

AIP WIFI smart peristaltic pump User Manual A1 2022-03-11

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1 Reading tips

1.1 FCC warning

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures: --Reorient or relocate the receiving antenna. --Increase the separation between the device and receiver. --Connect the device into an outlet on a circuit different from that to which the receiver is connected. --Consult the dealer or an experienced radio/TV technician for help

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

FCC Radiation Exposure Statement The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located for operating in conjunction with any other antenna or transmitter.

1.2 Suggestions for use

Kamoer provides AIP Wi-Fi intelligent peristaltic pump users with the following documents:

1. 《AIP Wi-Fi smart peristaltic pump User Manual》
2. 《AIP Wi-Fi smart peristaltic pump Quick Start Guide》

It is recommended that users first read the 《AIP Wi-Fi smart peristaltic pump Quick Start Guide》 to understand the use process. For detailed product information, please read the 《AIP Wi-Fi smart peristaltic pump User Manual》.

2 Product overview

2.1 Introduction

AIP series peristaltic pump is using stepping motor control, commonly used in low traffic and high precision setting, configure the touch screen 480 x 272, powerful, easy to operate.

2.2 Case-opening

- Open the package before packing, check if the packaging is damaged in the shipping process.
- After you open the package, refer to the packing list in the Appendix, and verify that all components without fail, check for visible damage.

2.3 Part name



Definition of each button:

1. Clockwise rotation button: press the setting pump to rotate clockwise (to be used when the pump stops)
2. Counterclockwise rotation: press the button to set the pump to rotate counterclockwise (to be used when the pump stops)
3. Quick emptying button: it is used in the pump line calibration interface. After pressing down, the pump runs quickly to empty, and then press down again to stop emptying
4. Acceleration button: the pump speed increases after pressing down, and the modified speed can be used continuously (in continuous mode).
5. Deceleration button: the pump speed decreases after pressing down, and the modified speed can be used continuously (in continuous mode).
6. Start/stop button: in the continuous mode, distribution mode and pump line calibration interface, the button pump starts the task operation, and press the pump again to stop the task operation



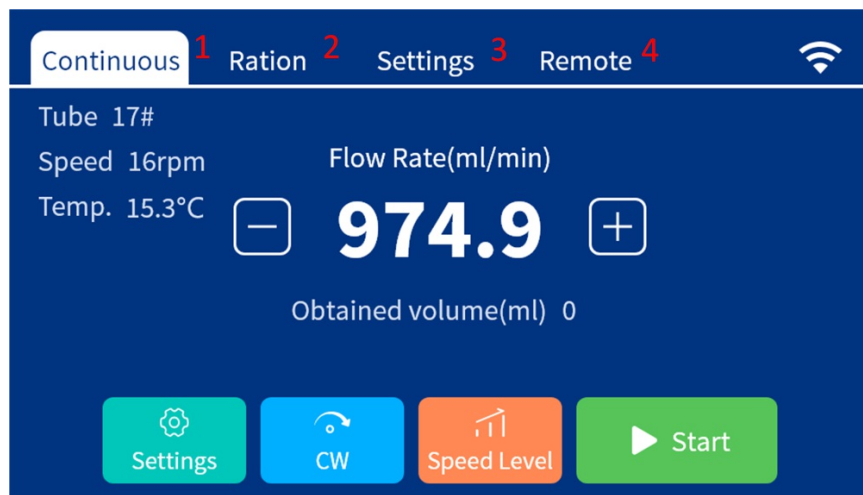
Each interface definition:

- 1.Fan: A machine fan used to remove heat from the machine during operation;
- 2.Liquid level sensor interface: used to connect the liquid level sensor expansion component, so that the instrument has the function of liquid level detection;
- 3.Temperature sensor interface: used to plug the temperature sensor expansion component, so that the instrument has the function of temperature detection;
- 4.CAN communication interface: connect RJ45 connector CAN communication line, can remotely control the machine through CAN;
- 5.RS485 communication interface: connect RJ45 connector RS485 communication line, remotely control the machine through RS485;
- 6.Wi-Fi antenna: 2.4G Wi-Fi antenna, which can be controlled by mobile app;
- 7.Integrated switch: switch and power line interface;
- 8-9.Expansion interface: used to connect with expansion devices, such as foot switch, PC, PLC and other equipment, two ports can be inserted at will. However, to ensure availability, please use utrao's standard harness. Specific wiring harness definition reference analog control pin definition.

!! Note that the use of non-utrao standard harnesses may result in damage to the instrument and the damage is not covered by the warranty.

3 Running operation

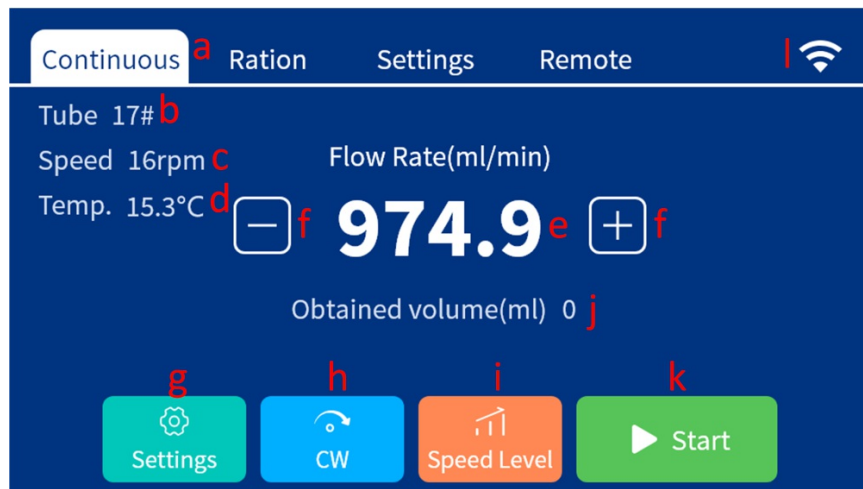
After the boot, the four title bars of the main interface are introduced:



- **1. Continuous mode:** applied to the scene where the pump continues to run for a long time. After the start, the pump will run all the time, click the pump again to stop the operation; the flow rate can be adjusted during the pump operation;
- **2. Distribution mode:** suitable for filling occasions, the pump runs a certain amount, then automatically stops, the user can manually trigger the start, or set the number of cycles to let the pump run cyclically;
- **3. System settings:** set the system to include the tube type settings, Wi-Fi settings, language settings, time settings, system information, system self-test, factory reset, screen calibration and other functions;
- **4. Control mode:** including remote control functions such as Wi-Fi, RS485, CAN;

3.1 Continuous mode

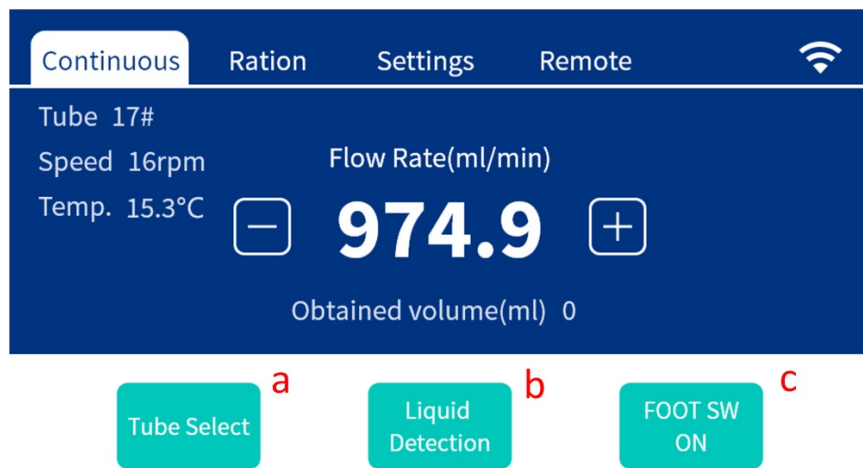
After booting up, select "Continuous Mode" in the navigation bar to enter the continuous mode control interface; in continuous mode, after clicking Start, the pump will run continuously until the stop button is clicked;



