Automatic pipetting workstation

SC9320

User Manual for PRCXI Device

Release date: November 12, 2024

Catalog

1. Overview

The SC9320 redefines liquid handling and process automation. With superior automation design concepts, advanced automation and liquid handling technology, the SC9320 offers a variety of countertop capacity and application options to meet the specific process needs of the laboratory.

2. Specifications and parameters

Product Model number	**SC9320 automated pipetting workstation**
Dimensions	880*700*780㎜
Net weight	≤75kg
Pipetting core	Dual core (8+1/8+8)/single 96 channels Single pipetting core (1/8) + Grippers
Plate position	12+4 plate
Pipetting technique	Gas piston type
Pipetting range	0.5-1000μl, achieved by changing different modules
Pipetting accuracy	0.5-10μl pipetting core Range: 0.5μl %D:±14% %CV≤8% Range: 0.1μl %D:±8% %CV≤6% Range: 5μl %D:±5% %CV≤2.5% Range: 10μl %D:±2% %CV≤1.5%
	5-300μl pipetting core Range: 50μl %D:±1.5% %CV≤1% Range: 100μl %D:±1% %CV≤0.8% Range: 200μl %D:±0.8% %CV≤0.5%
	10-1000μl pipetting core Range: 1000μl %D:±0.35% %CV≤0.2%
Software	ZWorks automatic control software, can provide API interface
Operating system	Windows10
Software interface	USB port, RS-232 serial port

3. Appearance and structure

As shown in the figure, the SC9320 automatic pipetting workstation is briefly structured as follows:

Appearance and structure

4. Operation principle

XYZ three-axis independent movement, a variety of motion arrangement and combination, with the pipetting axis independent control, accurate pipetting accuracy, complete various pipetting tasks, laboratory system construction, etc. Zworks software control, loading, imbibing, unloading, drop all, and other series of actions are all controlled by the host computer.

5. Installation and debugging

Contact after-sales personnel to guide installation and commissioning

6. Preparation before use and use steps

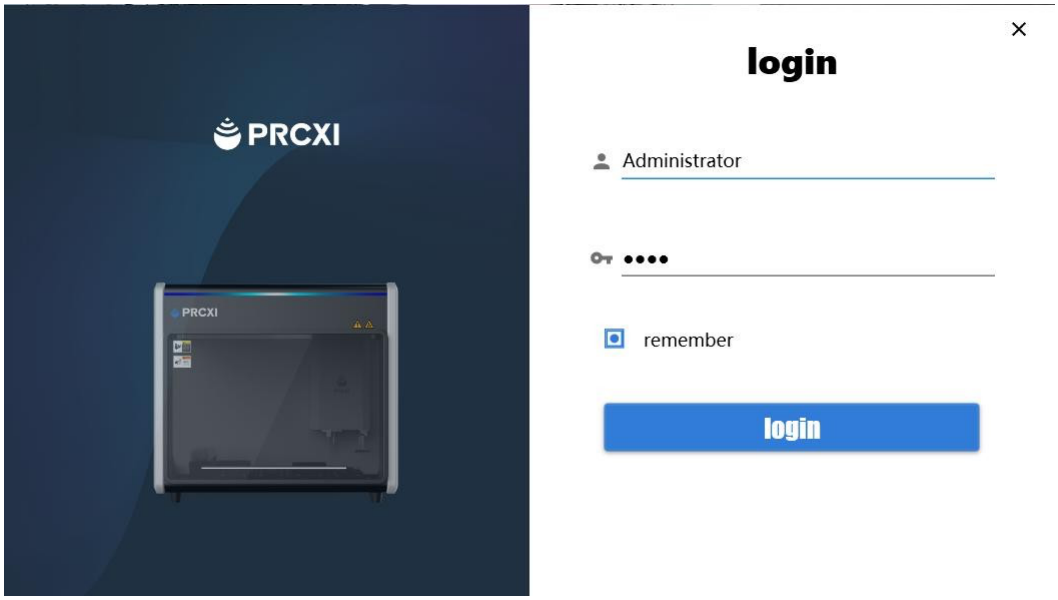
Before using the device, make sure you have done the following preparations:
Check the packaging to make sure all accessories are complete.
Read this instruction manual carefully for proper use.
If you have any special requirements, please contact our technical staff.

7. Introduction to Operation procedures

7.1 Summary of the overall process of software routine operation

1. Start the software and connect the device.
2. Log in to the shortcut account to enter the shortcut entrance, and edit and execute the shortcut functions (see 7.3 Shortcut Entrance for specific operations and functions).
3. Log in to the admin account, you can enter the normal scheme entrance, click the side navigation to enter the editing scheme process, edit the scheme, load the scheme to run the scheme after editing is completed (see 7.5 editing scheme for specific operations and functions).
4. Click on the use scheme in the scheme list (see 7.4 Operation scheme for specific operations and functions).
5. The advanced function page can be used for fine-tuning and calibration of equipment parameters (see 7.6 Advanced functions for detailed operation and functions).

7.2 Login software



Click login to enter the main interface to edit and run the experimental scheme

7.3 Shortcut entry

When logging in the software, login account: shortcut, password: 123456, you can enter the shortcut entry page. The shortcut entry is divided into three modules: multi release, gradient and uniformity.

Right function button:

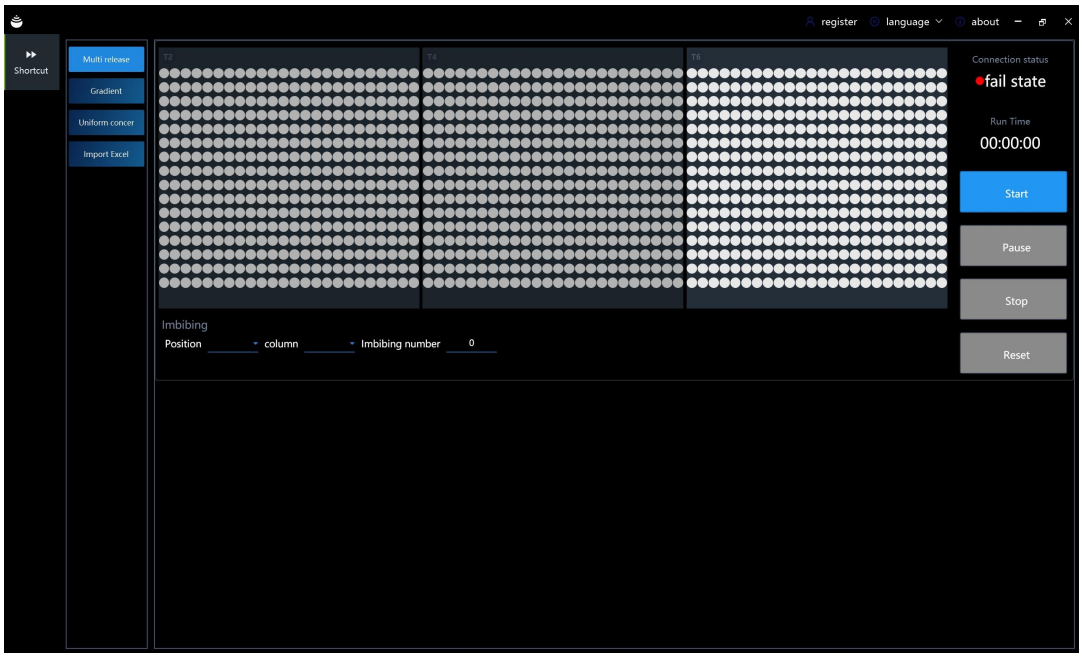
Start: After the scheme is successfully added, click to start the scheme. At the same time, the version hole used in the scheme will be mapped to the position map.

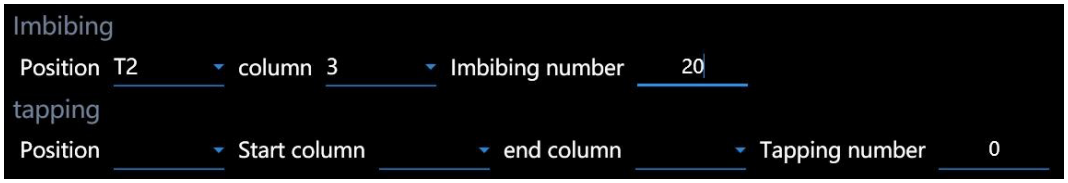
Pause: Click to pause the scheme.

