A Geno Technology, Inc. (USA) brand name

High Flow Rate Peristaltic Pump

Cat. No. BT3501

1-800-628-7730 ♦ 1-314-991-6034 ♦ info@BTLabSystems.com

Thanks for choosing the BT Lab Systems High Flow Rate Peristaltic Pump. This operational manual describes the function and operation of the instrument. To ensure proper use and to avoid serious injuries, please read this manual carefully before operating the instrument.

PERISTALTIC PUMP PRECAUTIONS

- The hose may crack due to wear, which can result in liquid leaking and cause harm to the human body and equipment. Therefore, checking the hose regularly and replacing it when necessary is essential.
- If the peristaltic pump is not working, loosen the pressure block of the hose or remove it to prevent plastic deformation and inner wall adhesion, which can block the hose and reduce its service life.
- Keep the roller of the pump head clean and dry to avoid accelerating wear and shortening the service life of the hose, which can lead to premature damage to the roller.
- Some pump heads and drive surfaces are not resistant to organic solvents and highly corrosive liquids. Take special care when using them.
- When maintenance or repair is needed, please turn off the power and unplug the unit.
- As the peristaltic pump has a metal shell, ensure that the ground wire of the power cord is reliably grounded before use to prevent leakage accidents.
- When installing an external control device, please turn off the driver power.
- If maintenance is required, remove the power cord from the device and wait at least one minute before conducting any maintenance operations.
- Before using the pump, ensure the power line has reliable grounding to guarantee personnel safety in humid environments.

INTRODUCTION

Basic peristaltic pumps are commonly used for filtration purposes. BT Lab Systems offers a wide variety of pumps to choose from.

This peristaltic pump is compact, simple, and precise for variable flow, suitable for metering or transferring fluids at rates up to 12000 ml/min.

KEY FEATURES

- 4.3-inch industrial-grade true color LCD display which features an intuitive interface with simple touchscreen operation.
- Equipped with a servo motor drive that provides large torque and high resolution.
- Online fine-tuning function enhancing filling accuracy.
- The independent full-speed button allows for rapid filling and emptying of pipelines.
- The peristaltic pump can be controlled via an external control interface.
- The calibration function ensures high accuracy by performing adjustments as needed.
- The RS485 communication utilizes the Modbus protocol, making it easy to debug and use.

STANDARD CONFIGURATION

The peristaltic pump comprises two parts: a drive and a pump head, which are fixed together to form a single unit.

