# Inceptum™ quick startup guide

## Instrument installation and connections.

Plug the power supply brick into the instrument. Connect USB-C cable to instrument and to a USB port on the computer. Connect power supply brick to 120V outlet. No other installation required.

## Software

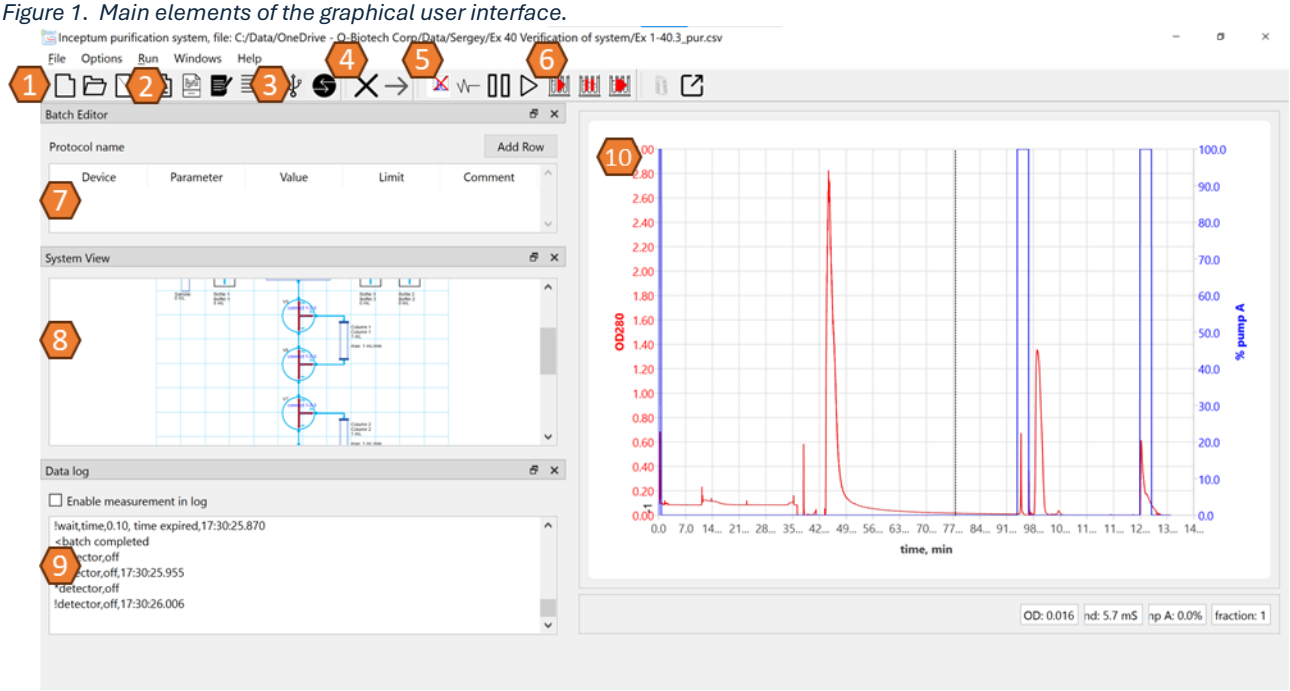
Start *Inceptum™* software by clicking on software link on the desktop or in the taskbar.

The primary elements of the main window are (see Figure 1):

1. Data file toolbar. Open/save data file. Also accessible through "File" menu.
2. Batch protocol toolbar. Open, save or edit batch file. Also accessible through "File" menu.
3. Instrument connectivity toolbar. Select port and connect to the instrument. Also accessible through "Options" menu.
4. Batch control toolbar. Start stop batch execution. Also accessible through "Run" menu.
5. Detector and pump control toolbar. Start, stop and zero detector, start/stop pump. Pump commands accessible through "Run" menu.
6. Fraction collector toolbar. Start, stop or pause faction collector or advance to next fraction.
7. Batch protocol editor window. Right click to add/delete rows.
8. System view shows fluidics configuration of cartridge and current status of the instrument. Right click to change parameters of all elements on the diagram.
9. Data log window shows low level events and data exchanged between the instrument and this software.
10. Chromatogram plot. Right click to reset zoom, shift-left mouse button to select zoom area, ctrl-wheel to zoom in/out, left-press to pan the chart.

