

X4 Dosing Pump User Manual

(V2.0)



Kamoer Fluid Tech (Shanghai) Co.,Ltd.
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Warranty

We warrant your product against any defect in material and workmanship, under normal use. In the event a product is found to be defective within the warranty period of one year, we will, at our option, repair or replace the defective product. The warranty period starts at the day of purchase. For warranty validation, a proof of purchase must be furnished.

The followings are excluded from the warranty:

1. Improper use of the device causing malfunction;
2. The device is repaired or modified by an unauthorized person;
3. Use of non-produced material by our company i.e. pump tube;
4. Damage by disaster;
5. Improper maintenance causing damage;
6. Use of reagent or sample causing corrosion;
7. Damage by accident or over load;
8. Consumables, such as silicone tube and fuse etc.

To obtain warranty support, you may contact our local technical support. Our technical support will attempt to diagnose and correct the problem. If the problem cannot be rectified, our technical support will ask you to return the product. You will be asked to furnish proof of purchase to confirm that the product is still under warranty.

Kamoer is registered trademark of **Kamoer Fluid Tech (Shanghai) Co.,Ltd.** We reserve the right to improve or alter appearance and technical specifications without notice.

Notice

We have considered user safety in the design process. Please read this manual carefully. Any improper operation may cause damage or danger.

1. Safety



The product belongs to Active Products. To avoid danger, you should observe the following rules.

- If you find any visible damage, please do not switch on;
- Be sure not to add any acid, alkali, or volatile solvents;
- Be sure not to use in humid environment, avoid damage by short circuit;
- Temperature change or mechanical wear may increase the volume error.

2. Defect and anomalous situation

You must stop any operation immediately if the equipment is damaged. The equipment may be damaged when the following situations occur:

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

1. Introduction

1.1 About

X4 dosing pump is an intelligent dosing pump equipped with four micro-peristaltic pump heads and WIFI modules. It is mainly used to add various elements needed for the growth of marine life to aquarium regularly, quantitatively and accurately, such as calcium, magnesium, KH agent, trace element and so on. Through automated addition, X4 dosing pump greatly reduces the workload by manual and avoids missed addition, excessive addition, insufficient addition and other mistakes caused by manual addition.

Features

- Compact appearance, elegant, powerful
- Equipped with LCD screen and key, both stand-alone operation, and support iOS/Android app and windows PC client control dosing pump via WIFI
- Contains real-time clock, automatically run according to the setting parameters, the parameters are not lost in the case of power failure
- 1-24 dosing times a day can be set, support every other day, every two days and the specified week day dosing
- Support the flow rate calibration
- Standard Pharmed BPT® pump tube, long life, heat resistance, acid, ozone and UV rays, anti-aging and oxidation, no cytotoxicity and hemolysis
- Optional temperature and liquid level sensor to monitor temperature and level status
- Remote control can be achieved by access to kamoer aquarium cloud via kamoer intelligent controller

Application

- Aquarium feeding
Include hard coral (SPS), soft coral (LPS), and polyculture coral (SPS/LPS)
- Plant feeding
Used to supplement the different elements consumed during plant growth
- Other application
Timely, quantitatively and non-continuously added applications

1.2 Unpacking

- Before unpacking, please check for damage by delivery.
- Upon opening the package, please check that you have received all parts before using. The parts list is shown in **Appendix B - Packing List**. Please check whether the product has visible damage.

If any defects are found when unpacking, please contact us immediately.

1.3 Structure diagram

X4 Details





The dosing pump belongs to the self-priming pump, when the inlet and outlet of the liquid gap is too large, may produce siphon or reflux phenomenon. In order to avoid siphon and reflux phenomenon, the dosing pump should be placed in a reasonable position, to ensure that the inlet and outlet of the height of the gap within 0.5 meters.

The inlet tube shall be as short as possible, and the outlet tube shall be suspended over the container.

Please carefully check the inlet and outlet tube direction is correct, must not be reversed.

1.4 Included Items

1.4.1 Pump head (tube included)

Pump tube is installed in pump head. We provide PharMed BPT pump tube as standard, which provides a long continuous working life of up to 2000 hours.



