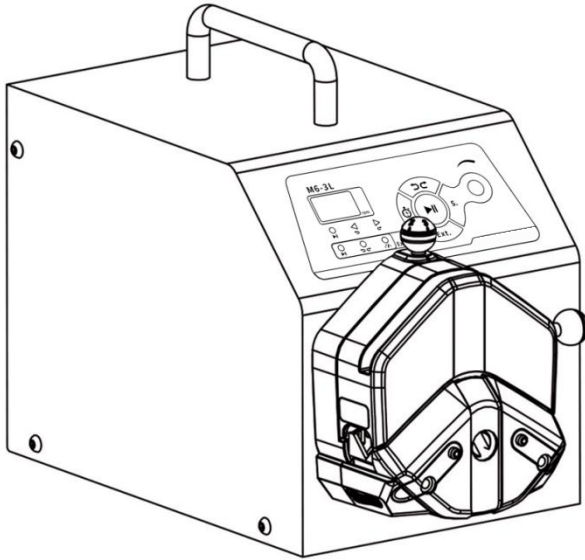


# Manual of M6 Series





**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

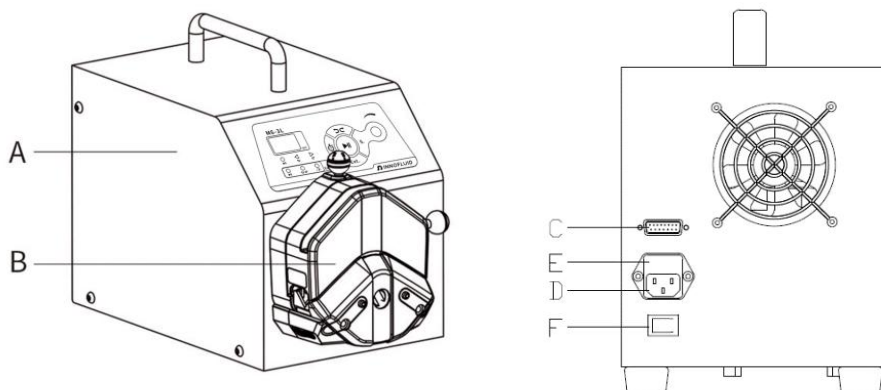
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## **1. Product Introduction**

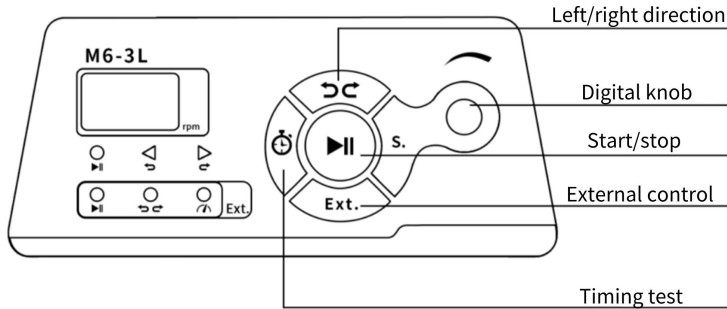
M6 series pump speed range is 0.1-600 rpm, flow rate range is 0.211~12000 ml/min. Adjust speed manually or automatically through external control interface. Power-down memory function, when re-power on, the pump will work with previous status. Timing test function, timing range: 0.5~999s, it is convenient for calibration and test. It can support 7 different external control modes, make more convenient. This series include many product types: M6-3L, M6-6L, M6-12L.

## **2. Product Appearance and Interface Instruction**



A- Drive          B- Pump head      C- External control interface  
D- Power socket   E- Built-in fuse   F- Power switch

### 3. Operation Panel Instruction



- **Start /stop button**

Control the drive start and stop, press this button once the drive work status changes once. When the drive runs, the start/stop indicator light is on. When the drive stops, the start/stop indicator light is off.

- **Left/right direction button**

Control the drive working direction, press the button once, the drive work status changes once. When the drive runs left, the left indicator light is on. When the drive runs right, the right indicator light is on.

