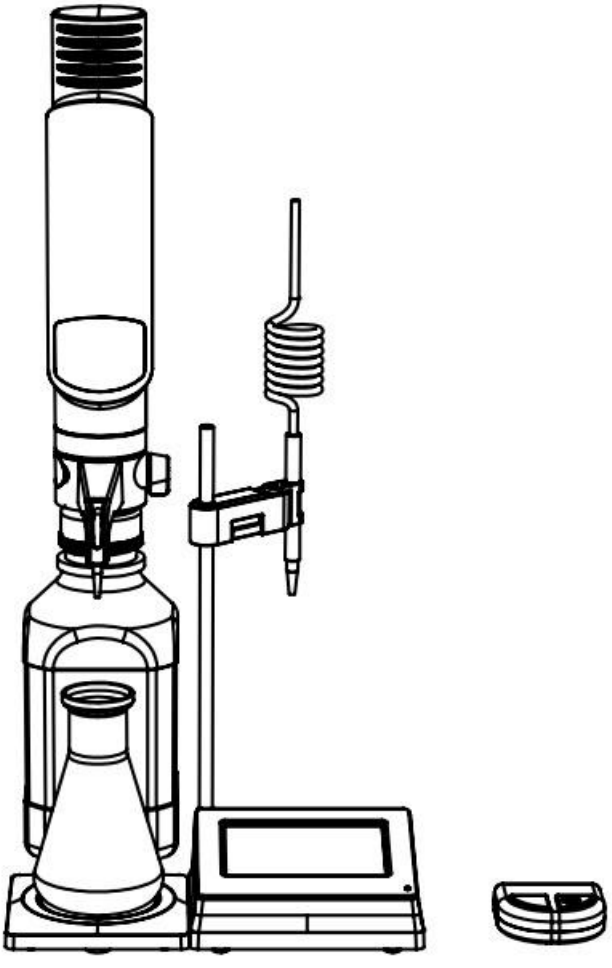
SCILOGEX

Liquid Handling

iTrite-Pro Bottle-top Burette

instruction manual



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Contents

Safety Warnings

Please read carefully and fully understand the following safety matters

- Please use the equipment strictly in accordance with the operating instructions in this manual to ensure safety
- Please read all safety information in this manual carefully
- In this manual, the symbol for "Attention" is used to explain the safety information. ⚠The operation or event with this icon indicates that it may cause danger. Pay attention to the operation method. The details are as follows:

Attention：It may cause damage to the equipment.

This notice indicates that any operation or use of the equipment may result in permanent damage or destruction if not strictly followed according to the operating manual.

- Do not operate the equipment in any way that is not directed or described in the operating manual, and contact the original equipment manufacturer if there are any problems with use.
- The descriptions in this manual attempt to cover all possible operational risk warnings. If you encounter unexpected situations during

use that are not mentioned in this manual, please treat them with caution.

Limit working conditions:

- Working temperature range: 15~40℃
- Maximum steam pressure: <500mbar
- Maximum viscosity: <500mm²/s
- Operating humidity: 20~90%

1. Your electronic titrator

The product is a digital controlled titration device for precise titration and analysis of liquids.

Before proceeding, make sure that your medium liquid is within the tolerance range of this product. Please refer to the instruction manual "Restrictions on Use and Compatibility" for details.

1.1 Specifications

Measuring Range	0.01mL-99.99mL step amount is 10μL
Accuracy	25mL: R=0.2% CV=0.07% 50mL: R=0.2% CV=0.05%

Rate adjustment range	25mL:1mL/s~5mL/s 50mL:1mL/s~10mL/s
Battery	Capacity: 3500mA/h Charging time: about 6 hours Usage time: about 5 hours

1.2 Packaging Contents

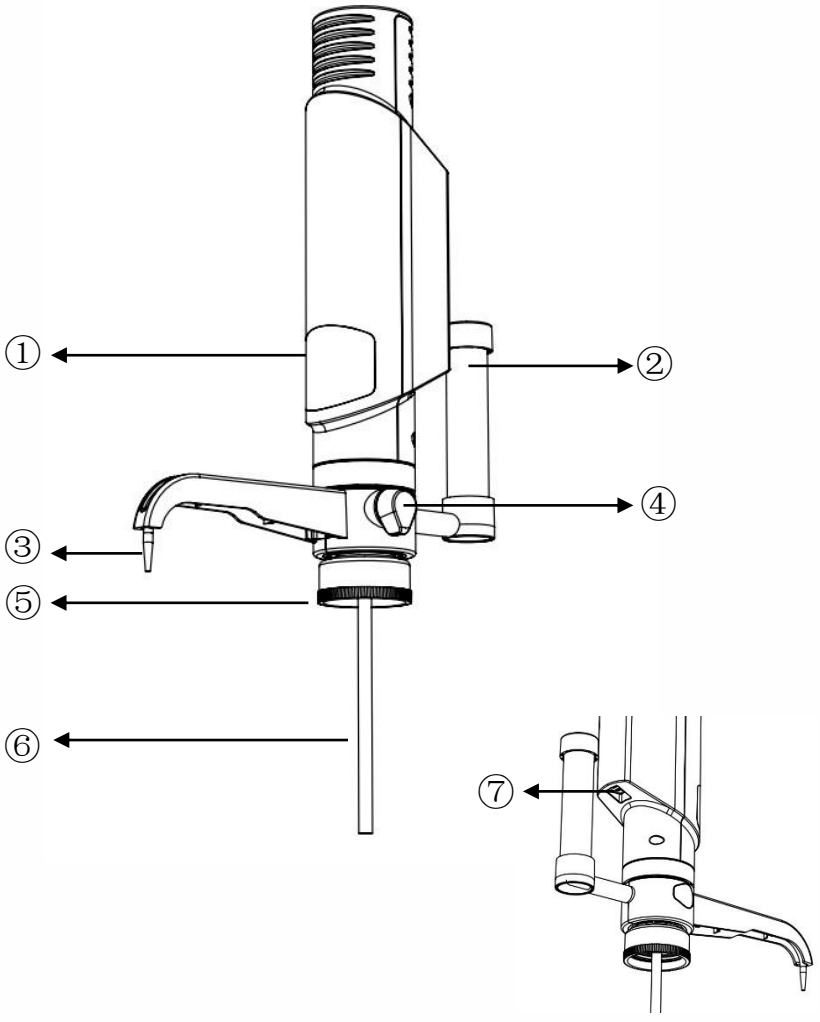
Your package should contain the following items

- The body of the electronic titrator comprises: burette X1 Burette protective sleeve X1 host X1
- Power adapter X1
- Control panel X1
- USB cable X2
- Instruction manual X1
- Adapter X5(GL32; GL38; GL28; GL25; S40)
- Magnetic Stirrer X1
- Long distance burette X1
- Remote control handle X1

- Stirrer (20mm) X1
- Inlet valve X1
- Outlet valve X1
- Inlet pipe X2
- Installation tool X1

