OPERATING MANUAL

EXTREME ENVIRONMENT SHAKER

BSOT-204

CE ISO9001 CERTIFIED

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Chapter 1 Introduction

BSOT-204 shaker is suitable for use in CO2 incubators, greenhouses, and refrigerators. The parameter display and controller are placed outside. There is no need to worry about humidity, high temperature and other factors affecting the performance and life of the instrument. It is very suitable for animal cell culture and suspension cell culture and high and low temperature chemical reactions. The controller can be attached to most incubators by magnets to optimize the operating space.
Features:
- The controller can be placed outside the incubator, and the shaker is controlled by a ribbon cable, which is convenient for viewing and changing settings without disturbing the environment of the incubator.
- The controller can be fixed on the incubator or placed on the workbench.
- Suction cup machine feet, super shockproof, high speed and stable, no noise.
- Large platform design, many samples can be placed, strong load-bearing capacity.

Chapter 2 Specifications

1. The Normal Operation Condition

Can be used in CO2 environment, incubator or cold room Operating environment temperature (shaker): -10 ~ 60°C Operating environment temperature (controller): -10 ~ 50°C
Relative Humidity: 100%
Power: AC110V/220V 50/60Hz ,50/60HZ

2. The Basic Parameters and Specifications

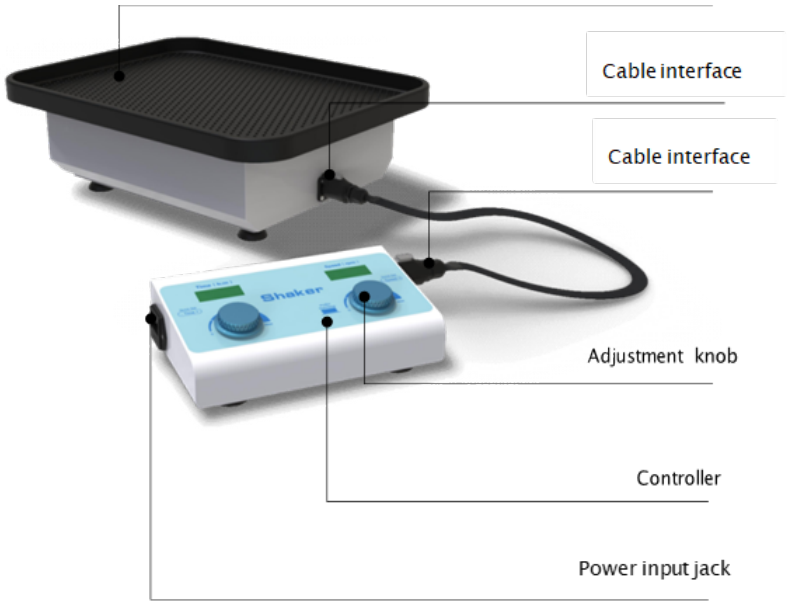
Model	BSOT-204
Speed Range	50~300 rpm
Time Range	1min~99h59min
Digital Display	Time/speed display
Radius of gyration	10mm
Max Load Capacity	2.5Kgs
Motor Parameters	Brushless DC motor
Platform Size	330mm×430mm
Beep Alarm	Yes
Voltage	100~240V AC 0.75A 50/60Hz
Power	30W
Fuse	250V,1A,φ5×20

Controller size	W.220×D.132×H.57mm
Shaker size	W.270×D.320×H.88.5mm
Net Weight	8kgs

Chapter 3 Preparation

This chapter mainly describes the instrument's mechanical structure, the keyboard and functions of each key, as well as preparations before power on. Please learn this chapter well before the Extreme Environment Shaker is to be operated at the first time.

1. Structure Description



2. Keyboard and Display Panel

3. Key Function

Left side: Rotate the knob to the right, the time increases. Rotating to the left is the opposite.

Right side: Rotate the knob to the right to increase the speed. Rotation to the left reduces the speed.

Press the knob and the instrument starts to run, and press the knob again to stop the instrument.

4. Power Connection

Put the instrument on a horizontal and even working table, insert the cylindrical socket of the power cord into the power input socket on the back of the instrument as shown in the figure, and connect the other end of the power cord to the grid. The grid voltage is required to be within the range of AC100~240V.

5. Platform Installation

The Extreme Environment Shaker can be equipped with four type of platforms: Platform A, Platform B, Platform C, Platform D.

Platform Platform A (Stainless steel platform and rubber pad combination)

Erlenmeyer flask platform Platform B (250ml can hold 12)

Erlenmeyer flask platform Platform C (100ml can hold 20)

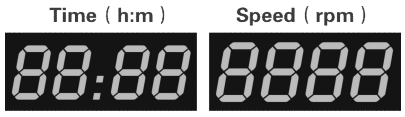
Universal platform Platform D

Platform installation steps:

1. Remove the rubber pads on the
2. Fix the platform on the host with four screws.
3. Then put the non-slip back on the platform.

Chapter 4 Operation Guide

1. Speed and Timing Setting



- Turn on the power switch, the instrument enters initialization, the display screen is as shown on the right, accompanied by a beep sound.

