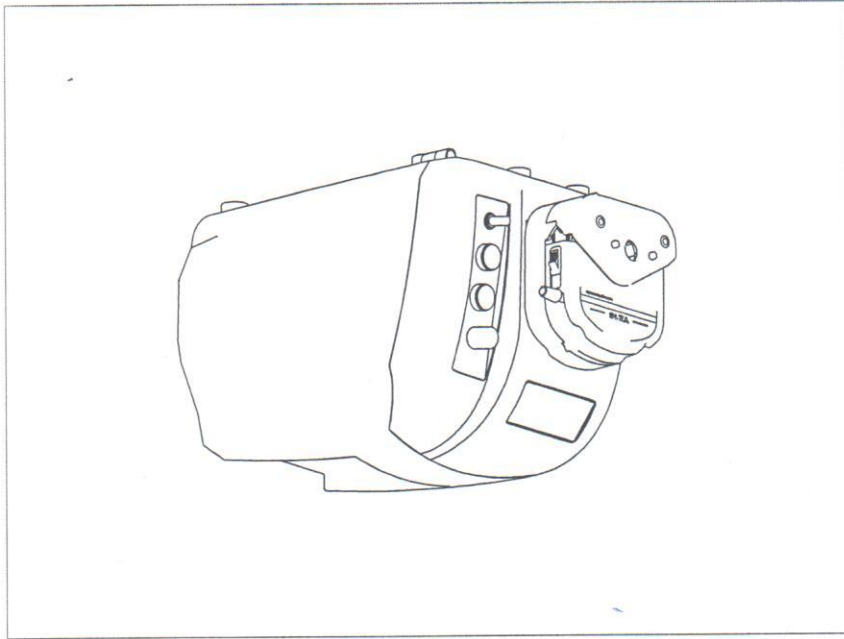


保定雷弗流体科技有限公司
BAODING LEAD FLUID TECHNOLOGY CO.,LTD.



BT/01S Series Speed -Variable
Peristaltic Pump

 LEAD FLUID®
雷弗

Brief Introduction

This series peristaltic pump have the functions of rotating in positive and negative, start and stop, full-speed, as well it can transmit quantitative fluid with the function of "easy dispensing". In communication RS485, we adopt MODBUS protocol; it is much easy to connect with other control devices such as computer, human-computer interface, PLC and so on.

This series peristaltic pump include as following:

- BT101S Flow range 0.00013-575 ml/min reference speed: 0.1-150 rpm
- BT301S Flow range 0.00016-1341 ml/min reference speed: 0.1-350 rpm
- BT601S Flow range 0.0016-2300 ml/min reference speed: 0.1-600 rpm

Applications

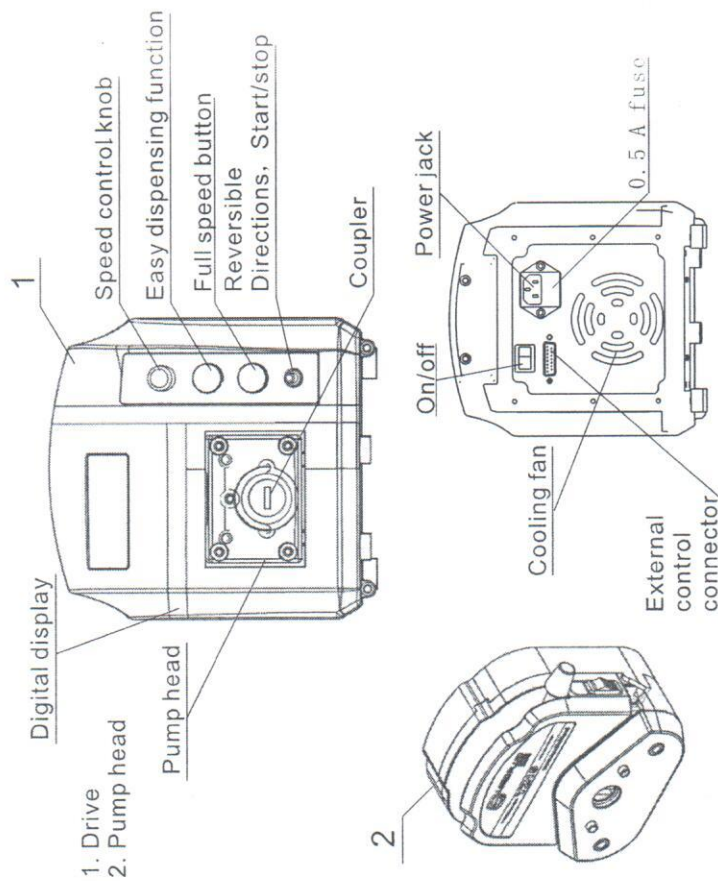
- Applicable to the corrosive liquid
- Pump body keeps clear of the liquid
- No valve block
- Smooth inner surface and easy to clean
- Liquid only touch the tubing
- Suction could reach 8m spout
- Low shear force, applicable to transfer the emulsified liquid or the liquid with foaming
- Applicable to gassy liquid
- Applicable to accurate measurement and ration feedstock, it could reach highest precision.
- Applicable to transfer viscous liquid
- It could use in food and medical care via changing the tubing and material.

