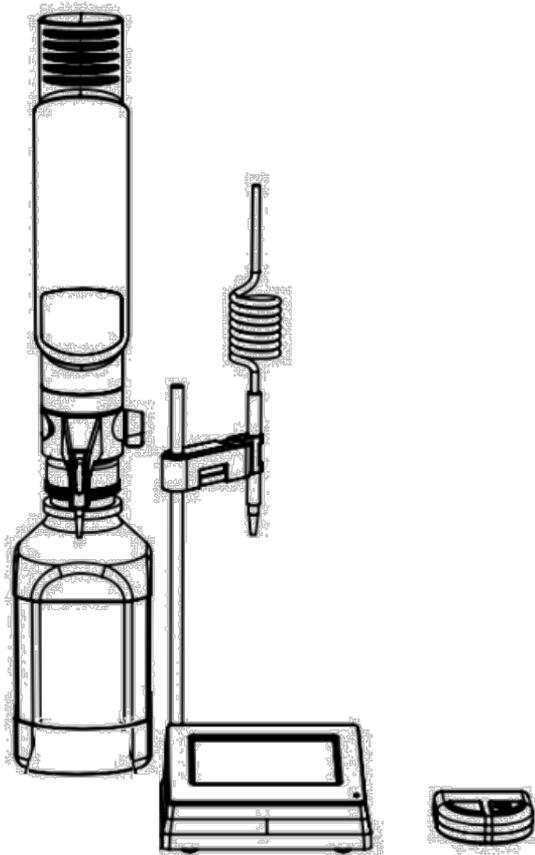


# iFlow-Pro Electronic Bottle-top Dispenser User Manual



CE FC

12303318

Ver.20260210



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## Safety Warnings

Please read and fully understand the following safety information.

- Use the device strictly according to the instructions in this manual to ensure safety.
- Please read all safety information in this manual carefully.
- In this manual, the safety notice symbol "Caution" is indicated by this icon.

Operations or situations marked with this icon may involve hazards, 

Be sure to follow the correct operating method. Details are as follows:



**Note: This may cause damage to the device.**

This caution sign indicates that any operation or use that does not strictly follow the manual may cause permanent damage to the device.

- Do not operate the device in any way not instructed or described in this manual. If you have any questions during use, contact the original equipment manufacturer.



- This manual aims to cover all possible operating risk warnings. If you encounter any unexpected situation not mentioned in this manual, handle it with caution.

#### Limit Operating Conditions:

- Operating Temperature Range: 15~40°C
- Max vapor pressure: <500 mbar
- Max viscosity: <500 mm<sup>2</sup>/s
- Operating Humidity: 20~90%



# 1. Your Electronic Bottle-top Dispenser

Electronic Bottle-top Dispenser is a digitally controlled liquid handling device for accurate dispensing and analytical work.

Before operation, confirm that your liquid is within the compatibility range of . For details, see "Use Restrictions and Compatibility".

## 1.1 Specifications

|                                                | 10mL                                                                           | 25mL                                                                          | 50mL                                                                           |
|------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Working Range                                  | 0.01mL-100mL<br>Maximum<br>volume per<br>dispense: 10<br>mL; minimum:<br>10 µL | 0.02mL-25mL<br>Maximum<br>volume per<br>dispense: 25<br>mL; minimum:<br>20 µL | 0.02mL-100mL<br>Maximum<br>volume per<br>dispense: 50<br>mL; minimum:<br>20 µL |
| Aspirate/Dispense<br>Speed Adjustment<br>Range | 1mL /s-10mL /s                                                                 |                                                                               |                                                                                |
| Operating<br>Temperature                       | 10-30°C                                                                        |                                                                               |                                                                                |

|                                 |                                                         |
|---------------------------------|---------------------------------------------------------|
| Range                           |                                                         |
| Quality Standard                | ISO8655                                                 |
| Bluetooth                       | Yes                                                     |
| WiFi                            | Yes                                                     |
| Control mode                    | Equipped with a control handle; supports remote control |
| Battery Capacity                | 3500mAh                                                 |
| Memory                          | 1000 experiment records                                 |
| Display screen                  | 4.3-inch TFT color screen, 800×480 resolution           |
| PC interface<br>(computer port) | Type-C and WiFi                                         |
| Weight                          | 1.2kg                                                   |

### Accuracy

| Range | Sub-range | Systematic error (R) | Coefficient of variation |
|-------|-----------|----------------------|--------------------------|
|-------|-----------|----------------------|--------------------------|

|    |      |               |           | (CV)          |            |
|----|------|---------------|-----------|---------------|------------|
| mL | mL   | $\mu\text{L}$ | %         | $\mu\text{L}$ | %          |
| 10 | 10   | $\pm 50$      | $\pm 0.5$ | $\pm 30$      | $\pm 0.3$  |
|    | 5    | $\pm 50$      | $\pm 1$   | $\pm 30$      | $\pm 0.6$  |
|    | 1    | $\pm 50$      | $\pm 5$   | $\pm 30$      | $\pm 3$    |
| 25 | 25   | $\pm 125$     | $\pm 0.5$ | $\pm 62.5$    | $\pm 0.25$ |
|    | 12.5 | $\pm 125$     | $\pm 1$   | $\pm 62.5$    | $\pm 0.5$  |
|    | 2.5  | $\pm 125$     | $\pm 5$   | $\pm 62.5$    | $\pm 2.5$  |
| 50 | 50   | $\pm 250$     | $\pm 0.5$ | $\pm 125$     | $\pm 0.25$ |
|    | 25   | $\pm 250$     | $\pm 1$   | $\pm 125$     | $\pm 0.5$  |
|    | 5    | $\pm 250$     | $\pm 5$   | $\pm 125$     | $\pm 2.5$  |

## 1.2 Package Contents

Your package should contain the following items:

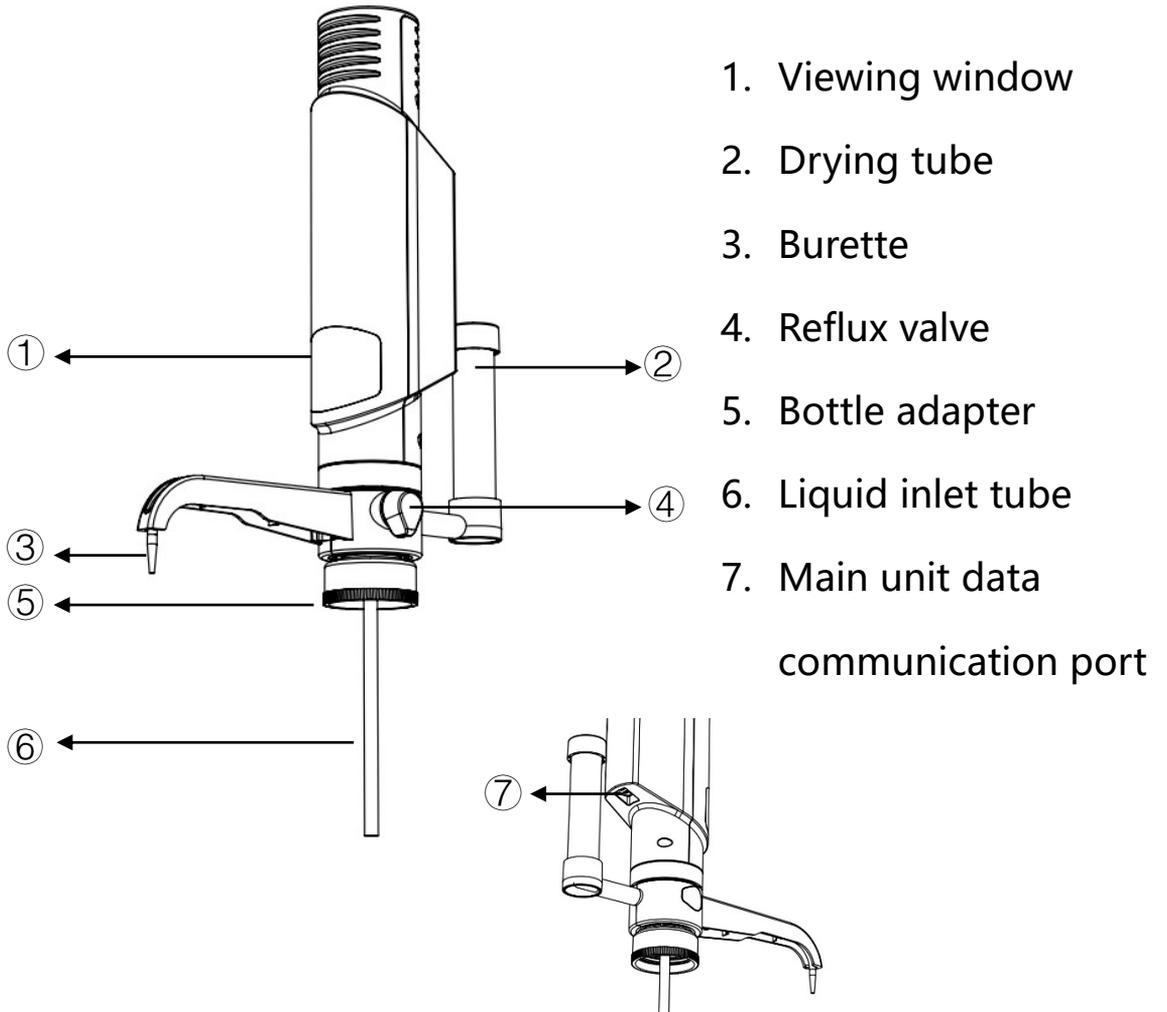
- Your package should contain the following items:
  - The electronic titrator set includes: dispensing tube  $\times 1$ , dispensing tube protective sleeve  $\times 1$ , main unit  $\times 1$
  - Power adapter  $\times 1$



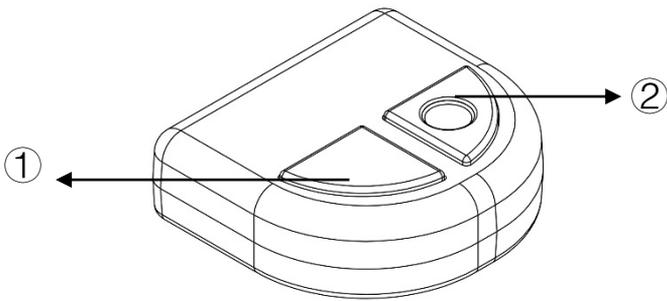
- Control panel ×1
- Sensor bracket ×1
- USB cable ×2
- User manual ×1
- Calibration card ×1
- Adapters ×5 (GL32; GL38; GL28; GL25; S40)
- Long dispensing tube ×1
- Short dispensing tube ×1
- Remote control handle ×1
- Inlet ValveX1
- Outlet ValveX1
- Inlet TubeX2
- Drying tube ×1
- Light-shielding window ×1
- Disassembly tool ×1

## 2.Parts Description

### 2.1 Main Unit



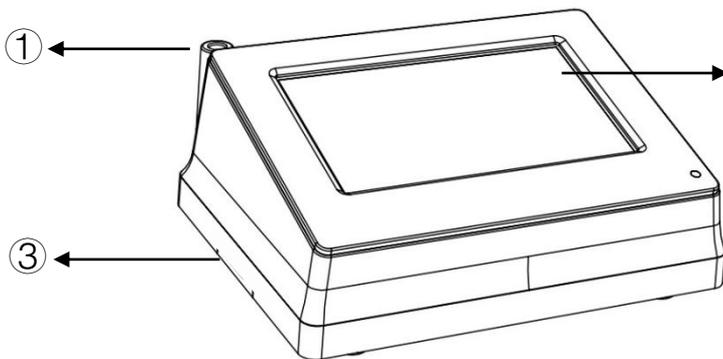
## 2.2 Control Handle Description



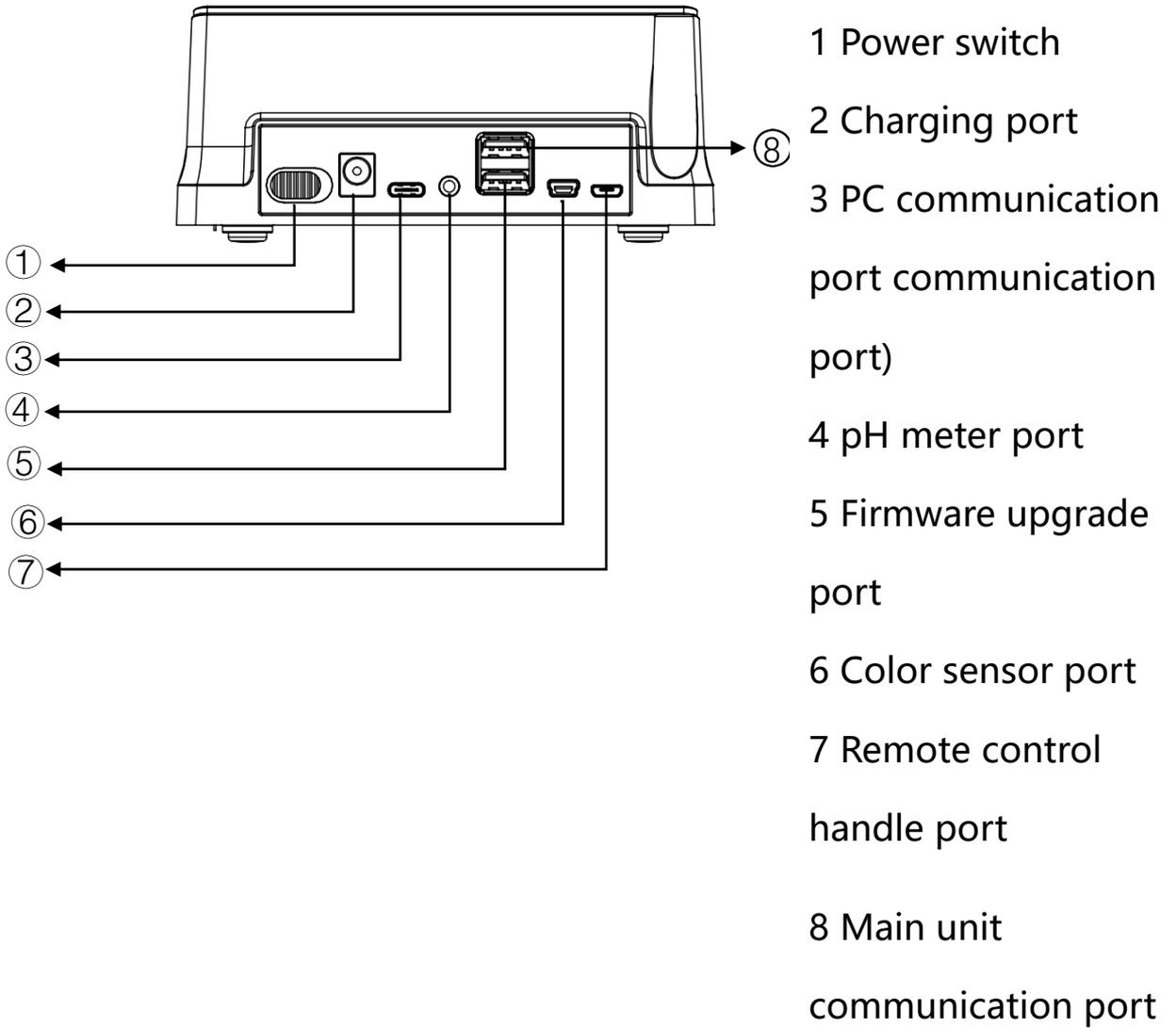
1. Left shortcut key
2. Right shortcut key

