

Incubator Shaker

Cat. No. BT921, BT922, BT924

Thanks for choosing BT Lab Systems' Incubating Shaker. This operation manual describes the function and operation of the instrument. In order to use the instrument properly, please read this manual carefully.

IMPORTANT SAFETY INFORMATION

Users should understand how to use the instrument properly before operating it. Please read this operation manual carefully before using the instrument.

The operation, maintenance and repair of the instrument should comply with the basic guidelines and warning below. Ignoring these instructions will affect the life of the Instrument and safety precautions.

- This product is an indoor Instrument.
- These units are designed for laboratory use by persons knowledgeable in safe laboratory practices.
- The operator should never open or repair the instrument. Opening or repairing the instrument will void the guarantee and can cause accidents.
- The power plug should safeguard against an electric shock. The 3-pin plug supplied with the instrument should be matched with a suitable grounded socket.
- The instrument should be used in an area with low temperature, little dust, no water, no sunshine or hard light and with good air circulation. Do not use where there is corrosive gas or a strong magnetic field. Keep far away from central heating, camp stove and other hot sources. Do not put the instrument in a wet and dusty area. The vent on the instrument is designed for aeration. Do not wall up or cover the vent. The distance between each device should be more than 100cm when there is more than one instrument.
- Power off when not in use. If the instrument will not be used for a long period, unplug, and cover with a piece of cloth to protect it from dust.
- In case of the following, unplug the instrument at once and contact BT Lab Systems.
 - The instrument comes into contact with liquid
 - The instrument gets soaked or burned
 - The instrument emits an abnormal sound or smell
 - The instrument is dropped or the outer shell damaged
 - The instrument functions abnormally.

MAINTENANCE

The instrument should be cleaned with a cloth dampened by alcohol, If there are smudges on the instrument, clean it with a dry cloth.

INTRODUCTION

The incubator shaker is a temperature controlled biochemical instrument combining incubation and shaking function. It is used in cell culture, fermentation, hybridization, biochemistry, research of enzyme and cell tissue, etc. which require higher quality of temperature control and shaking speed. It can dynamically cultivate microbial cells and all kinds of strains.

KEY FEATURES

- Integrates incubator and shaker. Saves laboratory space.
- Compactly designed, good temperature uniformity, low noise.
- Micro-processor controls temperature and shaking speed. Built-in timing function.
- Cover can be opened at a wide-angle, convenient to watch the sample.
- Built-in cover switch. When the cover is open for air circulation, heating and shaking will automatically stop. No temperature overheating problem.
- Unique speed control to ensure shaker is smooth in starting and avoids spilling liquid.
- Speed of the circulation fan is adjustable.
- Independent temperature alarm system. Heating is cut off when temperature is over the limited value.
- Alarm when program completes.
- Brushless DC motor has long life is maintenance free.

