X1 PRO 2 User Manual 2022-03-11

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1 Read the Tips

1.1 FCC warning

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

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 Use Recommendations

Kamoer provides the following documentation for X1 PRO 2 titration pump users:

1. 《X1 PRO 2 User Manual》
2. 《X1 PRO 2 Quick Start Guide》

It is recommended that users first read the X1 PRO 2 Quick Start Guide to understand the usage process. For detailed product information, please read the X1 PRO 2 titration pump user manual.

1.3 Download Kamoer Remote App

1. Scan the QR code for the app download of the following icon.

iOS

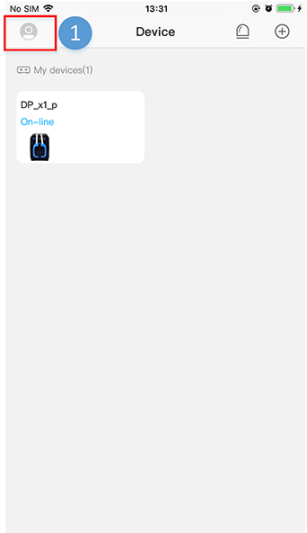
Android

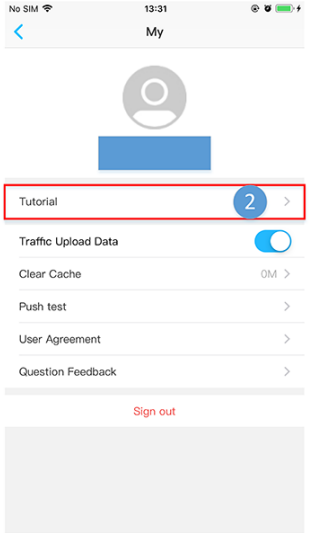
1. Apple users go to the App Store, Android users enter the Baidu App Store, search for "Kamoer Remote" and find the app for the corresponding icon download.

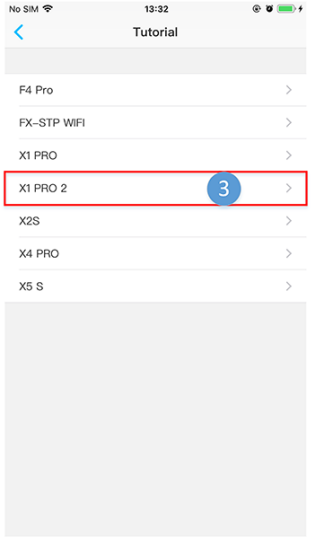
The Kamoer Remote App supports Android 4.4 and above, and iOS 9.1 and above.

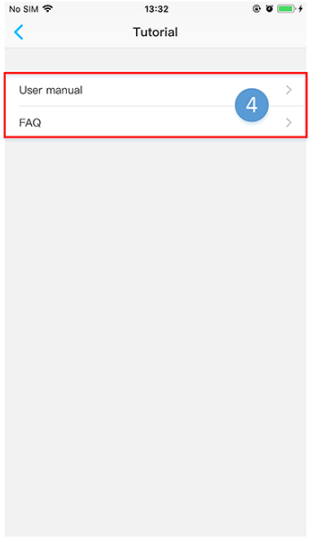
1.4 Get the Tutorial

After installing the app open, click the button in the upper left corner of my module on the device list page to enter my module, click on the tutorial in my module, enter the tutorial module, click into the corresponding device model, including user manual and common question syllables.









2 Product Overview

2.1 Introduction

X1 PRO 2 is a single-channel intelligent titration pump with WIFI remote function, mainly used to add the various elements needed for marine life growth, such as calcium, magnesium, KH booster, trace elements, etc. to marine life cylinder timing, quantitative and accurate. The automation of X1 PRO 2 can greatly reduce the amount of manual added work, but also avoid manual addition caused by leakage, adding excessive or insufficient errors.

2.2 Feature Highlights

- Small size and cost-effective
- App remote control, support for iOS and Android, one app controls multiple X1 PRO 2
- Set parameters to lose power without losing
- Backup battery guarantees timekeeping during power outage
- Imported PharMed BPT pump tube
- Support for remote firmware upgrades

2.3 Applications

- Marine life breeding
  - Includes hard-core corals (SPS), soft corals (LPS), and mixed corals (SPS/LPS).
- Plant farming
  - Used to supplement the different elements consumed during plant growth.
- Other occasions where timing quantification and discontinuity are required

2.4 Out of the Box

- Before opening the box, check if the outer packaging is damaged during transportation.
- After opening the box, refer to the packing list in the appendix to confirm that all parts are missing and check for visible damage.

If any defects are found during the unpacking process, please contact the manufacturer immediately.

