

LabM Series Manual





Note:

- Please read the manual carefully before operating the product.



Warning:

- Connect the power cord to the wall socket directly, and avoid using the extended electric wire.
- If the power cord or plug had wear and other damage, please disconnect the plug. (Hold the plug instead of the wire)
- If following situations happened, please turn off the power supply and disconnect the plug. (Hold the plug instead of the wire)
 1. Fluid splash on the pump.
 2. You think the pump need to maintain or repair.
- The user's power socket must have ground wire, and have reliable grounding.

Note: The foot pedal switch and other external control plugs must be connected or disconnected in the power-off status to prevent the external control interface from being burned.

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1. Product Introduction

Basic model peristaltic pump with the super silent performance have become the best choice for laboratory, also widely used for analytical instrument. And won the unanimous praise of users with excellent cost performance.

The speed can be adjusted by manually also can be controlled by external control interface automatically. Power down memory function, turn on the pump again, it will continue work with same status. Timing test function is convenient for users to test the flow rate or calibration. It can support 7 different external control modes.

This series products include many product types: LabM1, LabM3, LabM6, LabM1-II, LabM3-II, LabM1-III, LabM3-III, LabM6-III.

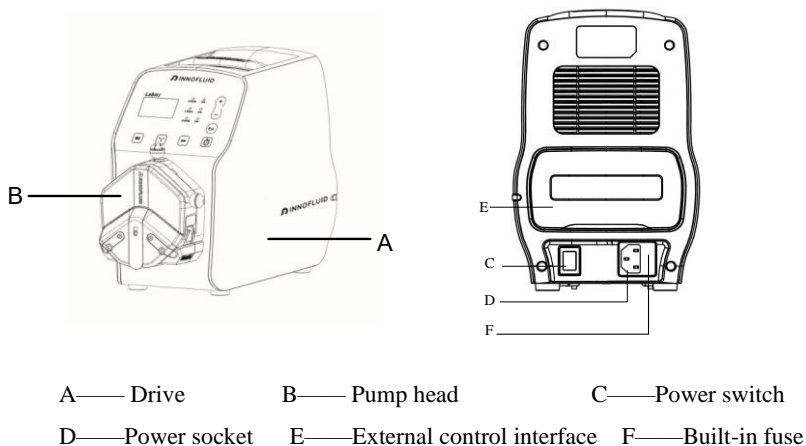
Suitable Pump Head: EasyPump Pump, AMC series, YZ1515x, YZ2515x, MC series, SN series.

Typical Application:

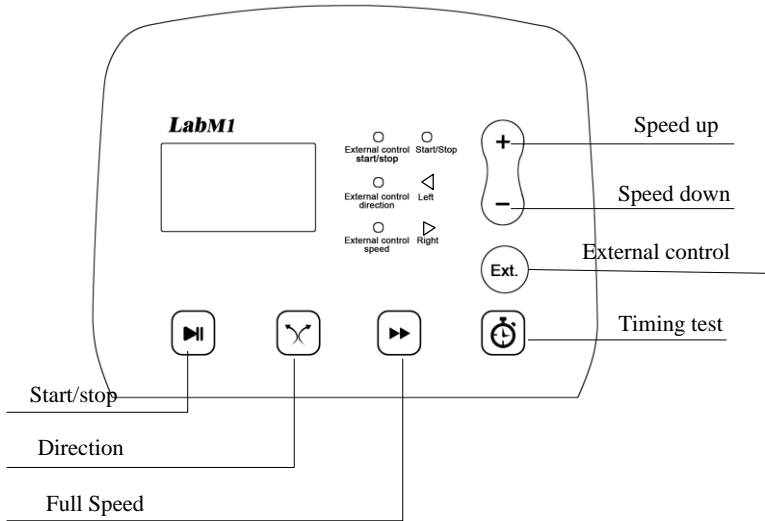
University research institute laboratory dedicated;

Chromatography of ions, titration equipment.

2. Product Appearance



3. Operating Panel Instruction



- **Start/stop button**

This button controls drive running and stopping. Pressing **start/stop** button one time, drive running state will change one time. When drive runs, start/stop display indicator light is on; when drive stops working, start/stop display indicator light is off.

Keep pressing this button to set the RS485 address. At the status of in internal control mode and the drive stops working, keep pressing the button more than 5 seconds, the digital will flash, then press +/- button to set the required address. Then press the **start/stop** button again, the address is effective.

- **Change direction button**

Press this button to change the pump working direction. The “Left” or “Right” indicator light will display the current operating direction.