Stop: If there is an error in the execution of the scheme or you need to stop the execution of the scheme, you can click the execution scheme to stop.

Reset: After executing the stop function to stop the scheme running, you can click reset the device and the host computer.

Multi release:





Step 1: Choose imbibing position.

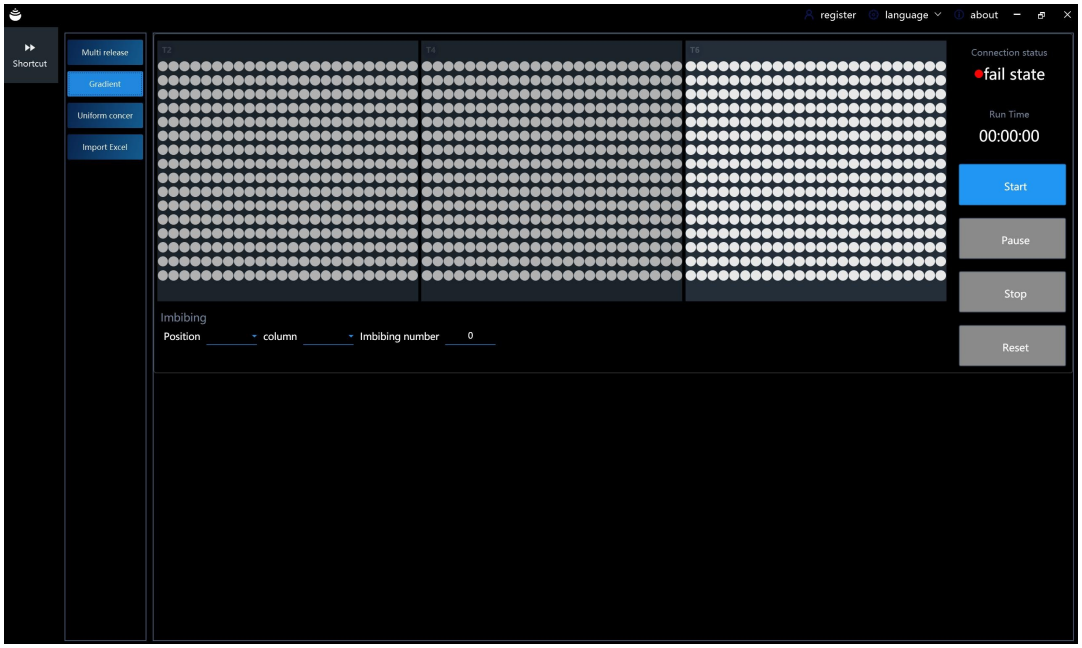
Step 2: Select a good version of the position can be selected column number, select the column number after the success of the selected version of the hole position.

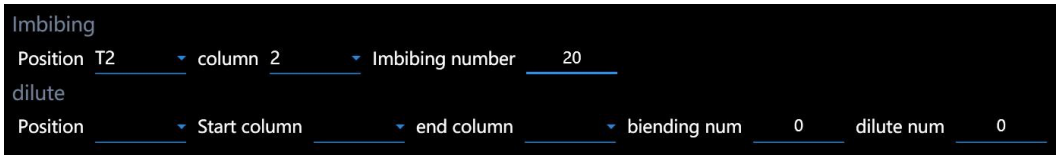
Step 3: After the previous two steps are entered successfully, the imbibing amount can be input. After completion, the lower **tapping** function will automatically display.

Step 4: Select tapping, start column, end column and tapping number. After success, the auxiliary function can be displayed: blow (not required). Click the check to add the auxiliary function of blow for this process.

Step 5: After setting the multi release scheme, click the right start button to execute the scheme. If you need to modify the scheme in the execution of the scheme, you can stop the reset device and the host computer, and then modify it in the left scheme editing area.

Gradient:



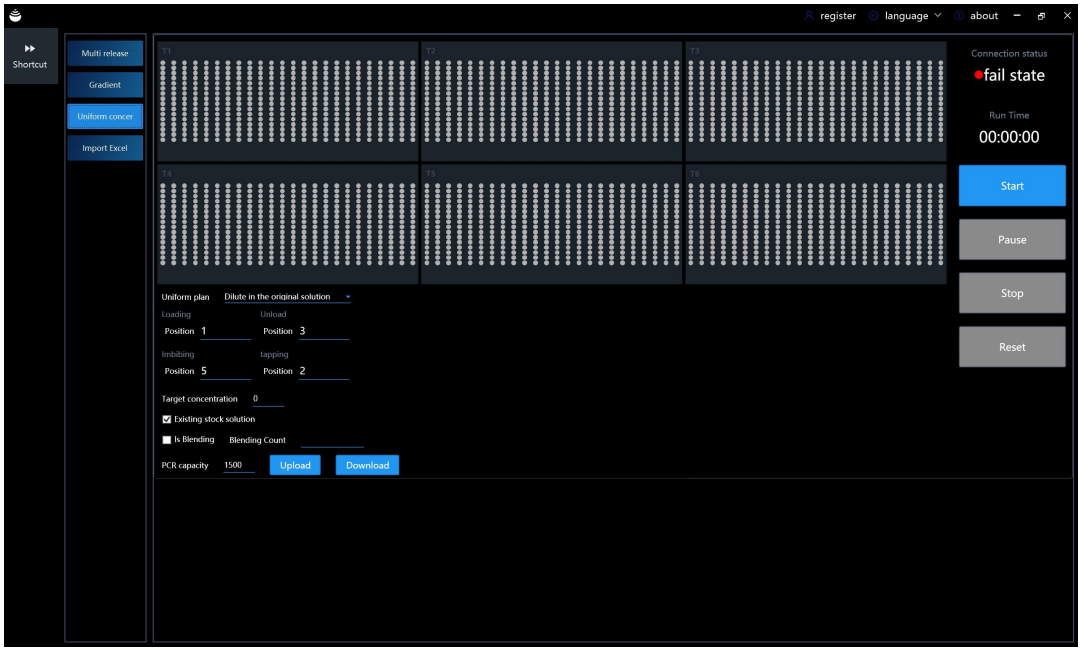


Step 1: Set the imbibing position, set the column and imbibing number after success, and the **dilution** function can be displayed after the setting is completed.

Step 2: Set the dilution position, the start and end column, the number of single column mixing, and the amount of single column dilution. After completion, the auxiliary function will be displayed: blow (not required). After checking, the auxiliary function of blow can be added.

Step 3: After the scheme is set, click the start button on the right

Concentration Uniformity:



Step 1: Click to **download the template.**

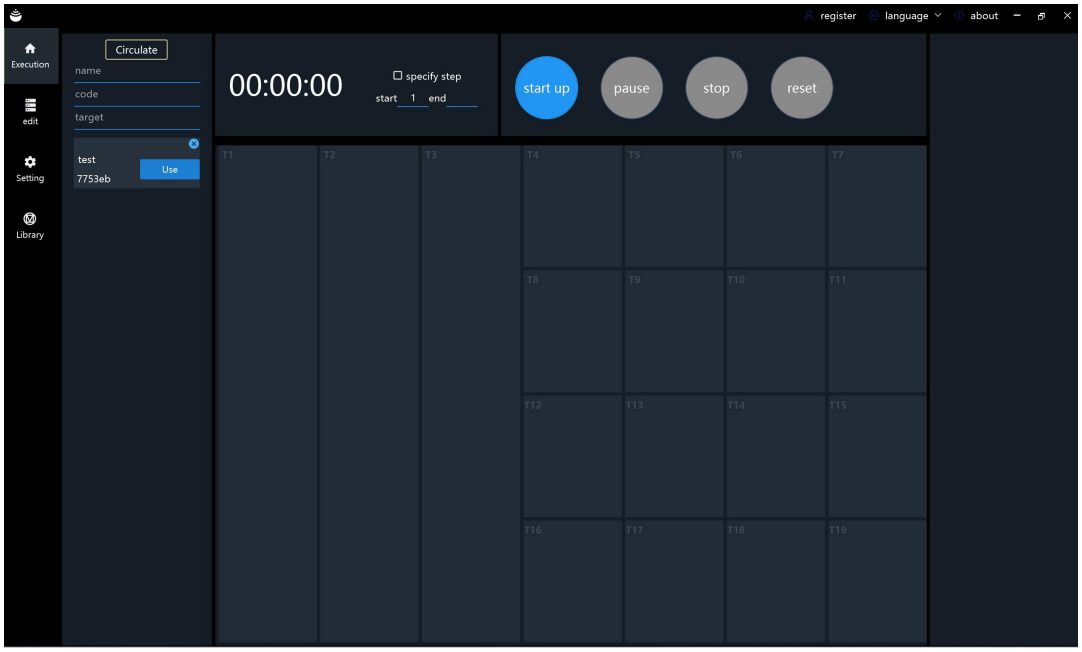
Step 2: Fill in the required parameters in the downloaded template.