2.5 Part Name

1.Inlet
2.Outlet
3.Power/Status indicator
4.KXF pump
5.Reset button

6.Handling hole
7.12V 1A power in
8.power out

2.6 Status LED Description

Status LED（Blue)

Status	Description
Long light	Connected to the cloud via router
Off	Disconnected from router
Fast flashing	Distribution mode, at which pointing pump access router can be configured by the app
Slow flashing	Disconnect from the cloud

Power Indicator（Red）

Status	Description
Long light	Powered on
Off	No power on or a power failure

Note: X1 PRO 2 uses a red and blue two-color light, which does not need to be on when the blue status light is on or flashing.

3 Product Installation

This chapter focuses on how to install the X1 PRO 2 titration pump, as well as the precautions during installation.

Tips

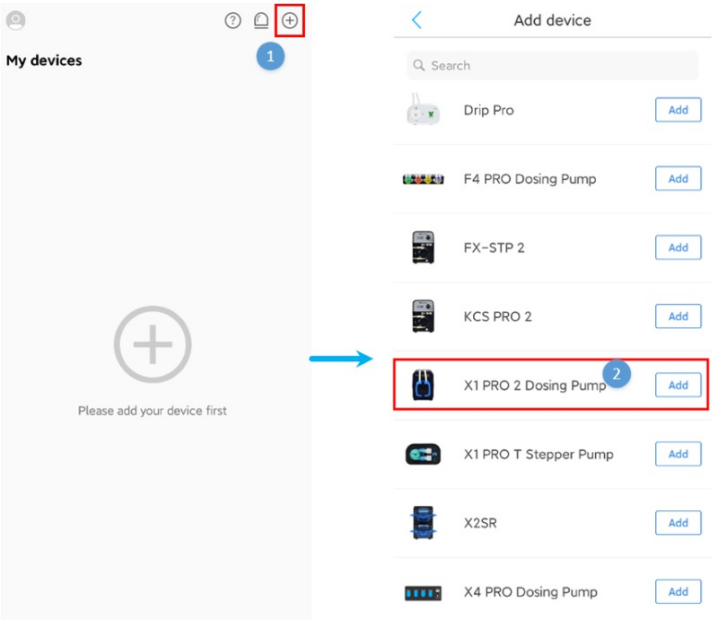
- This titration pump belongs to the self-absorbing pump, when the inlet and outlet drop too much, may produce siphon or reflux phenomenon.
- In order to avoid siphoning and reflux, the titration pump should be placed in a reasonable position to ensure that the height difference between the inlet and the outlet is within 0.5 meters.
- The connection tube of the inlet should be as short as possible, and the drain connection tube should be suspended above the cylinder.
- Please carefully check the inlet and outlet connection direction is correct, never reverse. Reference part connection section.

4 App Use

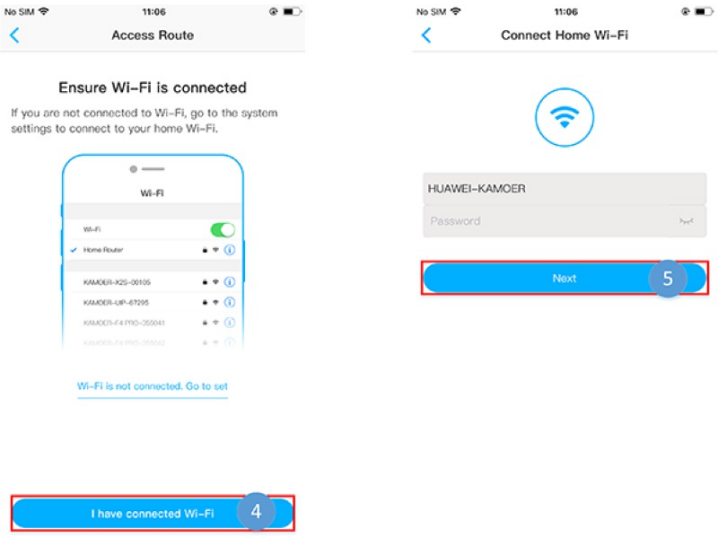
This chapter focuses on how to use the app to control the X1 PRO 2 titration pump.