1.4.2 Connecting pipe

PVC transparent tube connected to the input or the output of pump.



1.4.3 Tube rack



1.4.4 AC/DC adapter

The supplied AC/DC power adapter will support: China standard, European standard, American standard, Australia standard and other standards.



1.5 Technical parameter

Power adapter parameter

Input: Refer to the Power adapter label

Output: DC12V 1000mA

Working environment

Operating Temperature: 0-70 °C

Working Humidity: 10%-90% (non-condensing)

Storage environment

Storage Temperature: -20°C-85°C

Storage Humidity: 10%-90% (non-condensing)

Dosing parameter

Dosing Channels: 4

Dosing times: 24 times/day--1 times/7 days

Liquid volume: 1 ml-1000 ml

Liquid accuracy: $<\pm 2\%$

Pump Tube Life: > 2000 hours

Configuration

Support pump head: 4 KPP pump head

Control interface: WiFi interface, PC software settings, mobile app settings

Extended interface: RS485

Shape

Size (length x Width x Height): 250x150x75 mm

Weight (without power adapter): 950 grams

2. Use

2.1 Software download

- **Apple mobile App**

1. Scan QR code to download



2. Download via App Store

Go to App Store, search "Kamoer" and select "Dosing pump 2" download.

- **Android mobile App**

1. Scan QR code to download



2. Download via Google Player


Go to Google Player, search "Kamoer" and select "Dosing pump 2" download.

- **Computer PC control software**

Visit <http://www.kamoer.com/en/>, Click "Technical Library"- "Download"- "Product catalog Download"- "x4-windows" to download.

2.2 Connection setting

2.2.1 View tutorials

After installing the app, open the app and click the Tutorials  in the upper right corner.

2.2.2 Introduction of connection

There are two ways for App to connect with dosing pump: Direct Connect and Auto Connect, we recommend the way of Auto Connect.

Method	Description	Advantages	Disadvantages
Direct Connect	The mobile phone and the dosing pump are directly connected, not through the third party	The connection is simple, just select the WiFi of the dosing pump.	You need to select the dosing pump WiFi to connect manually, and the same moment the mobile can not access the Internet
Auto Connect	Mobile and dosing pumps are connected by routers, and routers act as middleman	Once configured successfully, the mobile automatically connect to the dosing pump through the router	It is slightly complicated to set up auto connect. some routers may not support auto connection (such as a 5G router)

Note:

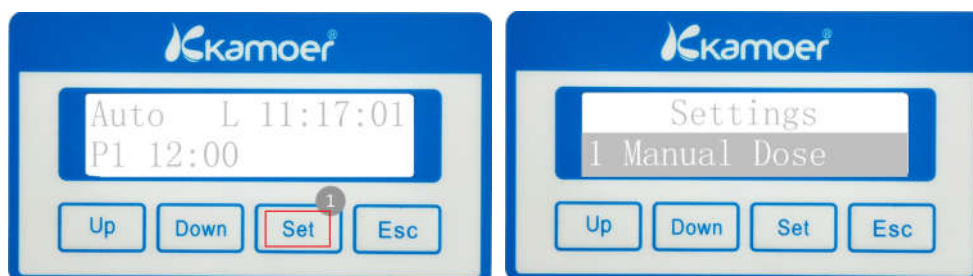
- a. The WiFi name of the X4 dosing pump begins with "KAMOER-X4-DP4" and the connection password is 12345678
- b. Auto Connect currently supports only 2.4G router, 5G router is not supported
- c. The dosing pump WiFi can not found in the WiFi list of the mobile after Auto Connect successful

2.2.3 Reset the dosing pump WiFi

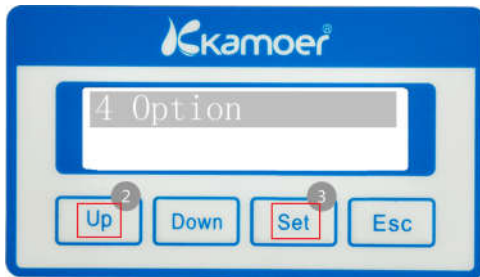
Reset the dosing pump WiFi, which is to allow the dosing pump WiFi to return to the factory default settings, so you can find it in the mobile phone WiFi list, the WiFi name of X4 dosing pump begins with "KAMOER-X4-DP4" . If you can find the WiFi from the dosing pump in your mobile WiFi list, skip this step.

