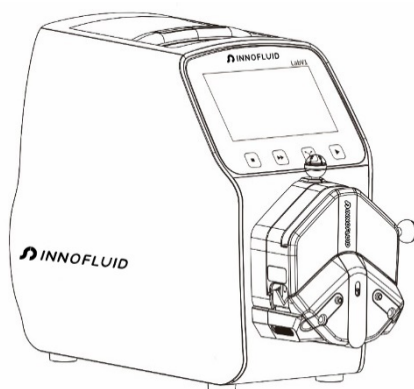


LabV Series USER'S MANUAL





Note:

- Please read the manual carefully before operating the product.



Warning:

- Connect the power cord to the wall socket and avoid using electric extension cords.
- If the power cord or plug shows wear and/or other damage, please disconnect from socket by pulling the plug, not the wire and contact service.
- In the following circumstances, turn off the power supply and disconnect the plug by holding the plug itself, not the wire:
 1. Fluid has splashed onto the pump.
 2. Pump needs maintenance or repair.
- The power socket should be equipped with a ground wire and properly grounded.

Note: Ensure that the foot pedal switch and other external control plugs are connected or disconnected only when the power is off, to prevent damage.

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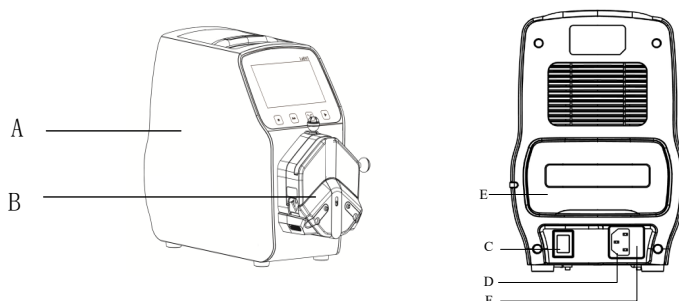
1. Product Overview

LabV series products are the flow measurement intelligent type peristaltic pump, 4.3 inch color touch screen control; Animation shows working state; flow data, setting parameters and system settings are displayed in the same screen. Intelligent calibration and online micro adjusting function; Four measurement modes: fixed volume measurement, volume dispensing, speed dispensing, timer start and stop. It can load different pump heads, multiple external control methods are optional. It is the ideal choice for laboratory, equipment supporting and industrial production.

Product model includes: LabV1, LabV3, LabV6, LabV1-II, LabV3-II, LabV1-III, LabV3-III, LabV6-III.

Suitable pump head: EasyPump pump head, AMC (AMC1-AMC12) pump head, YZ1515x pump head, YZ2515x pump head, MC (MC1-MC12) pump head, KD pump head.

2. Product Appearance



A—Drive

B—Pump Head

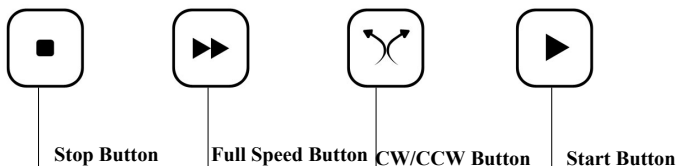
C—Power Switch

D—Power Socket

E—External Control

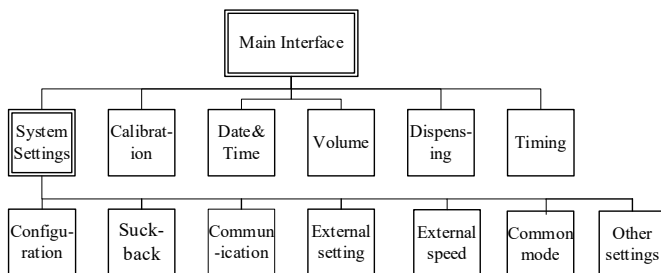
F—Built-in Fuse

3. Keyboard Instruction



- **Stop Button:** Press stop button, pump stops working. Forbidden buttons in the main interface can be used. Press and hold this button while turning on the device power to initialize the device. All parameters will be lost.
- **Full Speed Button:** Pressing this button while the device is in the stop state or during transfer mode will cause the device to run at maximum speed. This can be used for cleaning the tubing or rapid liquid filling.
- **CW/CCW Button:** Press this button once, the motor will change running direction once. When the fixed volume measurement or dispensing are on, this button does not work.
- **Start Button:** Press this button, the motor starts running. When fixed volume measurement or dispensing function are on, press this button, the pump will start work with the function, clicking this button again will pause current operation.

4. Operation Interface Structure



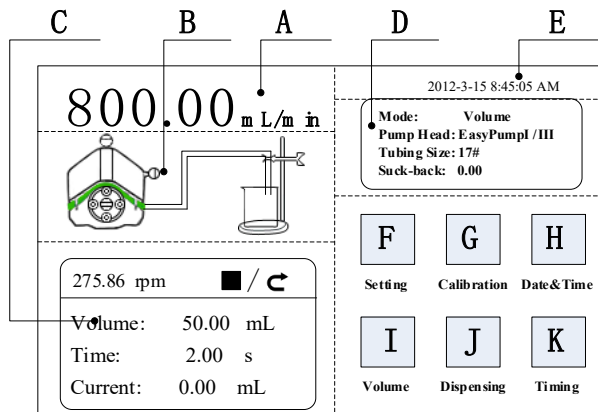
LabV Series Operation Interface Instruction

4.1 Startup Display

Once the pump is turned on, the welcome screen appears. Choose language or wait 2.5 seconds for it to automatically switch to the main English operational display.

4.2 Main Interface

Main Interface Composition as below:

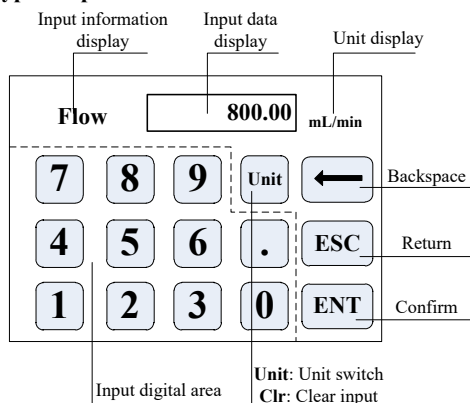


- A. Speed/Flow Rate Display:** In flow rate mode, the currently set flow rate is displayed, and the speed is shown in box C. In speed mode, the currently set speed is displayed, and the flow rate is shown in box C. Click here to modify the current flow rate or speed. When timed dispensing is enabled, this function is disabled, and the flow rate or speed cannot be modified.
- B. Real-time Dynamic Display:** Real-time display of the current operating status, with animated results of the operation.
- C. Real-time Parameter Display:** Displays the current operating status and set parameters. When the Volume function is enabled, it shows the Volume parameters. When the dispensing function is enabled, it shows the dispensing parameters. When both functions are turned off, the system displays the transmission parameters.
- D. Setting Parameter Display:** Displays modes, pump head models, tubing sizes and suck back angle.