4.1 Connect titration pumps to the cloud

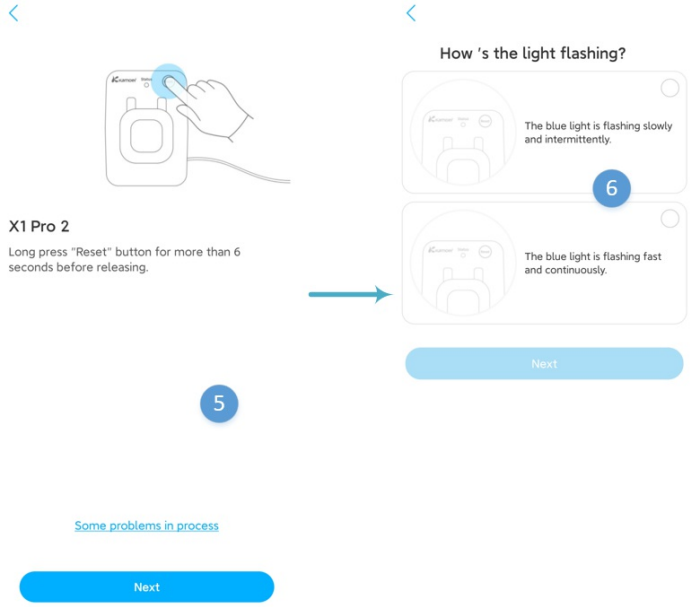
The titration pump is powered on for the first time after the box is open, the status indicator (blue light) flashes slowly, at which point will require the use of an app to connect the titration pump to the cloud via a wireless router, the following steps:



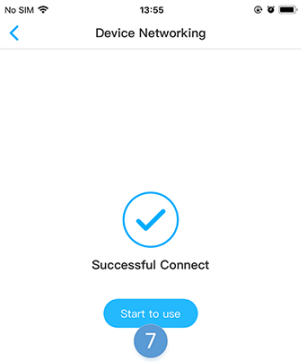
- 1-2.Open the app, click the "+" button in the upper right corner of the device to add the device, enter the Add Device interface, select "Kamoer-X1PRO" in the list of supported devices and click to enter;

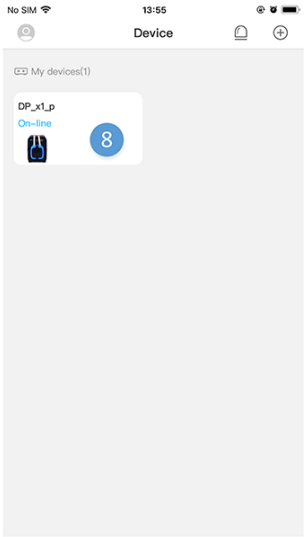


- 3.Make sure that the mobile phone connection requires WiFi with the network, and that the WiFi can be connected to the external network. (The device does not support 5G WiFi and cannot use 5G WiFi hotspot);
- 4.Enter the WiFi password, pay attention not to lose the wrong password, click "next" into the device network operation;



- 5.Long press and hold on the rear panel on the "Reset" button more than 4 seconds after release, wait 3 seconds, at this time the blue state light flashes quickly, the device into the distribution network state, in the device distribution network state, click on the App "light is flashing fast" button to start the distribution network;
- 6.Wait for the network connection successfully, after the connection is successful, the app will pop up the interface of the connection success;





1. In this interface click "Start to use" to enter the device list interface, at which point red light is long, representing the titration pump has been connected to the cloud, the user has also completed the binding to the titration pump.

Tips

a. Configure the device to connect to Wi-Fi only once, after the configuration is successful, as long as the app can be connected to the network, open the app after the device list can be found in the device.

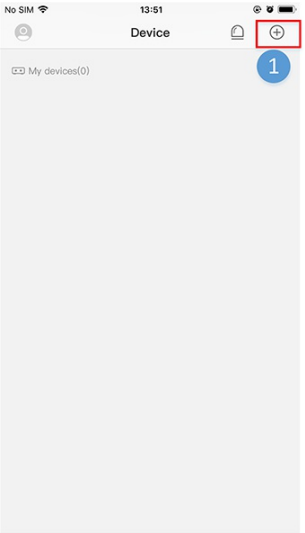
b. If the device configuration fails to connect to Wi-Fi, start over from the first step.

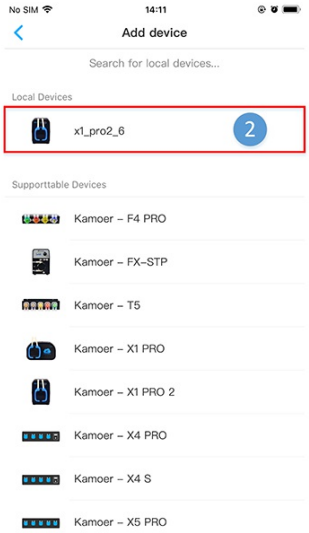
4.2 Binding titration pump

There are two ways for a user to bind a titration pump.

