



# BioPen® Wizard

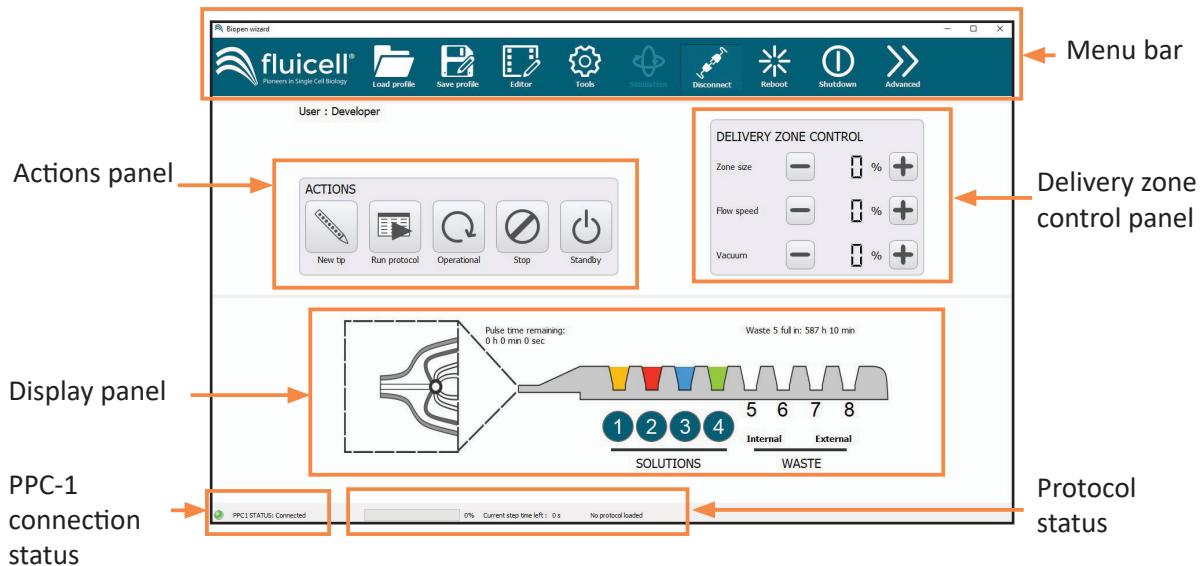
*Quick start / Basic functions*

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# 1. Interface guide

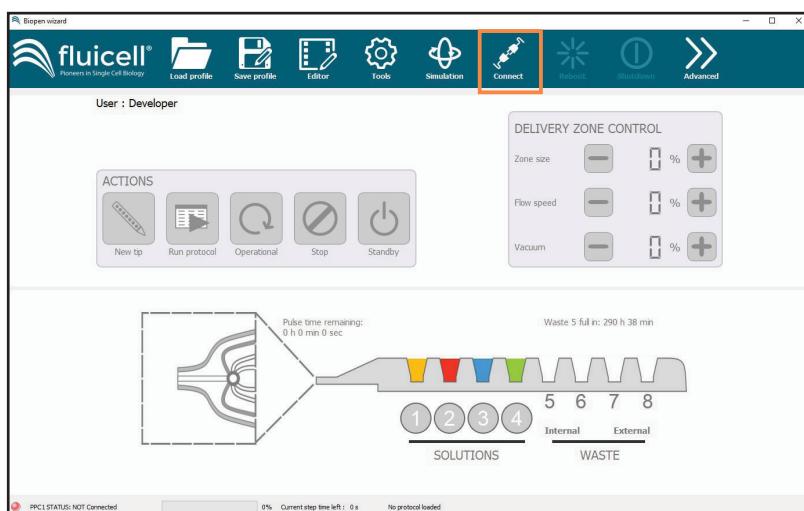


The interface is divided into six panels:

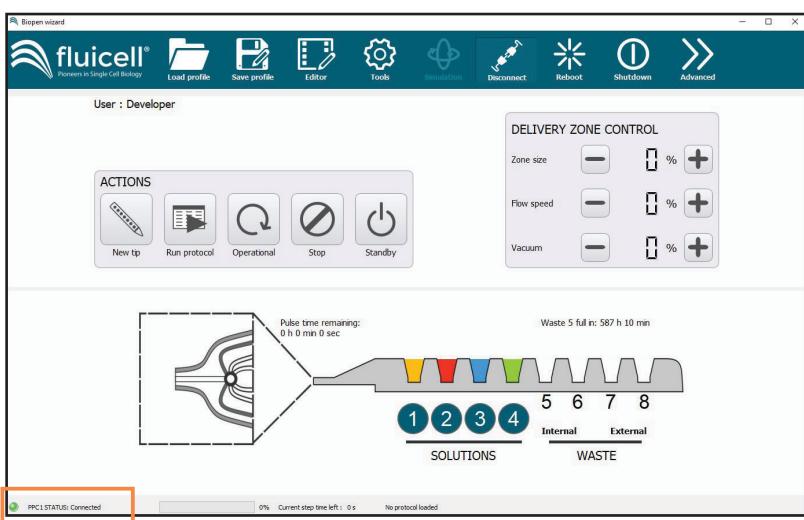
- *Menu bar* which provides access to such functions as load and save profile, tools, simulation, connection, reboot, shutdown and activation of advanced interface,
- *Actions* which contains basic commands to run the Biopen,
- *Delivery zone control* which allows to adjust the delivery zone,
- *Display* which shows information about the level of solutions and waste wells, the name of the currently delivered solution and an expected approximate size of the solution delivery zone. It also allows to individually start or stop the delivery of solutions,
- *PPC-1 status* which displays the connection status between the computer and the pressure controller PPC-1,
- *Protocol status* which provides information about the protocol loaded and its current status.

## 2. Starting Biopen wizard

After connecting the computer to the Biopen PPC-1 unit via the USB cable, turn on the unit by pressing the power switch localized on the back. Double-click on Biopen icon to launch the program. Click on *Connect* button on the top main bar (see the orange rectangle in the figure below).



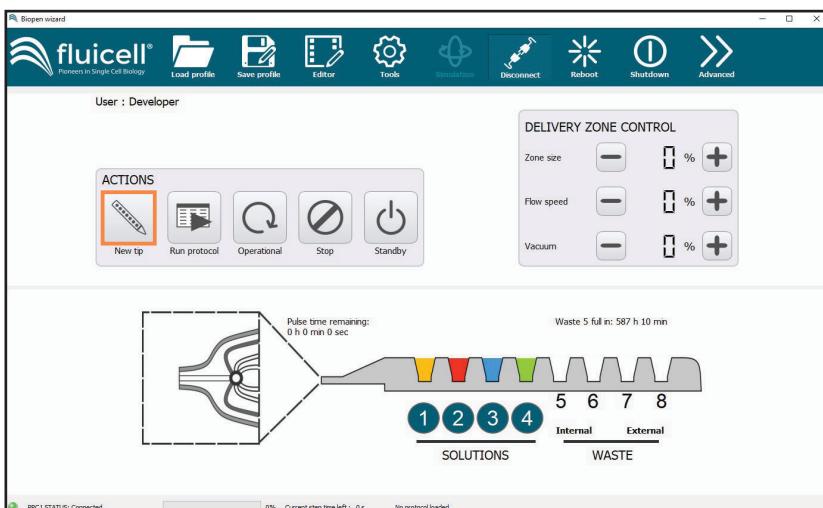
A green circle following by “PPC1 STATUS: Connected” should display at the left bottom of the software panel (see the orange rectangle in the figure below).