- E. **Date and Time Display:** Displays the current date and time, you can change it in the system settings. When it displays an alarm clock on the right side, it means the timer start and stop function had turned on.
- F. **System Settings Button:** Click this button to set up other parameters.
- G. **Flow Calibration Button:** Click this button to enter the flow rate calibration interface.
- H. **Date & Time Button:** Click this button to enter set up current date and time interface.
- I. **Volume Button:** Click this button, enter the fixed volume measurement interface.
- J. **Dispensing Button:** Click this button, enter dispensing interface.
- K. **Timing Button:** Click this button, enter timer start and stop interface.

4.3 Numeric Keypad Input Interface



Input Information Display: The information displayed is the current operation object.

Input Data Display: Display the current input data, range is 0.01-9999.

Unit Display: Display input units when input flow rate or volume.

Input Digital Area: Numeric keypad.

Unit/Clr Button: When input flow rate or volume, this button is unit switch, you

can choose different units. When it is Clr, you can clear the current input data.

Backspace Button: Delete an input digital.

ESC Button: Cancel the current input, back to previous interface.

ENT Button: Confirm the current input.

4.4 The Basic Configuration Interface

The basic configuration interface:

Pump Head EasyPumpI/III ▼	Reference flow rate Max:1999 mL/min Min:333.29uL/min
Tubing Size 17# ▼	
☐ Flow Rate	☒ Rotation Speed
Clear the total volume	OK Cancel

Transfer

Click the **Pump Head** and **Tubing Size** to choose the pump head and tubing.

The reference flow rate section displays the maximum and minimum reference flow rates for the currently selected pump head tubing.

Note: When the pump come with two pump heads, the output of two pump heads are connected to one channel with Y type connector, then you will need to choose 2* pump head model; if the two pump heads use as two channels, then you need to choose single pump head model number.

For example, the pump come with two EasyPumpI, and output connect with Y type connector to one channel, then when choose pump head need to select 2*EasyPumpI, as in below picture:

2*EasyPumpI/III ▼

In other cases, such as: the pump come with one pump head EasyPumpI, or with two EasyPumpI use as two channels, or with 3 or 4 EasyPumpI pump heads, need to select single pump head EasyPumpI, as in below picture:

EasyPumpI/III ▼



Click the Flow Rate mode or Rotation Speed mode button to choose the working mode. When you choose the flow rate mode, the flow rate is adjustable, the speed will change with the flow rate. When you choose the speed mode, the speed is adjustable, the flow rate will change with the rotating speed.

Click the confirm button when you had finished choosing parameter then back to the main interface. Click the "**Clear the total volume**" button to manually reset the total transfer amount, and the total running time will also be reset to zero.

Pump Head	Reference flow rate
EasyPumpI/III ▼	Max:1999 mL/min
Tubing Size	Min:333.29uL/min
17# ▼	
☐ Flow rate	☒ Rotation Speed
OK Cancel	

Volume

Click the Flow Rate mode or Rotation Speed mode button to choose the working mode. When you choose the flow rate mode, the flow rate is adjustable, the speed will change with the flow rate. When you choose the speed mode, the speed is adjustable, the flow rate will change with the rotating speed.

Click the confirm button when you had finished choosing parameter then back to the main interface.

Pump Head EasyPumpI/III ▼	Reference Flow Rate Max:1999 mL/min Min:333.29uL/min
Tubing Size 17# ▼	
☐ Show the current speed	☒ Show the total numbers
Clear the total numbers	OK Cancel

Speed dispensing

In the speed dispensing mode diagram above, clicking to display the current speed will show the current speed in the upper-left corner of the main interface. Clicking to display the total number of distributions will show the total number of dispensing in the upper-left corner of the main interface. Click the "Clear the total numbers" button to manually reset the total dispensing count. The maximum count is 9999, after which it will automatically reset to zero.

Pump Head EasyPumpI/III ▼	Reference Flow Rate Max:1999 mL/min Min:333.29uL/min
Tubing Size 17# ▼	
☐ Show the current Dis. Vol.	☒ Show the total numbers
Clear the total numbers	OK Cancel

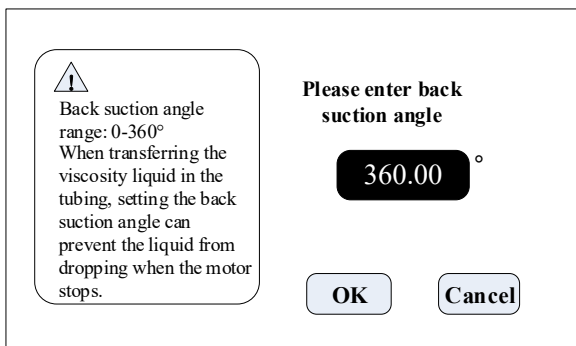
Volume dispensing

In the **volume dispensing mode** diagram above, clicking to display the current speed will show the current speed in the upper-left corner of the main interface.

Clicking to display the total number of distributions will show the total number of dispensing in the upper-left corner of the main interface. Click the "**Clear the total numbers**" button to manually reset the total dispensing count. The maximum count is 9999, after which it will automatically reset to zero.

4.5 Back Suction Angle Interface

The back suction angle interface as below:

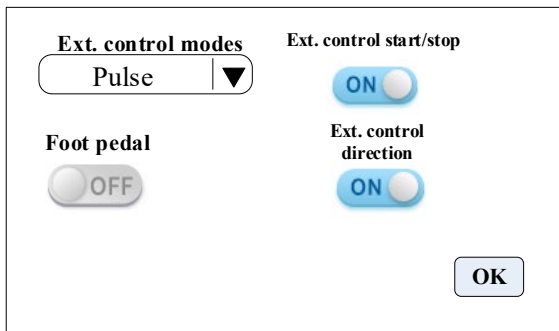


The interface displays a warning icon and text: "Back suction angle range: 0-360° When transferring the viscosity liquid in the tubing, setting the back suction angle can prevent the liquid from dropping when the motor stops." To the right, it prompts "Please enter back suction angle" with a numeric input field showing "360.00°". Below the input field are "OK" and "Cancel" buttons.