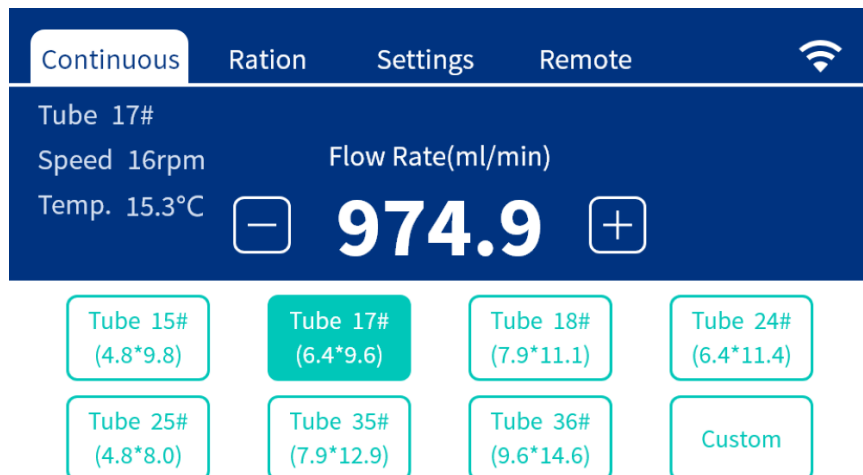
- **a. Continuous mode:** continuous mode title;
- **b. Tube type:** continuous mode tube type setting, tube type record has corresponding flow rate information, the same speed will use different tube type flow rate will be different;
- **c. Speed:** the current set speed of the continuous mode, the speed cannot be directly set, and the speed is converted according to the current flow rate setting;
- **d. Temperature:** display the temperature of the external temperature sensor, when the external sensor is not connected, it is displayed here;
- **e. Flow rate display:** display the current set flow rate, can be modified by the on-screen keyboard or flow rate plus / minus buttons;
- **f. Acceleration/deceleration button:** Click this button to increase or decrease the flow rate. The amount of increase or decrease each time is the amount of change indicated in i; the button operates when the motor is running and stopped;
- **g. Set button:** Click to enter the continuous mode setting interface. For details, see 2.2.1 Continuous mode setting;
- **h. direction button:** click to switch the direction of rotation of the pump, set when the pump stops running, can not operate when the pump is running;
- **i. acceleration and deceleration granularity:** used to modify the speed of the click acceleration/deceleration button change, there are several sizes of 0.1, 1, 5, 10;
- **j. Runn Volume (ml):** The volume in which the continuous mode has been run. When the pump is running, the run volume continues to increase. When the continuous mode is restarted, the run volume increases from 0;
- **k. Start/Stop button:** continuous mode start stop button;
- **l. Wi-Fi status display:** Here shows the status of Wi-Fi, the specific Wi-Fi status refers to 3.2 ration network chapter;

3.1.1 Continuous mode setting

In the continuous mode, click the "Settings" button in the lower left corner to enter the continuous mode setting interface:



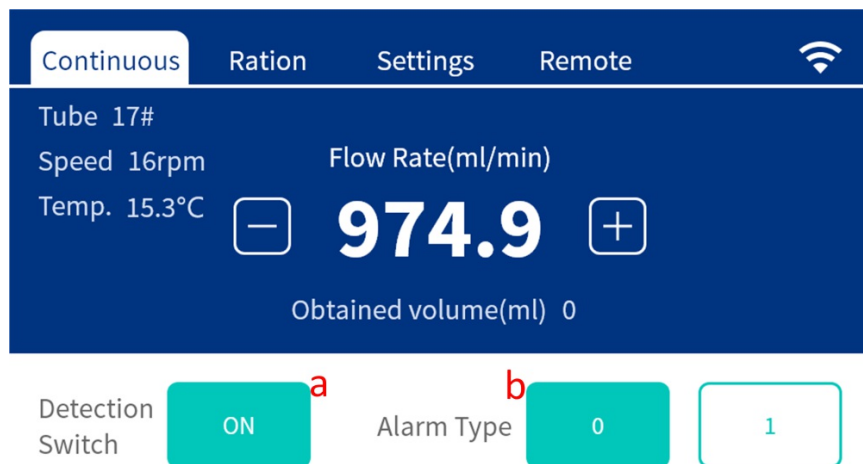
- **a. Tube type setting:** Click to enter the tube type selection interface and select the corresponding tube type. Each tube type has a corresponding relationship between the speed and the flow rate. If not, the tube type can be performed in the system setting->tube type. calibration;
- **b. Liquid level detection:** Click the liquid level detection to enter the liquid level detection setting interface, set the liquid level detection on and off in the liquid level detection setting interface, the type of alarm; if the liquid level detection is on, when the pump works, if When the liquid level alarm is detected, the pump stops working and an alarm is given;
- **c. Foot switch:** Click to switch the opening and closing of the foot switch control. If the foot switch is turned on, the continuous mode can be controlled to start and stop by the foot switch;



Continuous Work Tube Setting Interface

3.1.2 Continuous mode level detection setting

If the liquid level detection is on, when the pump is working, if the liquid level alarm is detected, the pump stops working and an alarm prompt is given; in continuous mode, click Set->Level Detection to enter the continuous mode level detection setting. interface:

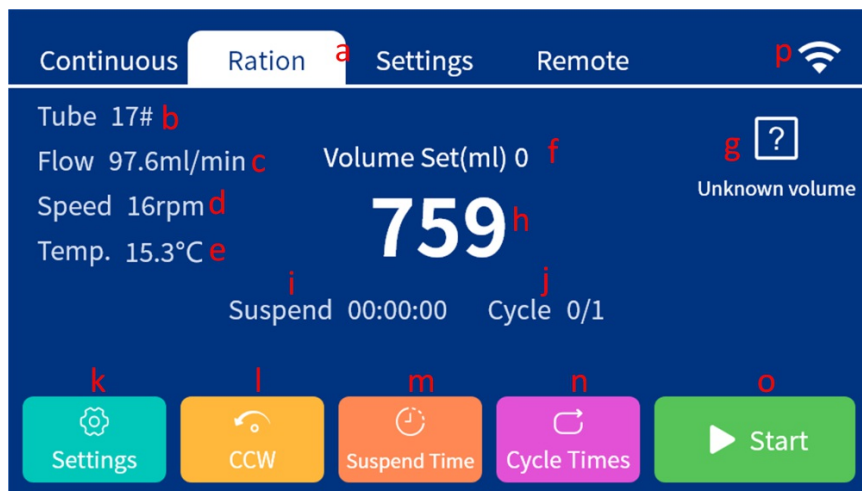


- **a. Detection switch:** open and close the liquid level detection;
- **b. Alarm type:** The liquid level float has two states of floating and sinking. The state of floating and sinking of different liquid level floats is different. Here, choose which state the float is used as an alarm.

3.2 Ration mode

After the power is turned on, clicking the Ration mode in the title bar will enter the ration mode work interface; in the ration mode, there are two working modes, namely the fully automatic working mode and the semi-automatic working mode;

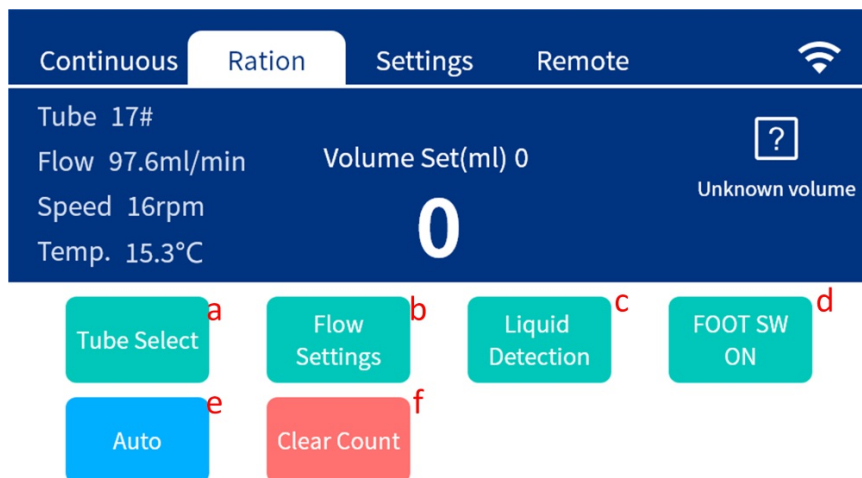
1. Semi-automatic working mode: Click h working volume display area to set the volume. After determining the quantity, click the start button to start running, the flow rate starts to count in the middle of the screen. When the counting value and the setting amount are equal, the pump stops working, click again to start, the pump is again operated in the above manner;
2. fully automatic working mode: set the number of cycles, set the working volume, pause time, click to start running, the middle of the screen shows the flow starts counting, when the count value and the set quantitative are equal, the pump stops running, and the middle of the screen begins to The pause time countdown, when the countdown is 0, the pump automatically restarts the work, the pump runs once and records it as a cycle. When the cycle is set a number of times, the pump stops running, waiting for the click to start, and starts the next cycle;