### 3. Setting up a new tip

The software has different protocols preconfigured for setting up the Biopen pipette tip ready for operation. The most used of which is the *New tip*, which prepares the Biopen system for operation. This is a step-by-step setup, with clear instructions at each step to ensure smooth operation.

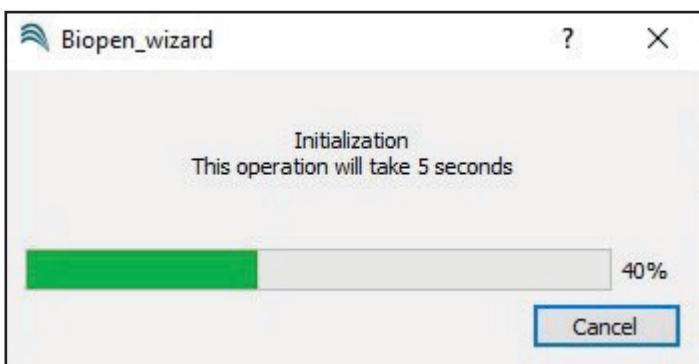
Click on *New tip* button to start (see the orange rectangle in the figure below).



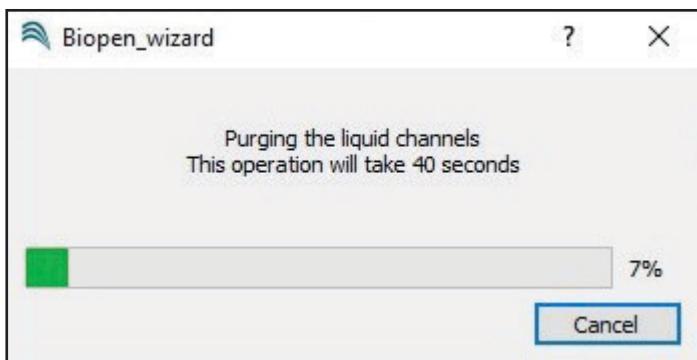
A pop-up notice window displays. Follow the instruction, make sure that the pipette tip is securely placed in the holder and the cover screw is properly tightened. Pressing *Ok* starts to pressurize the system.



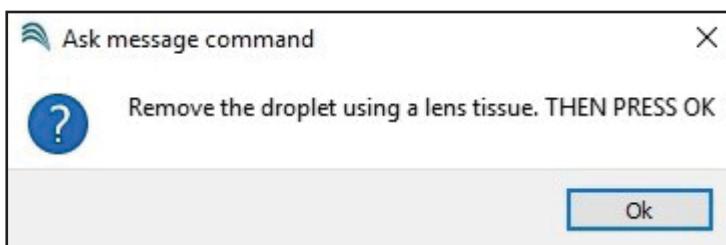
The operation takes 5 seconds.



Wait until a small droplet appears at the tip of the pipette and then press *Ok*. A purge starts.



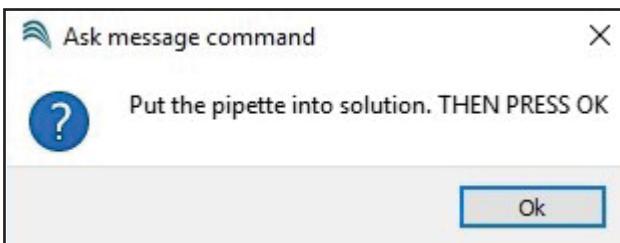
When completed, the next step asks for the droplet at the tip to be removed, using a lens tissue.

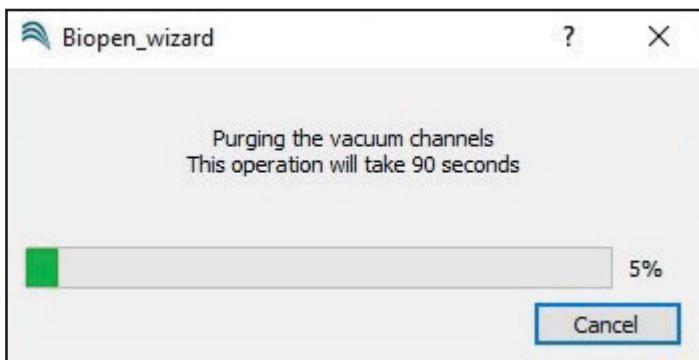


Then the pipette needs to be submerged in your sample solution, ensuring the tip is beneath the liquid surface.

This should not be placed near to the target species, cells or surface, but comfortably submerging the tip of the pipette in the solution within the petri dish. Occasionally an extra drop of solution is needed to be placed on the tip to break the surface tension. This will minimize any shadowing or image distortion (see [Pipette Positioning guide](#) paragraph in the setup guide section p 11).

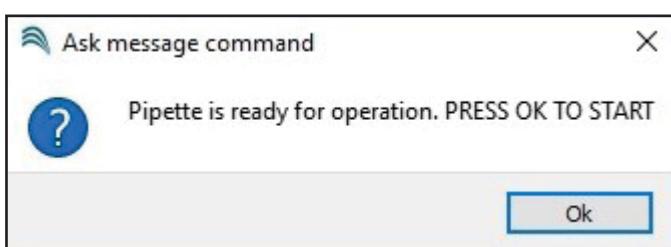
Clicking *Ok* starts a purge.





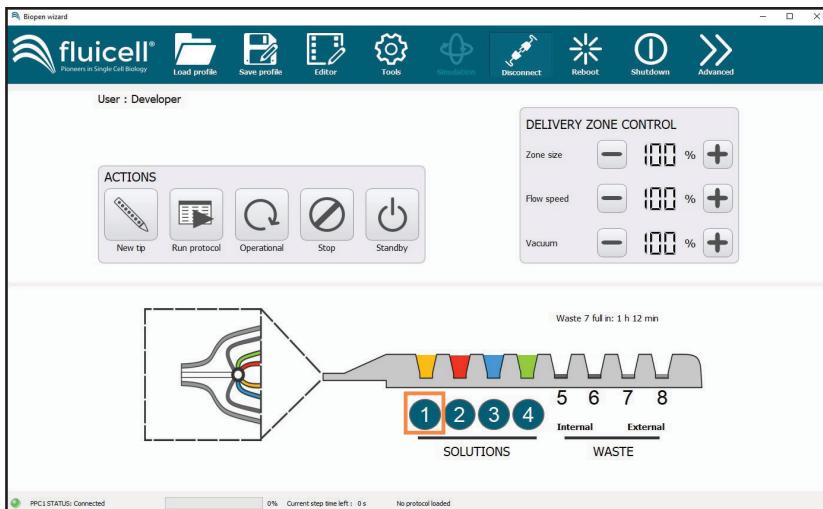
Now the pipette is ready for operation.

