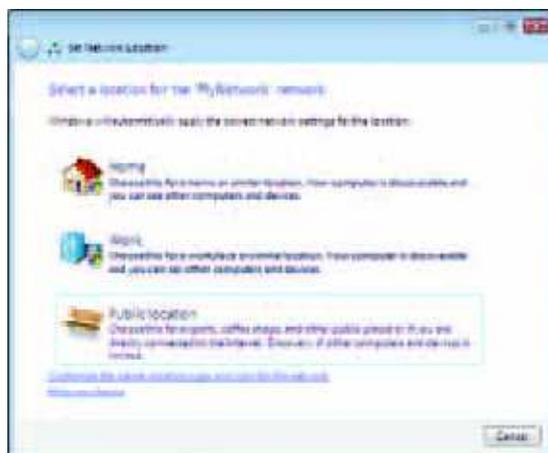
Connecting to Network

7 This screen appears when you are connected to your network Select Save this network, if you want to save your settings Click Close



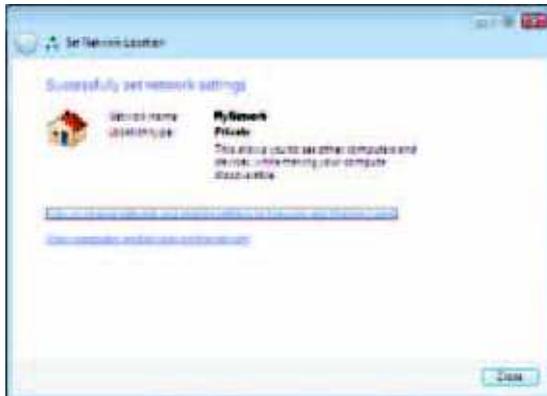
Connected to Network

8 The Set Network Location screen may appear This screen helps apply the correct settings for your type of location Select Home, Work, or Public location



Select Network Location

9 This screen varies according to the selected location Click Close



Network Settings Saved

**NOTE: For help with the Wireless Network Configuration utility, refer to Help and Support Click Start > Help and Support**



**Your computer is now connected to your wireless network.**

## Windows XP

After you have installed the module, the Windows XP Wireless Zero Configuration Utility icon appears on your computer's system tray



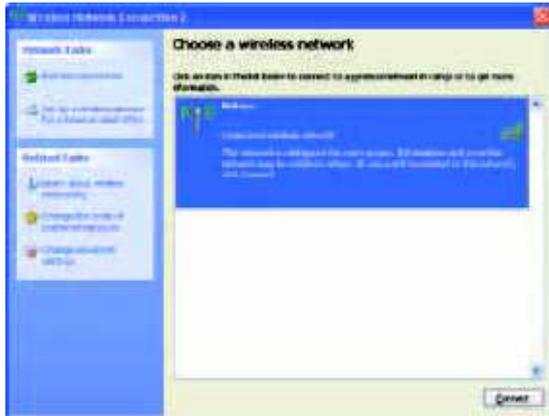
Wireless Zero Configuration Utility Icon

When your mouse pointer hovers over the icon, the status information of your wireless connection appears



## New Wireless Connection

- 1 Right-click the Windows XP Wireless Zero Configuration icon in your computer's system tray, and then select **View Available Wireless Networks**
- 2 A window displays the available wireless networks continue to Select the network that you want and click Connect If the network uses wireless security, go to step 4 Otherwise, continue to step 3



Available Wireless Network

- 3 Click Connect Anyway to connect the module to your unsecured network, and then go to step 5



No Wireless Security

- 4 If your network uses Wired Equivalent Privacy (WEP) wireless security, enter the WEP Key in the Network key and Confirm network key fields. If your network uses Wi-Fi Protected Access (WPA/WPA2) wireless security, enter the passphrase in the Network key and Confirm network key fields. Click Connect



Wireless Security

**NOTE: Windows XP Wireless Zero Configuration does not support the use of a WEP passphrase. Enter the exact WEP key used by your wireless router or access point.**

**NOTE: If your network is using WPA2 security, make sure that you have installed the Update for Windows XP (KB893357), available at [www.microsoft.com](http://www.microsoft.com)**

5 Your wireless network will appear as Connected when your connection is active



Wireless Network Connection

**NOTE:** For help with the Wireless Network Configuration utility, refer to Help and Support Click Start > Help and Support Enter wireless in the Search field, and then press Enter

**Your computer is now connected to your wireless network.**

### **Federal Communication Commission Interference 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.

For operation within 5.15 ~ 5.25GHz frequency range, it is restricted to indoor environment.

### **IMPORTANT NOTE:**

#### **FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna,
- 3) For all products market in US, OEM has to limit the operation channels in CH1 to CH11 for 2.4G band by supplied firmware programming tool. OEM shall not supply any tool or info to the end-user regarding to Regulatory Domain change.

As long as 3 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

**IMPORTANT NOTE:** In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

#### **End Product Labeling**

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains FCC ID: TLZ-AWNU231".

#### **Manual Information To the End User**

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.