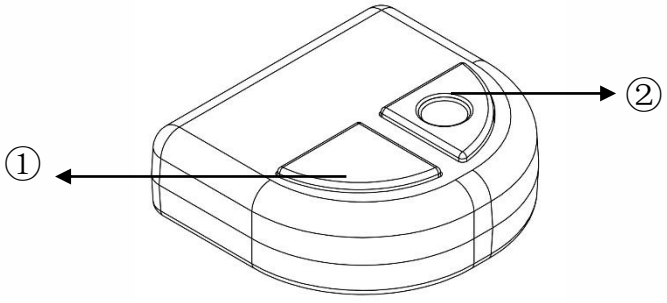
2 Part Instructions

2.1 Mainframe



- 1 Observation window
- 2 Drying tube
- 3 Burette
- 4 Return valve
- 5 Bottle mouth adapter
- 6 Feed pipe
- 7 Host data communication interface

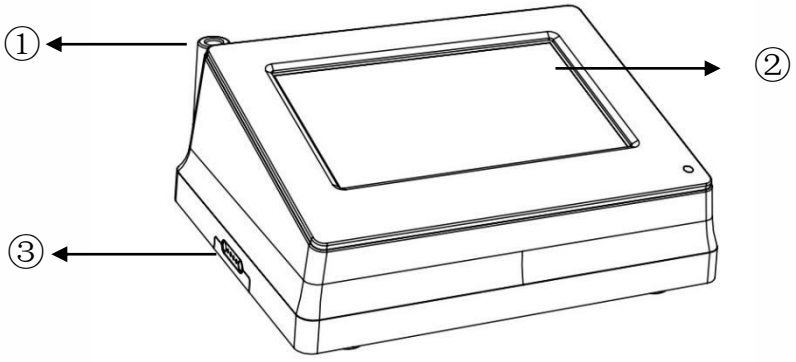
2.2 Control handle description



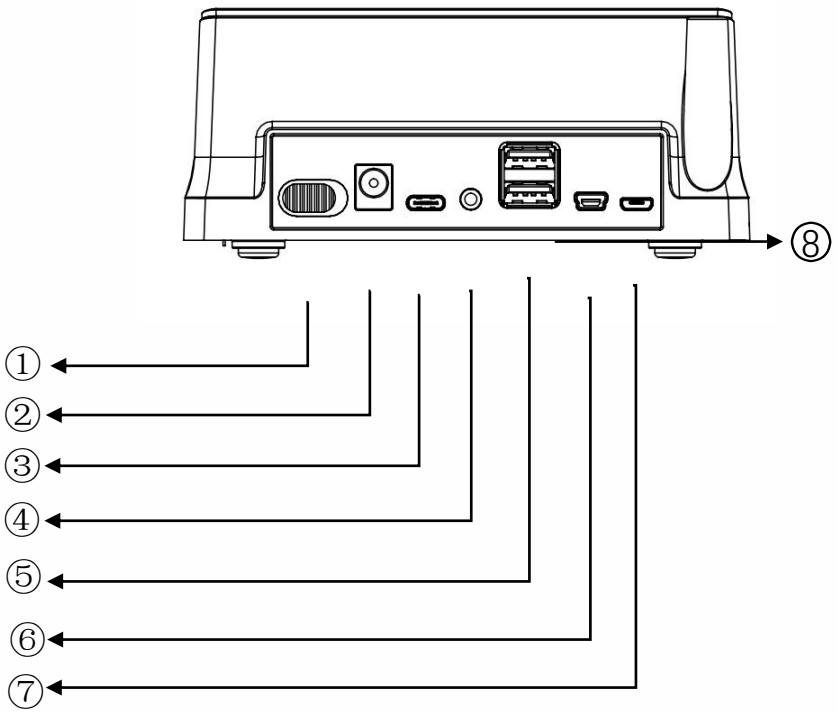
- 1 Left shortcut key
- 2 Right shortcut key

2.3 Controller Description

The control panel is used to control and function set the titrator.

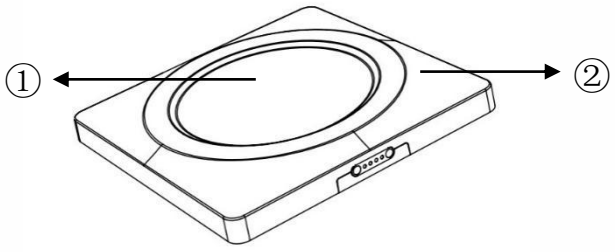


- 1 Sensor mount interface
- 2 IPS Display
- 3 Magnetic stirring communication port



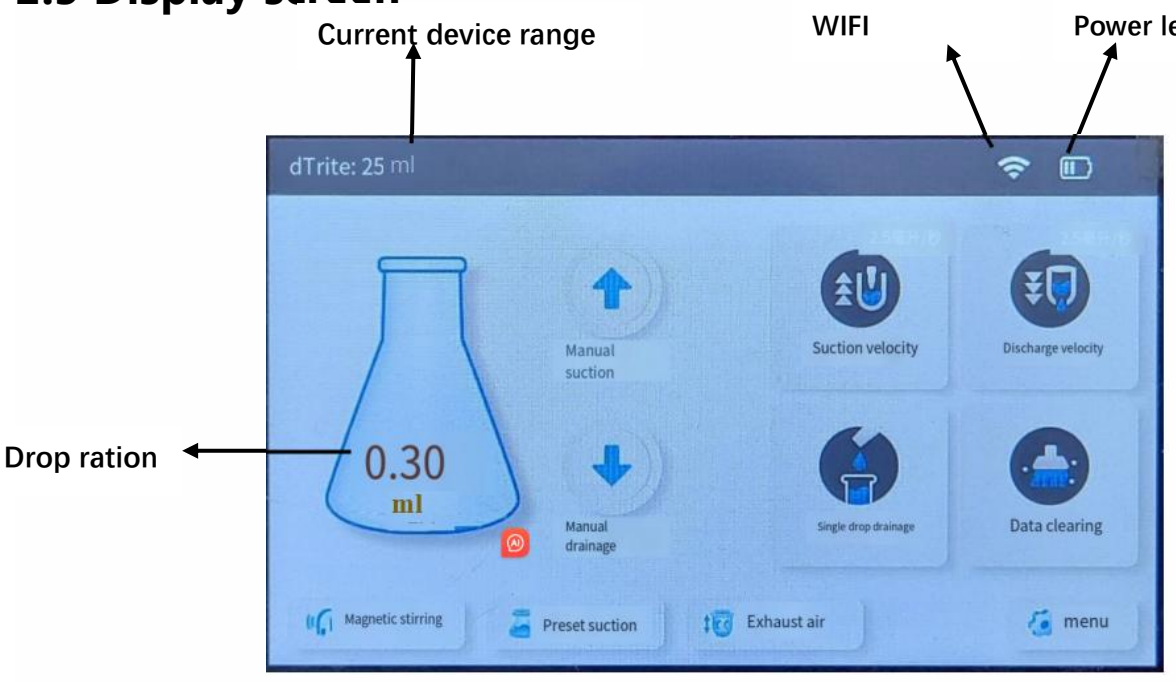
- 1 Switch
- 2 Charging port
- 3 Communication port for the upper computer
- 4 PH meter interface
- 5 Program upgrade interface
- 6 Color sensor ports
- 7 Remote control handle port
- 8 Host communication port

2.4 Magnetic Stirrer Description



- 1 Magnetic stirring position (maximum support 20mm mixer)
- 2 Magnetic mixing communication port

