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# LSPoneQuick – User Guide

A short presentation of what you see

Version 02.00

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Advanced Microfluidics SA

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## Document Purpose

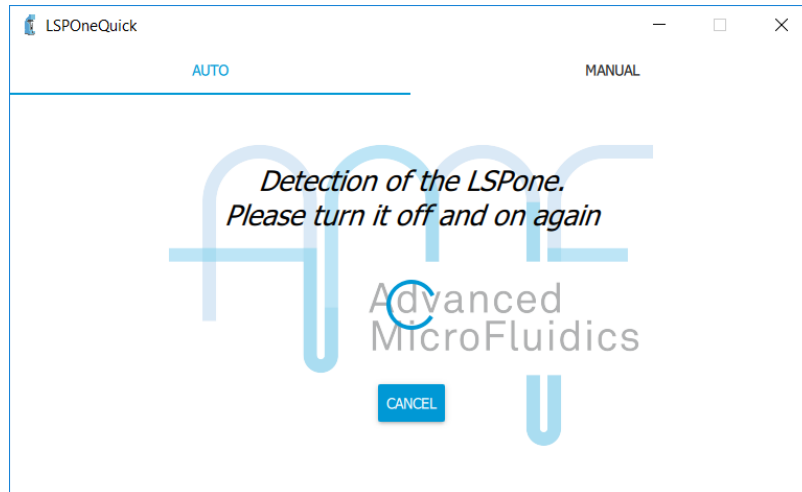
This document shows the different possibilities of our LSPoneQuick GUI, given with a purchase of the LSPone.

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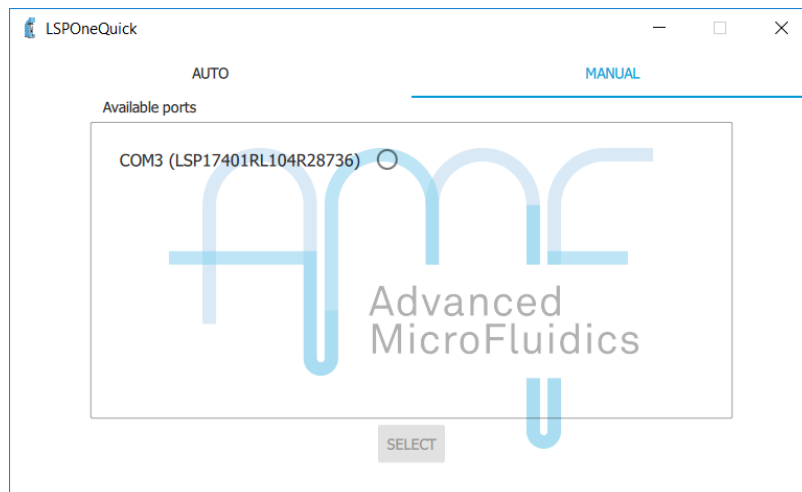
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## 1. Opening screen

When the opening screen shows up, the easiest is to follow the instructions. Turn the pump off and on again.

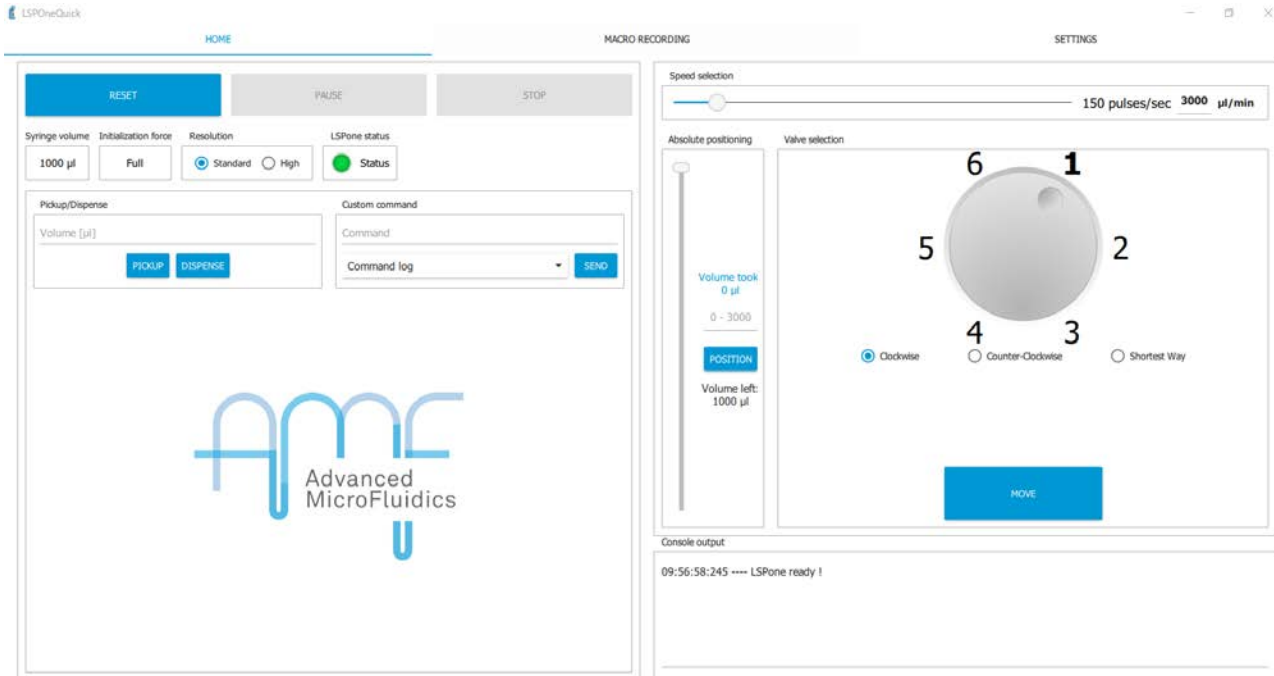


It is also possible to switch to Manual mode and select a specific serial port.



