X2SR User Manual 2020-12-05

1 Reading tips

1.1 Recommendations

Kamoer provides users with the following documents：

1. 《X2SR User Manual》
2. 《X2SR Quick Start Guide》

1.2 Download Kamoer Remote App

1. Scan the QR code to download the application corresponding to the following icon.

iOS

Android

1. Apple users enter the App Store, and Android users enter Tencent App Store, search for "kamoer remote", and find the application download with the corresponding icon.

Kamoer Remote App supports Android 4.4 and above systems, and supports iOS 9.1 and above systems.

1.3 Get the tutorial

After installing the App, open it, click the question mark icon in the upper right corner of the device list page to view the tutorial, including the user manual and answers to common questions.
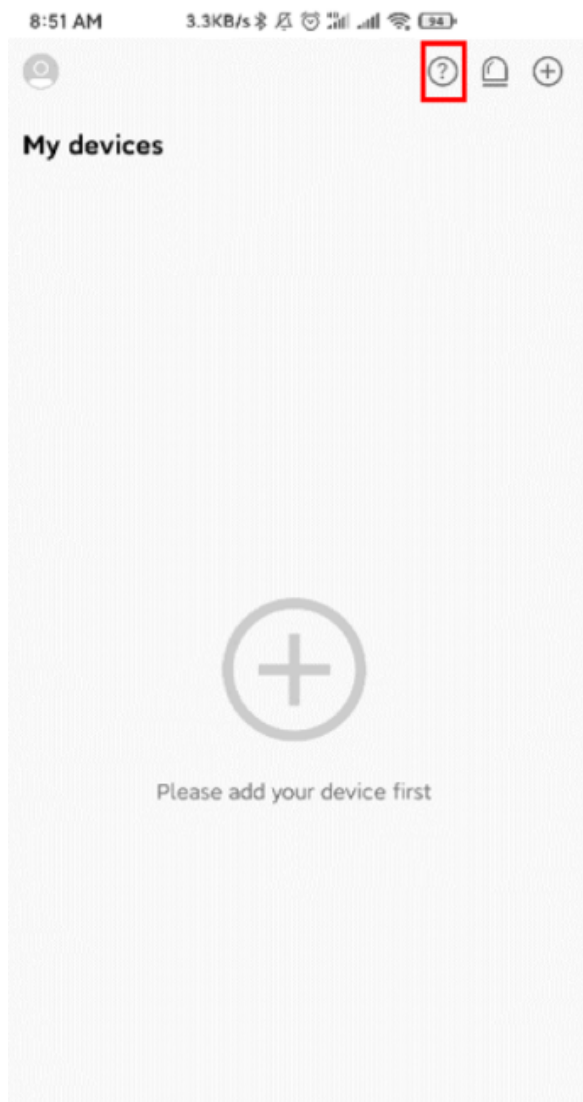
2 product description

2.1 Introduction

X2S R is a dual-channel WiFi water change pump. The user can remotely control it through the mobile phone App. The user can use the X2S R to automatically change the water in their own sea or fresh water tanks at a fixed time and quantitatively. The submersible pump interface can complete the automatic water replenishment function. In response to possible overflow risks, X2S R is equipped with an anti-overflow sensor as standard. When the water level reaches the anti-overflow sensor, it will trigger an alarm and stop the water supply and change. X2S R is equipped with two stepping pumps, which can be used continuously for a long time.

2.2 Feature highlights

- The water change pump adopts a stepping motor, which has longer service life and more accurate operation
- Standard Pharmed BPT imported pump tube, long life, heat resistance, acid and alkali resistance, ozone and UV rays resistance, aging and oxidation resistance
- Contains real-time clock, automatically runs according to the set parameters, and the parameters are not lost when power off
- Support two automatic water change modes: first row and then enter and side row and side enter
- Support manual and planned quantitative water change, and the water change pump supports flow adjustment
- A water change plan can be set up to 24 times a day, supporting 1-99 days of circulating water change
- Support flow calibration, drainage and make-up water flow correction
- Support iOS and Android devices to remotely control the Dosing pump via WiFi, and support App to upgrade the Dosing pump firmware
- Support push alerts such as overflow and replenishment timeout

2.3 Application occasion

- Sea water tank
  - Including bony corals (SPS), soft corals (LPS) and polyculture corals (SPS/LPS).
- Fresh water tank
  - Freshwater fish tank, grass tank
- Other occasions where water needs to be changed

2.4 Unpacking preparation

- Before opening the packaging box, check whether the outer packaging is damaged during transportation.。
- After opening the packing box, refer to the packing list in the appendix, confirm that all parts are not missing, and check for visible damage. If you find any defects during unpacking, please contact the manufacturer immediately.