## 2.3 Controller Description

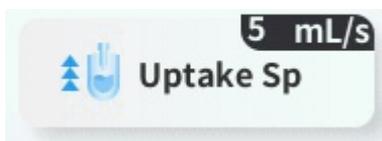
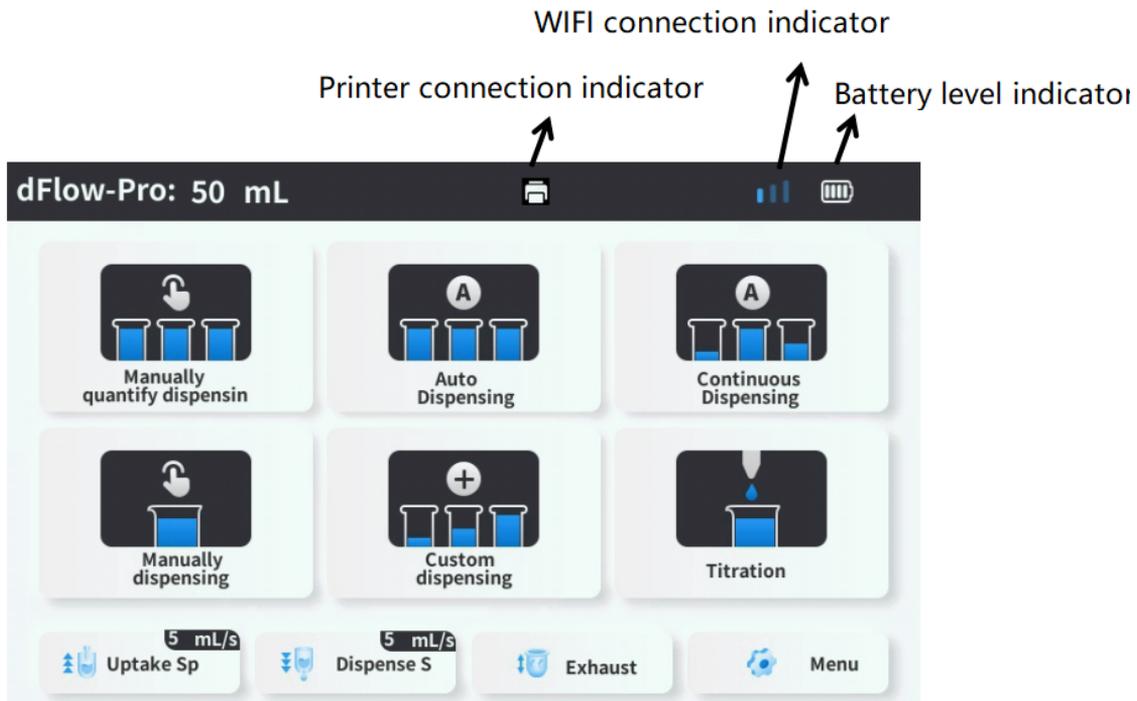
The control panel is used to control the titrator and configure functions.



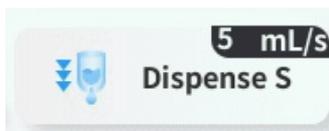
1. Sensor bracket interface
2. IPS display



## 2.4 Display Screen



: Users can set the aspirate speed; adjustable range: 1–10 mL/s.



: Users can set the aspirate speed; adjustable range: 1–10 mL/s.

 Exhaust

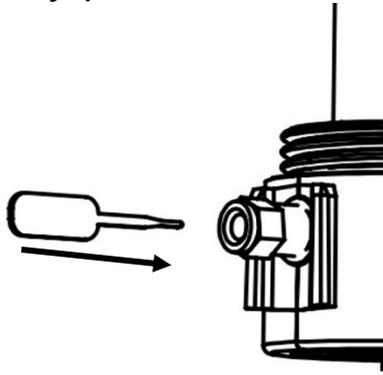
: Tap to start purge air automatically.

 Menu

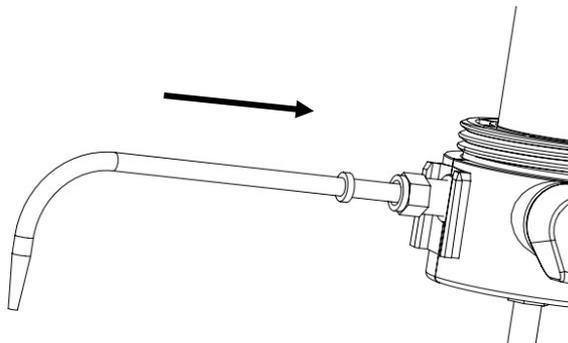
: Tap to access device settings.

### 3.Installation

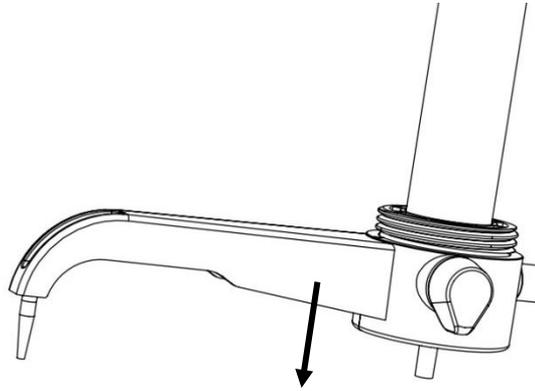
Step 1: Use the pin to gently poke the outlet valve to ensure the valve ball can move slightly



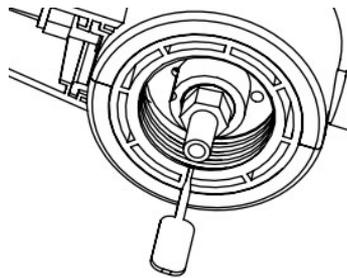
Step 2: Press the end of the dispensing tube into the fixed position.



