



OUTDOOR AIR QUALITY MONITORING

PurpleAir Installation Instructions

March 2025

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ACKNOWLEDGEMENTS

Before Canada and BC were formed, Indigenous peoples lived in balance and interconnectedness with the land and water in which the necessities of life are provided. Health disparities persist, which are due to the impacts of colonization and Indigenous-specific racism. Healthy lands, healthy people. Island Health acknowledges and recognizes these homelands and the stewardship of Indigenous peoples of this land; it is with humility we continue to work toward building our relationship.

We also thank the First Nations Health Authority Environmental Health Team for sharing the resources used to develop these materials and their previous work in establishing air quality monitors throughout BC.

1. INTRODUCTION

As a result of climate change, communities across British Columbia (BC) are experiencing more frequent wildfire smoke events. Smoke exposure not only impacts one's physical health, but can also impact the mental, emotional, and spiritual well-being of individuals and communities. Woodstove smoke also impacts outdoor air quality during the winter heating season.

Although we cannot avoid future smoke exposure, we can empower community members to respond to these events. A first step to achieve this is to have access to localized air quality data. Being able to see and understand the rapid changes in outdoor air quality allows us to learn our body's response to smoke and can be very useful for planning daily activities. Localized air quality data also helps communities to understand what may be impacting local air quality and design programs or policies to improve regional air quality.

This package describes how to initialize, register, and finally install your PurpleAir sensor. Once complete, your sensor will begin reporting data immediately.

1 UNBOXING

You will receive a package containing the following:

- a. A white sensor in a cardboard sleeve
- b. A box with a power supply, three zip ties, and a screw.

To set up, you will need:

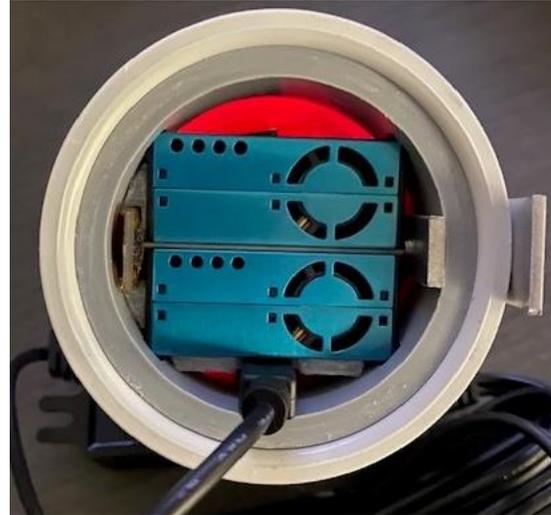
- a. A laptop or cell phone.
- b. A ladder and a screwdriver
- c. You may also need an extension cord and black electrical tape to see the connection



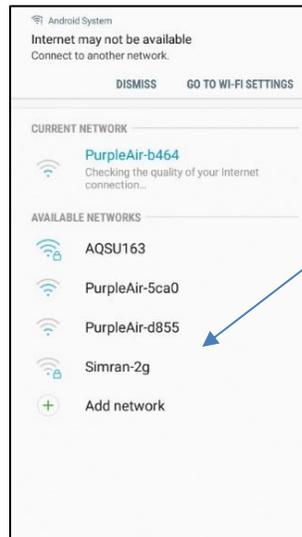
2 INITIALIZING YOUR SENSOR

Before installing outside, we have to power up the sensor inside and get it connected to your Wi-fi network:

- a. Unbox your sensor and connect the power cord. A red light will turn on and the sensor will start emitting a WiFi signal.

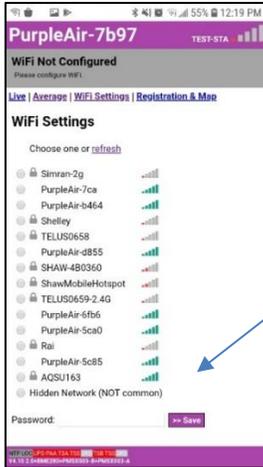


- b. On your smartphone or computer, go to Settings → Connections → WiFi
- c. Click on the sensor name (e.g., PurpleAir.xxxx) under your available WI-Fi connections.
- d. You should be automatically redirected to the PurpleAir Wi-Fi configuration page. If it doesn't connect, you may have to go to <http://192.168.4.1> to connect the air monitor to your Wi-Fi network (on older sensors).



