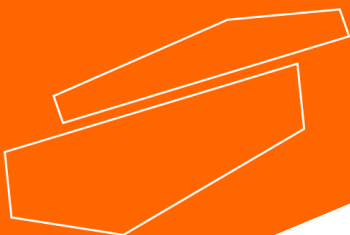




DISPENSING PERISTALTIC PUMP LBX P10

Please read the User Manual carefully before use, and follow all operating and safety instructions!



user manual

english / español / français

User Manual



Dispensing Peristaltic Pump P10

Important notice

This instrument is designed for laboratory usage only. Please read this manual carefully before installing or operating this equipment. The instrument shall not be modified in any way. Any modification will void the warranty and may result in potential hazard. We are not responsible for any injury or damage caused by any non-intended purposes and modifying the instrument without authorization.

1. Check the voltage specified on the name-plate and ensure it matches the line voltage in your location.
2. Install the instrument in a clean, dust-less, and ventilated area under 40°C.
3. Never spray flammable or toxic materials.
4. If the following occurs, turn off the pump and disconnect the power plug (pull the plug rather than holding the power line):
 - 4.1 Liquid spilled on the pump
 - 4.2 You think the pump needs maintenance or repair
5. Customer's power outlet must have a reliable earth ground
6. If the supply cord is damaged, please contact the manufacturer or your service agent for replacement to avoid hazard.

Service

In order to guarantee this equipment Works safely and efficiently, it must have a regular maintenance. In case of any faults, do not try to repair it yourself. If help is needed, you can always contact your dealer or Labbox via www.labbox.com

Please provide the customer care representative with the following information:

- Serial number
- Description of problem
- Your contact information

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PART 1 Matters needing attention

>>Matters needing attention

Please read the operating instruction manual carefully before operating this equipment.

◆ Safety:

1. The staff responsible for the installation or maintenance of this equipment should have the experience and ability to carry out related work.
2. This product is not applicable to the ATEX explosion-proof directive and cannot be used in flammable and explosive environments.
3. When pumping dangerous liquids, please follow safety precautions.
4. Please determine whether you need to wear personal protective equipment when operating the pump in accordance with the nature of the transfer fluid and industry specifications.
5. Non-professionals should not install this pump with other equipment to reduce safety risks.
6. For hazardous fluids, a dedicated operation process must be specified to prevent personal injury.
7. The power plug can disconnect the power supply and drive in an emergency. Do not place the pump in a workplace where it is difficult to cut off the power supply, otherwise it will affect the emergency stop operation.

◆ Tube:

1. In the event of a tube failure, ensure that the fluid in the pump tube of the pump head can be discharged to a suitable container or drain.
2. A ruptured tube may cause fluid to splash. Please take appropriate protective measures.
3. When disassembling the tube, it is necessary to drain the medium and cut off the power supply to ensure that the pipeline is pressure-free.
4. Ensure that the chemicals to be handled are compatible with the pump head, tubes and accessories.

◆ Roller:

1. Do not touch the rollers while the pump is running.
2. Keep the rollers clean and dry to reduce tube wear.
3. Do not lubricate the pump head rollers by yourself. Improper operation may cause the tube to run out or the pump head shell to corrode.

◆ Drive:

1. There are no user-serviceable parts in the pump.
2. The power socket on the back of the driver is equipped with a user-replaceable built-in fuse. Only products of the same category can be used to replace the fuse.
3. The surface of the driver and the pump head are not resistant to organic solvents and strong corrosive fluids. If the liquid is splashed or accumulated, please remove, and clean it in time.
4. After the pump enters the external control mode. The external control icon in the upper right corner of the LED screen lights up, and the pump can realize start&stop/direction/speed control in the external control mode.

PART 2 Unboxing

>>Unboxing

2.1 Unpacking inspection

Confirm that the pump is packaged in good condition. Please check the packing list, when unpacking, check the product model and the number of accessories, and check whether the parts are damaged during transportation. If you have any questions, please contact us immediately.

The packing list is sent with the goods, and the actual delivery content is subject to the list.

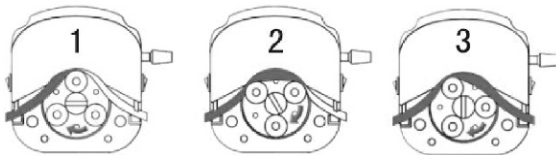
2.2 Product storage

This product can be stored for a long time, but before putting it into operation, please confirm that the drive, pump head or tubes and other accessories can be used normally. The tubes are commonly used consumables. Pay special attention to the use time and expiration date.

