A Geno Technology, Inc. (USA) brand name

Basic Peristaltic Pump

Cat. No. BT3010 to BT3017

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

Thanks for choosing the BT Lab Systems Basic 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.
- Shutdown Immediately if:
    - Liquid contacts internal electronics.
    - Abnormal noise, smell, or overheating occurs.
    - The unit requires repair or inspection.

Maintenance and repair should be performed by qualified technicians or returned to the manufacturer.

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 a commonly used model in laboratories.

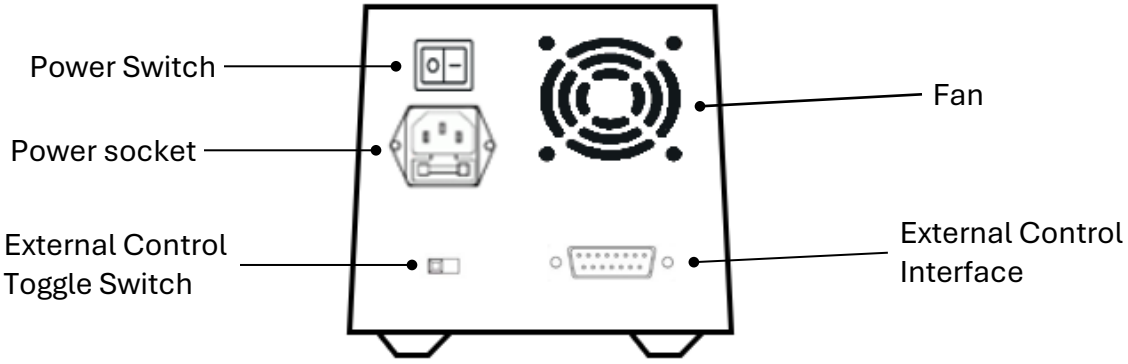
KEY FEATURES

- Flow range: 0.002 – 380 mL/min (head & tubing dependent)
- Manual keypad control **or** remote control via DB-15 interface.
- Power-down memory retains settings during power loss.
- Compatible with sub-distribution controllers for filling functions.

STANDARD CONFIGURATION

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

Rear panel



TECHNICAL SPECIFICATIONS

Normal Operating Conditions

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

Basic Parameters

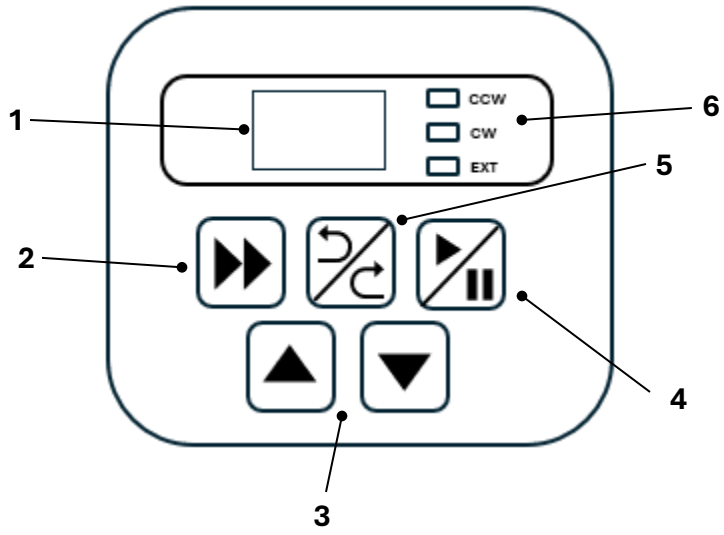
Speed Range	0.1 – 100rpm
Speed Resolution	0.1rpm
Display	3-digit LED
Power Supply	AC 90 – 265 V, 50/60 Hz
Power Consumption	< 30 W
Dimensions (L x W x H)	138 x 153 x 220 mm
Driver Weight	2.35 kg
IP Rating	IP31