Choose your PurpleAir to connect to. *Note you are not actually on a network but talking to the actual instrument

- e. A list of Wi-Fi sources should show up, including your Wi-Fi network. Select your Wi-Fi network from the list and enter your network Wi-Fi password in the space below. Then select Save.



Select your internet connection from the list and type in password.

- f. You should be automatically sent to a new page with a header stating that it is attempting to connect.
- It will first say attempting to connect and be yellowish, followed by connecting and finally green stating that it is connected. **This may take several minutes.**
 - You will notice that your phone is no longer connected to the air monitor once this is done.
 - If there has been a problem connecting, go to the Troubleshooting section below. Otherwise skip to the **Registering the Sensor**



The status bar should turn green when connected.

TROUBLESHOOTING THE WI-FI CONNECTION

If the air monitor fails to connect, you can reset the page by entering an incorrect password, letting the page reload, and then repeating Section 3 once more, again staying on the webpage as the air monitor tries to connect.

- a. It is possible that the air monitor will connect to the Wi-Fi for a few minutes and then disconnect shortly after. If this happens, power-cycle the air monitor, then repeat the steps in connecting to Wi-Fi.
- b. If the air monitor has not connected after a half hour of carrying out these steps, it is also possible that the air monitor will connect once you leave the installation site as long as you entered the password last entered is correct. In the case that configuring the air monitor to Wi-Fi is taking longer than a half hour (and you have entered the correct password), leave the site, then check for the sensor name on the PurpleAir map two hours later.
 - i. If it is not showing up on the website, check that this air monitor has a working USB port, and that the micro-USB cord is functioning by testing it on another monitor or device that charges using a micro-USB. If this device charges using the micro-USB, then the USB port on the monitor may be the issue. If the device does not charge or run using this micro-USB cord, this cord is not working and will need to be replaced.
 - ii. In locations with poor Wi-Fi connection, the monitor may go through periods where it is not reporting for a couple hours. This is okay as long as it still reports for the majority of the time.
 - iii. An air monitor that has been running on older versions of the firmware may shut off to update. If this is the case, you will need to return to the location to re-configure the home Wi-Fi network to the monitor.
 - iv. If no Wi-Fi signal is present while the monitor is running (ie. the red light behind the sensors is visible and the fans in the sensors are rotating), check to see if the old firmware is running on this monitor using the PurpleAir flash application:
 - MacOS version: <http://update.purpleair.com/desktop/PurpleAir-1.0.0.pkg>
 - PC version: <http://update.purpleair.com/desktop/PurpleAir-1.0.0.exe>.

For assistance using this application, as well as for issues that cannot be resolved by any listed instructions above, contact PurpleAir at contact@purpleair.com

3 REGISTERING THE SENSOR ON PURPLE AIR

1:56 purpleair.com

Device-Id (MAC)*
Printed on the device label just above the bar code. Please include the colons (:)

C8:C9:A3:24:B6:A1

Associated Email *
This email address would have been used in the device purchase or other communication with PurpleAir. (A copy of this sensor registration will be e-mailed to this address.)

Looking good: Device-Id and Associated Email are related...

angela.eykelbosh@islar

Installed*
OUTSIDE INSIDE

Location Name*
ISLH-TEST

Visibility*
PUBLIC (EVERYONE) PRIVATE (ONLY ME)

Set a location on the map

Map Location*
(drag the marker to adjust)

Latitude 48.80954853794
Longitude -123.84349749

Cnemainus River Provincial Park
Hill

Go to www.purpleair.com/register and start entering your information:

- Enter the sensor's Device-ID exactly as printed on the sensor's label. XX:XX:XX:XX:XX
- Enter the associated email address which is usually the email that was used to purchase the sensor (angela.eykelbosh@islandhealth.ca).
- Click on the button indicating that the sensor will be outside.
- The name of the sensor must start with ISLH- followed by anything appropriate you choose (e.g., ISLH-Whoville Elementary School). The ISLH tag is needed for us to look into doing automated reports to the community. They are in the development stage.
- Drag and drop your pin to the appropriate location.