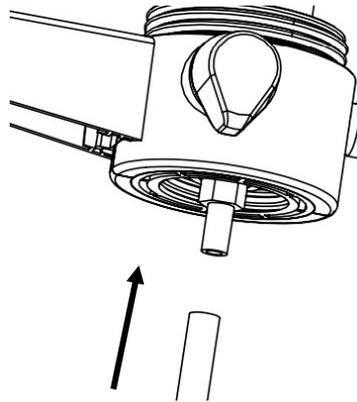
Step 3: Pull the end of the dispensing tube out to a certain length as shown.



Step 4: Use the pin to gently poke the outlet valve to ensure the valve ball can move slightly.

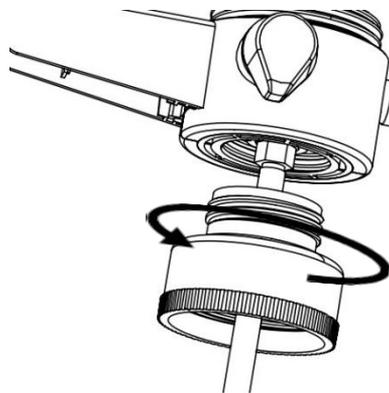


Step 5: Insert the end of the dispensing tube into the outlet valve. Connect the inlet tube to the inlet valve.

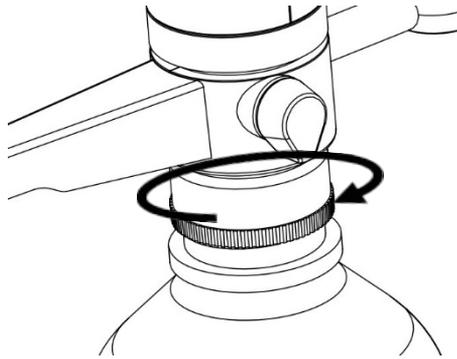


Note: The dispensing tube is made of FEP. Confirm compatibility before use (see Chapter 12 "Use Restrictions and Compatibility").

Step 6: Select the appropriate bottle adapter, connect it, and tighten.



Step 7: Screw the assembled main unit onto the bottle and tighten.

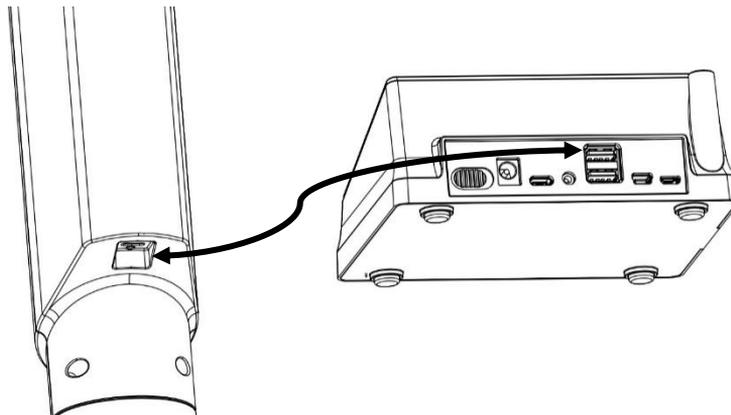


Note:

1. Before each use, check the tightness of the bottle adapter to avoid affecting performance.
2. During operation, do not move or touch the main unit to avoid affecting titration results or causing physical damage to the unit.

Step 8: Connect the main unit to the control panel.

Connect the main unit and controller using the USB data cable.



## 4.Operation



Note: Before use, perform at least one complete aspirate/dispense cycle before starting normal operation.

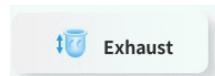
### 4.1 Power On

Step 1: Slide the switch on the back of the controller to the left.

### 4.2 Exhaust

After powering on, tap the Exhaust button; the system will start purging automatically. After purging is complete, the other operation buttons will

light up and you can perform other dispensing operations.







## Note:

During use, some bubbles may form inside the cylinder; this will not affect normal use. If large bubbles form and affect piston movement, perform several aspirate and dispense cycles. If the issue persists, contact your distributor or the manufacturer's service personnel.

## 4.3 Dispensing Operation

### 4.3.1 Manual Quantify Dispensing

To perform manual fixed-volume dispensing, tap the "Manual Quantify Dispensing" icon on the home screen to enter the function page. Then tap "Aspirate"; the instrument will automatically aspirate liquid from the container and fill the system. After aspiration is complete, set the required dispensing volume in the "Dispensing Volume" input box on the right side of the screen. After entering the value, tap "Dispense"; the system will dispense the set volume. You can adjust parameters flexibly according to your experiment.

During dispensing, you can pause at any time for observation or adjustment. When dispensing is restarted, the system will restart counting automatically to ensure accurate dispensing data. To manually reset the current count, tap "Clear" on the right; the instrument will immediately clear the existing count information and start recording again. This helps you repeat multiple dispensing runs and keep each run independent with clear data.