The specific steps to reset WiFi are as follows:

Step 1: Power on dosing pump, waiting for the startup to complete and enter the "Run" page, press **Set** key to enter the Settings page;



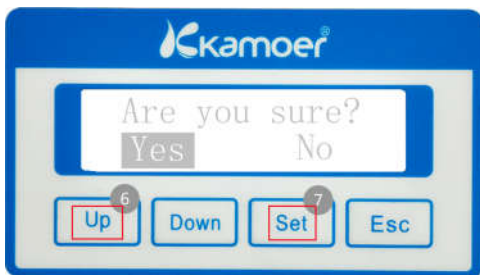
Step 2: Press **Up** key to select "4 Option", press **Set** key to enter the "Option" page;



Step 3: Press **Down** key to select "3 Reset WiFi" and press **Set** key to enter the "Reset WiFi" page;



Step 4: Press **Up** key to select "Yes", press **Set** key to reset WiFi, it will take about 3 seconds;



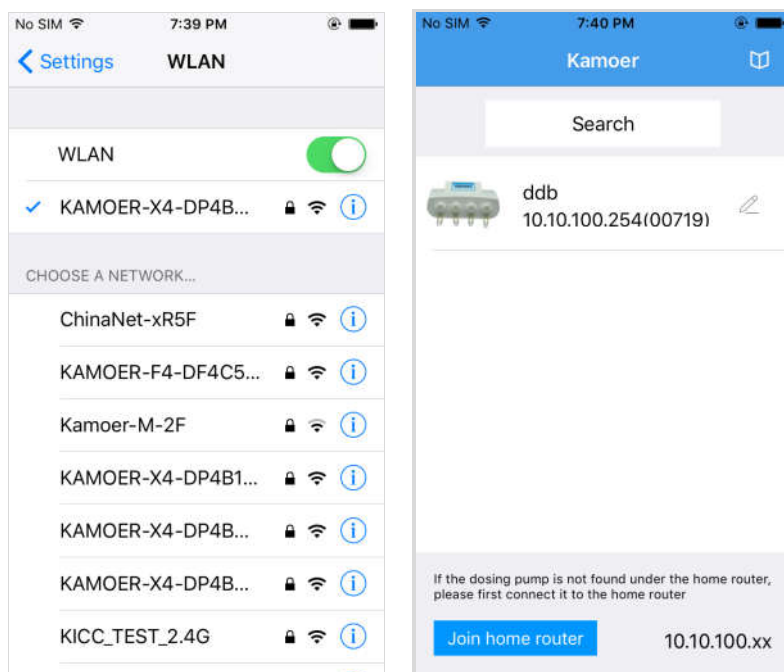
Step 5: WiFi reset complete will automatically return to the previous page, at this time press **Esc** key twice back to the "Run" page;

Step 6: Finally unplug the power supply, wait 5 seconds then the power on again, WiFi reset operation is finish.

2.2.4 Direct Connect

Step 1: Power on the dosing pump, after entering the "Run" page, select the WiFi name begins with "KAMOER-X4-DP4" to connect in the WiFi list and the connection password is 12345678

Step 2: Open the app, the dosing pump will be shown in the device list, click it to connect the dosing pump;