- **Digital knob**

- (1) Turn it left or right is to adjust the motor speed when displays the speed.
- (2) At the stop status, press down the knob then release it, enter RS485 address setting interface, then a number occurs and flashes, now rotate the knob to change address, press the knob again to confirm and escape from this setting.
- (3) In internal control mode, keep pressing this knob, the pump runs with full speed, LED display “FULL”. Release the knob, it displays the pump return to normal speed.

- **External control button**

The external control mode button is enable only when the pump stops working. It used for changing between different external control modes that is 7 different modes

in total.

In internal control mode, the external control mode indicators all light off.

- (1) Only external control start/stop mode: the external control start/stop indicator light is on, external control direction and speed indicator lights are off.
- (2) Only external control direction mode: the external control direction indicator light is on, external control start/stop and speed indicator lights are off.
- (3) Only external control speed mode: the external control speed indicator light is on, external control start/stop and direction indicator lights are off.
- (4) External control start/stop and direction mode: the external control start/stop and direction indicator lights are on, external control speed indicator light is off.
- (5) External control start/stop and speed mode: the external control start/stop and speed indicator lights are on, external control direction indicator light is off.
- (6) External control direction and speed mode: the external control direction and speed indicator lights are on, external control start/stop indicator light is off.
- (7) External control start/stop, direction and speed mode: the external control start/stop, direction and speed indicators all lights are on.

**Note: When external control indicator light is on, the relative internal control buttons can not be used.**

● **Timing test button**

At the internal control mode and the drive stops working status, press Timing test button, the drive will run 60s(the default time is 60s) with current speed and stop automatically. It is used to flow rate calibration and test( If press the start/stop button during test process, the pump will stop running, and test again, the drive will re-time.)

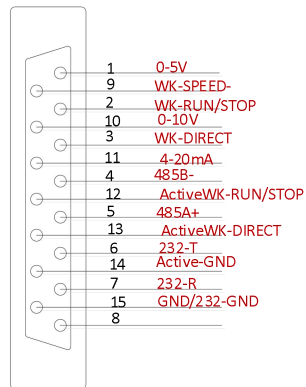
At the internal control mode and the drive stops working status, you can set the timing time, press the timing button more than 5s, the number will occur and flash. Rotate the digital knob to right or left, to increase or decrease the timing time (keep pressing the digital knob to increase or decrease rapidly). The set range is 0.5s-999s.

After setting, press the timing button again back to speed display interface.

At external control speed mode, press timing button to switch external control analog signal 0-5V, 0-10V, 4-20mA (Distinguish the analog signal according to the different flashing frequency of the external control speed control indicator light: 0-5V always on, 0-10V flashes one time per 1s, 4-20mA flashes one time per 0.3 s)

#### 4. External Control Interface Instruction

The 15 pin connector on the back of pump control the pump through external signals, the wiring definition as below:



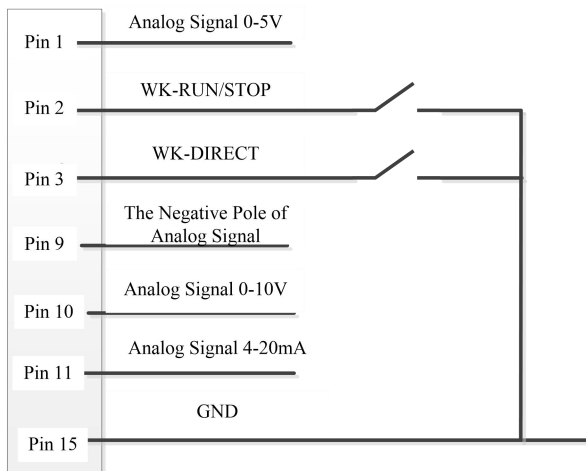
- ① **Pin 1, 0-5V:** Externally connecting signal positive pole of controlling the motor speed, 0-5V connecting wiring port.
- ② **Pin 2, WK-RUN/STOP:** External control start/stop input port ( Passive signal: Motor runs in normal off status, motor stops in normal on status. Hand-held dispenser, foot pedal interface equipped by our company)
- ③ **Pin 3, WK-DIRECT:** External control motor running direction signal input port. ( Passive signal: Motor runs in right in normal off status, motor runs in left in normal on status. )
- ④ **Pin 9, WK-SPEED-:** Externally connecting signal negative pole of controlling motor speed.