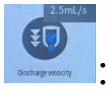
2.5 Display screen



: Manual infusion, hold down to start infusion, release to stop infusion

: Manual draining, hold down to start draining, release to stop draining

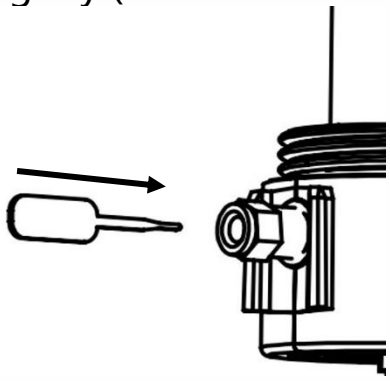
: Set the suction speed, the number in the upper right corner is the current suction speed



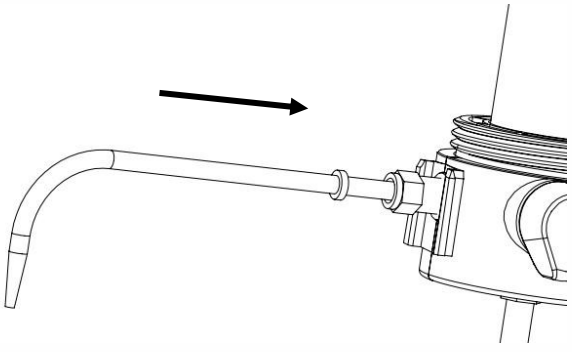
: Set the drainage speed, and the number in the upper right corner is the current drainage speed

3 Install

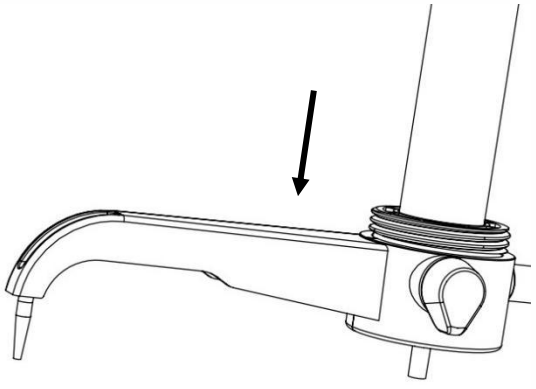
Step 1: Gently poke the discharge valve with the needle, making sure that the valve ball can move slightly (as shown on the right).



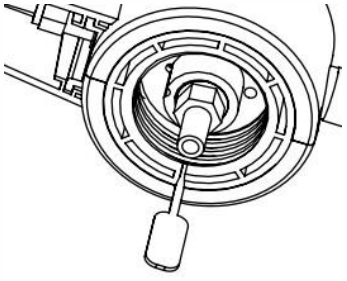
Step 2: Press the burette end into the fixed position.



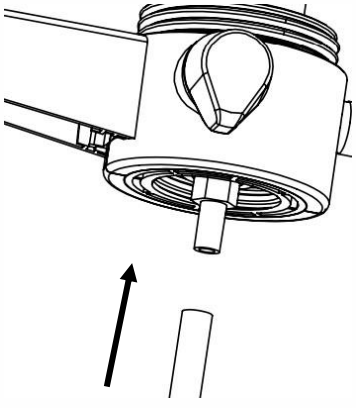
Step 3: Push the burette end out a certain length, as shown.



Step 4: Gently poke the liquid valve with the needle to make sure the valve ball can move slightly

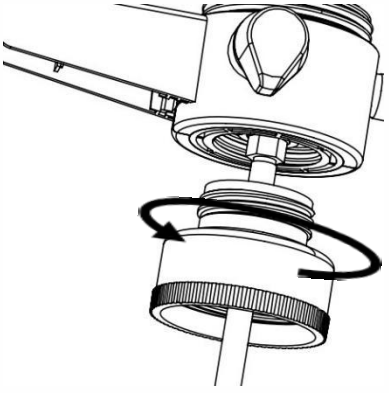


Step 5: Insert the end of buret into the outlet valve. Butt the inlet pipe with the inlet valve.

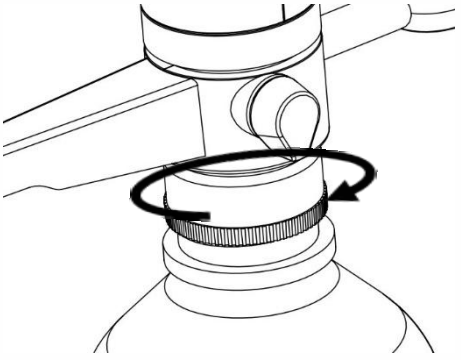


Note: Burette is made of FEP, please confirm compatibility before use (refer to Section 12, "Restrictions and Compatibility").

Step 6: Select the appropriate bottle mouth adapter to connect and screw it tight.



Step 7: Tighten the assembled unit with the bottle body



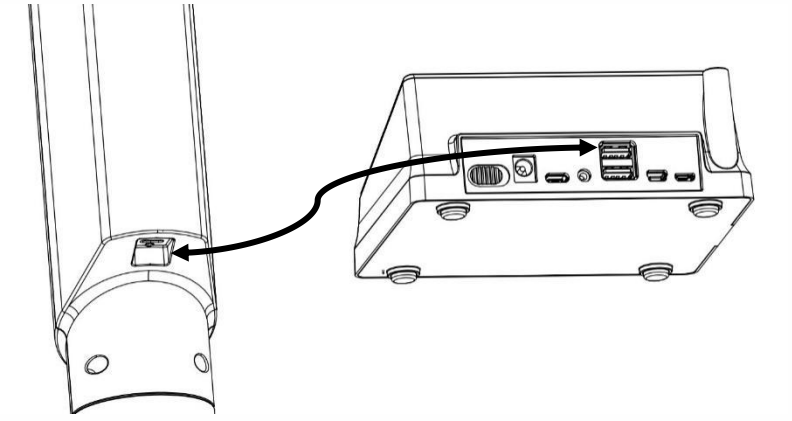
Note:

1. Please confirm the tightness of the bottle mouth adapter before each use, so as not to affect the use effect.

2. During the working period of the host, do not move and touch the host, so as not to affect the titration effect or cause physical damage to the host.

Step 8: Connect the body and the control panel

Connect the host to the controller using a USB cable



4 Titration

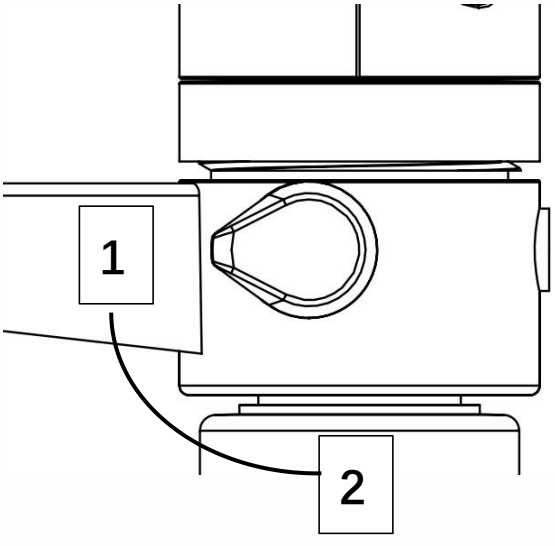
Note: Please perform at least one complete suction and drainage operation before starting normal work.