- Speed setting: Image 130, PictureTurn the right knob to set the speed value immediately. After you stop turning the knob, the instrument automatically confirms the implementation of the new set value and saves the set value. As shown on the right. To increase the modification range, turn the knob quickly. As shown on the right, it is 300.

- Time setting: Image 131, PictureTurn the left knob to set the time immediately. After you stop turning the knob, the instrument automatically confirms the execution of the new set value and

saves the set value. As shown on the right. To increase the modification range, turn the knob quickly. As shown in the figure on the right, it is 8:56. When the operation ends, there will be a buzzer prompt.
NOTICE : When the time is set to 00:00, it means the running timing is ∞.

2. Stop / Start

- Short press the right knob to run the current program. When the timing ends, the operation stops, and the buzzer sounds an alarm.
- After running, the instrument displays OVER, press any key or turn the knob to enter the standby interface.
- During operation, short press the knob on the right side to stop the operation. Press this key again to restart the operation.

3. Alarm

- During operation, the communication line is disconnected, Err is displayed, and the buzzer alarms.
- When the operation is over, OVER is displayed. When the motor speed drops, the communication line is disconnected, Err is displayed, and the buzzer alarms.
- Press any key to restore the display.

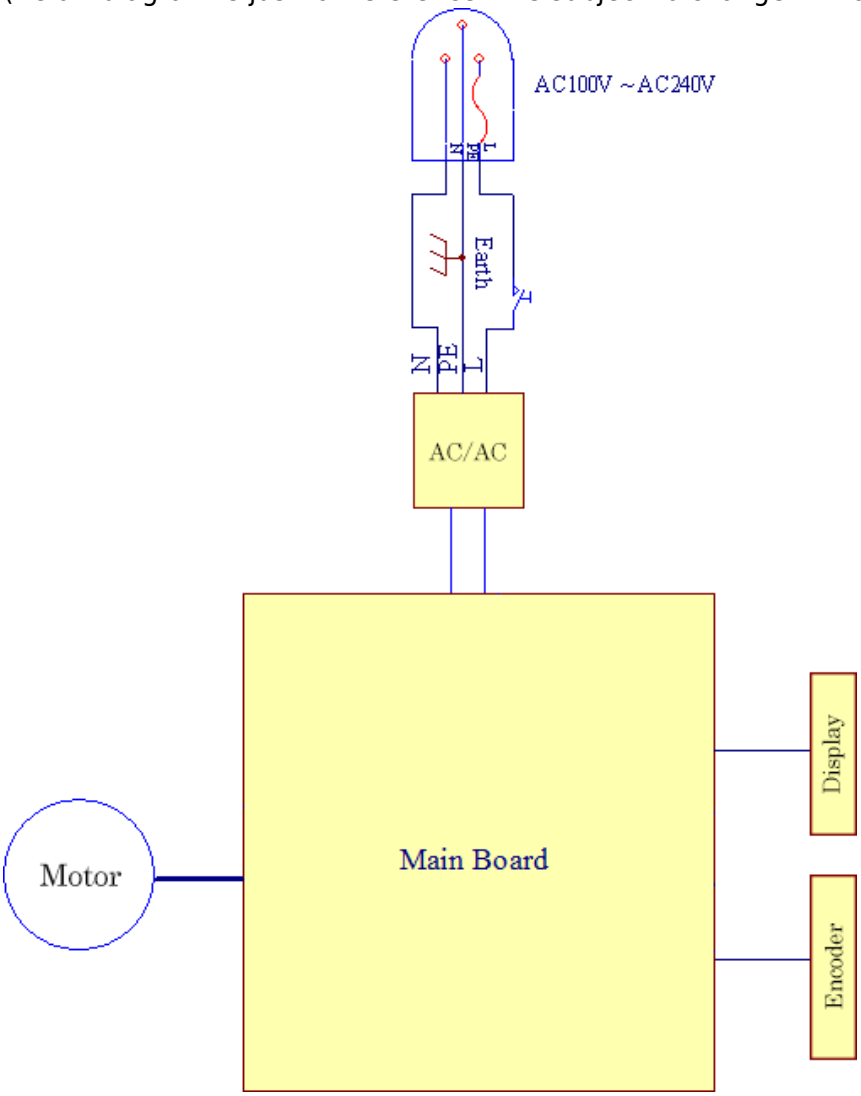
Chapter 5 Failure Analysis and Troubleshooting

Failure Analysis and Processing Procedures

No.	Phenomenon	Possible Causes	Processing Procedure
1	No signal display when power on.	No power	Check the power
		Broken switch	Exchange the switch
		Others	Contact with the seller
2	Shaking heavily	Samples placed imbalanced	Place the samples evenly
3	Actual speed and displayed speed are not matching	Broken controller	Contact with the seller
4	Err displays	Speed out of control	Contact with the seller
5	Knob does not work	Broken button	Contact with the seller

Appendix A：Wiring Diagram of Extreme Environment Shaker

(Below diagram is just for reference. It is subject to change without prior notice.）



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