Data Processors

In addition to PurpleAir, send data and the sensors "Map Location" to these 3rd party services:

Data Processor #1

To help community science and improve air quality forecasting, share your device's location and sensor readings with The Weather Company, LLC (includes Weather Underground and The Weather Channel branded platforms).



Data Processor #2

f. **Note:** Unclick Weather Underground and put none in both fields

Device Owner's Information

This person can manage the device on the PurpleAir website and may receive device notifications.

Owner's Name*

We use this name when sending alerts for this device. ✓

Owner's Email*

Used as a key to link you with this device. It must match any current value you may have set before. ✓

SMS Alert Phone Number

May be used to send text alerts for this device.

g. Device owner's name should be the same as the registration information above. Just agrees to the terms of Use and click register!

h. We will confirm that your sensor is now on the map and forward you the email with the link to the sensor on the map. For viewing sensor data, we recommend using the [AQmap](#). Not only does the AQMap use corrected data, but it presents the data using the AQHI by default, which the primary means via which public health communicates on air quality.

PurpleAir Terms Of Use And

4 CHOOSING A SITE

There are a few things to keep in mind when choosing the location for your Purple Air monitor:

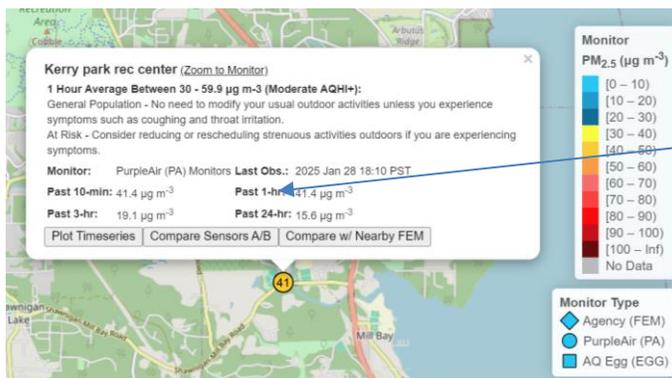
- The sensor needs access to a power outlet on the outside of the building.
- Install the sensor high enough to be out of reach of curious fingers!
- The sensor will last longer if protected from overheating or becoming waterlogged. Shade is good. An overhang is okay but should still have good airflow around it (i.e., not in a corner).
- Keep the sensor away from other sources of pollution, like dusty parking lots, designated smoking areas or alcoves that might trap pollution. PurpleAir sensors are often compromised by spider webs!
- The site must have access to Wi-Fi. The Wi-Fi network will need to be accessible using the Wi-Fi name and password. Note:
 - The Wi-Fi must be on a 2.4ghz bandwidth or a dual 2.4-5ghz bandwidth. The sensors will not connect to a 5ghz at this time.
 - Public Wi-Fi with a login page will not work
 - Wi-Fi requiring a username and password will also not work

5 INSTALLATION

- Install the PurpleAir monitor in your selected location using the hole in the metal backing. The sensor comes with 3 zip ties and a screw.
- Insert the micro-USB cord into the air monitor's port located on the bottom left-hand side of the monitor between one of the sensors and the air monitor covering.
- Plug the power cable into the power outlet. If you need to use an extension cord, wrap electrical tape around the connection to seal it.