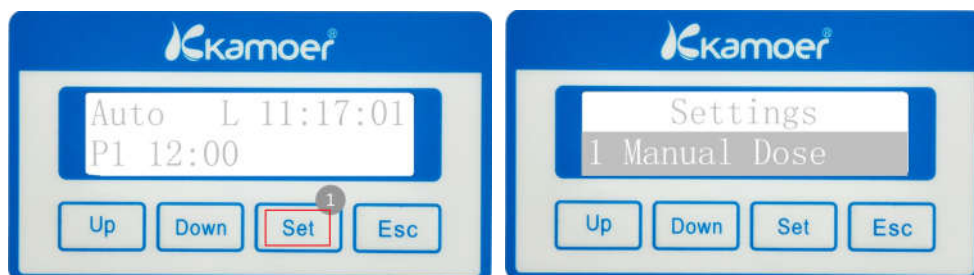


2.2.5 Auto Connect

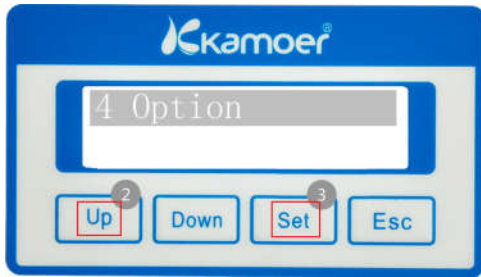
Step 1: Check if the firmware of dosing pump is 1.1.10 and above, if below 1.1.10 version, please follow the firmware upgrade tutorial to upgrade the firmware;

Step 2: Install the latest version of the dosing pump App on the mobile phone and connect to the home router WiFi;

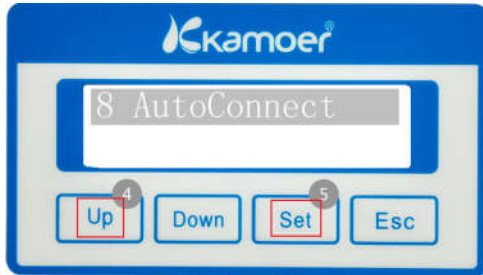
Step 3: Power on dosing pump, waiting for the startup to complete and enter the "Run" page, press **Set** key to enter the Settings page;



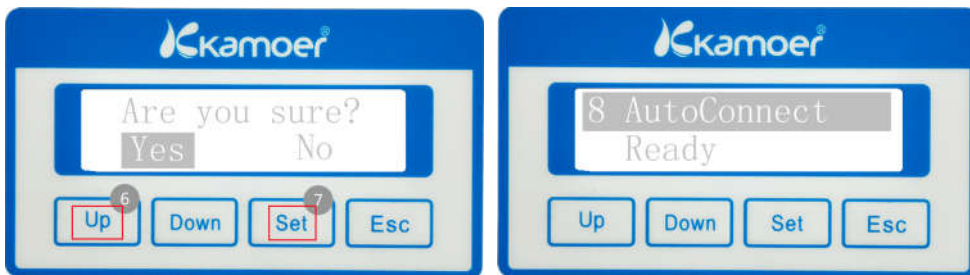
Step 4: Press **Up** key to select "4 Option" and press **Set** key to enter the Option page;



Step 5: Press **Up** key to select "Auto connect", press **Set** key to enter "Auto connect" page;



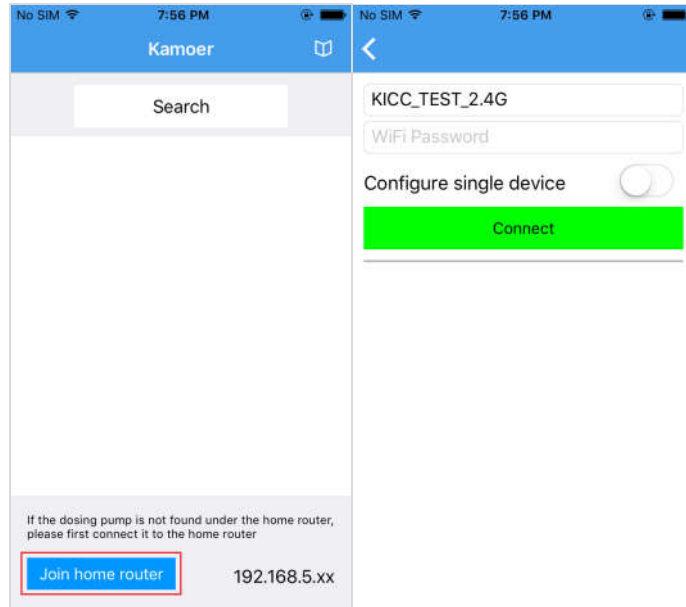
Step 6: In the "Auto connect" page press **Up** key to select "Yes" and press **Set** key, wait about 3 seconds, coming the waiting page, so that the dosing pump Auto connect has been ready;