- **Speed up/down button**

The **speed up** and **speed down** buttons are used to increase or decrease the motor speed, respectively. Pressing the button will change the speed by 0.1rpm when below 100rpm and 1rpm when operating above 100rpm. Press and hold to rapidly decrease or increase the speed for quicker.

- **Full speed button**

Under internal control mode, pressing **full speed** button, pump runs at the highest speed, the screen displays “Full”. That is to finish emptying quickly, filling or washing operation; pressing full speed button again, pump will return to the state before full state. (Under the full mode, pressing start/stop button also stop drive from working.)

- **External control button**

External control button only effect when the drive stops working. It is used for change different kinds of external control modes. It has 7 kinds of modes.

Internal control mode: (the indicator lights of external control start/stop, direction and speed are all off).

- ① The only mode of external control start/stop (the indicator light of external control start/stop is on; the indicator lights of external control direction and speed are off).
- ② The only mode of external control direction (the indicator light of external control direction is on; the indicator lights of external control start/stop and speed are off).
- ③ The only mode of external control speed (the indicator light of external control speed is on; the indicator lights of external control start/stop and direction are on).
- ④ The mode of external control start/stop and external direction (the indicator lights of external control start/stop and direction are on; the indicator light of external control speed is off).
- ⑤ The mode of external control start/stop and speed (the indicator lights of

external control start/stop and speed are on; the indicator light of external control direction is off).

- ⑥ The mode of external control direction and speed (the indicator lights of external control direction and speed are on; the indicator light of external control start/stop is off).
- ⑦ The mode of external control start/stop, direction and speed (the indicator lights of external control start/stop, direction and speed are all on).

Note: When the display indicator light of external control is on, the relevant button of internal function will be shielded.

- **Timing test button**

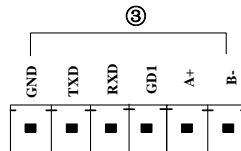
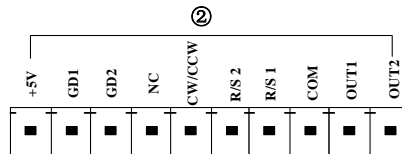
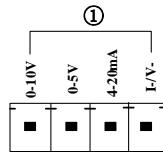
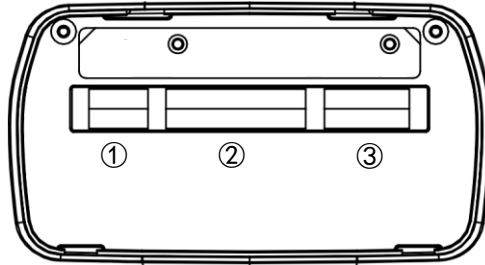
At status of internal control mode and the drive stop working, press **Timing test** button, the pump will run with current speed for 60 seconds (the default timing time is 60s) and will stop automatically. That is used to flow rate calibration and test (if press the start/stop button during test process, the pump will stop, and when test again, the drive will re-time).

At the status of internal mode and the drive stops working, to set the timing time, keep press **Timing test button** more than 5 seconds, the numbers will flashes. Press +/- button to adjust the time (Keep pressing the '+' or '-' key to increase or decrease rapidly), the setting range is 05.s-999s. After setting, to press **timing test** button again back to the speed displayed interface.

In external control speed mode, press the **Timing test** button to switch external control speed analog signal 0-5V, 0-10V, 4-20mA. (Analog signal distinguished according to different flashing frequency of external control speed control indicator light: 0-5V always on, 0-10V flashes once every 1 second, 4-20mA flashes once every 0.3 seconds.)

4. External Control Interface

The external control interface as the below shows:



- ① **Analog signal input port:** when you use the external control speed, first choose the external control speed indicator light being on. Then the external control speed is effective.

0-10V: 0V ~10V voltage signal input port;

0-5V: 0V~5V voltage signal input port;

4-20mA: 4~20mA current signal input port;

L/V_: Analog signal negative port.

Note: The external control interface must be plugged or unplugged in power off status to prevent the interface from being burned.

② **External control signal input port (Hand-held dispenser and pedal interface equipped by our company)**

External control start/stop, change direction signal input port: When use the external control start/stop, change direction function, please choose the external control start/stop, change direction indicator light being on first, at this time, the external control start/stop and direction only work.

+5V: Empty pin

GD1: Common terminal of passive start/stop and change direction signal.

GD2: Common terminal of active start/stop, change direction signal.

NC: Active change direction signal input terminal (5-24V)

CW/CCW: Passive change direction signal input terminal.