2.5 Part Name
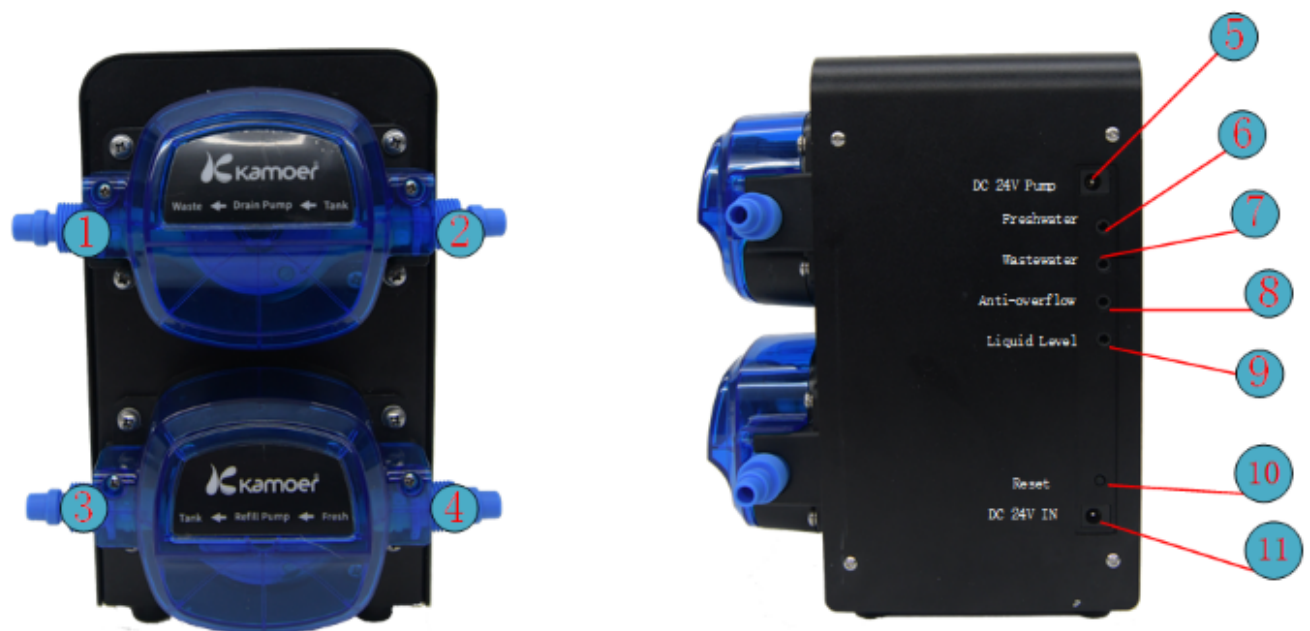
1. Outlet of drainage pump,Connect the waste water bucket
2. Water inlet of drainage pump, connected to fish tank
3. Make up the water outlet of sea water pump and connect to fish tank
4. The intake of sea water pump is connected with fresh sea water
5. DC 24V output, connected with make-up fresh water submersible pump
6. Replenish the level sensor of fresh water tank to identify the water free alarm
7. Waste water tank level sensor to identify full water alarm
8. Prevent overflow sensor to identify water level overflow alarm in fish tank
9. Liquid level sensor to identify water level drop and make up water automatically
10. "Reset"Reset button for distribution network use
11. DC 24V IN,power input
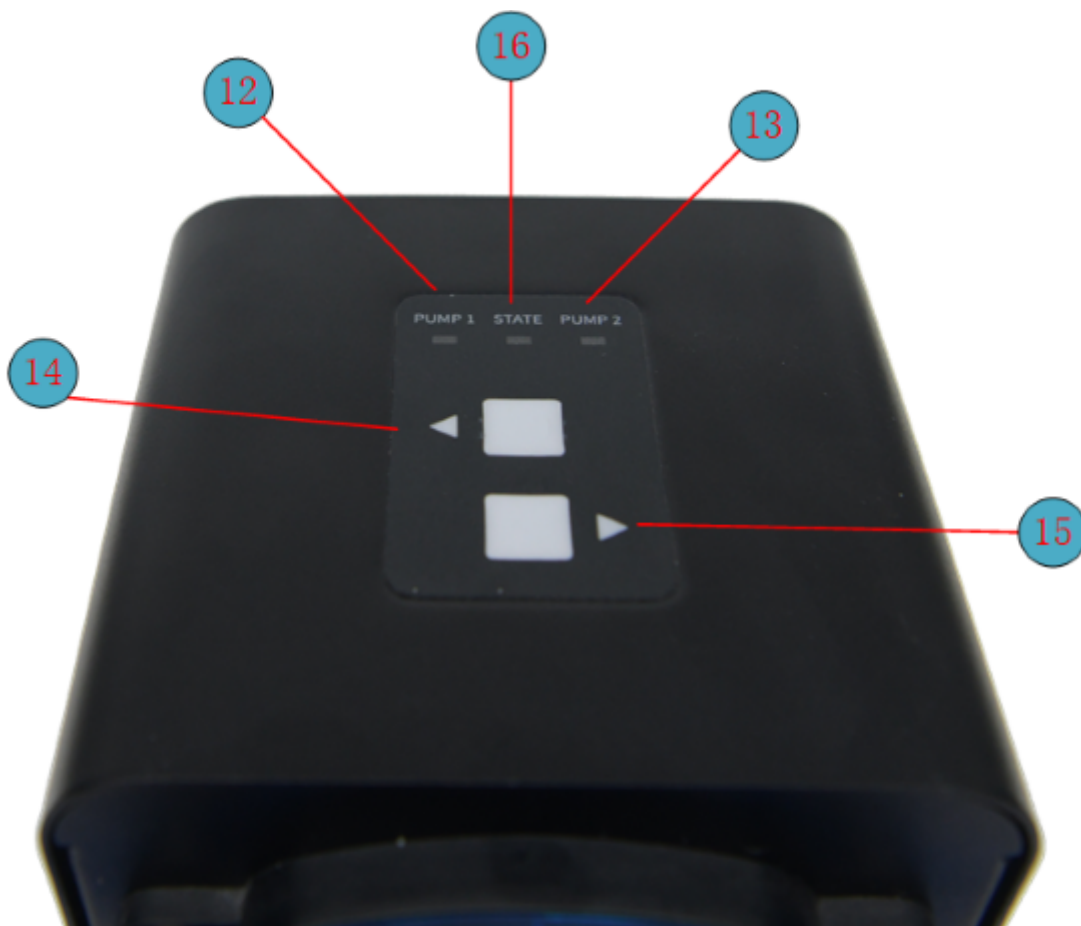
12.Operation indicator of waste water pump
13.Running indicator of sea make-up water pump
14.Discharge seawater pump button, Press the pump to run
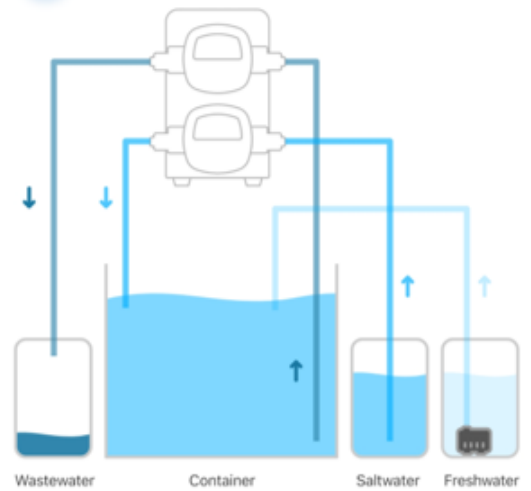15.Make up fresh seawater pump button, Press the pump to run
16.Power / WiFi status indicator
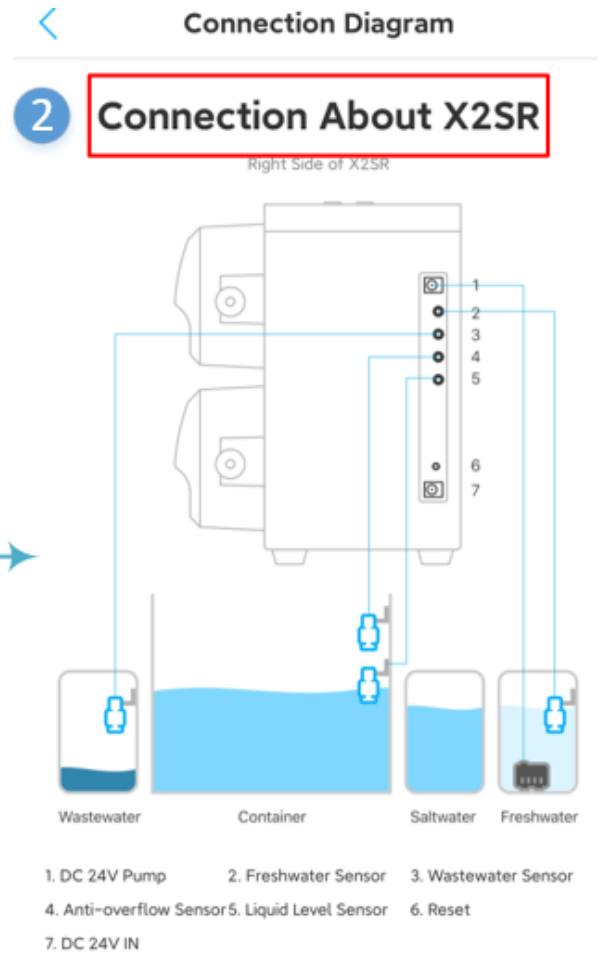
2.6 Pipeline connection diagram

Click on the device on the home page of the device list to enter the X2S R status display page. On the status display page, click the information button in the upper right corner to view the water change pipeline connection diagram and sensor connection diagram

X2S R

Manual Exchange

Sensors Status

Liquid level sensor	Anti-overflow sensor
Fall	Fall

Wastewater Sensor	Freshwater Sensor
Fall	Fall

Liquid Status

Wastewater	Saltwater
0%	100%
0.0L	20.0L
Total:200.0L >	Total:20.0L >

Pumps Status

Discharge Pump	Stop
Saltwater Pump	Stop

Status   Exchange   Settings

Connection Diagram

Wastewater   Container   Saltwater   Freshwater

1. DC 24V Pump   2. Freshwater Sensor   3. Wastewater Sensor
4. Anti-overflow Sensor 5. Liquid Level Sensor   6. Reset
7. DC 24V IN