PART 3 Product description

>>Product description

3.1 Principle of Peristaltic Pump Operation



The peristaltic pump uses the rotor to alternately squeeze and release the tube to transfer fluid, just like squeezing a tube full of fluid with a finger. As the finger slides forward, when a negative pressure is formed in the tube, the liquid flows with it.

3.2 Product features

*Intelligent distribution: One-key switch distribution and transmission mode, knob adjustment, easy to use

*Suction back function: in the distribution mode, the pump can be reversed by self-definition after stopping to prevent liquid leakage

*External control function: support RS485/MODBUS communication protocol, analog control, foot switch control

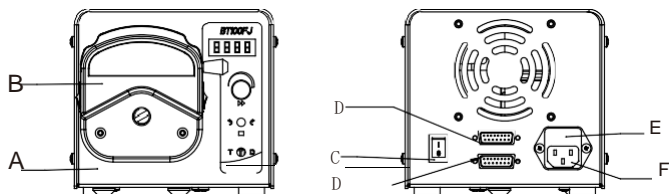
*Power-off save: can automatically save the control parameters of the last power-off

*One button full speed: There is a convenient full speed button for quickly filling or emptying the pipe

*Adapted to multiple pump heads: YZ series, TX series, DG series and other pump heads can be installed to meet different flow requirements

3.3 Product structure

·Drive



A: Driver B: Pump head C: Power switch D: External control interface
E: Safety seat F: Power socket


3.4 Technical parameters

Drive model	PUMP-10J-001	PUMP-30J-001	PUMP-60J-001
Max speed	100rpm (reversible)	300rpm (reversible)	600rpm (reversible)
Max flow	380mL/min	1140mL/min	2280mL/min
Speed mode	Membrane key speed regulation		
Display method	4-digit LED displays current speed/flow		
Suction angle	10°-720° (0° means no back suction)		
Suction speed	10-300rpm		
Power supply	AC220V±10% (standard) or AC110V±10% (optional)		
Power	<22W	<35W	<50W
External control method	Start control/direction control/speed control (0-5V, 0-10V, 4-20mA optional) RS485 serial communication		
Ambient temperature	0-40°C		
Drive weight	3.98kg		
Protection class	Ip31 (indoor use, avoid long-term exposure to UV rays)		

PART 4 Product installation

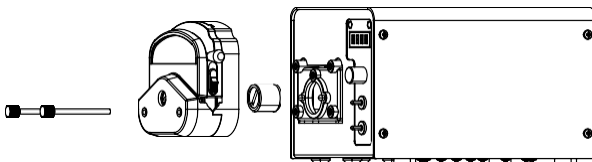
>>Product installation

4.1 Pump head/pump tube installation

 Before performing any loading, unloading or maintenance activities, be sure to disconnect the pump from the main power supply.

Pump head installation diagram:

YZ1515x(YZ2515x)



Pump tube installation diagram:

YZ1515x (YZ2515x)



4.2 Installation suggestions and precautions

Installation suggestions

- >> Application accessories such as foot switch, countersunk head, check valve, filling nozzle, connector, etc. can be selected according to actual conditions.
- >> For the size and selection of the tube, please refer to 3.3 Product Structure-Pump head/tube selection and reference flow Related Content.
- >> For pump head models and options, please refer to 3.3 Product Structure-Pump Head/tube Selection and Reference Flow Related Contents.

- ① Before cleaning, maintaining and installing the equipment, be sure to disconnect the control power supply;
- ② The driver should be placed on a flat and rigid surface;
- ③ The ambient temperature of the pump should not exceed 104°F (40°C), and air circulation should be ensured to ensure the heat dissipation of the pump;
- ④ The start-stop key (shortcut key) on the operation panel can quickly change the direction and control the start-stop, but it is recommended to install an emergency stop device on the main circuit of the power supply to ensure higher safety;
- ⑤ Make sure that the inner wall of the tube is clean and free of foreign matter before use. The shorter the pipeline, the better, and the suction and lift should not be too long;
- Ⓐ Determine the running direction of the pump (forward and reverse) according to the specific location of the fluid placement and supporting machinery on site, which is conducive to later operation.
- ⑦ In order to meet the requirements of flow and flow rate, a peristaltic pump tube with matching diameter is required;
- ⑧ The pump itself has self-priming characteristics, which can effectively prevent the backflow of liquid. Generally, there is no need to install valves at the outlet and inlet of the tube. You can also install a one-way valve in the pipeline according to actual needs to avoid fluid leakage when the pump head and tube fail.

