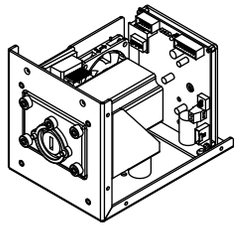
GOLANDER

# B100K1, B100K2, B100K3, B100K5 Operation Manual





## Safety Precautions

Important information:

Be sure to read the manual carefully before operation!

1. Peristaltic pump tube may rupture due to wear and tear from prolonged operation, resulting in leakage of transferred material and possible injury to humans or equipment. Please reasonably assess the service life of the pump tube, inspect it regularly and replace it in time.
2. When removing or installing the pump tube, disconnect the power supply and make sure the material in the tube lines is drained.
3. Do not touch the rollers in pump head while the pump is running to avoid injury to humans or equipment.
4. The temperature rise of the motor is high when the pump is running continuously, so please do not touch the motor and dissipating heat from the motor and circuitry.
5. When the pump is not using for a long time, please loosen the pump tube to avoid it being squeezed and deformed or even sticking and blocking, which will seriously affect the life of the tube.
6. Keep the inside of the pump head clean or it will accelerate wear on the pump tube and rollers.
7. Do not apply lubricant to the rollers arbitrarily, please check the appropriateness with the relevant personnel of the Lead Fluid in advance.
8. When pumping strongly corrosive liquids or organic solvents, make sure that the pump tube and pump head related materials can withstand them.
9. When using, please make sure that the power supply, external control signal and other electrical indicators are within the relevant requirements, do not exceed the standard.

## After-Sales Service

This product since the sale of the whole machine warranty 1 year, in the warranty period of failure, free repair, but consumables are not under warranty.





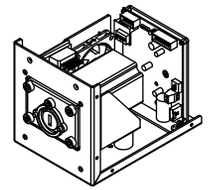
Failures and damages belonging to the following conditions, whether under warranty or not, are not covered by the free warranty.

1. Product is out of warranty.
2. Failure or damage caused by the operator's failure to follow the requirements of the instruction manual, or by obvious deviations from common sense, storage, installation, maintenance, or improper use.
3. Exceeding the conditions of use agreed in the contract or related technical agreement.
4. Failure or damage caused by unauthorized repair, alteration, or disassembly by anyone other than Lead Fluid's designated service department or professional.
5. Problems caused by the user's own use of non-Lead Fluid Genuine Parts.
6. Failure or damage due to accidental factors or man-made reasons (including but not limited to over-voltage, over-current, immersion, corrosion, dropping, bumping, etc.).
7. Failure or damage due to natural disasters and other force majeure (e.g., earthquakes, fires, etc.).
8. Other malfunctions or damages that are not caused by product design, manufacturing, quality, or other issues.
9. For quality or service complaints, a response and initial resolution will be provided within 2 working days.
10. In the event of force majeure factors (such as natural disasters, epidemics, etc.), the above period will be recalculated after the force majeure disappears.





## Description of Product



- This series of products includes four models: B100K1/ B100K2/ B100K3/ B100K5.
- Suitable for various kinds of pump head.
- Small size, compact structure, beautiful appearance.
- Low operating noise.
- Suitable for high-speed continuous operation.

## Parameters

| | |
|---|---|
| Motor Type | 57 stepper motor |
| Voltage | DC24V-DC36V |
| Wattage | <50W |
| Speed Range | ≤150rpm |
| Adaptable Pump Head | YZ15,YZ25, DT10, DT15, YT25, YT15, BZ15, BZ25, DG6, DG10, DS6, DS10 |
| Rotation Direction | Clockwise / Counterclockwise rotation |
| Pump Head Bracket Material | ABS-D1200 plastic |
| Mounting Plate Material | Q235A carbon steel |
| Pump Head Life | ≥6000h |
| Noise | ≤60dB (test environment noise ≤40dB, test product and noise meter horizontal distance of 1 meter) |
| Weight | 2027g (without pump head) |
| Dimensions | (L×W×H) 175*120*136 (mm) |
| Static Torque | 1.2N・M |
| Working Environment | Temperature 0~ 40℃, relative humidity<80% RH |
| Storage Environment | Ambient temperature of -40 ~ +50 ℃, relative humidity of not more than 95% of the clean and well-ventilated environment, the air shall not contain corrosive, flammable gases, oil mist, dust. |