Click the **System Settings** button in the main interface, then click **Back Suction** button to enter the back suction angle setting interface. Click the Back-Suction Angle button to bring up the numeric keypad for entering the back-suction angle. After entering the desired back-suction angle, click the "OK" button to set the angle. Click the "Cancel" button to return to the system settings interface.

4.6 External Setting Interface

External Setting Interface as below:



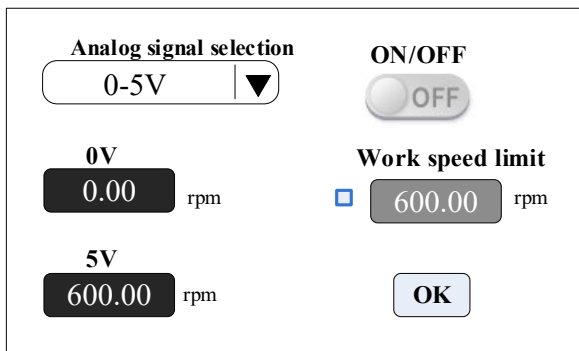
The interface contains four controls: "Ext. control modes" with a dropdown menu showing "Pulse", "Ext. control start/stop" with an "ON" toggle switch, "Foot pedal" with an "OFF" toggle switch, and "Ext. control direction" with an "ON" toggle switch. An "OK" button is located at the bottom right.

Click **System Settings** button in the main interface, then click **External control** to enter **External Settings** interface.

- a. **There are two types of signals for external control motor start/stop and direction: Level mode and Pulse mode.** Connection interface refer to the external control interface instruction.
- b. **Various external control modes are independently set on switches, which will only work after the corresponding external control function is turned on.**

4.7 External Speed Control Setting Interface

External Speed Control Setting Interface as below:



Click **System Settings** button in the main interface, then click **External Speed Control** button to enter External Speed Control Settings interface.

According with external input signal to set the analog signal: **0-5V, 0-10V or 4-20mA**. Between analog signal voltage range and motor speed, there is linear relationship.(when the working speed limit is off).

After turn on the maximum working speed limit, the motor speed will be limited. For example, if 0V to 0rpm, 5V to 600rpm (then 2.5V should be 300rpm). But if the maximum working speed limit is 300rpm, when external input analog signal is 2.5V, the motor speed is 300rpm. After the input signal exceeds 2.5V, the motor speed remains unchanged at 300 rpm.

4.8 Communication Setting Interface

Baud Rate 9600 ▼	Check Digit Odd Parity ▼
Communication interface RS485 ▼	Com. Enable ☒ ON
Local address 01	OK

Click **System Settings** button in the main interface, then click **Communication** button to enter Communication Settings interface.

This pump support Modbus--RTU Mode. Please select baud rates and communication interface (RS485/RS232). Click Local address button to enter peristaltic pump address No.(range:1-32), select communication enable is **ON**. At this point, the pump can communicate with the host computer (upper-level machine) and receive control signals from it.

Note: After settings, the peristaltic pump only receives communication control when in the main interface, it is invalid for the communication control in the other settings interface.

4.9 Common Mode Interface

Common mode interface as below:

Pump head	Tube	Disp. Vol. (ml)	Disp. Time (s)	Pause Time (s)	Suck Back (°)
YZ1515x	14#	2	1	2	0
YZ1515x	16#	7	1	2	0

« Add Del Clear OK Cancel »

Click **System Settings** button in main interface, click **Common Mode** button (In all operating modes except for the liquid volume dispensing mode, this button is disabled.), enter common mode interface.

Add button: Click this button to increase one common mode. In dispensing mode, click Add button, it comes out a window ask whether add the current setting into common mode. Click “Yes” , then add this mode into common mode. Maxim can save 60 common modes.

Delete button: Select a common mode, then click the delete button. A confirmation dialog box will pop up asking if you want to delete it. Click “Yes” to delete this mode.

Clear button: Click this button to bring up a confirmation dialog box asking if you want to clear all modes. Click “Yes” to clear all modes..

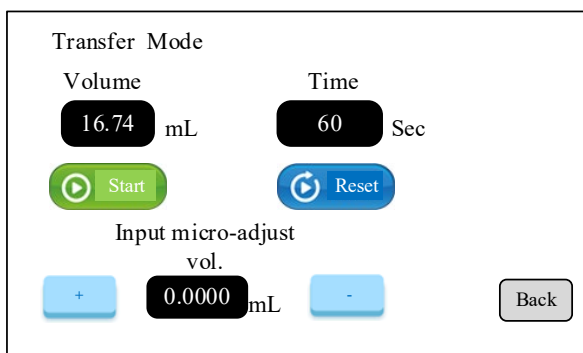
OK button: Select a stored mode from the list, then click the “Confirm” button. The system will return to the main interface, and the dispensing parameters will be set to the parameters of the selected common mode.

Cancel button: Click this button back to main interface.

<< >>: Can check previous page or next page common mode.

4.10 Flow Rate Calibration Interface

Flow Rate Calibration Interface as below:



The screenshot shows the Flow Rate Calibration Interface. At the top, it is titled "Transfer Mode". Below this, there are two main sections: "Volume" and "Time". Under "Volume", there is a black button with the number "16.74" and the unit "mL" to its right. Under "Time", there is a black button with the number "60" and the unit "Sec" to its right. Below the "Volume" button is a green button with a play icon and the text "Start". Below the "Time" button is a blue button with a play icon and the text "Reset". In the center, there is a label "Input micro-adjust vol." above a black button with the number "0.0000" and the unit "mL" to its right. To the left of this button is a light blue button with a "+" sign, and to the right is a light blue button with a "-" sign. At the bottom right, there is a grey button with the text "Back".



The function currently being calibrated is displayed in the upper-left corner of the calibration interface. When Volume is enabled, “Quantitative Measurement” is displayed. When liquid volume dispensing is enabled, “Liquid Volume Dispensing” is displayed. At all other times, “Transfer Mode” is displayed.

If liquid volume dispensing turned on, the target volume and running time are set up parameter, and unable to amend. Other modes, the running time is 60s, you can click the run time button to amend the running time.