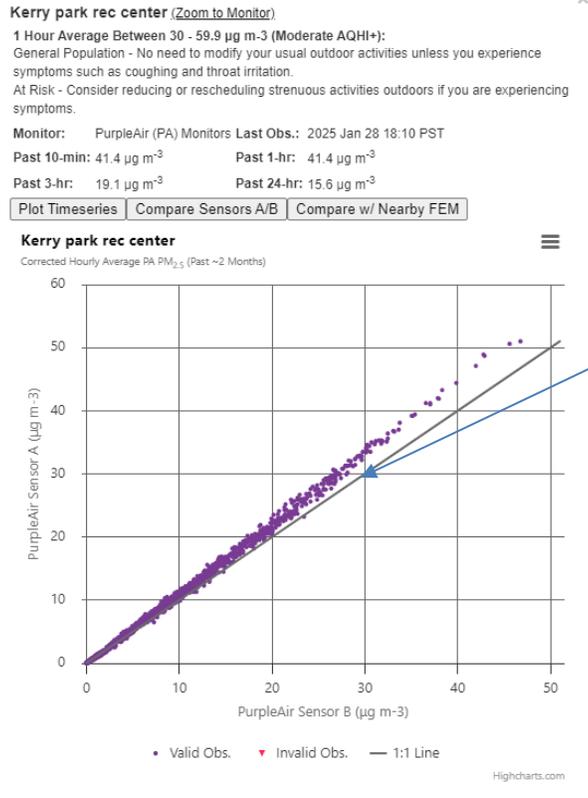
6 CHECKING DATA QUALITY

Each PurpleAir sensor has two channels (A and B) that measure $PM_{2.5}$ simultaneously. As long as these two channels are roughly in agreement with each other across a range of values, we can say that the sensor is working properly. In order to check whether the two sensors are in agreement, follow the steps below.

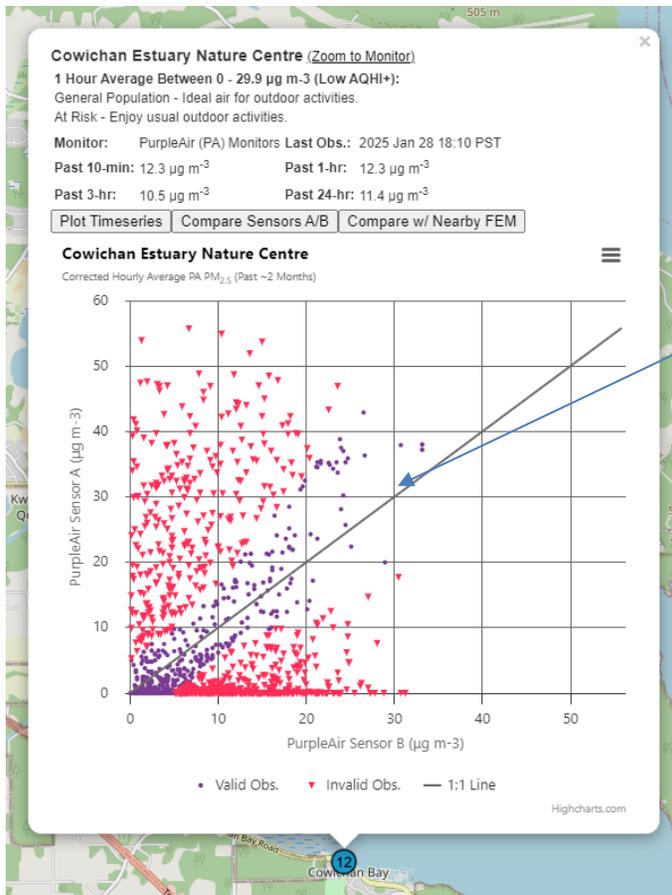


After clicking on the sensor on the [AQmap](#), a button reading "Compare Sensors A/B" is visible.

Hourly PM_{2.5} Observations



When the A and B channels are in agreement, all measurements cluster along a straight line. Purple points indicate that the observations are valid and this sensor is working well.



This sensor is not working well, as indicated by the numerous red data points scattered across the plot. This means that one of the channels is likely blocked or damaged.

If a sensor is showing a graph like this, it may be necessary to do some [Sensor Maintenance](#). If you are unable to resolve the issues, **do not discard the sensor** but rather get in touch with your Island Health contact point.

7 CONTACTS

For more information on air quality and its relation to your health, please contact:

healthyschools@islandhealth.ca

For information on air sensors and troubleshooting, please contact:

Dr. Angela Eykelbosh, Environmental Health Scientist
angela.eykelbosh@islandhealth.ca