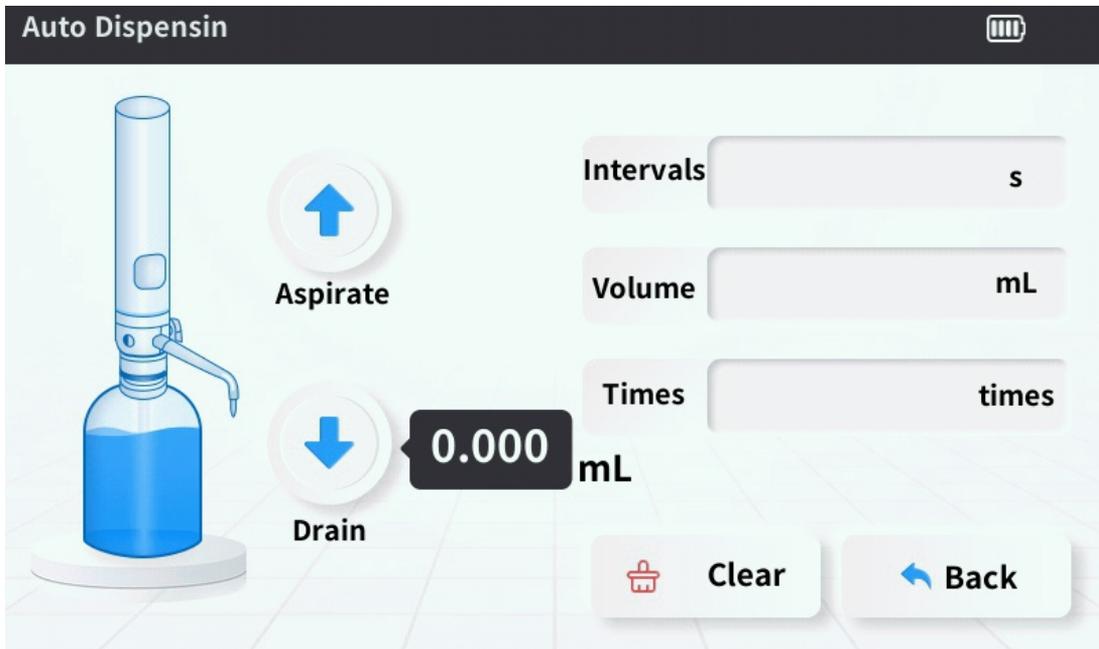




### 4.3.2 Auto Dispensing

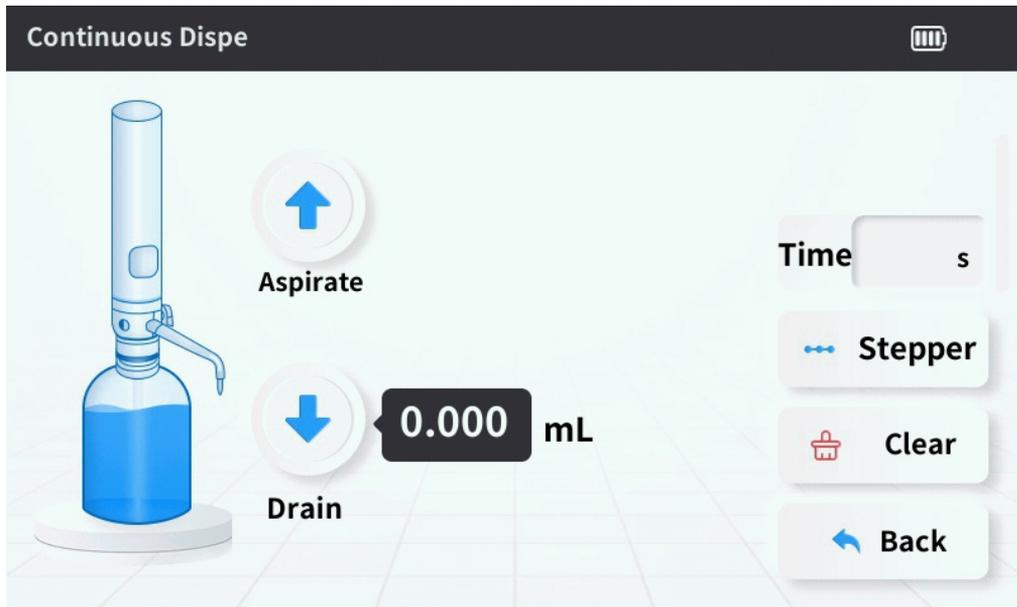
To perform auto dispensing, tap the "Automatic Dispensing" icon on the home screen to enter the function page. Then tap "Aspirate"; the instrument will automatically aspirate sample from the liquid container and stop automatically when the system detects that filling is complete. According to your experiment, set the dispensing interval, dispensing volume, and number of dispenses on the right side of the screen. After setting, tap "Dispense"; the system will automatically dispense using the preset values.

During auto dispensing, pausing mid-process is not supported to ensure stable operation. If you press Pause during dispensing, the instrument will stop automatically after completing the current step and cannot interrupt the current dispense immediately. To restart dispensing or reset the count, tap "Clear" on the right; the system will clear the current count information and start recording again.

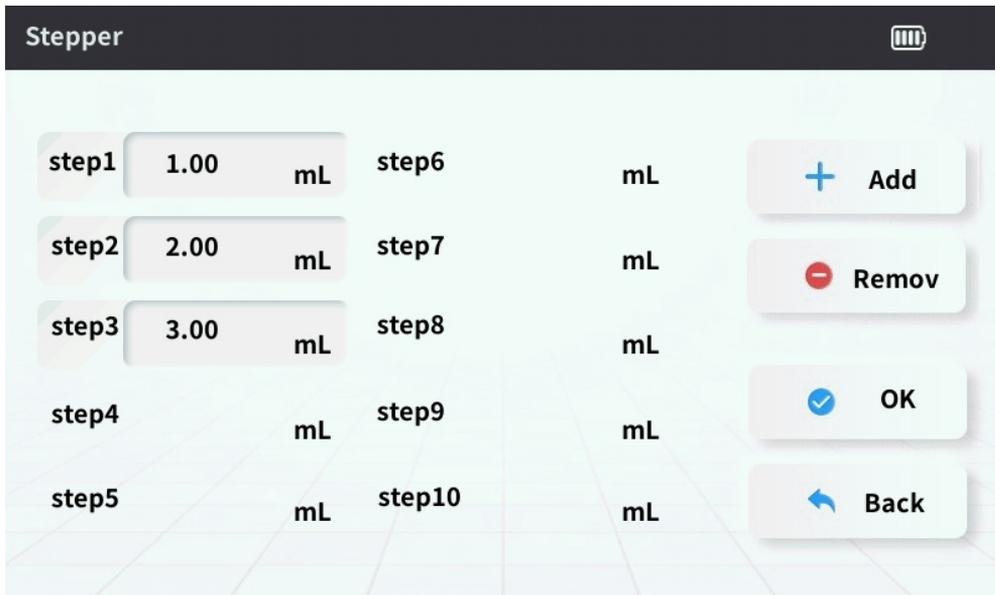


### 4.3.3 Continuous Dispensing

To perform automatic dispensing, tap the "Automatic Dispensing" icon on the home screen to enter the function page. Then tap "Aspirate"; the instrument will automatically aspirate sample from the liquid container and stop automatically when the system detects that filling is complete.



Tap the "Step" icon to enter the stepwise dispensing settings screen. Tap "Add Step" on the right to set the dispensing volume for each step as required. After setting, tap "Confirm" to return to the continuous dispensing screen. Tap "Time" on the right to set the dispensing time as needed, then tap "Dispense" to start dispensing. During dispensing, the right side of the screen shows the current step in real time. When dispensing reaches a step, the corresponding step box will be highlighted in blue so you can clearly track the progress and status.



To modify a preset dispensing volume, do so in the step settings screen. First, tap the serial number to the left of the target volume (note: do not tap the volume setting box directly, otherwise the system will enter volume editing mode). When the serial number is selected, the corresponding step box turns blue, indicating the step is selected. Then tap the "Remove Step" icon on the right to delete that step.

During continuous dispensing, pausing is not supported. If you press Pause during dispensing, the instrument will stop automatically after completing the current step and cannot interrupt the current dispense immediately. To restart dispensing or reset the count, tap "Clear" on the right;



the system will clear the current count information and start recording again.