Step 3: After setting the successful parameters in the template, click **Uniformity template** to import the template file you just wrote.

Step 4: Click the start button on the right to start the concentration uniformity scheme.

7.4 Operation scheme

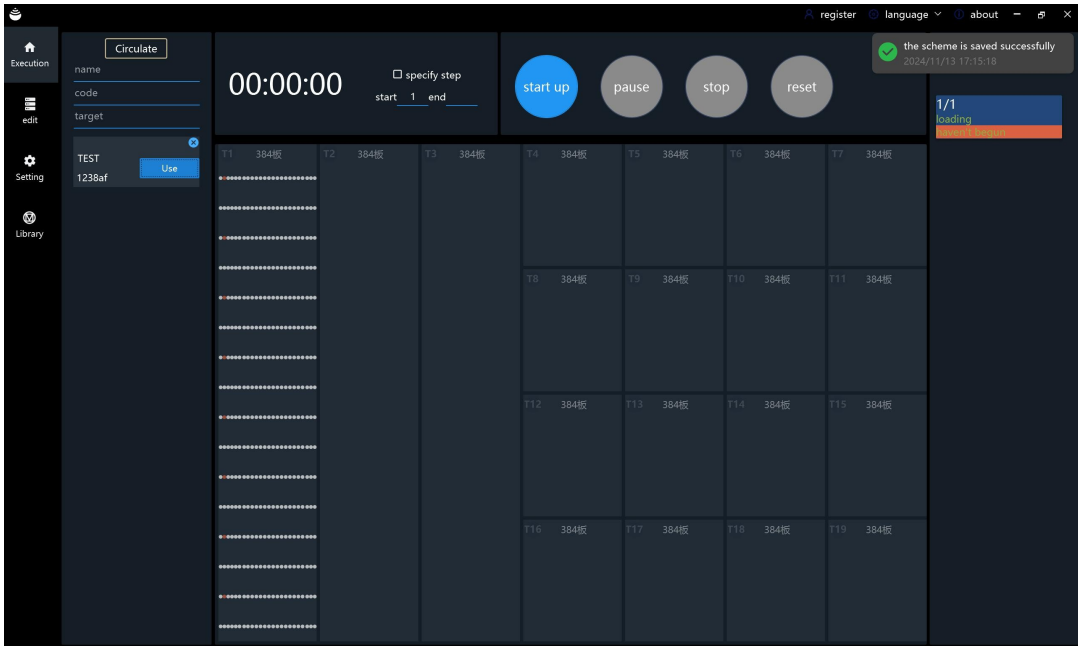
When logging into the software, login account: admin, password: 159357, you can log into the running scheme page. When logging into the account, the default is to enter the running scheme.



The left side is the scheme list, the middle is the position, and the right side is the scheme step execution list and control button

Buttons on the right:

Start: When the device is connected and there is an experimental scheme in the version area, click to start the scheme running, as shown below:



Pause: After connecting the device, click to pause the scheme, and click again to

continue the stopped scheme.
Stop: Click to stop the current scheme running.
Reset: After stopping the device operation, click to reset the host computer and the device.

List of solutions on the left:

The relevant parameters can be input to retrieve the scheme, as shown below:

Left picture:

The name, number, and target are inputable items, and the following list of solutions can be filtered after input

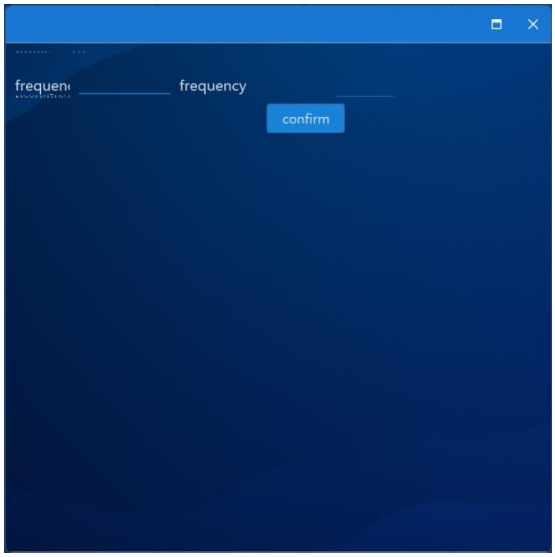
Picture on the left:

Click on the name to modify the scheme name.

Click Use to load the scheme into the middle position.

Click Delete to delete the current scheme.

Circulate:



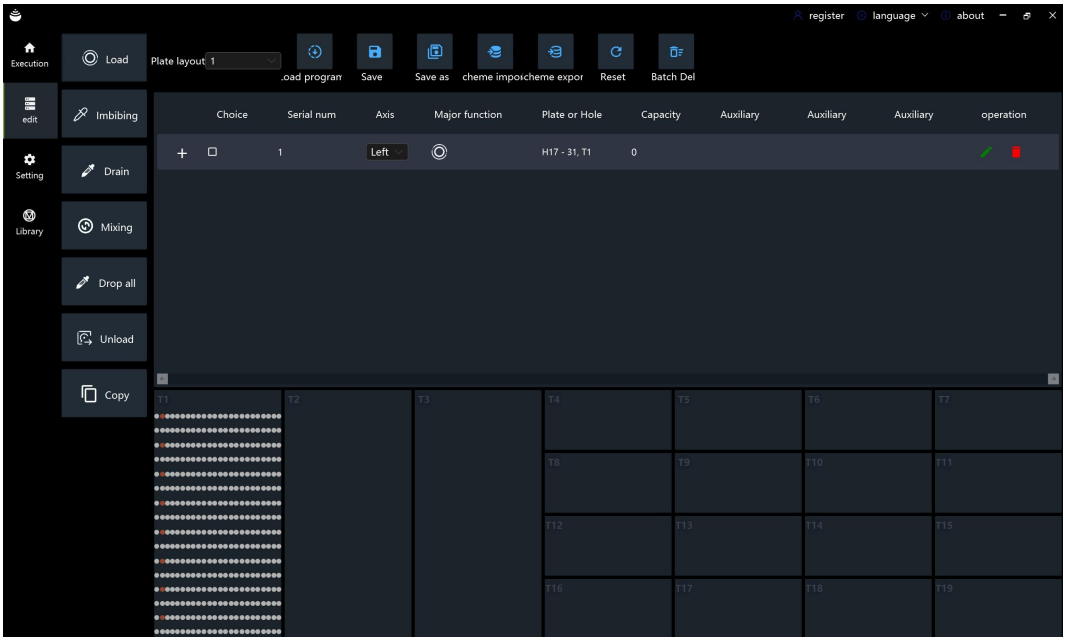
Step 1: Select the solution and click "Use" to load the solution into the middle version bit area.

Step 2: Click the **circulate** button above to appear the scheme cycle popup.

Step 3: Enter the number of cycles and click confirm.

Step 4: Click the right start button to execute the plan several times.