- a. Ration mode: allocation mode title;
- b. Tube type: the ration mode tube type setting, the tube type record has the corresponding flow rate information, and the same speed will use different tube type flow rates;
- c. Flow rate: the current flow rate setting of the ration mode;
- d. Speed: the current set speed of the ration mode, the speed can not be directly set, the speed is converted according to the current flow rate setting;
- e. Temperature: shows the temperature of the external temperature sensor, when the external sensor is not connected, it is displayed here;
- f. Working volume display: display the currently set working volume;
- g. Copy function entry: When you do not know how much volume you need to add, you can use this function to copy a volume first;
- h. working volume: display the working volume, when the ration mode starts working, the value decreases with the work of the pump, indicating the working process;
- i. Pause time: the interval between each filling in the automatic mode of the ration mode;
- j. Cycle mode and progress display: The ration mode has two modes: full-automatic and semi-automatic. When working in semi-automatic mode, the number represents the number of times of work. When working in the fully automatic mode, the number format is the number of times of work. / target work times;
- k. Settings: Click to enter the ration mode setting interface. For details, see 2.2.1 Ration Mode Settings.
- l. Direction button: click to switch the direction of rotation of the pump, set when the pump stops running, can not operate when the pump is running;
- m. Pause time: Click to set the allocation mode pause time, the unit is second;
- n. The number of cycles: click the number of cycles to set the automatic mode of the ration mode;
- o. Start/Stop button: assign mode start stop button; in semi-automatic mode, when the set working volume finishes running, the ration mode stops automatically. In the fully automatic mode, when the cycle number runs out, the ration mode stops automatically;
- p. Wi-Fi status display: Here shows the status of Wi-Fi, the specific Wi-Fi status refers to 3.2 ration network chapter;

3.2.1 Ration mode setting

In the ration mode, click the "Settings" button in the lower left corner to enter the ration mode setting interface:



- a. Tube type setting: Click to enter the tube type selection interface and select the corresponding tube type. Each tube type has a corresponding relationship between the speed and the flow rate. If not, the tube type can be performed in the system setting->tube type. calibration;
- b. Flow rate setting: click to set the flow rate of the ration mode;
- c. Liquid level detection: Click the liquid level detection to enter the liquid level detection setting interface, set the liquid level detection on and off in the liquid level detection setting interface, the type of alarm; if the liquid level detection is on, when the pump works, if When the liquid level alarm is detected, the pump stops working and an alarm is given;
- d. Foot switch: Click to switch the opening and closing of the foot switch control. If the foot switch is turned on, the continuous mode can be controlled to start and stop by the foot switch;
- e. fully automatic cycle / semi-automatic cycle: click to switch automatic mode and semi-automatic mode;
- f. Number of clearing: Click to clear the number of times of automatic cycle and semi-automatic cycle;

Continuous
Ration
Settings
Remote

Tube 17#

Flow 97.6ml/min

Speed 16rpm

Temp. 15.3°C

Volume Set(ml) 0

759

?

Unknown volume

Tube 14#

(1.6*3.2)

Tube 15#

(4.8*9.8)

Tube 16#

(3.2*6.4)

Tube 17#

(6.4*9.6)

Tube 18#

(7.9*11.1)

Tube 19#

(2.4*5.6)

Tube 24#

(6.4*11.4)

Tube 25#

(4.8*8.0)

Allocation mode tube type selection

3.2.2 Ration mode level detection setting

If the liquid level detection is on, when the pump is working, if the liquid level alarm is detected, the pump stops working and an alarm prompt is given; in the dispensing mode, click Settings -> Level Detection to enter the dispense mode level detection setting. interface:

Continuous
Ration
Settings
Remote

Tube 17#

Flow 97.6ml/min

Speed 16rpm

Temp. 15.3°C

Volume Set(ml) 0

759

?

Unknown volume

Suspend 00:00:00

Cycle 0/1

Detection Switch
ON

a

Alarm Type

0

1

b

- **a.Detection switch**: open and close the liquid level detection;
- **b.Alarm type**: The liquid level float has two states of floating and sinking. The state of floating and sinking of different liquid level floats is different. Here, choose which state the float is used as an alarm

3.2.3 Ration mode copy volume

The copy volume is used when the working volume that is running in the ration mode is unknown. The principle is to fill the container to be filled, how much time (volume) is needed, and then use this time to control the pump operation for filling;

Note: Empty the air in the pump tubing before copying.

←
Volume Copy

Tube 17#

Flow 97.6ml/min

Speed 16rpm

a

b

c

Obtained volume(ml)

0

d

e

f

Prime

Start

- **a.Tube type**: the mode of the ration mode, set in the ration mode;
- **b.Flow rate**: ration mode flow rate, set in the ration mode;
- **c.Speed**: ration mode speed, according to the ration mode flow rate setting conversion;
- **d.Run volume**: the real-time volume after the start of replication;
- **e.Prime**: Before starting to copy, you need to empty the air in the pump tube. Click the empty button to start the motor, empty the pump tube air, click the empty button again, and the pump stops running.

- **f.Start/Stop:** Click to start copying, click again to stop copying;

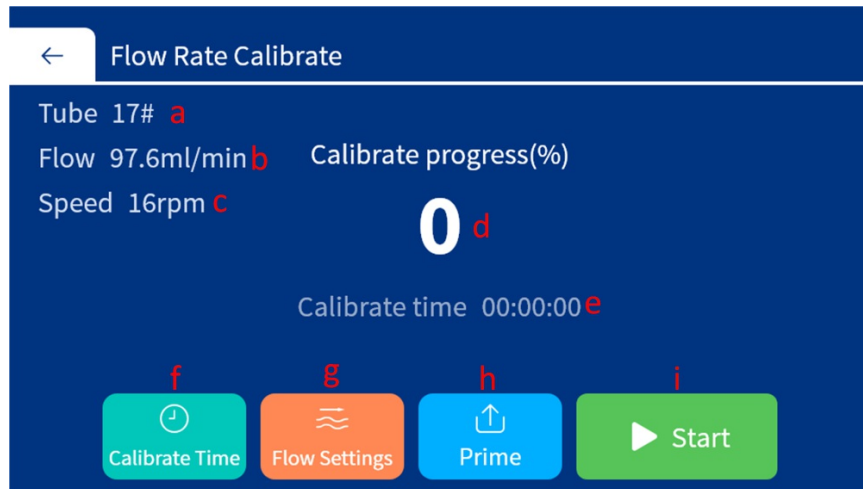
3.3 System settings



- **a. Tube type setting:** tube type setting is used to calibrate different pump tubes;
- **b. Wi-Fi setting:** Click to set the Wi-Fi connection mode, which is divided into AP mode and router mode. The AP mode is for the mobile phone to directly connect to the machine for control. The router mode mobile phone and the machine are connected to the router, and the mobile phone controls the machine through the router.
- **c. Language setting:** switch the language displayed by the machine, support Chinese and English;
- **d. Time setting:** click to set the real-time clock of the machine;
- **e. System information:** click to enter the display system information, including firmware version, model number, serial number;
- **f. System self-test:** check whether the functions of the system are normal;
- **g. Restore factory settings:** click to restore the factory settings, after restoring the factory settings, all parameters will be restored to the factory defaults;
- **h. Screen calibration:** Click to enter the screen calibration interface. In the screen calibration interface, click the cross on the screen to complete the screen calibration.