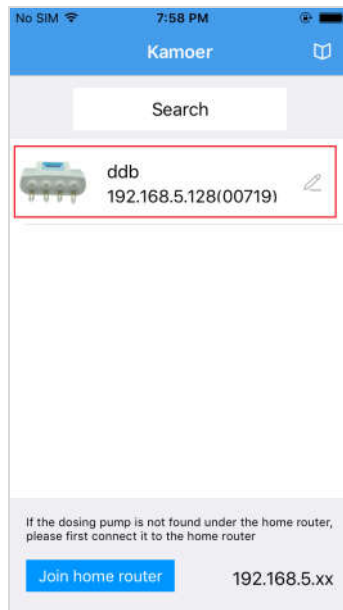
Step 7: Open App, click the lower left corner of "Join home router" into auto connect page;

Step 8:

- a. Enter your home router password in the WiFi password entry box;
- b. click the Connect button to start a connection, showing "connecting ...";
- c. If the connection is successful, the dosing pump will ring and back to the "Run" page;
- d. App shows auto connect successful and back to the device search page;



Step 9: The list of devices in the search page shows the dosing pump that has been searched, click on the dosing pump, and enter the control interface.



Note:

- a. Auto Connect only need to be configured one time, if configured successfully as long as the mobile phone and dosing pump connected to the same home router, you can find the dosing pump in the device search page.
- b. Using PC to log in, simply change the IP address in the "Network Connections" page of the login software to the same as the dosing pump IP address shown on the Mobile app search device page.
- c. If auto connect fails, the dosing pump performs a WiFi reset, starting with step 1th.

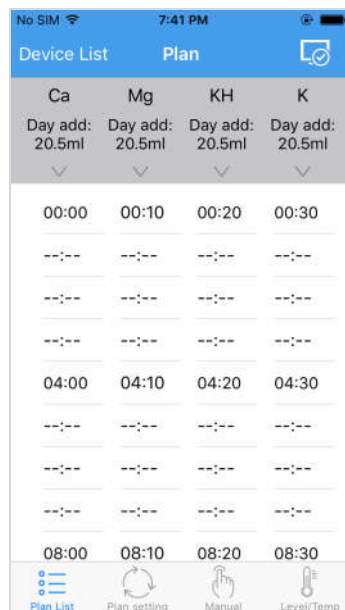
2.3 Software use

Open the app into the device search page, the page shows the search of the dosing pump, click on the dosing pump, you can enter the dosing pump control interface.

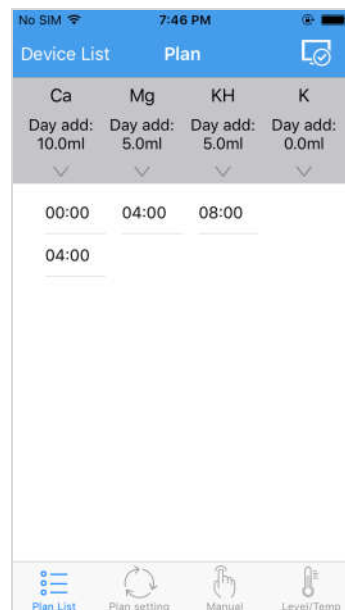
Click on the icon in the red box below to modify the dosing pump name and view the tutorial.