## 2. Home tab

Once the pump is connected, it should automatically initialise and bring you to the home tab.



If this is not the case, please click on *RESET*.

The home tab lets you:

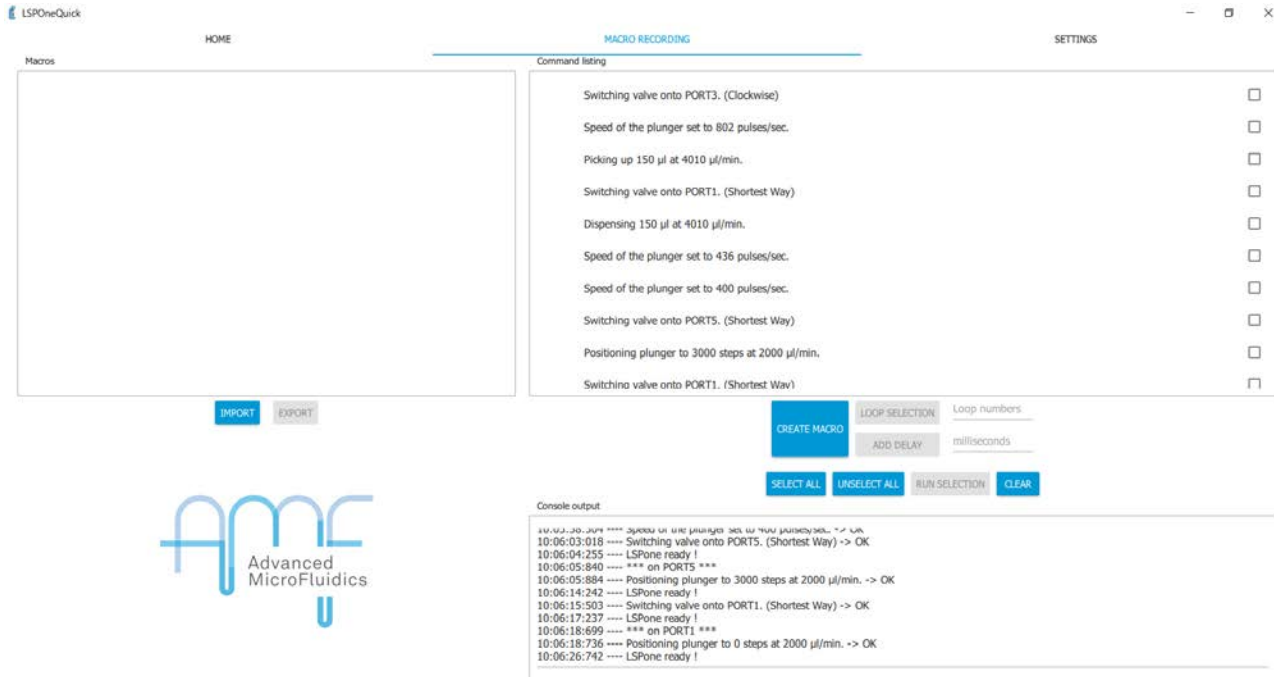
- **Reinitialise the pump**
  - Click on *RESET*
  - Completely empties the syringe. Check that a waste is connected to port 1 for correct evacuation.
- **Stop the pump** at any time
  - Click on *STOP*
  - Requires you to reinitialise the pump after
- **Stop the pump** at the end of the current instruction
  - Click on *PAUSE*
  - Does NOT require a reinitialisation
- See the **syringe size**
  - Verify that it is the correct syringe size before you do anything
  - Can be changed in the settings tab
- See the **force on the plunger for initialisation**
  - This is automatically determined depending on your syringe size
  - Can be changed in the settings tab
- Choose the **resolution** of your displacement
  - Standard = the position of the plunger in the syringe is divided between 3'000 positions
  - High = the position of the plunger in the syringe is divided between 24'000 positions – useful when handling minimal quantities of liquid (e.g. up to 5 µl)
- See the **pump status**
  - Green = ready to receive the next command
  - Orange = currently busy

- Choose the **volume** that you would like to pickup/dispense at the next syringe movement
  - Make sure that you have the correct syringe size selected, or this will be false
  - *PICKUP* fills the syringe, *DISPENSE* empties the syringe
  - There are several boxes stacked on the left hand side. This allows you to have several “ready instructions” so you don’t need to retype the volume each time when you often use it
- Add a **custom command**
  - [For advanced users only](#)
  - From the command set in the user manual, in the format: \1 + command + R
  - *E.g. the initialisation command would be \1ZR*
  - The commands that you enter are saved in the *Command log*. It is wiped every time you quit the software.
- Enter the **speed** at which the syringe will be moving
  - the speed in ul/min is automatically calculated depending on the syringe size
- Choose the **absolute position** of the plunger in the syringe
  - Instead of moving the syringe using the quantity in ul, you can decide to move to a position.
  - *E.g. moving to position 0 ensures that you empty the syringe, regardless of the volume that is in it.*
- You can **select the port** on which you want to go using the valve selection
  - You must check that the valve shown here corresponds to the model mounted on your LSPone.
  - Can be changed in the Setting Tab
  - If you are in *Click & Go* mode, the valve will automatically move when you click on a port number. Otherwise, click on the port number, then on *MOVE*
  - By default, the valve will turn in the clockwise direction. You will need to check the *counter-clockwise rotation* box to turn in the other direction. You can also automatically choose the closest path by selecting *Shortest way*
- **Observe** what you are doing
  - The console at the bottom shows you the current state of the pump and the commands that are sent to the pump
  - You can save or clear this log at any time by right-clicking on it

### 3. Macro recording tab

Any action that you perform in the home tab is automatically saved in the *command listing* of the *Macro recording* tab.