7.5 Edit the scheme

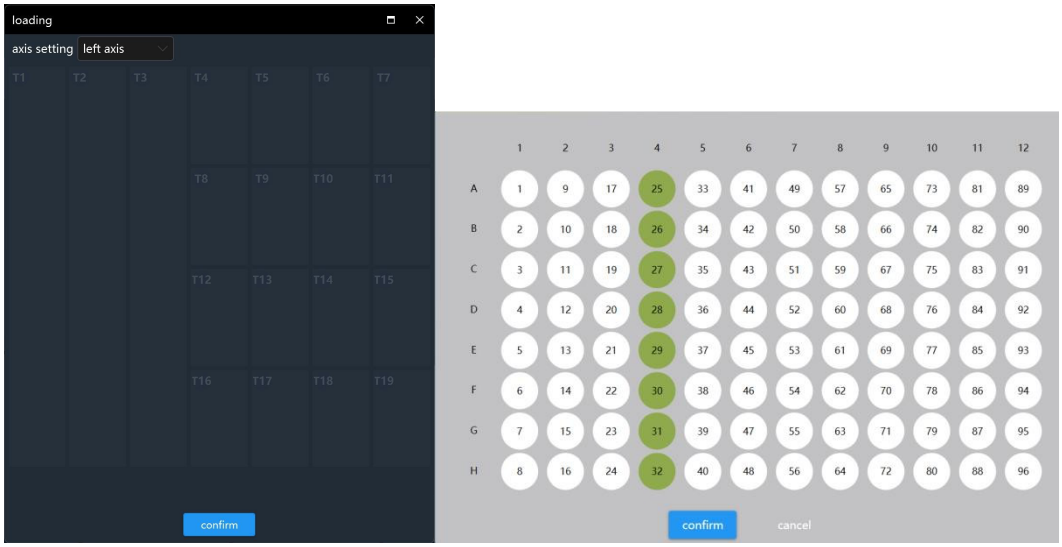


The left button is the main function button, click to edit the corresponding function step, the head button is the scheme related button, the middle part is the scheme list, and the bottom is the position.

You can choose the combination of consumables placed on the machine, the default is the 96 switch lay, as shown below:

Left function button:

Load:

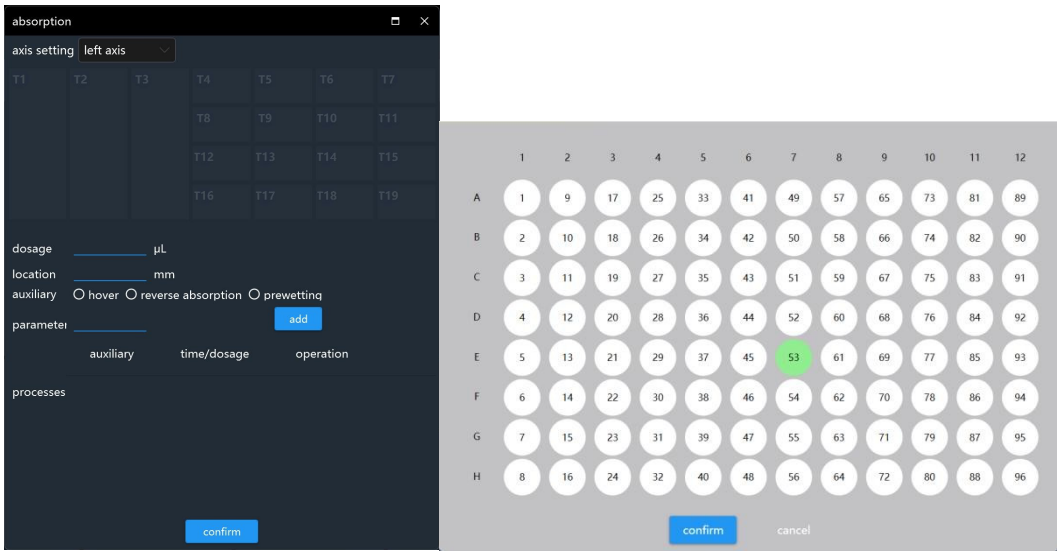


Step 1: Click the left **Load** button to expand the load popup.

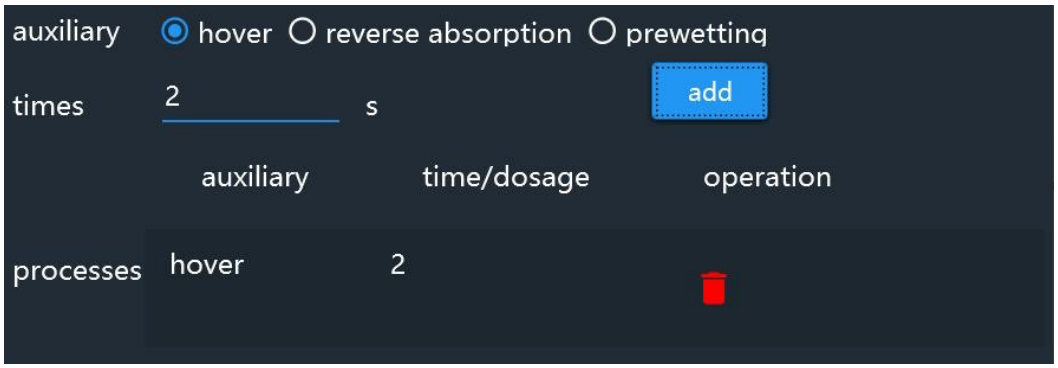
Step 2: Double click on the left position to expand the right hole position.

Step 3: Click to select the hole position, click confirm after completion, click confirm again after the hole position map is closed to complete the editing of the loading step.

absorption:



Step 1: Tap the left imbibing button to expand the absorption popup.
Step 2: Double click the above left map to expand the hole position map for hole position selection.
Step 3: Select the desired hole position and click confirm
Step 4: Input the dosage.
Step 5: Optional location (not required).
Step 6: Check the corresponding auxiliary function, input the parameters, and click the Add button to add the auxiliary function as shown below (not required) :

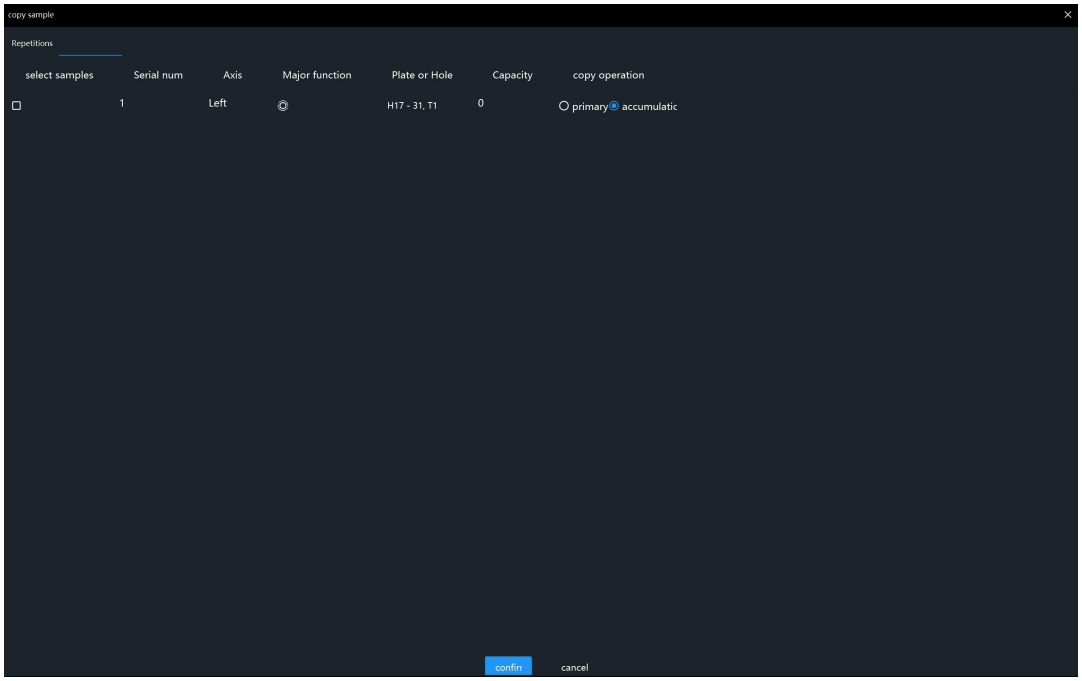


Step 7: After completing the selection of the required version of the hole position and filling in the required parameters, click the confirm button below to add the step

Tapping: the specific operation is the same as drain, and the auxiliary function is changed to blow and hover.
Mixing: the specific operation is the same as imbibing and taping, and the auxiliary functions are changed to blowing, hovering, and adding .
Drop all: the specific operation is the same as the loading, and the bottom can be set

at the distance from the bottom.
Unloading: specific operation with loading.