Click *Ok* to start.

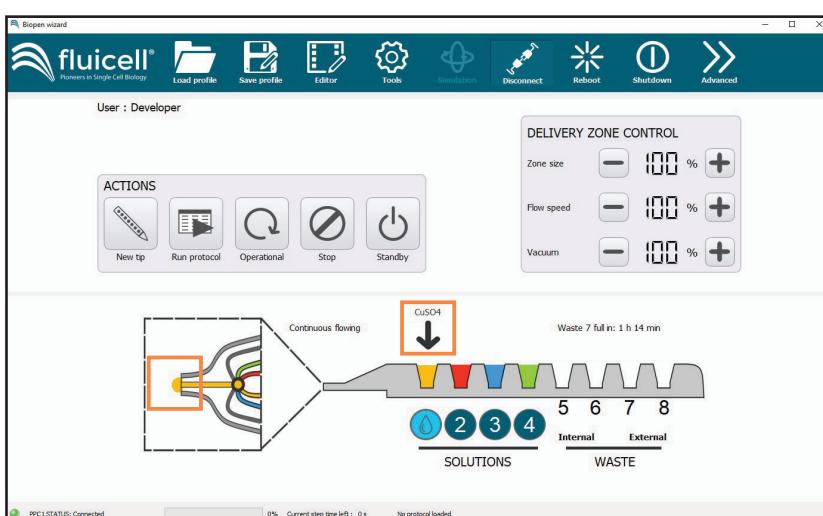


## 4. Solution delivery and switching

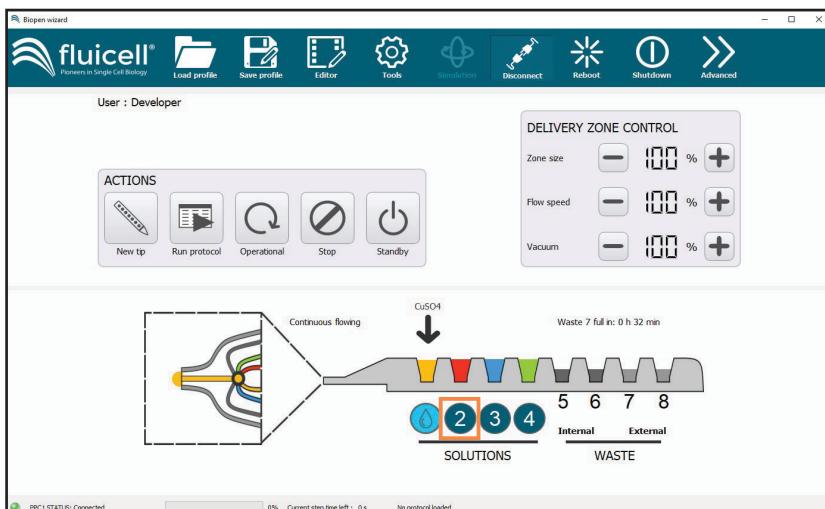
You can deliver independently solution 1, 2, 3 or 4 **after setting up the tip** (see [Setting up a new tip](#) paragraph of this section). **To deliver continuously solution 1**, click on the solution 1 button (see the orange rectangle in the figure below).



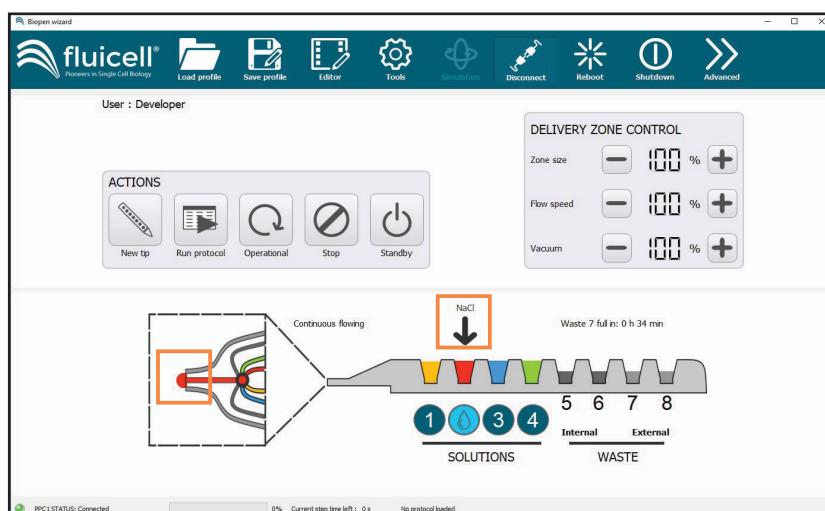
The name of solution 1 appears on the top of the well and the delivery zone appears at the end of the tip (see the two orange rectangles in the figure below).



**To switch to solution 2**, click on the solution 2 button (see the orange rectangle in the next figure).



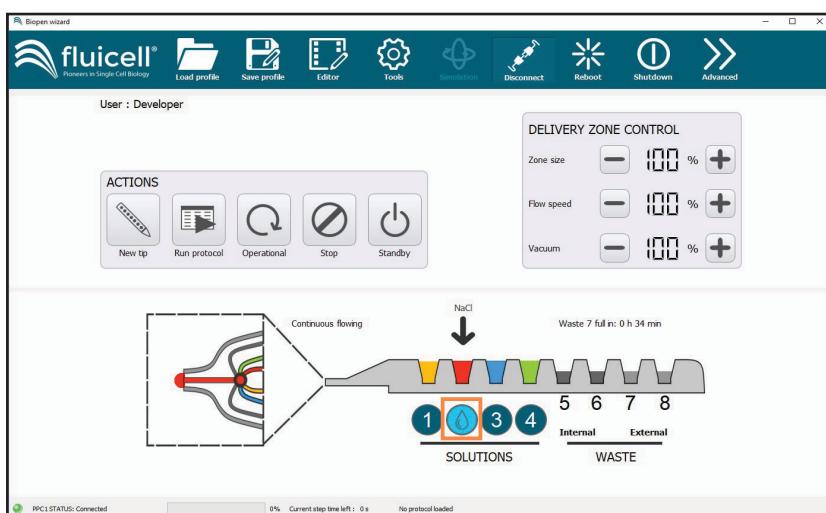
The name of solution 2 appears on the top of the well and the delivery zone displays at the end of the tip (see the two orange rectangles in the figure below).