Windows 7 8 9 are docking windows and can be moved around, resized and placed into tabbed left area. If you close a window, you can re-open it by right-clicking on the toolbar and selecting checkbox for the window.

*Figure 1. Main elements of the graphical user interface.*




The primary mode of operation is through batch method. You can either open an existing batch (toolbar 2 ) or crate new one using batch editor.

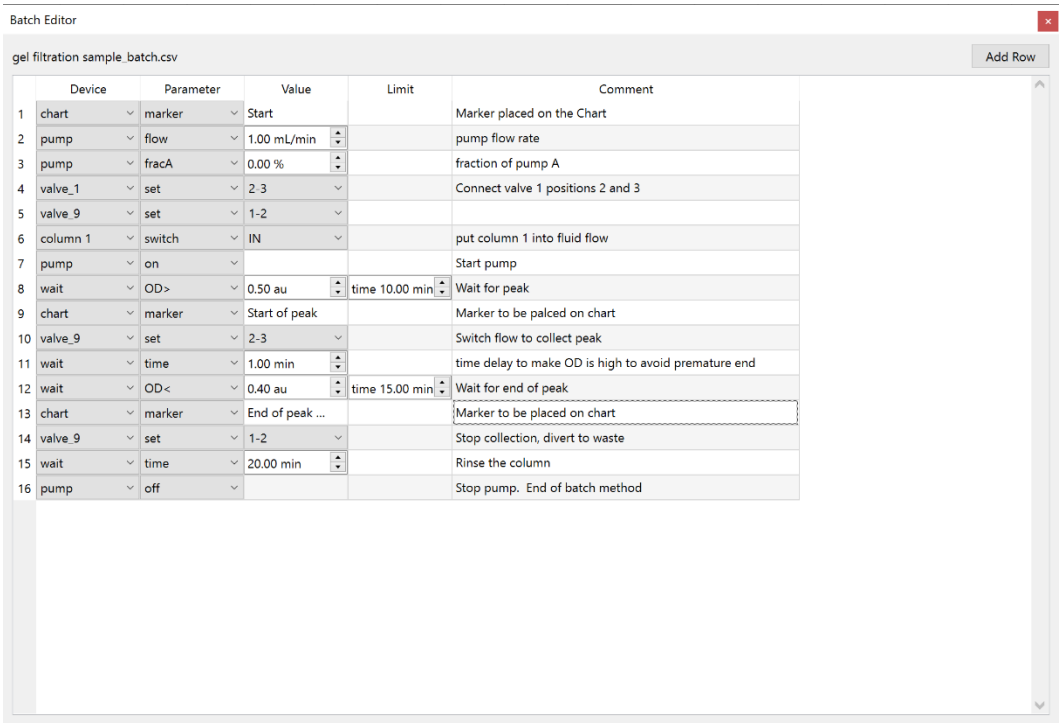
For an initial instrument setup after inserting a new cartridge, manual control of the instrument can be used.

## Batch editor

Batch editor window facilitates creation of a new batch method or editing an existing method. Commands are executed sequentially, next command is executed upon completion of the previous command. Add / remove commands in the editor by clicking right mouse button in the window. Commands can be appended to the current batch by clicking on “Add Row” button.

Commands can control instrument directly (e.g. pump, valve, and detector commands), provide time delays or delays until condition is met (e.g. OD crosses threshold).

