Thank you for hosting an AQ&U air quality sensor! This guide will walk you through the installation steps for finding a home for your sensor, connecting it to your wifi, and registering it with our data collection server hosted at the University of Utah. We expect this process to take less than 20 minutes.

If any of the steps are not successful, or if you have questions about the process you can reach out to our team at contact-aqandu@sci.utah.edu with your name, phone number, and a window of time we may call you. We will attempt to get in touch with you within 24 hours.

We will be periodically updating this guide as we refine the installation process. You can find the most up-to-date guide at https://www.AQandU.org/airu_sensor

0. What’s in the box

Your box should contain the following items:
- AirU sensor
- 2 x zip ties
- Black power cord

On the back of the AirU are several stickers. The two with number are unique identifiers for your sensor. The 12-character code is the board’s MAC address -- this identifier is important for connecting the sensor to your home wifi network. The S-A-XXX is the identifier of the particulate matter sensor, and is important for identifying your sensor measurements in the visualization at https://www.AQandU.org/.

Inside of the AirU sensor housing is a small computer board (red) that has all the electronics necessary to power and run the attached particulate matter sensor (black). We recommend that you do not open the housing to avoid severing the connection between the board and the sensor.
1. Find a home for your sensor

Your sensor needs a few things in order to operate properly. The sensor should be located in a spot that is:

- Outside;
- Protected from the elements, such as under an overhang or porch;
- At least 4 ft above the ground;
- Has unobstructed airflow to the sensor;
- Away from any kitchen exhaust or dryer vents;
- Within reach of a power outlet;
- Within reach of a wifi connection (you can check this by seeing if your laptop or phone can detect your home wifi signal at the location).

There are several ways to secure your sensor at your chosen location. Two examples are shown below. You could also place your sensor on a table or any other raised surface with the AirU label pointed upwards as long as it is affixed to the surface. It weighs approximately 0.5 lb and could easily be blown or knocked over.
2. Gather installation supplies

You’ll need any supplies for placing, attaching or mounting your sensor at your chosen outdoor location, including an extension cord if necessary for reaching a power outlet.

Additionally, to register your sensor with our data collection server you’ll need:
- Your home wifi network name (SSID) and password
- A web-enabled device such as a laptop, tablet, or smartphone. Note that this guide supports registration using a Mac or Windows laptop, iPad, or iPhone only. If using a Windows laptop, you will need to install iTunes.

3. Power up the sensor

If the black power cord that comes with your sensor is not already connected to the sensor, then do so by inserting the micro USB end into the board power connector through the hole on the bottom-right of the housing, as shown in the photo on the right.

Plug the power cord into your power supply. If the board is powered on successfully then you should see a glow on the housing from a red or orange LED light on the board. If this light does not come on, then contact us at contact-aqandu@sci.utah.edu.

You can leave the sensor outside and head back indoors if necessary. Make sure to stay rather close to the sensor because, for the next step, you’ll need to connect your web-enabled device to the sensor.

4. Register your sensor

NOTE: If you are doing this registration step with a Windows laptop you will first need to install iTunes if you do not already have this application installed. This is necessary because iTunes is the easiest way to install a specific library required by many Internet of Things devices (like the AirU sensors). Visit https://www.apple.com/itunes/download/ to download iTunes.
**NOTE:** You need a 2.4GHz wifi network. Our sensor will not work with the 5Ghz wifi networks.

On your wifi enabled device, go to your list of available wifi networks. The screenshots on the next page show how to do this on a Mac laptop, a Windows laptop, and an iPhone.

Select the network **AirU-XXXX**, where the X’s are the last four numbers and letters of your board’s MAC address (see Step 0). This will connect your web-enabled device to the sensor. When prompted to input a password, use:

cleantheair

Next, open a browser window and in the address bar type **http://airu.local** and hit return.

If **http://airu.local** does not work, try **192.168.1.1** and hit return.

This will point your browser to the connection web page stored on the AirU sensor.

*Note: we’ve tested these steps on Safari, Google Chrome, and Firefox.*
The page shown to the right should appear. Select your home wifi Network Name (SSID) if it appears in the drop-down menu. If that is not the case, enter your SSID (case-sensitive) in the input field labeled Network Name (SSID). Then, add your Password. You can check the correctness of your Password by checking the box Show Password. When SSID and Password are entered press the grey CONNECT button. If for some reason you need to start fresh press the button labeled RESET FORM beside the SSID drop-down menu.

At this point, your sensor will reboot and try to connect to your home wifi network. This can take up to a minute.

If your sensor successfully connects, then three things will happen:
- Your web-enabled device will automatically connect back onto your home wifi network, which you can check by going back to your list of available networks and seeing if you are connected to your home wifi network.
- Your browser should have reloaded the http://airu.local page and you should see the registration page.
- You will see a solid green LED light through the bottom hole of the sensor housing -- if this light is flashing then your sensor is not connected to your home wifi network.

If you enter incorrect credentials (SSID or password) for your home wifi network credentials it should reload the connect page. There will be a message in red saying “Please verify your credentials”. Please retype/select the correct credentials and then press the grey CONNECT button.

If the page seems stuck be patient and give it 20-30 seconds more. If still nothing happens, first check if your web-enabled device has connected back to your home wifi network. If not, manually select your home wifi network. If your web-enabled device has connected back to your home wifi, then wait 20-30 seconds. If http://airu.local has not reloaded by then, you may reload the page manually.

If your sensor is still unsuccessful in connecting to your home wifi network, contact us at contact-aqandu@sci.utah.edu.
With your sensor now connected to your home wifi network, the next step is to register it with the AQ&U data collection server. The registration page (shown on the next page) should load automatically if all previous steps have been successful. This page shows two text boxes along with a radio button. You need to at least fill in one of the two text boxes which are used to send you the confirmation of a successful registration. The first text box is for your phone number to receive a text message. The second text box is for your email address to receive an email.

The radio button at the bottom is for you to decide if you agree to show your sensor as a dot on our map on the AQandU.org website. To finish the registration press the grey REGISTER button.

If your sensor registers successfully, you will receive a text message and/or an email confirmation from aqandu@sci.utah.edu depending on you choices within a few minutes. If you do not receive this email or text message, please contact us at contact-aqandu@sci.utah.edu.

Congratulations! Your sensor is now measuring your local air quality and sending the measurements to the AQ&U data collection servers at the University of Utah.

5. Mount your sensor
Finish securing your sensor to its outside location.

6. Check your sensor’s measurements
With your sensor successfully registered with the data collection server, the data measured by your sensor will be accessible on the visualization at AQandU.org (shown
on next page). Visit this webpage and look for your sensor on the map. *NOTE: It can take a while for the GPS on the board to get a signal. Up to 15 minutes is reasonable. It might take double or triple (or even longer) that time if the sensor is under a deep or thick overhang. Therefore, do not expect to see the sensor to come up immediately on the map.* Hovering over the dots shows the unique particulate matter identifiers for each sensor registered with the server (see Step 0). Click on the dot near your sensor’s location with the sensor identifier that matches the number on the back of your sensor housing. This will trigger a visualization below the map that shows the measurements collected by your sensor over time.

7. If you need to return your sensor

If you need to return your sensor because it is damaged, or because you no longer wish to host it, please contact us at contact-agandu@sci.utah.edu. We will email you a prepaid return shipping label. Just package up the sensor in the original box, seal it, and place the box in your mailbox with the return shipping label attached.