R/S2: Active start/stop signal input terminal (5-24V)

R/S1: Passive start/stop signal input terminal.

COM, OUT1, OUT2: Empty foot.

③ **Communication interface definition**

RS232 communication pin definition

TXD: Master sends data port, connects with pin3 of DB-9 connector.

RXD: Master receives data port, connects with pin2 of DB-9 connector.

GND: Ground wire, connects with pin5 of DB-9 connector.

RS485 communication interface definition

GD1: Ground wire, connects with RS485 transformer GND.

B-: 485 communication signal port, connects with 485 transformer B-.

A+: 485 communication signal port, connects with 485 transformer A+.

Note that: When leaving factory, connection wiring terminal is plugged in external control interface, if you need other external control device from our company, like foot pedal switch, hand-held dispenser etc, please unplug the wiring terminal first, and then plug the external device.

5. Technical Specification

Communication port	RS232 RS485: Modbus protocol	Power supply	AC220V±10%, 50Hz/60Hz (standard) AC110V±10%, 50Hz/60Hz (optional)
Test time range	0.5s-999s	External control method	Passive switching signal: foot pedal switch Active switching signal: 5-24V
External control speed signal	0-5V, 0-10V, 4-20mA	Speed resolution	0.1-100rpm is 0.1rpm 100-600rpm is 1rpm
Drive weight	4.40kg	Drive dimension (L*W*H)	259*157*237
Speed range	LabM1, LabM1-II, LabM1-III		0.1-150rpm
	LabM3, LabM3-II, LabM3-III		0.1-350rpm
	LabM6, LabM6-III		0.1-600rpm
Operation method	Mechanical keypad	Display method	3-bit LED
IP rate	IP31	Power consumption	<50W
Relative humidity	<80%	Temperature	0-40°C

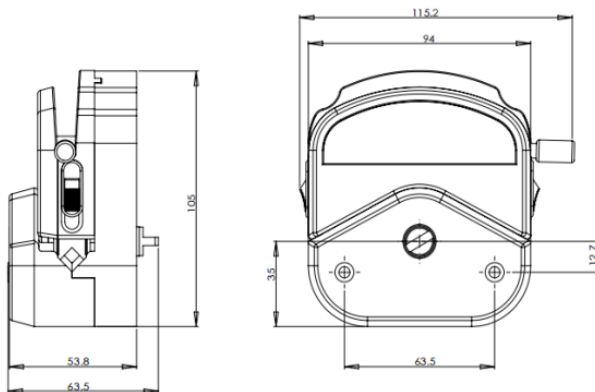
6. Main Functions and Features

- Membrane keypad control speed, also can be controlled automatically with external control interface. Easy operation.
- Can connect with dispensing controller, reach filling function.
- Full speed button, fast filling and empty function.
- Big torque, low consumption and good adaptability.
- Drive circuit has excellent performance, good heat dissipation conditions, low working noise and stable running. Have power-down memory function.
- Not suitable for outdoor using.
- High performance-price ratio.

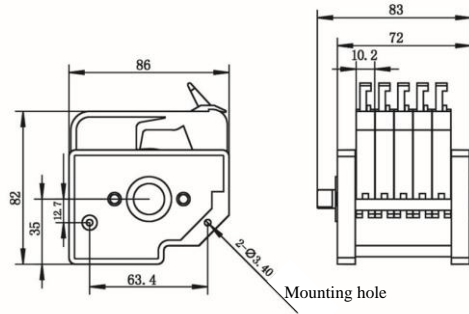
7. Dimension Drawing

(Unit: mm)