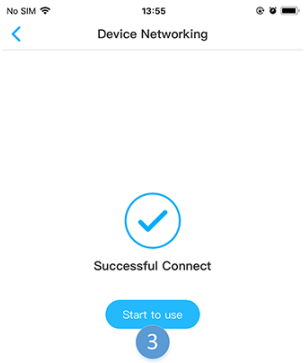
The first way is to bind the titration pump by the above redistribution network;

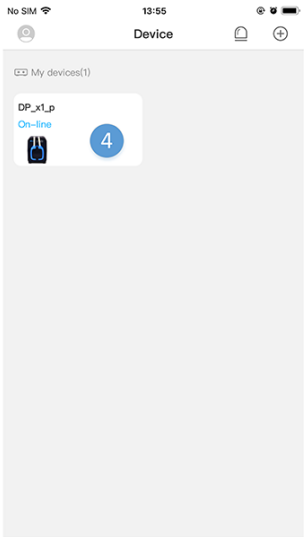
The second way is that the titration pump has been connected to the cloud through the wireless router, at this time the phone can be connected to the wireless router, the app will display the local available titration pump, users can scan the local available equipment out of the titration pump list, click on the corresponding titration pump, binding, the specific operation is as follows:





- 1-2.Open the app, click the "" button in the upper right corner of the device to add the device, enter the add device interface, select the titration pump to bind in the list of locally available devices, and click into;

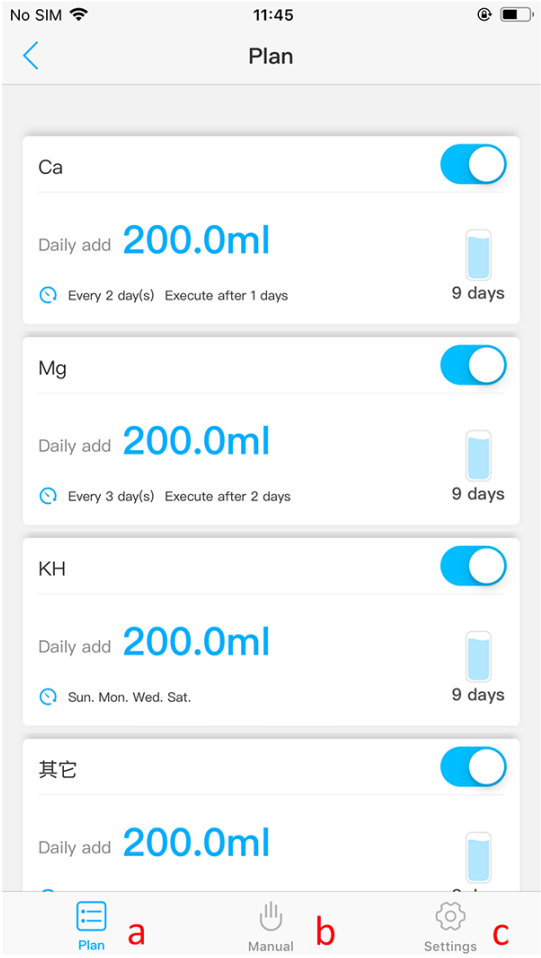




- 3.After the binding is successful, the binding success prompt pops up, clicks to start, and returns to the device list;

4.3 Overview of the titration pump control interface

Open the app, click on the titration pump in the device list to enter the titration pump operating interface, titration pump operator interface contains three modules:

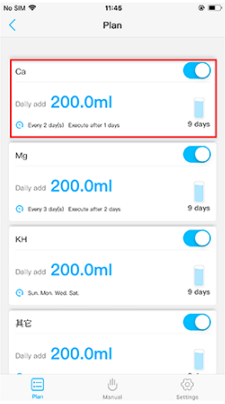


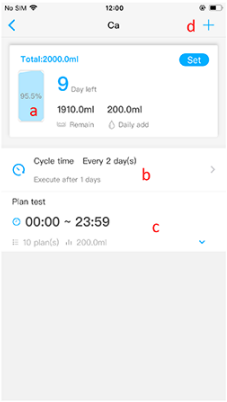
- **a.Plan：** In this module, two functions are implemented, The first is to set the titration plan, titration pump according to the user set the scheduled quantitative titration, to solve the labor operation of cumbersome and inaccuracy. The second is to view the total amount of the solution bottle, the remaining amount, let the user understand the status of the solution bottle, when the solution bottle reagent is insufficient, there will be a yellow color prompt, tell the user to add the solution bottle in a timely manner reagent.
- **b.Manual：** Manual control adds a certain amount of solution, convenient for the user to operate at any time.
- **c.Set up：** Contains 3 features
  - **(1)Name Setting:**Set the name of the titration pump and the names of the four pump heads so that the user can distinguish between different equipment and pump heads;
  - **(2)Firmware Upgrade:**Upgrade the titration pump firmware;
  - **(3)Time Setting:**Set the real-time clock time of the device so that the device can execute the plan normally;
  - **(4)Flow Calibration：** Calibrate the flow rate of the titration pump to make the titration pump run more accurately;