TECHNICAL SPECIFICATIONS

Normal Operating Conditions

- Ambient Temperature: 0°C – 40°C
- Relative Humidity: <80%

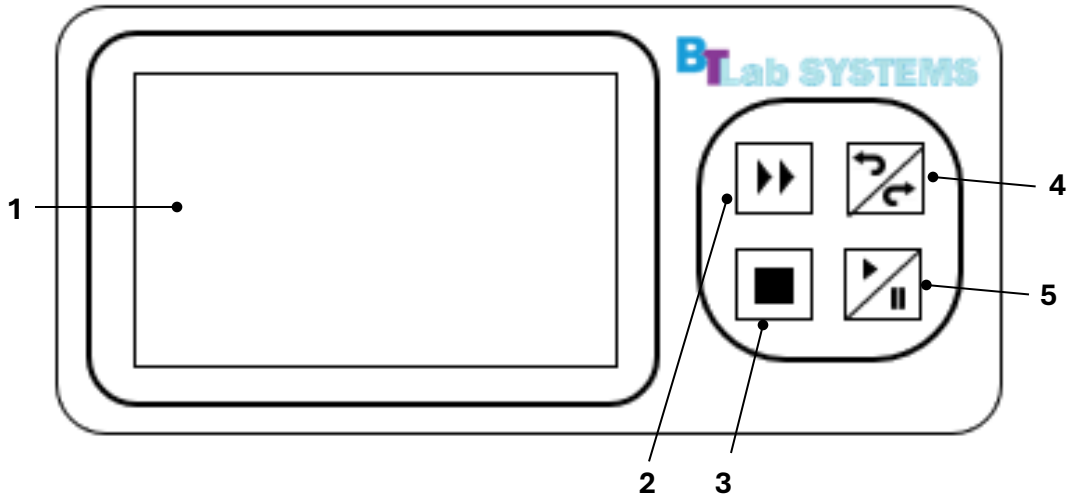
Basic Parameters

Model	**BT3501**
Speed Range	0.01 – 600rpm
Speed Resolution	0.01rpm
Flow Range	≤12000ml/min
Calibration function	Yes, for both flow rates and dispensing volume
Display	Industrial grade 4.3in touch screen
Control Method	Touch screen Supports external control signal and communication control
Operation Mode	Flow mode – pump runs continuously at the set flow rate. Dispensing mode – Distribute liquid at set volume, dispensing time, and batch cycles.
Dispensing volume range	0.01 – 9999.99ml
Dispensing volume resolution	0.01ml
Copy Range	0 – 9999 times, “0” is infinite cycle
Interval Time	0 – 9999.99s
Time resolution	0.01s
Back suction angle	0 - 360°
Power Supply	AC90-265V, 50Hz/60Hz
Power consumption	<300W
External Control	Start, stop, direction, speed • Analog control: 0-5V, 0-10V, 4-20mA, 0-10KHz optional • RS485/MODBUS Communication Control Foot Switch Control
Dimension (L x W x H) (mm)	243 x 400 x 310
Driver Weight	15.5kg
Motor Type	Servo motor
IP rating	IP31

Pump Head	Tubing Size	Maximum Flow (ml/min)	No. of channels
YZ35PPS	73	12000.00	1
	82		

- The proper selection of pump heads and hoses is crucial for improving flow accuracy and distribution accuracy.

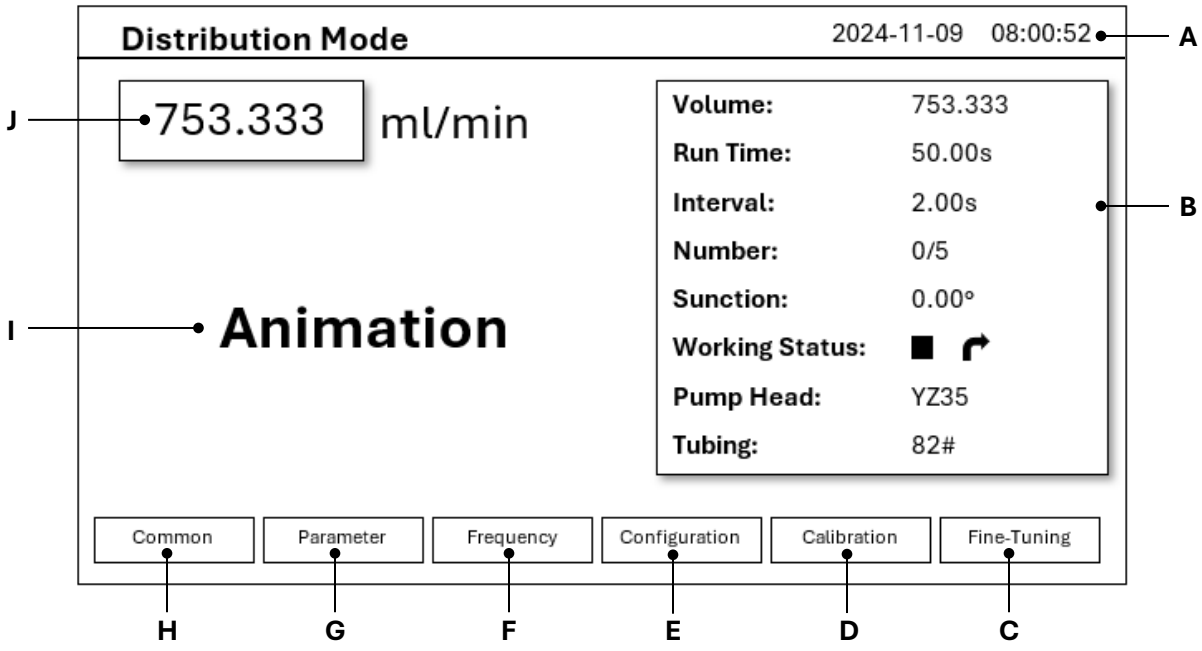
OPERATION PANEL



1. Touch Screen Display
2. Prime Key
   This function is primarily used for emptying or cleaning operations.
   • While the pump is operating at normal speed, press to switch to full speed.
   • While running at full speed, press to return to the original speed.
   • While the pump is idle, press this key to run the pump.
3. Stop Key
4. Forward/Reverse Key
5. Start/Pause Key

OPERATION MODES

Distribution Mode



A. Status Bar – displays current operation mode, external control setting status, and time.

B. Parameter display – shows the current dispensing volume, dispensing time, interval, frequency, suction angle, current working status, pump head model, and tubing size.