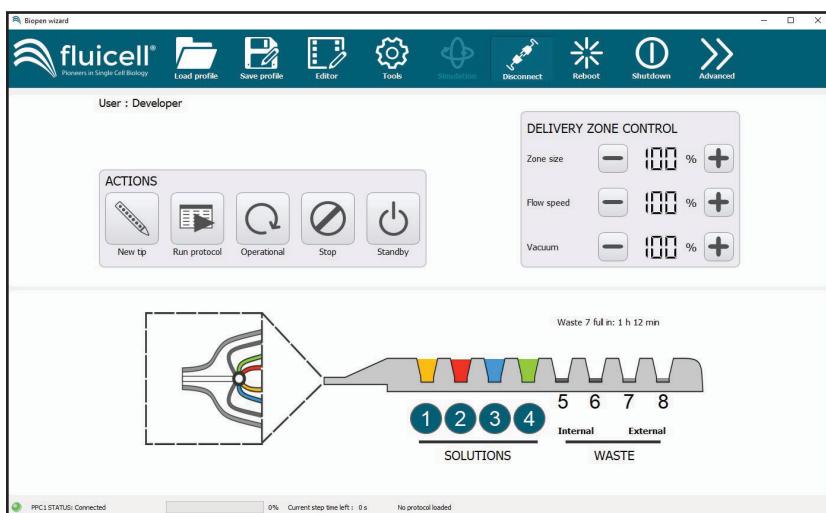
**To switch to solution 3,** click on the solution 3 button.

**To switch to solution 4,** click on the solution 4 button.

**To STOP delivery,** press again the button of the currently delivered solution (see the orange rectangle in the next figure).



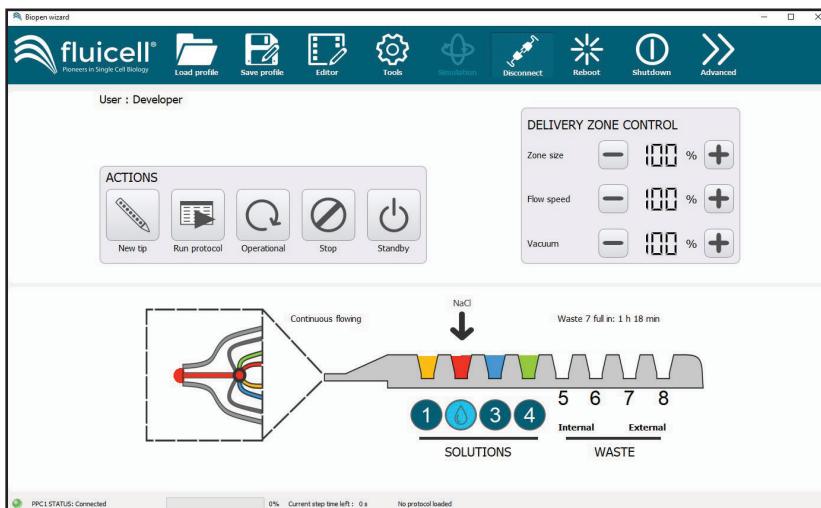
The solution delivery stops, the name of the solution and the delivery zone disappear.



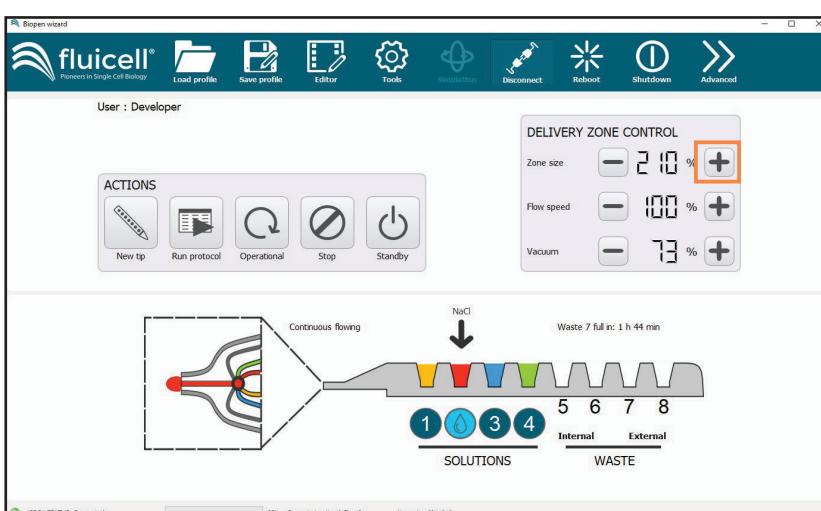
## 5. Delivery zone control

### 5.1. Changing the size of the delivery zone

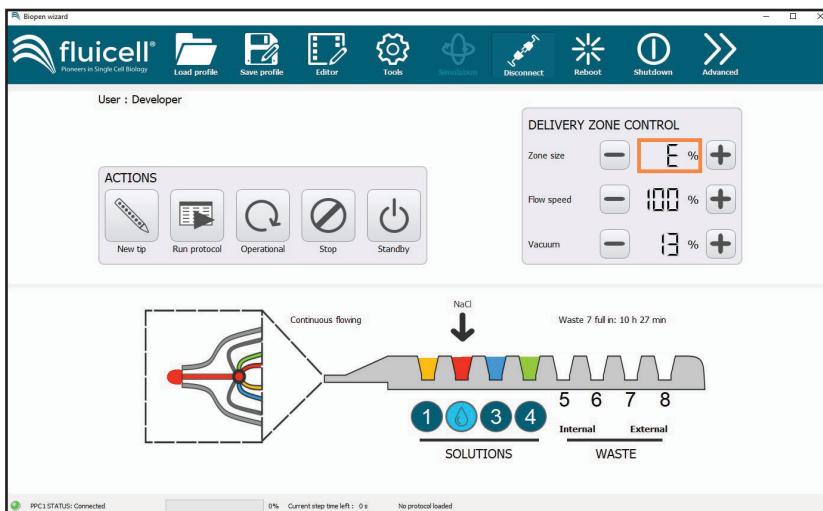
First, select the solution you want to deliver. In the following example, the solution 2 is being delivered by clicking on the solution 2 button.



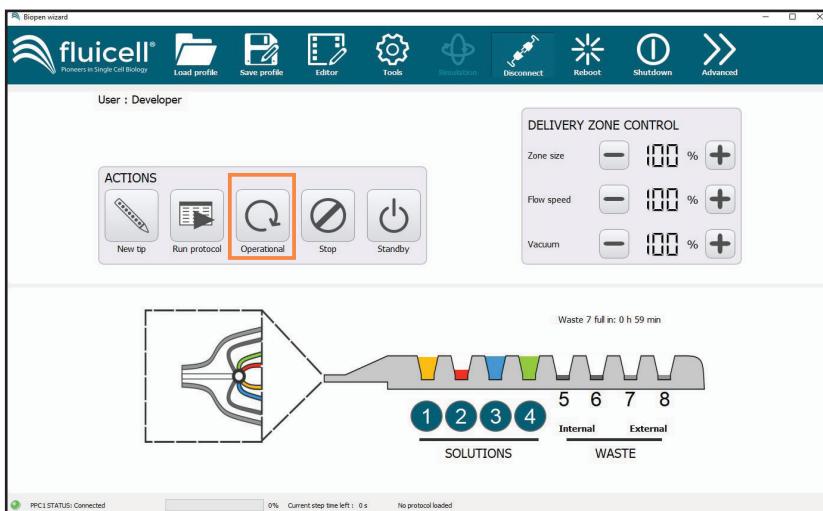
To **INCREASE** the delivery zone, click on the + button (see the orange rectangle in the figure below).