2. Tube Connection

Wastewater   Container   Saltwater   Freshwater

Connection diagram of sensor and make-up pump

Connection Diagram

Connection About X2SR

Right Side of X2SR

Wastewater   Container   Saltwater   Freshwater

1. DC 24V Pump   2. Freshwater Sensor   3. Wastewater Sensor
4. Anti-overflow Sensor 5. Liquid Level Sensor 6. Reset
7. DC 24V IN
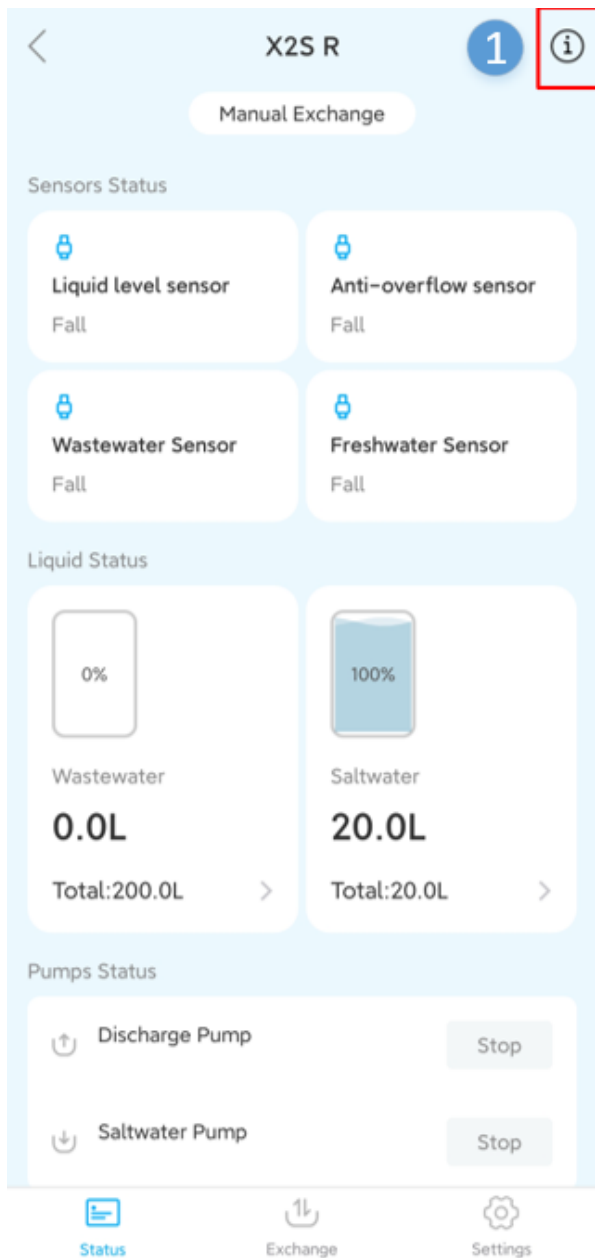
2. Tube Connection
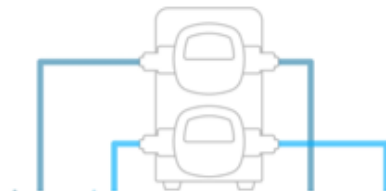
2.7 Status indicator description

The STATE on the top panel of the device is a combination of power indicator and WiFi status indicator.

Status indicator (yellow)

Status	Description
The yellow status light keeps on	Connected to the cloud through the router
The yellow status light is off	Disconnected from router
The yellow status light is on for 200ms and off for 2 seconds	AP network configuration mode, at this time APP can configure the device to access the router through the device hotspot
The yellow status light flashes slowly	Disconnected from the cloud

Power indicator (red)

Status	Description	
Long bright	Powered on	
Off	No power supply or power failure	

Pump running indicator:

PUMP1 and PUMP2 are pump running indicator lights. When the pump is running, the pump running indicator is on, and when the pump stops, the pump running indicator is off.

Pump operation button:

The two buttons on the front panel of the device are pump operation buttons. When the button is pressed, the corresponding pump runs, and when the button is lifted, the corresponding pump stops.

3 App use

This chapter mainly introduces how to use Kamoer Remote App to control X2S R water exchange pump.

3.1 App connection device

3.1.1 Connect the device to the online

App configuration device connects to the cloud through AP network configuration mode.