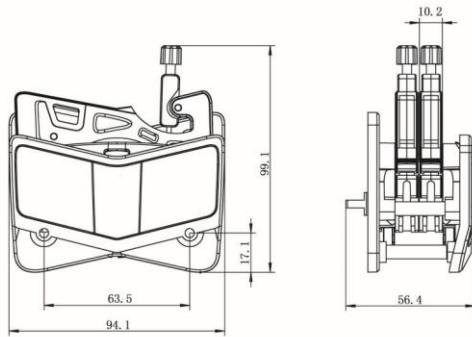
7.1 Single Pump Head



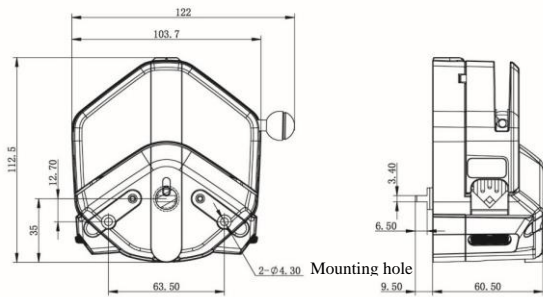
YZ1515x/YZ2515x



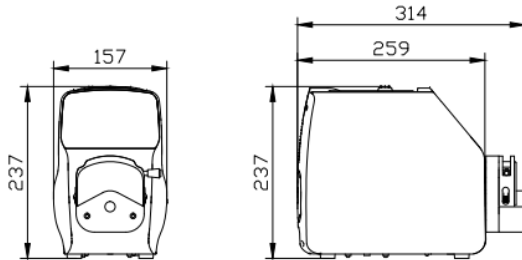
MC5 Pump Head



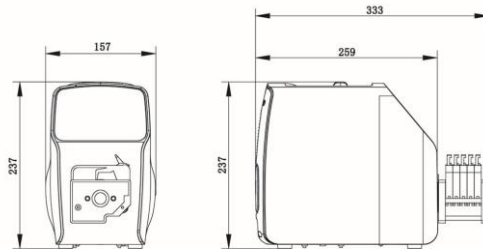
AMC2 Pump Head



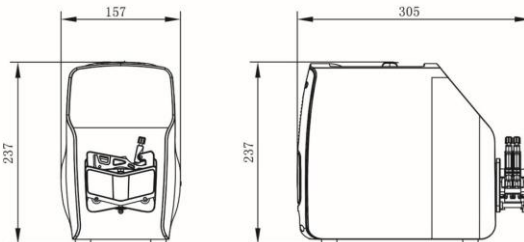
EasyPump Pump Head

7.2 Product Appearance Dimension

LabM+YZ1515x/YZ2515x

Note: For each additional pump head in series, the longitudinal dimension will be increased by 54mm.

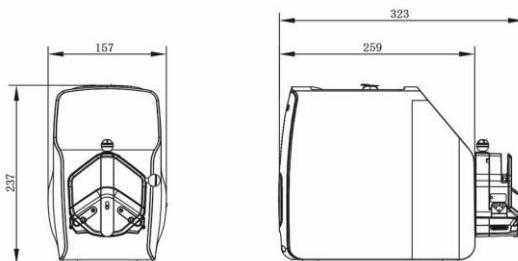

LabM+MC5

Note: For each additional channel, the longitudinal dimension will be increased by 10mm.


LabM+AMC2

Note: For each additional channel, the longitudinal dimension will be increased by

10mm.



LabM+EasyPump

Note: For each additional pump head in series, the longitudinal dimension will be increased by 61mm.

8. Product Maintenance

- Check the running status of machine before starting it, normal operation can be put into use.
- Check for leakage, and correct fault which can be appeared.
- Clean liquid overflowed from the pump in time.
- Please turn off the power supply and unplug the power socket (Hold the socket instead of power cord) when liquid splashed on pump. Check whether liquid flows into the machine, if it does, please contact the manufacture.
- The foot pedal switch and other external control plugs must be connected or disconnected in the power-off status to prevent the external control interface from being burned.
- The user's power socket must have ground wire, and have reliable grounding.
- This product has no waterproof measures. Please take protective measures when using in water environment.
- This product does not have special certification such as medical certification. When it needs to be used in special fields such as medical and military, please self-certify.

- If the pump does not use for a long time, please clean it and keep it in dry and ventilated environment.
- The company shall not bear the direct and indirect losses caused by the malfunction or improper operation of this product.

9. Warranty and After-sales Service

We support 3 years warranty for the pumps, subject to the exceptions below. Our company shall not be liable for any loss, damage, or expense directly or indirectly related to or arising out of the use of its products. This warranty does not obligate our company to bear any costs of removal, installation, transportation, or other charges which may arise in connection with a warranty claim.

If the pump fails during the warranty period, after confirmation by our technical department, we will provide spare parts free of charge. Customers will need to bear the shipping cost.

Exceptions:

- The warranty shall not apply to repairs or service necessitated by normal wear and tear or for lack of reasonable and proper maintenance.
- All tubing and pumping accessories as consumable items are excluded.
- Electrical surge as a cause of failure is excluded.
- Chemical attack is excluded.
- Improper operation or man-made damage as a cause of failure is excluded.

Innofluid Co., Ltd.

Add: Building 10, No. 860, Xinyang Road, Lingang New Area, Pilot Free Trade Zone, Shanghai, China.

Manufacturer: Baoding Shenchen Precision Pump Co., Ltd.

Tel: 0086-312-5958380

Fax: 0086-312-6780636

Website: www.innofluid.com

Email: info@innofluid.com

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