Precautions




·The diameter of the pipeline at the inlet is not less than the inner diameter of the pump tube, and a suction and delivery tube with a diameter \geq the inner diameter of the pump tube should be selected. When pumping viscous liquids, keep running at low speed, which can improve filling efficiency and improve pumping performance. It is recommended to enter the port side and the outlet side are connected to a flexible pipeline of not less than 1 meter, which can reduce pipeline pulse and reduce pulse loss. Try to place the pump at the same level or lower level of the liquid to be transferred to improve pumping efficiency. Every time you replace a new hose or liquid, you need to re-calibrate the liquid volume to ensure the accuracy of liquid transmission. When the peristaltic pump is running, ensure that all valves on the pipeline are normally opened. Control wires and power wires are not allowed to have dead bends, and it is not recommended to bundle them together. This product cannot be used to transfer any chemical substances that are incompatible with the pump head and hose.

PART 5 Product operation

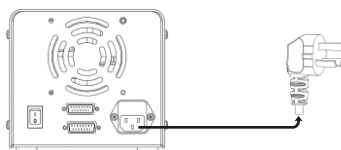
>>Product operation

5.1 Line connection

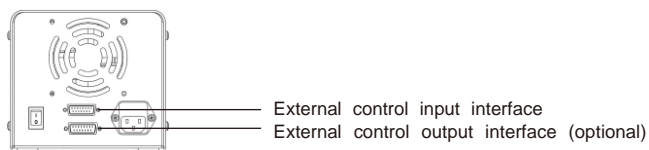
Power connection:

-  AC220V±10% (standard) power supply or AC110V±10% (optional) power supply.
-  Ensure that all power supplies are matched to equipment power and are well grounded.
-  The position of the pump should ensure that it is convenient to disconnect the power supply when operating the equipment.

Power wiring diagram



External control wiring diagram



Note: For the interface definition of specific external control input/output, please refer to "5.7 External Control Operation" for details.

5.2 Power-on

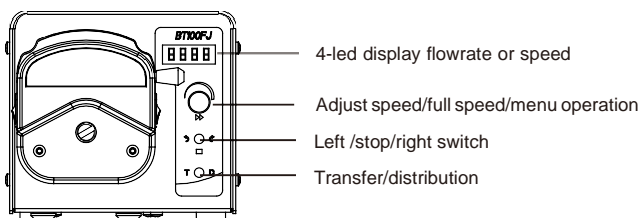
• Power-on inspection

- ① Check whether the pump pipe has been installed correctly, and whether the tube inlet pipe and outlet pipe have been correctly connected.
- ② Check whether it is connected to a matching power supply.
- ③ Check whether the peristaltic pump has been installed according to "4.2 Installation suggestions and precautions".

After the pump is turned on, the LED display will light up and you can start specific operations and settings.

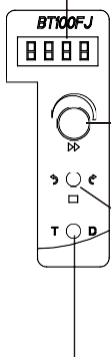
5.3 Operation panel and display

• Operation panel



Operation panel

• LED screen digital display current working status: speed mode - display current speed; flow mode - display current flow.



① Speed regulation: turn the knob clockwise, the speed/flow will increase, and turn the knob counterclockwise, and the speed/flow will decrease.

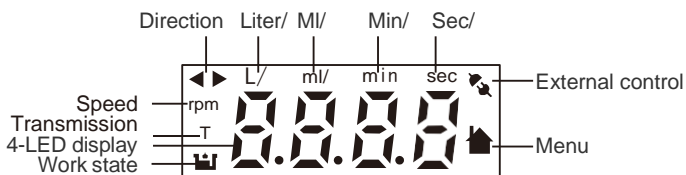
② Full speed: In the full speed mode, the filling, cleaning and emptying of the hose can be completed quickly.

③ Menu: Press to enter the menu, rotate left and right to be the [Select] button; when pressed, it is the [OK] button.

• When the "left-stop-right" switch is turned to "left". The pump runs counterclockwise at the set speed; when it is turned to "right", the pump runs clockwise at the set speed; when it is turned to "stop", the pump stops running.

• When the transfer/distribution switch is set to "T", the pump transmits according to the speed/flow; when it is set to "D", the pump fills according to the set distribution mode.


• Digital Display



4-LED display screen, different icons light up, it shows the current working status of the pump

5.4 Quick operation

*switch

After confirming that the power supply is installed correctly, press the drive switch  "I"-Power on "o"-power off.

*Start &stop

Turn the "Left /stop/right switch" on the operation panel to the middle position and the pump will stop running.

*Direction control

↶ ● ↷ Flick to the left, the current is reverse transmission; flick to the right, the current is forward transmission.

