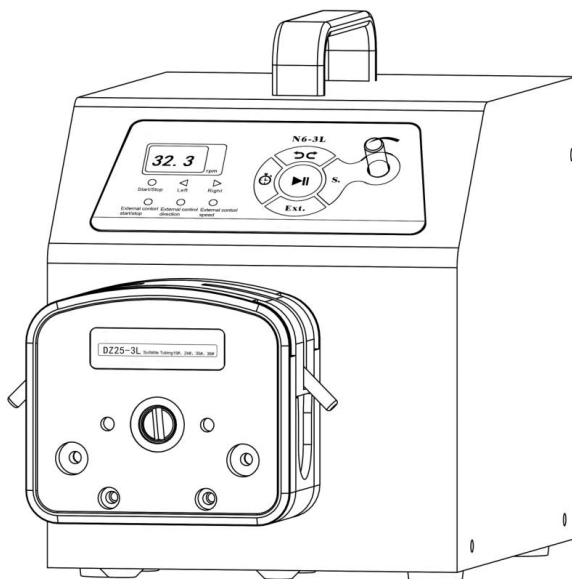# Precision Pump Manual of M6 Series

⚠ **Note:**

Please read the instruction before operating the product.

⚠ **Warning:**

➢ Tubing may have crack due to wear. It results in the overflow of fluid from tubing. In that time human body and instruments may be hurt. Must check usually and change tubing in time.

➢ Please connect directly the power line to the wall socket, and avoid using the extension electric line.

➢ If power line or plug have wear and other damage, please unplug it.

➢ If following situations happened, please turn off the pump, take off the power plug.

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: Must connect foot pedal switch or external control when the pump is power off.
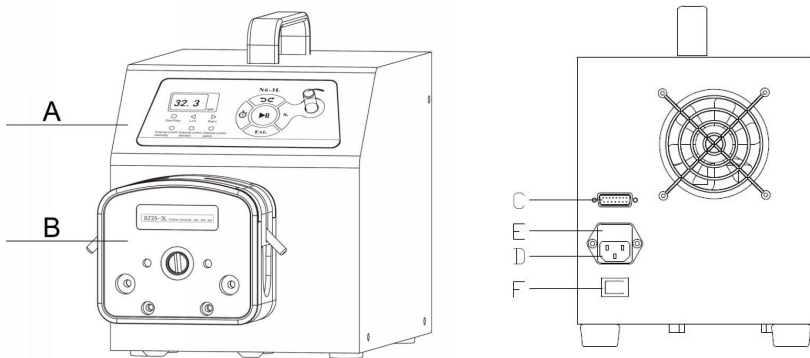
Catalog

1.   M6 Series Product Instruction

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 analog interface. Memory function, storing the running parameters automatically. Timing test function, timing range: 0.5~999 seconds, convenient for calibration. It can support 7 different external control modes.

2.   M6 Product Appearance
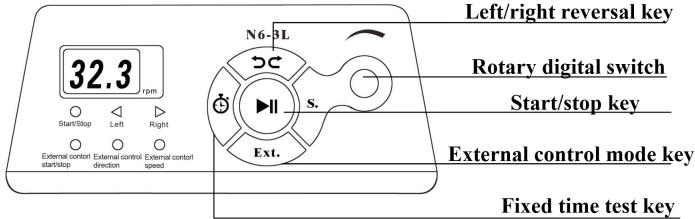

A- Drive

B- Pump head

C- External control interface

D- Power socket

E- Internal secure tube

F- Power switch

3.   M6 Series Product Keypad Instruction

Start /stop button

Control the pump start and stop, press each time, the pump change working status once. When the pump is running, the start/stop indicator is light on. When the pump is stop, the start/stop indicator is light off.

Left/right reversal button

Control the pump working direction, press each time, the pump change working direction once. When the pump is running left, the left indicator is light on. When the pump is running right, the right indicator is light on.

Rotary digital knob

(1)   Turn it to adjust the motor speed.

(2)   When the pump is stop, press this button, enter RS485 address setting interface, the LED display start twinkle, now turn the knob to change address, press the knob again to confirm and escape from this setting.

(3)   In internal control mode, keep press this button, the pump running with full speed, LED display 'FULL'. Release the button, pump back to normal speed.

External control mode button

The external control mode button is enable only when the pump stop working. It used for changing external control mode, total 7 different modes.

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 on, external control direction and speed indicators light off.

(2) Only external control direction mode: the external control direction indicator light on, external control start/stop and speed indicators light off.