Open the Kamoer Remote App, after registering the App account, go to the device homepage, click the Add Device button in the upper right corner to enter the process of connecting the device to the cloud, and follow the App prompts to complete the network configuration operation:
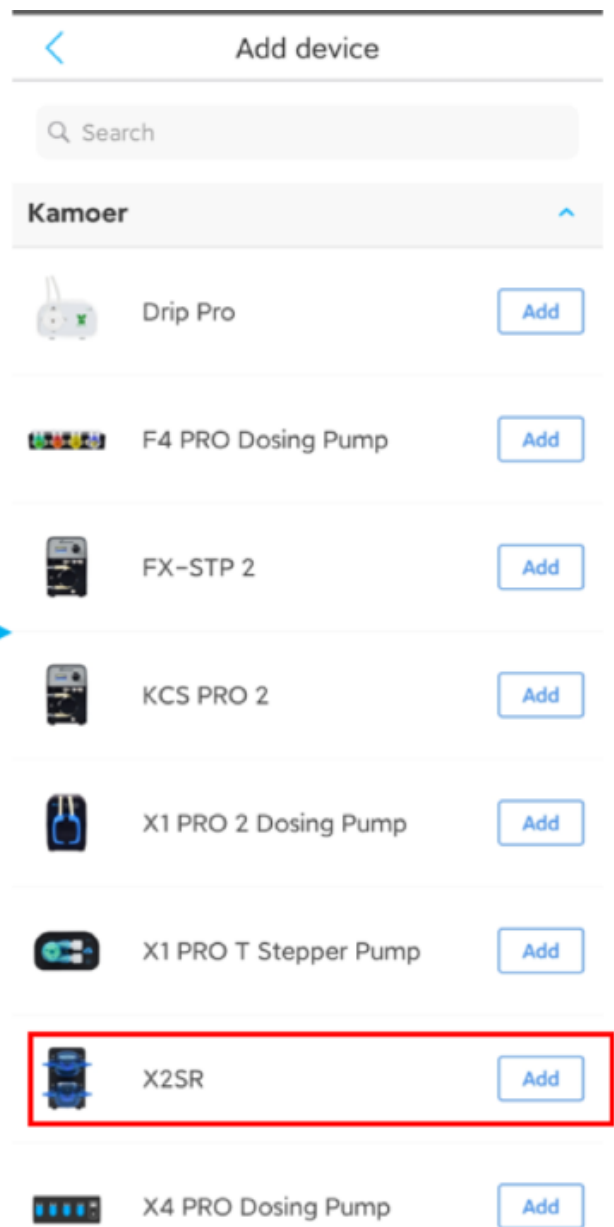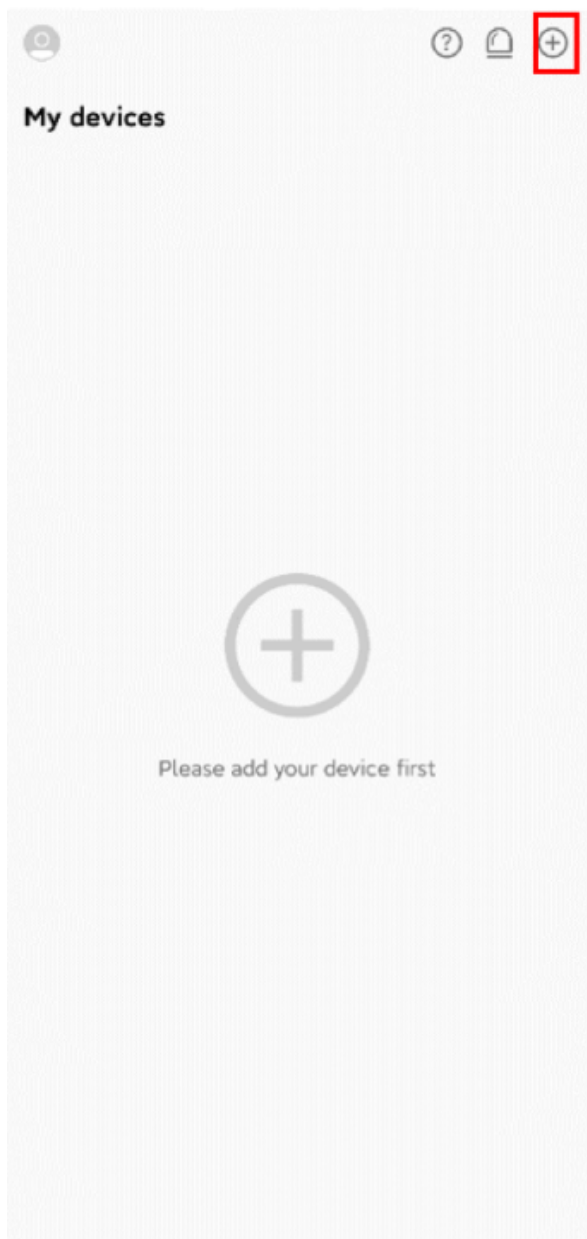
3.2 App home page overview
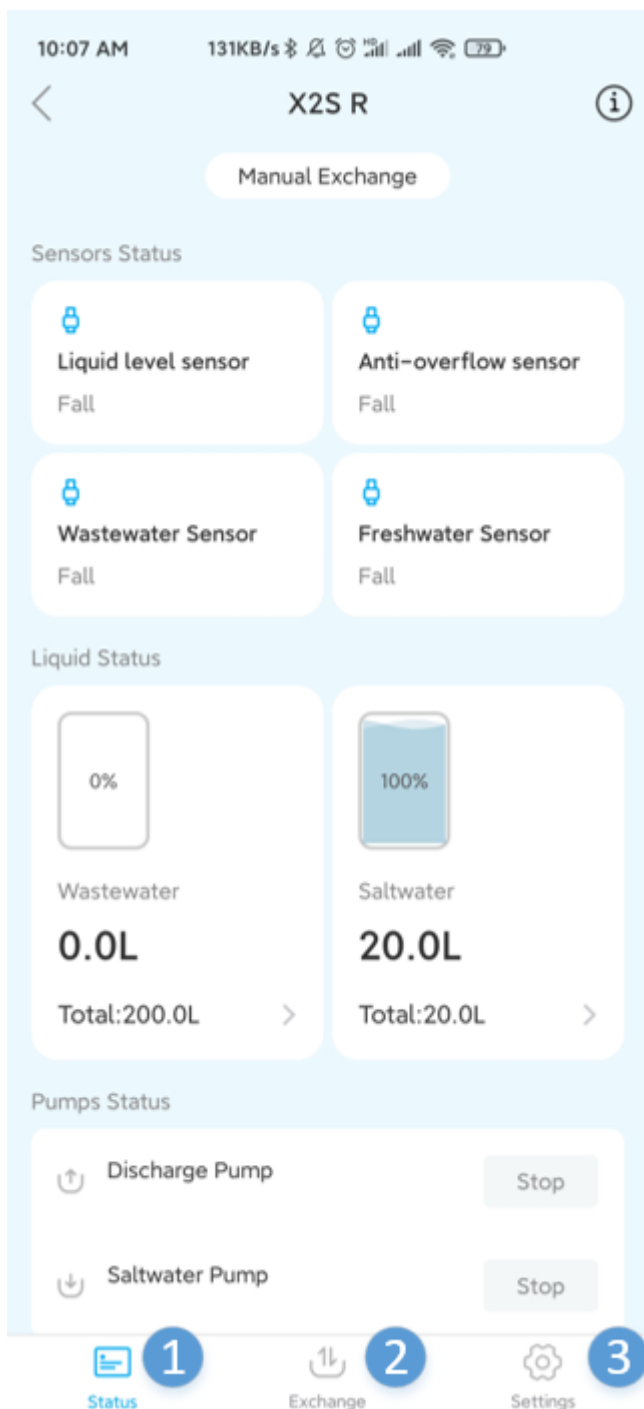
- **1.Automatic water change:**Status display page, here mainly presents the equipment status, including the working mode of water change, the status of each sensor, the status of the solution tank, the status of pump operation, etc.
- **2. Water change:**Here is mainly for manual or automatic water change settings.
- **3.Settings:**This includes functions such as device serial number viewing, device upgrade, time synchronization, speed setting, calibration, and factory reset.

3.3 Home Status Information
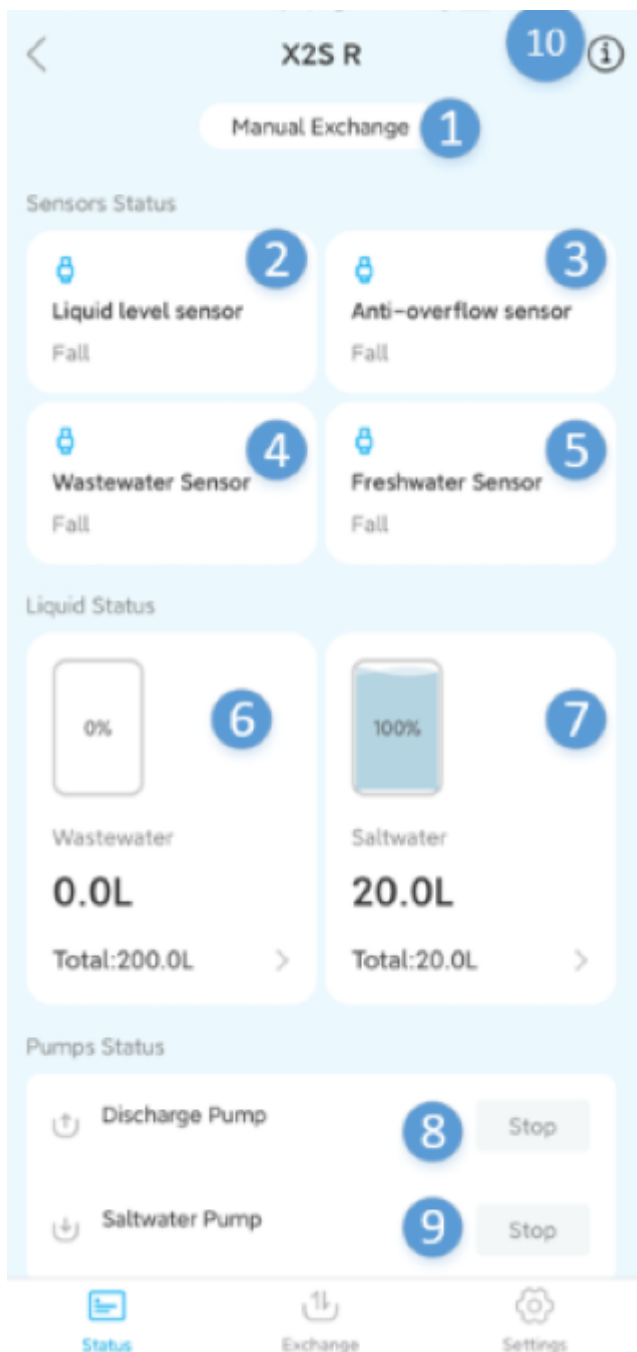
- **1. Manual water change/automatic water change:**The water change status display can be switched in the title bar of the water change module.
- **2. Liquid level sensor:**The liquid level sensor that decides whether to replenish fresh water. When the water in the cylinder is low and the float is lower than the page, the automatic water replenishment will start until the page returns to the float position;
- **3.Anti-overflow sensor:** When the liquid level sensor is broken and the water is refilled, the water level will continue to rise until the anti-overflow sensor. At this time, the device will send an alarm to the mobile phone and stop the current automatic water replenishment;
- **4.Waste liquid sensor:**When it recognizes that the water level of the waste water bucket is full, send an alarm to the App;
- **5.Fresh water sensor:**When it recognizes that the fresh water bucket is empty, it sends an alarm to the App;
- **6.Waste water bucket:**Identify whether the waste water bucket is full, click to set the volume of the waste water bucket