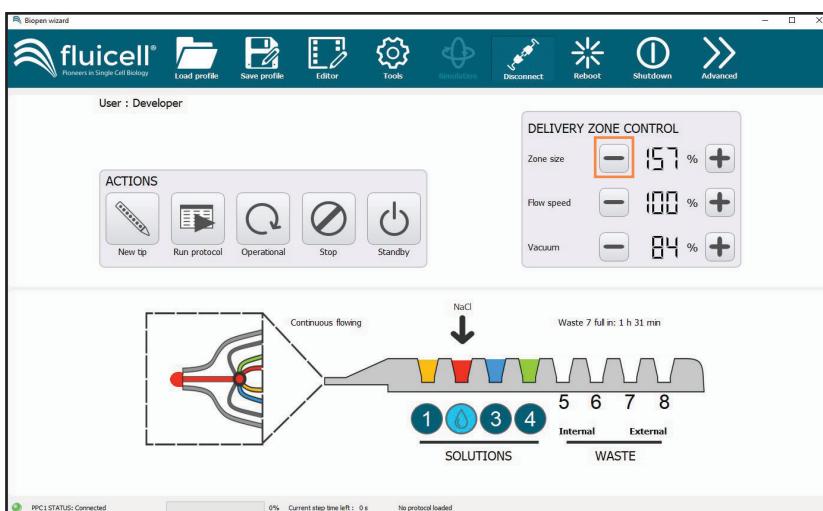
**Do not increase too much** the zone size, as this may compromise the localized delivery process and result in **leakage** of your solution into your sample. It's recommended to always observe under the microscope the size of your delivery zone. An "E" for Error will display (see the orange rectangle in the figure below) if you have increased the zone size too much.



To return to **STANDARD VALUES**, click on the *Operational* button (see the orange rectangle in the figure below). The delivery stops and all percentages of the delivery zone control panel returns to 100 %.

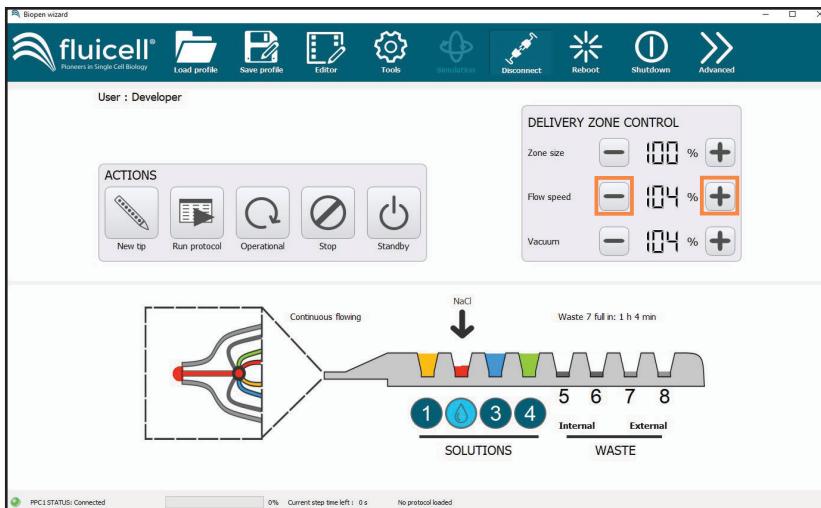


To **DECREASE** the size of the delivery zone, click on the - button (see the orange rectangle in the next figure).



## 5.2. Changing the flow speed

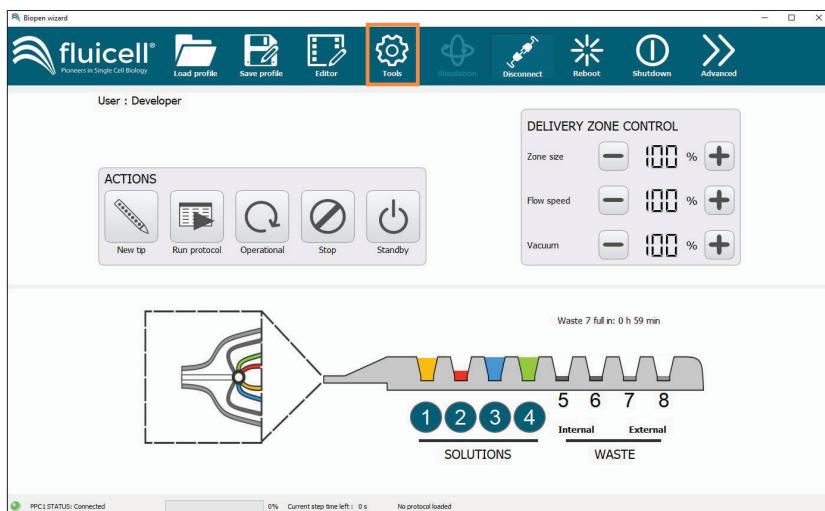
You can increase or decrease the flow speed of delivered solution by pressing the + and - buttons (see the two orange rectangles below).



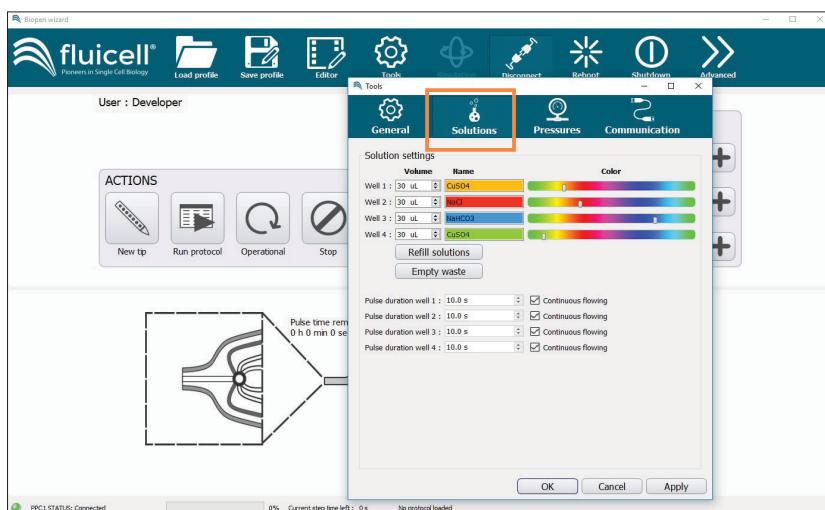
Be aware that by increasing the flow speed, you will consume more rapidly your solutions and fill your waste wells faster. In contrast to, by decreasing the flow speed, you will consume less of your solutions and slow down the solution exchange speed.

## 6. Solution delivery duration

You can adjust the delivery duration of each solution by clicking the **Tools** tab on the top Menu bar (see the orange rectangle below).