4.4 Plan Titration - Plan Settings Details Page

1.Auto mode channel details

Click on the plan in the bottom navigation bar to go to the plan details page, which includes the following features:



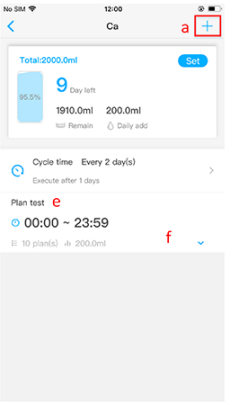


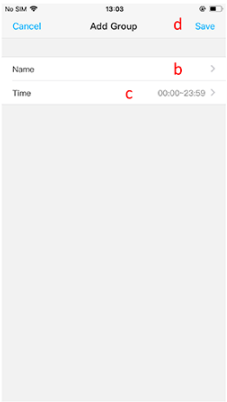
a.Solution bottle status setting/view： The module can view the volume set by the solution bottle, the remaining volume of the solution bottle, the number of days the remaining volume of the solution bottle can be added, and the planned daily addition; we can click the set button to set the volume of the solution bottle; **Note：The daily addition amount displayed on the interface shows the planned addition amount of the titration day, and does not include the manual titration. Actually, if the manual solution is also added, the amount of reduction of the solution bottle is also counted. b.Cycle period:：** The cycle of the planned titration is divided into two modes: weekly and per day. In weekly mode, we can choose to titrate from any day from Monday to Sunday. We can choose every 1 day for each mode. The time range from day to day every 99 days; **c.Planning Group List：** List the schedule groups and plans you set up, and as soon as you enter the interface, the app lists only the planning group, and clicking on the drop-down arrow of the plan group lists all the plans for that group; **d.Add a plan group：** Click the button to enter the Add Plan Group interface, set the name of the group and the time range of the group in the Add Plan Group interface, click Save, a plan group is created; a channel can create up to 6 plan groups;

4.5 Plan Titration - Plan Settings

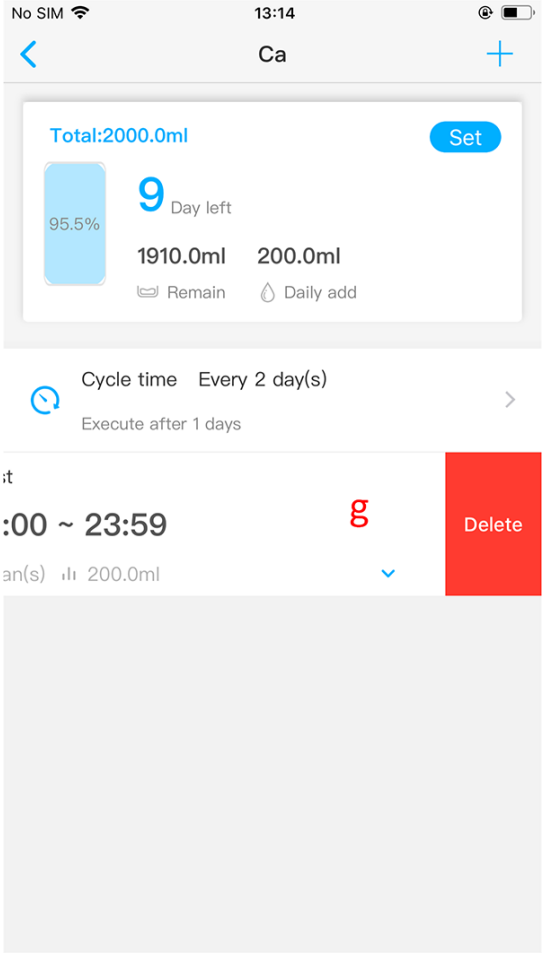
1.Plan group creation, editing, delete

The plan for the titration pump exists in the planning group. To create a plan, first create a planning group, or create a plan within an existing planning group. The purpose of the planning group is to group the plans in a certain time period to facilitate identification. And management, you can create up to 6 groups; the following describes the creation of the plan group:





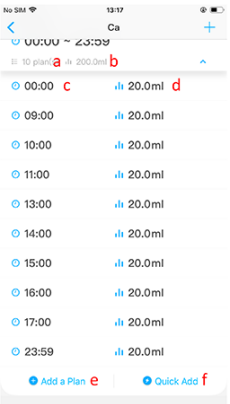
- **a.Create a plan group:**In the channel plan details page, click the "Add button" in the upper right corner to enter the add interface of the plan group;
- **b.Set the name of the plan group:**Used to distinguish and identify with other planning groups;
- **c.Set the time range for a schedule group:**Once the time period range is set, the schedules created in this group are executed during this time period, and the maximum range of the time period is 00:00-23:59;
- **d.Save a plan group:**After you've edited the information for the plan group, click the Save button to save the plan group.
- **e.Edit group information:**Click on the plan group to enter the edit group information interface, and the parameters are the same as the creation group;
- **f.Go to the list of plans：** Click the drop-down button of the plan group to enter the plan list of the plan group, and there is a planned creation entry at the bottom of the plan list;