3.4 Tubular calibration

When the accuracy of the pump is found to be reduced, the pump needs to be calibrated. In the system setting interface, click the tube type setting -> select the tube type to be calibrated in the pop-up tube type -> enter the tube type calibration interface:



- **a. Tube type:** the current calibrated tube model;
- **b. Flow rate:** the flow rate before calibration;
- **c. Speed:** the speed corresponding to the current flow rate;
- **d. Calibration progress:** starting from 0, when the calibration is completed, it is 100;
- **e. Calibration time:** the length of time the calibration needs to be run, and the longer the calibration time setting will make the calibration more accurate if the calibration container allows it;
- **f. Calibration time:** click to set the calibration time;
- **g. Flow rate setting:** click to set the calibration flow rate, change the flow rate will change the corresponding speed;
- **h. Prime:** Click to start priming, click again to stop emptying, when calibrating, you need to empty the air inside the pump tube;
- **i. Start/Stop:** click start, the pump starts running, the calibration progress will show the progress. When the calibration time countdown is completed, the pump stops running, the interface will pop up the input box, and the volume obtained by the pump operation needs to be input to complete the calibration;

Calibration process and areas to be aware of:

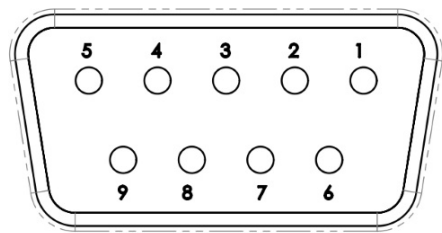
1. **Preparation before calibration:** Connect the pump tube outlet into the measuring cylinder, put the water inlet into the water container, and fix the pump tube outlet and water inlet to prevent the pump tube from sprinkling water when the pump works. Operation console
2. **Enter the calibration function:** in the system settings -> tube type settings -> select the tube type that needs to be calibrated to enter the tube type calibration interface;
3. **Set the calibration time:** set the time as long as the cylinder allows, so that the accuracy of the pump will be higher after calibration;
4. **Flow rate setting:** set a flow rate that needs to work;
5. **Drain the pump tube:** Click the empty button to let the water fill the pump tube and empty the air in the pump tube. If the pump tube is drained, there is water in the cylinder, and the water in the cylinder should be drained to ensure that the cylinder is empty;
6. **Start calibration:** Click the start button, the pump starts running, the calibration starts, there will be a countdown and calibration progress on the screen;
7. **Enter the volume obtained by calibration:** When the progress on the screen is 100%, the calibration is completed, the keyboard will pop up on the screen, input the volume of water in the measuring cylinder in the winch, and click OK to complete the calibration;

3.5 Analog control

3.5.1 Pin definition

This machine contains 0~5V analog control, 4~20mA analog control;

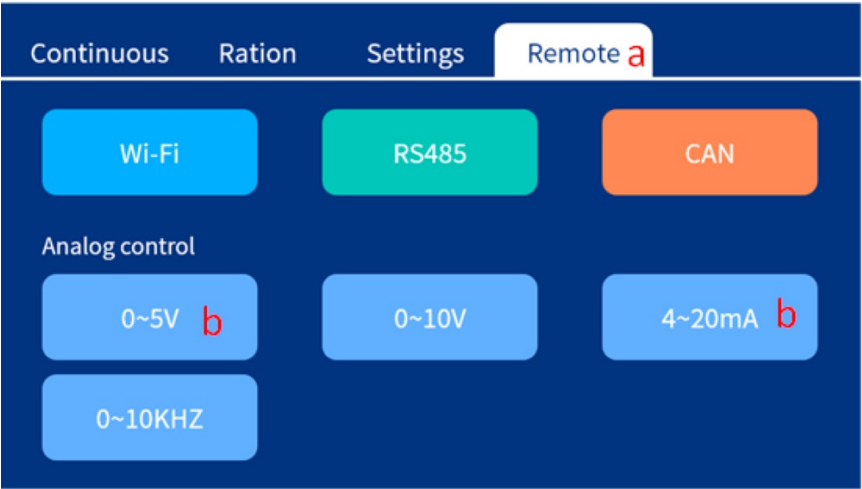
Specific analog control pins are defined as follows:



NO.	Description	Connection name	Parameters are defined
1	DCD1	Analog quantity control direction (DIR))	High level electricity clockwise, low level counterclockwise
2	RXD2	Analog control common terminal (GND)	
3	TXD3	Analog quantity control start and stop (Q/T)	Low level starts, high level stops
4	DTR4	Foot switch (+)	
5	GND5	Foot switch (-)	
6	DSR6	0-5V Control (5V-)	
7	RTS7	0-5V Control (5V+)	0~5V corresponds to a rotation speed of 0.1~600rpm
8	CTS8	4-20mA Control (mA-)	
9	RI9	4-20mA Control (mA+)	4~20mA corresponds to a rotation speed of 0.1~600rpm

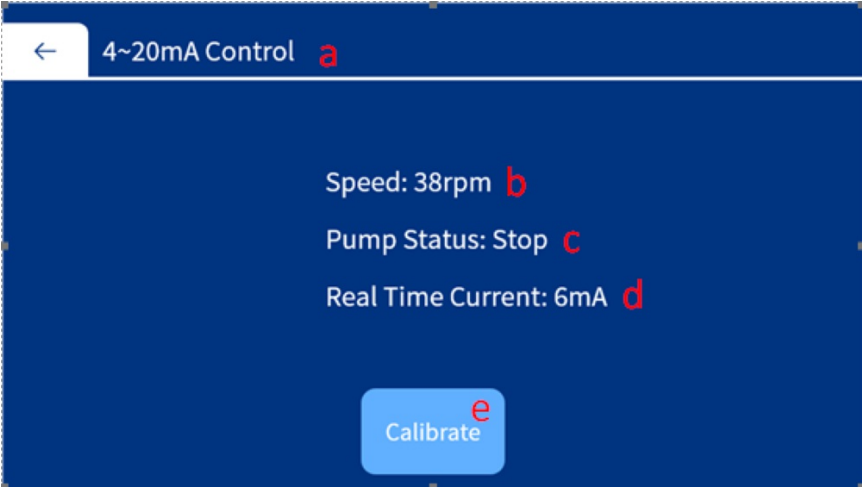
3.5.2 Steps to use analog quantity

1. Connect the analog traffic lines according to the pin definition of analog traffic;
2. After starting up, enter the control mode -> on the touch screen interface to select the corresponding analog quantity;



- a. **Control mode**: including various remote control modes, we choose the corresponding analog control
- b. **Analog quantity control**: 0~5V or 4~20mA, click to enter the corresponding analog quantity control interface

The following is the control interface of 4~20mA



- **a. 4~20mA control:** title of control mode;
- **b. Speed:** display the current motor running speed when working;
- **c. Motor state:** motor working state, divided into two states: "running" and "stop";
- **d. Real-time current:** real-time current display of analog input;
- **e. Calibration button:** Click to calibrate

4 App running operation

4.1 Download Kamoer Pumps App

- 1. Scan the QR code and download the app corresponding to the icon below.



iOS

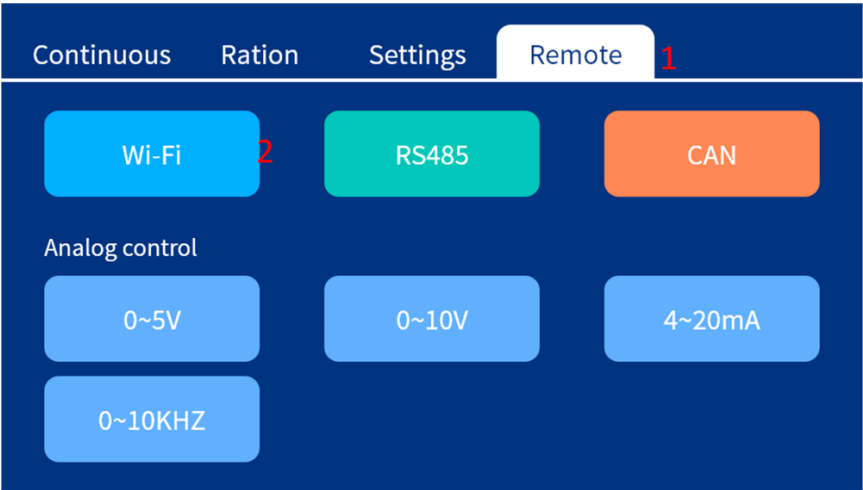


Android

- 2. Apple users enter the App Store app store, Android users enter the Google Play, search for "kamoer pumps", find the app download of the corresponding icon.
- **Kamoer Pumps App supports Android 4.4 and above, and supports IOS 9.1 and above.**

4.2 Ration network

This unit includes Wi-Fi, which can be controlled by the Kamoer Pumps App via Android or iOS phones. Before using Wi-Fi, make sure the Wi-Fi antenna on your machine is properly installed and turn on the Wi-Fi function on your machine:



There are two ways to control Wi-Fi:

Connection mode	Description	Advantages	Disadvantages
Direct mode (AP)	Factory default mode, you can see the dosing pump Wi-Fi in the Wi-Fi list of the mobile phone (the name starts with KAMOER, followed by the 5-digit serial number, the connection password is a12345678), and the user directly connects to the Wi-Fi control	Dosing pump Simple connection	Only one pump can be controlled at a time
Router mode (STA)	Cannot see the dosing pump Wi-Fi in the mobile Wi-Fi list, the user controls the dosing pump by connecting the wireless router.	After the configuration is successful, multiple pumps can be controlled by the router	to support the 2.4G router, and the 5G router is not supported.