Function and feature

- 4 LED digital tubing displays rotating speed and operating mode
- LED indicator light displays different working modes
- control knob operation
- Reversible direction, start/stop and full speed function
- Easy dispensing controlling realizes retransmit quantitative fluid

- Speed resolution: 0.1-100 rpm could be 0.1, 100-600 rpm could be 1. with accuracy 0.5%
- External analog value control the speed, high low-level output control the start/stop, reversible, split charging easily, physical isolations
- RS485 interface, support MODBUS communication protocol, friendly connected with other equipments
- Internal structure adopted double-deck isolation design, circuit board with conformal coating make it dust-proof and moisture-proof
- Super anti-interference feature, wide voltage design, acceptable for the complex power environment
- ABS plastic hosing

Components and Interfaces



◆ Speed control knob

A. clockwise rotation: add speed. Adjust one scale, the speed add one at least, continue to turn, the speed add ten.
 B. anti-clockwise rotation: reduce speed. Adjust on scale, the speed reduce one at least, continue to turn, the speed reduce ten.

C. By pushing down: Mode Switch function . Switch between five working function.

1. Internal control function: the first digital no display, after three display revolving speed. Front panel can control.
 2. external control function: the first digital display "E", after three display external control input revolving speed. Front panel is invalid. To control the equipment start/stop, forward & reverse control, change speed. Through DB15 external connector.

3. easy dispensing function: the first digital display "F", after three display revolving speed, front panel control ,foot switch to control dispensing function start/stop.

4. Electrical level internal control model. The first digital display "H", after three display external control input revolving speed, the front panel control operation. Through electrical sign to control start/stop of the equipment.

5. communication control model: the first digital display "L", after three display external input revolving speed. The front panel can control the speed. Operating all the function through MODBUS communication protocol.

◆ Button

A. Easy dispensing button is beaker shape. Press this button can into the easy dispensing mode when the pump at stop state. Long press this button can into simple dispensing test mode.

B. Full speed button is double arrow shape. Press this button ,the speed converts between the highest speed and the original state.

◆ Start/stop ,reversible direction turn button .

A. Pull on the left this button, the motor turns by counter-clockwise direction.

B. Pull in the middle this button , the motor stops turning

C. Pull on the right this button, the motor turns by clockwise direction.

◆ Digital tubing

Display working rotating speed and state.

The figure glittering means entering the model of dispensing.

223 displays current speed is 223 rpm

F100 displays dispensing mode, speed is 100 rpm

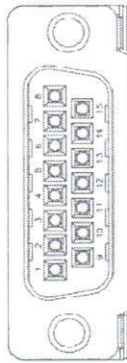
H1123 displays the external electrical level control mode, the rotate speed is 123 rpm.

L234 displays remote control mode ,the rotate speed is 234 rpm.

E214 displays external control mode, speed is 214 rpm

FULL displays full-speed mode.

External control connector instruction



DB15 number	English notes	Instructions
1	ADC_W	Positive pole of external analog signal input
2	B	Communication interface, B pole of RS485
3	A	Communication interface, A pole of RS485
4	+24V_W	Input pole of external 24VAC
5		NO
6	CW_W	Input pole of external directional signal
7		NO
8	COM	External ground electrode pole
9	ACND	Negative pole of external analog signal input
10	+12V	Output pole of internal 12VAC
11	GND	Internal electrical source pole
12		NO
13	RS_W	Input pole of external start&stop signal
14		NO
15		NO

Operating instructions

◆ Preparations

- ④ Open the outer packing of the peristaltic pump; check up the accessories whether right or broken, according to the packing list. If you have any problem, please contact the manufacture or agent promptly.
- ④ Have a serious read about the Instruction, put it at hand or put it away at fixed place for referring to at any time
- ④ Put the pump on a horizontal tabletop, keeping away from the obstacle over 20cm

◆ Fix the pump head and tubing

Fix YZ15, YZ25 pump head

- ④ Push the pump head in the driver's coupler, make the pump head and the pump head holder fit tightly; and put two screws through the fixed holes and tightening.
- ④ Wrench the pump head bar, open the pump head, put the tubing smoothly into the head and straighten the tubing, then wrench the bar to horizontal position in verse direction, then finished the tubing fixing.