This allows you to control what you have done, to repeat it if you want to, and to save it for later.



The screenshot shows the 'MACRO RECORDING' tab in the LSPoneQuick application. The 'Command listing' panel contains the following items:

- Switching valve onto PORT3. (Clockwise)
- Speed of the plunger set to 802 pulses/sec.
- Picking up 150 µl at 4010 µl/min.
- Switching valve onto PORT1. (Shortest Way)
- Dispensing 150 µl at 4010 µl/min.
- Speed of the plunger set to 436 pulses/sec.
- Speed of the plunger set to 400 pulses/sec.
- Switching valve onto PORT5. (Shortest Way)
- Positioning plunger to 3000 steps at 2000 µl/min.
- Switching valve onto PORT1. (Shortest Way)

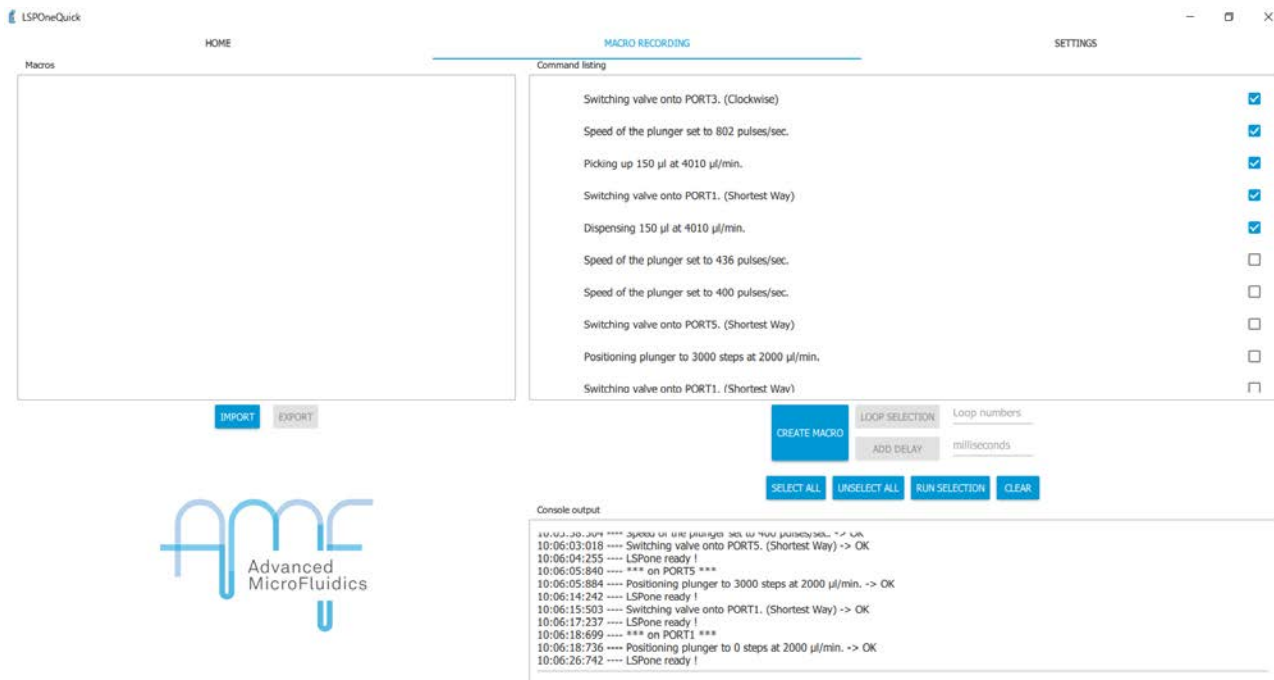
The 'Console output' panel shows the following log:

```

10:06:20:209 ***** Speed of the plunger set to 400 pulses/sec. -> OK
10:06:03:018 ---- Switching valve onto PORT5. (Shortest Way) -> OK
10:06:04:255 ---- LSPone ready !
10:06:05:840 ---- *** on PORT5 ***
10:06:05:884 ---- Positioning plunger to 3000 steps at 2000 µl/min. -> OK
10:06:14:242 ---- LSPone ready !
10:06:15:503 ---- Switching valve onto PORT1. (Shortest Way) -> OK
10:06:17:237 ---- LSPone ready !
10:06:18:699 ---- *** on PORT1 ***
10:06:18:736 ---- Positioning plunger to 0 steps at 2000 µl/min. -> OK
10:06:26:742 ---- LSPone ready !
  
```

Here are a few tips for how to use this tab:

- Check the instruction that you want to deal with:

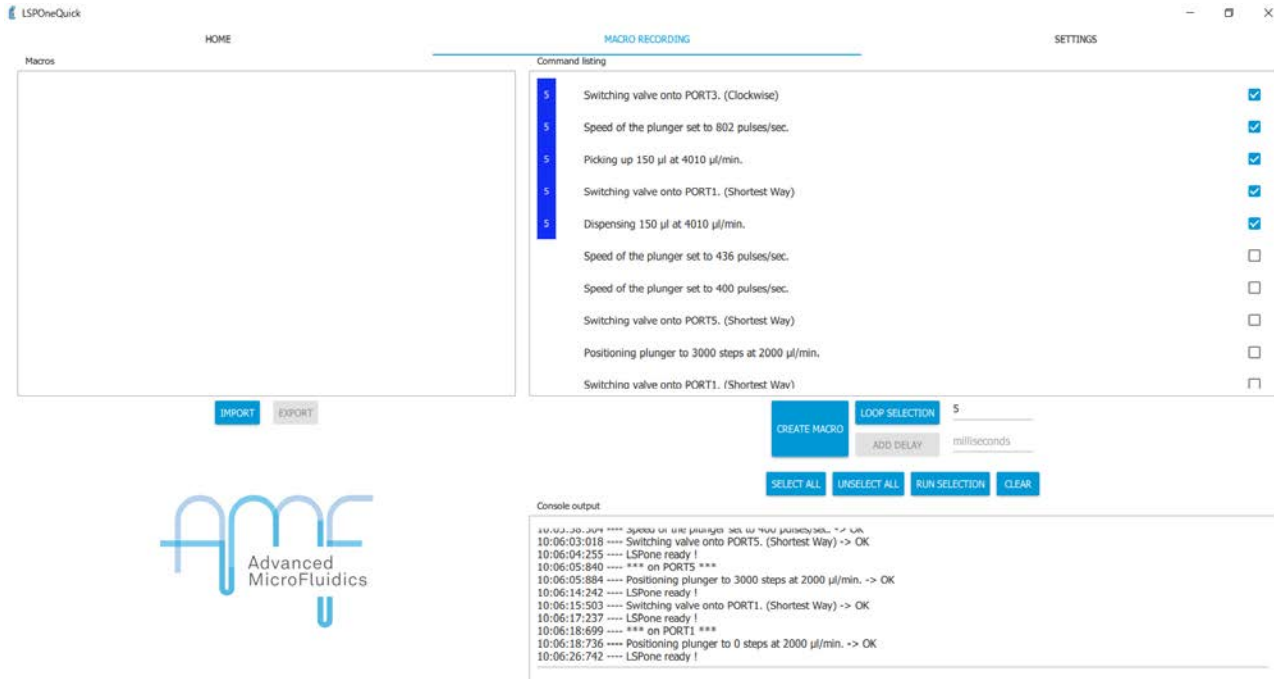


The screenshot shows the 'MACRO RECORDING' tab with the following items selected in the 'Command listing' panel:

- Switching valve onto PORT3. (Clockwise)
- Speed of the plunger set to 802 pulses/sec.
- Picking up 150 µl at 4010 µl/min.
- Switching valve onto PORT1. (Shortest Way)
- Dispensing 150 µl at 4010 µl/min.
- Speed of the plunger set to 436 pulses/sec.
- Speed of the plunger set to 400 pulses/sec.
- Switching valve onto PORT5. (Shortest Way)
- Positioning plunger to 3000 steps at 2000 µl/min.
- Switching valve onto PORT1. (Shortest Way)

The 'Console output' panel shows the same log as in the previous screenshot.

- If you simply want to repeat this set of instructions once, click on **RUN SELECTION**
- If you want to run this set more than once, enter a number of loops that you want on the *Loop number* line and click on loop selection. The number of loops will appear next to the instructions.
  - **Only valid for consecutive instructions**



The screenshot shows the LSPoneQuick software interface. The main window is titled "MACRO RECORDING" and contains a "Command listing" table with the following items:

Loop	Command	Selected
5	Switching valve onto PORT3. (Clockwise)	<input checked="" type="checkbox"/>
5	Speed of the plunger set to 802 pulses/sec.	<input checked="" type="checkbox"/>
5	Picking up 150 µl at 4010 µl/min.	<input checked="" type="checkbox"/>
5	Switching valve onto PORT1. (Shortest Way)	<input checked="" type="checkbox"/>
5	Dispensing 150 µl at 4010 µl/min.	<input checked="" type="checkbox"/>
	Speed of the plunger set to 436 pulses/sec.	<input type="checkbox"/>
	Speed of the plunger set to 400 pulses/sec.	<input type="checkbox"/>
	Switching valve onto PORT5. (Shortest Way)	<input type="checkbox"/>
	Positioning plunger to 3000 steps at 2000 µl/min.	<input type="checkbox"/>
	Switching valve onto PORT1. (Shortest Way)	<input type="checkbox"/>

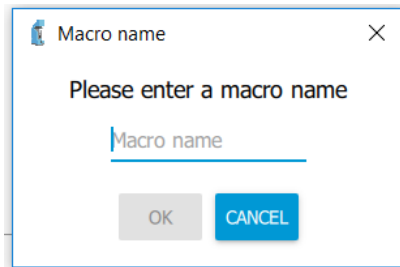
Below the command listing, there are buttons for "CREATE MACRO", "LOOP SELECTION" (set to 5), "ADD DELAY" (set to milliseconds), "SELECT ALL", "UNSELECT ALL", "RUN SELECTION", and "CLEAR".