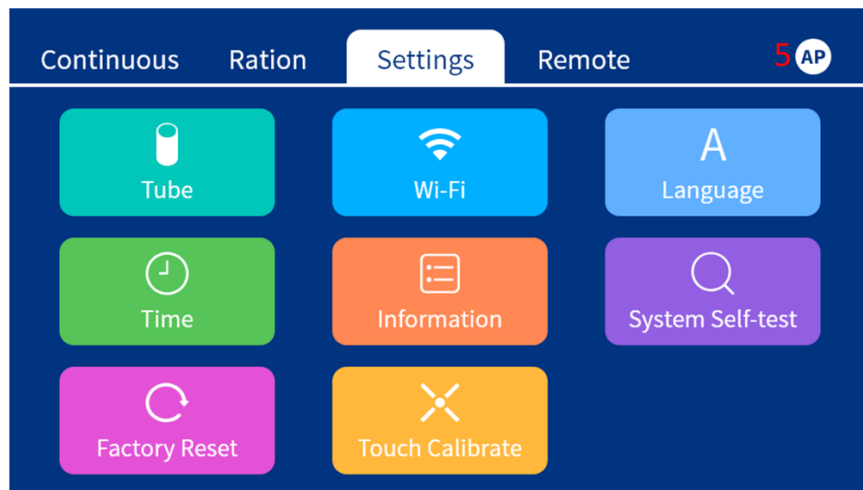
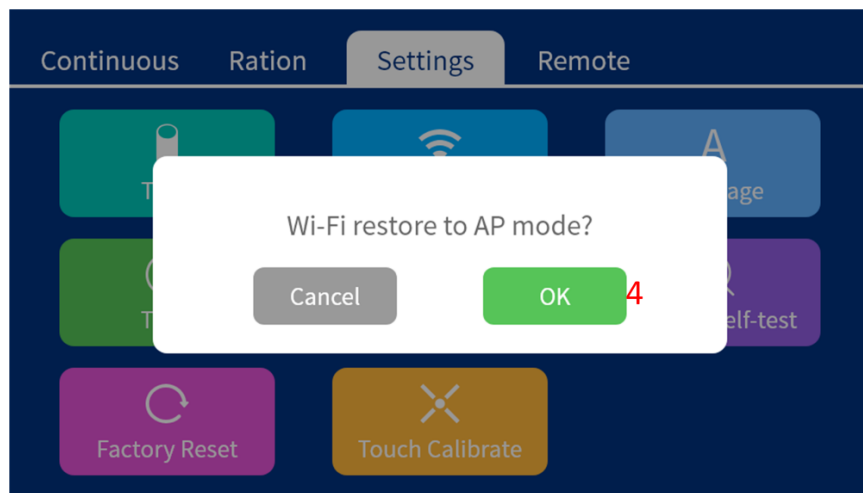
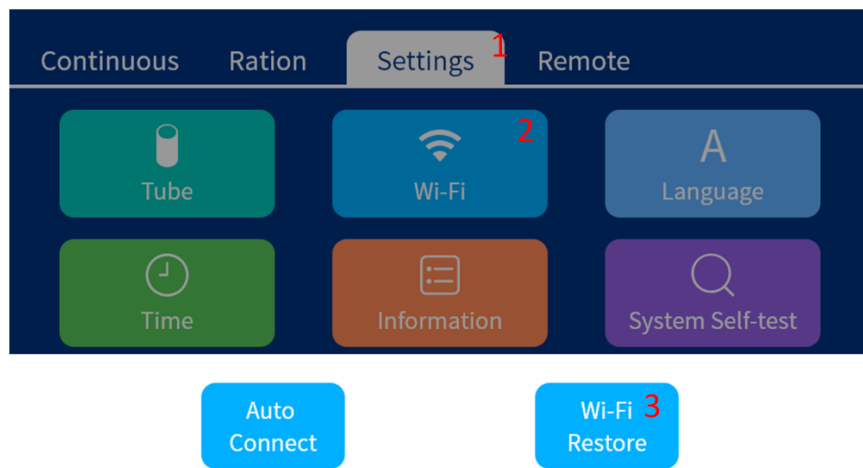
The screen title bar shows the Wi-Fi connection method and connection status:

- Indicates the AP direct connection mode;
- Indicates the STA router mode;
- Indicates the STA router mode, but the machine is not connected to the router;
- Indicates that the machine is waiting for the ration network status in Wi-Fi. At this time,

the user can configure the machine to connect to the router on the mobile terminal and enter the STA router mode.

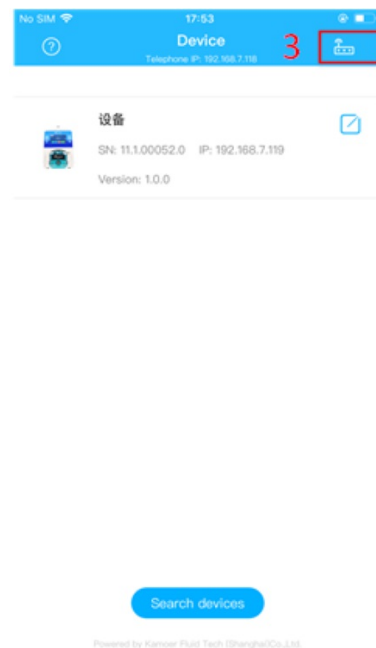
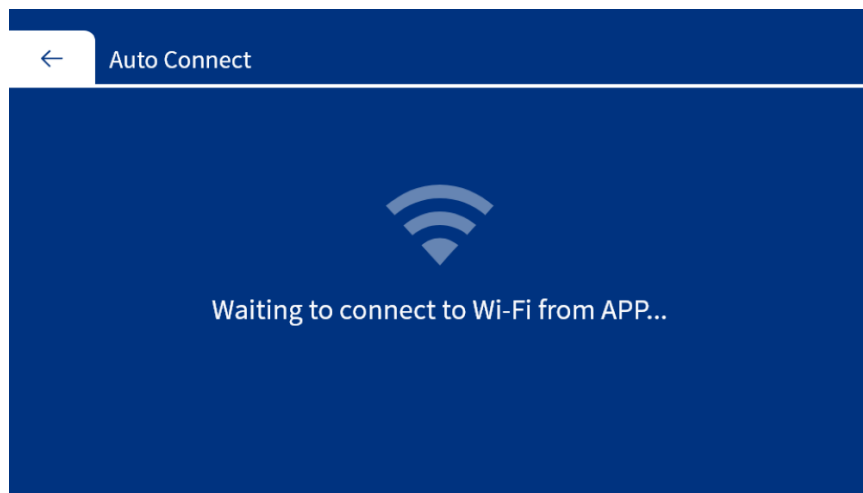
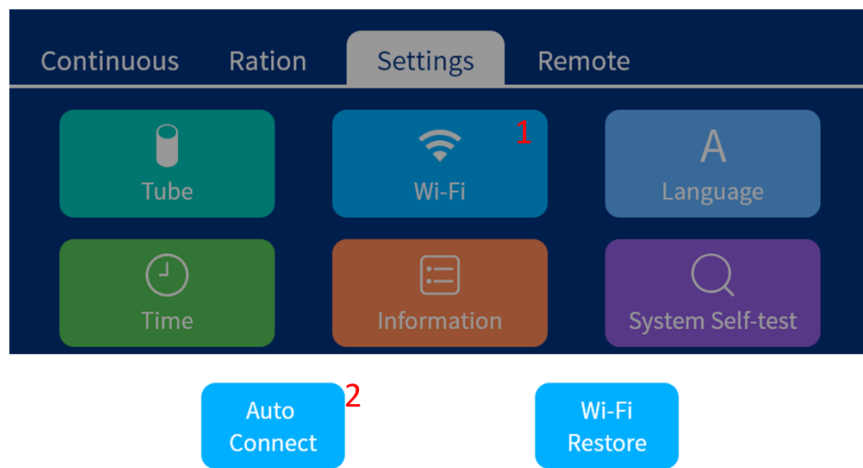
Direct connection mode connection pump

- Step 1: Power on and click on the title bar to enter the system settings interface;
- Step 2: Click Wi-Fi Settings to enter the connection mode selection interface;
- Step 3: Select Wi-Fi reset in the pop-up connection dialog box;
- Step 4: Select the OK button in the confirmation dialog box that pops up to reset the Wi-Fi to AP Direct mode;
- Step 5: After completing the Wi-Fi reset, the pump enters the AP Direct mode and the title bar icon changes to
- Step 6: The mobile phone searches for the Wi-Fi connection of KAMOER-AIP-XXXX, and the connection password is a12345678;
- Step 7: Open the Kamoer Pumps App search device for control;