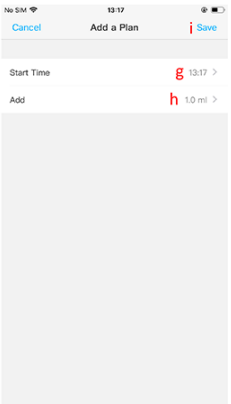


g.Delete the plan: Click on the plan group to swipe left, will appear the plan group delete button, click delete button, plan group delete, the group's plan is also deleted;

2.Plan within the group to create, edit, delete

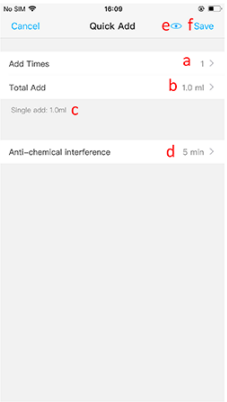
The planned operation is carried out within the planning group. The plans of all groups in each channel can add up to 24 plans. The following describes the related operations of the plan:

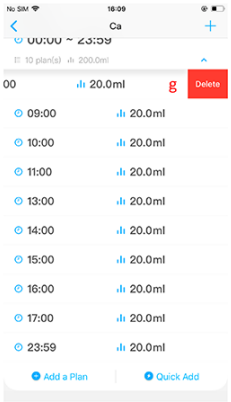




- **a.Number of plans:** Displays the number of plans within the plan group;
- **b.Show total additions:** Displays the total amount of plan additions within the plan group;
- **c.Schedule the start time of the plan within the group**
- **d.The amount of planned additions within the planning group;**
- **e.Add an in-group plan:** Click to go to the add group scheduling page, add the plan contains two parameters, one is the start time of the plan, one is the amount of addition of the plan;
- **f.Quick plan to add an entry:** Multiple plans can be added in turn through the quick plan settings;
- **g.Plan start time:** Add a start time for a single plan
- **h.Planned additions:** Add the amount of added for a single plan
- **i.Save plan:** Plan to save Plan after the creation can also be edited, click the plan needs to be edited to enter the plan editing interface, plan editing parameters and plan to create interface parameters;

Here's how to add quick plans and delete individual plans:





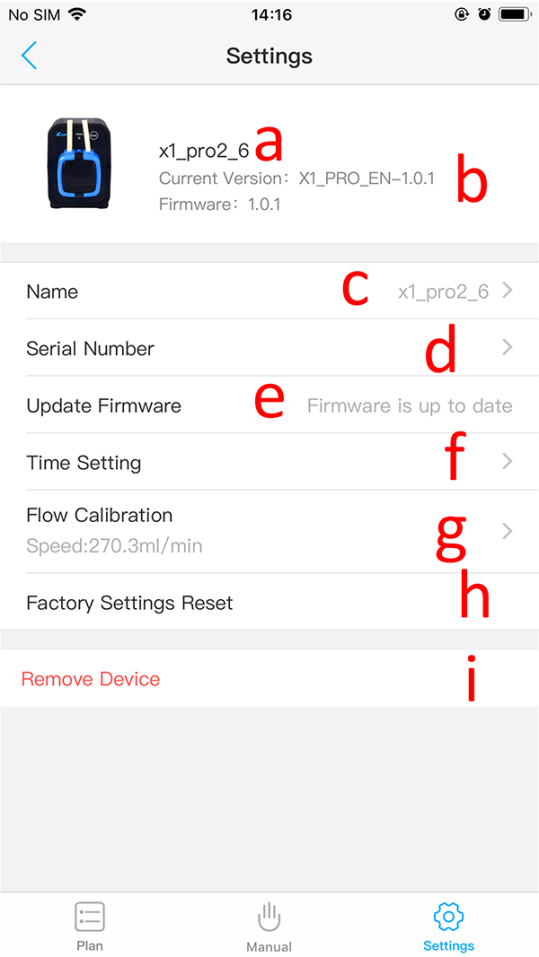
The quick plan can add multiple in-group plans at a time to meet the convenient operation requirements of adding multiple plans at a time. When you need to add a shortcut plan, click "Quick Add" below the plan list to enter the shortcut plan add interface: * **a.Number of additions：** The number of plans that need to be added; * **b.Total additions：** The total amount of addition that needs to be added; * **c.Single add volume：** The amount of a plan added, divided by the total added amount divided by the number of additions; * **d.Anti-chemical interference time：** Used to stagger the time of addition of this and other group plans; * **e.Plan preview：** Click to preview the plan you can set up quickly, and if you meet your needs, you can click the Save button to save the plan; * **f.Save：** Save a quick plan; * **g.Delete a single plan：** Click the plan that needs to be deleted to swipe left, will appear delete plan button, click the delete button to delete a plan;

4.6 Manual Titration Page

Manual titration can be done at any time to meet the user's temporary add-on needs.