The console output shows the following log:

```

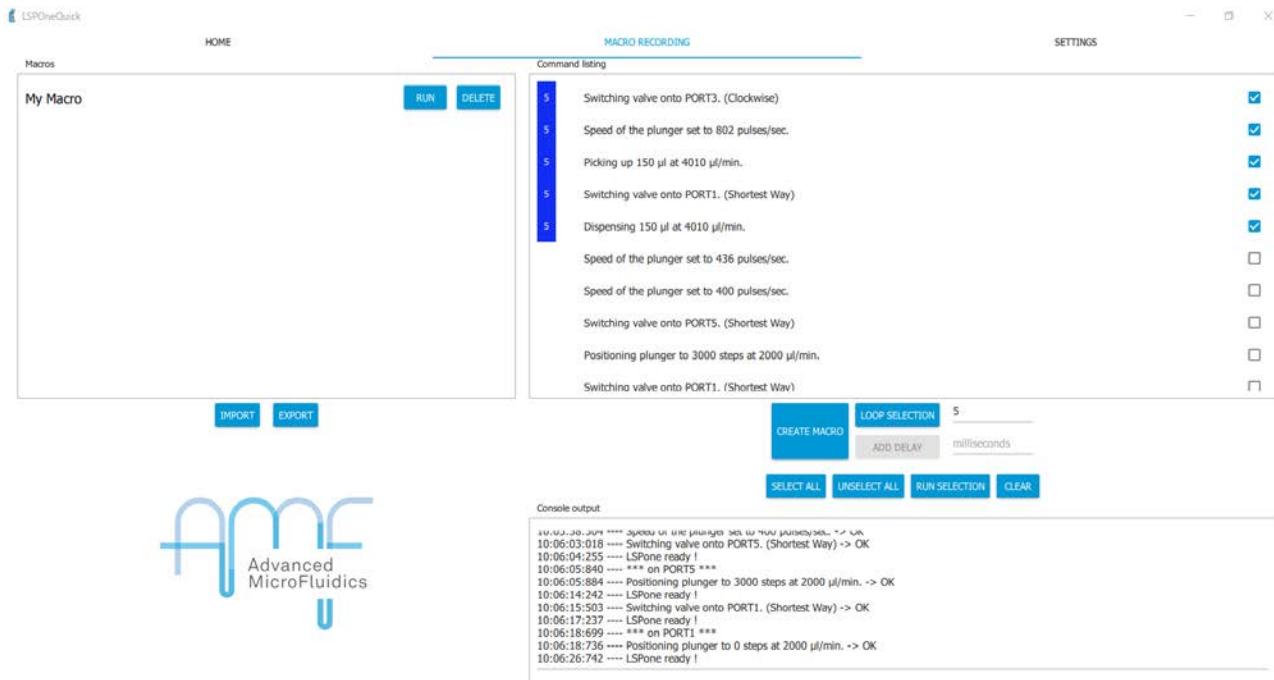
10:06:03:018 ---- Switching valve onto PORT5. (Shortest Way) -> OK
10:06:04:255 ---- LSPone ready !
10:06:05:840 ---- *** on PORT5 ***
10:06:05:884 ---- Positioning plunger to 3000 steps at 2000 µl/min. -> OK
10:06:14:242 ---- LSPone ready !
10:06:15:503 ---- Switching valve onto PORT1. (Shortest Way) -> OK
10:06:17:237 ---- LSPone ready !
10:06:18:699 ---- *** on PORT1 ***
10:06:18:736 ---- Positioning plunger to 0 steps at 2000 µl/min. -> OK
10:06:26:742 ---- LSPone ready !
  
```

- If you want to save the sequence that you created for future use, click on **CREATE MACRO**
  - A window will open asking for a macro name



The dialog box is titled "Macro name" and contains the text "Please enter a macro name". Below the text is a text input field with the placeholder text "Macro name". At the bottom of the dialog are two buttons: "OK" and "CANCEL".

- As you can see, a new macro has appeared on the left side.

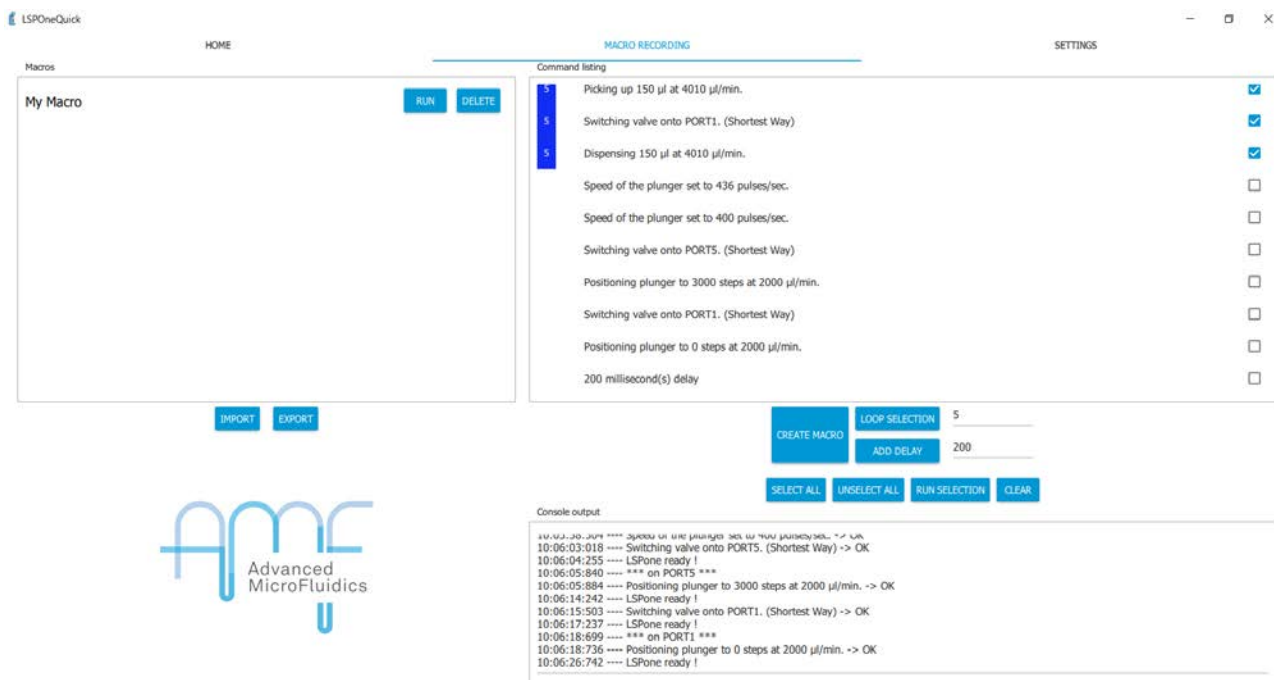


The screenshot shows the LSPoneQuick software interface. On the left, there is a 'Macros' panel with a 'My Macro' entry and 'RUN' and 'DELETE' buttons. Below it are 'IMPORT' and 'EXPORT' buttons. The main area is 'MACRO RECORDING' with a 'Command listing' table:

Step	Command	Checked
5	Switching valve onto PORT3. (Clockwise)	<input checked="" type="checkbox"/>
5	Speed of the plunger set to 802 pulses/sec.	<input checked="" type="checkbox"/>
5	Picking up 150 µl at 4010 µl/min.	<input checked="" type="checkbox"/>
5	Switching valve onto PORT1. (Shortest Way)	<input checked="" type="checkbox"/>
5	Dispensing 150 µl at 4010 µl/min.	<input checked="" type="checkbox"/>
	Speed of the plunger set to 436 pulses/sec.	<input type="checkbox"/>
	Speed of the plunger set to 400 pulses/sec.	<input type="checkbox"/>
	Switching valve onto PORT5. (Shortest Way)	<input type="checkbox"/>
	Positioning plunger to 3000 steps at 2000 µl/min.	<input type="checkbox"/>
	Switching valve onto PORT1. (Shortest Way)	<input type="checkbox"/>

Below the table are buttons for 'CREATE MACRO', 'LOOP SELECTION' (set to 5), 'ADD DELAY' (set to milliseconds), 'SELECT ALL', 'UNSELECT ALL', 'RUN SELECTION', and 'CLEAR'. The 'Console output' window shows a log of commands and their execution times, such as '10:06:03:018 ---- Switching valve onto PORT3. (Shortest Way) -> OK'.

- To run this new macro, click on *RUN* next to the macro name.
- **At this point, this macro only exists until you close the program. Then it will be lost forever.**
- If you want to keep this macro for future use the next time you open the program, click on *EXPORT*. A window will open for you to select the exporting directory.
- To retrieve a saved macro the next time you open the program, please click on *IMPORT* and find your macro in your system.
- It is also possible to add a delay between instructions by entering the time you want to wait (in milliseconds) and clicking on *ADD DELAY*
  - This delay will be added at the end of the current instruction set:



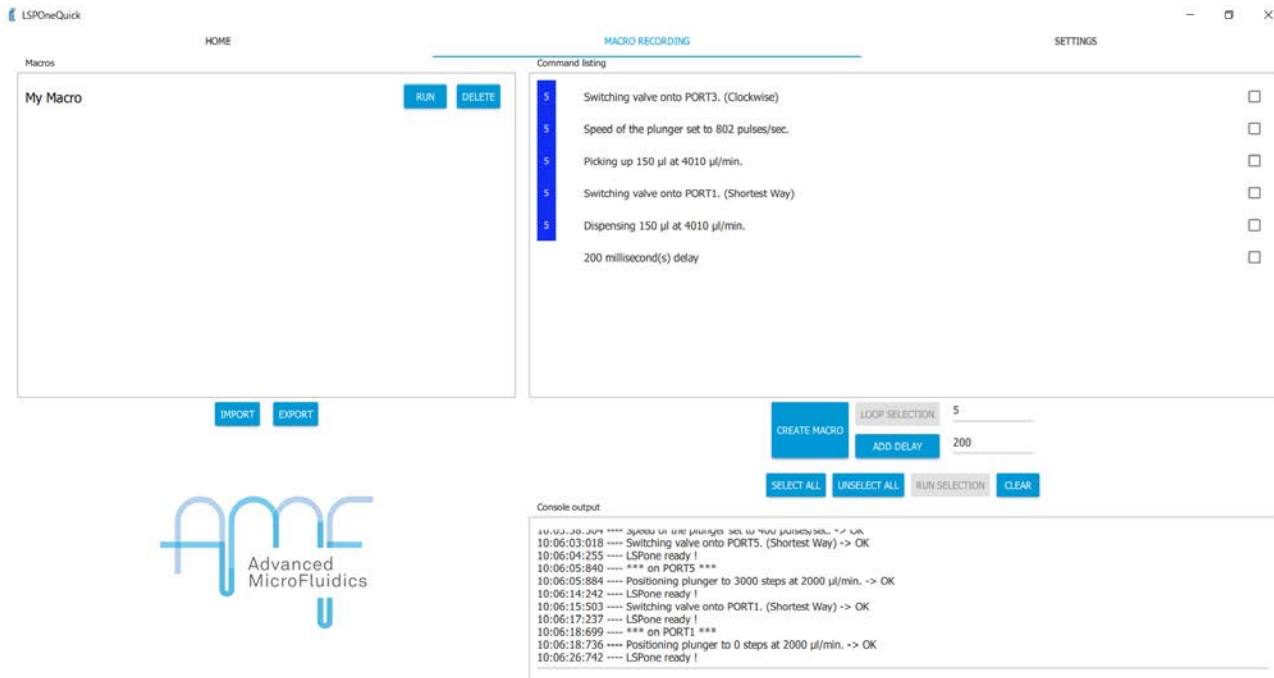
The screenshot shows the LSPoneQuick software interface with a delay added. The 'Command listing' table is:

Step	Command	Checked
5	Picking up 150 µl at 4010 µl/min.	<input checked="" type="checkbox"/>
5	Switching valve onto PORT1. (Shortest Way)	<input checked="" type="checkbox"/>
5	Dispensing 150 µl at 4010 µl/min.	<input checked="" type="checkbox"/>
	Speed of the plunger set to 436 pulses/sec.	<input type="checkbox"/>
	Speed of the plunger set to 400 pulses/sec.	<input type="checkbox"/>
	Switching valve onto PORT5. (Shortest Way)	<input type="checkbox"/>
	Positioning plunger to 3000 steps at 2000 µl/min.	<input type="checkbox"/>
	Switching valve onto PORT1. (Shortest Way)	<input type="checkbox"/>
	Positioning plunger to 0 steps at 2000 µl/min.	<input type="checkbox"/>
	200 millisecond(s) delay	<input type="checkbox"/>

The 'ADD DELAY' field is now set to 200 milliseconds. The 'Console output' window shows the same log as the previous screenshot, but with the delay command at the end: '10:06:26:742 ---- LSPone ready!'.