Copy sample:



Step 1: Click the left **sample copy** button to expand the sample Copy Settings popup.

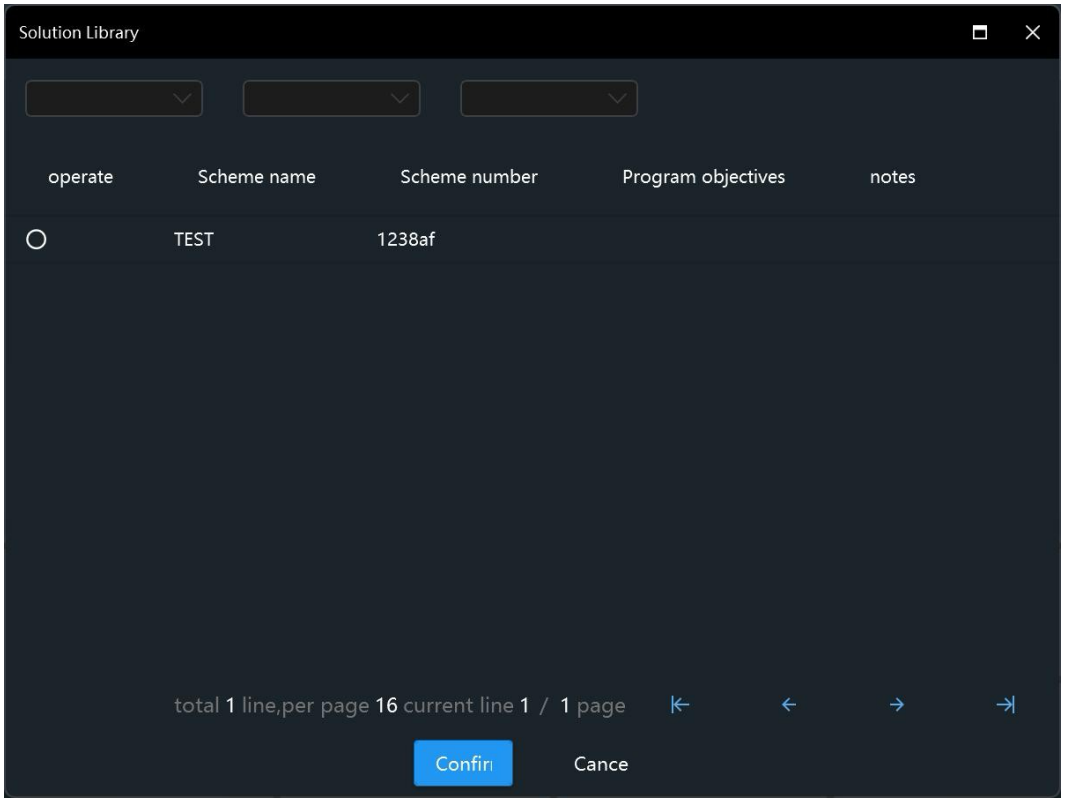
Step 2: Enter the number of copies to be copied in the top copy number input box

Step 3: Check the steps to be copied and select whether the copy operation is the original hole or the accumulation (original hole: operate on the original hole; Accumulate: Operate from the current hole position to the next hole position).

Step 4: Click below to confirm after setting.

Top function button:

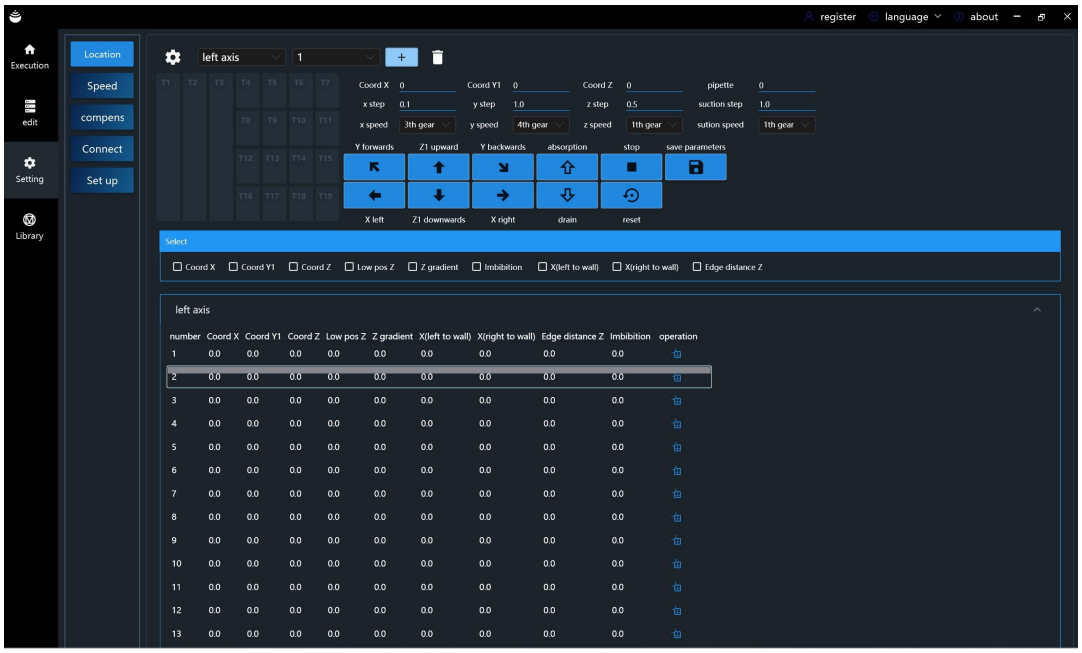
Load Solution library: Click to load solution library to get data from the scheme library



Solution save: Click to save the modified running solution.
Save As: Click Save Solution to solution library.
External Scheme Import: Click Import External scheme.
Scheme Export: Export the current scheme as an Excel file.
Scheme Reset: Click to reset the current scheme.
Batch Delete: Click to delete all the schemes that have been selected.

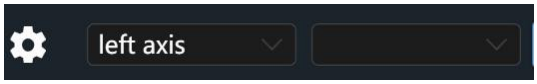
7.6 Setting

Location: can calibrate the combination of plates and modify the channels position.



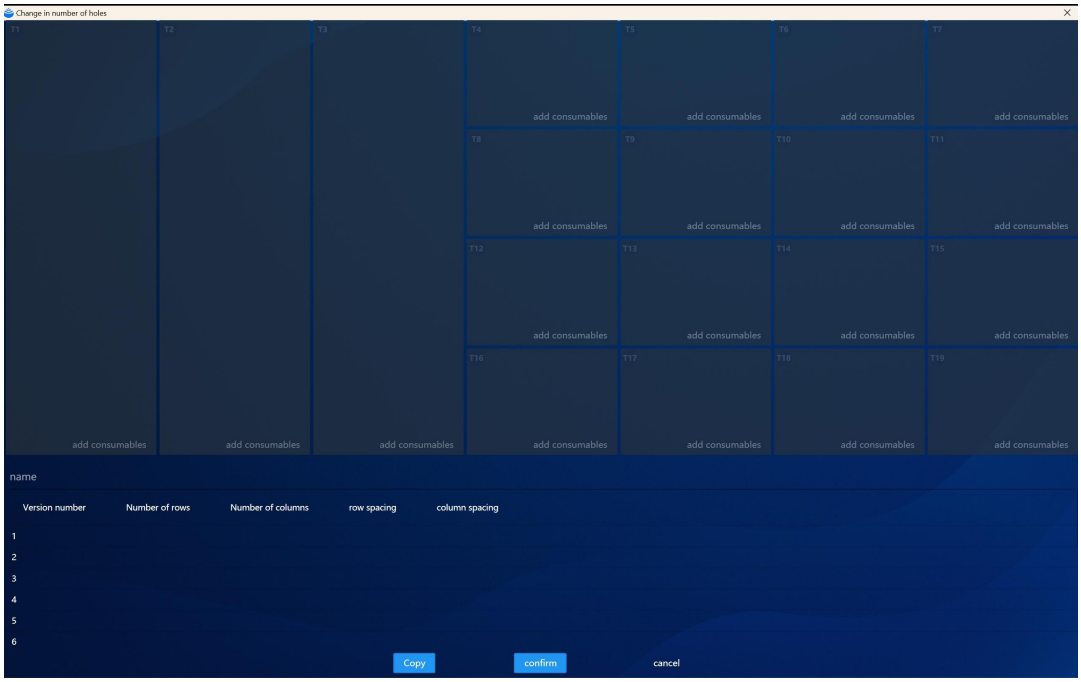
Click on the icons below to modify axes, ranges, etc.