C. Fine-Tuning – to refine the liquid volume for dispensing mode.

D. Calibration – to calibrate the parameters.

E. Configuration – to set the pump head model, tubing, working mode, external control, and clock.

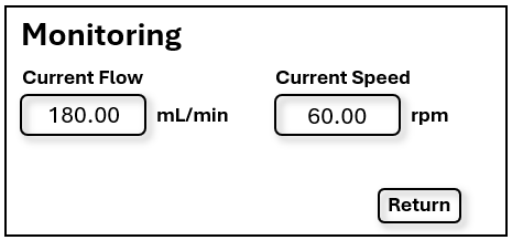
F. Frequency – to set the number of allocation times.

G. Filling Parameter – to set the dispensing volume, dispensing time, interval time, and suction angle.

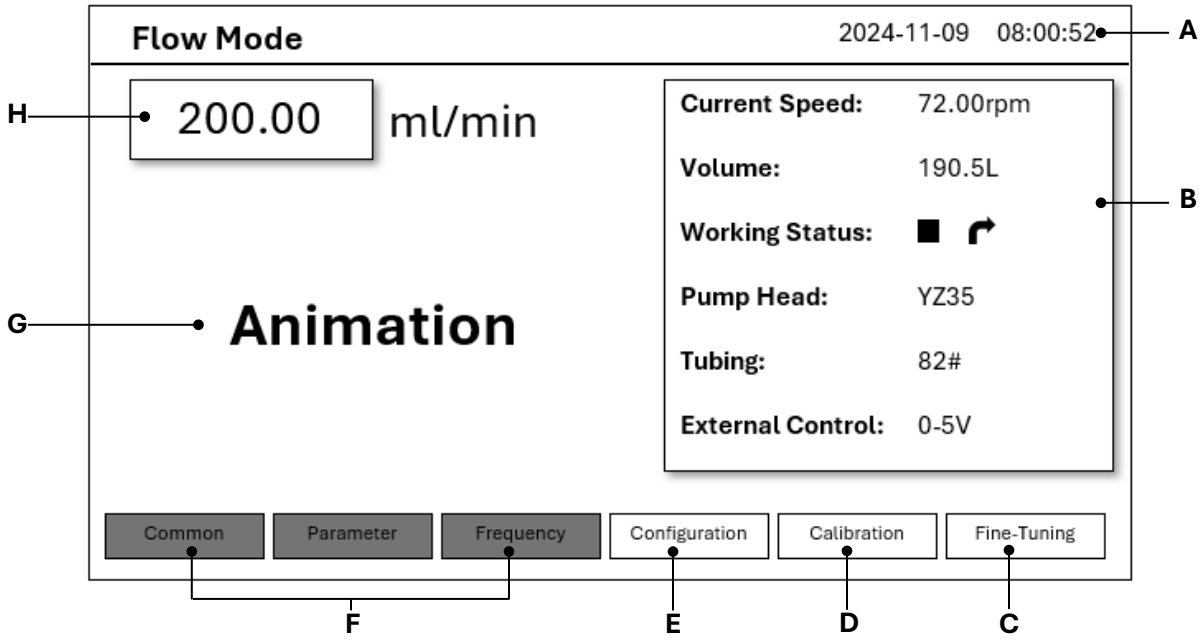
H. Common – Add, delete, clear, and call commonly used parameters.

I. Animation display – shows images in motion when the pump is running.

J. Monitor– shows the current volume. Press to view the current flow rate and speed



Flow Mode



A. Status Bar – displays current operation mode and time.

B. Parameter display – shows the current speed, accumulated liquid volume, current working status, pump head model, and tubing size, and external control status.

C. Fine-Tuning – to refine the flow in flow mode.

D. Calibration – to calibrate the parameters.

E. Configuration – to set the pump head model, tubing, working mode, external control, and clock.

F. Grayed out buttons are only available in Distribution Mode. Not available for Flow mode.

G. Animation display – shows images in motion when the pump is running.

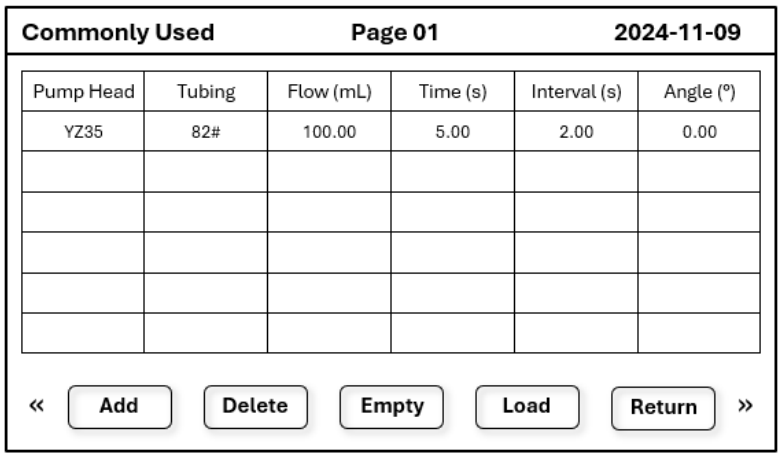
H. Current flow display – shows the current flow rate. Press to modify.