### **4.3.4 Manually Dispensing**

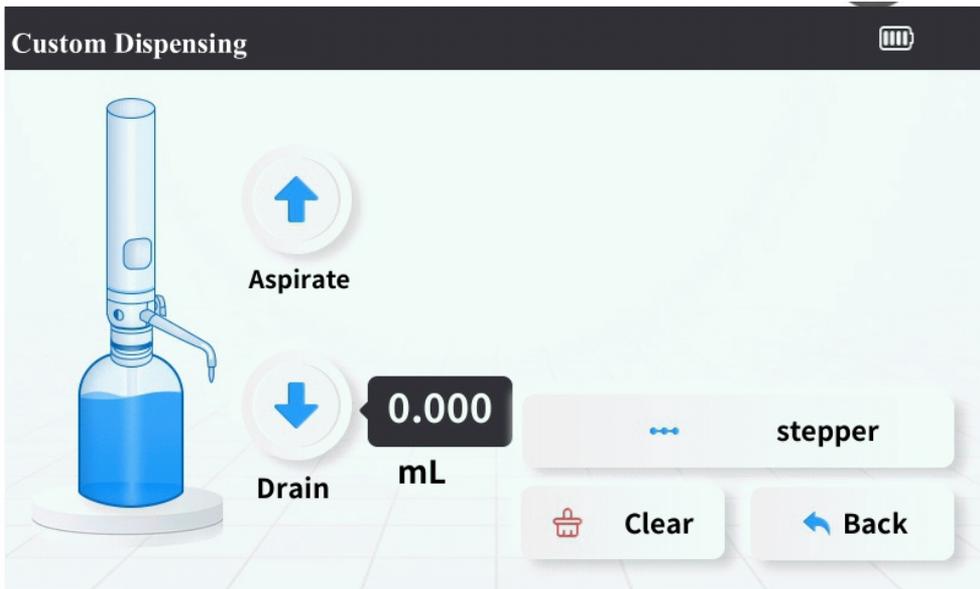
Tap the "Manually Dispensing" icon on the home screen to enter the function page. Tap "Aspirate"; the instrument will automatically aspirate liquid from the container. During aspiration, you can tap the aspirate button again to stop aspiration. The system will also stop aspiration automatically when it detects that filling is complete.

During dispensing, the interface displays the current dispensed volume in real time so you can monitor progress. Dispensing can be paused at any time. After resuming, counting continues from the volume at the time of pause. To restart counting, tap "Clear"; the system will clear the current count information and start counting again.

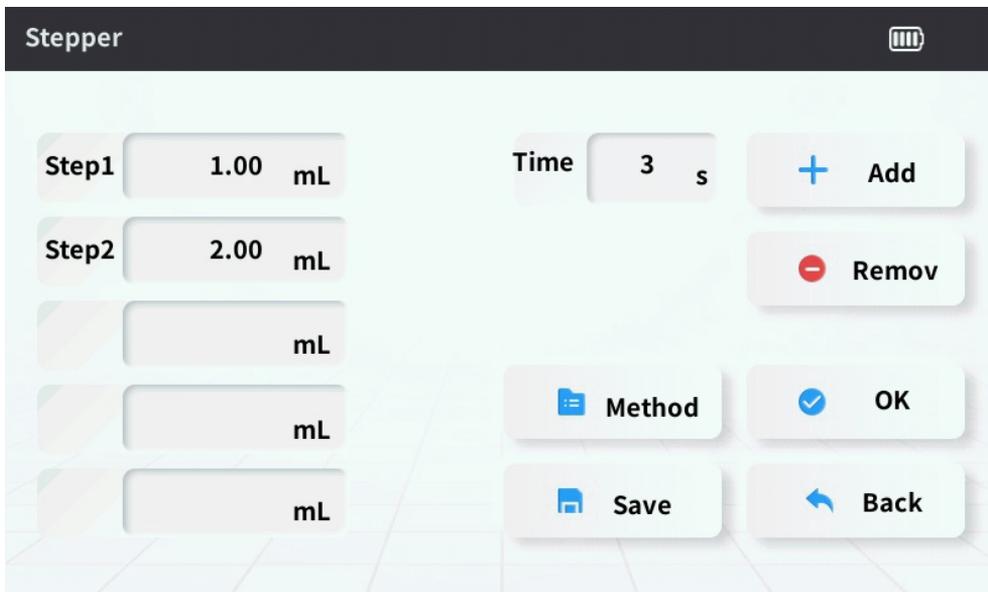


### 4.3.5 Custom Dispensing

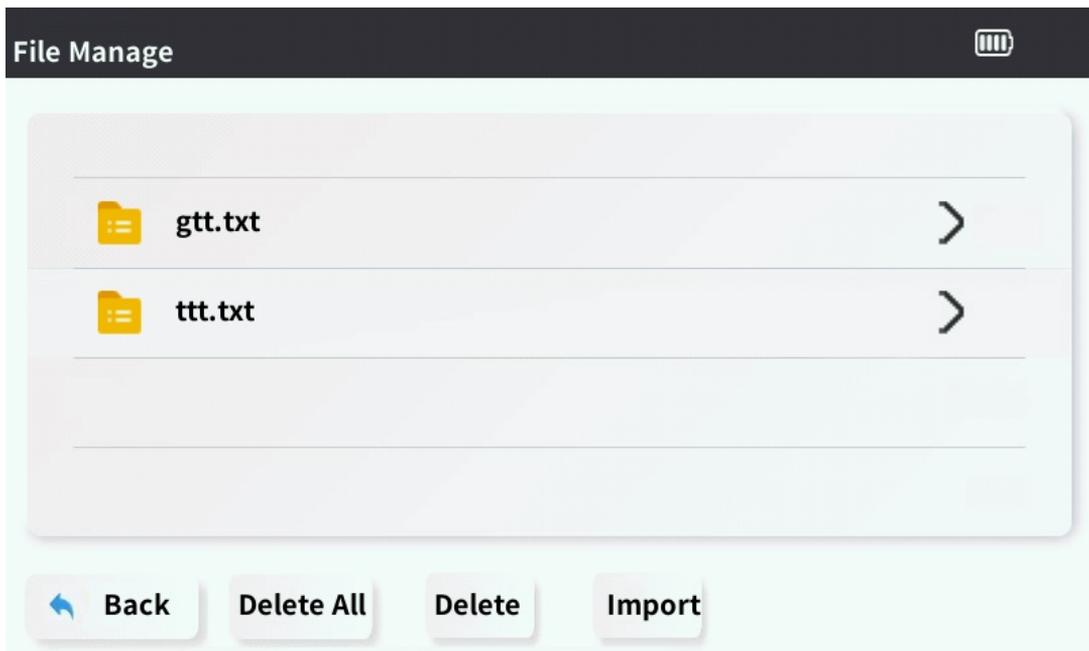
Tap the "Custom Dispensing" icon to enter the custom dispensing screen. Tap "Aspirate"; the instrument will automatically aspirate liquid from the container. During aspiration, you can tap the aspirate button again to stop aspiration. The system will also stop aspiration automatically when it detects that filling is complete.



