M1-DC

Smart Peristaltic Pump

User Manual

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Kamoer Fluid Tech(Shanghai) Co.,Ltd.

www.kamoer.com

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Quality Assurance

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 failures or damages are not covered by the warranty. Users please keep the purchase invoice and user manual well, so that you can get satisfactory after-sales service in time.

2. Warranty

Within one year from the date of purchase, if there is any damage caused by manufacturing process or components, the company will provide free warranty service.

The free maintenance service provided during the warranty period includes free repair, free replacement of faulty spare parts, and products that cannot be repaired will be replaced with products of the same model (if the model has been discontinued, it will be replaced with a similar model). The free service does not include the shipping cost of the product due to repair.

3. Not covered by warranty

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

1) Product appearance (please confirm when purchasing);
2) Improper use, maintenance or storage (please use, maintain and store correctly according to the user manual);
3) Access to an inappropriate power source;
4) Various types (such as insects, etc.) enter the machine and cause damage to the components caused by the short circuit of the circuit board;
5) Losses caused by accidents;
6) Use of inappropriate spare parts (non-company spare parts are not applicable);
7) Negligent 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 the applicable occasion;

9) Damage caused by force majeure, etc.;

10) Consumable and wearing parts (such as pump pipes, connecting pipes, etc.);

11) The warranty period has expired.

1.Product Description

1.1 Introduction

M1 smart peristaltic pump is a kind of smart peristaltic pump used in the laboratory. It is positioned for the pipetting work of small flow in the laboratory. It can run continuously or cycle according to an interval.

1.2 Feature Highlights

- Small appearance, powerful function
- LCD screen display, button operation, friendly man-machine interface
- Supports speed adjustment, which can be adjusted to the desired speed through the speed adjustment knob
- The running interval can be set and supports cyclic operation
- Support flow calibration function
- Support multi-machine serial use through power extension cable

1.3 Applications

- Laboratory: Liquid transfer, reagent dispensing
- Industrial process: Such as precision wire saw emery added
- Pet: Aquarium titration

1.4 Component names



1. Color LCD display

2. Pump head

3. Button

- Menu: Click to enter the menu, or return to the previous menu from the submenu
- -: Click to decrease the amount or the menu is up
- Setting: Click to enter the setting menu, or return to the previous menu after the setting takes effect
- Direction: Click to switch the pump running direction
- +: click to increase the amount or the menu to go down
- Full Speed: Click to run the pump at full speed, which can quickly fill the pump tube or recover liquid
- Start/Stop: Click to start/stop the pump

4. Speed knob

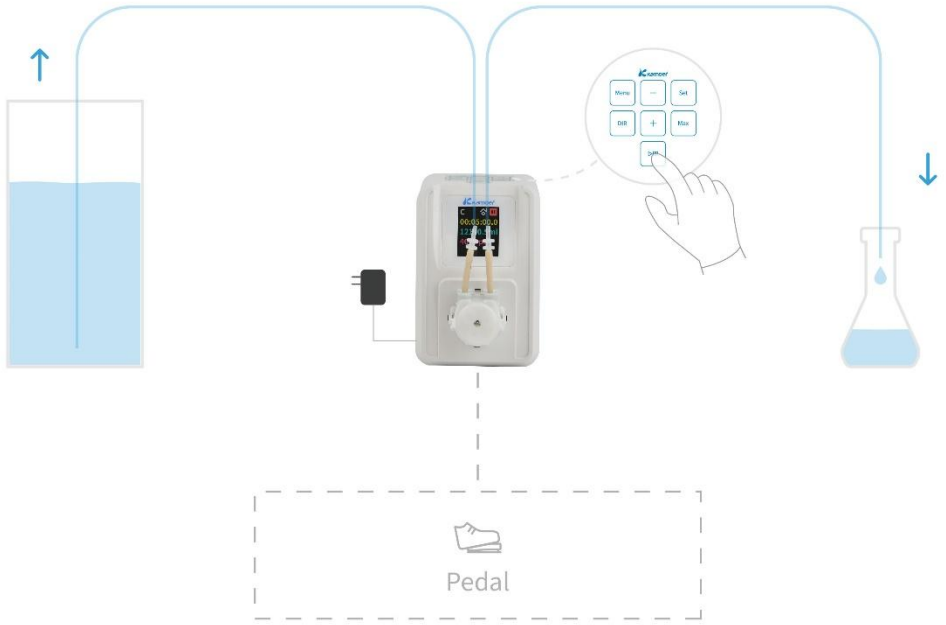
5. Foot switch interface, connect the foot switch, and realize start-stop control by opening and closing the foot switch