- **a.Manual mode：** Click to enter manual mode
- **b.Drip quantification：** Set the amount of manual distation, the ditration pump automatically stops;Start/Stop button
- **c.**"开始/停止"按钮：Control the start and stop operation of the pump;

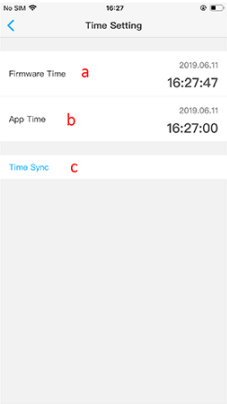
4.7 Set Up the Page

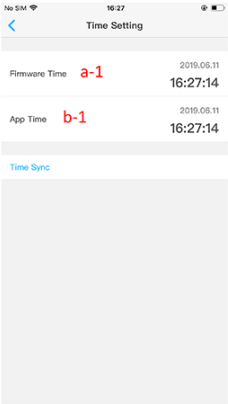


- **a.Device serial number：**
- **b.Current version of firmware：** Show the current version of the firmware, if the firmware has an update, there are tips below;
- **c.Name：** Here you can modify the device name and the name of each pump head to identify the purpose of the device and pump head;
- **d.Serial number：** Click to enter the display device serial number;
- **e.Update：** Firmware update, if there is a new firmware release, there will be a prompt;
- **f.Time settings：** Set the real-time clock time of the firmware to ensure the correct execution of the pump titration plan;
- **g.Flow rate calibration：** The flow rate of each pump head is calibrated here, and the purpose of the flow calibration is to improve the accuracy of the added elements;
- **h.Restore factory settings：** Click to restore the firmware parameters to the factory settings;
- **i.Remove the device：** Unbind the app from the device.

4.8 Time settings

When the time of the device and the local time do not meet, it is necessary to synchronize the real-time clock time of the device through the app to ensure the normal execution of the device titration plan;

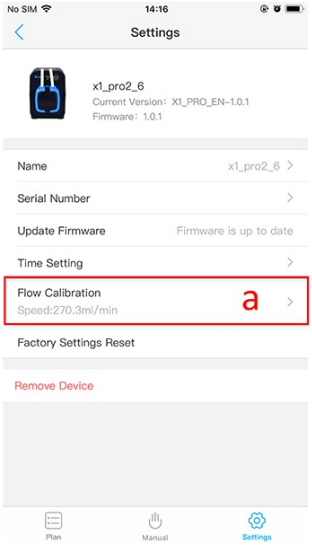


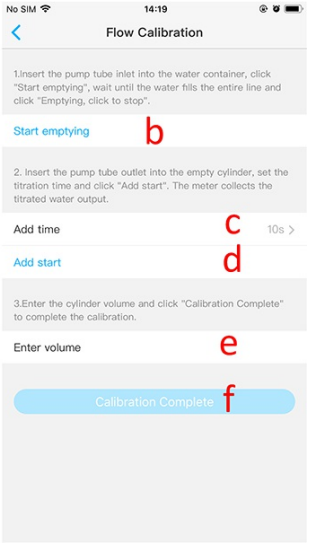


- **a.Device time：** The current real-time clock time of the device;
- **b.App Time：** The current time of the phone;
- **c.Time synchronization：** Click after the departure device time synchronization, time synchronization, the device running time and mobile phone time will be the same; a-1, b-1 is the real-time clock time and mobile phone time of the device after the time is synchronized;

4.9 Flow Calibration

The purpose of calibration is to improve the accuracy of the added elements; Click "Flow Rate Calibration" in the setup interface to enter the calibration pump head selection interface, select the pump head that needs to be calibrated, and enter the flow calibration interface. Calibration needs to use the barrel, the pump factory has been equipped with a 10ML measuring tube, taking into account the pump tube titration concentration is different, the degree of aging of the pump tube is different, the first use needs to be calibrated, suspected titration is not accurate when it is timely calibration.

