

LIS - Quick Start Guide

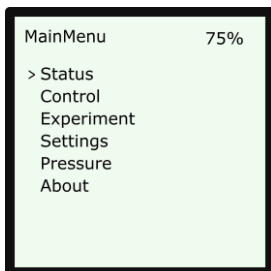


Controlling the Drive



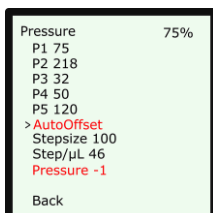
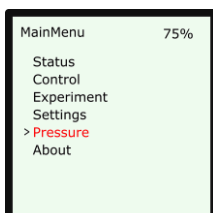
- Pressing and holding the knob for a few seconds turns on the Feed Drive
- Turning the Knob left or right allows you to move in the menu and/or increase and decrease numerical values
- A Single press on the knob selects an entry or confirms an input
- Pressing and holding the knob resets the Feed Drive (only if problems occur)

Main Menu



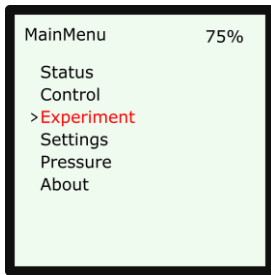
- **Battery charge:** In the upper right corner
- **Status:** Shows the experiment status if an experiment is running
- **Control:** Start or stop an experiment
- **Experiment:** Setup of the protocol
- **Settings:** Feed ID, RF Channel
- **Developer:** For internal use (Special Purpose)
- **Pressure:** For Pressure Parameters
- **About:** Information about the firmware

AutoOffset



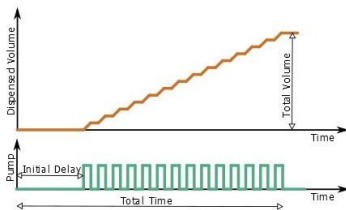
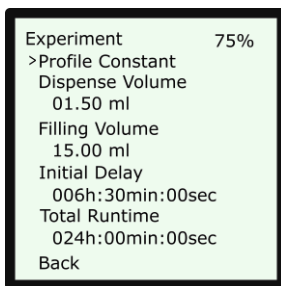
- Make sure no filter or cartridge is connected to the Drive
- Go to „Pressure“ and check if the value of the entry „Pressure“ (last menu item) is around 0 (+/- 5 counts)
- If the value differs, go to „AutoOffset“ and press the knob
- Now the Pressure is blanked and the Drive is ready to use

Step I Experiment Set Up

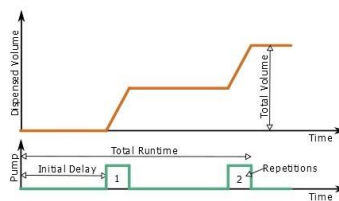
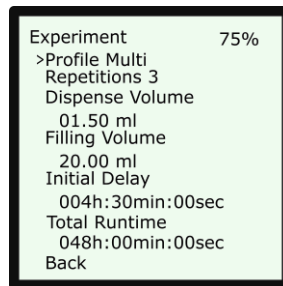


- Go to „Experiment“, choose the feeding profile and enter your individual feeding parameters:
 - Dispense Volume:** Overall volume to be dispensed into the flask
 - Repetitions:** Number of dispensing steps to discharge the dispense volume (only for Multi-Shot profile)
 - Filling Volume:** Volume of liquid in cartridge
 - Initial Delay:** Time before first dispensing action
 - Total Runtime:** Total time of the experiment (initial delay + dispensing time)
- Confirm the feeding profile by clicking “Back”

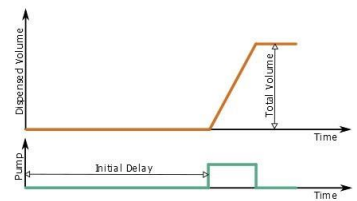
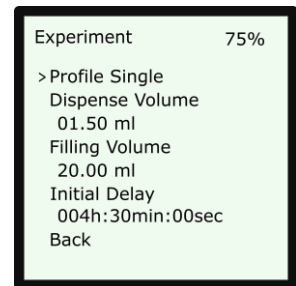
Constant