*Adjust speed



According to the diagram: adjust clockwise, the speed will gradually increase, counterclockwise adjustment, the speed will gradually decrease.

*Full speed



In the running state, long press the knob, the pump enters full speed mode (▶▶) after releasing the button, it returns to the previous running state.

*Transfer/distribution

T ● D When the transfer/distribution switch is set to "T", the pump will transmit according to the set speed/flow; when it is set to "D", the pump will be filled according to the set distribution mode.

5.5 Application case

Application 1: Speed mode transmission (Transmission fluid to rotate speed of 80rpm/min)

- (1) Press the button to enter the (display of choice).
- (2) Press the knob to enter (speed display mode).
- (3) Press the knob to determine the current model for the speed display mode.
- (4) To rotate and press the knob (return to the main interface).
- (5) Rotate the knob to the
- (6) Put the T/D switch T D to "T"
- (7) The according to the operation of the peristaltic pump 80rpm/min








Application 2: Flow mode transmission(Transmission fluid to rotate speed of 80ml/min.)

- (1) Press the button to enter the (display of choice).
- (2) Press the knob to enter (flow display mode).
- (3) Press the knob to determine the current model for the flow display mode.
- (4) To rotate and press the knob (return to the main interface).
- (5) Rotate the knob to the
- (6) Put the T/D switch T D to "T"
- (7) The according to the operation of the peristaltic pump 80ml/min

Application 3: Dispensing Filling in Flow Rate Mode (Dispensing filling liquid at a flow rate of 100ml/min)

- (1) Put the T/D switch T D to "D"
- (2) Press the button to enter the (display of choice).
- (3) Press the knob to enter (flow display mode).
- (4) Press the knob to confirm that the current mode is the flow display mode
- (5) Turn the knob to Set filling time, Set stop time
 Set the number of fills.
- (6) To rotate and press the knob (return to the main interface).
- (7) Rotate the knob to the
- (8) The according to the operation of the peristaltic pump 100ml/min









Application 4: Calibration Fluid Volume (Transfer liquid at a speed of 800ml/min)

- (1) Switch the peristaltic pump to flow mode.
- (2) The user needs to choose the pump head and pump tube correctly according to their own situation. If the user chooses the YZ1515x pump head and the 17# tube, Then you need to select A208 in . And then  select -13- in
- (3) After returning to the main interface, adjust the flow to 800ml/min. If the accuracy cannot meet the user's needs, flow calibration is required.
- (4) Press the knob to enter  800.0ml is displayed.
- (5) Flip   Peristaltic pump for liquid transfer, the peristaltic pump will stop automatically after the timer expires, measure and record the liquid volume.
- (6) Flip   to stop position, At this time, 800.0 is displayed. Use the digital knob to input the liquid volume just recorded and press the digital knob to confirm.
- (7) After returning to the main interface, adjust the flow rate to 800.0ml/min according to the situation, and complete the calibration.

Note: If the actual liquid volume accuracy does not meet the requirements, you can enter E0-- and repeat the calibration several times.

Application 5: Foot switch (only support control start and stop)

(The liquid is transferred at a flow rate of 200ml/min, and the foot switch controls the start and stop)

- (1) Press the knob to enter  (Display mode selection)
- (2) Press the knob and turn it to enter  (Flow display)
- (3) Press the knob to confirm that the current mode is the flow display mode.
- (4) Rotate to  and press the knob (return to the main interface)
- (5) Turn the knob to 200.
- (6) Press and turn the knob to enter  (external control, system settings)
- (7) Press and turn the knob to enter  (speed control selection) Press the knob to select C0-4 (internal control speed)
- (8) Press and turn the knob to enter  (Start and stop control selection) Press the knob to select C2-1 (external control start and stop)
- (9) Use the dial button   on the operation panel to control the running direction.
- (10) Rotate the knob to ESC to exit, and return to the main interface one by one

Note: Start-stop signal mode, the default is level mode.

* First boot default factory settings

Factory setting: The factory setting display mode is speed mode, pump head model is YZ1515x, tube model is 17#, if there is a need for replacement, it needs to be reset. (Refer to 5.6 Menu Function Operation)

Note: The factory settings can be adjusted according to the actual needs of customers.