(3) Only external control speed mode: the external control speed indicator light on, external control start/stop and direction indicators light off.

(4) External control start/stop and direction mode: the external control start/stop and direction indicator light on, external control speed indicator light off.

(5) External control start/stop and speed mode: the external control start/stop and speed indicator light on, external control direction indicator light off.

(6) External control direction and speed mode: the external control direction and speed indicator light on, external control start/stop indicator light off.

(7) External control start/stop, direction and speed mode: the external control start/stop, direction and speed indicators all light on.
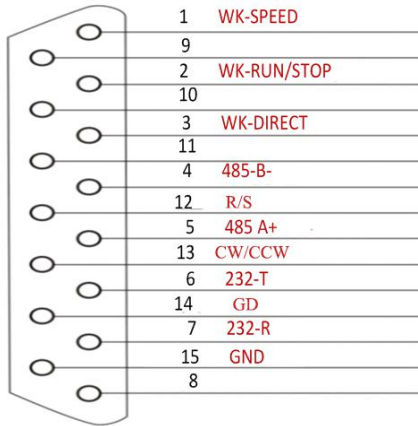
Note: When external control indicator light on, the relative internal control buttons can not be used.

Timing button

In internal control mode and pump stop working, press the **timing button** more than 3 seconds, enter the pump running time interface. Now the LED twinkle display current setting time, press '+' or '-' button to set the working time. Time range is 0.5s to 999s, when finish setting, press the **timing button** again, back to motor speed display. Now short press **timing button**, pump running with current speed, when reach the setting time, it will stop automatically. (If press start/stop button during the pump running, the pump will stop running. When start again, it will re-time.

4. M6 Series External Control Instruction

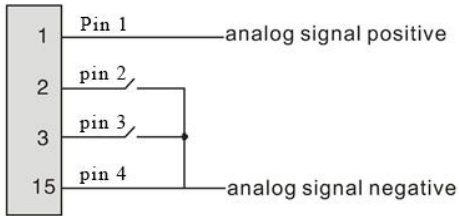The 15 pin connector on the back of pump is for external control, the wiring definition as below:

(1) Pin 1 WK-SPEED: External control speed signal input port. There is 0-5V, 0-10V, 4-20mA. 0-5V is standard.

(2) Pin 2 WK-RUN/Stop: External control start/stop signal input port. (Passive signal: In normal close status, pump running; in normal open status, pump stop)

(3) Pin 3 WK-DIRECT: External control direction signal input port. (Passive signal: In normal close status, pump running with clockwise; in normal open status, pump running counterclockwise.

(4) Pin 15 GND: Ground wire.

Note: A. External control speed standard is 0-5V, if need to use other signal, please contact with us. Do not change it yourself, to avoid burning the pump.

　　B. External control start/stop and direction signals both are passive signal.

　C. Please connect or disconnect the external control with pump power off, or it may burn the external control interface.

DB15 external control port regular wire sequence as below:

RS232 Communication Pins Definition（standard）

(1) Pin 6 232-T：Computer send data port, connect with pin 3 of computer DB-9 connector.

(2) Pin 7 232-R: Computer receive data port, connect with pin 2 of computer DB-9.

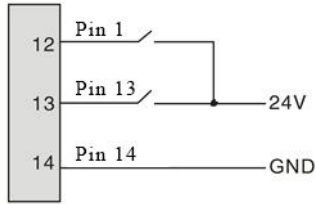(3) Pin 15 GND: Ground wire, connect with pin 5 of computer DB-9 connector.

RS485 Communication Pins Definition (Optional)

(1) Pin 4 485 B-: 485 communication port, connect with RS485B-.

(2) Pin 5 485 A+: 485 communication port, connect with RS485A+.

Isolation External Control Pin Definition:

(1) Pin 12: Isolation external control start/stop signal input port (Active signal: standard is 24V control start/stop)

(2) Pin 13: Isolation external control direction signal input port (Active signal: standard is 24V change direction.)

(3) Pin 14: Isolation external control signal input ground wire.

Isolation external control wiring diagram:

Note: M6 series pump can connect with foot pedal or handling dispenser, please contact with us if needed.