- ⑤ **Pin 10, 0-10V:** Externally connecting signal positive pole of controlling motor speed, 0-10V connecting wiring port.
- ⑥ **Pin 11, 4-20mA:** Externally connecting signal positive pole of controlling motor speed, 4-20mA connecting wiring port.
- ⑦ **Pin 15, GND:** Ground wire.

**Note:**

- 1) External control start/stop, direction signal all are passive signal.
- 2) The external control plugs must be connected or disconnected in the power-off status to prevent the external control interface from being burned.

**DB15 external control port regular wire sequence as below:**



**External Control Interface for DB15**

**RS232 Communication Pin Definition**

- 1) Pin 6, 232-T: The host computer sends data port, connects to DB-9 connector Pin 3.
- 2) Pin 7, 232-R: The host computer receives data port, connects to DB-9 connector Pin 2.

- 3) Pin 15. GND: Ground wire, connects to DB-9 connector Pin 5.

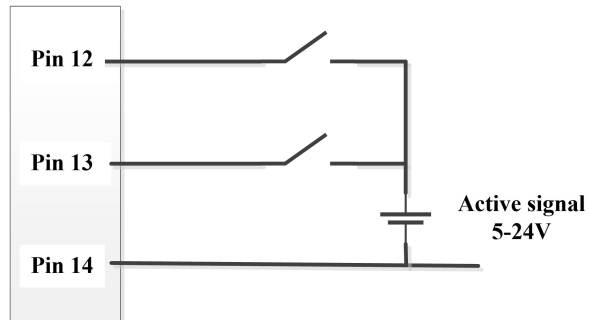
**RS485 Communication Pin Definition**

- 1) Pin 4, 485-B-: 485 communication signal port, connects with 485 converter B-.
- 2) Pin 5, 485-A+: 485 communication signal port, connect with 485 converter A+.

**Isolated External Control Pin Definition**

- 1) **Pin 12 ActiveWK-RUN/STOP:** Isolated external control start/stop signal input port (Active signal: 5-24V).
- 2) **Pin 13, ActiveWK-DIRECT:** Isolated external control direction signal input port (Active signal: 5-24V).
- 3) **Pin 14, Active-GND:** Isolated external control signal input ground wire.

**Isolated External Control Wiring Diagram**



**External Control Interface for DB15**

- M6 series pump drive could be equipped with foot pedal and dispenser, if you need please contact us.

**5. Technical Specifications**

Flow rate accuracy	<±0.5%	Display	3-bit LED
Control	Mechanical key pad	External control	Switch signal
Speed range	0.1-600rpm	Speed control	Digital knob
Speed resolution	0.1rpm (0-100rpm) 1rpm (100-600rpm)	Communication	RS232, RS485 Modbus RTU protocol
Timing test range	0.5s-999s	Power supply	AC 220V±10% 50Hz/60Hz(standard) AC 110V±10% 50Hz/60Hz(optional)
Temperature	0-40°C	External speed control signal	0-5V , 0-10V, 4-20mA (optional)
IP rate	IP31	Relative humidity	<80%
Power consumption	M6-3L	<80W	
	M6-6L	<180W	
	M6-12L	<300W	