Fix the DG multi-channel pump head

- ④ Push the pump head in the driver's coupler, make the pump head and the pump head holder fit tightly; and put two screws through the fixed holes and tightening.
- ④ Put the tubing smoothly into the Cartex of pump head, fix the tubing ends, then put one end of cartex into the guide rail of pump head, the other end tightening well and the tubing fixing finished.

◆ Power Connection

- ④ Please use the power supply as the same as the nameplate on case. Put the power line attached into the jack of the driver' back.

Manual control the pump continuous operation

- ④ Open the power switch, LED panel, digital tubing and indicator light lightening
- ④ Adjust control model for manual control. (Int indicator light lightened or Foot indicator light lightened)
- ④ Keypad adjusts the speed and operation direction.
- ④ Keypad Start and stop controls operating, in service it can process control speed and operation direction.

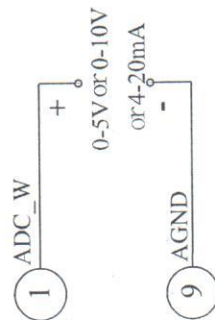
BT01/S Instructions for use

Dispensing fluid

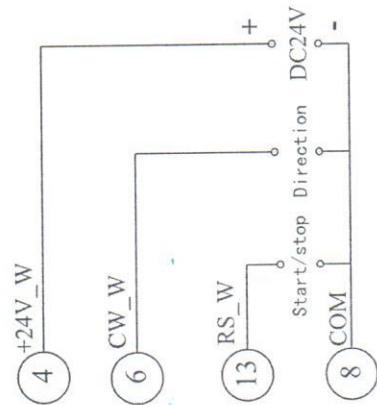
- ◆ Set the liquid measurement
- Press the knob switch to easy dispensing mode.
- When the pump is not working, long press the small beaker Keypad, and the digital tubing indicates the shining figures, entering the simple and easy dispensing record mode and the system start to record the dispensing liquid.
- In recording mode, make the pump starts-up of using the switch modulation on the right or left side. When the liquid distribution requirements, puts the start/stop button into the middle to stop the pump. Runs this process transfer liquid many times, the system will automated accumulation records, until the distribution liquid can meet requirement.
- Pressing small beaker keypad again, the nixie tubing stops shining, then off the text mode, and the system would automatically record the accumulated liquid, now it is not the test mode.
- ◆ Easy Dispensing
- Pressing the small beaker keypad, the pump dispenses liquid automatically according to the test, once pressing, once dispensing.

External control signal controlling the pump

Analog quantity input



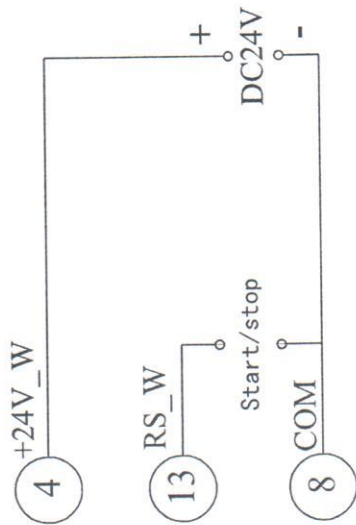
external control



- Connect the signal wires according to the above picture
- Press the knob, select the external control mode.
- Start the control signal, the pump start to work according to the signal

Footswitch Control the Operation

Footswitch Control the Operation

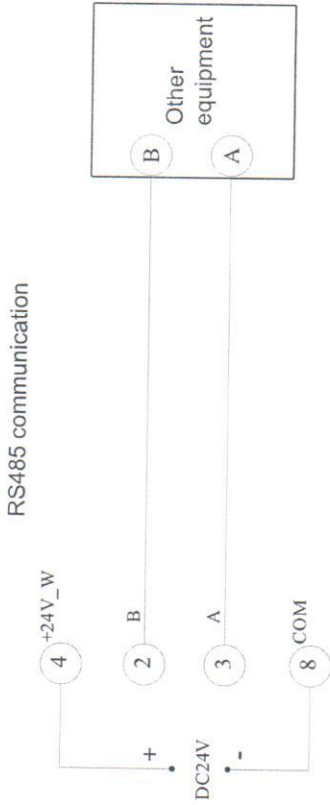


- Connect the signal wires according to the above picture
- Press the knob, select the electrical level internal control control mode.
- The pump work or not, depend on the footswitch open or not

Footswitch Controls the Dispensing

- Connect the signal wires according to the above picture
- Press the knob, select the easy dispensing mode.
- The footswitch close one time, the pump operates a simple and easy dispensing.