2.3.1 Plan list (initial page)



Automatic mode plan list



Custom mode plan list

- The upper right-hand corner shows the icon  indicate the connection state of the dosing pump.
- Device list (the top left corner): Click to return the device search interface.
- Ca, Mg, KH, K is the name of the pump head, can be set by user. The default

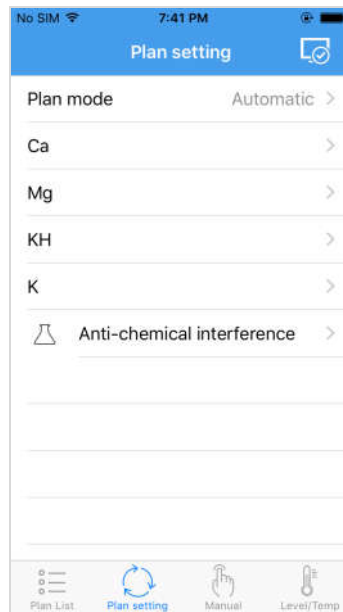
name is pump-1, pump-2, pump-3, pump-4.

d. "Day Add" means the total amount added per day.

The automatic mode plan list lists the pump head additions each hour within 24 hours of the day, which "--:--" indicates that the pump is not running within that hour;

The custom plan list lists the user-defined start add plan of the pump in a day.

2.4.2 Plan setting



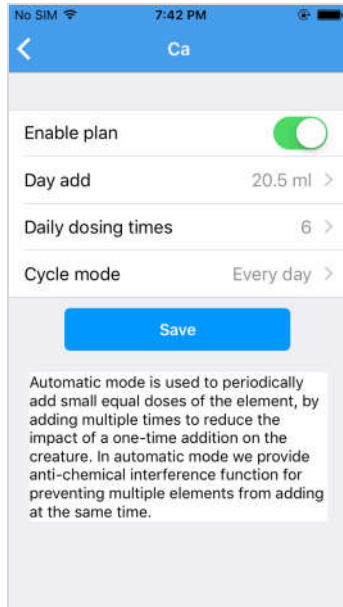
Plan setting interface

a. Plan mode

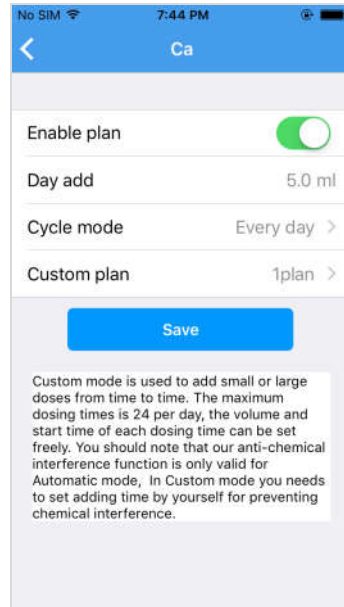
Setup the plan mode of the dosing pump, automatic mode or custom mode.

b. Anti-chemical interference

Setting up the chemical interference time of the dosing pump, preventing the elements from adding chemical interference at the same time, preventing chemical interference time is only valid for the automatic mode, which does not work for the custom mode.



Automatic mode setting



Custom mode setting

a. Enable plan

When enable, the corresponding pump head will be automatically run according to the setting parameters, when disenable the pump head will stop running automatically.

b. Daily dosing amount

The total amount of liquid per day, automatic mode needs to set this parameter, custom mode does not need to set.

c. Daily dosing times (auto mode)

The add times per a day, the dosing pump will automatically calculates the added time by the number of times, the specific start time can be viewed in the plan list;