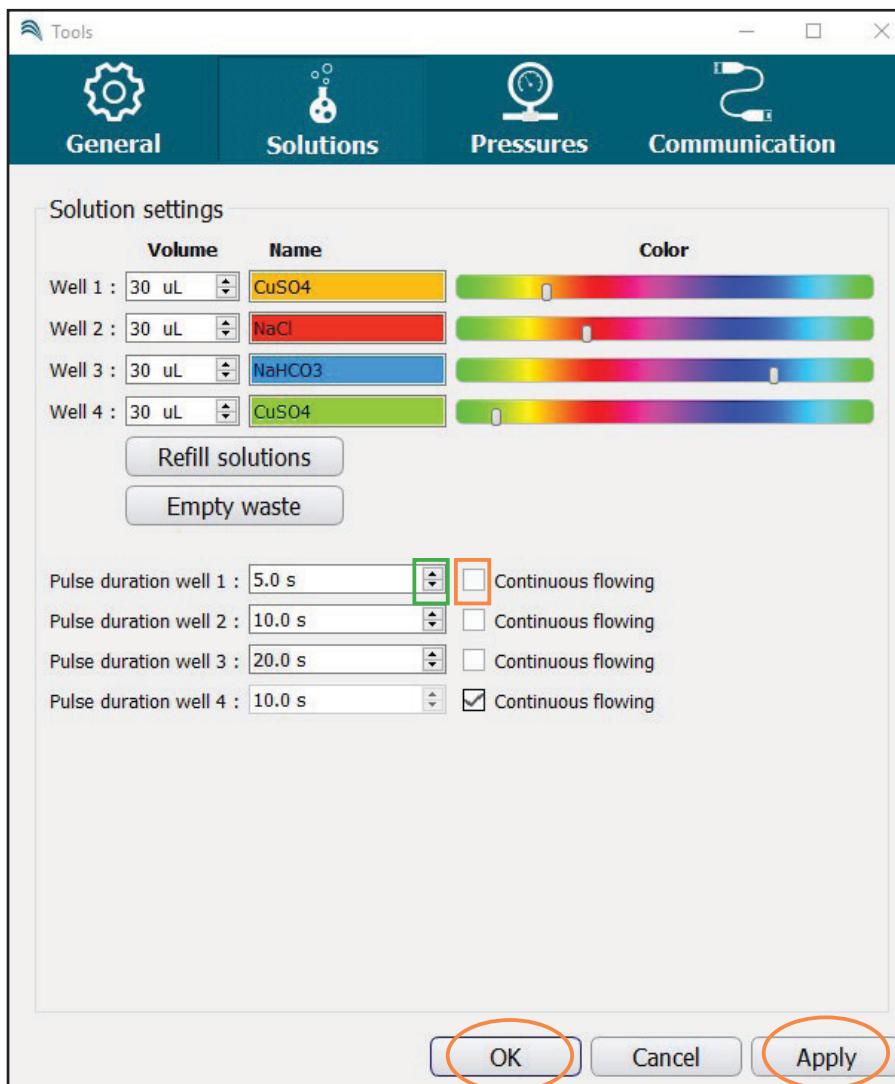


A pop-up window displays. Click on the *Solutions* tab (see the orange rectangle in the figure below).



For each solution, you can choose between **continuous flowing** or **pulse**. To adjust pulse duration unselect first the *Continuous flowing* box to the right of the chosen solution (see orange rectangle in the figure below). Then increase or decrease the pulse duration by clicking up or down arrows (see green rectangle in the figure below). Notice that the **time unit is second**. To save the changes, click the *Apply* button and *OK* (see the two orange circles in the figure below).

In the example below, solutions 1, 2, 3 and 4 will be delivered respectively 5, 10, 20 seconds and continuously.



## 7. Actions panel

The Actions panel has 5 buttons: **New tip**, **Run protocol**, **Operational**, **Stop** and **Standby**.

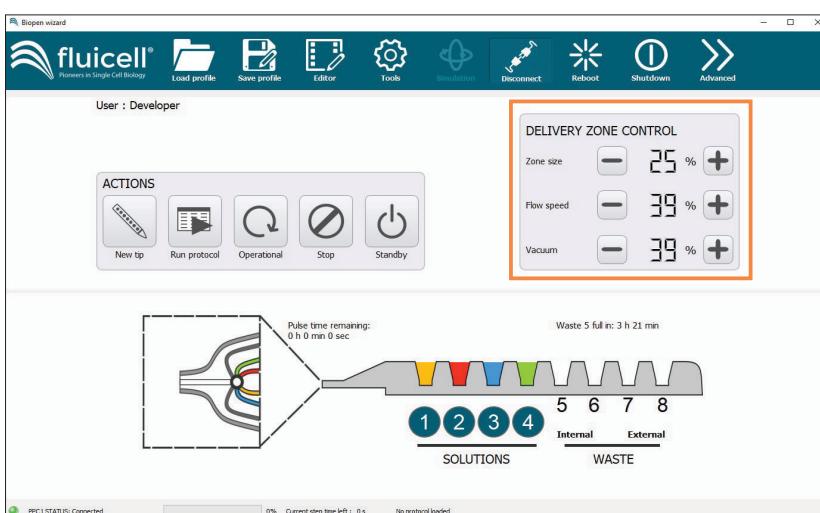
**New tip** initiates the preparation of the Biopen system for operation. It is a step-by-step setup with clear instructions at each step to ensure smooth start (see [Setting up a new tip](#) paragraph in this section).

**Run protocol** button starts the last protocol loaded in the *Editor* window.

**Operational** button sets all the values of the delivery zone back to 100 %.

**Stop** button sets all the delivery zone value to 0 % and depressurizes the system. This function should be used for any actions requiring removal of the pipette holder out of the sample solution (e.g. empty the waste wells, change the tip).

**Standby** mode sets all the delivery zone values to a holding level (see the orange rectangle in the figure below). These values are set to balance the flows within the tip for longer periods of waiting (e.g. changing location within the sample or periods away from the instrument).



## 8. Menu bar functions

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The Biopen software displays 9 buttons on the top menu bar: ***Load profile, Save profile, Editor, Tools, Simulation, Connect, Reboot, Shutdown and Advanced.***

***Load profile*** loads a previously saved profile.

***Save profile*** allows to save the current profile to a configuration file.

***Editor*** displays the editor panel to write, load or edit protocols.

***Tools*** opens a new window to setup your preferences.

***Simulation*** mode aims to help you familiarize yourself with the software or simulate complex protocols without running the pressure controller PPC-1 or being connected to the pipette holder.

