

OPERATION INSTRUCTIONS

1. Visually inspect the instrument, chiller for errors. NEVER touch the transformer switch (under PC desk).
2. Power on the instrument PC and open the SmartLab Studio II software.
3. In the Startup/Shutdown menu, under the Startup tab, press run. This will initialize the process of warming up the X-ray tube (~7min duration)*,**
4. Once this is done, the power should be stabilized to 40kV/50mA in the "H/W status" menu. In this menu, also check the cooling water flow rate (should read between 4.5-5.0 L/min). The instrument is now ready for use.
5. In the "Activities" menu select the "General Measurement (BB)" to measure in Bragg-Brentano configuration. This is the only available option in the current instrument configuration. If you need to make a measurement in a different configuration please contact CS at (cstoumpo@materials.uoc.gr) for further advice.
6. Double click the General Measurement (BB) which should appear in the "Flow Editor" menu.
7. Double click again to enter the measurement parameter menu. Default values are

Range	Start (deg)	Stop (deg)	Step (deg)	Speed (deg/min)	Incident Slit	Receiving slit #1	Receiving slit #2	Comment	Options
Absolute	5	80	0.01	4					

Options in green are all editable according to the needs of the experiment.

8. Select a filename for your experiment and save it in your group's subfolder in RASX format.
9. Add sample name, then check the "Move to home position ..." box and click OK.
10. Prepare your sample and place it in the sample holder.
 - 10.1 Add finely pulverized powder at the center of the glass sample holder and press it against the frosted part of the holder using a second microscope slide. Ideally, the height of the sample should not exceed (or be less) than the height of the glass sample holder in the periphery.
 - 10.2 Unlock the door (if locked- check the LED indicator on the door) from the "DOOR LOCK ON" tab in the main software menu.
 - 10.3 Open the door and mount the sample. Smooth side of the holder should slide in all the way towards the two clip holders. Close the door gently until you hear the door click sound. No visual indicators are available at this time.
11. In the main software menu, click "Run Flow". The hardware control that appears in non-interactive and it is there only for information purposes. Wait until measurement finishes. IMPORTANT: the measurement stops only when the "Flow sequence completed" message pops-up. Click OK.
12. Remove your sample and wash carefully the sample holder with acetone or any other appropriate solvent.
13. Once you are done measuring, delete the "General Measurement BB" instruction from the Flow editor menu (right-click and delete) to make the instrument available or next user.
14. If you are the last person using the instrument for the day (check online instrument schedule) you need to set the instrument to standby status. To do this, select the Startup/Shutdown menu and from the Shutdown panel select the "Set to minimum" choice and hit Run. This process takes approximately 30 seconds. You are good to go. DO NOT close the software window.

*This process is required only for the first user of the day.

**If the software shuts down, this process will last for 17 minutes. Therefore it is advisable not to shutdown the SmartLab Studio II software.