

NEULOG WiFi COMMUNICATION MODULE GUIDE



NeuLog WiFi communication module WiFi-201 Part# NL-2005

The WiFi module is without a doubt one of the most advanced and innovative elements that NeuLog has to offer. Data collection and analysis with NeuLog sensors can be performed through any device which has wireless capabilities such as iPads, Android tablets, smartphones, Windows, Mac, and Linux based computers. The WiFi module can seamlessly transform group projects by connecting up to 5 devices onto the wireless network at a single time – promoting interaction and allowing each member to have their own dataset.

There is no downloaded application or software installation as they are built directly into the WiFi module which transmits its own closed wireless network. This means that you do not need your own wireless network – though if you have one, a simple setting can be changed on the WiFi module to allow surfing of the web at the same time!

All current popular browsing programs can be used with the WiFi module to allow you to use whichever browser you and your students feel most comfortable with.

Using the NeuLog WiFi module:

The NeuLog WiFi module is a very advanced piece of equipment; having capability to transmit its own wireless network as well record data from up to 5 NeuLog sensors at a time.

The NeuLog WiFi module can be powered by the NeuLog battery module or by a USB power source.

It also can be used as a USB module when it is connected to a PC or Mac and under local NeuLog software.

You'll notice that on the front of the WiFi-201 module there are four LED lights labeled A, C, T, and U.

A (Access Point): (blue LED) When the blue LED is the only light on, the WiFi module is in Access Point mode (described below) and is transmitting a closed wireless network which you can connect devices to.

C (Client Mode): (green LED) When the green LED is the only light on, the WiFi module is in Client Mode (described below) and allows your wireless devices to control sensors through the website www.WiFi201.com as well as browse the internet.

T: (Transmission): (red LED) The red LED will blink when there is active communication between any connected sensors and the computer or smart device.

U (USB module): (yellow LED) The yellow LED will remain lit when the WiFi module is working in USB mode (detailed below). USB mode can be turned on and off by pressing the button on the front of the WiFi module three times.

Materials needed:

- Battery module or USB to micro USB cord (as a power source)
- Any NeuLog sensor
- NeuLog WiFi module
- Any device with wireless capabilities.

NEULOG WIFI COMMUNICATION MODULE GUIDE



Control and view modes:

When multiple users are connected to the WiFi module's network; one user at a time can enter "control mode" the others users will be defaulted to "view mode".

Control mode

Entering control mode allows that user to manipulate the experimental parameters and begin data collection using the web application – this prevents multiple users from all trying to change the experiment at once.

To leave control mode, simply click the "Tools" icon and then the "Release master" button.

View mode

In view mode; users have almost full access to the web application – only lacking the ability to manipulate data and start/stop experiments. Users in view mode have the full ability to view data in real time.

Important:

In the event that anyone used the WiFi module as the controller and forgot to disconnect from it, the WiFi module will not allow any other user to connect to the WiFi module as a controller until it is restarted.

In order to allow another controller to access the WiFi module, press and hold the push button located on the front panel of the WiFi module for 3 seconds until all 3 lights turn on – this will refresh the module resetting it back to having no users in "Control Mode".

Access point mode use:

Access point mode is the default operating mode for the the NeuLog WiFi module – it transmits it's own closed wireless network which allows up to 5 devices to connect to it at a time. No prior wireless networks are required, making this option both very portable and unique. Because the network is closed; you will not be able to browse the internet, if you wish to browse the internet while using the WiFi module please locate the "Client Mode" procedural guide in this manual. Connect up to 5 NeuLog sensors directly to the left side of the WiFi-201 module (no wires required).