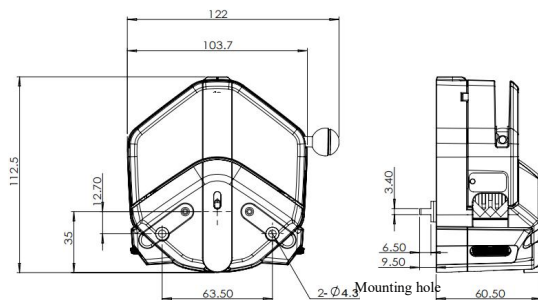
**6. Main Functions and Features**

- Digital knob control speed manually or automatically through external control interface.
- Timing test function, it is convenient to test the flow rate within specified time.
- Full speed button with filling and emptying functions.
- RS232 communication interface with 232 communication protocol.
- RS485 communication interface with standard MODBUS communication protocol.
- High torque, heavy flow, large suction and lift.
- The driving circuit has excellent performance, good heat dissipation condition, low noise, smooth operation and power-down memory function.
- Excellent cost performance.

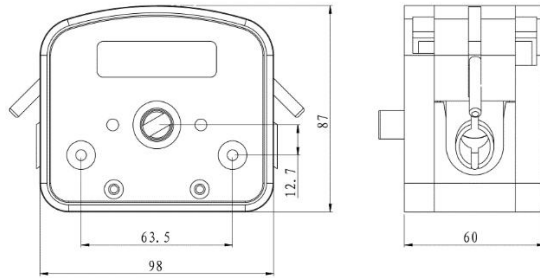
**7. Dimension Drawing**

( Unit: mm)