Pump Head and Tubing Selection

Model	Pump Head	Compatible Tubing (mm)	Flow Range (ml/min)
BT3010	YZ1515	#13, #14, #16, #17, #18, #19, #25	0.007 – 380
BT3011	YZ2515	#15, #24	0.17 – 270
BT3012	DG-1, 6 rollers	Wall: 0.8-1mm, ID: ≤ 3.17mm	0.0025 – 48 (per channel)
BT3013	DG-2, 6 rollers	Wall: 0.8-1mm, ID: ≤ 3.17mm	0.0025 – 48 (per channel)
BT3014	DG-4, 6 rollers	Wall: 0.8-1mm, ID: ≤ 3.17mm	0.0025 – 48 (per channel)
BT3015	DG-1, 10 rollers	Wall: 0.8-1mm, ID: ≤ 3.17mm	0.002 – 32 (per channel)
BT3016	DG-2, 10 rollers	Wall: 0.8-1mm, ID: ≤ 3.17mm	0.002 – 32 (per channel)
BT3017	DG-4, 10 rollers	Wall: 0.8-1mm, ID: ≤ 3.17mm	0.002 – 32 (per channel)

- **Tubing Test:** Submerge one end in water, pressurize the other. If bubbles appear, tubing wall is too thin.

CONTROL PANEL



#	Control	Function
1	**3-digit LED**	Displays current speed or menu values.
2	**Full Speed**	Press to run at max 100 rpm ("---" appears). Press again to return. Long-press 3s to set RS-485 address.
3	**Speed ▲ / ▼**	Increment or decrement speed by 0.1 rpm (hold for continuous adjust). Inactive in Full Speed mode.
4	**Start / Stop**	Toggles between run and pause. LED solid = running; flashing = paused.
5	**Direction**	Switches rotation (CW / CCW)
6	**LED Indicators**	Indicates directions and External Control Link. Active in all modes.

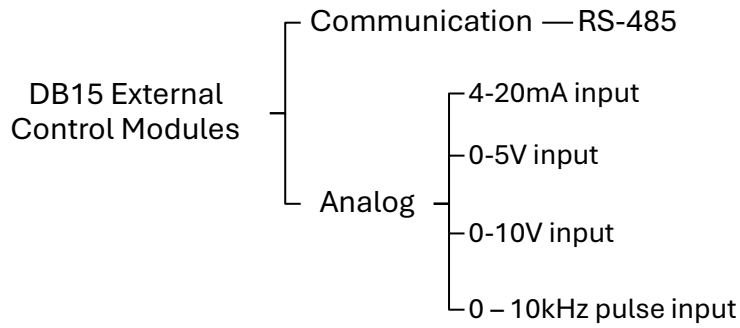
BASIC OPERATION

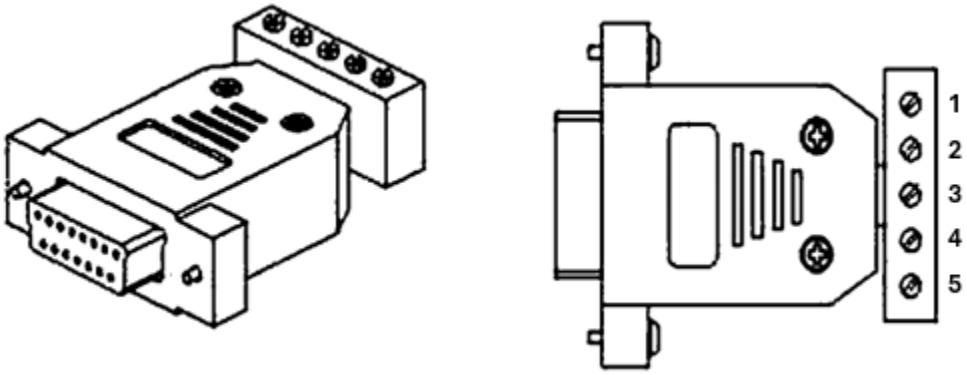
1. **Insert tubing** into the pump head
2. Press **Start** to begin pumping.
3. Adjust speed with ▲ / ▼ keys as required.
4. To rapidly fill or empty lines, press **Full Speed**.
5. Press **Direction** to reverse flow when necessary.
6. Press **Start** again to stop.

Note: Record the optimal speed settings for repeated processes—the pump will recall the last settings at power-on.