PARAMETER SETTINGS

When in distribution or flow mode, set the parameters for operation.

Common

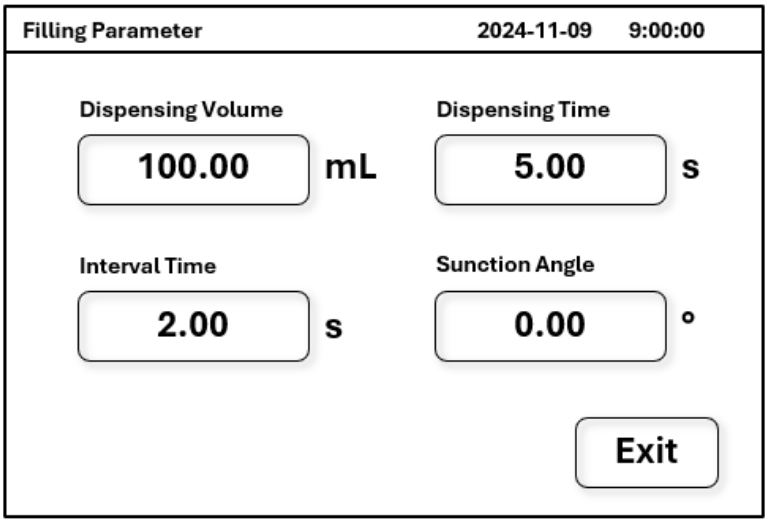
Create commonly used sets of parameters for quick calling on future operations.



Key	Function
« / »	Switch between pages
Add	Add a new commonly used parameter set
Delete	Delete selected set from system
Empty	Clear all parameter information
Load	Load selected set of parameters to operation mode
Return	Go back to previous screen

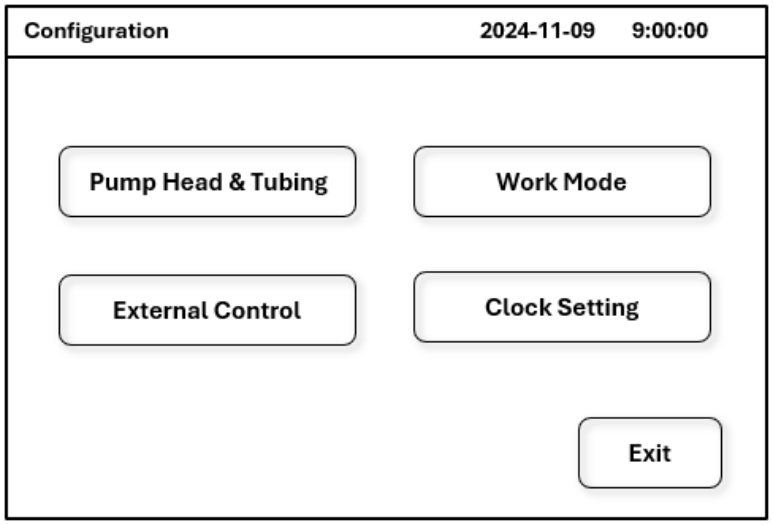
Parameter

Set the filling parameters for distribution mode.



Configuration

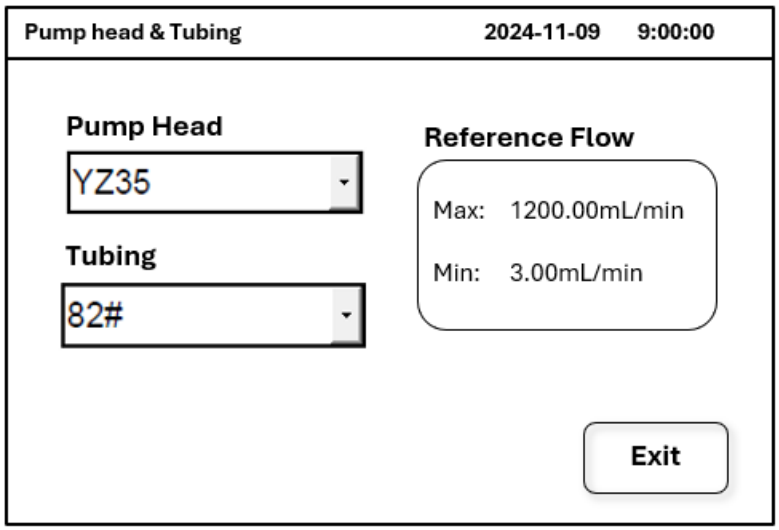
Set the device configuration.