Tap "Step" to enter the dispensing setup screen, where you can set dispensing volume and dispensing time as required. For details, see Section 4.2.1 "Manual Quantitative Dispensing".



You can also save the currently configured dispensing steps and time for quick reuse. To save: tap "Save" and follow the prompts to name the preset dispensing procedure. Next time, tap "Method", find the saved procedure, select it, and tap "Import" to load and use it directly.



### 4.3.6 Titration

Tap the "Titration" icon to enter the titration screen. Tap "Aspirate"; the instrument will automatically aspirate liquid from the container. During aspiration, you can tap "Aspirate" again at any time to stop aspiration, allowing real-time control of the aspirated volume. If the system detects that

filling is complete, the instrument will also stop aspiration automatically.

Tap "Dispense"; the system will enter dispensing setup mode. Set the desired dispensing volume, then tap "Dispense" on the right. The system will automatically dispense according to the set volume.

Tap "Drip" to dispense single drops; each drop is about 20  $\mu\text{L}$ . Note that the drop volume may vary depending on liquid properties, instrument condition, and other factors. For experiments requiring high accuracy, perform appropriate calibration and adjustment.

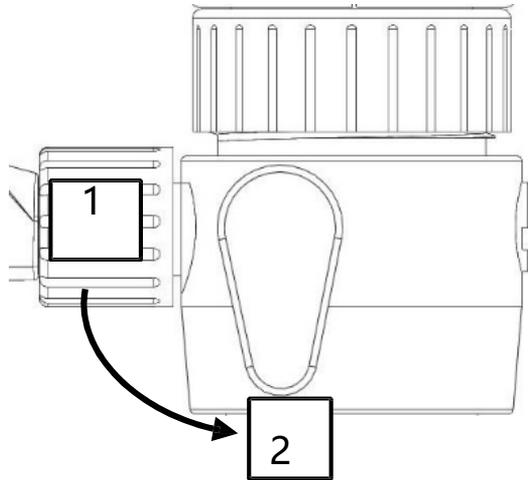


#### 4.4 Liquid Recovery

If you need to recover the liquid in the cylinder back into the bottle, follow

the steps below.

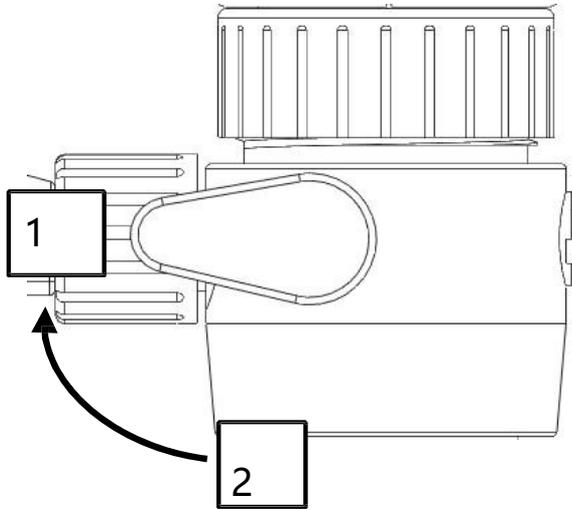
Step 1: Rotate the reflux valve to position ②.



Step 2: Tap the dispense key ( ) until the piston moves to the lowest position, and drain the liquid in the cylinder into the storage bottle.

Step 3: Rotate the reflux valve to position ①.

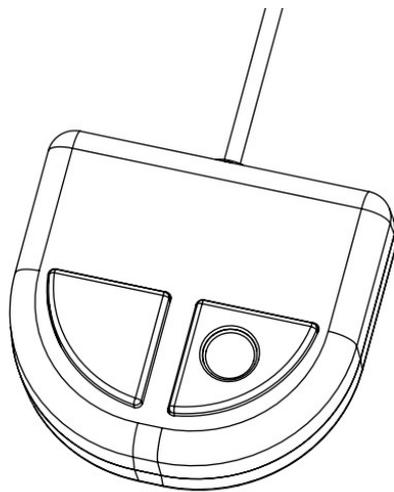
At this point, the liquid recovery is complete. This operation effectively recovers residual reagent in the cylinder, reduces material waste, and lowers operating costs.



## 5. Accessories

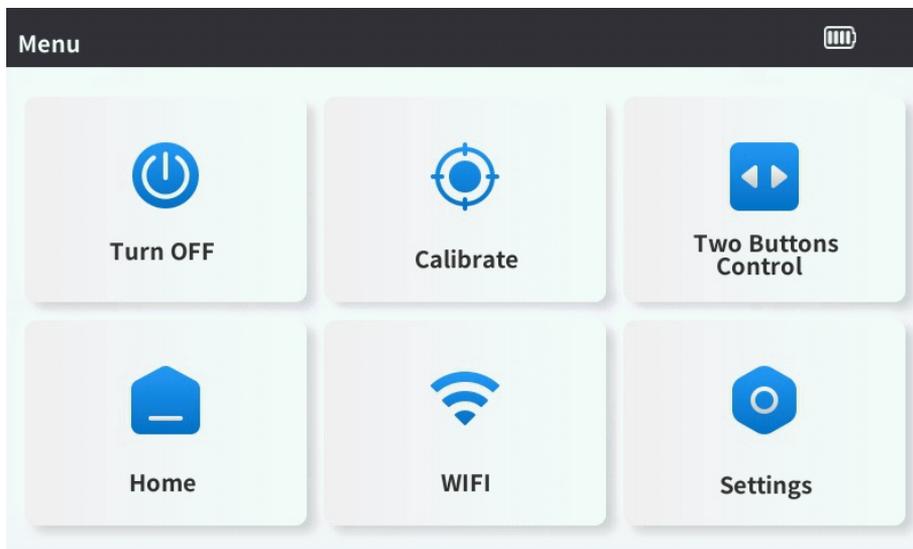
### 5.1 Remote Control Handle

The control handle maps control panel functions for convenient remote operation.



Max cable length: 90 cm

Confirm that the mouse data cable is connected to the correct port on the controller. Tap Menu, tap the Two-Buttons Control, and enter the remote mouse settings screen. Follow the prompts to select the key to configure: left-click or right-click.





Tap the function to be assigned to the current key; the icon will turn gray to indicate selection. Then tap the Confirm key.

## **6.Special Functions**

### **6.1 Language Selection**

Enter Menu, tap "Settings", and find the "Language" submenu. You can choose Chinese or English. Touch the corresponding language box to select.

### **6.2 Printing**

Power on the Bluetooth printer. In Menu, go to Settings > Print Settings, enter the printer ADDR code, and tap "Connect". If the connection succeeds, a printer icon will appear in the status bar. Then go to File Management to print the dispensing time and volume.



## 7.Cleaning and Maintenance



Note:cannot be autoclaved!

### 7.1Housing Cleaning

Thehousing is made of ABS. Wipe it with clean water for cleaning.

### 7.2Cylinder Cleaning

Cleaning the cylinder is performed by repeatedly aspirating and dispensing clean water. It is recommended to perform at least 5 aspirate/dispense cycles;

increase or decrease as needed.