- **7.Sea water bucket:**Identify the volume of the sea water bucket and click to set the volume of the sea water bucket
- **8.Drain pump working status:**Display the working status of the drain pump;
- **9.The working status of the makeup pump** Shows the working status of the makeup pump
- **10.Piping connection diagram and**sensor connection diagram

View and set the status of waste water bucket and fresh sea water bucket
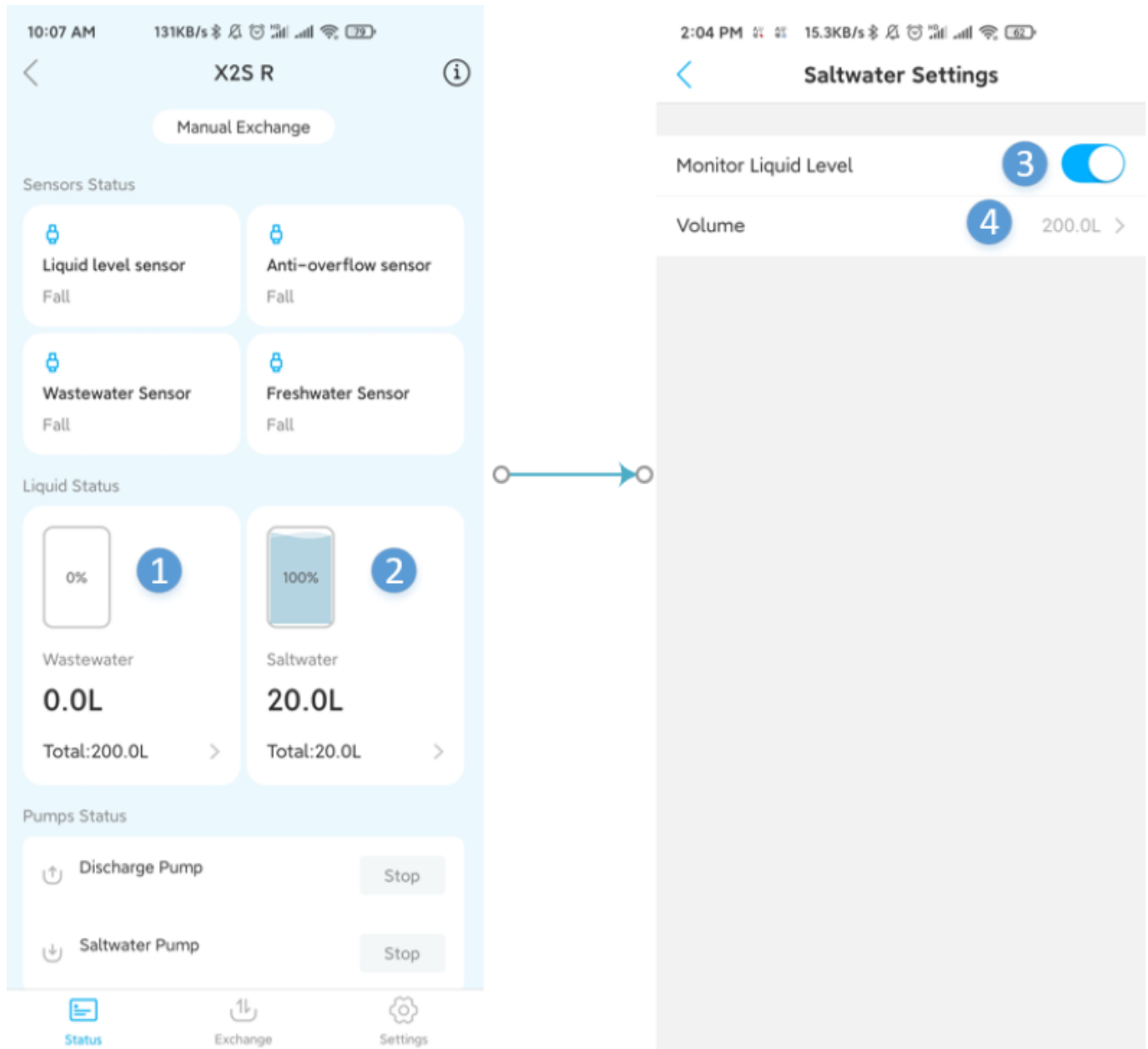
- **1Waste water bucket:**The water change pump drains to the waste water bucket, which has a volume. When the drainage volume continues to increase to more than 90% of the volume of the waste water bucket, an alarm is generated to prompt to empty the waste water bucket.
- **2.Fresh sea water bucket:**The fresh sea water bucket has a volume. When the water is changed to less than 10% of the volume, an alarm will be generated to remind you to add water.
- **3.Monitor the liquid level:**After the switch is turned on, an alarm will be sent when an alarm is generated.
- **4Volume:**Volume setting of waste water bucket and fresh sea water bucket.