STA router connection

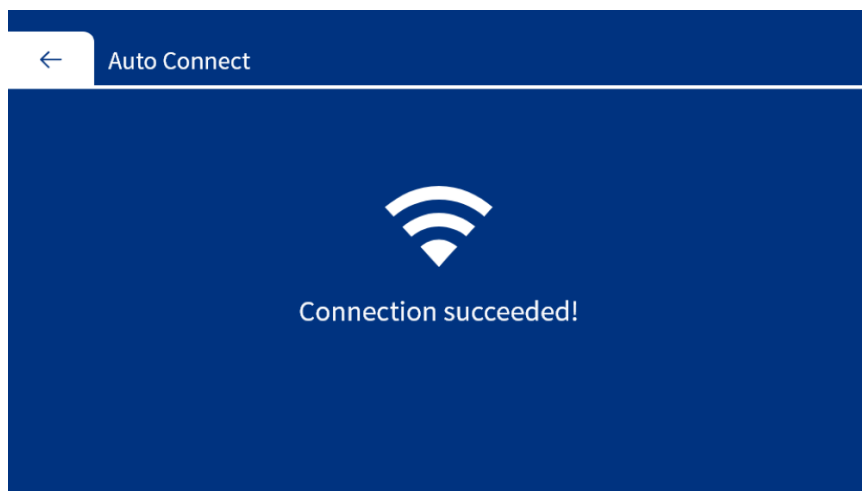
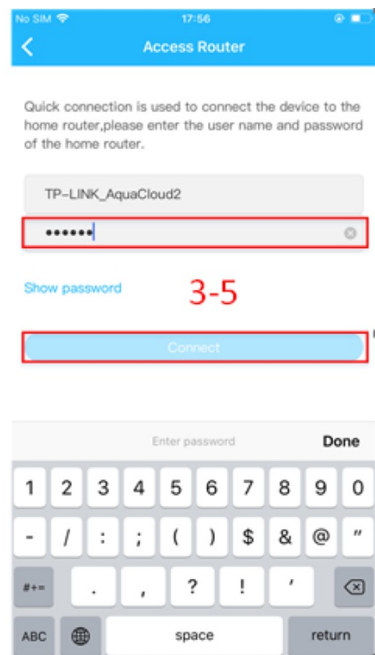
- Step 1: Power on and click on the title bar to enter the system settings interface;
- Step 2: Click Wi-Fi Settings to enter the connection mode selection interface;
- Step 3: Select a one-click connection in the pop-up connection mode dialog box to enter a one-click connection waiting interface;
- Step 4: Open the Kamor Pumps App and follow the prompts to enter the router password input interface;
- Step 5: After entering the password, click the App connection. After the connection is successful, the firmware screen will be prompted successfully, and the title bar will prompt :

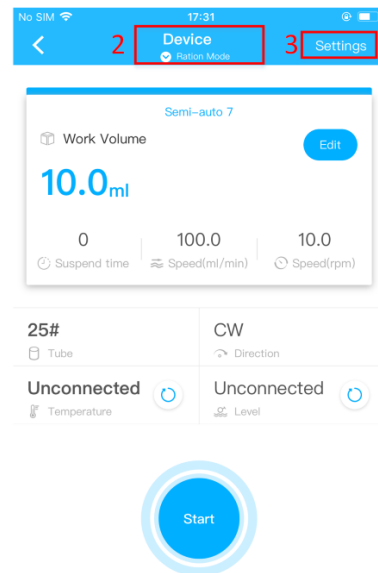
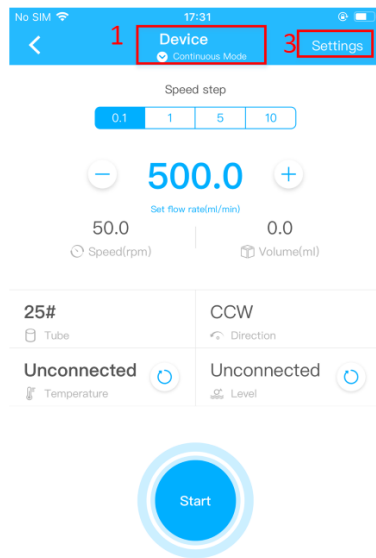




■ AIP

1. Make sure the device is plugged in;
2. Click on the "Settings" screen on the screen of the AIP device—click "Wi-Fi"—click "Auto connect", and the device enters the auto connect waiting state.



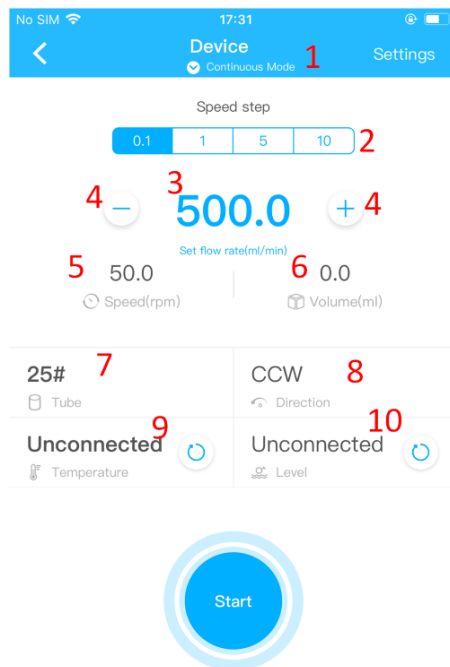


The app is divided into three functional modules, as follows:

- **1. Continuous mode:** continuous mode title, where you can switch the allocation mode;
- **2. Assignment mode:** Assign the mode title, where you can switch to continuous mode;
- **3. Settings:** system settings entry;

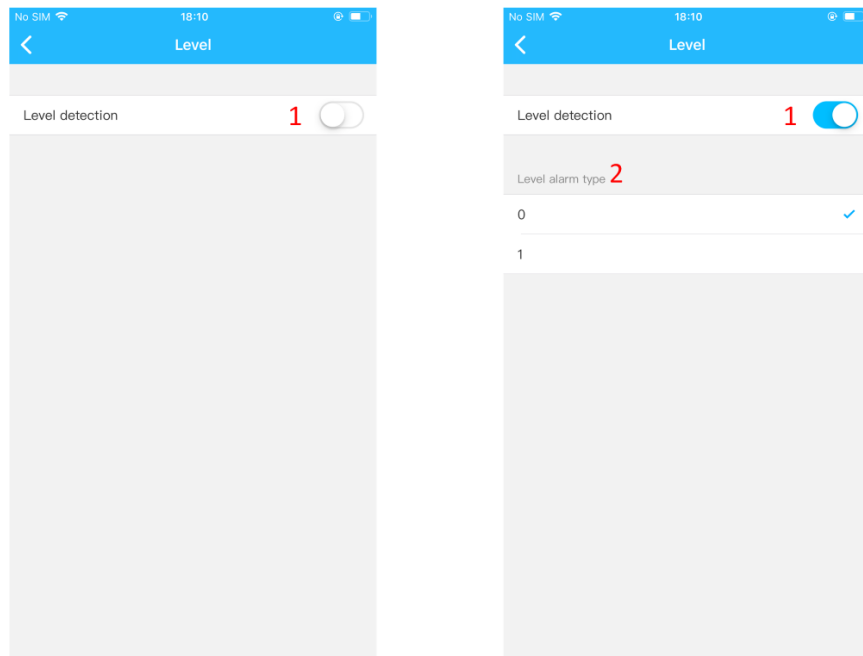
4.4 Continuous mode

In continuous mode, after clicking Start, the pump will run continuously until the stop button is clicked;



- **1. Continuous mode:** Click the title bar work mode to switch the working mode. There are two working modes, which are continuous mode and assigned mode;
- **2. Acceleration and deceleration granularity:** set the acceleration and deceleration granularity of the flow rate, indicating the change of the flow rate when the acceleration button/deceleration button is clicked;
- **3. Flow rate:** Click the pop-up keyboard to set the flow rate directly;
- **4. Acceleration/deceleration button:** Click the button to accelerate or decelerate. When the motor is running, it can be adjusted in real time.
- **5. Rotating speed:** the continuous speed corresponding to the current flow rate, which changes with the change of the flow rate;
- **6. Continuous mode running volume:** cumulative increase after clicking start;
- **7. Tube type:** the model of the pump tube;
- **8. Direction of rotation:** Click to set the direction of rotation of the pump;