The following figure for the axis selection and layout combination selection, you can click to expand the drop-down box for selection, the left side of the axis selection, the right side of the layout combination selection



Combination of plates layout (can be manually edited, or can copy the previous version of the combination of plates to modify and save, the following steps are to manually add the edit version of the combination of plates, if you need to copy the previous version of plate layout, click the copy button in Figure 2 of the following steps, and other operations are the same as the following manual editing steps) :

Step 1: Click the add button to open the version bit editing page to add a new version bit combination, as shown below:



Step 2: Click to select a plate

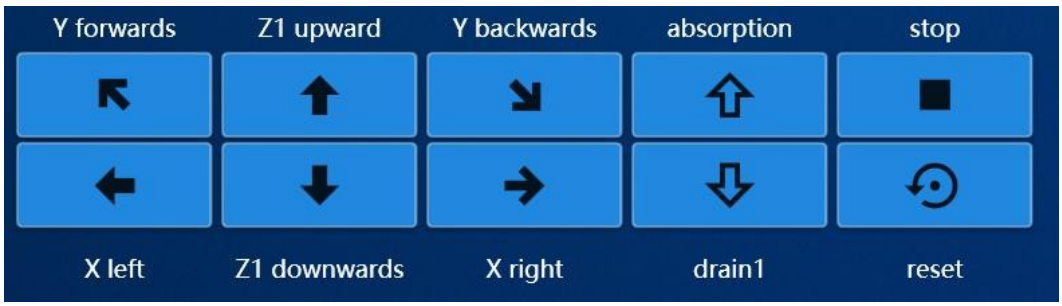
Step 3: Add adapters and consumables.

Step 4:Set the name of the layout combination and click the Save button below.

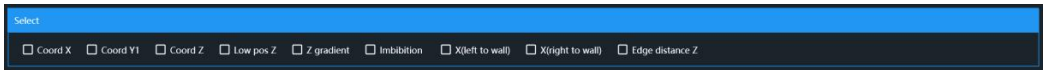
Click Delete the current consumables version combination:

Single step:

Click the corresponding arrow to move the axis of the device in the corresponding direction.

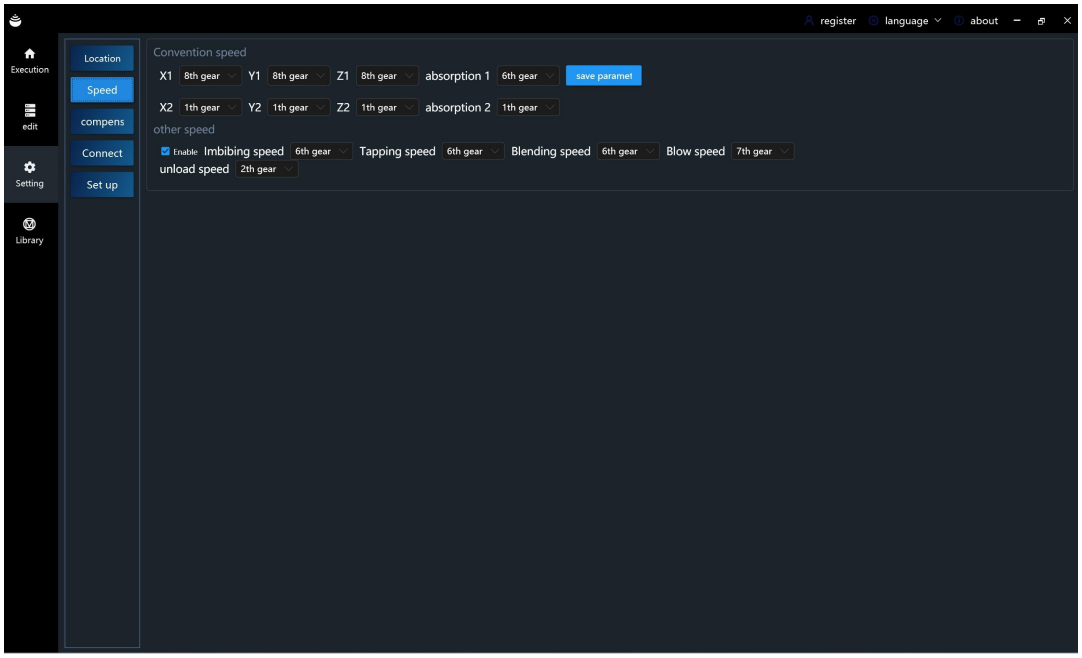


If you calibrate the plate layout successfull, then you need to click Cord x, y1, z, then double click the plate that you calibrate.



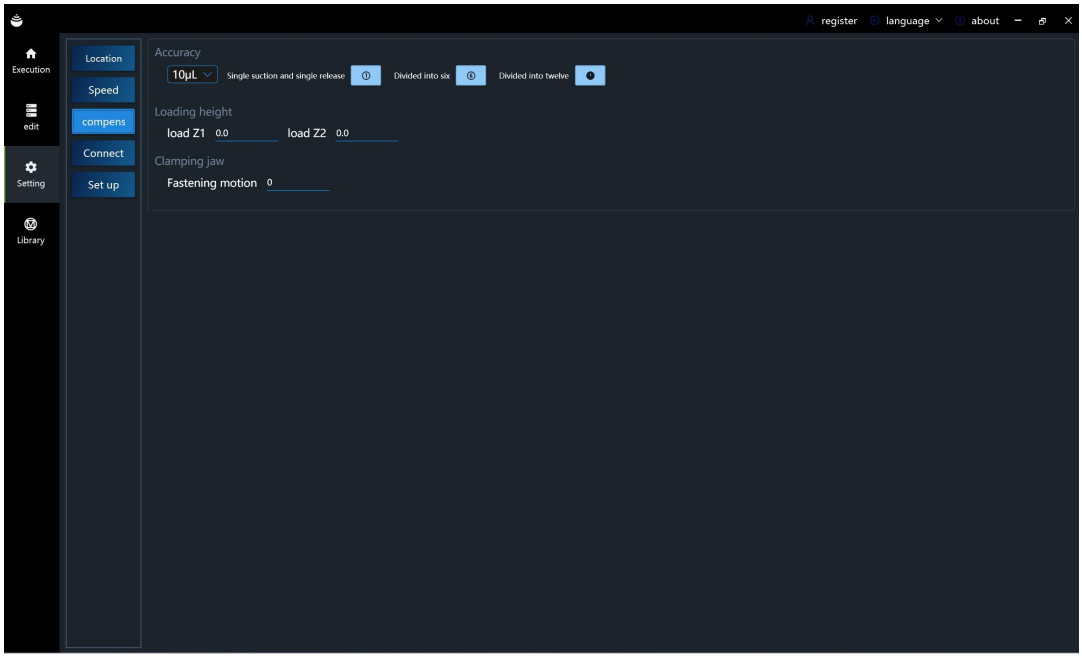
Click to move to the current position:

Speed: the moving speed of the relevant axis of the device can be modified, which is divided into two modules: conventional speed and other speed.