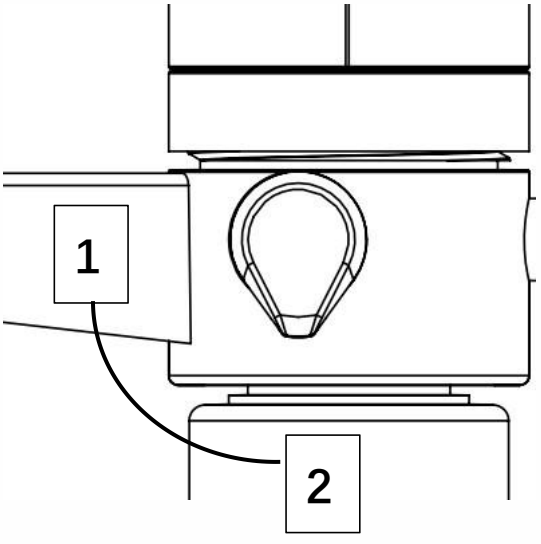
4.1 Start Up

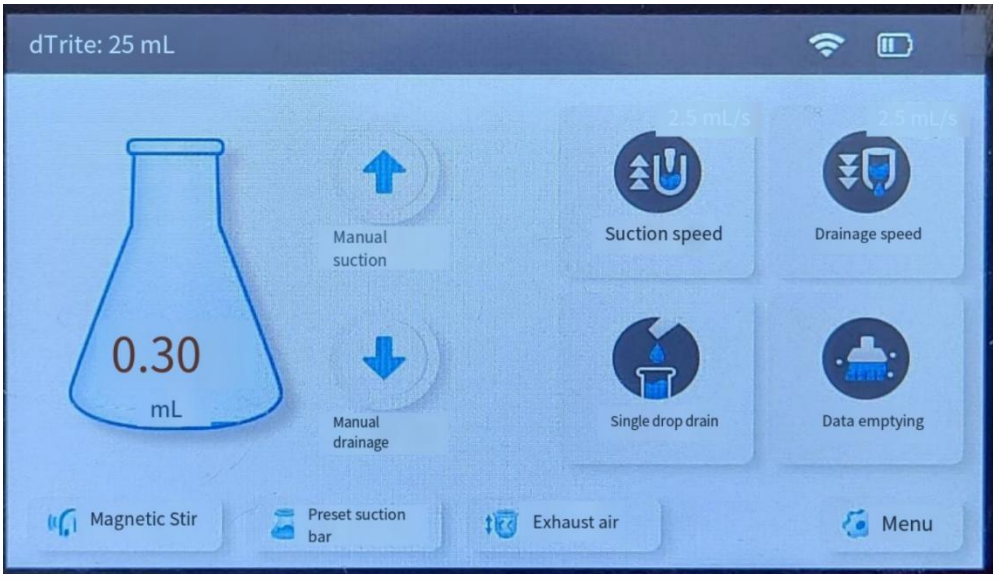
Step 1: Slide the switch button at the rear of the controller to the left.

4.1.1 Exhaust air

After the self-test is completed and the following picture appears, enter the air exhaust interface, rotate the exhaust valve to the position 2 in the above picture, and press the air exhaust button to complete one air exhaust; Exhaust air Rotate the drain valve to position 1 in the figure above to absorb the liquid, repeat the operation of the air exhaust function for 2-3 times, and then clear the air in the pipeline and enter the operation interface.





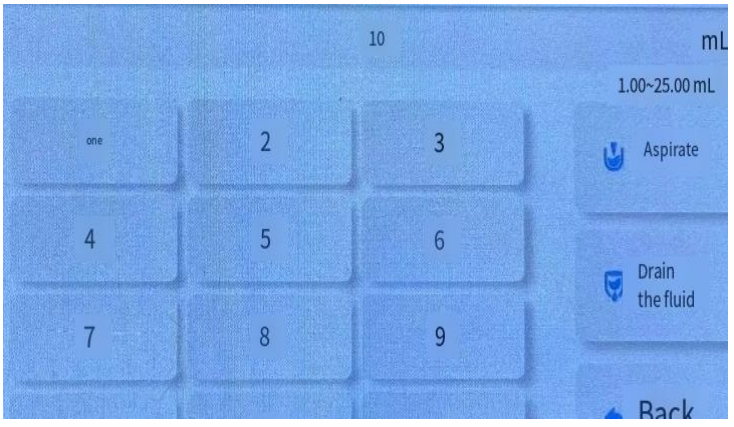


4.1.1 Filling with liquid filling

Press and hold the manual suction in the main screen, and fill the glass cylinder with titrant. The filling volume is 25mL or 50mL according to the measuring range of the equipment. You can also release the manual suction randomly and set the volume randomly.

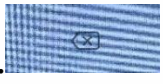
If you need to set the suction volume, tap the preset suction discharge on the main screen, enter the specific suction set quantity in the pop-up dialog

box, and tap the suction to complete the quantitative suction volume. 



4.1.2 Set the suction and discharge speed

The product can set the suction and discharge speed independently, in mL/s. The upper right corner of the suction speed icon on the main screen shows the current suction speed. Click this button to display the speed setting dialog box. 

According to the different device range, the corresponding suction and drainage range is also different. Enter the speed value within this value range and press the OK key. If you want to change the value, press the Delete key. 

4.1.3 Quick Titration

Rapid titration without preset titration: after holding down the manual drain button.  The amount of dispensed titration will be displayed on the screen. Release the button and the titration will stop.

Quick titration of preset titration: Tap preset suction and discharge on the main screen, enter the specific drainage set quantity in the pop-up dialog box, tap the drainage to complete the quantitative drainage. 

At this time, if the volume of titration liquid in the glass cylinder is less than the preset volume, the system will automatically replenish the liquid to complete the drainage process.

Note: In the rapid titration of quantitative drainage, when the distance from the target volume is about 1.5mL, the system begins to drain the titration liquid with a slow micro titration. All liquid quantities will be displayed on the screen.

4.1.4 Microtitration

Press the single drop drain button, you can achieve drop by drop micro

titration, hold down the single drop drain button, you can also accelerate micro titration, release to stop micro titration. 

The titration will be displayed in the main screen, and the minimum titration displayed is 0.02mL.

4.2 Clear the drops

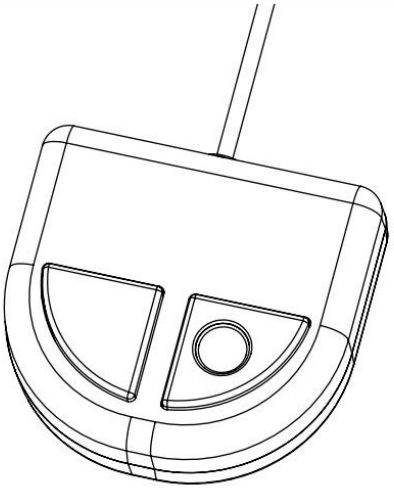
After pressing the Data clearing button, the display will automatically clear all the recorded liquid discharge. 

This will allow a new titration to begin.