3.4 Change water manually

When you need to change the water manually, you can switch to the manual water change mode in the title bar of the water change module
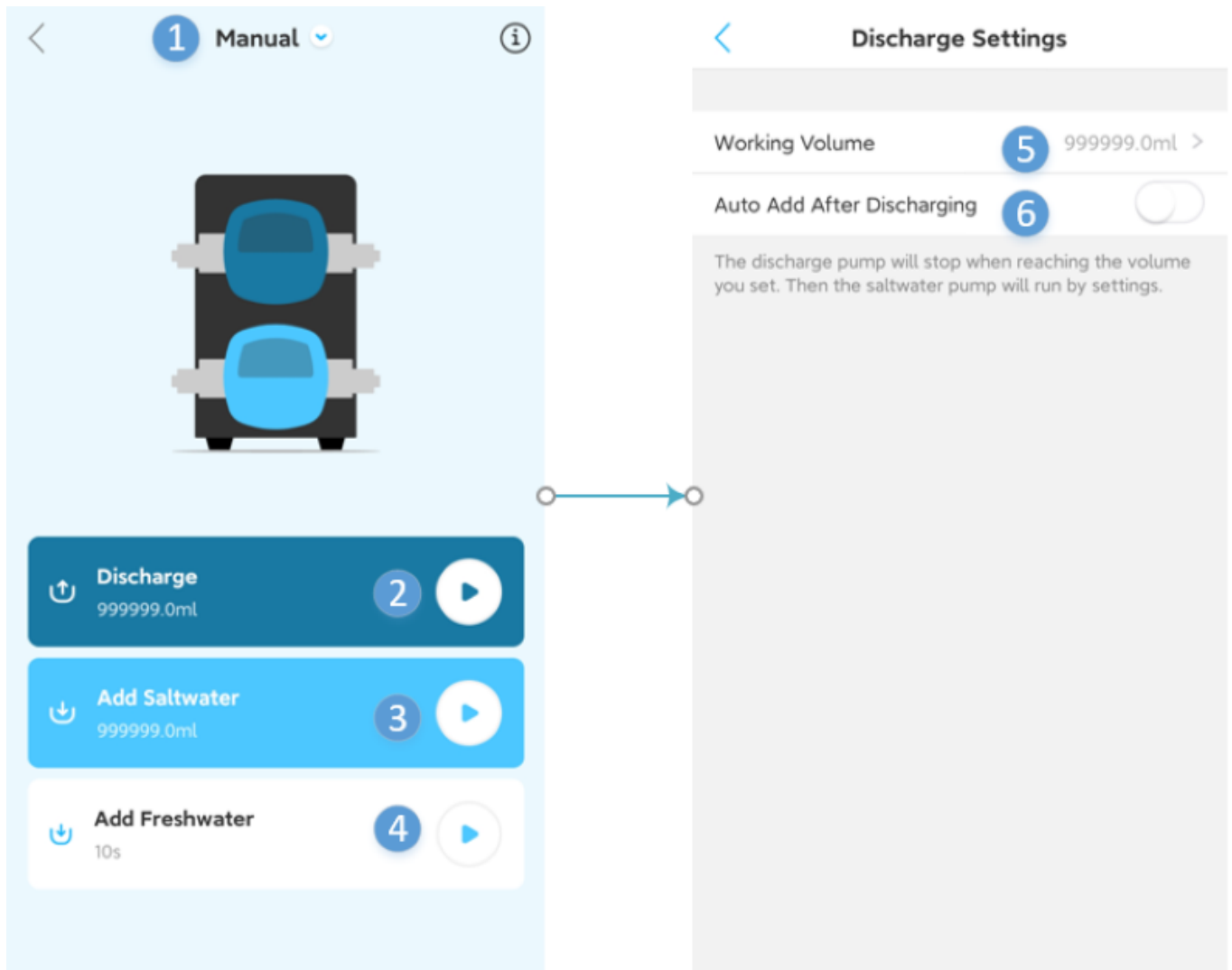
- **1. Manual water change:** Here to switch between manual water change and automatic water change
- **2.Drainage:** Control the running and stopping of the drain pump, click to enter to set a running volume, and the function of automatically replenishing water after draining
- **3.Seawater supplement:** Control the operation and stop of the seawater supplement pump, click to enter to set a running volume
- **4.Make-up fresh water:** Control the operation and stop of the make-up fresh water pump, click to enter to set a running volume
- **5.Operating volume:** The pump operating volume setting, the pump will automatically stop after it reaches the operating volume after it starts running manually
- **6.Automatic water replenishment after draining:** This function is to automatically start the water replenishment pump after the drain pump work is completed. The default water replenishment pump and the drain water pump run the same amount

3.4.1 Automatic water change

When you need to change the water automatically, you can switch to the automatic water change mode in the title bar of the water change module

- **1.Automatic water change::** Here to switch between manual water change and automatic water change

- **2.Cylinder volume:** Set the volume of the water body of your own tank to facilitate the calculation of the water change ratio when setting the plan

- **3.Operation mode:** The operation mode has two water change modes: edge-in and edge-out and first-out and then-in. The edge-in and edge-out mode can keep the water level change little when changing water, but some fresh seawater will be discharged. The water level will change when the water is changed in the first-out-last-in mode, but fresh seawater will not be discharged

- **4. Cycle date:** Set the water change cycle, there are two ways: cycle by week and cycle by operating days

- **5.Automatic water change switch setting:** Automatic water change switch, turn on the automatic water change switch, the automatic water change will proceed as planned, turn off the automatic water change switch, the automatic water change will not proceed

- **6.Add plan:** Add water change plan, here you can add plans one by one, or you can quickly add multiple plans at once, up to 24 plans can be added

- **7.Total amount of water exchange:** Total amount of water exchange plan

- **8.Water change ratio:** The water change ratio is calculated by dividing the planned water change by the volume of water in the tank

- **9.Start time:**Planned start time
- **10. Water exchange volume:**Planned water exchange volume
- **11.End time:**The planned end time calculated based on the start time and the water change volume
- **12.Save the plan：** Save the water change plan

Quick add plan Quick plan can quickly add multiple plans at once

- **1.Add a quick plan:**Click Add to enter the quick plan adding interface
- **2.Start time:**Set the start time period of the quick plan
- **3.End time：:** Set the end time period of the quick plan
- **4.Number of plans:**Set the number of plans
- **5.Cylinder volume:**The volume of the previously set cylinder
- **6.Total amount of water exchange:**The total amount of water exchange will be evenly distributed to each plan
- **7.Water exchange ratio:**Total amount of water exchange divided by the volume of the tank is obtained
- **8.Plan preview:**he plan preview obtained according to the parameters set above
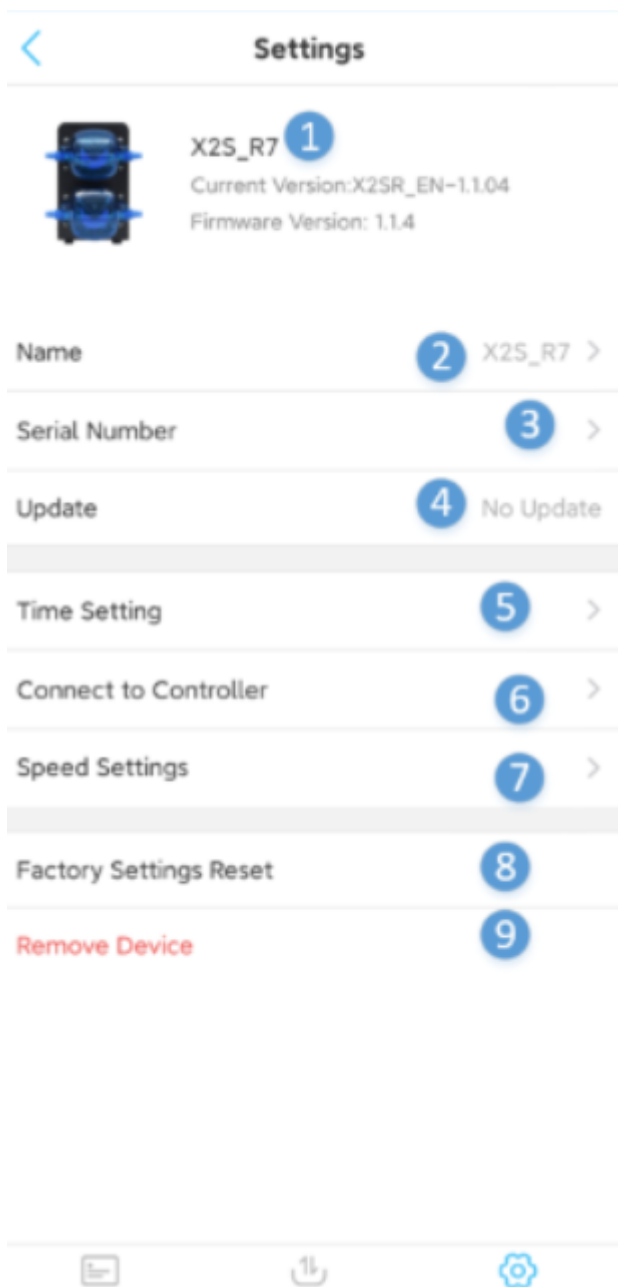- **9.Save:**Save the set quick plan