Conditional commands have time limit.  Each command can have a comment.  An example of batch editor window is shown in Figure 2.




| | Device | Parameter | Value | Limit | Comment |
|---|---|---|---|---|---|
| 1 | chart | marker | Start | | Marker placed on the Chart |
| 2 | pump | flow | 1.00 mL/min | | pump flow rate |
| 3 | pump | fracA | 0.00 % | | fraction of pump A |
| 4 | valve_1 | set | 2-3 | | Connect valve 1 positions 2 and 3 |
| 5 | valve_9 | set | 1-2 | | |
| 6 | column 1 | switch | IN | | put column 1 into fluid flow |
| 7 | pump | on | | | Start pump |
| 8 | wait | OD> | 0.50 au | time 10.00 min | Wait for peak |
| 9 | chart | marker | Start of peak | | Marker to be palced on chart |
| 10 | valve_9 | set | 2-3 | | Switch flow to collect peak |
| 11 | wait | time | 1.00 min | | time delay to make OD is high to avoid premature end |
| 12 | wait | OD< | 0.40 au | time 15.00 min | Wait for end of peak |
| 13 | chart | marker | End of peak ... | | Marker to be placed on chart |
| 14 | valve_9 | set | 1-2 | | Stop collection, divert to waste |
| 15 | wait | time | 20.00 min | | Rinse the column |
| 16 | pump | off | | | Stop pump.  End of batch method |

*Figure 2.  Batch editor window with a sample batch to perform gel filtration.*

## System View and control

System view displays current instrument state and allows operator to manually control system state.  Zoom in/out using Ctrl-mouse wheel.  Right-click on a subsystem (pump, valve, column, etc) to change parameters of that subsystem.

