

## Rainfall sampler initial setup

- 1) Find a level patch of ground and place the sampler in position.
- 2) Unplug the solar panel and remove the sampler lid (3 wing bolts at the base of the lid).



- 3) Make sure the sampler is level using the level bubble mounted by the tipping bucket
- 4) Place any weights you wish in the base of the sampler. I usually use half a dozen bricks in case of windy conditions. Place them around the outer edge so there's room for the monthly bottles.
- 5) Place the battery in its bay (if not already in place) and plug it in.
- 6) Check the the power/USB cable is plugged into the control box.

As soon as power is plugged in, the sampler will start its power-up routine, so depending on what state the sampler is in, a few things may move. The platter may rotate back and forth one bottle, and the water switch may move. There's still a few things to check before it's ready to go, so don't worry about that yet.

## Installing the bottles

7. If the bottles are not yet installed, then disengage the drive gear (it may already be disengaged as it's best to leave it disengaged when moving the sampler around). If the bottles are installed then steps 6 and 7 can be skipped.





8. Install each bottle. Ensure they are firmly screwed onto each cap, but don't use excessive force, otherwise you can break the bottlecaps. As you install each bottle, add a 'hold-down' clamp so that the bottles and bottlecaps can't pop up and jam the sampler.

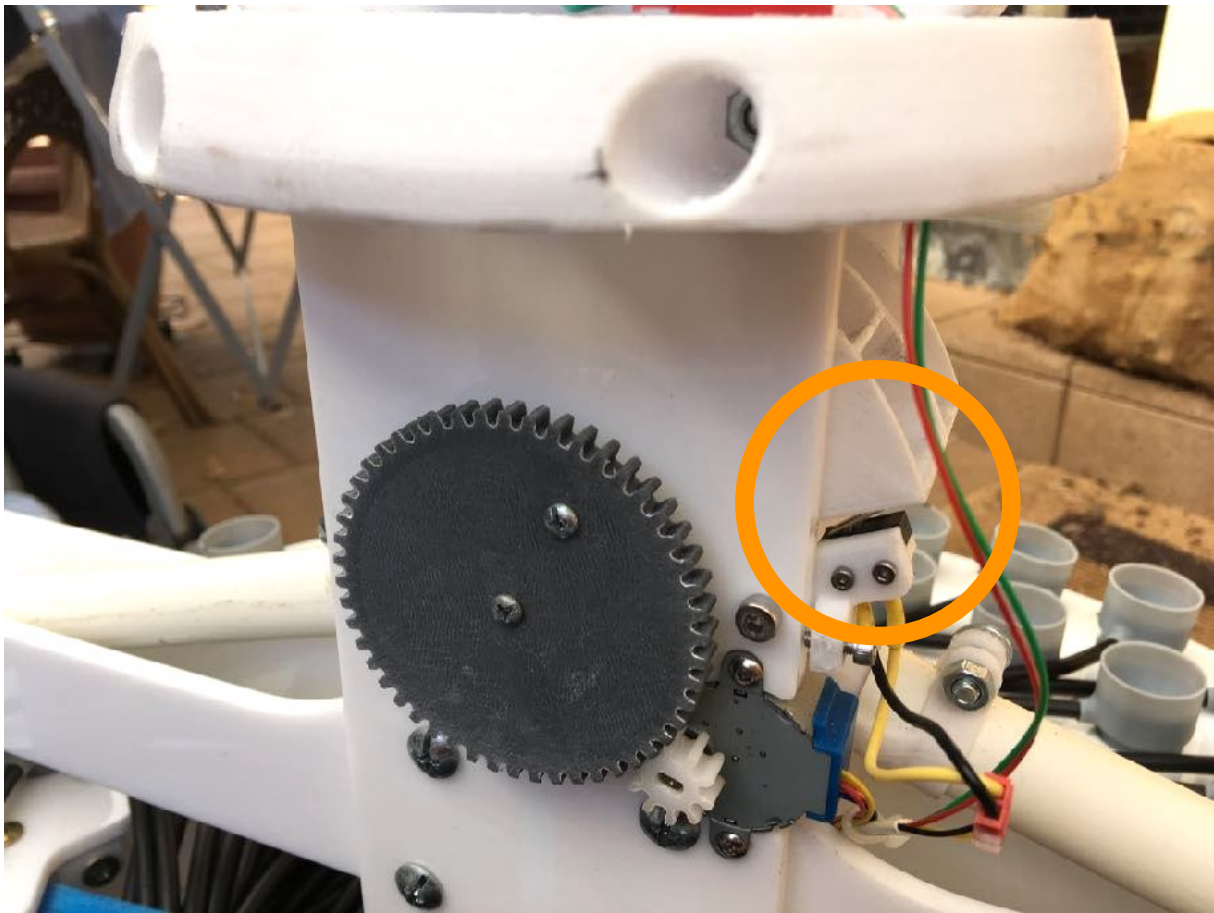


9. Once all the bottles are installed, then re-engage the drive gear.
10. Install the monthly bottles. Each monthly bottle has a cap with a short tube, connected via a tube connector to a coiled tube in the base of the sampler. There are clips on the plywood roof of the base compartment that will align each monthly bottle with its inlet hose.