注意：不建议用户对缸体进行拆卸清洗，如果“缸体清洗”操作无法满足用户的清洗要求。请联系经销商或厂家售后服务，请专业服务人员进行清洗。请在将产品交付服务人员前，将其中的残留液体排空，并告知最近一次处理液体详细情况。

### 7.3 Replacement of Inlet and Outlet Valves

After removing the old valve body with the tool, install the new valve body in the original position. There is no fixed replacement interval; replace it if problems occur. For issues that may be related to the valve body, see "Troubleshooting".

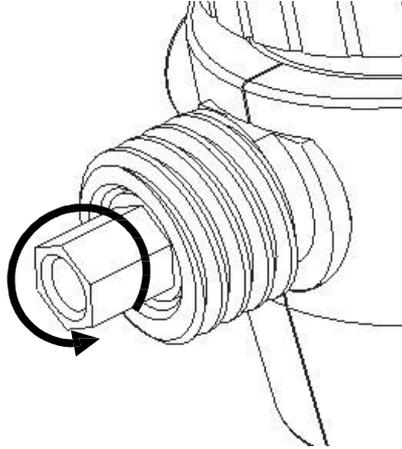


Note: The following operation requires the valve-body removal socket.

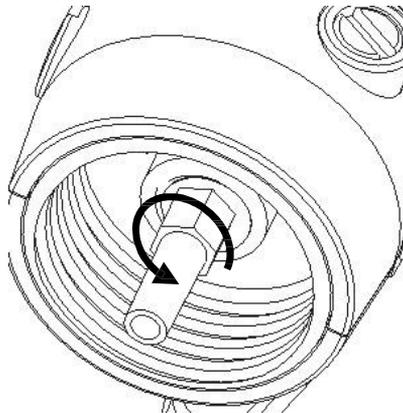
Before disassembly, be sure to remove the dispensing

tube and inlet tube.

### Disassembly of the outlet valve



### Disassembly of the inlet valve



## 8.Troubleshooting

| Symptom                                | Possible Cause                                                                              | Solution                          |
|----------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------|
| Liquid overflows<br>the piston         | Piston wear                                                                                 | Contact the manufacturer          |
| Piston movement is difficult           | Piston/piston chamber assembly is contaminated or damaged by crystallization/precipitation. | ① Perform the "Cylinder Cleaning" |
| Unable to replenish                    | Inlet valve is clogged                                                                      | ① Replace Inlet Valve             |
| Unable to replenish / liquid backflows | Outlet valve contaminated or dispensing tube damaged                                        | ② Contact the manufacturer        |
| Bubbles in the                         | Inlet tube is loose or damaged                                                              | Replace Inlet Tube                |
|                                        | Inlet tube is not immersed in the liquid                                                    | Check the inlet tube              |
|                                        | Reflux tube not installed or installed incorrectly                                          | Contact the manufacturer          |

|                                                                 |                                                          |                              |
|-----------------------------------------------------------------|----------------------------------------------------------|------------------------------|
| instrument / dispensed volume is less than the displayed volume | The instrument is not fully filled.                      | Check operation              |
|                                                                 | Inlet valve is loose                                     | Check the inlet valve        |
|                                                                 | Inlet valve clogged or damaged                           | Replace Inlet Valve          |
| No display on the screen                                        | Battery depleted                                         | Connect the charging adapter |
|                                                                 | The main unit and controller are not properly connected. | Check the connection         |

## 9.Storage Conditions

Store in a constant-temperature and humidity environment: 0–40°C and humidity no higher than 80%. If not used for a long time, charge it once a month to ensure at least 50% battery level.



## **10. Warranty Information**

The electronic bottle-top dispenser is warranted for one year. During this period, if any quality problems occur, please contact our company or your nearest distributor. Normal wear and tear or damage caused by operation not in accordance with this manual is not covered by the warranty.

Each is calibrated at the factory in accordance with ISO 8655-6 and undergoes strict quality inspection to ensure the product you purchase can be used with confidence.

## **11. Use Restrictions and Compatibility**

For special applications (e.g., trace analysis), users must verify reagent compatibility with this device.

- The parts of in contact with liquid are made of borosilicate glass, FEP and PTFE. Do not use liquids that are not compatible with these materials (e.g., hydrofluoric acid).
- Suspensions (e.g., activated carbon), because solid particles may clog or damage the instrument.
- Concentrated acids, concentrated alkalis, and non-polar organic solvents that may cause plastics to swell (e.g., toluene and benzene).



- Carbon disulfide, because it is highly flammable
- cannot be autoclaved!
- must not be used in environments with corrosive gases (e.g., HCl fumes).
- Max working viscosity:  $<500 \text{ mm}^2/\text{s}$

Compatibility (max concentration 1 mol/L)

|                                        |
|----------------------------------------|
| Acetic acid                            |
| Acetic acid                            |
| Alcoholic potassium hydroxide solution |
| Potassium hydroxide-Ethanol solution   |
| Ammonium iron(II)sulfate solution      |
| Ammonium ferrous sulfate solution      |
| Ammonium thiocyanate solution          |
| Ammonium thiocyanate solution          |
| Barium chloride solution               |
| Barium chloride solution               |
| Bromide bromate solution               |
| Bromate solution                       |
| Cerium(IV)sulfate solution             |
| Cerium(IV) sulfate solution            |
| EDTA solution                          |
| EDTA solution                          |

Hydrochloric acid

Hydrochloric acid

Hydrochloric acid in Acetone

Hydrochloric acid–acetone

Iodine solution\*

Iodine solution\*

Iodide Iodate solution\*

Iodine–iodate solution\*

Iron(II)sulfate solution

Ferrous sulfate solution

Nitric acid

Nitric acid

Oxalic acid solution

Oxalic acid solution

Perchloric acid

Perchloric acid

Perchloric acid in glacial acetic acid

Perchloric acid-glacial acetic acid

Potassium bromate solution

Potassium bromate solution

Potassium bromate bromide solution

Potassium bromide solution

Potassium dichromate solution

Potassium dichromate solution

Potassium hydroxide solution

Potassium hydroxide solution

Potassium iodate solution

Potassium iodate solution

Potassium permanganate solution\*

Potassium permanganate solution\*

Potassium thiocyanate solution

Potassium thiocyanate solution

Silver nitrate solution\*

Silver nitrate solution\*

Sodium arsenite solution

Sodium arsenite solution

Sodium carbonate solution

Sodium carbonate solution

Sodium chloride solution

Sodium chloride solution

Sodium hydroxide solution

Sodium hydroxide solution

Sodium nitrite solution

Sodium nitrite solution

Sodium thiosulfate solution

Sodium thiosulfate

Sulfuric acid

Sulfuric acid

Tetra-n-butylammonium hydroxide sol.

Tetrabutylammonium hydroxide

Triethanolamine in Acetone\*

Triethanolamine-Acetone\*

Zinc sulfate solution

Zinc sulfate solution



Note: The compatibility above applies only to the materials in direct contact with the liquid. If your reagent is not listed in the table, please consult the manufacturer.