Pump Head and Tubing

Using the drop-down menu, select the pump head model and tubing size.

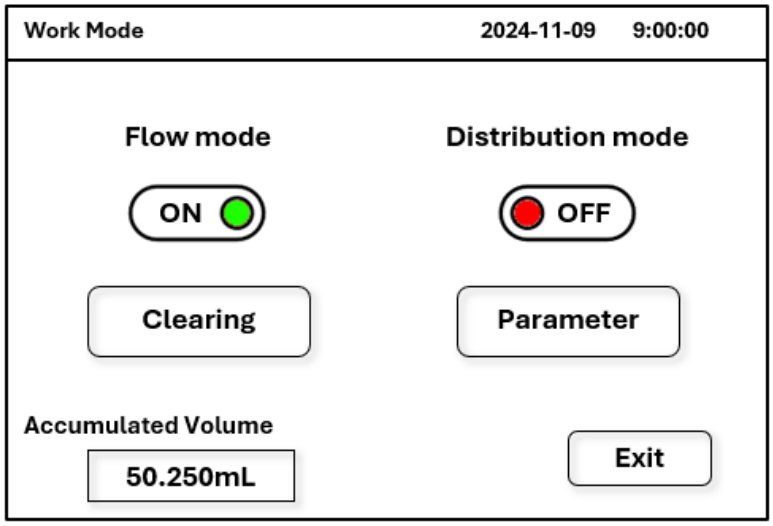
After the pump head model is set, the corresponding maximum and minimum flow will be displayed on the right side.



Work Mode

In this interface, you can select either Flow Mode or Distribution Mode.
When Flow Mode is enabled, Distribution Mode is automatically turned off, and vice versa.
The Accumulated Volume displays the current volume.

To clear the accumulated volume, click the [Clearing] button.
Press the [Parameter] button to open the filling parameter settings interface, where you can adjust the parameters as needed.

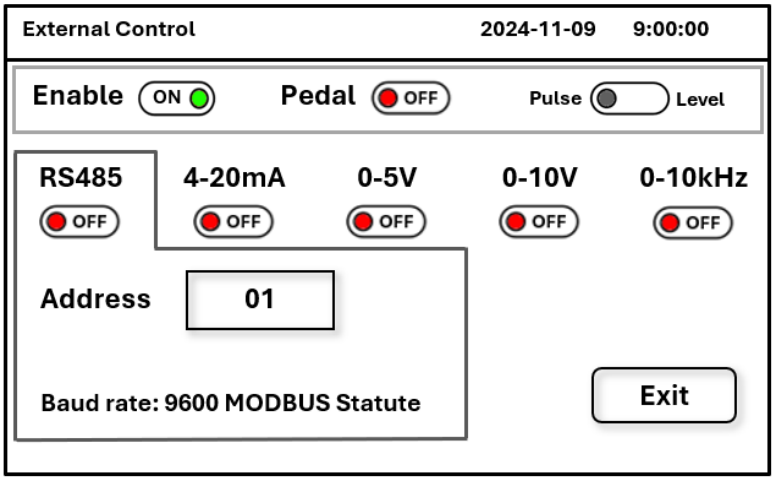


External Control

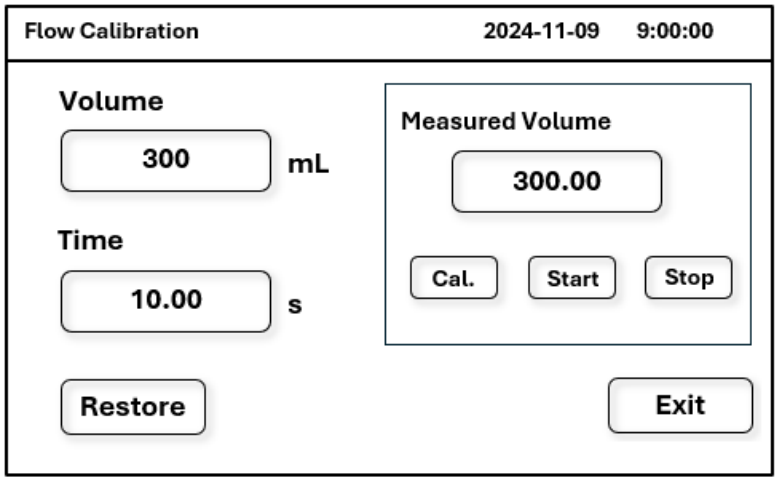
To access the external control settings, switch on the Enable function.