4.4.1 Continuous mode liquid level detection

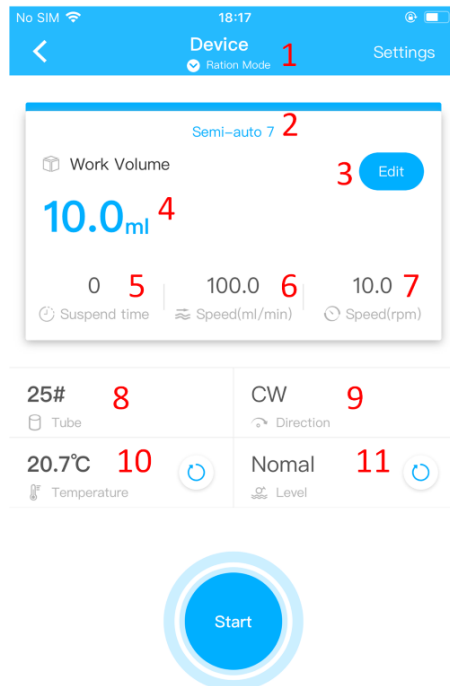


- **1. Liquid level detection:** liquid level detection switch, if the liquid level detection switch is turned on, when the pump is running, if there is a liquid level alarm, the pump stops running;
- **2. Level alarm type:** The level float has two states 0 and 1, which are used to adapt different level sensors and different float sensors. If 0 is selected, the machine recognizes that the float status is 0. Alarm and stop the motor. If 1 is selected, the machine recognizes the alarm when the float state is 1, and stops the motor.

4.5 Ration mode

In the ration mode, there are two working modes, namely a fully automatic working mode and a semi-automatic working mode;

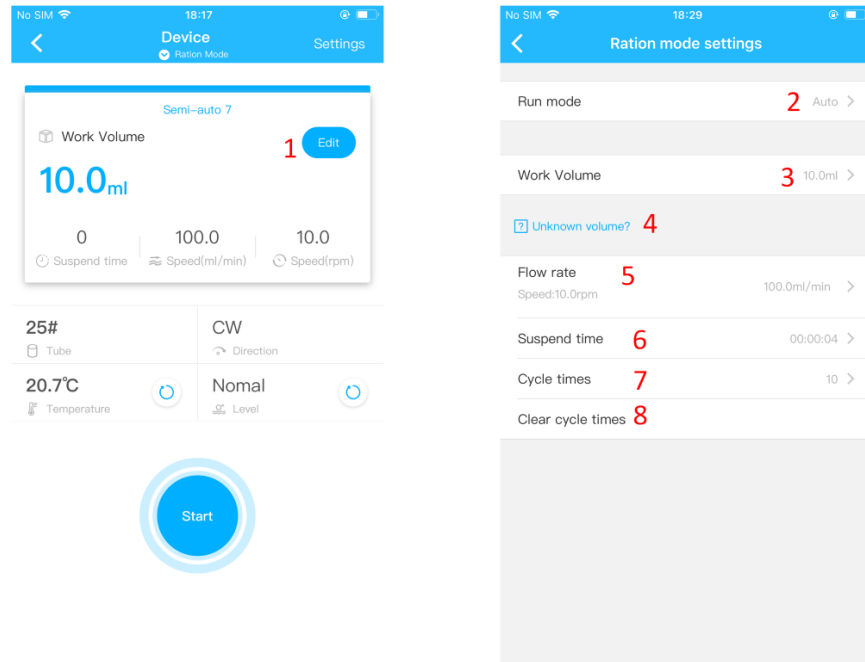
- **1. Semi-automatic working mode:** the user sets a working quantity in this mode, and clicks the start button to work. When the working quantitative running is finished, the pump automatically stops working, clicks the start button again, the pump runs a certain quantity and stops automatically;
- **2. fully automatic working mode:** set a job quantitative, pause time, target work times, click the start button to run, the pump will follow the work to complete a certain amount, then pause for a period of time, then work a certain amount of such a loop work, when the cycle works After the number of times the target has been reached, the pump stops working.



- **1. Ration mode:** Click the title bar work mode to switch the working mode. There are two working modes, namely continuous mode and ration mode;
- **2. Operation mode and progress:** The ration mode operation mode is divided into automatic and semi-automatic. The full-automatic mode is to set a cycle number, the pump will work for a certain amount, then pause, work again until the cycle number is completed; semi-auto mode is set One quantity, the trigger starts to run once, the pump stops after running, and the trigger starts again and then runs again;
- **3. Edit:** Click to enter the ration mode parameter setting interface;
- **4. Working volume:** the volume of the single mode of the ration mode, set in the editor;
- **5. Pause duration:** The allocation mode pause duration, when the pump works in the fully automatic mode, the interval between each working of

- the pump is set in the editing;
- **6. Flow rate:** The flow rate of the ration mode operation, set in the edit;
 - **7. Speed:** the speed corresponding to the ration mode flow rate;
 - **8. Tube type:** the type of tube running in the ration mode;
 - **9. Direction of rotation:** Click to set the direction of rotation of the pump;
 - **10. Temperature:** Click to view the temperature update;
 - **11. Level:** Click to update the liquid level status;

4.5.1 Ration mode setting



- **1. Set the portal:** Click to enter the ration mode setting interface;
- **2. Operation mode:** Click to switch the automatic mode and semi-automatic mode;
- **3. Working volume:** set the working volume of the ration mode;
- **4. Don't know the volume:** Click to enter the ration mode copy function. When the ration mode working volume does not know how much input, use the copy function to get the required volume. For details, refer to the copy function introduction.
- **5. Flow rate:** set the ration mode flow rate;
- **6. Pause duration:** set the allocation mode pause duration, used in the fully automatic mode each work interval;
- **7. Cycle number:** set the number of automatic cycles of the ration mode;
- **8. The number of times of operation has been cleared:** the number of times of automatic and semi-automatic mode is cleared;

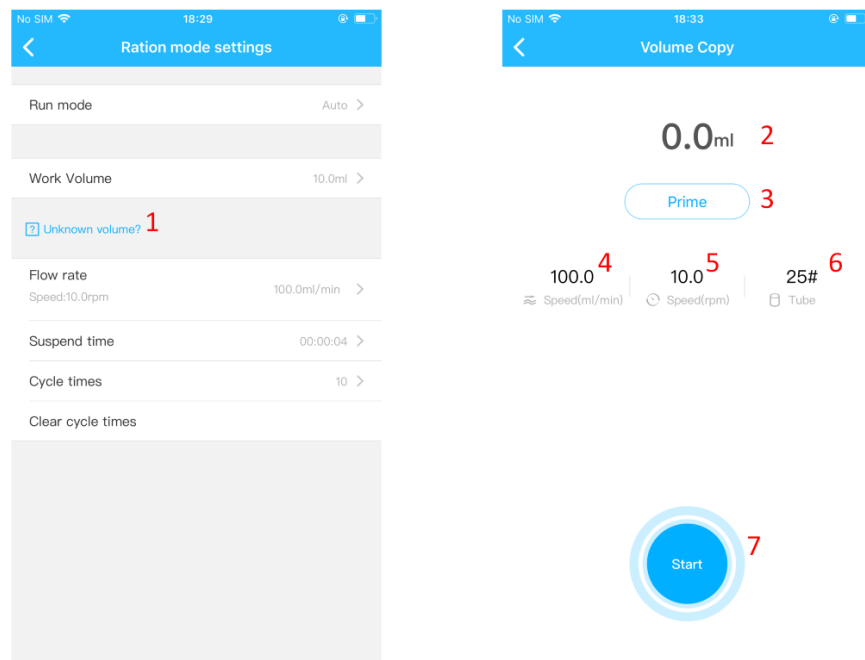
4.5.2 Ration mode level detection

Reference continuous mode liquid level detection

4.5.3 Ration mode copy function

The copy volume is used when the working volume that is running in the ration mode is unknown. The principle is to fill the container to be filled, how much time (volume) is needed, and then use this time to control the pump operation for filling;

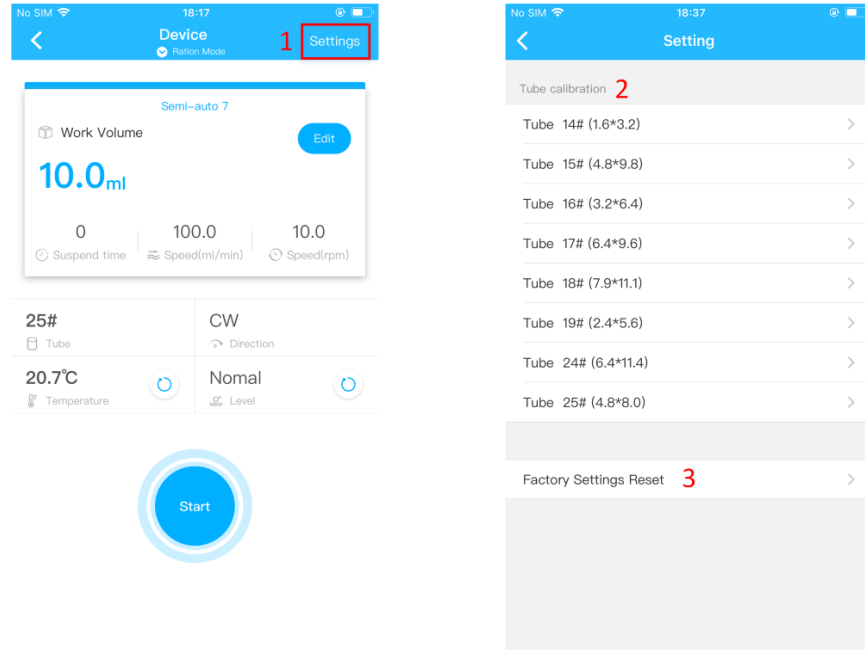
Note: Prime the air in the pump tubing before copying.