***Connect*** button allows to connect or disconnect the pressure controller PPC-1.

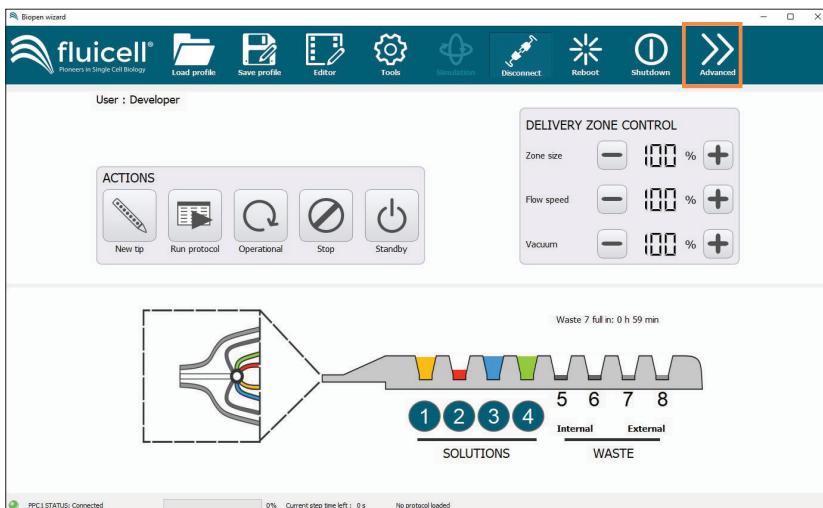
***Reboot*** resets the device.

***Shutdown*** button initiates the switching off the Biopen system.

***Advanced*** opens an advanced panel with more options and settings.

## 9. Advanced panel / Set delivery zone percentages

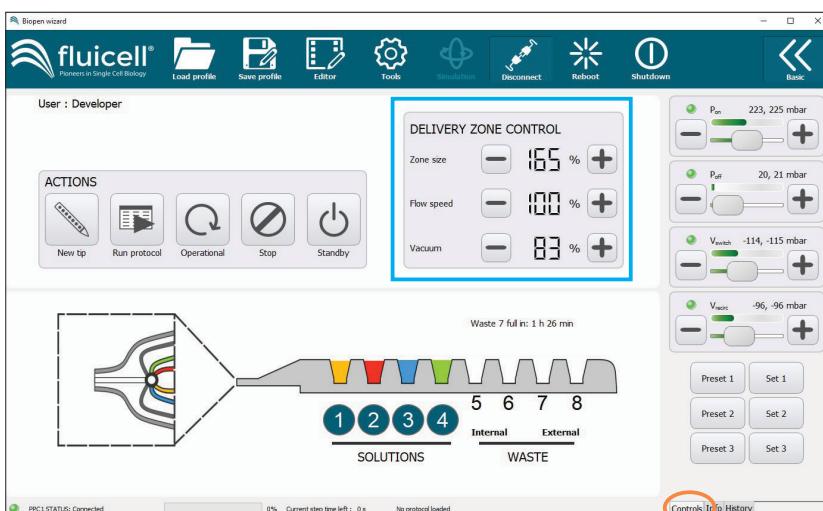
On the top Menu bar, click on the **Advanced** button for more options (see the orange rectangle in the figure below).



An additional panel appears on the right side of the software window. Click the **Controls** tab located at the bottom (see the orange circle in the figure below) to set your values.

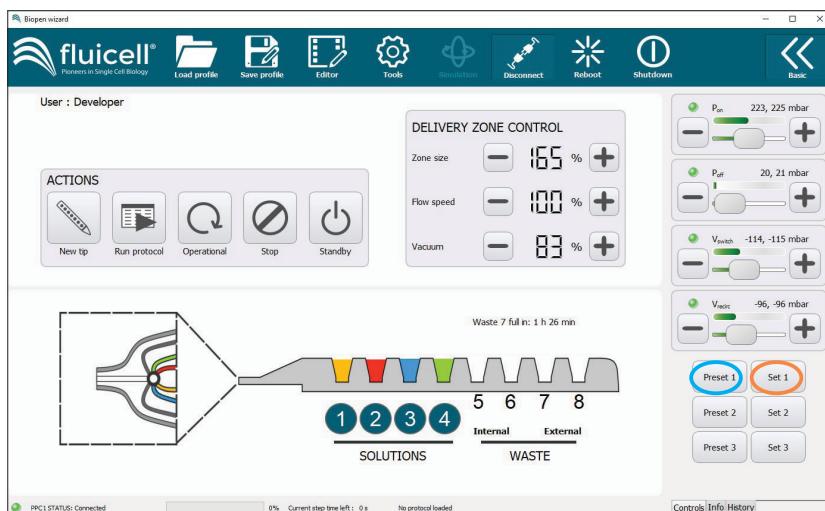
First on the **DELIVERY ZONE CONTROL** panel (see the blue rectangle in the figure below), select the best percentage values for your experiment by clicking the + or - buttons.

In the example below, 165, 100 and 83 % have been selected respectively for the zone size, flow speed and vacuum values.



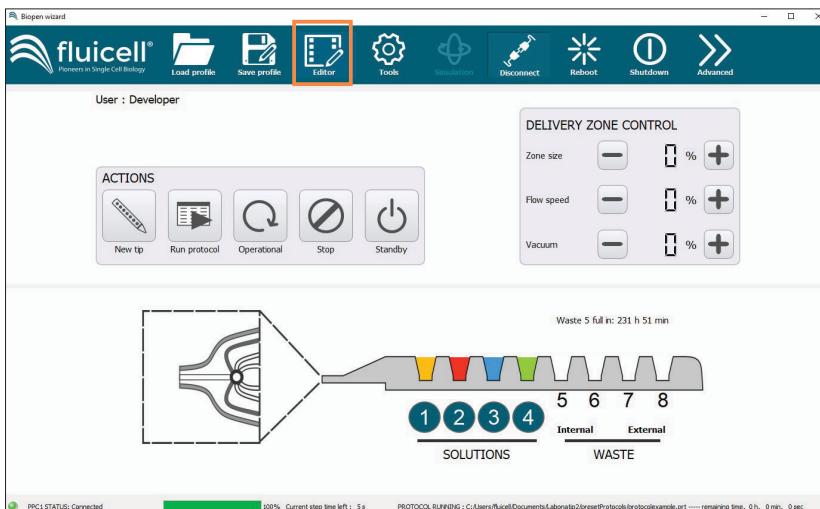
To save this set of values, click on the **Set 1** button (see the orange circle in the figure below). To load this set of values, click on the **Preset 1** button (see the blue circle in the figure below).

Two others set of values can be saved by clicking on *Set 2* and *Set 3* buttons, and they can be loaded by clicking *Preset 2* and *Preset 3* buttons.

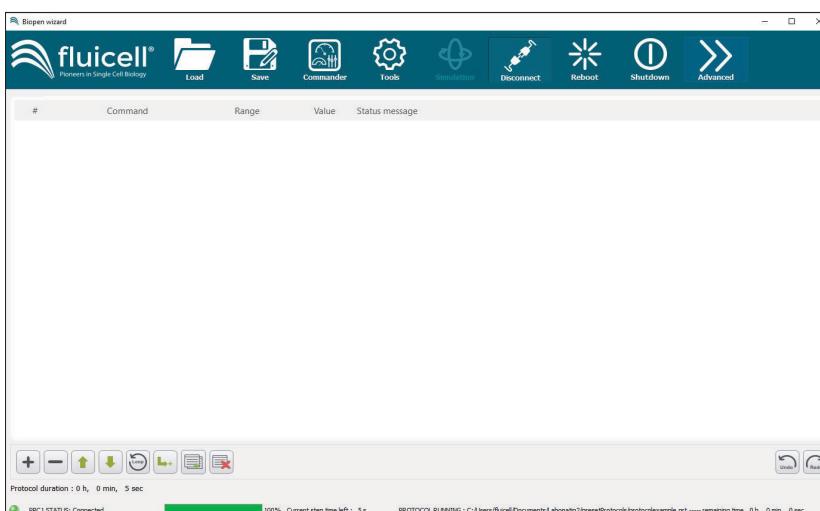


## 10. Protocol editor

Protocols can be written, loaded or edited by clicking on the *Editor* button on the top Menu bar (see the orange rectangle in the figure below).