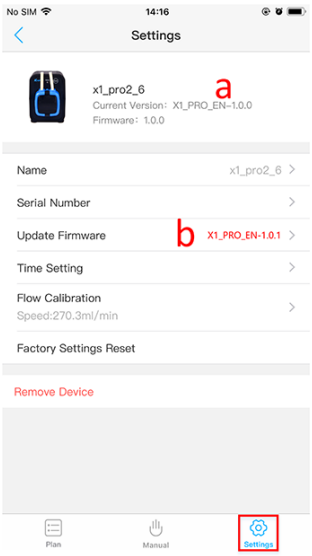


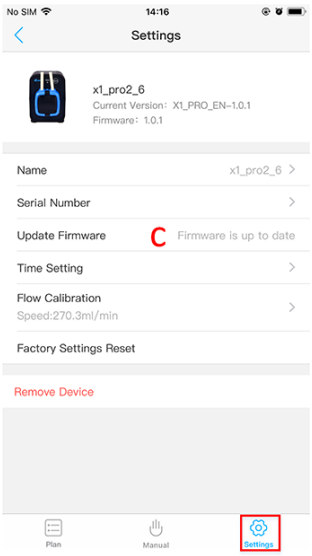


- **a. Flow rate calibration：** Click on the flow rate calibration in the settings interface to enter the flow rate calibration interface;
- **b. Start emptying：** The purpose of emptying is to let the air in the pump tube drain, so that the accuracy of the rear calibration will not be affected;
- **c. Drop timing：** Set the running time of the pump during calibration; Before proceeding to the next step, make sure that the pump pipe inlet has been immersed in water, the pump pipe outlet is placed in the measuring tube;
- **d. Start titration：** Click the titration button and the pump will stop after running the previous set for a long time;
- **e. Enter volume：** After reading the volume of liquid in the barrel, input in ml;
- **f. Calibration complete：** Click the "Calibration done" button to complete the flow calibration.

4.10 Firmware Upgrades

When the pump's firmware program is updated, the user needs to upgrade the firmware to use.





a.Current version of firmware； ** **b.New version tips： If a new version exists, there will be a new version prompt; **c.Status after firmware update is complete：** The display status after the firmware update is completed; The steps for the upgrade are as follows: Enter the App settings interface, if found that a new version of the firmware appears, click b update button to update the firmware, this time do not do other operations, do not exit the app or re-enter the app, wait until the upgrade is complete, the red status of the titration pump will be lit 2 times, while the buzzer will ring twice, indicating that the device firmware upgrade is complete. After the device upgrade is complete, it can be performed normally, and if the upgrade fails, repeat the upgrade step. **Attention：** There is no power outage during the upgrade process, and the app does not take any other action during the upgrade process.

5 Appendix

5.1 Technical Parameters

- **Dimensions (Length x Width x Height)** 60 x 95 x 83 毫米(含泵头)mm (with pump head)
- **Weight** 214g (No power adapter included)
- **Power adapter**
  - Input：100VAC -240VAC
  - Output：DC12V 1A
- **Titration parameters**
  - Titration channel：1 KXF pump head
  - Flow：>33ml/min
  - Number of titrations：24 times/day - 1 time/99 days
  - Titration accuracy：<±2%
  - Volume range：0.1 ml-9999.9 ml
- **Interface:**WIFI
- **Working environment:** Temperatures 0 - 70℃,humidity10% - 90%(non-condensation)
- **Storage environment:** Temperatures-20℃ - 85℃,humidity10% - 90%(non-condensation)

5.2 After-sales Warranty Information

1. Warranty Conditions

Warranty free service is limited to the user manual under normal use and maintenance is effective, all person for failure or damage is not covered by the warranty. Users please take good care of the purchase of machine invoices, user manuals, so that you can get satisfactory after-sales service in a timely manner.

2. Warranty Coverage

Within one year from the date of purchase, the Company will provide free warranty service in the event of any damage caused by manufacturing processes or components. Free repair services provided during the warranty period include free repairs, free and replacement of faulty spare parts, and products that cannot be repaired are replaced with the same model (the model has been discontinued, with a similar model). The free service does not include the cost of shipping the product as a result of the repair.

3. Non-warranty Coverage

The following factors are not covered by the free warranty and there is a customer repair charge. 1) The appearance of the product (please confirm at the time of purchase); 2) Improper use, maintenance or storage (use, maintain and keep properly in accordance with the user manual); 3) Inadequate power supply; 4) All kinds of insects into the machine and cause the circuit board short caused by the damage of components; 5) Loss caused by accident; 6) Use of inappropriate spare parts (non-company spare parts not applicable); 7) Non-authorized personnel negligence handling, modification or repair (please do not untaddle decoration); 8) Failure or damage caused by use outside the applicable setting; 9) Damage caused by force majeure, etc. 10) Consumable consumables (e.g. pH electrode, ORP electrode, etc.); 11) The warranty period expires.

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