6. DC12V power output

7. DC12V power input

> ⓘ **Two pumps can share one power adapter, please use the power adapter according to the voltage indicated in the manual**

2. Product Installation

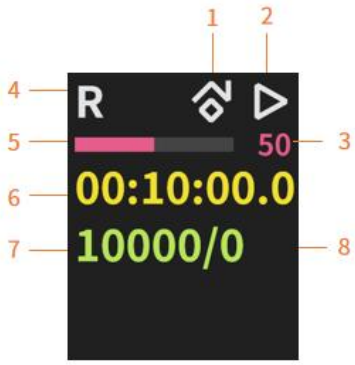


3.Touch screen control

3.1 Quantitative Mode

Quantitative mode is to set a certain quantity, the pump will run according to the certain quantity, and it will stop automatically after running. The certain quantity can be time or volume. If you want to run this quantification cycle, you can set a target number of times and the interval time between each run of quantification. The pump runs a quantification every time, and after a time interval, it runs another quantification until it reaches the target number of times and stops running.

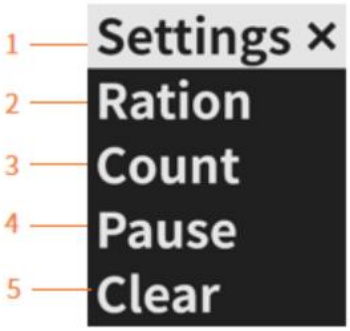
You can enter the quantitative mode in the menu. After entering the quantitative mode, it will re-enter the quantitative mode after power off and restart.



1. Running direction: the running direction of the pump, switch the direction through the direction button
2. Start and stop: control the start and stop of the pump, by controlling the inner diameter of the start and stop
3. Speed percentage: the percentage of pump running speed, adjusted by the knob on the back
4. Quantitative: Quantitative working mode
5. Speed Percentage Histogram
6. The target quantification of the operation can be set to run according to time or volume, and can be quickly modified through the + button and - button on the top of the device
7. 10,000 running target times, enter the menu through the setting button to set
8. The number of times that has been run, each run is accumulated from the last time, and it can be cleared by entering the menu through the setting button

Quantitative mode setting menu

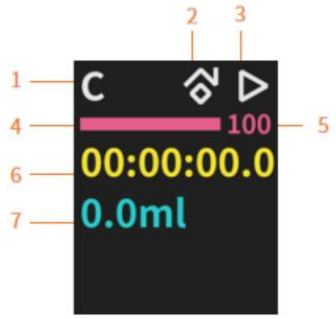
In the quantitative mode, press the setting button to enter the quantitative mode setting menu, and modify the parameters of the quantitative mode in this menu



1. Setting menu title: When the cursor is on this title, press the setting button on the device to return to the previous menu
2. Modify Quantitative: Click to enter the Modify Quantitative menu, where you can choose whether to add according to time or volume
3. Target times: Click to enter to modify the target times, use + and - buttons to modify the target times, click the settings to take effect, click the menu to return to the previous menu
4. Pause duration: Set the pause duration before loop mode
5. Run cleared: Set the number of runs to be cleared

3.2 Continuous mode

The operation characteristic of the continuous mode is that after the operation is triggered, the pump will run continuously until it is triggered again to stop, and the pump can also be started and stopped by the foot switch.