3.5 Container

The user of the container module records the changes of the user's water supply bucket and waste water bucket to help users understand the status of the water supply bucket and waste water bucket;
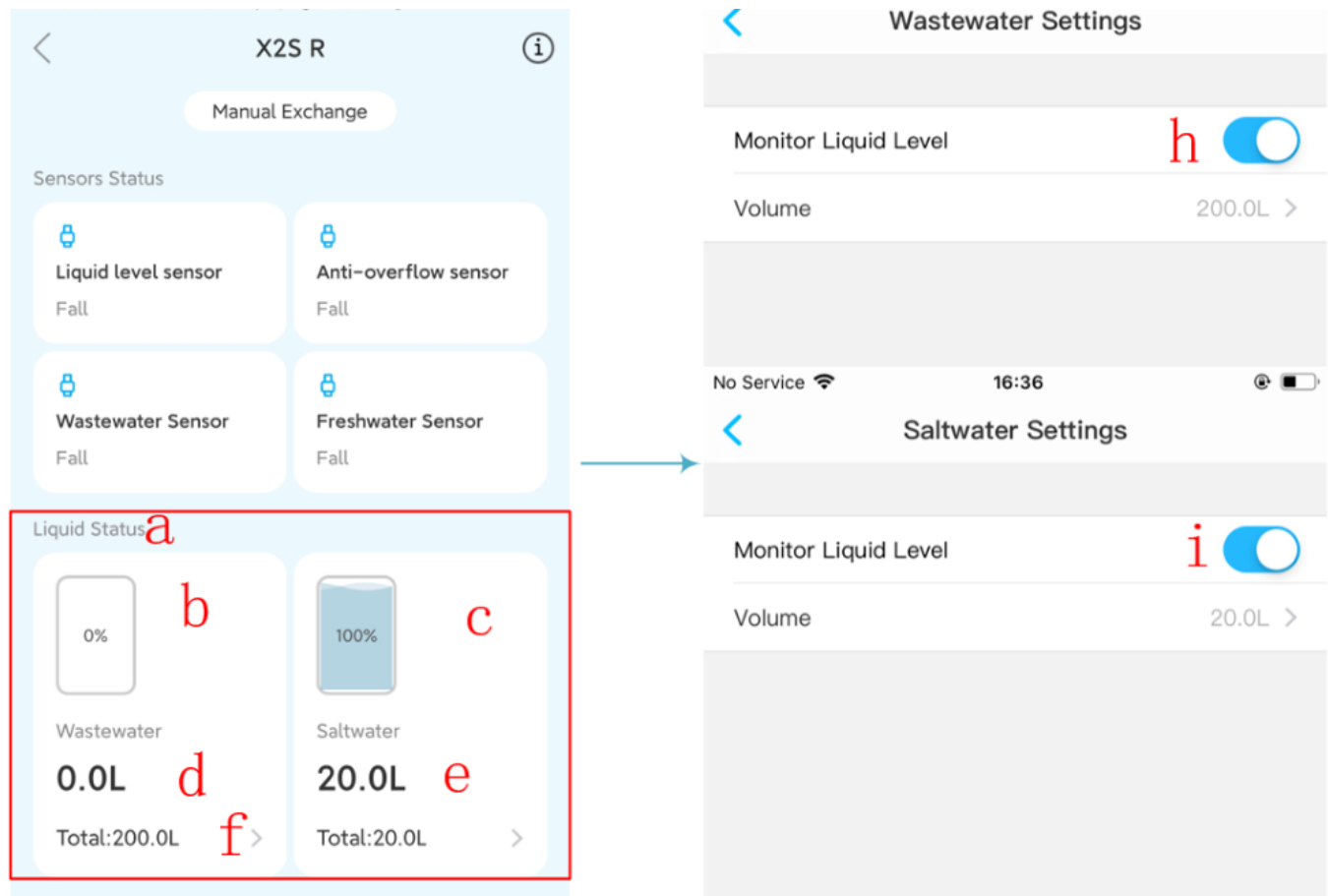
- **a.Container module;**
- **b. Waste water bucket:**The water volume of the waste water bucket. When the volume of the waste water bucket is greater than 90%, the waste water bucket will have a color alarm that the waste water bucket is full;
- **c. Water supply bucket:**The water volume of the water supply bucket. When the water volume of the water supply bucket is less than 10%, the water supply bucket will have a color alarm of insufficient water volume in the water supply bucket;
- **d. Waste water tank volume:**Waste water tank volume setting and display;
- **e. Volume of water refill bucket:**Set and display volume of water refill bucket;
- **f. Settings:** Click to enter the container setting interface;
- **h. Waste water detection switch:** After opening, when the water change plan is executed, the volume of the waste water bucket is updated;
- **i. Water replenishment detection switch:** After turning on, the volume of water in the replenishing bucket will be updated when the water change plan is in progress;

3.6 Settings

The setting module mainly includes functions such as device information viewing, flow rate calibration, firmware upgrade, and time synchronization.

X2S_R7 ①
Current Version:X2SR_EN-1.1.04
Firmware Version: 1.1.4

|		
Name	②	X2S_R7 >
Serial Number	③	>
Update	④	No Update
Time Setting	⑤	>
Connect to Controller	⑥	>
Speed Settings	⑦	>
Factory Settings Reset	⑧	
Remove Device	⑨	

- **1.Device name and version:**View device name and version
- **2.Name:**Set the name of the device
- **3.Serial number:**View device serial number
- **4. Firmware upgrade:**If a new firmware version appears, you can upgrade the firmware here
- **5. Time setting:**If the scheduled time of the device operation is not accurate, you can synchronize the time here
- **6.Connect to the smart controller:**Set the device to connect to the Kamoer smart controller, this function is temporarily not supported
- **7.Speed setting:** Perform flow rate calibration here
- **8.Restore factory settings:** Click to restore factory settings
- **9.Remove device:**Click to remove the binding between App and device

3.7 Calibration

When it is found that the water change flow is inaccurate, it is necessary to calibrate the flow of the water change pump, and enter the flow calibration interface of the water change pump through Settings -> Flow

Rate Setting -> Flow Calibration. Calibration requires a measuring cylinder to be used to weigh the calibration results.