In distribution mode, there are 2 control options: Pedal and RS485.
In flow mode, there are 6 control options: pedal, RS485, 4-20mA, 0-5V, 0-10V, and 0-10kHz.

Select between pulse or level mode, then input the required address.



Calibration



Calibration Process

1. Ensure the set pump head and hose parameters are consistent with what is being used.
2. Prepare measuring tools and fill the hose with liquid
3. Open the flow calibration interface and input the data for volume and time.
4. Press [Start] to begin. The operation will automatically stop once the set time is complete.
5. Measure the actual liquid volume, then input the data into the Measured Volume field.
6. Press [Cal.] and the system will automatically update the calibrated data.

Note: To ensure filling accuracy, the data can be calibrated several times. If there is a big difference in data, press [Restore] to factory reset to the initial value, then conduct calibration.

Clock Setting

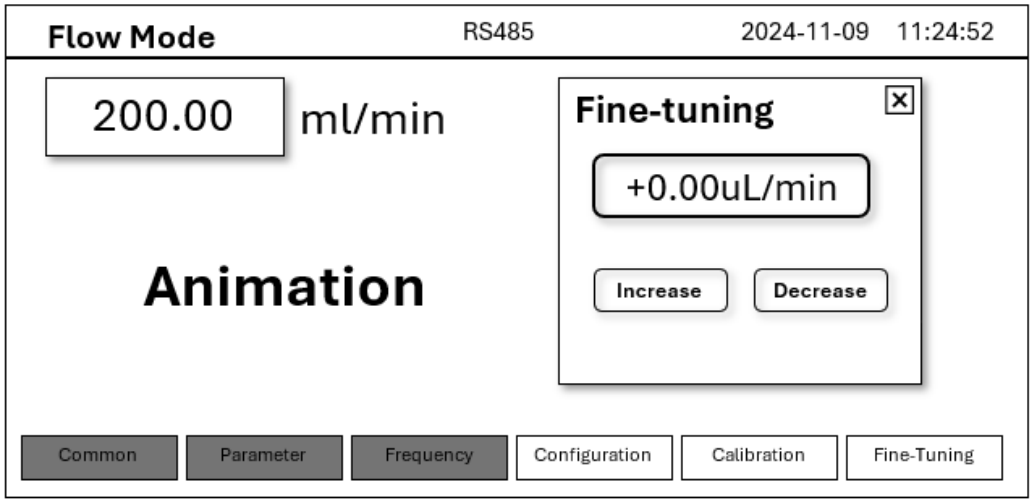
Set the device date and time on the clock setting interface.

Fine-Tuning

Refining can be performed for both distribution mode and flow mode.

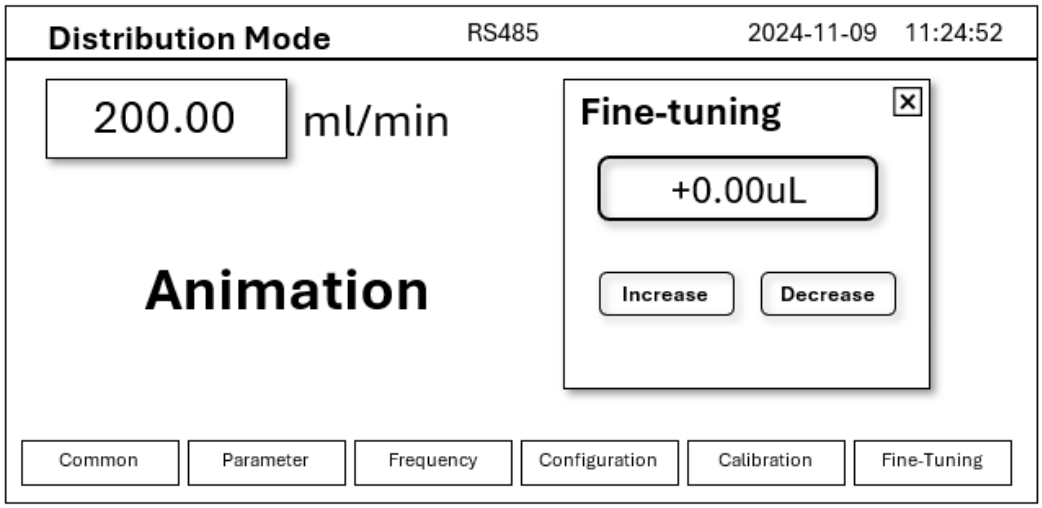
Flow mode

Fine-tune and calibrate the flow using the [Increase] and [Decrease] buttons.