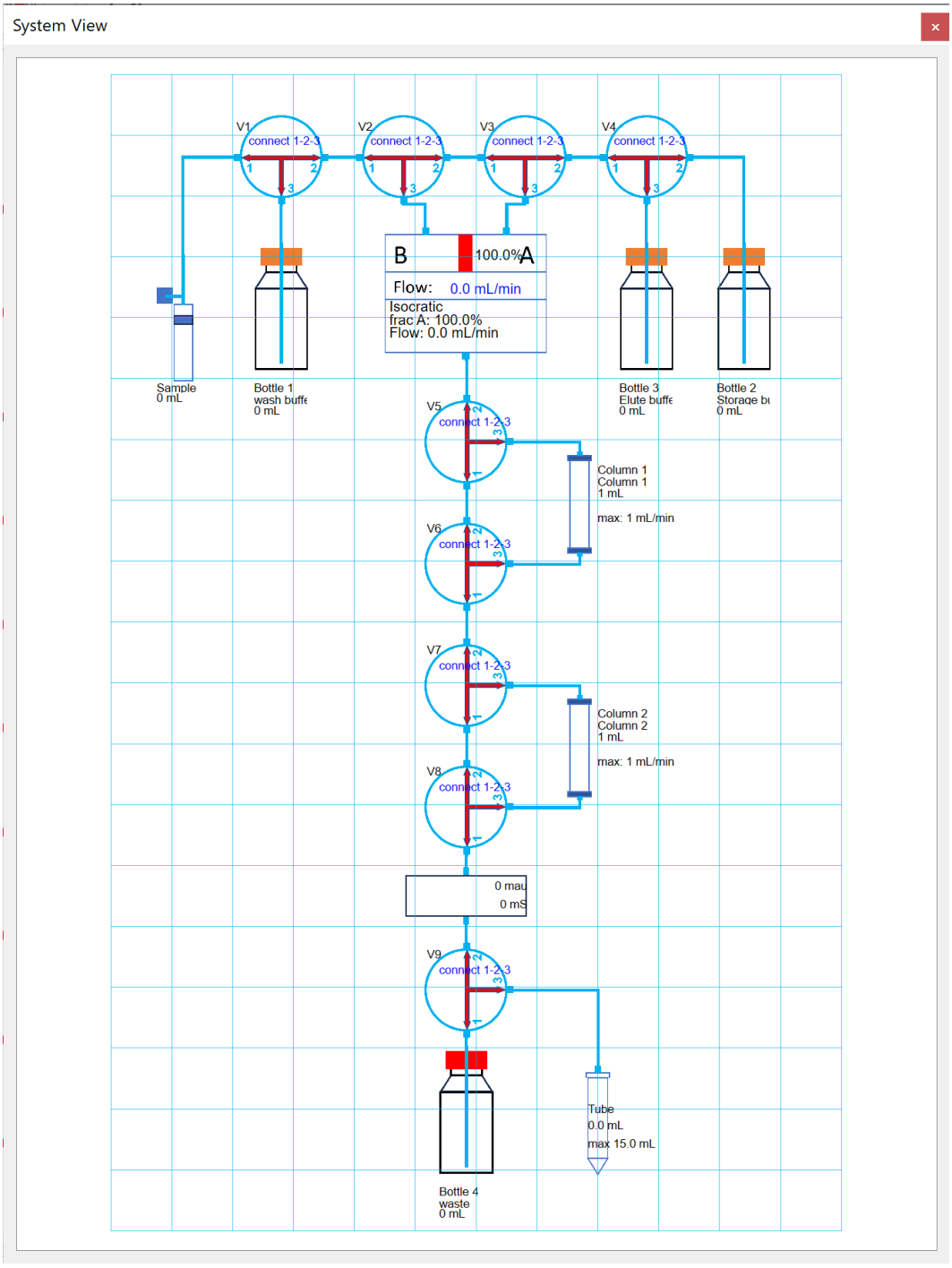



*Figure 3. System view window.*

# Operation

## Insert Cartridge

Take cartridge out of packaging and verify that valves are aligned correctly. Insert cartridge into the slot. If cartridge does not insert easily, verify that the slot is not obstructed. If valve slots are turned, preventing cartridge insertion, turn instrument off, wait 5 sec, turn instrument on. This will reset valve slots to correct orientation.

## Calibrate cartridge

Cartridge insertion will be detected by the instrument and bottom light on the front panel will turn “green” indication cartridge inserted. The instrument will start pump calibration. Wait until pump calibration is complete (see Figure 4).

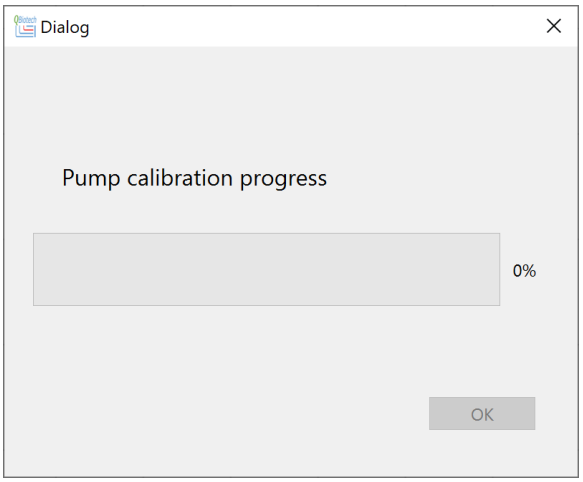



*Figure 4. Pump calibration progress window.*

## Connect buffer solutions

Connect your buffer solutions to the cartridge. Normally, sample input line will be collected to valve 1, port 1 (V1-1), rinse buffer to V1-3, Elution buffer to V4-3 and storage buffer to V4-2. The connections are flexible and depend on the specific batch protocol.

## Connect column(s)

Connect column 1 to lower left 2 ports. Connect column 2 to next 2 ports up (see Figure 5). Direction of flow is top to bottom.


*Figure 5. Connection of columns to the cartridge.*

## Configure purification run

Select “New Run” or “Save run and reset view” from File menu or from toolbar 1 . Fill in purification information (number of runs, file names and other info).

## Start batch

Start batch from tool bar 4 →. If you need to pause batch, click pause button on toolbar 4 ✕. After the pause you can either continue batch or restart the batch. Press start batch button → and select to continue or start new in the dialog box that will appear.

## End of run.

At the end of run, make sure fluid connections are secured (disconnected or pinched off) to prevent accidental fluid flow and mixing as valves are moved to default position. Press “Eject cartridge” button ⧉ on the toolbar.

The instrument will move valves and pumps into default position and cartridge can be manually removed.