d. Cycle mode

Every day": Add every day

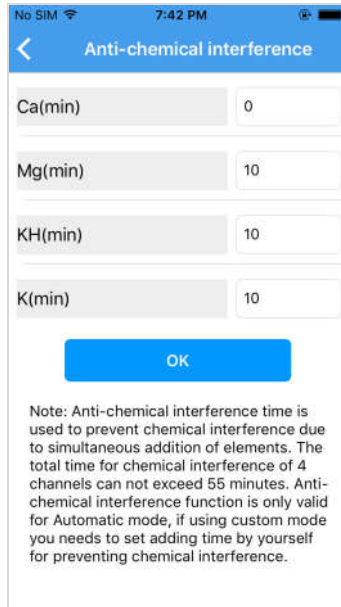
Every two days": add every one days

Every three days": add every two days

Weekly": can choose to add in the days of the week

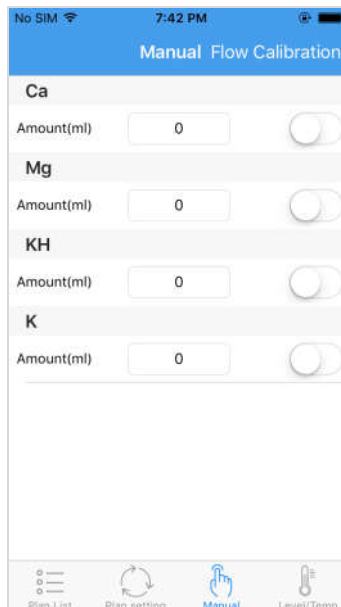
e. Custom plan (Custom mode)

Add a custom plan that contains a start time and a single drop amount similar to "08:30", with a maximum of 24 plans per day.



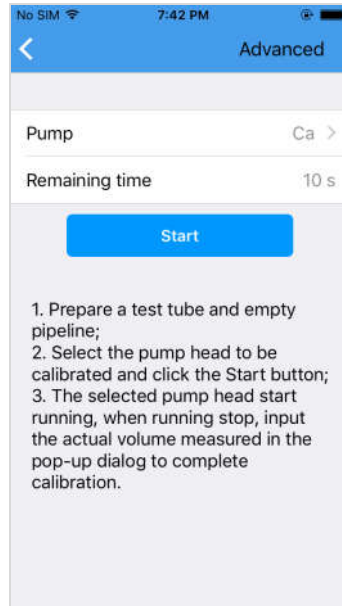
Anti-chemical interference time to add, prevent the element at the same time to add chemical interference, 4 channels of chemical interference cannot be more than 55 minutes, the chemical-resistant interference function is only valid for automatic mode, custom mode needs user to set the interval time to achieve the effect of chemical interference.

2.4.3 Manual page



After setting the amount, turn on the right switch, the pump starts to run and stops automatically after the added amount is reached. If set to 0, turn on the switch then the pump will keep running, you need to turn off the switch to stop running.

Click "Flow Calibration" in the upper right corner to enter the flow calibration page, as shown in the following figure.



The purpose of the flow calibration is to improve the accuracy of the added element.

a. Select pump head

Optional pump 1, pump 2, pump 3, pump 4

b. Remaining time

The time from now to the end of the calibration

After selecting the pump head and click the "Start" button to start the flow calibration, then the "Start" button changes to "Stop", you can click the "Stop" button at any time to stop the flow calibration.

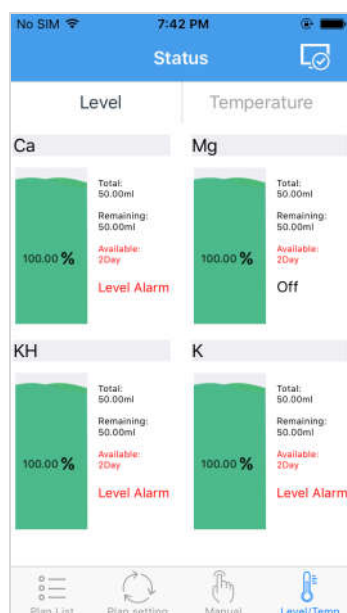
Please follow the prompts in the app for flow calibration.

Note:

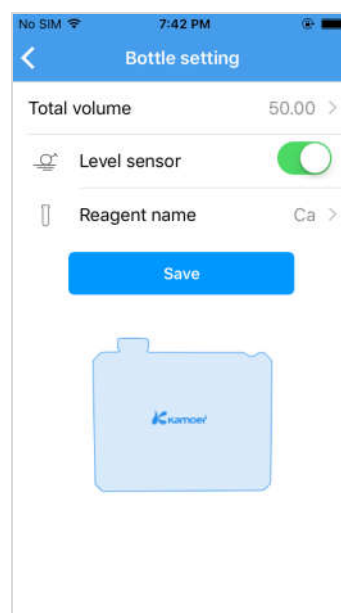
a. Emptying the air in the pipeline with liquid prior to calibration.

b. In view of the different concentration of dosing liquid, the size and length of the pipeline, please do the flow calibration before the first use.