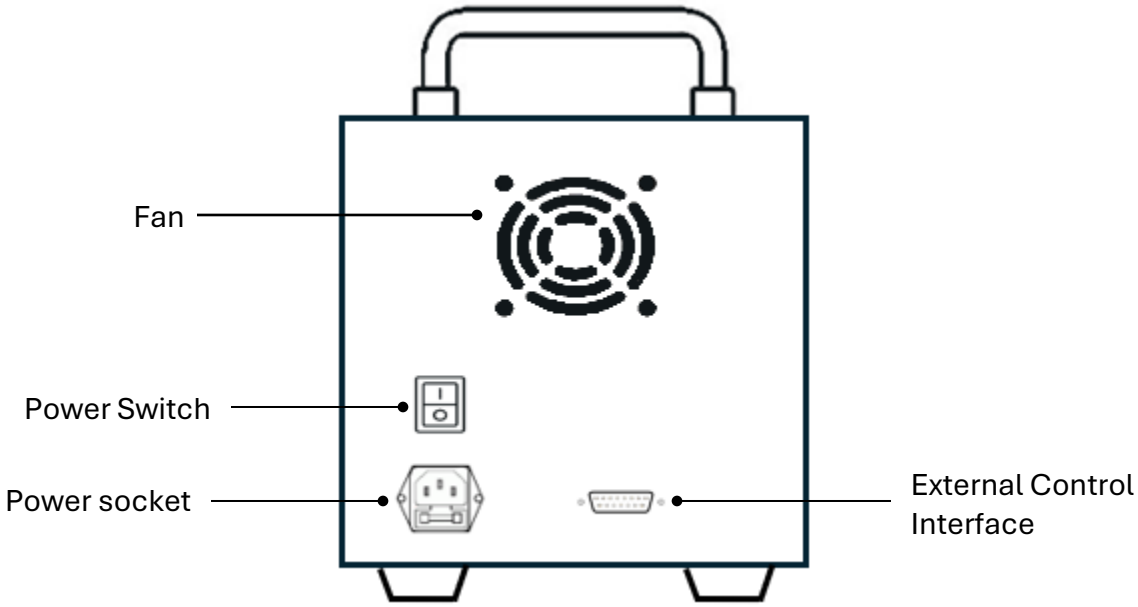


Distribution mode

Fine-tune and calibrate the liquid volume through the [Increase] and [Decrease] buttons.



REAR PANEL



Power Socket

The power socket has two 250V/1A glass fuses, including a backup fuse. If power is found to be abnormal, please check whether the fuse is damaged.

External Control Interface

To activate the external control function, the control option must be enabled under the parameter settings, and the external control interface should be connected to the appropriate external control module.

Distribution Mode control options are Pedal and RS485

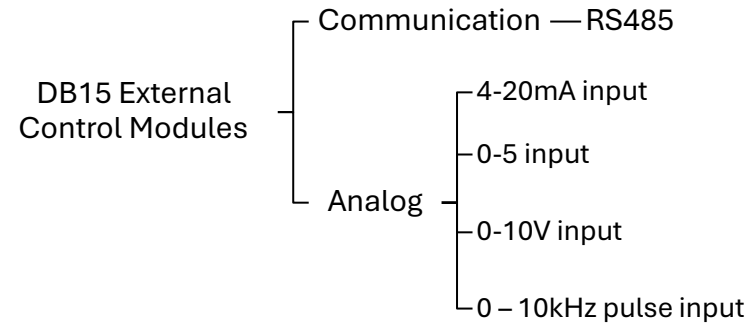
Flow Mode control options are Pedal, RS485, 4-20mA, 0-5V, 0-10V, and 0-10kHz.