Operation instruction details 5.6 Menu function operation

(If it is not necessary, please do not adjust the parameter items at will)

Device address selection	1	Boot display
Default display mode	Speed mode	A0-0
External control speed mode	0-5V control	C0-0
External control direction mode	External control direction	C1-1
External control Start&Stop mode	External control start & stop	C2-1
Start-stop signal mode	level mode	C3-0
Initial state of pulse signal	Stop	C5-0
Communication baud rate	9600	A1-6 : 9600
Suck back speed selection	10rpm	A1-8 : 10
Suck back angle selection	0° (No suck back)	A1-9 : 0
485 enable selection	485 disabled	Co-0
External control output setting	0-5V output	Cb-0
External control start-stop line selection	1 is valid	Cd-0
Pump head setting	YZ1515x	A200
Pump tube setting	17#	A2-1 : -17-

*After the pump is turned on, it runs according to the default setting. All operating parameters can be changed by adjusting the knob(5. 6 Menu function operation)

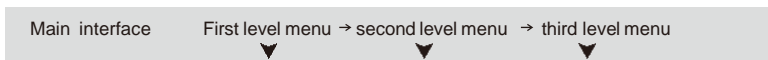
5.6 Menu function operation

Operation procedure (with the pump stopped)

- ① Press the speed control button to enter the first-level menu from the main interface: A0- - /A1- - /A2- -
- ② Turn the knob to select, click OK to enter the secondary menu Ax-x(If the operation option is up to two levels, after selecting and confirming, the function setting is completed. To exit, you need to turn the knob to ESC to exit step by step.)
- ③ Turn the knob to select, click OK to enter the third-level menu.....
- ④ Turn the knob to select, click OK to complete the function setting, then turn the knob to ESC to exit step by step.

*Boot display, Device address(1-30)

Boot display 



→ *Display mode selection: A0- -

① Speed display →

② Flow display →



→ *External control, system setting: A1--

(1) Speed control method selection

→

- C0-0 0-5V control • C0-3 0-10kHz control
- C0-10 -10V control • C0-4 Internal control speed
- C0-2 4-20mA control • ESC

(2) Direction control method selection

→

- C1-0 Internal control direction
- C1-1 External control direction
- ESC

(3) Start&stop control method selection

→

- C2-0 Internal control direction Start&stop
- C2-1 External control direction Start&stop
- ESC

(4) Start-stop signal mode selection

→

- C3-0 Level mode
- C3-1 Pulse mode
- ESC

(5) Signal action mode

→

- C4-0 Low level/Falling edge start
- C4-1 High level/Rising edge start
- ESC

Level, pulse signal selection

(6) Initial state pulse signal

→

- C5-0 Stop
- C5-1 Run
- ESC

(7) Communication baud rate selection

→

- 1200 •2400
- 4800 •9600
- ESC

(8) Device address selection

→

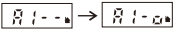
- -01- Choose address as (1)
- -30- Choose address as (30)
- ESC

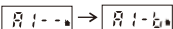
(9) Suck back speed selection  → ·10-300
·ESC

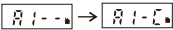
Resolution 1rpm

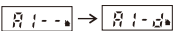
(10) Suck back angle selection  → ·0, 10-720°
·ESC

Resolution 1°

(11) 485 enable selection  → ·Co-0 (485 disabled)
·Co-1 (485 enable)
·ESC

(12) External control output setting  → ·Cb-0 (0-5V output) ·Cb-3 (0-10kHz output)
·Cb-1 (0-10V output) ·Cb-4 (no output)
·Cb-2 (4-20mA output) ·ESC

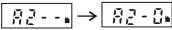
(13) Restore factory settings  → ·Cc-0 (Restore calibration K value)
·Cc-1 (Restore factory settings)
·ESC

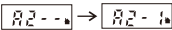
(14) External control start-stop line selection  → ·Cd-0 (valid)
·Cd-1 (Invalid)
·ESC



→ *Pump head and pump tube setting: A2--

Note: This menu is displayed in flow mode

(1) Pump head setting  → ·A200 (YZ1515x) ·A206 DG (10)
·A201 (BZ15) ·A207 KZ25
·A202 (TX315) ·A208 YZ35
·A203 (YZ2515x) ·A209 KZ35
·A204 (BZ25) ·ESC
·A205 DG (6)

(2) Pump tube setting  → ·-13- (13#)
·-0.5- (ID 0.5mm)
·ESC



→ *Calibration function: E0-

Calibration
function

E0 - - .

- .Set calibration fluid volume
 - .Direction key operation (REPEATED OPERATION)
 - .Enter the actual volume
 - .Press the knob to confirm
- (P10 Application 3)



→ *Filling parameter setting: F0/F1/F2- -

Note: When setting the filling parameters, the transfer/distribution switch needs to be moved to "D"

① Filling time setting **F0** - - . → .0.1~999.9 (s)

- .1000~9999 (s)
- .166.7~999.9 (min)
- .1000~9999 (min)

② Stop time setting **F1** - - . → .0.1~999.9 (s)

- .1000~9999 (s)
- .166.7~999.9 (min)
- .1000~9999 (min)
- .ESC

③ Filling times setting **F2** - - . → .0~9999 (t)



→ *Exit display:ESC

Exit display


ESC .