5 Attach products

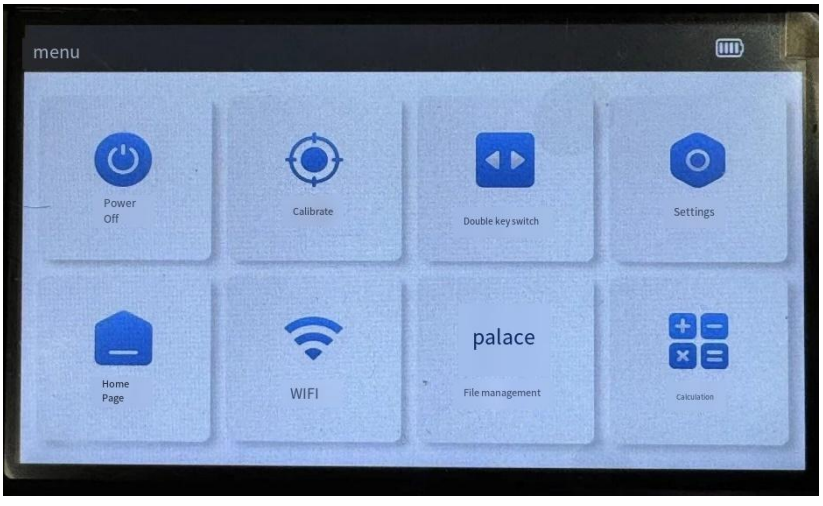
5.1 Remote control handle

The control handle maps the function of the control panel to facilitate remote operation.



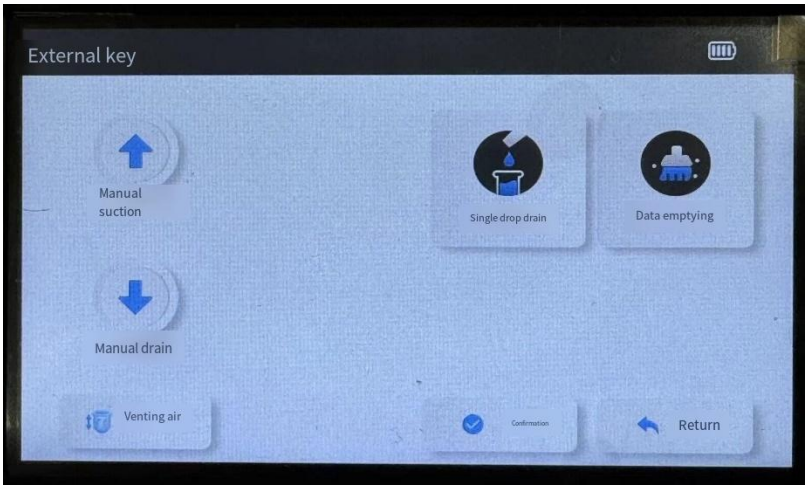
Max. line length: 90cm

Make sure you connect the mouse cable to the correct port on the controller. Click the menu and click the double key switch to enter the remote mouse setting interface. Follow the prompts to select the key that you want to set at the moment. Left or right button.



Click the function that needs to be set by the current key, as shown in the picture below,

the icon of this function will turn gray, indicating successful selection. At this point, tap the Confirm button.

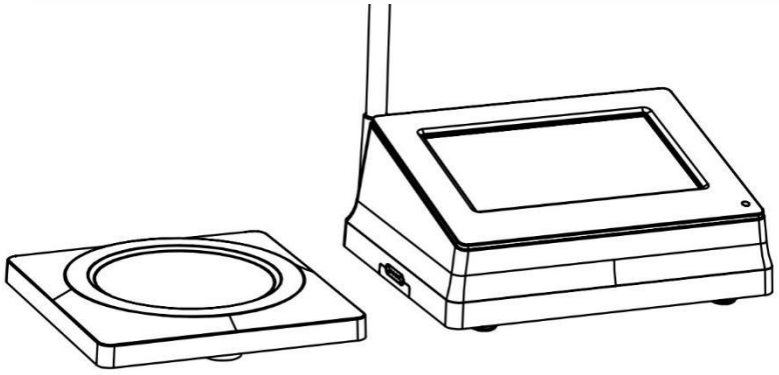


5.2 Magnetic Stirrer

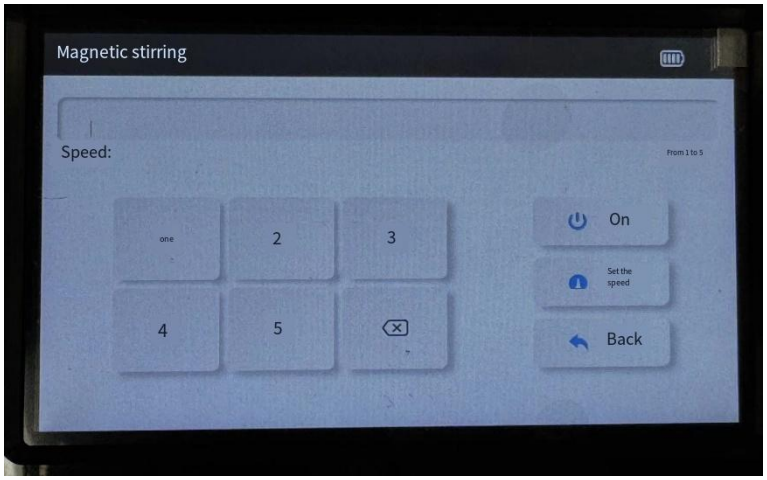
The magnetic stirrer is convenient for users to mix when doing titration experiments.

Installation Steps

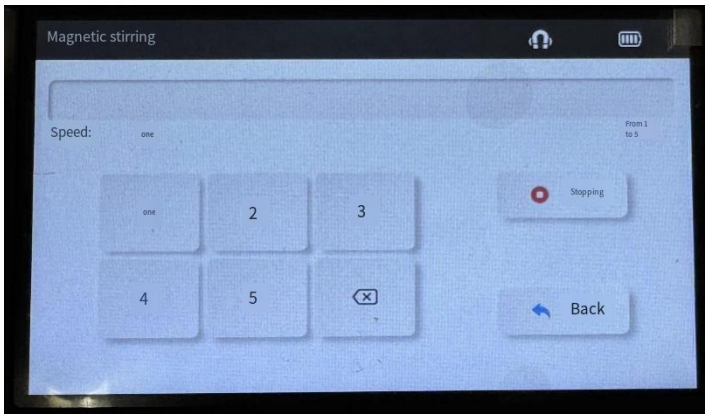
Connect the control panel locking port with the magnetic stirrer locking port



Verify that the magnetic stirrer is installed in place, refer to 5.2. The system will automatically check whether the magnetic stirring components are successfully connected. If they are not successfully connected, a pop-up window will prompt you to connect them again. Click the magnetic stirring button on the main interface, and the stirring speed can be set to 1-5. After selecting the corresponding gear, click the set speed, and then click Open to start the magnetic stirring.

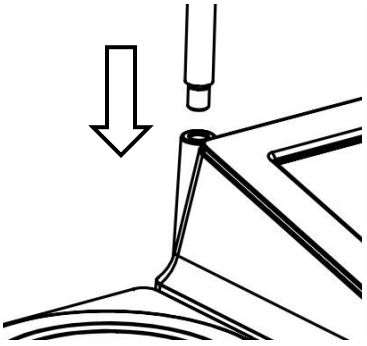


After the magnetic stirring is turned on, the magnetic icon will be displayed in the status bar.  If you want to switch the magnetic stirring speed, click Stop first and repeat the speed setting step again. To stop magnetic stirring, press stop directly.

