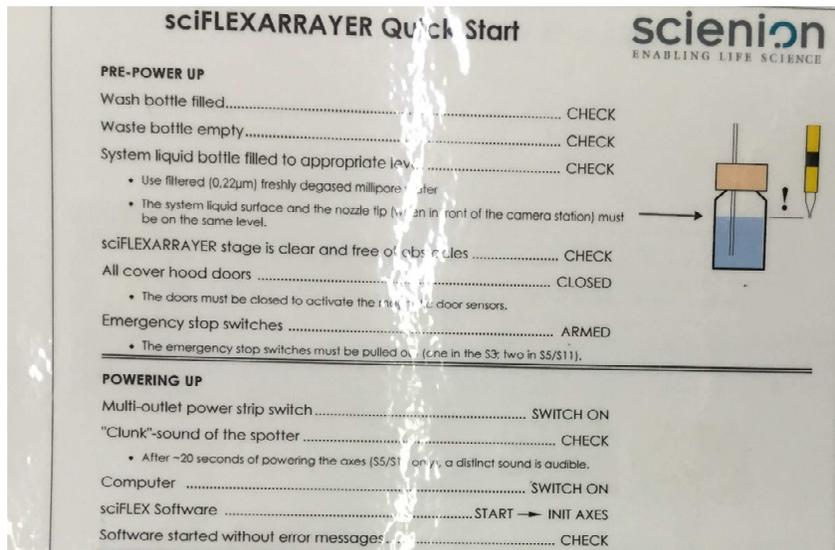
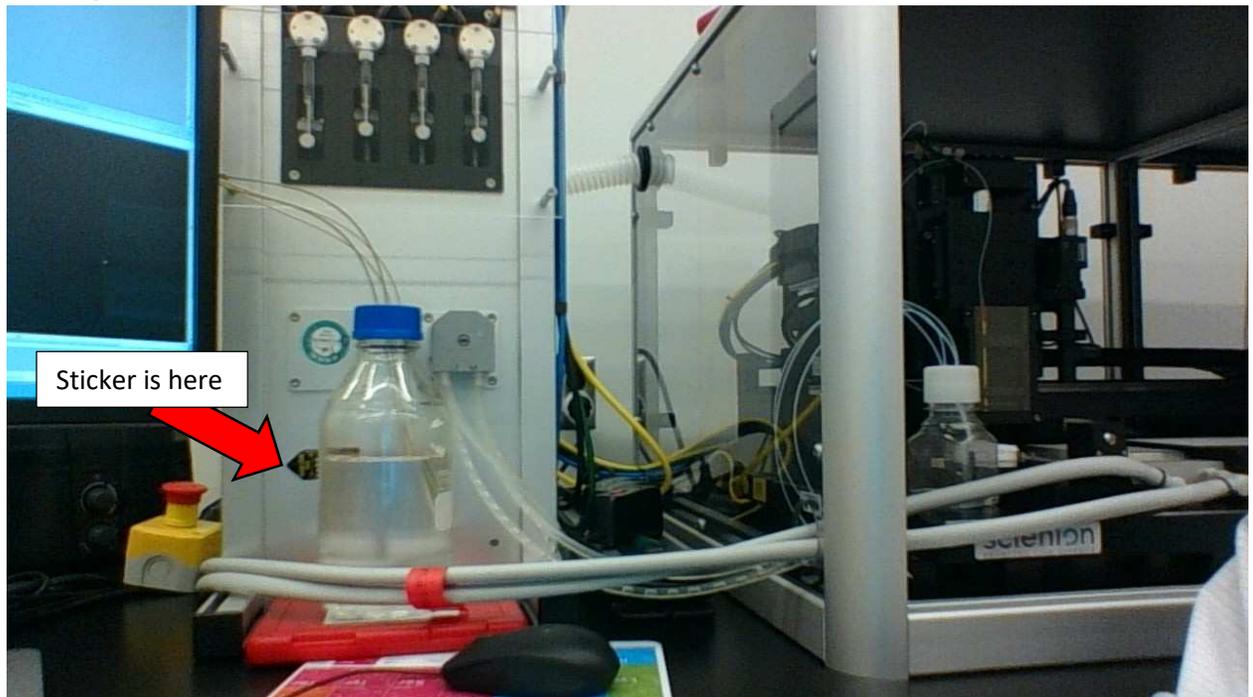


ARRAY1 Operating Procedure

Start up.



1. Check that the carboys below the instrument are filled (fresh) or empty (Waste).
2. Make sure the system liquid bottle is filled with particle free (filtered), degassed water and at the height of the sticker on the side of the instrument.



3. Turn on the green switch on the powerstrip to the left of the instrument. Wait for the clunk sound.
4. Turn on the computer.
5. Open the sciFLEX_S11 software (on the desktop).
6. Click [init axis].

- h. When connecting a nozzle, let the first drop exit the port (it might contain any debris flushed from the tubing), dip the screw tight in the second drop to rinse any debris of it, after the third drop falls, screw in the nozzle. Do not overtighten!
 - i. After the nozzle is connected the instrument will flush water through the nozzle, you should be able to see a small stream of water coming out the end of the nozzle.
 - j. Once it is done flushing, the instrument will say System is ready to use. Have a nice spotting! Click OK.
8. Go to nozzle setup tab at top.
9. Nozzle setup-box icons in center move tip to home, camera, camera+do auto drop detection, and wash.
10. Start with voltage and pulse width settings on nozzle box (these are specific to each nozzle, not just one kind of nozzle). Frequency should be 500hz, LED delay 200us, LED pulse 5us. You can adjust the LED delay up and down to see the drop formation, can be useful for troubleshooting.
11. Click the continuous dispensing start arrow and the nozzle will start shooting out droplets. If you can't see a good drop, go to the Do Task tab, find the program "Wash Flush Strong" click Do. This will flush the tip with fluid again.
12. Start continuous dispensing again and see if this helped. Repeat multiple times if necessary.
13. If you have what looks like a stable drop, click on the auto drop detection button and will snap image of drop and put red circle around it if detected. Make sure only one drop is detected.
14. Make sure the drop is stable plus or minus three clicks up and down in both voltage and pulse. Once you have a good drop, click autofocus in the nozzle offset tab.
15. CLICK Set Nozzle Parameters to save these nozzle parameters. This is really important!!!
16. SMIF staff will work with you to setup an appropriate target and run for your experiments.
17. The target is what you are printing on to. We need to specify the overall size of the target, as well as the printable area. Once we input your target, we will save it and it will show up in the list of targets.
18. Within your target, you can print multiple fields of multiple spots. Use the target setup tab and the target sub-tab, to set your fields. You can save a field setup under target/save field. You can load saved setups under target/load field.
19. Once your fields are set, use the field setup tab to designate the number of drops in each spot and what well the nozzle is drawing from for each spot.
20. In the main menu, set the probe to be where you are drawing the liquid to be spotted, the run to be the run you want to do, and the target to be your target.
21. In the run tab, all of these things should now show up.
22. Click run and a box will show up where you can click out the number of targets (ie slides) you are printing. If just doing one, click on the bottom left box. Then click OK.
23. It will start printing. While it is running, you can click STOP to end the run, or Nozzle Setup to adjust the nozzle parameters if the spotting is off. After adjusting, you can click continue or stop run.