- If you have specific instructions that you would like to remove, check these specific instructions and click on *CLEAR*. They will then disappear from the list:



Macros

My Macro RUN DELETE

Command listing

- 5 Switching valve onto PORT3. (Clockwise)
- 5 Speed of the plunger set to 802 pulses/sec.
- 5 Picking up 150 µl at 4010 µl/min.
- 5 Switching valve onto PORT1. (Shortest Way)
- 5 Dispensing 150 µl at 4010 µl/min.
- 200 millisecond(s) delay

IMPORT EXPORT CREATE MACRO LOOP SELECTION 5 ADD DELAY 200 SELECT ALL UNSELECT ALL RUN SELECTION CLEAR

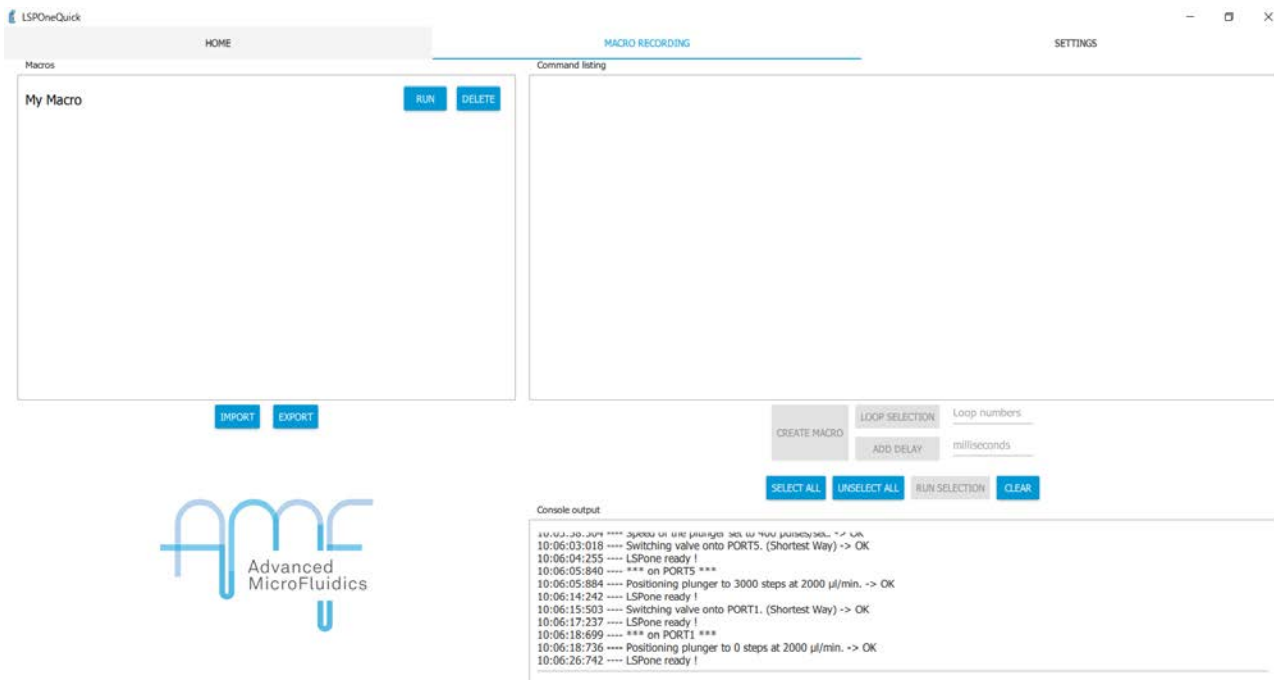
Console output

```

10:06:20:009 **** Speed of the plunger set to 802 pulses/sec. -> OK
10:06:03:018 ---- Switching valve onto PORT3. (Shortest Way) -> OK
10:06:04:255 ---- LSPone ready !
10:06:05:840 ---- *** on PORT3 ***
10:06:05:884 ---- Positioning plunger to 3000 steps at 2000 µl/min. -> OK
10:06:14:242 ---- LSPone ready !
10:06:15:503 ---- Switching valve onto PORT1. (Shortest Way) -> OK
10:06:17:237 ---- LSPone ready !
10:06:18:699 ---- *** on PORT1 ***
10:06:18:736 ---- Positioning plunger to 0 steps at 2000 µl/min. -> OK
10:06:26:742 ---- LSPone ready !

```

- You can use the *SELECT ALL* and *UNSELECT ALL* buttons for easier selection of your instructions, depending on the number that you have got.
- If you want to clear the full list and come to a fresh start, simply click on *CLEAR* without selecting anything:



Macros

My Macro RUN DELETE

Command listing

IMPORT EXPORT CREATE MACRO LOOP SELECTION Loop numbers ADD DELAY milliseconds SELECT ALL UNSELECT ALL RUN SELECTION CLEAR