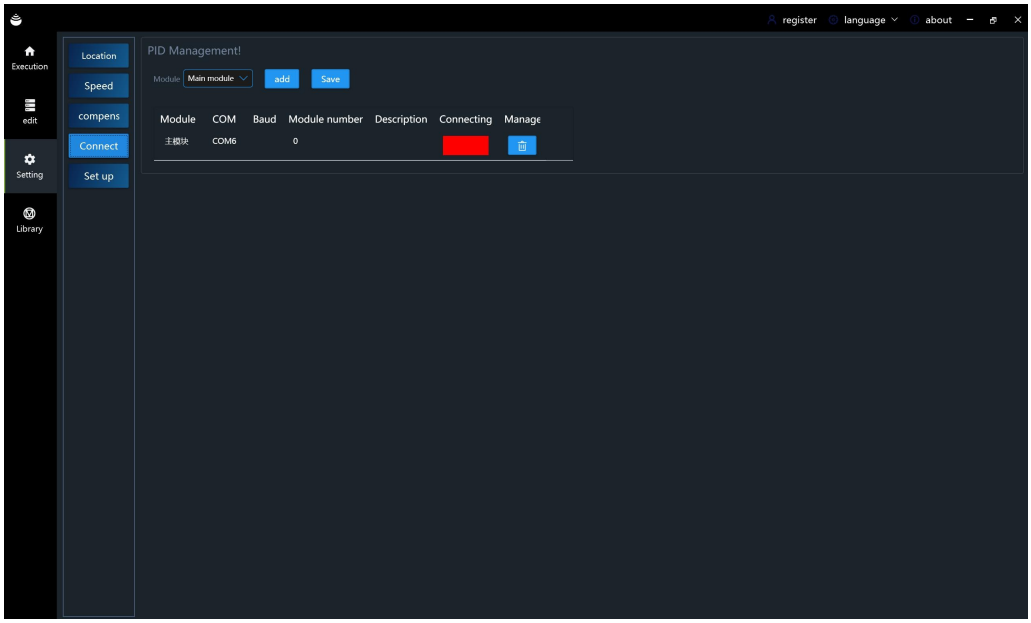


Click to use other speed

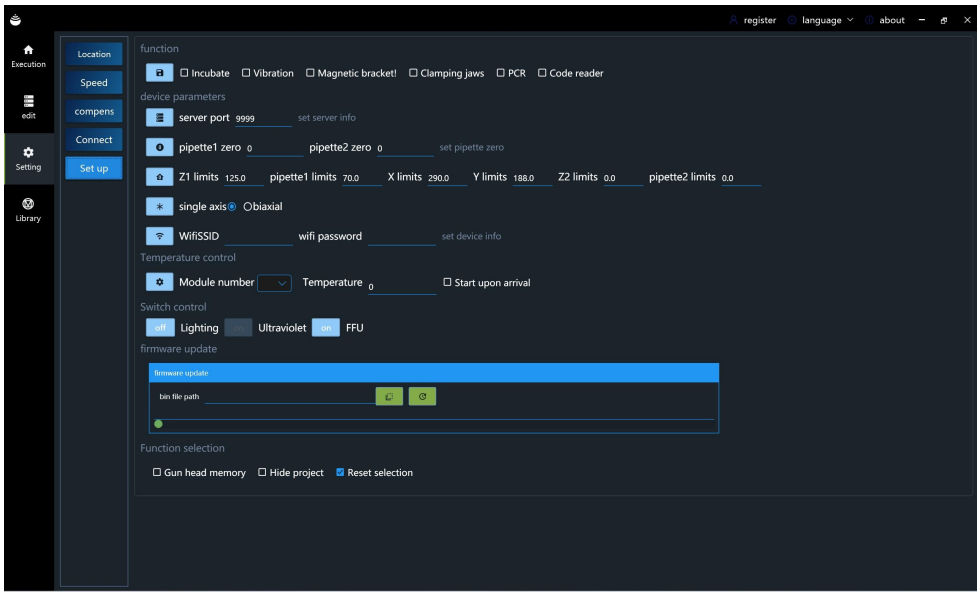
Data compensation: for fine tuning compensation pipetting accuracy, optionally enable diameter subdivision or percentage subdivision.



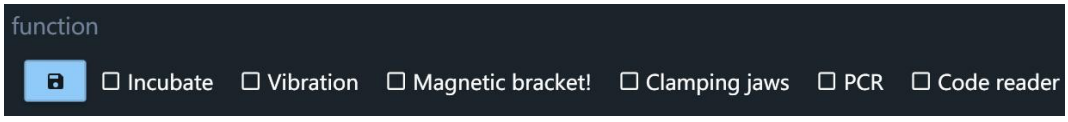
Connection Management: Used to manage connection devices and modules, select the module and click Add, then set the relevant parameters and click Save.



Others: used to modify the optional modules, device parameters, firmware upgrade, etc., is divided into optional modules, device parameter settings, firmware upgrade three parts.



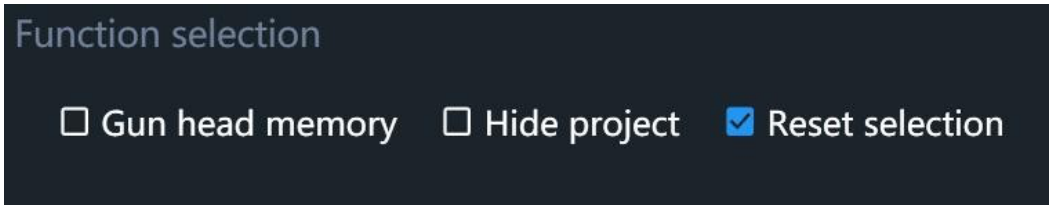
Module selection: After checking the box, click the save icon on the left side to use the module and steps when editing the program.



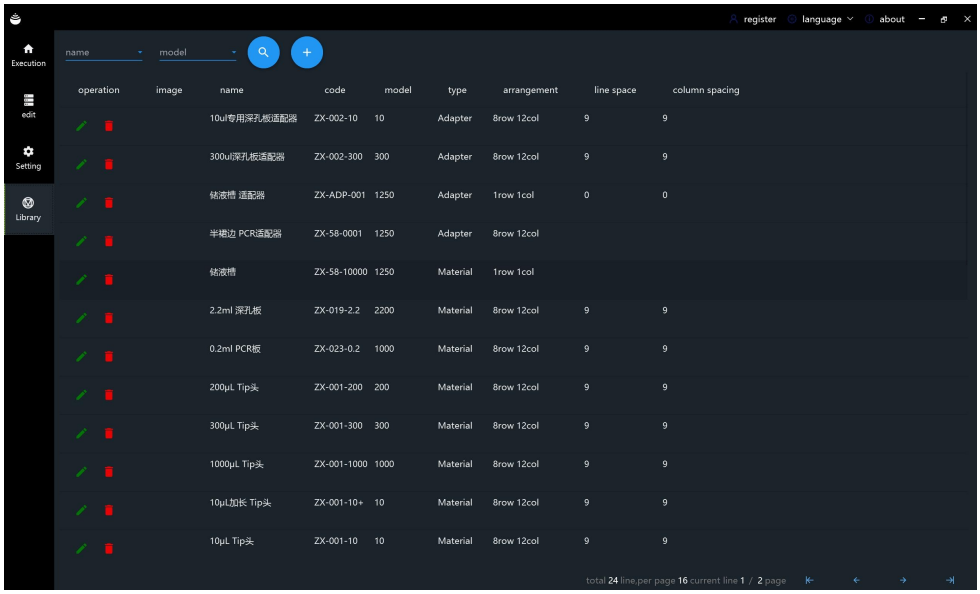
Click to select the bin file path:

Click to perform firmware upgrade:

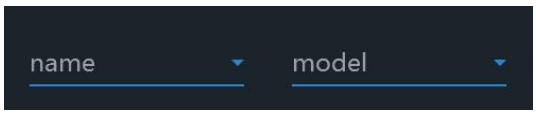
Functionality options: selected to take effect next time