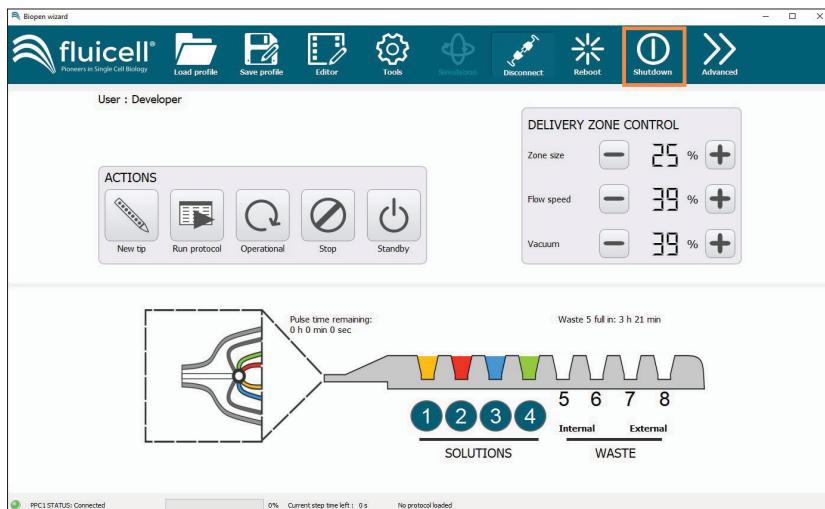


The Editor panel displays (see the figure below).

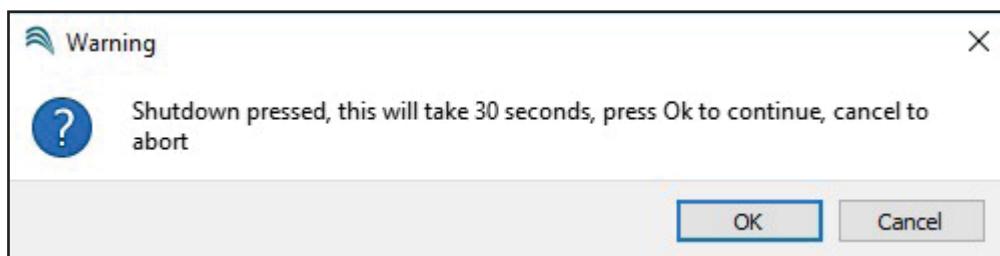


## 11. Shutdown the instrument

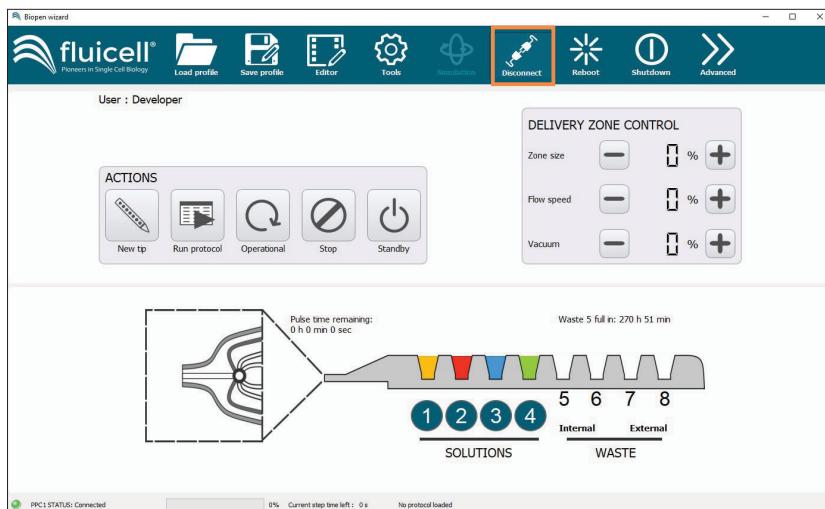
To switch off properly the Biopen system, click the **Shutdown** button on the top menu bar (see orange rectangle below).



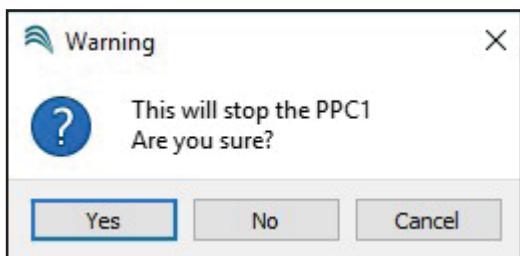
A pop-up notice window displays. Press **OK** if you want to turn off the Biopen system.



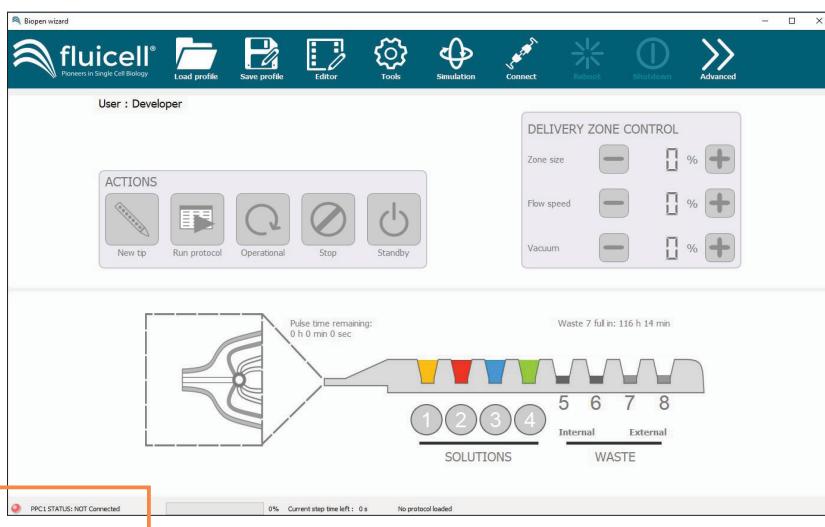
All the delivery control zone values drops to 0 %. Then click on the *Disconnect* button (see orange rectangle below).



A pop-up notice window displays. Click Yes to stop the pressure controller PPC1.



A red circle following by “PPC1 STATUS: NOT Connected” should display at the left bottom of the software panel (see orange rectangle in the figure below).



Now you can safely **close the Biopen software** and **turn off the pressure controller PPC-1** by pressing the switch on the back of the pressure controller and by **removing the pipette** from the holder.