Before the pump works, need to calibrate the flow rate to ensure the transferring or dispensing accuracy

Transfer Mode or Volume Mode Operation Process as below:

- (1) After entering this interface, the test time defaults to 60 seconds, and the actual liquid volume defaults to the volume calculated based on the currently set flow rate.
- (2) Press the **Start** button to begin motor operation and start the calibration. At this point, the button turns gray.
- (3) When the running time is up, the system automatically stops and a numeric keypad for entering the measured liquid volume pops up. After entering the measured liquid volume and clicking the “Confirm” button, a “Calibration Complete” dialog box appears, indicating that the calibration is finished.
- (4) During the operation, clicking the **Start** button again can stop this calibration process.
- (5) The restore calibration function works as follows: Click the “Reset” button, and a prompt dialog box will appear. This allows you to restore the calibration coefficients

Note: The calibration process ensures that the flow rate remains unchanged by recalculating the speed (RPM).

Liquid Volume Dispensing Modes Operation Process:

- (1) In the liquid volume allocation mode, after entering this interface, the test time (flow rate) and actual liquid volume default to the current parameter values set



for liquid volume allocation.

- (2) Press the Test button to begin motor operation and start the calibration. At this point, the button turns gray.
- (3) After peristaltic pump stopping, a numeric keypad for entering the measured liquid volume pops up. After entering the measured liquid volume and clicking the “Confirm” button, a “Calibration Complete” dialog box appears, indicating that the calibration is finished.
- (4) During the operation, clicking the Test button again can stop this calibration process.
- (5) The restore calibration function works as follows: Click the “Restore” button, and a prompt dialog box will appear. This allows you to restore the calibration coefficients

Note: 1) When the correction factor is changed, all parameters need to be recalculated. This may result in unreasonable rotational speeds for certain functional parameters. To prevent this from happening, it is recommended to reset the parameters after modifying the operating mode.

2) In speed dispensing mode, calibration is not required.

Micro Adjust Volume Process:

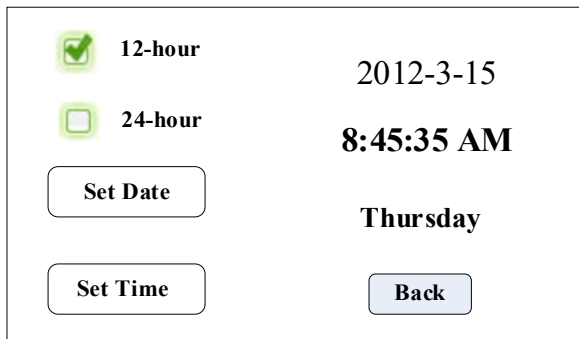
- (1) Entering the micro-adjustment volume the liquid volume input box.
- (2) Click the + or - buttons for the liquid volume to achieve the purpose of fine-tuning and calibration.

External Control Speed Mode Operation Process:

When the interface displays the external control speed adjustment function, only the “Increase” and “Decrease” buttons are effective. These can be used to fine-tune and calibrate the analog speed adjustment.

4.11 Date & Time Interface

Setting Date & Time Interface as below:

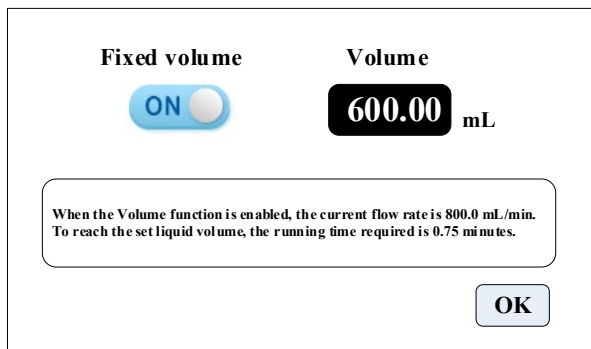


The screenshot shows a date and time selection interface. On the left, there are two radio buttons: '12-hour' (selected with a green checkmark) and '24-hour' (unselected). Below these are two buttons: 'Set Date' and 'Set Time'. On the right, the current date and time are displayed: '2012-3-15', '8:45:35 AM', and 'Thursday'. At the bottom right, there is a 'Back' button.

You can set the current date and time, which will appear at the top right of the main display. Switch between 12-hour and 24-hour formats. To set the date, click Set Date; use the numeric keypad to choose a year (1970 – 2099), then select the month and day. For time, click Set Time and enter hours, minutes, and seconds using the keypad.

4.12 Fixed Volume Measurement Interface

Fixed Volume Measurement Interface as below:



The screenshot shows the Fixed Volume Measurement Interface. At the top left, there is a toggle switch labeled 'Fixed volume' which is currently 'ON'. To its right, the word 'Volume' is displayed above a digital display showing '600.00 mL'. Below these elements is a text box containing the following information: 'When the Volume function is enabled, the current flow rate is 800.0 mL/min. To reach the set liquid volume, the running time required is 0.75 minutes.' At the bottom right of the interface is an 'OK' button.

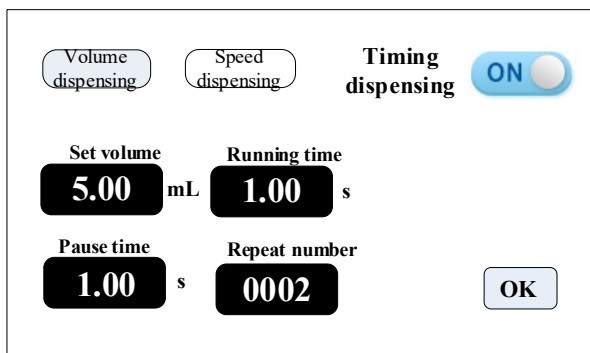
After enabling this function, the peristaltic pump will automatically measure the total liquid volume transferred. Once the liquid volume reaches the set value, the

pump will stop automatically. During this process, the flow rate can be adjusted freely as needed.

Click the **Fixed Volume** button and set it to **ON** to activate this function. Then, click on **Set Volume** to enter the desired liquid volume. The unit can be selected as either mL or L, with a range from 0.01 mL to 9999 L. A prompt box will display the estimated time required to reach the set liquid volume at the current flow rate. The maximum allowable time is 9999 minutes. If the calculated time exceeds 9999 minutes, the system will issue a warning notification.