◆ Communication Function



- According to the above picture, connect the signal wires.
- Press the knob, select the remote control mode
- Only applying the MODBUS protocol, the specific parameters and the support directive could refer to the Technology Standard of Leadfluid Communication

Malfuction and Maintenance

◆ Guarantee Repair and After-sales

The product has guarantee repair for one year, but during the guarantee period, the company would be not responsible for the warranty, if the product has the improper operation or the man-made damage. Over the guarantee period, only the material and labor costs will be charged at cost price.

◆ Routine Maintenance

- the pump driver dispense with special maintenance
- check the tubing regularly, whether it broken or perished
- The cooling exhaust fan in the back of the pump, no cover over it lest influence heat dissipation.

- The peristaltic pump cannot be washed in water, if there is tubing broken in operation, it should dry the liquid in the pump head, but not clean the pump by the chemical solvent.

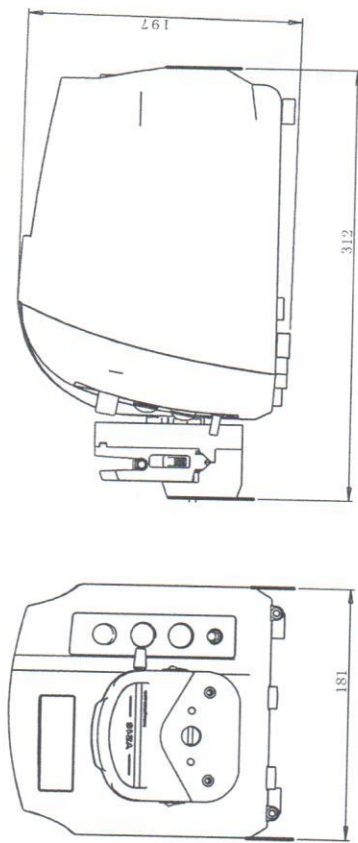
◆ Minor Malfuction

No.	Type of the Malfuction	Malfuction Description	Solutions
1	hardware	no display of the driver	1. Check the lines connected well 2. the fuse is good, or change with the 0.5A time-delay fuse. 3. the lines in internal equipment connected well
2	hardware	the motor not work	1. Check the indicator lamp of the driver board 2. Check the motor and the driver connected well 3. Check the driver and the main board connected well 4. Check the voltage corresponding with the nameplate
3	hardware	the motor trembling	1. Check the motor and the driver connected well 2. The motor overloaded, check the machine drive well
4	hardware	the motor rolling in one direction	1. Check the driver and the main board connected well
5	hardware	Keypad not work	1. Check the keypad and the main board connected well 2. Check the keypad broken or not
6	hardware	external not work	1. Check the external board fixed well 2. Check the lines connection right or not 3. Check external power on or off
7	hardware	communication not work	1. Check the communication board fixed well 2. Check the lines connected right or not 3. Check external power on or off
8	hardware	operation noise Loud	1. Check external power on or off 2. Check the screws and the pump head bar tightening 2. Check the motor and the driver connected well 3. It is normal in speed 70rpm and 120rpm.
9	hardware	display abnormal	1. Check the display panel and the main board connected well
10	software	external control not work	1. Check the indicator lamp is EXT mode or not
11	software	communication not work	1. reset the equipment address 2. Check one equipment has a one corresponding address



If the malfuction cannot be solved, please contact with the dealer.