- **1. Copy function entry:** Click to enter the ration mode copy function interface;

- **2. Copy volume:** When the copy function is running, the volume increases cumulatively;
- **3. Priming:** Before starting to copy, you need to empty the air in the pump tube. Click the prime button to start the motor, empty the pump tube air, click the prime button again, and the pump stops running.
- **4. Flow rate:** The ration mode flow rate is set in the ration mode setting interface;
- **5. Speed:** The ration mode speed is converted according to the ration mode flow rate setting;
- **6. Tube type:** the tube type of the ration mode, set in the ration mode;
- **7. Start/Stop:** Click to start copying, click again to stop copying;

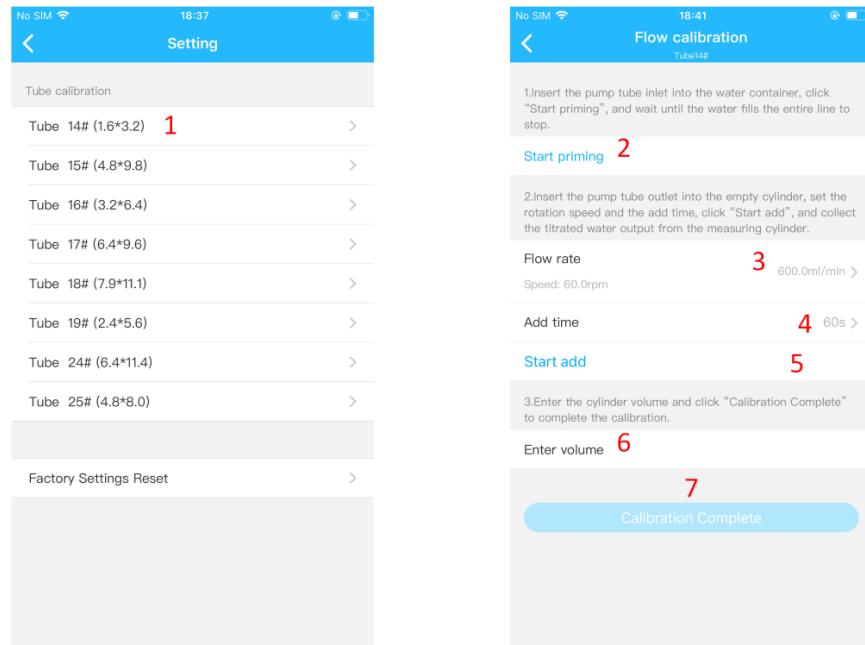
4.6 System settings



- **1. System setting entry:** Click the setting in continuous mode or ration mode to enter the system setting interface;
- **2. Tube type setting:** Click the tube type to enter the tube type calibration interface;
- **3. Restore factory settings:** Click to restore factory settings;

4.6.1 Tubular calibration

When the accuracy of the pump is found to be reduced, the pump needs to be calibrated.



- **1. Tube type:** Click to enter the tube type calibration interface;
- **2. Start priming:** Click to start Priming, click again to stop priming, when calibrating, you need to empty the air inside the pump tube;
- **3. Flow rate and speed:** the flow rate before calibration and the speed of the corresponding tube type;
- **4. Long dosing:** The length of time the calibration needs to be run. The longer the calibration time is set, the calibration will be more accurate if the calibration container allows it.
- **5. Start dosing:** Click to start dosing, the pump starts running, when the calibration time countdown is completed, the pump stops running, input the measured volume, click calibration to complete the calibration;
- **6. Measured volume:** the volume obtained when the calibration pump is finished running;

5 MAINTENANCE

5.1 Chemical compatibility

The standard configuration of the pump tubing is a silicone tubing that can be used in most applications. If you are delivering a specific solution, please

contact the factory. Contact the manufacturer to determine chemical compatibility and match the appropriate pump tubing.

5.2 Storage

- When the pump is not working for a long time, the adjustment knob should be loosened to avoid plastic deformation of the hose for a long time.
- The rollers of the pump head should be kept clean and dry, otherwise it will accelerate the wear of the hose and shorten the service life of the hose.

6 Appendix

6.1 technical parameter

Speed range	0.1-600RPM. forward and reverse
Speed regulation resolution	0.1RPM
Control mode	Wi-Fi control, external analog signal control, external RS485 communication control, external can control, foot switch control, touch screen, key
External analog signal mode	4-20mA (standard), 0-5V (optional)
Display mode	display screen
Power off parameter memory	support
Working mode	Continuous mode, volume mode
Support function	Start stop, forward and reverse, speed regulation, parameter memory, etc
Flow range	≥6000ml/min
Conveying accuracy	0.1RPM
Power	Max150W
External control	Temperature sensor (optional), liquid level sensor (optional)
Drive	Stepper motor
Pump head extension	yes
Power	Input: AC100-240V
	Output: DC36V 4.3A
Weight	7.6Kg(Include Pump)
Size	L304 x W164 x H244 mm
Temperature	0℃ to 50℃
Humidity	10%–90%

6.2 important

We have considered the safety of the user in the process of design of the instrument. Please read the manual carefully for installing and use of the instrument. Any improper operation may cause damage or danger.

1.Safety

The product belongs to Active Products. The Operator should follow the regulation rules to avoid danger.

- If you find any visible damage, please do not switch on.
- Be sure not to use in humid environment, avoid damage by short circuit.
- Temperature changes or mechanical wear may cause the increases in the dispensed volume.

2.Defect and anomalous situation

You must stop any operation immediately if the eqAIpment is damaged. The eqAIpment may be damaged when the following situation occurs:

- There is visual damage.
- The product suddenly does not work.
- The product is located in an inappropriate position.

6.3 After-sales warranty information

6.3.1 Warranty conditions

The free service during the warranty period is only valid under normal use and maintenance according to the user manual, and all man-made faults or damages are not covered by the warranty. Users please keep the purchase invoice and user manual properly so that you can get satisfactory after-sales service in time.

6.3.2 Warranty coverage

Within one year from the date of purchase, if there is any damage caused by the manufacturing process or components, the company will provide free warranty service. The free maintenance service provided during the warranty period includes free repair, free provision and replacement of faulty parts, and products that cannot be repaired are replaced with products of the same model (the model has been discontinued, and the model is similar to it). The free service does not include the transportation cost of the product due to maintenance.

6.3.3 Non-warranty coverage

The following factors are not within the scope of the free warranty, and customer repairs need to pay for it.

- 1) Product appearance (please confirm at the time of purchase);
- 2) Improper use, maintenance or storage (please follow the user manual for proper use, maintenance and storage);
- 3) Connect to improper power supply;
- 4) Damage to the components caused by the short circuit of the circuit board caused by various insects entering the machine;
- 5) Loss caused by accident;
- 6) Use inappropriate parts (not applicable to parts other than our company);
- 7) Negligence handling, modification or repair by personnel not authorized by the company (please do not disassemble and repair without authorization);
- 8) Failure or damage caused by use other than applicable occasions;
- 9) Damage caused by force majeure;
- 10) Consumption and wearing parts (such as pH electrode, ORP electrode, etc.);

- 11)The warranty period has expired.

6.4 Appendix B packing list

Item	Part	Description	Quantit
1	AIP peristaltic	Machine pump	1
2	Power wire	AC250V 10A	1
3	Quick Start Guide	English	1

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7 update record

Date	Updated content
2021-04-08	Add technical parameters
2020-12-03	Update user manual to online version
2022-03-11	Add fcc warning