EXTERNAL CONTROL MODULE

A male DB-15 connector on the rear panel provides remote control of speed, start/stop, direction, and communication via RS-485. Enable external control in the settings menu before use.



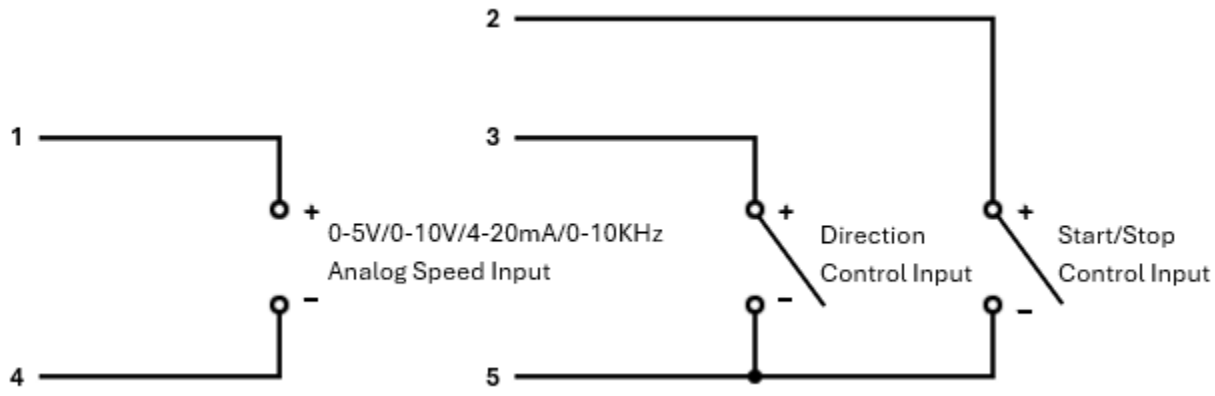


Pin Assignment (4-20 mA, 0-5V, 0-10V, 0-10kHz modules)

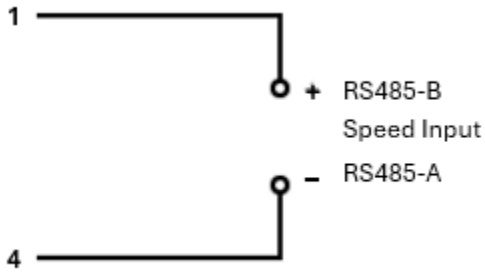
Pin	Signal	Description
1	Analog In (+)	Speed control or RS-485B
2	Start/Stop	Open = Run Short to Pin 5 = Stop
3	Direction	Open = CW Short to Pin 5 = CCW
4	GND / 485 A	Common Reference
5	Common	Reference for Pins 2 & 3

For RS-485, long-press **Full Speed** to set the device address.

Analog Control Module Wiring Diagram



RS-485 Communication Module Wiring Diagram



MAINTENANCE & CARE

- **Release the pressure block** when the pump is idle to prevent permanent tubing deformation.
- Keep rollers **clean and dry**; contaminants accelerate hose wear.
- Avoid contact with **organic solvents or corrosive liquids** on the drive housing or pump head.
- Inspect and replace tubing regularly based on usage time and chemical compatibility.
- Store the unit in a dry, dust-free environment.

TROUBLESHOOTING

Issue	Analysis	Troubleshooting
Pump does not start	• Power off; start/stop wired closed • Fuse blown	• Check main power supply connection and ensure power switch is on • Replace fuse
Uneven flow/pulsation	Tubing worn or incorrectly seated	Replace or rearrange tubing placement
Excessive Noise	Pump head screws uneven or too tight	Re-install pump head and tighten screws evenly
No response to external control	• External control disabled • Wiring error	• Enable external control settings • Verify DB-15 wiring

For unresolved issues, please contact Technical@gbiosciences.com

OPTIONAL ACCESSORIES

Other accessories can be used with BT Lab Systems Basic Peristaltic Pumps.

- **Sub-Dispenser Controller** – Provides timed run/interval control for accurate filling or aliquoting. Connects to DB-15 port.
- **Foot Switch** – Hands-free start/stop control via DB-15 port.

(Note: Accessories control only run/pause; speed and direction remain panel-controlled.)

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: technical@gbiosciences.com