# GROW
## OBSERVATORY

Changing Climate Mission

# Quick Start Guide
To install your soil moisture sensor

2019

# Identifying the right location for your sensor

Follow the instructions on your Sensing Manual to identify an appropriate location for sensor deployment.

Measure distances using the ruler tool on Google maps. Mark the selected locations, naming them according to the following naming convention (GROW PLACE initials)_(user's initials)_(sensor number). For example: AXD_PG_01

## Naming your sensor

Following the formula below:

3LetterCodeForYourGROWPlace_YourInitials_YourChosenSensorName
(up to 10 characters for the sensor name).

## Your GROW Place code

Your GROW Place code is made up of: Country Initial + GP Initials / first letters

AUSTRIA -Hendlberghof & Lebensgut: AHL

CROATIA - CRO

ENGLAND - ENG

HUNGARY - Miskolc: MIS

GREECE - Alexandroupoli & Laconia:  AXD and LAC

IRELAND - Southeast and Northwest: ISE and INW

ITALY - ITA

LUXEMBOURG - LUX

NETHERLANDS - 's-Hertogenbosch: NsH

POLAND - POL

PORTUGAL - POR

SLOVENIA - SLO

SCOTLAND - Tayside & Central Belt: STC

SPAIN 1 - FabLab Barcelona: BCN

SPAIN 2 - Canary Island: CAN

WALES - WAL

## Creating a user account

1. We advise that steps 1-10 are performed at your home or office, where you have a strong WiFi connection.

2. You will need to download and install two mobile applications on your smartphone: The Parrot FlowerPower App for data collection from the sensor to your smartphone. The GROW Observatory App for the Land Survey and the Land Management recordings. The Land Survey needs to be done once for each sensor, or patch of sensors (super-users only). The Land Management recordings need to be done whenever you manage the land around the sensors.

3. Create your account for (a) the FlowerPower App (using your email, not the Facebook login) and (b) the GROW Observatory website (via hub.growobservatory.org, or directly via the GROW Observatory App). The GROW Observatory App is connected to the GROW Hub, so your account serves for both.

4. Use your desktop/laptop, to login to the GROW website, using the same password that you used for your GROW Observatory App account. This will activate your GROW account, allowing you access both via desktop/laptop and smartphone.

5. Go to "My Connected Apps" to connect your Flower Power account to GROW. This is essential as it allows data to be shared between your sensor, your smartphone AND the GROW Observatory. Here are more detailed instructions for this step.

## Installing the firmware on the sensor

6. Carefully unbox your sensor.

7. Open the FlowerPower App. As soon as you insert the battery in the sensor, the sensor is activated and a green light will flash briefly. The FlowerPower App will recognise the sensor and will request you to update the firmware. We recommend you to complete this update from your home/office, with better internet connection.

8. As soon as the update is completed, the sensor will appear on your FlowerPower App as "NEW". At this point DO NOT press NEW because you don't want the app to record the coordinates of your home/office. Instead, turn off the sensor by extracting the battery (or re-inserting it upside down) to avoid geolocation until you reach your plot.

9. Using a permanent marker, write the sensor's name on the sensor. This sensor will have to be installed in the exact location selected during Step 1.

**Note:** Steps 6 - 9 need to be repeated for every single sensor before you visit your plot. Doing this preparation from your home/office will save you considerable time, especially if you want to deploy multiple sensors in one day.

## Deploying your sensor

Turn on geolocation and bluetooth on your mobile phone before moving to the selected location for placing your sensor, in order to ensure you device captures the location accurately.

10. Open your Google Map and walk to the exact location selected for your sensor.

11. When you reach the location, turn on the sensor with the relevant name. The green light will flash once you have re-inserted the battery correctly.

12. Your Flower Power App will recognise your sensor and will again report it as NEW (just as in Step 8). This time press NEW and the sensor will be automatically recorded on the app and will start collecting data. If you have internet access at the sensor, the Flower Power App will record the location of the sensor. If you don't, you will need to add the GPS coordinates of each sensor on the GROW website, by following these instructions.

13. Having pressed NEW, visit Settings (using the gear icon on the upper right of your screen) and insert the name of the sensor as defined in Step 1. Add information on the crop you are growing in this location, define that it is outdoors and take a close-up picture for your sensor, making sure its name is visible.

14. Your sensor is now installed and will be collecting data every 15 minutes.

## Land survey

This needs to be done only once per sensor or sensor patch, using the GROW Observatory App, directly outside by the sensor.

15. In the GROW Observatory App, on the home screen, scroll down and click on "Record data" or select the satellite icon. Choose your preferred language and answer the questions for each sensor. Follow the GROW Observatory App's guidelines to take the necessary photos of the sensor's environment.

Step 15 needs to be repeated for every single sensor. If you are managing 30 or more sensors, please refer to this streamlined process to save you time.

## Returning data to the GROW Observatory

As long as the two apps have been connected (see Steps 4-5 above), sensor data and Land Survey and Land Management data can now be returned to the GROW Observatory.

## Confirming your sensors and locations have been recorded correctly

About 3 days after you connected your FlowerPower account to the GROW website, go to this page and check that you can see all your sensors and their precise locations are showing correctly on the map.

If some sensors are missing, email technical@growobservatory.org and give details of how many sensors you expect to see and how many are missing. If locations are incorrect, change them by following these instructions. Remember to upload your data regularly, ideally once a week, minimum less than every 2 months to avoid losing them.

## Optional step

If you are setting up a lot of sensors (more than 15), we suggest that you also record the GPS location of each sensor. This may be useful later if you discover the Flower Power app saved incorrect locations.

You can find the GPS of your current location using the Google Maps app. Press down on the blue dot that shows your current location. GPS coordinates will be shown. You can then use 'Share' to copy these or send them in a message.

Alternatively, record the GPS locations from the Google map that you use at the beginning to plan your sensor locations.

**IMPORTANT**

In order to participate in the Changing Climate Mission, each user needs to sign the GROW Usage Agreement for Sensor Placement.