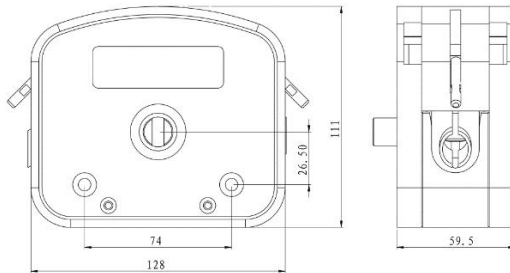
**7.1 Single Pump Head**



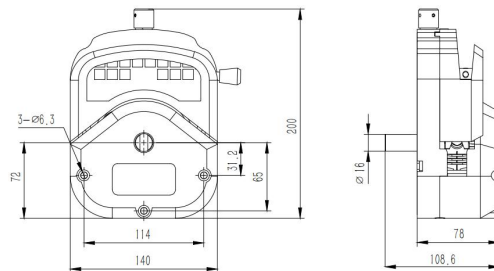
**EasyPump Pump Head**



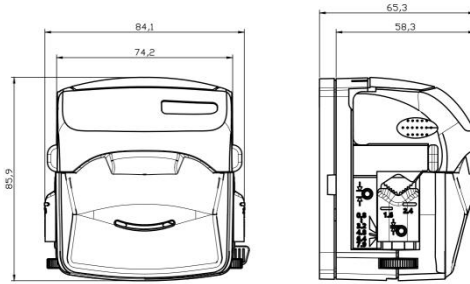
**DZ25-3L Pump Head**



**DZ25-6L Pump Head**

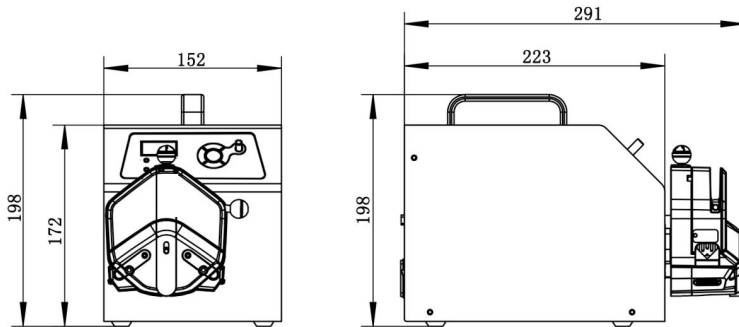


**YZ35 Pump Head**



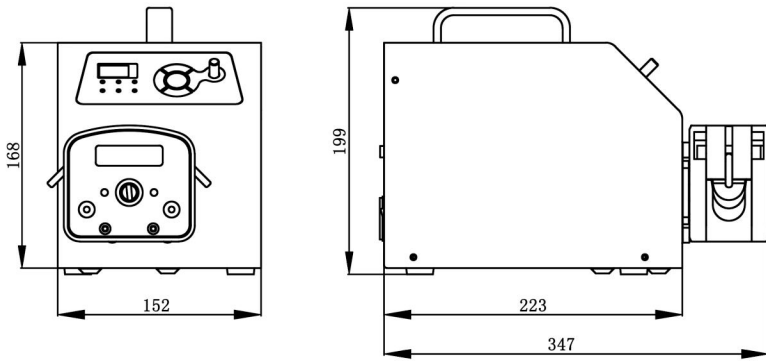
**KD Pump Head**

## 7.2 Product Appearance



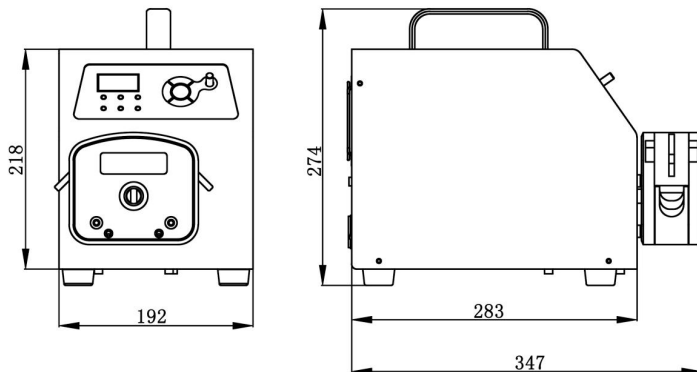
M6-3L + EasyPump

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



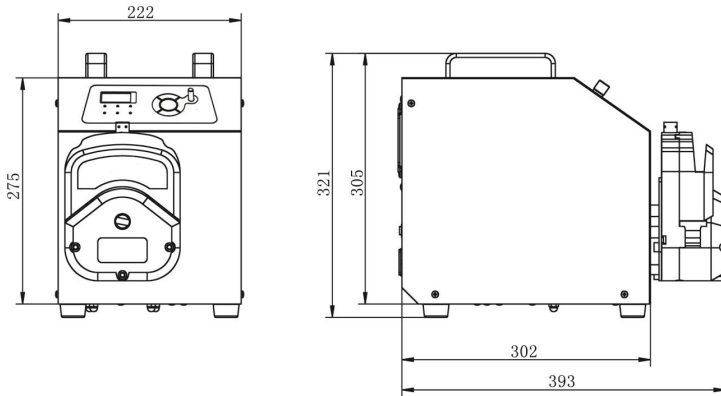
M6-3L + DZ25-3L

**Note:** For each additional pump head in series, the longitudinal dimension will be increased by 60mm.



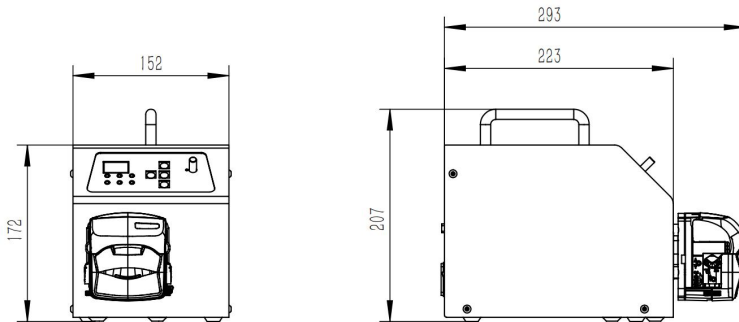
M6-6L + DZ25-6L

**Note:** For each additional pump head in series, the longitudinal dimension will be increased by 60mm.



**M6-12L + YZ35**

Note: For each additional pump head in series, the longitudinal dimension will be increase by 78mm.



**M6-3L+KD**

Note: For each additional pump head in series, the longitudinal dimension will be increase by 63mm.

**8. 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.