1. Continuous mode, you can enter the system menu through the button menu, switch to the continuous mode through the + and - buttons, and press the setting button to enter the continuous mode
2. Running direction: switch the running direction of the pump head through the direction button
3. Start/Stop: Start and stop operation by start and stop buttons
4. The running speed percentage progress bar can be adjusted by the knob on the back of the device
5. The percentage of running speed can be adjusted by the knob on the back of the device
6. The amount of time that has run continuously, starting at 0 for each run
7. The volume that has been run consecutively, starting at 0 for each run

3.3 System menu

Enter the system menu by pressing the menu button, in the system menu, select continuous mode or quantitative mode, and return to the working mode



1. Continuous mode, click the setting button to enter continuous mode
2. Quantitative mode, click to set to enter quantitative mode
3. Calibration: Click Settings to enter the calibration function of the pump head
4. Language: Click Settings to enter language settings, the interface language supports Chinese and English
5. Power-on state: Set the start-stop state of power-on. If it is set to power-on operation, the device will run automatically when it is powered on
6. Pedal: Set the setting method of the foot switch, the default is trigger control
7. Volume unit: set the volume unit, support milliliter and microliter
8. INFO: View pump firmware version and serial number
9. Factory reset: Restore factory default settings

3.4 Pump head calibration

If you want to make the flow parameters displayed by the equipment more accurate, you need to perform flow calibration on the pump. The process is to prepare a graduated cylinder, let the pump run for a period of time, and input the liquid that the pump has run for this period of time into the program to complete the calibration function.

The pump can be calibrated in System Menu -> Calibration.



After entering the calibration process, first empty the air in the tube and fill it with liquid, press the + button to switch the cursor to the start emptying function, press the setting button to start emptying, wait for the liquid to fill the tube, press the setting button again to stop, and automatically Enter the calibration function interface.



1. Calibration time: Press the + and - buttons to modify the calibration time, and use the measuring cylinder to receive the liquid from the liquid outlet pipe

2. Setting: Press the setting button to start the calibration. After the calibration operation starts, it will stop automatically after the time runs out and enter the interface for inputting the result volume:

Press the + and - buttons to modify the volume, press the SET button to complete the calibration

3.5 Power - on state

The power-on state function is a function to set the state of the device when it is powered on.



Enter the power-on state setting function interface in the system menu->power-on state, use the +

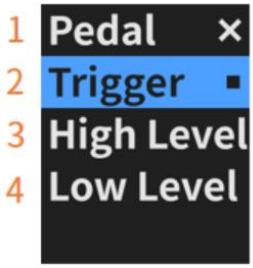
and - buttons to switch between different options, press the setting button to take effect, and press the menu button to return to the upper menu.

1. Power-on status menu title: Press the SET button to return to the previous menu
2. Power-on operation: automatically run after the device is powered on
3. Power-on stop: the device will not run after power-on, and the device will start to run after it is started manually. The default is this option

3 .6 Pedals

The pedal function is to control the start and stop of the pump through the foot switch. The equipment pedal supports passive relay control, active 12V and 24V control.

Enter the pedal function setting interface in the system menu -> pedal function:



1. Pedal: Pedal function title, when the cursor is on this option, press the Set button to return to the previous menu
2. Trigger operation: trigger the operation of the pump through the edge of the foot switch, the phenomenon is to press the foot switch to run the pump, and then press the foot switch to stop the pump
3. High-level operation: The operation of the pump is controlled by the level. The phenomenon is that the pump stops when the foot switch is pressed, and the pump starts when the foot switch is released.
4. Low-level operation: The operation of the pump is controlled by the level. The phenomenon is that the pump runs when the foot switch is pressed, and the pump stops when the foot switch is released.

4.Appendix

Technical Parameters

Weight	Total about 320g
Power supply	Input: DC12V 1A
Interface	foot switch
Working environment	Temperature 0 ℃ ~ 60 ℃, relative humidity < 80% RH non-condensing
Storage environment	Temperature -20°C~80°C, humidity 10% ~ 90% (non-condensing)

Kamoer Fluid Tech (Shanghai) Co.,Ltd.

Address: Building 4, No. 79, Xiangjing Road, Songjiang District, Shanghai

Website: www.kamoer.com

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