Instruction manual:

* When A0-0 (speed display) mode is selected, A1 option menu (external control, system setting) can be opened.

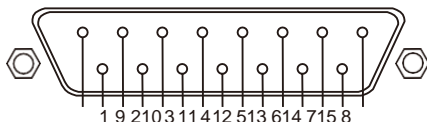
* When A0-1 (flow display) mode is selected, the A1 option menu (external control, system setting), A2 (pump head and pump tube setting), E0 (calibration function) can be opened.

5.7 External control operation

 Please provide the correct signal to the pin, do not exceed the specified range of the signal value, and do not connect the power supply voltage to other pins to avoid permanent damage.

 Make sure that the end of the multi-strand cable is fastened with a cable tie to prevent the risk of electric shock.

• DB15 The external control interface sketch



The external control interface sketch

Drive external control interface (DB-15 description)

1. The using method of the external interface.

- (A) Enabled wire and Ground wire connect or shut, control the entry of the external control.
- (B) Start/Stop wire and Ground wire connect or shut, control the start and stop of the pump.
- (C) Direction wire and Ground wire connect or shut, control the running direction of the pump.
- (D) Between Speed wire and Ground wire, join up 0-5V, 0-10V, 4-20mA, 0-10kHz, etc. controlling wire signal.

2. External control output port provides optional.

*The 15-pin interface on the back of the machine is the controlling interface to operate the machine through the external signals.

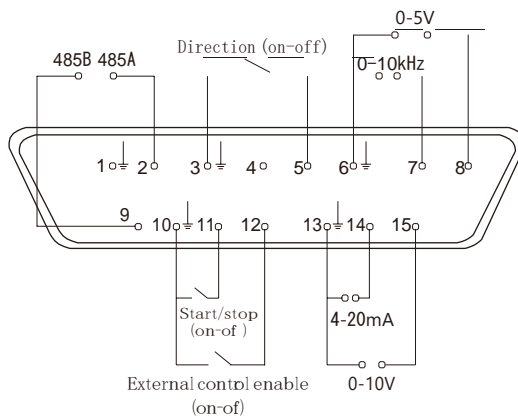
Firstly, prepare a DB15 connector (with holes) and various colors signal wires, then open the 15-pin interface, weld on the signal wires according to the below sheet, and fix the wires together using the clip on the interface, you may inject some glue to reinforce these wires; and at last install the shell and screws.

External control input

-External control input interface definition

PIN	1	2	3	4	5	6	7	8
DEFINITION	E-c Ground	485 interface A	E-c Ground		Direction	E-c Ground	0-10kHz Input	0-5V Input

9	10	11	12	13	14	15
485 interface B	E-c Ground	Start /stop 1	E-c Enable	E-c Ground	4-20mA Input	0-10V Input



13,10,13 are all E-c Ground

External control input wiring diagram

【External control input line color function definition】

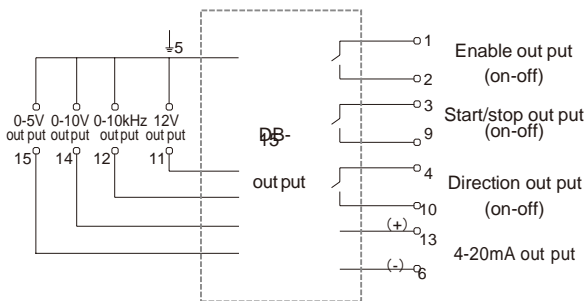
Serial number	Function	Corresponding function of wire
1	485 communications	Brown---485A Blue---485B
2	start/stop	Brown---start/stop Blue---E-c Ground
3	start/stop, direction	Brown---E-c Enable Gray---start/stop Blue---direction Black---E-c Ground
4	start/stop, analog input: (0-10kHz/0-5V/0-10V/4-20mA)	Brown---E-c Enable Gray---start/stop Blue ---0-10kHz/0-5V/0-10V/4-20mA Black E-c Ground
5	start/stop, direction, analog input: (0-10kHz / 0-5V / 0-10V / 4-20mA)	Brown---E-c Enable Gray---start/stop Blue--- direction Two-color 0-10kHz/0-5V/0-10V/4-20mA Black E-c Ground
6	start/stop, direction, analog input (0-10kHz / 0-5V / 0-10V / 4-20mA), 485 communication	Brown---E-c Enable Gray---start/stop Blue--- direction Yellow 0-10kHz/0-5V/0-10V/4-20mA Green---485A Red 485B Black E-c Ground
7	start/stop, 485 communication	Brown---E-c Enable Two-color---start/stop Blue--- -- 485A Gray---485B Black---E-c Ground
8	start/stop, direction, 485 communication	Yellow---E-c Enable Green---start/stop Red--- direction Blue---485A Gray---485B Black---E-c Ground

