

AP stopped-flow The shortest possible protocol

START UP protocol:

1. Power up the power strip behind the instrument.
2. Turn on the lamp power supply (behind the lamp housing- switch on the back).
3. Check whether the settings are appropriate for a given lamp:-

CR for Xe lamp
W4 for Hg-Xe lamp
4. Ignite the lamp - wait until it ignites before turning on other components of the system.
5. Turn on the workstation.
6. Turn on the main switch on the N₂ tank - the pressure should be 120 psi.
7. Install a filter into the detector.

WARNING: *one should never remove the PMT without turning off the PMT voltage!!! It will cause permanent damage to the PMT.*

8. Start the software.
9. Load 2 ml of water into each drive syringe (4 ml total).
10. Do 20x0.1sec shots to flush any Ethanol from the system.

Collecting Data

1. Set appropriate slits: 2mm on both slits corresponds to a bandpass of 9.3 nm.
2. Insert the cut-off filter into a PMT housing
3. Run main SX.18MV software.
4. Go to **“New Data”**
5. On the control panel, select emission detector (absorption or fluorescence)
6. Select the excitation wavelength (middle mouse over the wavelength arrow)
7. Mouse-click on the task labeled **“Oversampling”** (in general this will improve the signal-to-noise ratio)
8. Fill drive syringes with appropriate solutions (take care not to introduce air bubbles)
9. Ensure that there is no gap between the drive ram and the syringe plungers.
10. Ensure that drive valves are set to drive position (forwards).
11. Flash sample handling unit with chemistry (about 150 μ l from the left hand syringe and about 100 μ l from the right syringe).
12. Mouse-click on the live display at the required signal voltage (a suggested signal is 4V). This will automatically set the photomultiplier high voltage to give the required signal voltage).
13. Mouse-click on the task labeled “set PMT” and then “set Offset” to offset the signal value to zero.
14. Set the time-base.
15. Set the voltage range (perhaps to one drive on the 5V range before adjusting this).
16. Select “External trigger”
17. Select “Acquire”.

Saving data: you may choose to autosave the data (**VERY GOOD IDEA SINCE THE SOFTWARE TENDS TO CRASH**)

18. Select task labeled “Disc”
19. Select “make Group” and enter the group name.
20. Return to “New Data” and mouse-Click “Auto-Save” (bottom right of screen). Data buffer will be saved automatically in that group/

Useful hints:

- To create a set of data files that share the same “prefix” go to “new Data”, “setup” “seedInfo”. this will allow you to rename the data file automatically from “run_01 et.c. to whatever you wish to name the data files, within the “XXXX13” four letters, two digits format. This will also allow you to add comment to the data set, which will be displayed when you print the data.
- To average data: go “display” and display all data sets you want to average (PLEASE REMEMBER they need to be collected with exactly the same settings). Clear one data slots (go “disk” “cleardata”). go “Transform” “newAverage” follow instructions: select an empty block, select “Sum” and click on the block you selected second time. go “display” clear screen” and display your average

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- to fit the data; create an average first, then select “Analysis” “Equation”
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SHUT DOWN protocol:

Please put the system in the default settings: *i.e.* 50 μ l drive from each syringe - 100 μ l total, 1.5 mm settings for both slits on monochromator. **SIC!!!** If you plan on coming back- please leave a CLEAR message what the settings are.

1. Shut down the power on PMT.
2. Load 2 ml of water into each drive syringe (4 ml total).
3. Flush the flow-cell by pushing liquid from the drive syringes into stopped syringe (the driving syringe valves should be in “drive position” and the stopped-flow valve handle facing you).
4. Turn the stop valve handle 180° (the handle will be facing the shelves - away from you) and empty the stopped syringe (push all the way up).
5. Turn the stop valve handle back so it will be facing you.
6. Repeat 10 times- rinsing with at least 40 mL of water.
7. Load 20% Ethanol into each drive syringe and repeat steps 2 through 5 with 20% Ethanol.
8. Quit the software.
9. Remove filter from the detector.
10. Turn off the lamp and workstation.
11. Turn off the main switch on the N₂ tank.
12. Empty the waste bottle.
13. Power down the power strip (behind the system) and Zip-drive/printer strip (next to the computer).

REMINDER: Drain the water from the water jacket if you have