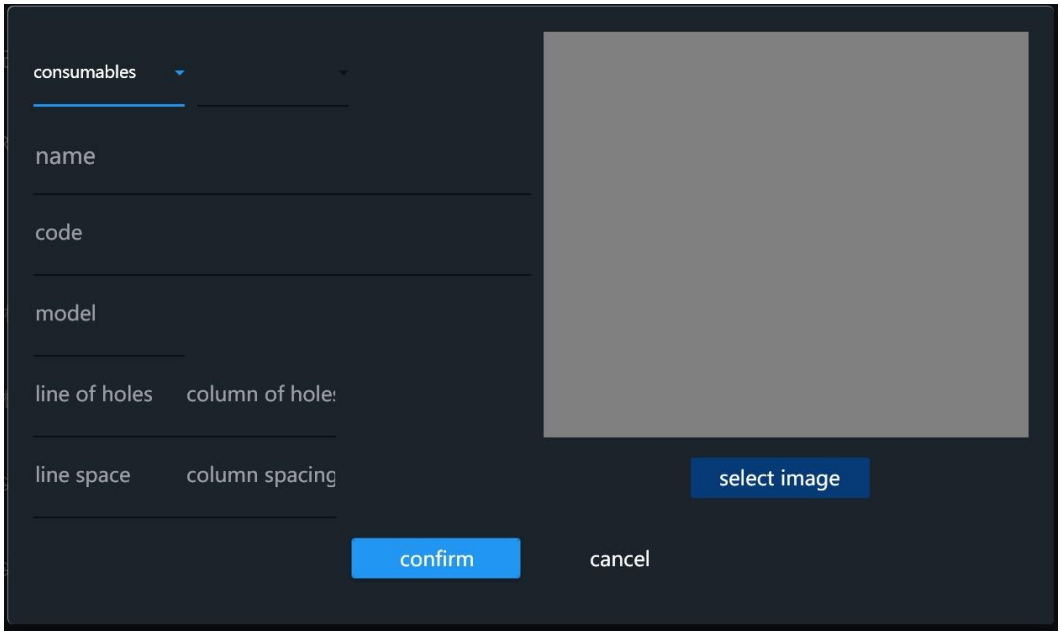
7.7 Consumables library



Enter the parameters and click the search button to retrieve the consumables:



Click to expand consumables pop up, enter the relevant parameters, and click Confirm to add consumables, as shown below:



Click to modify the corresponding consumables:

Click to delete corresponding consumables:

7.8 Note on Software

In addition to standard functions and requirements in the upgrade plan, upgrades will be provided according to the R&D plan.

8. Precautions for use of consumables and adapters

8.1 Examples

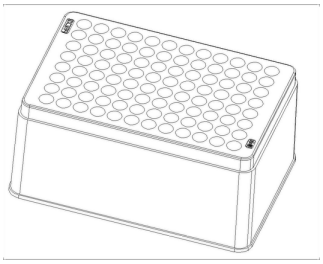
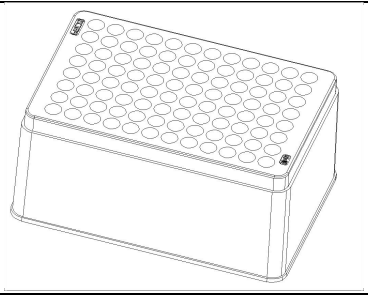
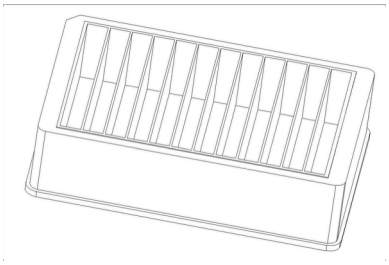
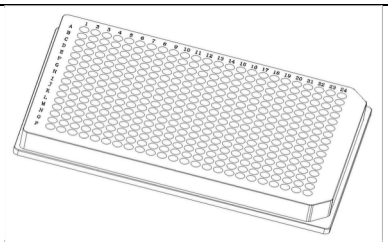
Piplab Examples	
PL21912022	10μL extended box tips
PL21912024	100μL cartridge tips (low retention)
On Request	10μL empty box

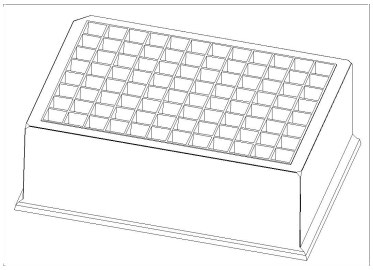
8.2 Tips item number

Abbreviations	Instructions

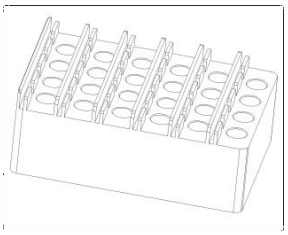
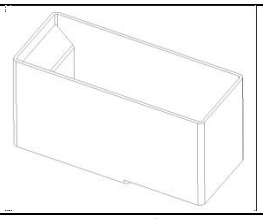
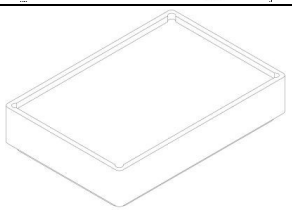
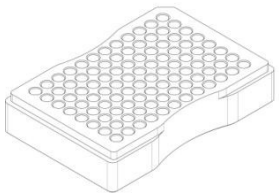
B	Bag
R	Rack
IB	Individually bagged
E	Extra Long
M	Middle Long
L	Low Retention
F	Filter Cartridge
ER	Empty Rack
RP	Refill Packs

8.3 Common consumables

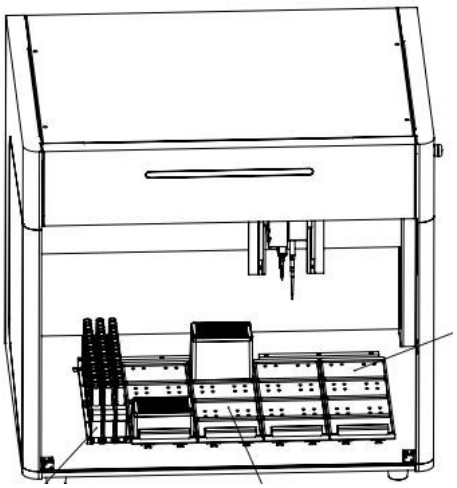
300μL Prcxi pipette tips	
1000μL Prcxi pipette tips	
12 channels tanks	
384-well plate	

96 deep well plate	

8.4 Common Adapters

24-hole EP tube adapter	
Waste tanks	
Height increasing adapter	
96-well PCR plate adapter	

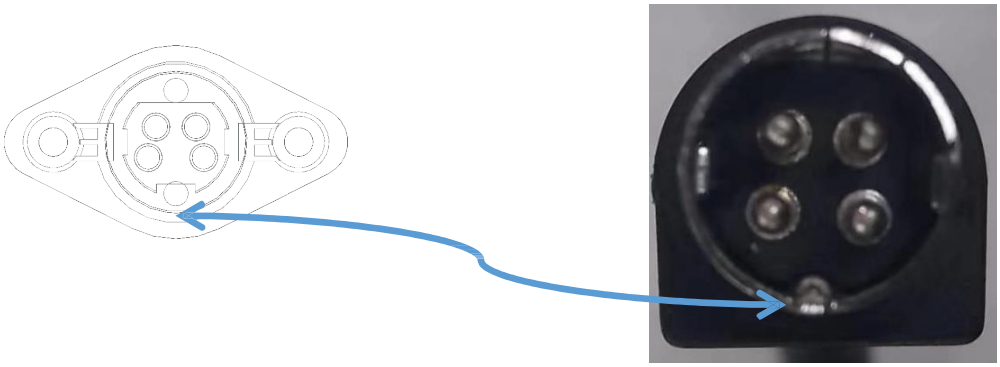
8.5 Usage



According to the requirements of the experiment, the corresponding consumables are placed in the standard SBS position, and there is no damping sensation between the consumables and the plate level, and the flatness of the consumables is not abnormal, the surrounding gap is moderate, and there is no large shaking sensation, which is normal. (For more information, watch the teaching video)

9. Solutions to common problems with equipment

1. The power interface of the equipment has positive and negative directions, please connect the power according to the regulations to avoid abnormal use.



The convex point corresponds to the direction, and then the plug is the correct position

2. If the equipment crashes due to improper operation or other reasons, please stop the equipment and perform reset operation in time to avoid the failure of the experiment caused by continued use. After reset, run the equipment first to see whether the action is normal, normal can continue to use, if there are obvious

abnormalities, please stop in time and contact the after-sales personnel.
3, if you encounter problems that can not be handled, you can try to call our after-sales hotline
After sales tel: 085 130 6833
After sales email: info@piplab.nl

10. Precaution

After use, the device should be turned off, and the power should be off after the UV kill function.
Do not expose the equipment to high temperature/humidity/vibration.
Please avoid using a power adapter that does not meet the standard.
When cleaning the equipment, use a soft cloth and do not use chemical solvents.