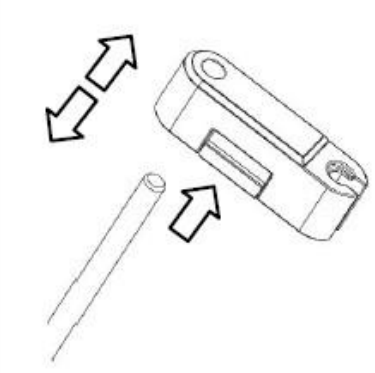


5.3 Sensor Bracket

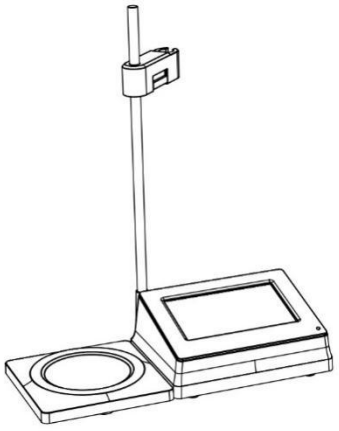
Step 1: Mount and screw the bracket tightly



Step 2: Press and hold the black button of the clamp, adjust to the appropriate height and let go

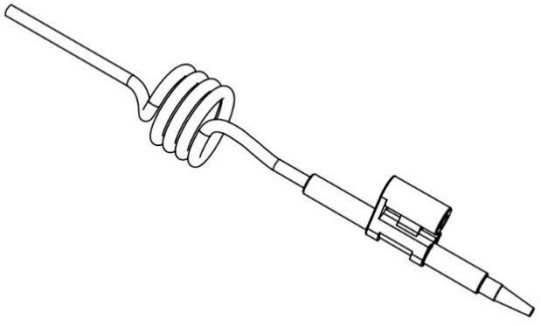


Step 3:Schematic diagram of finished assembly



5.4 Long distance burette

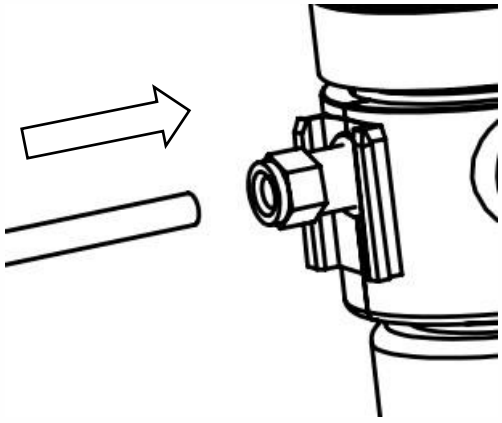
Long distance burets can effectively extend the service distance of the buret.



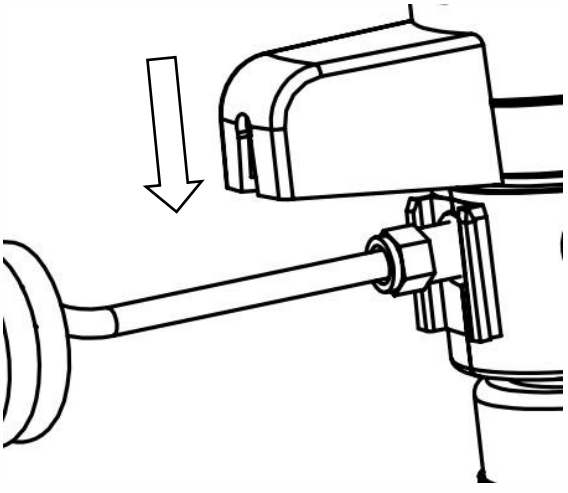
Note: Burette is made of FEP, please confirm compatibility before use (refer to the attached page "Compatibility"). Its maximum extension length is 1 meter.

Installation procedure

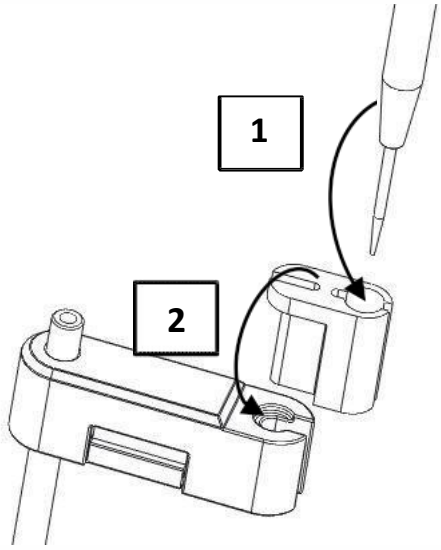
① Insert the end of the buret into the outlet valve.



② Press down to tighten the titration housing



③ Install the long distance burette head with the bracket as shown in steps 1 and 2.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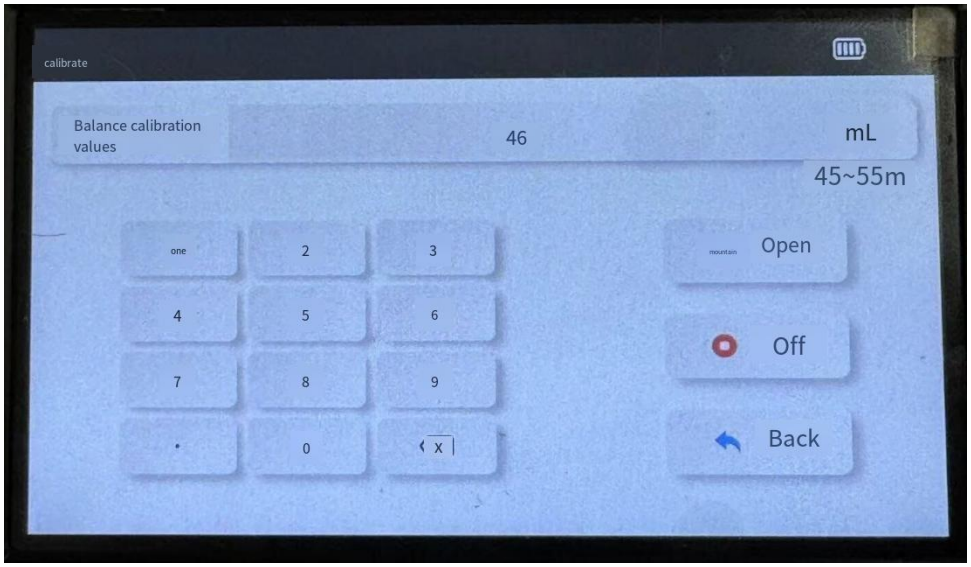
6 Special features

6.1 Language Selection

By entering the menu function, find the "Language" submenu, the user can choose Chinese, English. Touch to select the corresponding language box to select the language.