4.13 Dispensing Interface

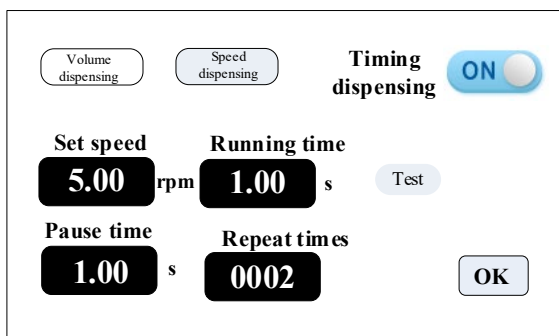
Volume Dispensing Interface as below:



The screenshot shows a control interface for volume dispensing. At the top, there are two buttons: 'Volume dispensing' and 'Speed dispensing'. To the right, the text 'Timing dispensing' is followed by a blue toggle switch labeled 'ON'. Below these, there are four input fields arranged in a 2x2 grid. The top-left field is labeled 'Set volume' and contains the value '5.00' followed by 'mL'. The top-right field is labeled 'Running time' and contains the value '1.00' followed by 's'. The bottom-left field is labeled 'Pause time' and contains the value '1.00' followed by 's'. The bottom-right field is labeled 'Repeat number' and contains the value '0002'. An 'OK' button is located at the bottom right of the interface.

On the main interface, click the **Dispensing** button to enter the liquid volume dispensing settings interface. First, enable the liquid volume dispensing function before entering other parameters. After all parameters have been entered, click the **OK** button to return to the main interface.

Speed Dispensing Interface as below:

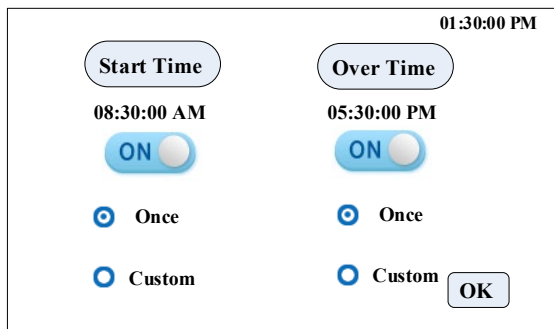


The screenshot shows the Speed Dispensing Interface. At the top, there are two buttons: "Volume dispensing" and "Speed dispensing". To the right, there is a "Timing dispensing" label and a blue toggle switch set to "ON". Below these, there are four input fields: "Set speed" with the value "5.00 rpm", "Running time" with the value "1.00 s", "Pause time" with the value "1.00 s", and "Repeat times" with the value "0002". There is a "Test" button to the right of the "Running time" field and an "OK" button at the bottom right.

On the main interface, click the **Dispensing** button to enter the speed dispensing interface. First, the speed dispensing function must be enabled before entering other parameters. After entering parameters such as dispensing speed and running time, you can click the **Test** button. The motor will run once according to the current speed and running time settings. After completing the parameter setup, click the **OK** button to return to the main interface.

4.14 Timer Start and Stop Interface

Timer Start and Stop Interface as below:



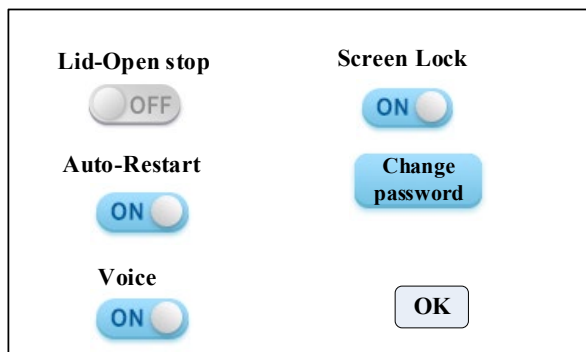
The screenshot shows the Timer Start and Stop Interface. At the top right, the current time is displayed as "01:30:00 PM". There are two main sections: "Start Time" and "Over Time". Each section has a time input field (08:30:00 AM for Start Time, 05:30:00 PM for Over Time), a blue toggle switch set to "ON", and two radio button options: "Once" and "Custom". An "OK" button is located at the bottom right.

This function allows you to freely set the pump's start and stop times. When the current time reaches the preset time, the motor will automatically start or stop.

However, when either the Fixed volume measurement or timed dispensing function is enabled, the timer end function will be disabled.

4.15 Other Settings Interface

Other settings interface is shown in the figure below:



Lid-Open Stop function: If the pump head upper pressure block is opened while the pump is running, the pump will automatically stop and sound a buzzer alarm. This function button is only active when the pump head model is set to the EasyPump series. If the pump head model is switched, the Lid-Open Stop function will turn OFF by default. For other pump head models, this button is disabled.

Auto-Restart: When this function is enabled, if a power failure occurs while operating in transfer mode, the pump will automatically resume running once power is restored. If this function is disabled, the pump will remain stopped after power-on.

Voice: When this function is enabled, users can control the start/stop, direction reversal, and full-speed operation of the peristaltic pump via voice commands (Supported by labV-S; refer to '5.5 Voice Control Function' for details)

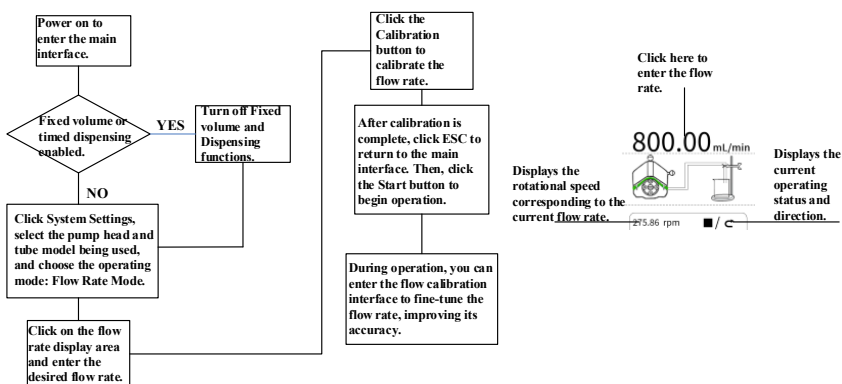
Screen Lock: Once enabled, entering a password is required to use the keys and modify parameter settings. The screen will automatically lock after 10 seconds of inactivity on the main interface. The default password is 1234. This function supports password customization to ensure that only authorized users can unlock and operate the device.

When a function in the Other Settings interface is enabled, its corresponding icon indicator will simultaneously display on the main interface.