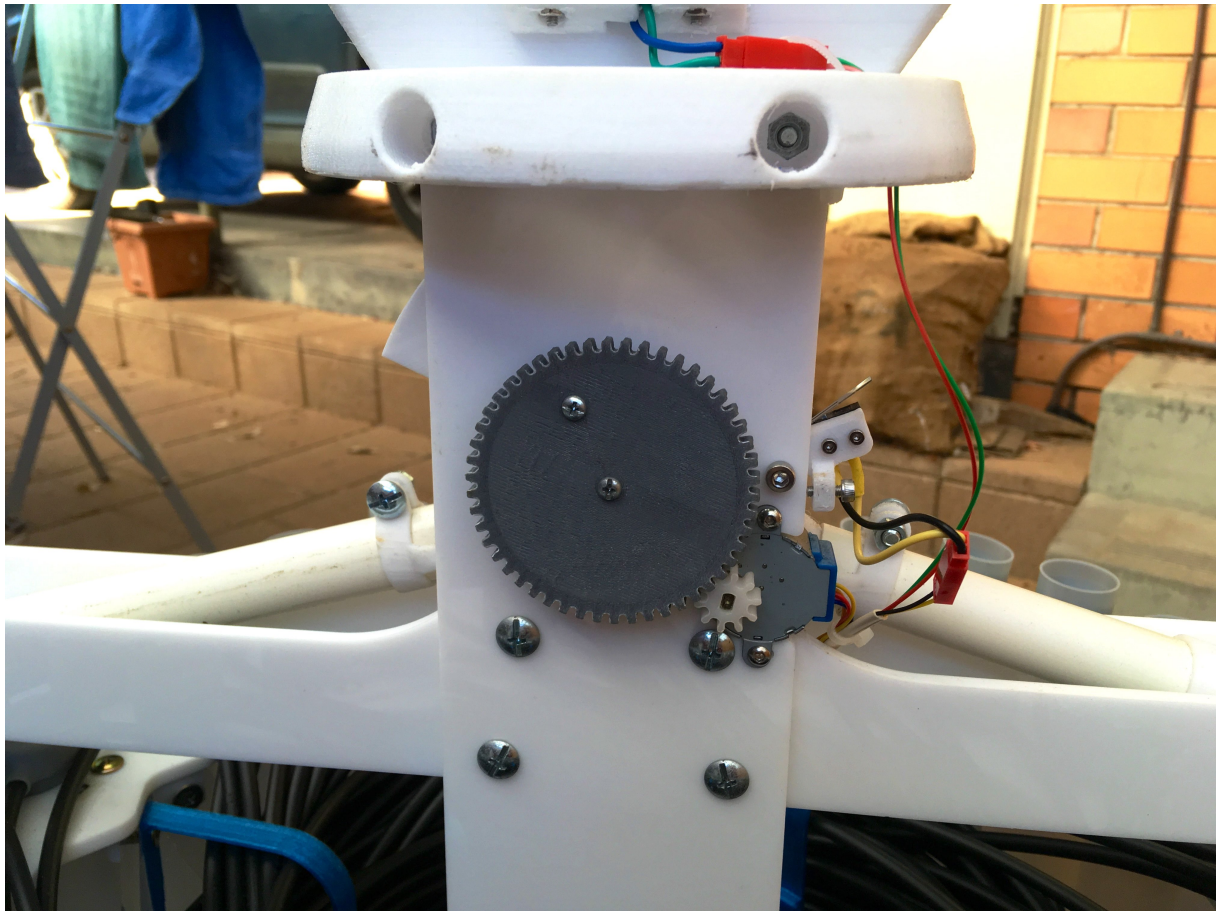
## Prestart Checks

The sampler should now be setup, with all bottles in place, and power connected. The next step is to make sure it's ready to run.

11. Disengage the gear and rotate the daily bottle platter until sample #1 is aligned with the outer daily water tube. As you do this, double check that all the 'hold down' clips are installed and that no bottle caps are sitting high.
12. Re-engage the gear.
13. Check the SD card is installed.
14. Press the red reset button on the control box. This will restart the sampler and run some simple checks. The main bottle platter will rotate backwards one bottle, then forwards back to sample #1. This checks that there is sufficient power to turn the platter and that nothing is jamming it. Then, the water switch will rotate into its first position (Sitting against the microswitch).



15. If the water switch doesn't settle against the microswitch, instead rotating back and forth once and settling on the other side, this means that the SD Card can't be initialised. If the water switch rotates back and forth twice, then it means the SD card was initialised but there is a problem creating the log file.



16. Assuming the sampler passed its checks, then place the lid back on the sampler. Be careful to avoid hitting the tower and tipping bucket as you lower it. Secure it with the wing-bolts.
17. Re-attach the solar panel cable.
18. If necessary, install the funnel, bird spikes and filter.



## **Sampling Considerations**

The sampler can collect up to 60 days of rainfall over 3 months. However, there are a few scenarios where fewer bottles may be collected.

Each bottle holds 225ml, or around 22mm of rainfall. In the case of significant weather events greater than this amount, the sample may be split across multiple bottles.

The water switch has four positions.

1 = outer daily ring, and month 1

2 = outer daily ring and month 2

3 = inner daily ring and month 2

4 = inner daily ring and month 3