· **External control output (Optional)**

-External control output interface definition:

PIN	1	2	3	4	5	6	7	8
DEFINITION	Enable output A	Enable output B	Start-stop output B	Direction Output B	E-c Ground	4-20mA output negative	E-c Ground	E-c Ground

9	10	11	12	13	14	15
Start-stop output A	Direction Output A	12V voltage output	0-10kHz output	4-20mA output positive	0-10V output	0-5V output



5, 7, 8 are all E-c Ground

External control output wiring diagram

【External control output line color function definition】

Serial number	Function	Corresponding function of wire
1	Start-stop output	Brown---Start-stop output A Blue---Start-stop output B
2	4-20mA output	Brown 4-20mA output positive Blue 4-20mA output negative
3	0-5V/0-10V/0-10kHz output	Brown 0-5V/0-10V/0-10kHz output Blue E-c Ground
4	Start-stop, 4-20mA output	Brown---Start-stop output A Blue---Start-stop output B Gray 4-20mA output positive Black 4-20mA output negative
5	Start-stop, 0-5V/0-10V/ 0-10kHz output	Brown---Start-stop output A Blue---Start-stop output B Gray 0-5V/0-10V/0-10kHz output Black E-c Ground
6	Direction output	Brown---Direction output A Blue---Direction output B
7	Enable output	Brown---Enable output A Blue—Enable output B
8	12V voltage output	Brown---12V voltage output Blue---E-c Ground


Note: When the external control input/output is analog control speed, there will be some deviation due to different signal source types. If it affects normal use, please contact the Labbox.

PART 6 Troubleshooting and maintenance

>>Troubleshooting and maintenance

Note: There are no parts in the pump that can be repaired by the user. If you need repairs, please contact Labbox.

6.1 Troubleshooting

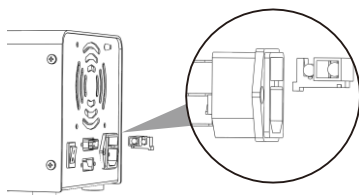
<p>*No response at boot</p>	<p>>>If a circuit protection device is installed, confirm that the circuit has not tripped >>Confirm that the power plug is inserted into a working socket >>Check whether the power cord is firmly inserted >>Check whether the fuse at the power interface is blown</p>
<p>*The fan and display screen are normal, but cannot be started</p>	<p>>> Check if the device is in external control mode >>Check if the keys are working</p>
<p>*The pump is turned on and the pump head cannot run</p>	<p>>>After cutting off the power, manually check whether the pump head is rotating normally >>Check if the coupling is damaged</p>
<p>* Low or no flow when the pump is running</p>	<p>>>Check whether the material supply is normal >>Check if the tube is entangled or blocked >>Check that all valves are open >>Check if the tube is in the middle of the roller >>Check whether the tube is cracked or damaged >>Check the running direction >>Check whether the pump head roller can rotate flexibly</p>
<p>*Pump cannot be controlled in external control mode</p>	<p>>> Check whether the external control icon  in the upper right corner of the LED display is on >> Check whether the external control settings are correctly connected >> Check if the signal source is normal</p>

6.2 Product maintenance

Warning: Before attempting any maintenance, be sure to cut off the power to the pump.

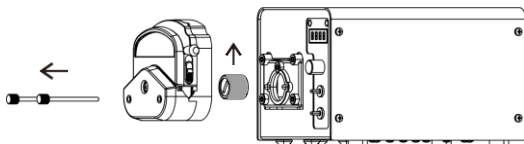
·Replace the fuse

- ① Place the power switch in the "off" position ("|"On,"o"Off)
- ② Disconnect the AC power input cord from the outlet.
- ③ Take out the spare built-in fuse from the power socket of the pump.
- ④ Replace the original fuse.



·Replace the pump head coupling

- ① Place the power switch in the "off" position ("|"On,"o"Off)
- ② Disconnect the AC power input cord from the outlet.
- ③ Remove the tube pump head and take out the coupling.
- ④ Install a new coupling, install the pump head and pump tube.