1. Connect either a BAT-200 or a USB to micro USB cable connected to a power source, to the WiFi-201 module to supply power.
2. The WiFi-201 indicator lights will flash; take no action until the LED to the far left turns blue.
3. Take your tablet or smart phone and go to the Wi-Fi settings and select the NeuLog network which matches the WiFi module ID found on the back of the WiFi-201 device (NeuLog1334 for example).
4. Once the device is connected go to your browser and type in the website wifi201.com into the URL bar, then wait for 30-60 seconds.
5. Note: Only one device can be in control mode at a time, the remaining devices must be in "View mode" but switching between them is both possible and very easy. Control mode allows the user to change experimental parameters and both start and stop data collection. View mode allows the user to view the data being recorded.
6. The browser will then load a new screen and begin to auto detect the sensors, this can take a minute.

NEULOG WIFI COMMUNICATION MODULE GUIDE



7. Once the sensors are found you will see an icon on the left side of the screen for any detected sensors. The icon will display data in real time.
8. To set the sensors' settings click on each sensor's icon.
9. To change the experimental settings click the "Run experiment" icon (experiment duration for example).
10. To run an experiment and collect data click "Record".

Client mode use:

If you have a wireless network and wish to browse the internet while using the NeuLog WiFi module; you can use client mode to connect the WiFi module to your local internet. By default the WiFi module starts in "Access point mode" but can easily be changed to "Client mode".

Note: Before following this procedural guide you must configure your WiFi module using the "Access Point Mode" guide above. Access point mode is most commonly used.

1. Configure your WiFi module as per the "Access point mode" guide in this document.
2. Using your connected device, locate and click the "Tools" icon on the top of the NeuLog web application window in your browser.
3. Click on "WiFi options"
4. Input your local internet connection's name and password in their respective text fields and click on "Connect" , This step attempts to connect the NeuLog WiFi module directly to your local wireless network allowing you to browse the internet.

Note:

During this time the green light on the WiFi module will flash. In the event that the NeuLog site could not be accessed the blue

light will turn back on and the WiFi module will return to access point mode.

5. If connection to the NeuLog site is successful; you will be disconnected from the NeuLog closed wireless network (i.e. NeuLog1334) and the green light on the WiFi module will remain on.
6. At this point you must connect to your local wireless connection (the information you put into the "Client Mode" boxes).
7. On the new screen you get, click the Connect button to reconnect the browser to the wifi201 module
8. You will now be in client mode with the ability to browse the internet using your smart device.
- 9.

When connecting additional wireless devices (up to 5 total) simply type the address "Wifi201.com" into your device's internet browser bar. A prompt will ask for the wifi201 ID, this is the digit code located on the back of the WiFi module. Click "Connect" and now you will be able to access the NeuLog software broadcast from the WiFi module.

The next time the WiFi module is turned on it will again attempt to enter client mode by connecting to the same wireless connection. If the connection fails; the WiFi module will restart back in access point mode.

NEULOG WIFI COMMUNICATION MODULE GUIDE



Using the WiFi-201 in USB mode:

USB mode allows you to use your WiFi module as if it were a NeuLog USB-200. This requires a computer which has the NeuLog software (available as a free download on www.NeuLog.com).

By connecting the WiFi module to your sensors and computer via the included USB to micro USB cable, you are able to stream data directly from your sensors to the NeuLog browser based application.

To enter USB Mode:

1. Download and install the NeuLog browser based application onto the computer which you plan on using.
The application can be downloaded for free at www.NeuLog.com as well as a full application user guide. Choose "Downloads" on the main menu and then choose "Software and Application".
2. Connect the WiFi module to the computer with the NeuLog application using the included USB to micro USB cable, you'll see the LED lights blink for a moment while the module powers on.
3. Connect your NeuLog sensors to the side of the WiFi module, the red LED on each sensor should blink to acknowledge they are working properly.
4. Press the button located on the front panel of the WiFi module three times, the yellow LED labeled 'U' should turn on.
5. Open the NeuLog application.
6. Your connected sensors will automatically be detected.
7. Once your sensors are detected, you can begin experimenting in USB mode!
Note: To switch back to Access Point mode from USB mode, press the button on the WiFi module faceplate three times again.