5. M6 Series Technical Specifications

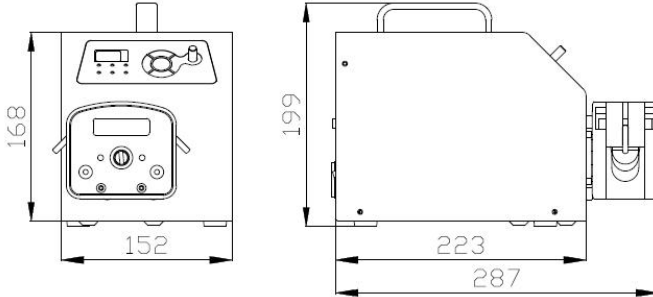| Flow rate accuracy	<±0.5%	Display	3 digital LED
Control	Mechanical keypad	External control	Passive switch signal
Speed range	0.1-600rpm	Speed control	Rotary encoded knob
Speed resolution	0.1rpm(0-100rpm) 1rpm(100-600rpm)	External speed control signal	0-5V（standard） 0-10V，4-20mA （optional）
Timing test range	0.5-999s	Power supply	AC 220V±10% 50Hz/60Hz(standard) AC 110V±10% 50Hz/60Hz(optional)
Condition Temperature	0-40°C	Communication	RS232(standard) Shenchen-N232 Communication protocol RS485(optional)Modbus protocol

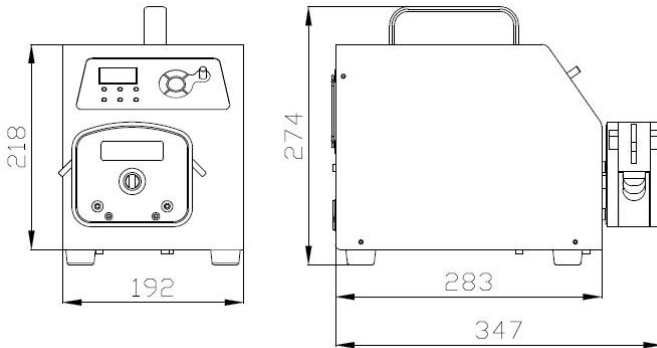| IP rate	IP31	Relative humidity	<80%
Power consumption	M6-3L	<80W	
	M6-6L	<180W	
	M6-12L	<300W	
Flow rate range	M6-3L	0.211-3600ml/min	
	M6-6L	0.3-6000ml/min	
	M6-12L	0.00069-12L/min	

6. M6 Series Main Functions and Features

➢ Digital knob control speed manually or automatically through external control interface.

➢ Timing function, easy for calibration or test the flow rate.

➢ Full speed for fast filling and emptying.

➢ Support RS232 communication with Shenchen-N232 protocol.

➢ RS485 communication with MODBUS protocol for optional.

➢ Big torque, big flow rate, big suction and head distance.

➢ Memory function, storing the running parameters automatically.

➢ Good performance and low price.

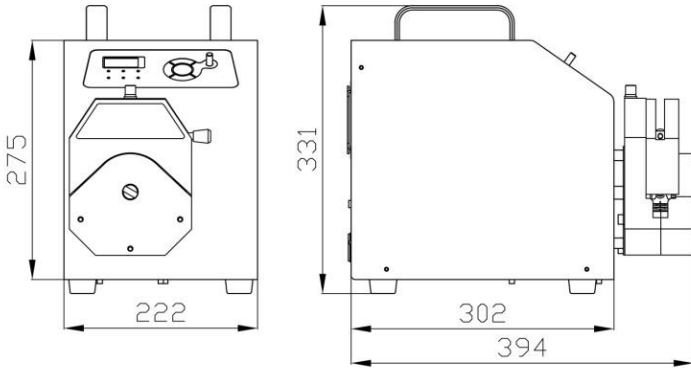**7. M6 Series Dimension Drawing** (Unit: mm)

M6-3L Dimension Drawing:

M6-6L Dimension Drawing:

M6-12L Dimension Drawing:

8. **Maintenance**

➢ When the pump is not working, loosen the tubing, avoid the tubing get plastic deformation because of long time pressure.

➢ The pump drive and pump head do not resist strong corrosive liquids, please pay attention to this when use the pump.

➢ Keep the pump head rollers clean and dry. If the rollers is not clean, it will increase the tubing wearing, shorten the tubing life and make the rollers damage very soon.

➢ If there is liquid drop on the rollers, clean it as soon as possible.

9.   Warranty and After Sales Service

We support **three years** warranty (do not include tubing). During the warranty, the pump is damaged by wrong operation or man-made sabotage, our company do not responsible for warranty. If the product out of warranty, we only charge cost for the replacement parts and shipping cost.