Console output

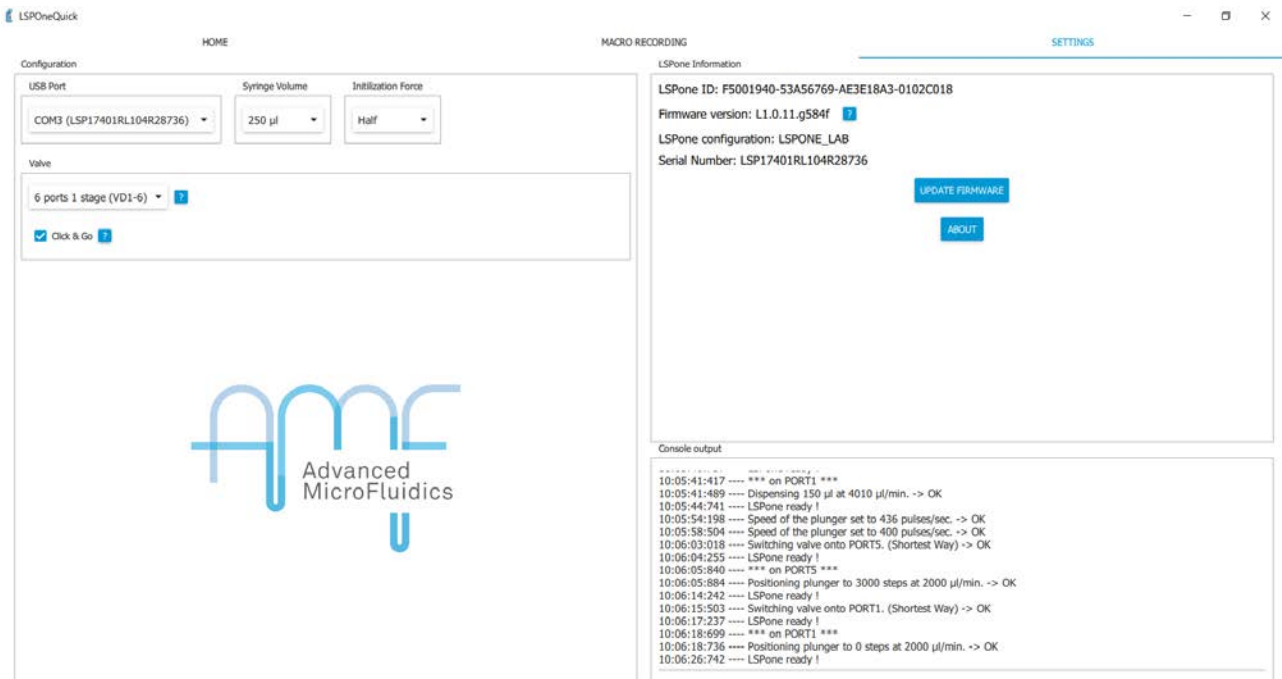
```

10:06:20:009 **** Speed of the plunger set to 802 pulses/sec. -> OK
10:06:03:018 ---- Switching valve onto PORT3. (Shortest Way) -> OK
10:06:04:255 ---- LSPone ready !
10:06:05:840 ---- *** on PORT3 ***
10:06:05:884 ---- Positioning plunger to 3000 steps at 2000 µl/min. -> OK
10:06:14:242 ---- LSPone ready !
10:06:15:503 ---- Switching valve onto PORT1. (Shortest Way) -> OK
10:06:17:237 ---- LSPone ready !
10:06:18:699 ---- *** on PORT1 ***
10:06:18:736 ---- Positioning plunger to 0 steps at 2000 µl/min. -> OK
10:06:26:742 ---- LSPone ready !

```

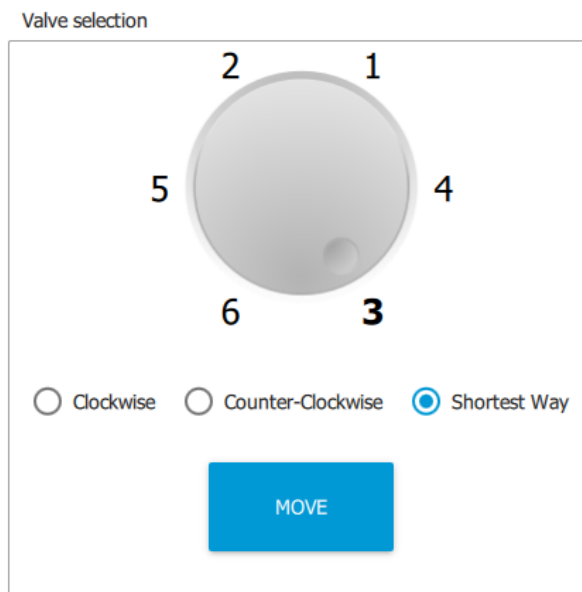
- The output console shows what the pump is doing and its status at any time.

## 4. Settings tab

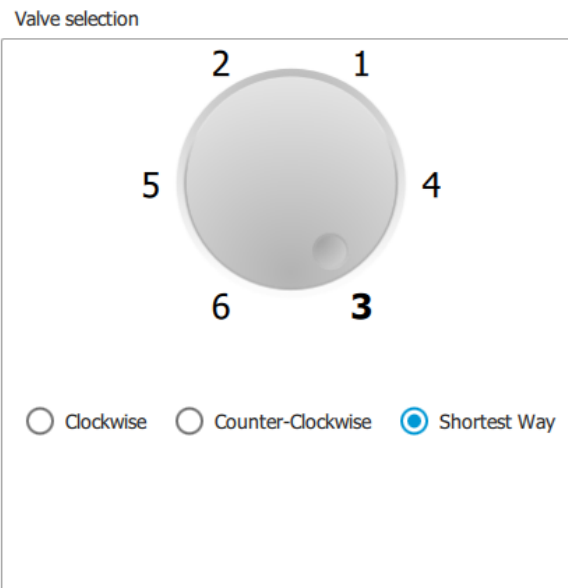


The settings tab allows you to input which specific pump configuration you are using:

- The **port** you are connected to (mostly important when using several pumps)
- The **syringe** that is mounted on the pump
- The **valve** model
- Whether you want to use the software with the “**Click&Go**” option
  - If the box is unchecked, you must select a port number, then click on *MOVE*



- If the option is selected, the port change happens as soon as you click on a different port number. The move button then disappears



You can also have specific information (read on the firmware) to know which pump you are using. This is mostly useful if you need to contact us in case you have a problem. Here is the information given:

- The unique pump ID
- The firmware version (software in the pump)
- The LSPone configuration
- The serial number

Using the *UPDATE FIRMWARE* button allows you to update the firmware. You need to contact us to get the latest version available.

The *ABOUT* button gives you information about the software licensing.

The settings page also shows the output console, so you can monitor what is happening from any window.