Lid-Open Stop		Auto-Restart	
Screen Lock		Voice	

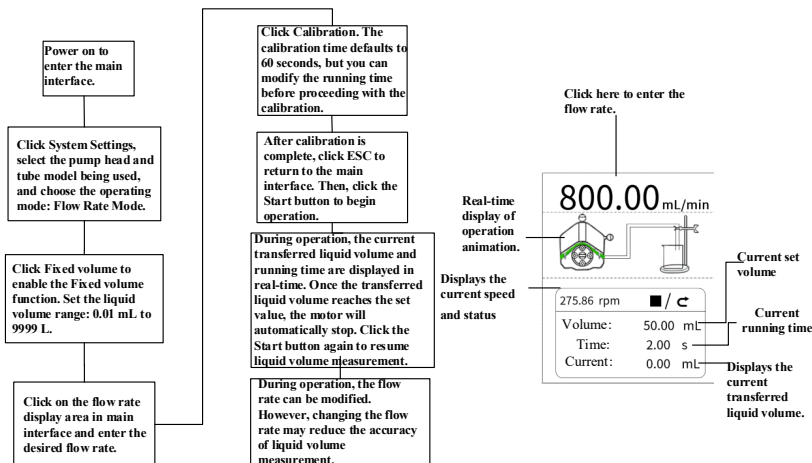
5. Main Functions Operation Process

5.1 Flow Rate Transferring Function



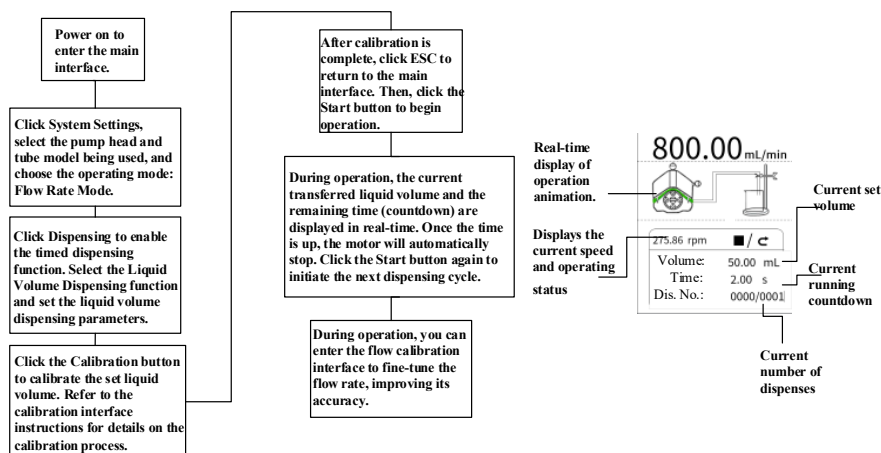
Note: Please refer the flow rate calibration interface instruction for flow rate calibration process.

5.2 Fixed Volume Measurement Function



Note: Please refer the flow rate calibration interface instruction for flow rate calibration process.

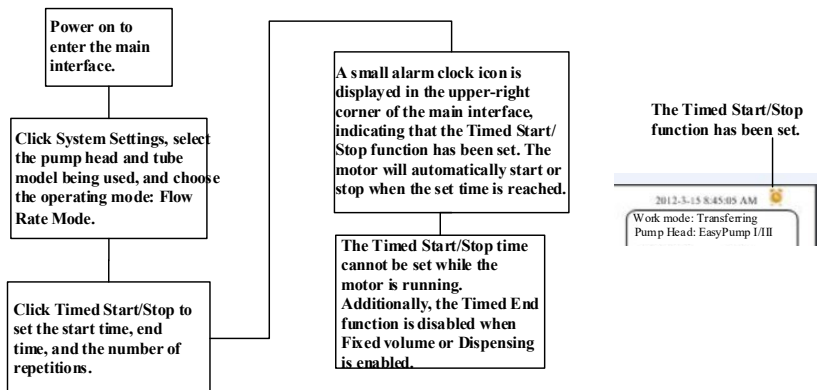
5.3 Dispensing



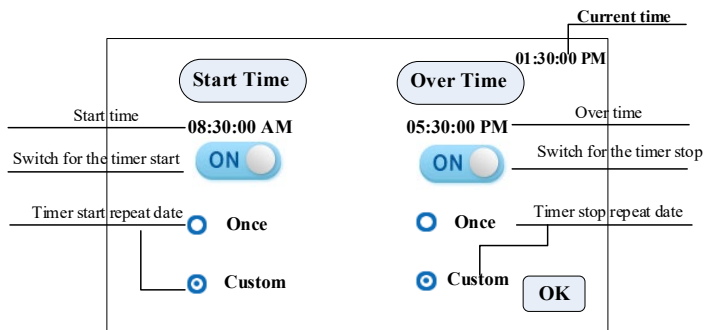
Note: Please refer the flow rate calibration interface instruction for flow rate

calibration process.

5.4 Timer Start And Stop Function



Under the flow rate transferring mode, set the pump start at 8:30 a.m. from Monday to Friday, stop at 5:30 p.m., the process as below:



Click on the **Start Time** to set the timed start time to 8:30. Then, click the Switch for the timer start to turn it ON. Next, click on the Custom option, which will bring up a window to set the repeat dates. Configure the settings as follows:

☒ Monday
☒ Friday

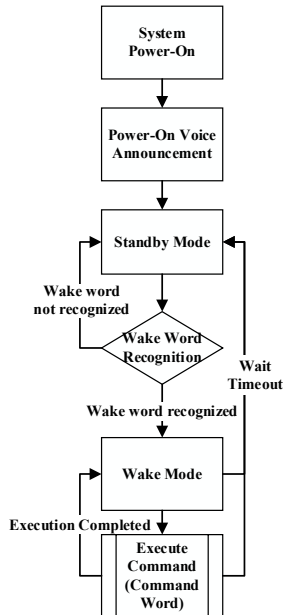
☒ Tuesday
☐ Saturday

☒ Wednesday
☐ Sunday

☒ Thursday
☐

OK

5.5 Voice Control (LabV-S Series)



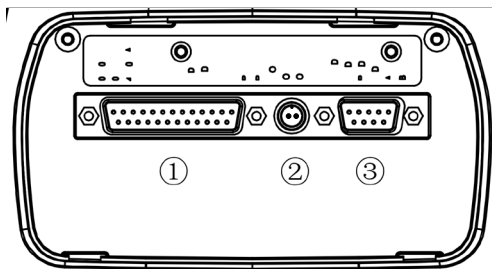


The list of voice control wake words and command words is as follows:

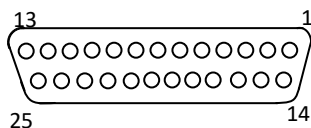
Category	English Command
Wake Words	Hi Inno
	Hey Inno
	Hello Inno
	Hi pump
Start Commands	Pump start
	Start pump
	Start
Stop Commands	Pump stop
	Stop pump
	Stop
Direction Commands	Change direction
	Direction change
	Reverse
Full-Speed Start	Prime start
	Full speed start
Full-Speed Stop	Prime Stop
	Full speed Stop

6. External Control Interface Instruction

External control interface as below:



① DB25 external control connector instruction

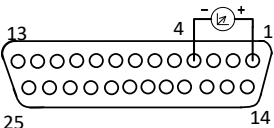
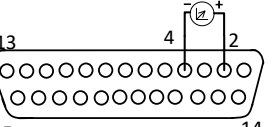
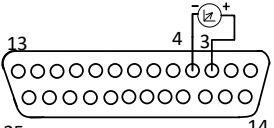
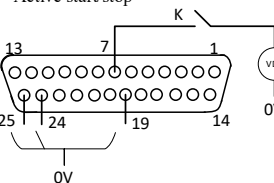


Pin	Definition	Explanation	Note
1	0-5V	0V to 5V voltage signal input terminal	Analog signal input terminal
2	0-10V	0V to 10V voltage signal input terminal	
3	4-20mA	4-20mA current signal input terminal	
4	I ₋ /V ₋	Analog signal negative terminal	
5	/	/	/
6	R/S1	External control start/stop signal with passive signal input	The passive switch or foot pedal switch can be connected with the terminal. Set the validity of this input in external setting

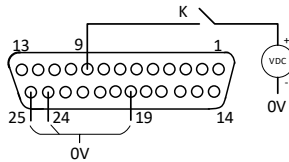
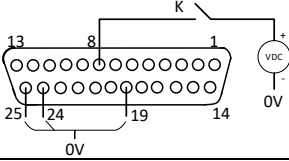
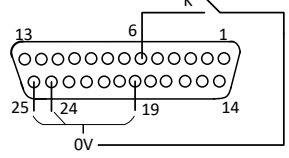
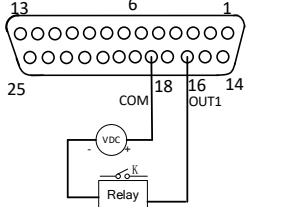


			interface--foot pedal option.
7	R/S2	External start/stop signal input	Active signal 5-24VDC input
8	NC	External full speed signal input	Active signal 5-24VDC input
9	CW/CCW	External direction signal input	Active signal 5-24VDC input
10	/	/	/
11	/	/	/
12	/	/	/
13	/	/	/
14	/	/	/
15	/	/	/
16	OUT1	Operating status output terminal 1	Open collector output
17	OUT2	Operating status output terminal 2	/
18	COM	Provides voltage for logic outputs	External power supply positive
19	GD2	Connected to the Internal GD1	/
20	/	/	/
21	/	/	/
22	/	/	/
23	+5V	Internal 5V output positive terminal	Internal 5V output
24	GD1	Internal 5V output negative terminal	
25	0V	Connected internally to GD1 and GD2	

External control wiring and function description

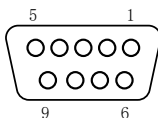
Signal and wiring	Function description	
Analogue:0-5V 	Analog signal input terminal: Choose the External speed control signal and turn on the Ext. Speed in external control setting interface, control the motor speed from 0 rpm to maximum speed through analog signal. Notice: Please do not connect 0-10V signal to 0-5V terminal or 4-20mA input terminal. This is forbidden. Wrong connection may damage the pump.	
Analogue:0-10V 		
Analogue: 4-20mA 		
Active start/stop 	In Pulse mode: Short circuited K then disconnect, the motor starts running. Short circuited and disconnect again, motor stops running. In Level mode: Short circuited K, the motor starts running, disconnect K, motor stops running. The wiring here is an external active signal, and customers can choose to use	



Active direction 	In Pulse mode: Short circuited and then disconnect K once, the motor changes working direction once. In Level mode: Short circuited K, motor runs clockwise, disconnect K, motor runs anticlockwise.	the+5V output from pin 23 for their own use.	
Active full speed 	In Level mode /Pulse mode: Short circuited K, the motor will run with full speed; Disconnect it, the motor stops.		
Passive start/stop 	In Pulse mode: Short circuited K then disconnect, the motor starts running; short circuited K and disconnect again, motor stops running. (Under transferring modes, current working has been stopped. Under fixed volume measurement mode and timed dispensing modes, current working has been paused. Disconnect after short circuit again, it will continue to work); In Level mode: short circuited K, motor starts running, disconnect K, motor stops running.		
Operation status output 	If connect with relays, when the motor runs, K connect; when the motor stops running, the K disconnect.		

② XS6 Connector

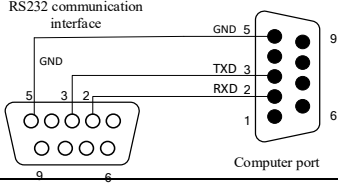
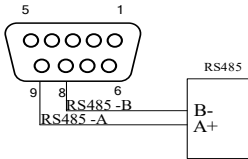

Pin	Pin Definition	Explanation	Note
1	R/S1	External control start/stop signal with passive signal input	The passive switch or foot pedal switch can be connected with the terminal. Set the validity of this input in external setting interface--foot pedal option.
2	GD1	Internal 5V output negative terminal	/

③ DB9 Connector


Pin	Pin Definition	Explanation	Note
1	/	/	/
2	RS232-TXD	Signal transmitted by peristaltic pump, received by upper computer	Choose RS232 in the Communication setting interface, this terminal is active.
3	RS232-RXD	Signal received by peristaltic pump, transmitted by upper computer	
4	/	/	/
5	GND	Communication ground port	
6	/	/	/

7	GND1	RS485 signal ground	
8	RS485-B	Connect RS485 B- terminal	Choose RS485 in the communication setting interface, this terminal is active.
9	RS485-A	Connect RS485 A+ terminal	

Communication wiring and function description

Signal and wiring	Function description
 RS232 communication interface Computer port	RS232 communication interface: Choose RS232 in the Communication setting interface, this terminal is active.
 RS485 Communication interface RS485	RS485 Communication Interface: Choose RS485 in the Communication setting interface, this terminal is active.

Note: Whether choose RS232 or RS485, the communication protocol is standard MODBUS protocol.