6.2 Local Calibration

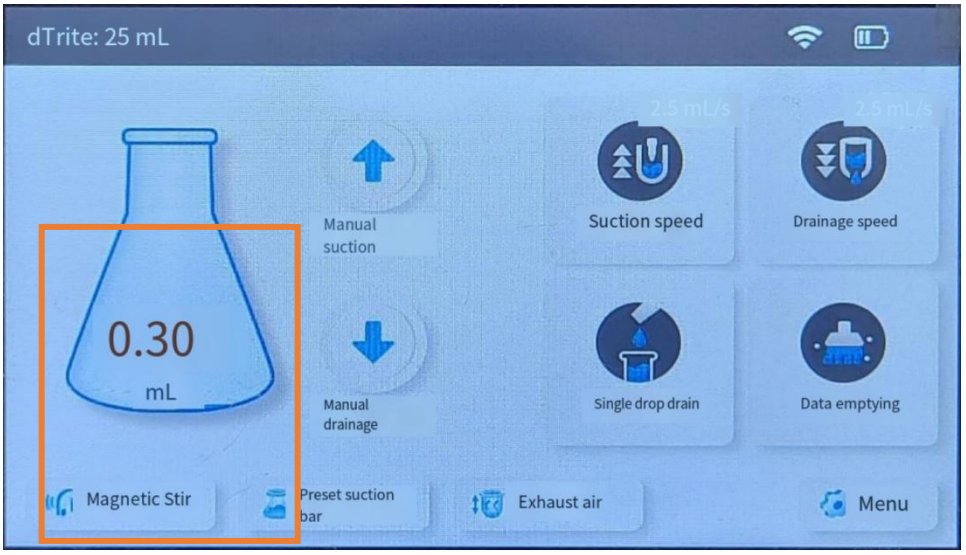
The default setting of the instrument has taken into account the density and atmospheric pressure of distilled water at 20℃. If the user needs to self-calibrate after long-term use, the local calibration function can be used. By entering the menu function, find the "Calibration" submenu and select drain calibration. Note that user self-calibration should be carried out in accordance with the experimental environment of ISO-8655-6, and the value of distilled water density by converting it should not differ from the performance value by 10%, otherwise an error message will appear. Please contact your local distributor at this time. After entering the measured values, press the "On" key to complete the calibration of the unit.



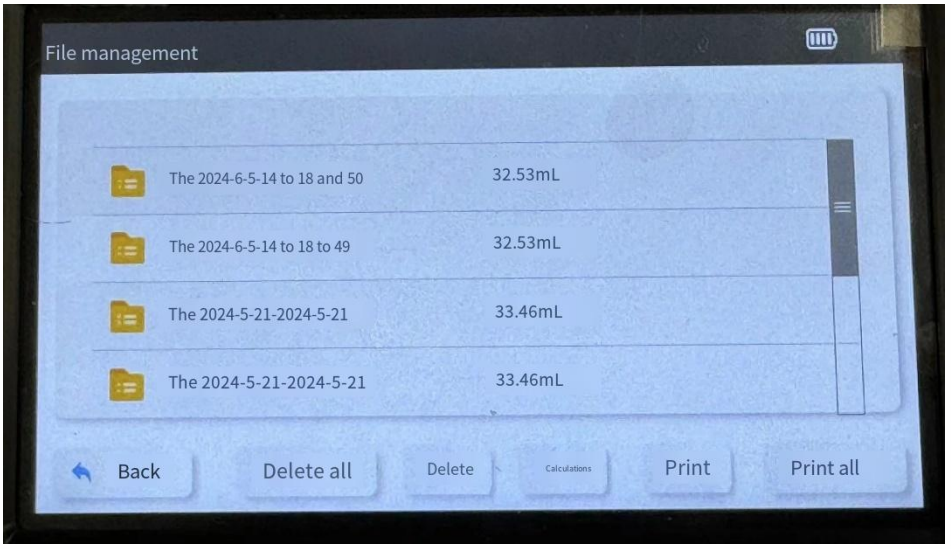
After the calibration is completed, "CAL" will be on next to the "beaker" icon on the main interface, so that the volume of the entire drain will be changed. Go back to the "Calibration" submenu, you can change the set calibration value, and the entire system will return to the factory value.

6.3 File Storage

Click the "Flask" icon in the main interface, and the system can record the drip quantity currently displayed.



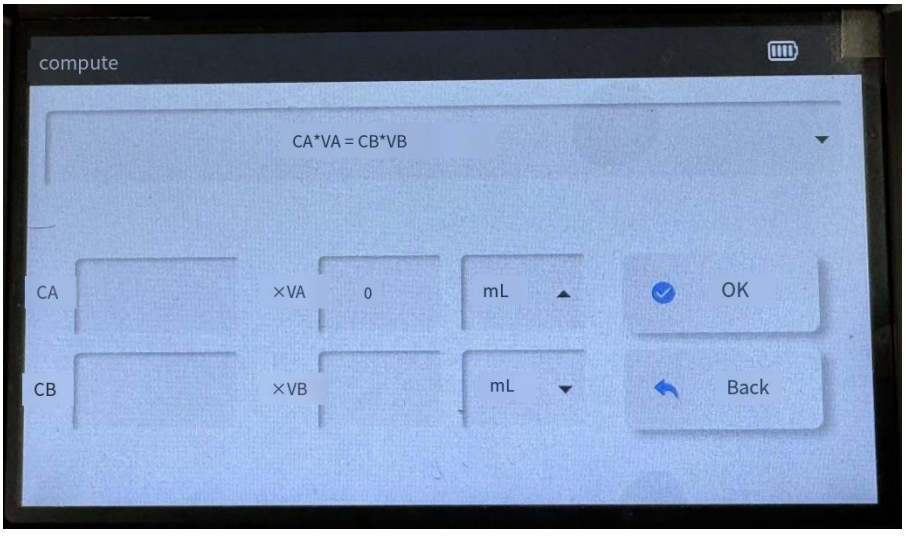
You can click "Menu" in the main interface to enter the submenu "File Management Function", so as to find the drip quantity recorded in the previous step and the time recorded drip quantity. You can also perform subsequent operations such as deleting, calculating and printing files through the function buttons at the bottom of the screen.



6.54Calculation

Product support will automatically calculate the titration through the formula to the user's desired data. The user can go through the "Menu" function and find the "Calculation" submenu. Select the desired formula or build your own formula.

Go to the "File Management Function", find the titration file you want to calculate, click the "Calculate" button below, you can get the desired data.



7 Calibrate

The calibration of the product must be in the environment of 20-25 ° C (±0.5 ° C), the weight of pipette distilled water must be repeated at least 5 times, and the calibration value will be written into your product through the special calibration software.

The tools to be prepared for calibration are as follows:

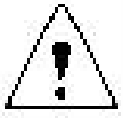
- One part per 100,000 electronic balance
- Distilled water
- PC with X86 or X64 architecture pre-installed with

windows(XP/Vista/7/810) operating system

The following software should be prepared for calibration:

- Product specific calibration software

(Please contact your nearest dealer for details of the software)



Note: If your product does not pass calibration or does not work properly after multiple calibrations, please contact your nearest dealer.

8 Clean and maintain

Note: This product cannot be autoclaved!