Multi-Shot



Single-Shot

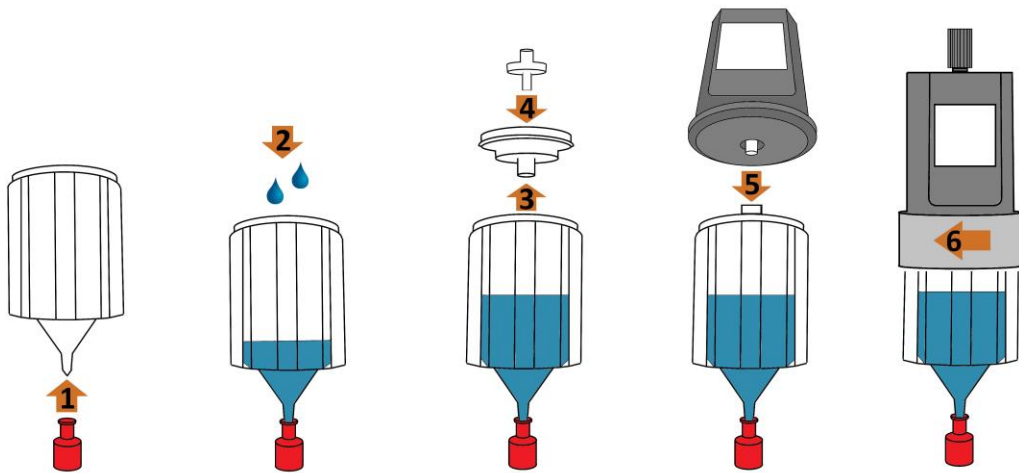


In case a Needle is used

Depending on the shake flask used, you may want to use a needle while shaking to make sure the drops fall into the liquid and do not stick to the side of the shake flask. We recommend using a needle for shake flasks with a volume of 500ml or greater.

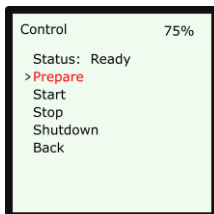
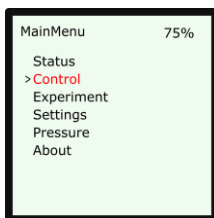
(Contact aquila biolabs GmbH for further information about the usage of needles with LIS)

Step II Preparation of the Cartridge



- 1 Put the luer plug (red) on the small end of the cartridge so the cartridge is locked and ready to be filled
- 2 Use the big opening on the top to fill the cartridge with the liquid (up to 25 ml depending to the shaking conditions)
- 3 Put the lid on the cartridge and close it tightly (snap-fit)
- 4 Insert the sterile filter into the lid
Always keep the cartridge upright (hydrophobic gas filter) ⚠
- 5 Put the Drive on the sterile filter
- 6 Use the mounting ring to fix the Drive to the Cartridge (turn clockwise)
Drive and Cartridge should form a rigid structure (Drive should not wobble)

Step III Prepare Modus



After programming the LIS Drive and filling the Cartridge, LIS is now ready to be started:

- Choose „Control“ in the main menu and then „Prepare“
- Wait until LIS stops pumping air
- Now the luer plug (red) can be removed

Step IV Assemble the Feed System

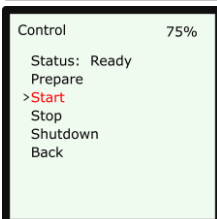


- Place the Drive with the cartridge carefully on the flask
- Fix the flask carefully on the shaker

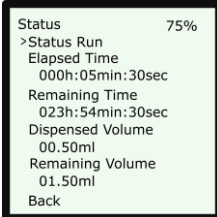


Avoid strong shocks as they could lead to unwanted drop release into the shake flask

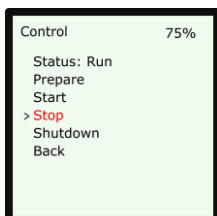
Step V Start the Experiment



- Go to „Control“ then „Start“ to start the experiment
- Now you will be automatically forwarded to the „Status“ menu
There you will have an overview of your actual experiment



Step VI Stop the Experiment



- Go to „Control“ and then „Stop“ to stop the experiment
- To shutdown the Drive, go to „Control“ then „Shutdown“



Attention: The Cartridge is a single-use product, proper operation can only be guaranteed for the first time its used. Repeated use will lead to leakage. The cartridge is not autoclavable.

How to charge the Drive



- Use a micro-USB cable to connect the Feed Drive to a free USB port (computer or wall-plug charger)
- The Drive is completely charged in 2 hours.