This mechanical configuration means that only 27 bottles are available during month 3, and 33 bottles are available for month 1. This should not usually be a problem, but it's worth keeping an eye on anticipated rainfall in case a series of large events occur during a single month.

## **Replacing bottles**

1. Unplug solar panel and remove the sampler lid.
2. Disengage drive gear
3. Eject SD card and copy data to computer
4. Remove 'hold-down' clips and remove and label daily bottles.
5. Install replacement bottles and reinstall clips
6. Disconnect monthly bottles from tube via quick release connectors, remove bottle from central holding clip and carefully remove and label.
7. Install replacement monthly bottles
8. Replace SD card
9. Reset the platter so sample #1 is under the outer ring's daily water tube.
10. Press the reset button and confirm that sampler has passed prestart checks.
11. Replace lid and re-connect solar panel.

\*A note on the SD card logging.

At 9 am on each day the sampler will log the information for the previous day, consisting of the collection end date&time and number of tips recorded. In the next line, it will record the active sample ID and the water switch position for the new day to the card.

This may be somewhat confusing at first glance, because it means that the actual data logged for each day begins in the middle of each line. However, doing the logging in this fashion means that all data is logged as necessary and the machine is more resilient to power failure. It also means

that a sample ID will often show up on multiple lines. Each day the sampler will test if sufficient tips have occurred (usually  $> 2$ ) and only if that is the case will it rotate to a new sample. We record the log every day as a useful diagnostic in case anything goes awry with the sampler. This means that it's quite common for a sample to show up on many lines, until it has registered enough tips and the rotation to a new sample has occurred.