8.1 Shell cleaning

The shell of the product is composed of ABS+PC material, and can be

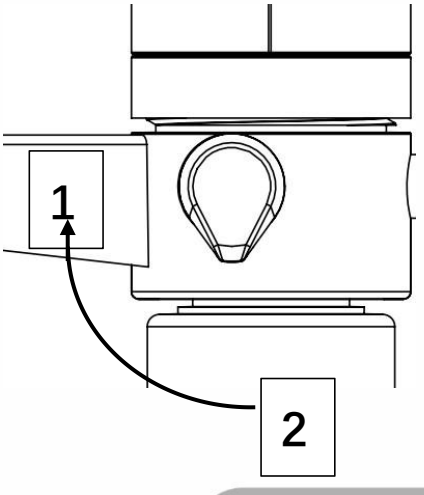
cleaned with clean water.

8.2 Cylinder body cleaning

The cylinder body cleaning of the product is to discharge water repeatedly to achieve cleaning. The number of suction and drainage of cleaning is recommended to be at least 5 times, which can be increased or reduced according to the actual situation of the user.

First ensure that the residual liquid in the cylinder body is emptied. Refer to the specific operation (liquid release).

The first step: Rotate the return valve to the ① position, and long press the pre-filled liquid key to reset the piston to the lowest end of the cylinder block.



Step 2: Press the fill key and drain key to suck and drain water at least 5 times.

Step 3: Long press the pre-fill key to reset the piston to the bottom of the cylinder block.

Step 4: Make sure the inlet tube is not immersed in the liquid, press the fill key to move the piston to the very top of the cylinder.

Step 5: Rotate the return valve to the ② position and press the drain key to make the piston move to the lowest end of the cylinder block.

Step 6: After finishing cleaning, rotate the return valve to the direction of ①. At this point, the cleaning work is completed.

 Note: It is not recommended that the user disassemble the cylinder block for cleaning, if the "cylinder block cleaning" operation cannot meet the user's cleaning requirements. Please contact the dealer or manufacturer after-sales service, ask professional service personnel to clean.

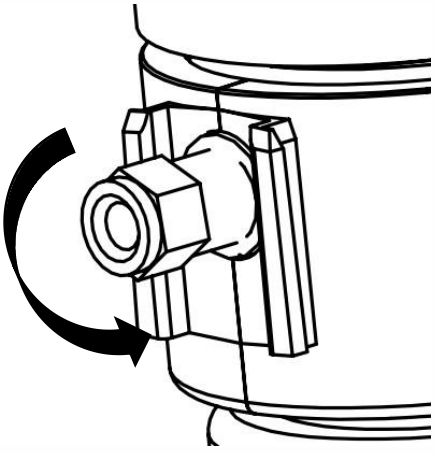
Please empty the product before handing it over to the service personnel and inform them of the details of the last liquid handled.

8.3 Replace the inlet and outlet valves

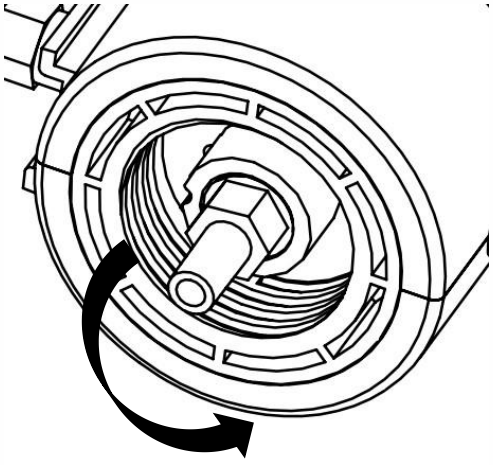
After removing the old valve body with a tool, install the new valve body into the original position. There is no fixed replacement cycle for the valve body, and it can be replaced after problems occur. Refer to "Troubleshooting" for possible problems with the valve body.

Note: The following operations require the use of the valve body removal sleeve. Be sure to remove burette and feed line completely before removal.

Removal of the outlet valve



Removal of the outlet valve



9. Fault diagnosis

Symptom	Possible causes	Solutions
Liquid overflow piston	Piston wear	Contact manufacturer
Difficulty moving the piston	The piston/piston chamber assembly is contaminated or damaged due to crystallization precipitation	① Perform the manual "Cylinder Block cleaning" operation ② Contact Manufacturer

Inability to rehydrate	The intake valve is blocked	① Replace the inlet valve
Inability to rehydrate/rehydrate when liquid from titration	Drain valve contamination or burette damage	② Contact the manufacturer
The bubble/drain volume in the instrument is less than the indicated volume	The inlet tube is loose or damaged	Replace the inlet line
	The intake tube is not immersed in liquid	Check the inlet line
	The return pipe is not installed or the return pipe is installed incorrectly	Contact the manufacturer
	The instrument is not fully replenished with fluid	Check operation
	The intake valve is loose	Check the inlet valve
	The inlet valve is blocked or	Replace the inlet

	damaged	valve
No display	The battery is dead	Connect the charging adapter
	The host is not properly connected to the controller	Check the connection

10 Storage conditions

Stored in a constant temperature and humidity environment, the temperature range is 5-40℃, the humidity is not more than 80%. If you do not use it for a long time, please ensure that it is charged once a month to ensure that it has at least 50% electricity.

11. Warranty information

Electronic titrators are guaranteed for one year. In case of any quality problems during this period, please feel free to contact our company or your nearest dealer. The warranty is not covered for normal wear and tear or

damage caused by not following the instructions of this manual.

Every electronic titrator has been calibrated according to ISO8655-6 standard and strict quality testing before leaving the factory to ensure that the products you buy can be used with peace of mind.

12. Use restrictions and compatibility

For special applications (for example, trace substance analysis), the user needs to confirm the compatibility of the reagent with the device.

- The liquid contact part consists of the following materials: borosilicate glass, FEP, PTFE. Therefore, do not use a liquid that cannot be tolerated (for example, hydrofluoric acid).
- Suspensions (e.g., activated carbon), as solid particles may clog or damage the instrument.
- Concentrated acids, alkalis, and non-polar organic solvents (e.g., toluene and benzene) that may cause plastics to swell.
- Carbon disulfide, as this substance burns very easily
- Do not autoclave!

- Do not use in corrosive gas environments (e.g., HCL fumes).
- Maximum working consistency <500mm²/s

compatibility

This instrument can be used for the following titration media (maximum concentration 1mol/L) :

Medium	Medium	Medium
Acetic acid	Potassium hydroxide - ethanol solution	Ferrous ammonium sulfate solution
Ammonium thiocyanate solution	Barium chloride solution	Bromate solution
Cerium (IV) sulfate solution	EDTA solution	Hydrochloric Acid
hydrochloric-acetone	Iodine solution *	Iodized iodic acid solution *
Ferrous sulfate solution	Nitric acid	Oxalic acid solution
Perchloric acid	Perchloric acid - glacial acetic acid	Potassium bromate solution

Potassium bromate solution	Potassium dichromate solution	Potassium hydroxide solution
Potassium iodate solution	Potassium permanganate solution *	Potassium thiocyanate solution
Silver nitrate solution *	Sodium arsenite solution	Sodium carbonate solution
Sodium chloride solution	Sodium hydroxide solution	Sodium nitrite solution
Sodium thiosulfate	Sulfuric acid	Tetrabutylammonium hydroxide
Acetone* triethanolamine-acetone *	Zinc sulfate solution	

Note: The above compatibility is for the part of the material that comes into direct contact with the liquid, if the reagent you use is not included in the table, please consult the manufacturer.