NORMAL OPERATING CONDITIONS

Ambient Temperature: 4°C ~45°C

Relative Humidity: ≤70%

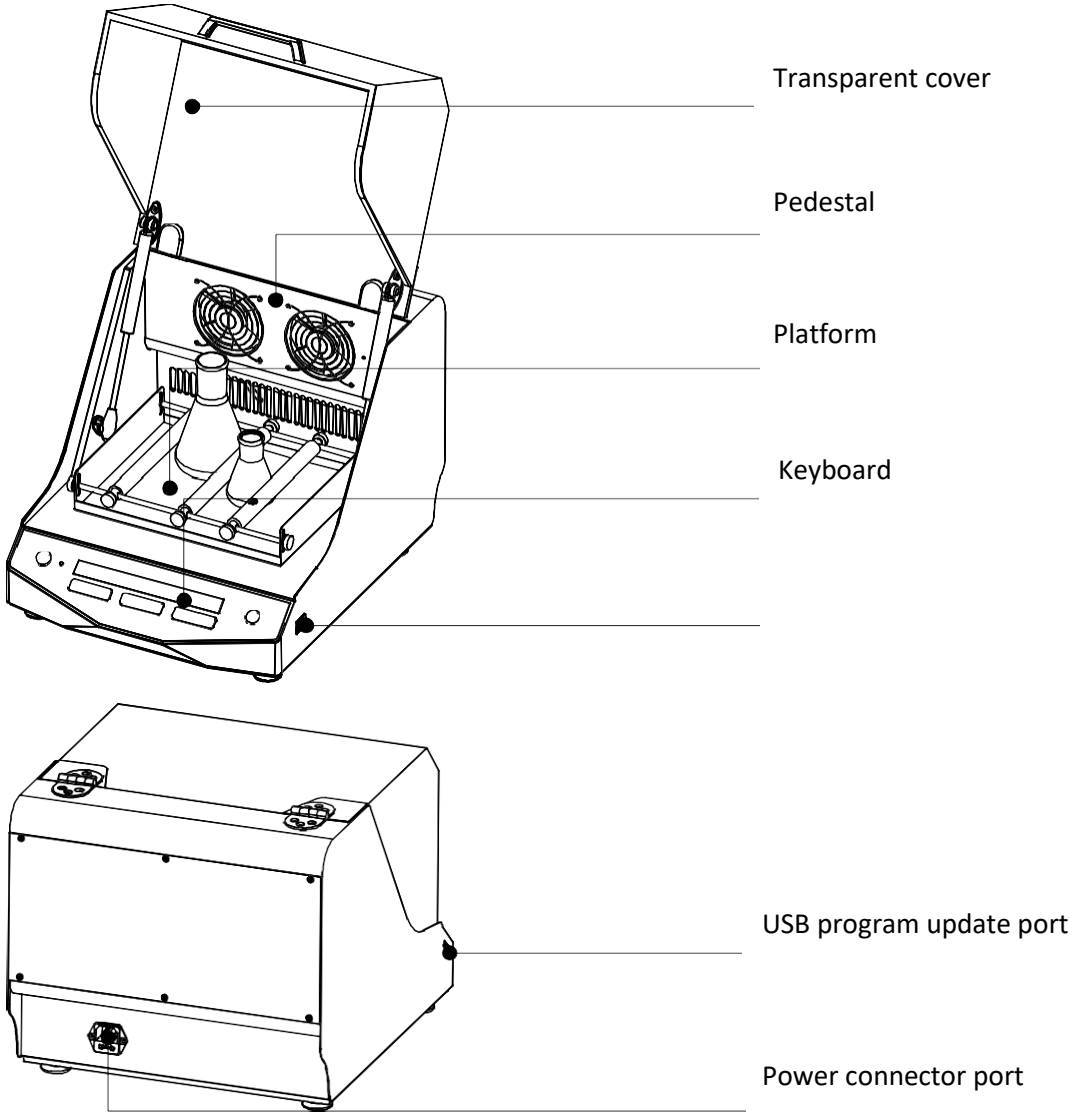
Power: AC110V

TECHNICAL SPECIFICATIONS

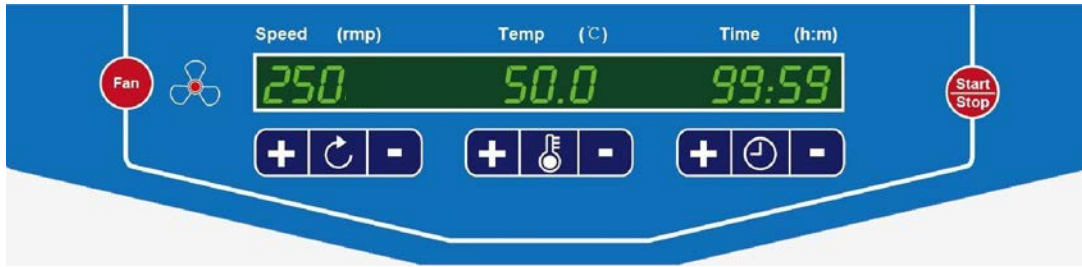
	BT921	BT922	BT924
Temperature Control Range	R.T. +5 ~60°C		
Temperature Display Accuracy	0.1°C		
Temperature Control Accuracy@37°C	≤ ±0.3°C		
Timing Range	0 ~99h59min		
Shaking Speed	50 ~300 rpm		200 ~1200 rpm
Orbit	20mm (horizontal)		3mm (horizontal)
Power Supply	AC110V 400W	AC110V 600W	AC110V 400W
Dimension	360x435x320mm	514x660x430mm	360x435x320mm
Platform	6 types of platforms optional	standard platform PW-420 (410x420x65mm)	standard platform PW-1500 (280x214x13mm)