## Suitable Tube Model and Flow Rate Reference

| Flow Rate Table (Example YZ15, other pump heads refer to the pump head tube flow rate table, unit: mL/min) | | | | | |
|---|---|---|---|---|---|
| Material of Tube | Suitable Tube (mm) | 1rpm | 10rpm | 100rpm | 150rpm |
| tube | 13# | 0.057 | 0.57 | 5 | 7.5 |
| | 14# | 0.2167 | 2.1 | 20 | 30 |
| | 19# | 0.530 | 5.3 | 50 | 75 |
| | 16# | 0.830 | 8.3 | 80 | 120 |
| | 25# | 1.9 | 19 | 190 | 285 |
| | 17# | 3.3 | 33 | 300 | 450 |
| | 18# | 4.3 | 43 | 430 | 645 |

- The above data is obtained from the test of purified water with a silicone tube under normal and pressure conditions in the laboratory. This data is for reference only.
- Due to pressure in actual use, temperature, medium characteristics, tube material and other specific factors, the specific situation needs to consult our engineers.





## Product Structure

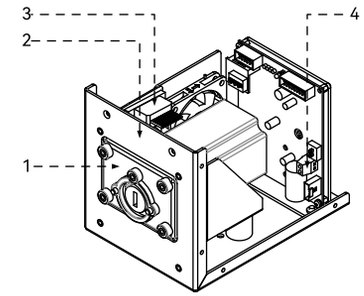



*Figure 1 Overall Structure Diagram*

**Component Name and Function**

1. **Pump Head Bracket:** Connects the product and pump head.
2. **Mounting Plate:** Connects the motor to the pump head bracket and allows the product to be installed on other devices.
3. **DB15 External Control Interface:** External analog control and RS485 communication control.
4. **Power Terminal:** Connect DC power supply to power the product (positive and negative poles of the two ports of the green terminal can be mixed).

## Usage Method

pump head **Installation**

- Take 2 screws of the corresponding pump head and connect them through the mounting holes 1 and 2 of the pump head with the threaded holes 1 and 2 of the product pump head bracket (YZ15 pump head example).

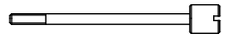


*Figure 2 YZ15 Screw Diagram*

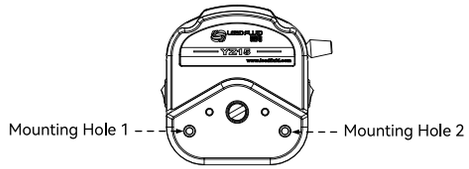



*Figure 3 YZ15 Mounting Hole Diagram*

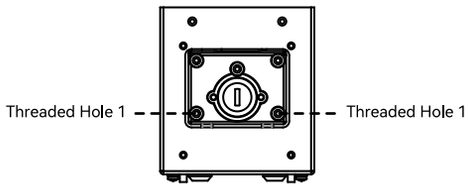



*Figure 4 Pump Head Mounting Hole Diagram*





## Daily Maintenance

- When the pump head is running, there is wear on the tube. During using, attention should be paid to checking the wear of the tube and replacing it regularly.
- The flow rate of the tube decreases with the extension of usage time. Please pay attention to adjust the rotational speed of the drive in a timely manner (for flow type pumps, please recalibrate the flow rate)
- If the tube ruptures during using, please clean up the spilled liquid in a timely manner. Before reusing, check whether the pump head roller operates flexibly If you find that the roller is not flexible, please contact our company. Forcible use will increase the wear of the pump head and tube.

## Dimension Drawing of Exterior and Opening (Unit: mm)

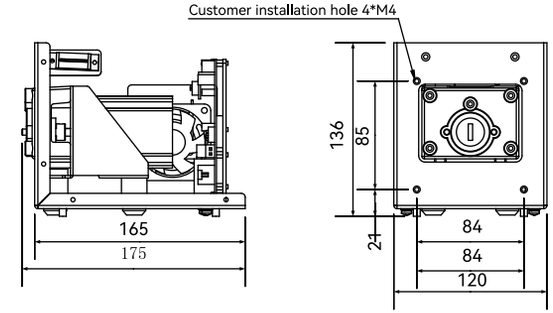
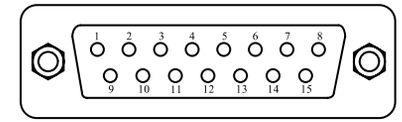