7. Technical Specification

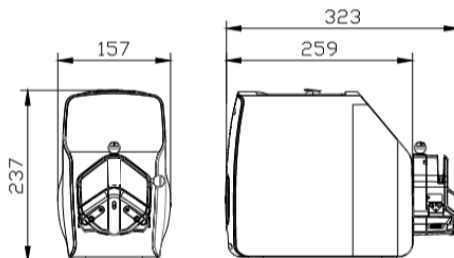
Flow rate resolution	0.01ml/min	Power supply	AC 220V±10% 50Hz/60Hz(standard) AC 110V±10% 50Hz/60Hz(optional)
Operation mode	Touch screen and mechanical keypad	External control	Switch signal
External speed control	0-5V, 0-10V, 4-20mA for option	External control	Passive switching signal: Foot pedal switch Active switching signal: 5-24V universal
Communication	RS232/RS485, support Modbus (RTU mode)	Output port	Output motor running status(Open collector output)
Back suction angle	0-360°	Protection rate	IP31
Speed range	LabV1, LabV1-II, LabV1-III	0.1-150rpm	
	LabV3, LabV3-II, LabV3-III	0.1-350rpm	
	LabV6, LabV6-III	0.1-600rpm	
Power consumption	LabV1, LabV1-II, LabV3, LabV3-II, LabV6	<50W	
	LabV1-III, LabV3-III, LabV6-III	<80W	
Motor type	LabV1, LabV1-II, LabV3, LabV3-II, LabV6	Stepper motor	
	LabV1-III, LabV3-III, LabV6-III	Closed loop stepping motor	
Temperature	0-40°C	Humidity	<80%

8. Functions and Features

- 4.3 inch color touch screen control, animation shows working state, the flow volume and motor speed are displayed in the same screen.
- Intelligent calibration function, it can calibrate the flow rate, ensure the flow accuracy, suitable for high accuracy transferring liquid.
- On-line micro adjusting function, it can micro-adjust the flow rate during production progress, to avoid the filling errors because of tubing fatigue and elasticity decreased.
- Accurate angle control technology, reach high precision dispensing and measurement.
- Fixed volume measurement function: After turn on this function, the peristaltic pump will measure the liquid volume automatically, it will stop automatically after the volume reaches the set value. During this process, the flow rate can be changed. It is suitable for liquid metering in the laboratory or quantitative feeding in the chemical reaction process, etc.
- Liquid dispensing function: After turn on this function, the peristaltic pump will transfer fixed volume within set time. It is suitable for liquid dispensing in laboratory and industrial production.
- Timer start and stop function: Pump starts and stops time can be set any time to realize automation control.
- Power down memory function, store the running parameters in time, safe and reliable.
- Fast fluid-filled function, can wash the tubing and also fill fluid in the tubing.
- High torque and low power loss, it can load several pump heads or multichannel pump head, meet different application requests.
- External control start and stop, convenient for equipment supporting.

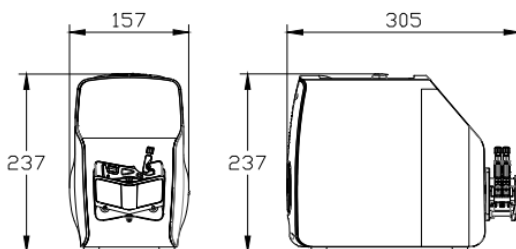
9. Dimension Drawing

Unit: (mm)



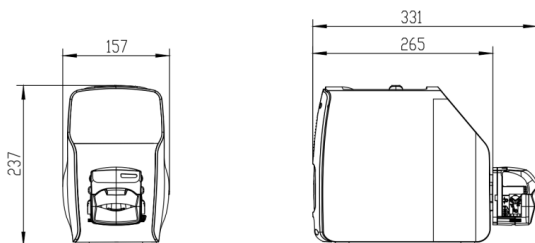
LabV+EasyPump pump head

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



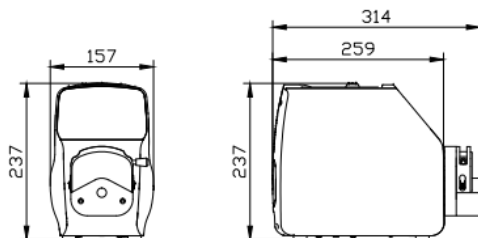
LabV + AMC2 pump head

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



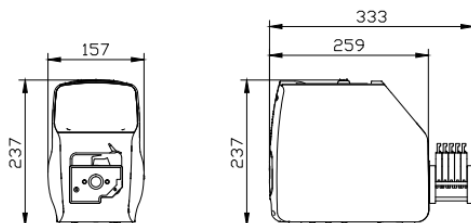
LabV+KD Pump head

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



LabV+YZ1515X/2515X pump head

Note: For each additional pump head in series, the longitudinal dimension shall be increased by 55mm.



LabV + MC5 pump head

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

10. Maintenance

- Verify the pump current operational status before turning on power. Operate only under normal conditions.
- Inspect for fluid leakage and promptly address any potential faults.
- Clean any spilled liquid around the pump promptly.
- If liquid splashes on the pump, turn off and unplug the power supply, check for internal leakage, and contact the manufacturer if liquid has entered the equipment
- Ensure that the foot pedal switch and other external control plugs are connected or disconnected only when the power is off, to prevent damage.
- The power socket should be equipped with a ground wire and properly grounded.
- This product is not designed to be waterproof. Operators are advised to implement appropriate protective measures when operating in wet environments.
- This product is not equipped with special certifications, such as medical certification. For applications in specialized fields like medical or military, users are responsible for conducting their own certification/validation.
- If the product will not be used for an extended period of time, please clean it thoroughly and store it in a dry, well-ventilated area.
- The company is not liable for any losses resulting from product malfunctions or misuse of the product.



11. Warranty and After-Sales Service

A three-year warranty is provided for the pumps, with certain exceptions outlined below. The company is not responsible for any loss, damage, or expenses that are directly or indirectly associated with the use of its products. The warranty does not require the company to cover costs related to removal, installation, transportation, or other charges incurred in connection with a warranty claim.

If a pump fails within the warranty period, and the issue is confirmed by the company's technical department, spare parts will be supplied at no additional charge. Shipping costs must be covered by the customer.

Warranty Exceptions:

- The warranty does not cover repairs or service needed due to normal wear and tear, or insufficient maintenance.
- Tubing and pumping accessories, classified as consumable items, are not included under warranty.
- Failures caused by electrical surges are excluded from coverage.
- Damage resulting from chemical exposure is excluded.
- Failures due to improper operation or intentional damage are not covered.

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

MADE IN CHINA