This section mainly describes the instrument's mechanical structure, the keyboard and functions of each key. Please learn this chapter well before the instrument is operated for the first time.

EQUIPMENT OVERVIEW



KEYBOARD AND DISPLAY PANEL



+ Increase the speed, temperature or time setting value

- Decrease the speed, temperature or time setting value

FAN

Key to switch display between **Shaking speed** and **Fan speed**.

The instrument is air-cycle temp. control, therefore the fan cannot be turned off.

Stop/Start

Key to start or stop operation. Press Start/Stop key to start the operation. Hold Start/Stop key for 2 seconds to stop operation.

KEY FUNCTION

Speed, Time and Temperature Setting

1. LED displays all "8" when powered on. The instrument enters the initial program with a beep.

Press "UP" or "DOWN" arrow of speed key. It displays the last running speed. The unit digit flickers. Press "UP" or "DOWN" arrow of speed key to adjust the speed value. Continuously pressing makes the value increase or decrease from unit digit, tens digit to hundreds digit. E.g., to set the speed to 250 rpm, continuously press "UP" arrow key until the speed value displays "250" release the "UP" arrow key. The instrument confirms and saves the setting value.

Press FAN key, the red indicator light **ON**, displays fan speed. Press "UP" or "DOWN" arrow of speed key. It displays the last setting speed of the fan. The unit digit flickers. Press "UP" or "DOWN" arrow of speed key to adjust the speed value. The key adjusts in increments of 200rpm.

2. Press "UP" or "DOWN" arrow of time key. It displays the last setting time. The last digit flickers. Press "UP" or "DOWN" arrow of time key to adjust the timing value. Hold the key to change the value and increase or decrease in X10 speed.

3. Press “UP” or “DOWN” arrow of temperature key. It displays last setting temperature. The last digit flickers. Press “UP” or “DOWN” arrow of temperature key to adjust the temperature value. Hold the key to increase or decrease the value in X10 speed.

NOTICE: The time set at 00:00 means the operation time is ∞.

Start/Stop

1. Press “start/stop” key to start the operation.
2. Press “start/stop” to run the program after adjusting the speed, time and temperature setting. When program completes, the instrument stops running and alerts.
3. Hold the “start/stop” key for 2 seconds to stop the program.
4. When the program completes, or the program is stopped by pressing the “start/stop” key, the instrument will be in stand-by mode. In stand-by mode, press “UP” or “DOWN” arrow of speed, time or temperature key to reset the value.
5. Press “start/stop” directly without adjusting any value in stand-by mode, the instrument operates the program the same as the last setting.

TROUBLE SHOOTING

Issue	Possible Causes	Solution
No signal display when powered on.	No power	Check the power
	Broken fuse	Exchange the fuse (250V 3.0A Φ5x20)
	Broken switch	Exchange the switch
	Others	Contact BT Lab Systems
The actual and displayed temperatures are different.	Broken sensor	Contact BT Lab Systems
“OPEN” in the temperature display with a beep alarm.	Temperature sensor is broken or ambient temperature is below 0℃	Contact BT Lab Systems
Sound but no shaking	Broken motor or broken connecting line.	Contact BT Lab Systems
Button doesn’t work	Broken press button	Contact BT Lab Systems
No sound with a beep alarm.	Transparency cover is not closed	Close the transparency cover

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 our 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 SUPPORT

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