*Figure 5 Dimension Drawing*





## Description of External Control and Communication Interface




| DB15 Pin | English Notes | Description |
|---|---|---|
| 1 | ADC_W | The positive input of the external analog signal |
| 2 | B | Communication interface, B pole of RS485 |
| 3 | A | Communication interface, A pole of RS485 |
| 4 | VCC_W | External DC power input |
| 5 | - | - |
| 6 | CW_W | External input signal to control direction |
| 7 | PWM | Pulse signal output |
| 8 | COM | External commons |
| 9 | AGND | Negative input of external analog signal |
| 10 | +12V | Positive of internal +12V power source |
| 11 | GND | Ground of Internal power source |
| 12 | CW | Internal output to control direction |
| 13 | RS_W | External input to control start/stop |
| 14 | PWM_W | External pulse signal input |
| 15 | RS | Internal start/stop signal output. |

*Table 1 Definition of External Control Pins*





## External Analog Control

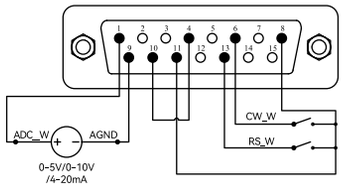



*Figure 6 Wiring Diagram for Connecting Internal Power Supply in External Control Mode*

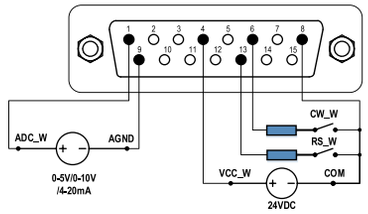



*Figure 7 Wiring Diagram for External Control Analog Connection to DC24V Power Supply*

- In external control mode, connecting the switch of the external RS_W, turn on the analog power supply, the pump will change the speed with the change of the analog value, disconnect the switch of the external RS_W, the pump will stop running.





Note: If you want to use an external 24V DC power supply to control the start, stop and direction of the pump, you need to use a 1.5K resistor in series with RS_W and CW_W, as shown in figure 7, otherwise it will cause damage to the internal circuit of the pump.

## Communication Control

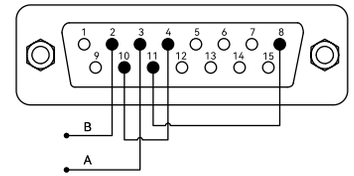



*Figure 8 Communication Internal 12V Power Supply Wiring Diagram*

- RS485 communication supports MODBUS protocol, which can control various functions of the pump

**Mode:** RTU
**Address:** 1-247 can be set
**Communication rate:** 9600
**Data bits:** 8
**Check bit:** even parity (EVEN)
**Stop bit:** 1
**Note:** When communicating with the device, there must be a delay of more than 50ms between each command frame to ensure the integrity of the communication data. Otherwise, data errors and communication abnormalities will occur.

| NO. | Address (Decimal) | Name | Function | Range of Application | Type of Data | Remarks |
|---|---|---|---|---|---|---|
| 1 | 3001 | Easy dispensing state | Whether or not it is dispensing | Normal 0 Dispensing 1 | Unsigned Short int (2bytes) | Not storable |





| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | 3100 | Speed | Set speed | 1-6000 | Unsigned Short int (2bytes) | Address value/10 is the actual speed |
| 3 | 3101 | Direction state | Set direction of rotation | Counterclockwise 0 Clockwise 1 | | |
| 4 | 3102 | Running state | Set to run or stop | Stop 0 Run 1 | | |
| 5 | 3103 | Full speed state | Whether the setting is in full speed (clean) state | Normal 0 Full speed 1 | | |
| 6 | 3104 | Control mode | Set control mode | Internal Control 0 External Control 1 Foot Switch 2 Level 3 | | |
| 7 | 3105 | Easy dispensing volume | Setting the value of the easy dispensing volume (in one microstep) | 0-4294967295 | Unsigned Long int (4bytes) | |
| 8 | 3107 | Slave address | Setting the communication slave address | 1-247 | Unsigned Short int (2bytes) | Need to restart |
| 9 | 3108 | MODBUS mode | Switch MODBUS byte order | CDAB (original computer mode) 0 ABCD (original PLC mode) 1 | | |

## Ordering Information

| Product No. | Model | Control Mode |
|---|---|---|
| 5010200301004 | B100K1 | External control 4-20MA |
| 5010200201001 | B100K2 | External control 0-5V |
| 5010200101003 | B100K3 | External control 0-10V |
| 5010200401013 | B100K5 | RS485 communication |