2.4.4 Status page



Liquid level status



Bottle setting

a. Liquid level status display description:

Ca/Mg/KH/K: The name of pump head

Total: Capacity of the dosing container

Remaining: Current remaining amount of dosing liquid;

Available: The remaining liquid is divided by the amount of the day, when the available days are less than 2 days, the text is warning red;

Alarm: When the dosing pump detects that the liquid level sensor is alert, the alarm is displayed (part of the dosing pump model has no liquid level sensor function);

Pump 2, pump 3, pump 4 ditto.

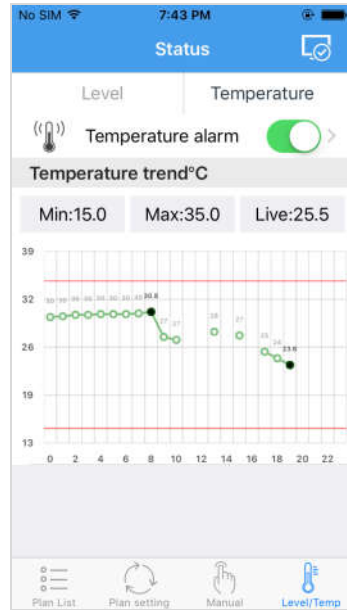
b. Bottle setting interface (Click the reagent bottle icon to enter):

Total volume: Total volume of reagent bottle;

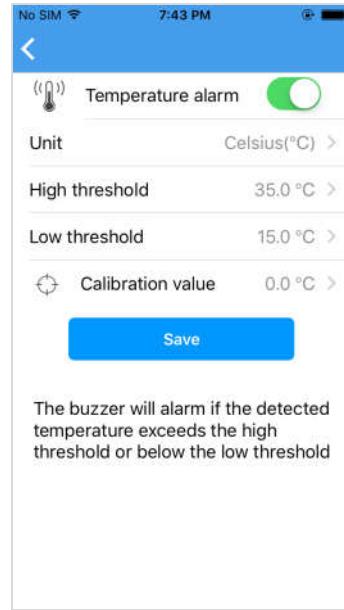
Level sensor: Detect liquid level sensor when opening, do not detect liquid level sensor when close, liquid level sensor status is displayed in liquid level status page;

Reagent name: Set the name of the reagent corresponding to the pump head;

Save: Save the above settings, the remaining volume reverts to the same size as the total volume after saving.



Temperature status



Temperature setting

c. Temperature status interface:

Temperature alarm: If enable, when the dosing pump detected a temperature value beyond the threshold range, then the dosing pump buzzer ring

Min: The low threshold value, when the temperature is below the value generates alarm;

Max: The high threshold value, when the temperature is higher than the value generates alarm;

Live: detected real-time temperature value;

d. Click on the temperature alarm to enter the temperature setting interface:

Unit: degrees Celsius (°C) and Fahrenheit (°F)

High threshold: Set the high threshold value

Low threshold: Set the low threshold value

Calibration value: For correcting the temperature error, the correction method is as follows:

such as dosing pump and mobile phone display temperature 50 degrees, the actual temperature is 20 degrees, the error value for the actual temperature minus the display temperature is 30 degrees (20-50), in the calibration temperature to enter "-30", note that the error value is negative need to precede the "-", back to the original point of the "0".

3. Maintenance

3.1 Chemical compatibility

The standard pump tube is Pharmed BPT tube, it is suitable for most occasions, if you are dosing a specific solution, please contact us to determine chemical compatibility.

3.2 Storage

- If pump do not work for a long time, the adjustment knob should be loosened to avoid the long time squeeze hose to produce plastic deformation
- The roller of the pump should keep clean and dry, otherwise it will accelerate the wear of the hose and shorten the service life of the hose.

4. Technical support

If you encounter any problems after use, please contact us, you can login our official website contact the online customer service or call us.

To expedite the service, please inform your pump model or serial number. If there is a special application of information (such as liquid) please specify otherwise.

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