·Basic maintenance and cleaning Basic maintenance

- ① Open the pump head when it is not working to avoid tube deformation caused by prolonged extrusion.
- ② Keep the pump head rollers clean and dry to prevent surface damage and reduce tube wear; if there is splashing liquid, please wipe it dry as soon as possible.
- ③ Check the wear of the tube regularly and replace it in time to prevent leakage.

- ④ The pump head roller does not need to add lubricating oil, and improper operation may cause the tube to shift or corrode.
- ⑤ Not used to deal with chemical substances incompatible with the pump head or tube.
- ⑥ The pump head is not resistant to organic solvents and strong corrosive liquids. Please deal with it in time if there is effusion.
- ⑦ Please be aware of the storage recommendations and the expiration date of the tube so that it can be used normally after long-term storage.
- ⑧ Built-in fuse, pump head shaft and other replaceable accessories, need to be installed under the guidance of professionals.
- ⑨ It is recommended that the working environment temperature be between 0-40°C.

Note: There are no parts in the pump that can be repaired by the user. If you need repairs, please contact Labbox.

Cleaning

Warning: Before attempting any maintenance, be sure to cut off the power to the pump. When there are stubborn stains on the pump housing, please use a mild detergent to scrub the surface. Do not immerse the pump in liquid or use too much liquid to clean it.

Flow rate according to tube outer diameter. Note: the supplied tube is 10mm in OD.

Tube OD (mm)	Speed (ml/min/rpm)											
	1 rpm	10 rpm	30 rpm	50 rpm	100 rpm	150 rpm	200 rpm	300 rpm	400 rpm	450 rpm	500 rpm	600 rpm
4	0,07 ml	0,7 ml	2,1 ml	3,5 ml	7 ml	10,5 ml	14 ml	21 ml	28 ml	31,5 ml	35 ml	42 ml
4,8	0,27 ml	2,7 ml	8,1 ml	13,5 ml	27 ml	40,5 ml	54 ml	81 ml	108 ml	121,5 ml	135 ml	162 ml
5,6	0,51 ml	5,1 ml	15,3 ml	25,5 ml	51 ml	76,5 ml	102 ml	153 ml	204 ml	208,5 ml	255 ml	306 ml
6,3	0,82 ml	8,2 ml	24,6 ml	41 ml	82 ml	123 ml	164 ml	246 ml	328 ml	369 ml	410 ml	492 ml
8	1,7 ml	17 ml	51 ml	85 ml	170 ml	255 ml	340 ml	510 ml	680 ml	765 ml	850 ml	1020 ml
10	2,9 ml	29 ml	87 ml	145 ml	290 ml	435 ml	580 ml	870 ml	1160 ml	1305 ml	1450 ml	1740 ml
11,1	3,8 ml	38 ml	114 ml	190 ml	380 ml	570 ml	760 ml	1140 ml	1520 ml	1710 ml	1900 ml	2280 ml
PUMP-10J-001					PUMP-30J-001				PUMP-60J-001			

Nota importante para los aparatos electrónicos vendidos en España
Important note for electronic devices sold in Spain
Remarque importante pour les appareils électroniques vendus en Espagne

Instrucciones sobre la protección del medio ambiente y la eliminación de aparatos electrónicos:



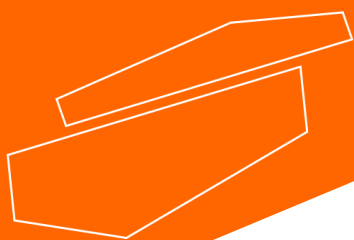
Los aparatos eléctricos y electrónicos marcados con este símbolo no pueden desecharse en vertederos.
De conformidad con la Directiva 2002/96/ CE, los usuarios de la Unión Europea de aparatos eléctricos y electrónicos, tienen la oportunidad de retornar el instrumento para su eliminación al distribuidor o fabricante del equipo después de la compra de uno nuevo. La eliminación ilegal de aparatos eléctricos y electrónicos es castigada con multa administrativa.

Nota importante para los aparatos electrónicos vendidos en Francia
Important note for electronic devices sold in France
Remarque importante pour les appareils électroniques vendus en France

Informations sur la protection du milieu environnemental et élimination des déchets électroniques :



Les appareils électriques et électroniques portant ce symbole ne peuvent pas être jetés dans les décharges.
En réponse à la réglementation, Labbox remplit ses obligations relatives à la fin de vie des équipements électriques de laboratoire qu'il met sur le marché en finançant la filière de recyclage de Réylum dédiée aux DEEE Pro qui les reprend gratuitement (plus d'informations sur www.recylum.com).
L'élimination illégale d'appareils électriques et électroniques est punie d'amende administrative.



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