Specifications



BT101S series Technology Parameters

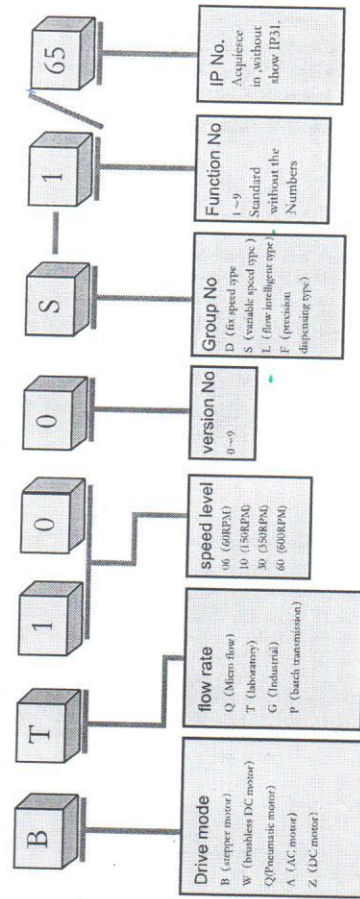
Main Function

Acceptable pump head: YZ15, YZ25, DG1, DG2, DG4
External Control Function: keypad controlling, speed, reversible direction, start/stop, full speed, memory function; footswitch, external controlling start/stop, external controlling direction, segregation, 5V, 12V, 24V, level input selection: 0-5V/10V, 4-20mA, 0-10KHZ,
Communication Function: RS485, support MODBUS communication protocol
Display Function: Display panel: display the working speed;
Direction Control: reversible direction

Main Performance

Flow rate range: 0.00016~575 ml/min
Speed: 0.1~150RPM
Speed precision: 0.1RPM, accuracy 0.2%
Operation mode: control knob operation
Display panel: 4LED digital display speed, LED indicator light display the working state;
Acceptable power: AC 220V±10%, 50Hz/60Hz AC 110V ± 10%, 50Hz/60Hz
Consumption power: < 40W
Working environment: environment temperature 0~40℃, relative humidity < 80%
Outer dimension: 260×181×198(mm)
Driver weight: 4.5kg
Protection level: IP31

Naming rule





BT301S series Technology Parameters

Main Function

Acceptable pump head: YZ15, YZ25
External Control Function: keypad controlling, speed, reversible direction, start/stop, full speed, memory function; footswitch, external controlling start/stop, external controlling direction, segregation, 5V, 12V, 24V, level input selection: 0-5V/10V, 4-20mA, 0-10KHZ,
Communication Function: RS485, support MODBUS communication protocol
Display Function: Display panel: display the working speed;
Direction Control: reversible direction

Main Performance

Flow rate range: 0.006~1340ml/min
Speed: 0.1~350RPM
Speed precision: 0.1RPM, accuracy 0.5%
Operation mode: control knob operation
Display panel: 4LED digital display speed, LED indicator light display the working state;
Acceptable power: AC 220V±10%,50Hz/60Hz AC 110V ± 10%,50Hz/60Hz
Consumption power: < 50W
Working environment: environment temperature 0~40℃, relative humidity < 80%
Outer dimension: 260×181×198(mm)
Driver weight: 4. 7kg
Protection level: IP31

B601S series Technology Parameters

Main Function

Acceptable pump head: YZ15, YZ25
External Control Function: keypad controlling, speed, reversible direction, start/stop, full speed, memory function; footswitch, external controlling start/stop, external controlling direction, segregation, 5V, 12V, 24V, level input selection: 0-5V/10V, 4-20mA, 0-10KHZ,
Communication Function: RS485, support MODBUS communication protocol
Display Function: Display panel: display the working speed;
Direction Control: reversible direction

Main Performance

Flow rate range: 0.006~2300ml/min
Speed: 0.1~600RPM
Speed precision: 0.1RPM, accuracy 0.5%
Operation mode: control knob operation
Display panel: 4LED digital display speed, LED indicator light display the working state;
Acceptable power: AC 220V±10%,50Hz/60Hz AC 110V ± 10%,50Hz/60Hz
Consumption power: < 60W
Working environment: environment temperature 0~40℃, relative humidity < 80%
Outer dimension: 260×181×198(mm)
Driver weight: 4. 9kg
Protection level: IP31

Tubing specifications

Specification	0.5×0.8	2.4×0.8	1×1	2×1	3×1
wall thickness (mm)	0.8				
inner diameter (ID) (mm)	0.5	2.4	1	2	3
Compression (Mpa)	0.1				

Tubing NO.	13#	14#	19#	16#	25#	17#	18#	15#	24#
wall thickness (mm)	1.6								
inner diameter (ID) (mm)	0.8	1.6	2.4	3.1	4.8	6.4	7.9	4.8	6.4
Compression (Mpa)	0.17				0.14	0.1	0.07	0.17	0.17
intermittence	0.27				0.24	0.14	0.1	0.27	0.27

Tubing NO.	73#	82#
wall thickness (mm)	3.5	
inner diameter (ID) (mm)	9.6	12.7
Compression (Mpa)	0.17	0.07
intermittence	0.27	0.04

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