Note: During calibration, do not use the water in the tank for calibration. Using the water in the tank for calibration may cause the water level in the tank to drop. X2S R will automatically add fresh water to the tank.
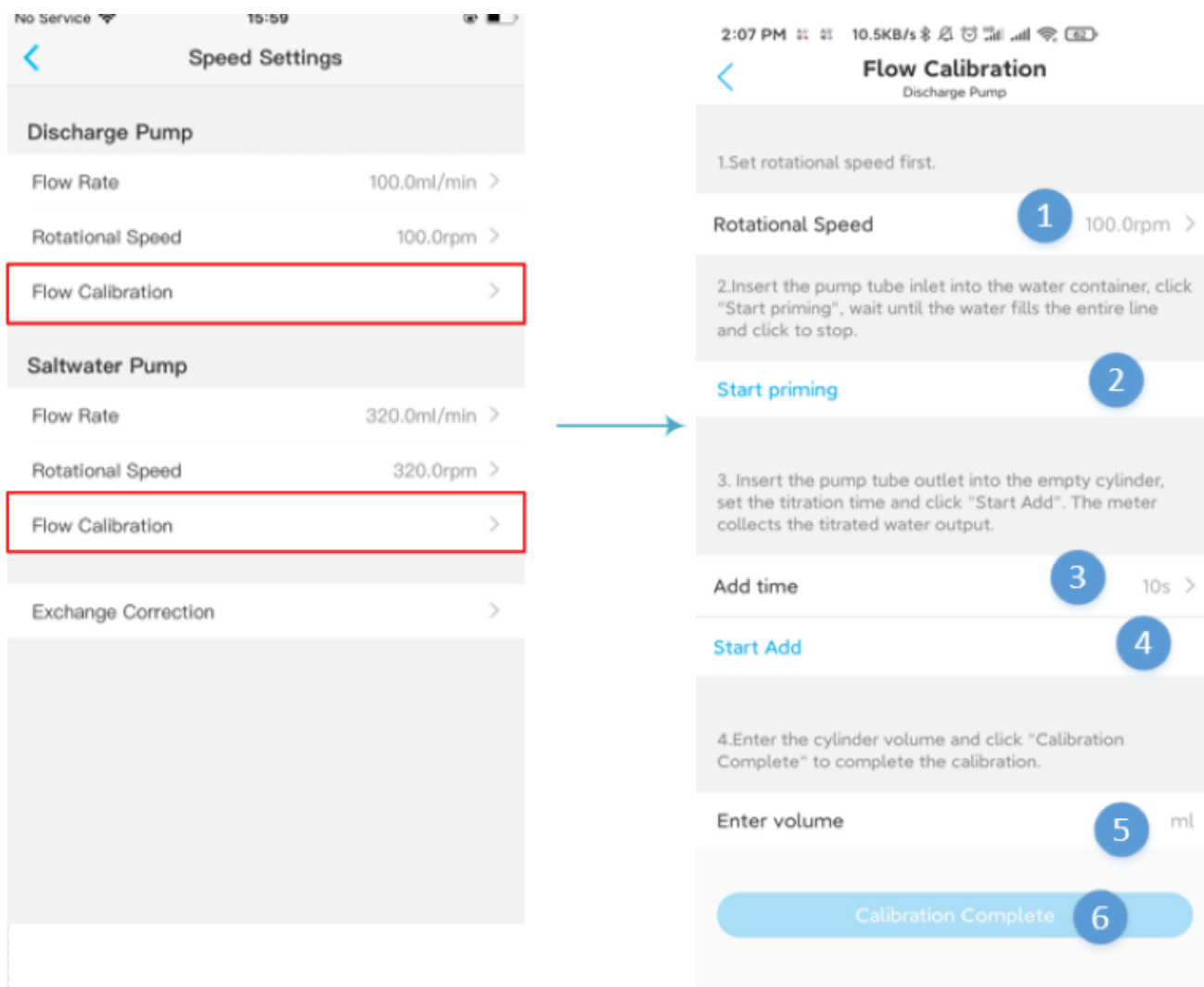

- **1.Rotation speed:**The rotation speed setting of the water change pump is calibrated according to the actual rotation speed in use.
- **2.Start emptying:**Click to start emptying to empty the air in the pump tube
- **3.Calibration duration:**Set the calibration duration. In theory, the longer the time, the better the calibration effect, but the size of the graduated cylinder must be considered
- **4.Start calibration:**Click to start calibration
- **5.Enter the volume:**When the calibrated pump runs, enter the volume obtained from the run into the App
- **6.Calibration completed:**Click to complete calibration

Change water correction After the calibration of the water replacement pump head is completed, it is necessary to correct the deviation of the lower drainage pump and the makeup pump to ensure that the outlet and inlet water are the same when changing the water. The principle of correcting the drainage and makeup is to change the water once. How much is the difference between the amount of water replenishment, this difference is the amount that needs to be corrected for drainage and water replenishment, enter this amount into the App to complete the correction

The water change correction needs to be calibrated for each pump first in the flow rate calibration

Enter the water change correction process through Settings -> Flow Rate Setting -> Change Water Correction, and complete the correction according to the App prompt process
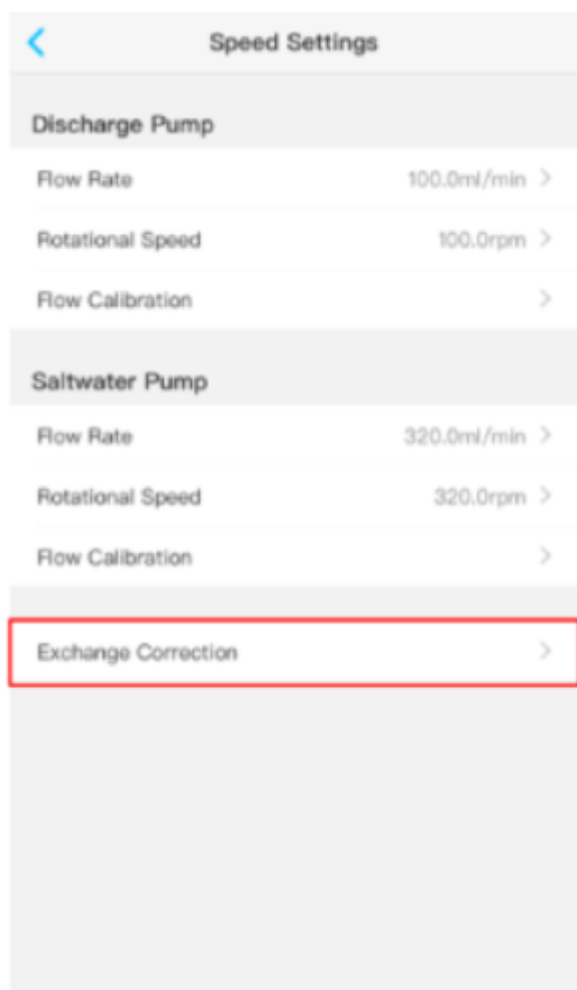
4 Appendix

4.1 Technical Parameters

- **Dimensions (length x width x height)** 168x177x223mm (including pump head)
- **Weight** 4106 grams (not including power adapter)
- **Power Adapter**
    - Input: 100VAC -240VAC
    - Output: DC24V 1.9A
- ***Titration parameters**
    - Water change pump: 2 KHL-B24 pump heads
    - Submersible pump: automatic water replenishment
    - Flow rate: >900 ml/min
    - Automatic water change: 24 times/day-1 time/99 days
    - Liquid level sensor with water replenishment function
    - Anti-overflow level sensor
    - Filling water tank level sensor
    - Waste liquid tank level sensor

- **Interface** WIFI communication interface
- **Working environment** Temperature 0-70℃, humidity 10%-90% (non-condensing)
- **Storage environment** Temperature -20℃-85℃, humidity 10%-90% (non-condensing)

4.2 After-sales warranty information

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.

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.

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 when purchasing); 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 or repair without authorization); 8)Failure or damage caused by use outside of applicable occasions; 9)Damage caused by force majeure, etc.; 10)Consumption and wearing parts (such as pH electrode, ORP electrode, etc.); 11)The warranty period has expired.

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5 update record

date	update content
2021/01/27	Delete routing and distribution network, change the maximum flow