Troubleshooting walkthrough:

Due to the technological complexity of the NeuLog WiFi-201 module and the ever updating software and hardware found on today's wireless devices, it is possible that you may run into some performance issues while the unit is communicating with your wireless device. Luckily, for these circumstances the NeuLog WiFi module can easily be cleared and updated!

If you are noticing that the performance of your NeuLog WiFi-201 module is acting sporadic please follow the guides below:

Restarting the WiFi module

Restarting the WiFi module will often clear up any connectivity issues you may be having and is an extremely easy process.

1. Connect the WiFi module to a power source – this can be either a charged BAT-200 or directly to your computer using the USB to micro USB cable.
2. The LED lights on the WiFi module will turn on to indicate that it is now being powered.
3. Note: You do NOT need to wait for the network to be transmitted at this point.
4. Once the WiFi module is powered, simply press and hold the button on the front panel of the WiFi module for roughly 4 seconds (until the green, red, and blue turn on).
5. When the blue LED is the only light on, the closed wireless network is being transmitted and you can connect devices as usual.
6. If the behavior of the WiFi module is still sporadic please continue to the **Updating the WiFi** module's firmware walkthrough below.

NEULOG WIFI COMMUNICATION MODULE GUIDE



Updating your Wifi module's firmware

If restarting your NeuLog WiFi module didn't solve the WiFi module's performance issues, please update your WiFi module firmware as per the guide below.

Firmware updates for the NeuLog WiFi module are regularly released to the NeuLog website www.NeuLog.com. Choose "Downloads" on the main menu and then choose "Upgrade firmware".

It is recommended to check back often for the latest releases. Note: A full WiFi firmware update walkthrough is also available on the website listed above.

Materials Needed

- A computer with wireless capability running a Windows operating system
 - WiFi-201 module + USB to micro USB cable
1. Download the latest NeuLog WiFi firmware update from the NeuLog website.
 2. Install the NeuLog WIFI-201 firmware updater.
 3. Power your WIFI-201 module by connecting a charged BAT-200 or through connection to your computer using the included USB to micro USB cable.
 4. After a few moments when only the blue LED light remains on – the wireless network (NeuLog1334 for example) is being transmitted.
 5. Open your computers wireless connection settings and connect to the NeuLogXXXX wireless network.

Note: You may get a notification that you now have a "limited" connection – this is OK as it simply means you don't have access to the internet.

6. Open the WiFi firmware updater, titled "wifi201 update" from your desktop (the file you downloaded and installed in step 1).
7. A small window will open. Press Start. The updater will run automatically and will take about five minutes.
8. When the firmware update is complete (you will see the word "Status: Update finish OK" on the bottom of the window) you can close the window, and power cycle the WiFi module by unplugging it from your power source.
9. Your WiFi module is now up to date!
10. You can verify it by checking the version on the "About NeuLog" icon (after entering WiFi201.com).

If problems with your NeuLog WIFI-201 module continue to persist, please contact NeuLog for additional assistance (at info@neulog.com).

Included in package:

- NeuLog WIFI-201 module
- USB to micro USB cable.
- NeuLog General Guide

Maintenance and storage:

- Never submerge the NeuLog plastic body in any liquid.
- After use, gently wipe away any foreign material from the WiFi module.
- Store in a box at room temperature out of direct sunlight.

NEULOG WIFI COMMUNICATION MODULE GUIDE



Warranty:

We promise to deliver our module free of defects in materials and workmanship for a period of 3 years from the date of purchase. Our warranty does not cover damage of the product caused by improper use, abuse, or incorrect storage. Sensors with a shelf life such as ion selective probes have a warranty of 1 year. Should you need to act upon the warranty please contact your distributor. Your module will be repaired or replaced.

Thank you for using NeuLog!

NeuLog 

Distributed by:

 **ARBOR SCIENTIFIC**
TOOLS THAT TEACH.

W: www.arborsci.com
E: mail@arborsci.com
P: 1.800.367.6695