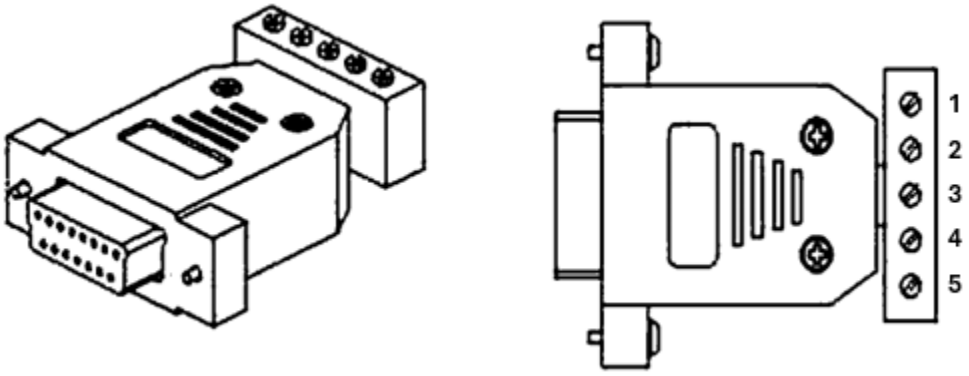
External Control Module

The external control interface utilizes a standard DB15 male connector.

Please note, the external control module must be purchased separately.

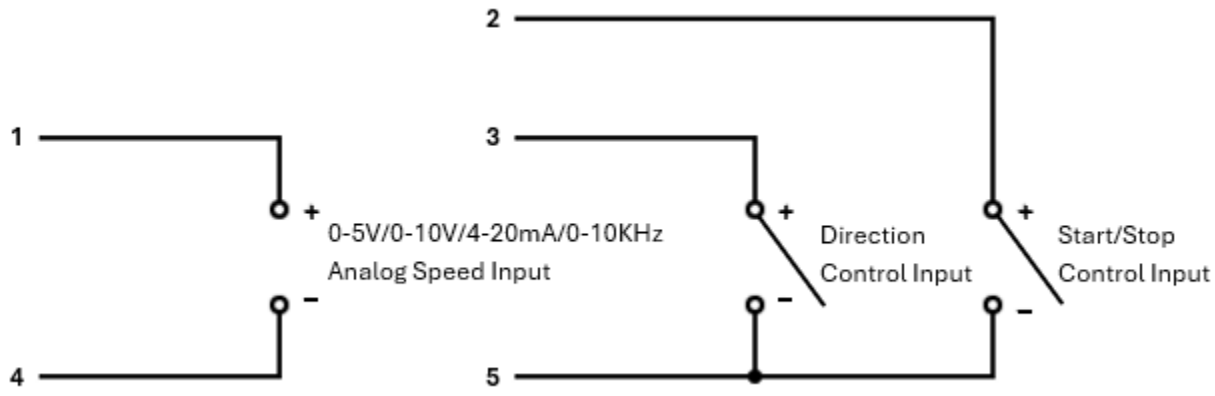
For specifications regarding the communication function of RS485, please contact BT Lab Systems.



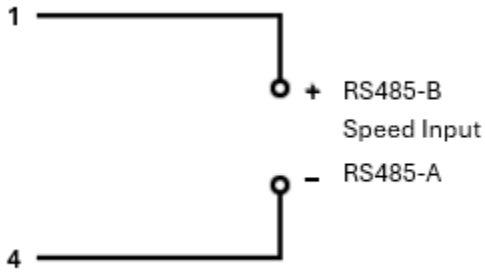


Terminal #	Functional Specifications
1	Analog input or RS485-B to control pump speed.
2	External start/stop control input. Open circuit, the pump runs. Short circuit, the pump stops.
3	External direction control. Open circuit, the pump rotates clockwise. Short circuit, the pump rotates counterclockwise.
4	Analog ground (AGND) or RS485-A to control pump speed.
5	Common terminal for external start/stop and direction control.

Analog Control Module Wiring Diagram



RS485 Communication Module Wiring Diagram



WARRANTY

Our company guarantees that this unit is warranted against defective material and workmanship for a period of one year from the date of shipment. We will repair or replace the defective equipment returned during the warranty period free if the equipment has been used under normal laboratory conditions and in accordance with the instruction in this manual. The following defects are specifically excluded:

1. Damage caused by accident, misuse, or abuse.
2. Damage caused by disaster.
3. Repair or modification by anyone else without authorization.
4. Corrosion due to the use of improper solvent or sample.
5. Defects caused by improper operation.
6. Use of fittings or other spare parts supplied by different manufacturers.

This warranty does not apply to platinum wire and all the accessories.

A return authorization must be obtained from us before returning any product for repair on a freight prepaid basis.

For any inquiry or request for repair service, please contact BT Lab Systems via the email below.

E-Mail: info@BTLabSystems.com

TECHNICAL

BT Lab Systems offers technical support for all its products. If you have any questions about the product's use or operation, please contact BT Lab Systems at the following info.

E-Mail: info@BTLabSystems.com