

# Operation Manual



**BSOR-107**

## Orbital Shaker

Thank you for Choosing Biolab products. Please read the "Operating Instructions" and "Warranty" before operating this unit to assure proper operation.

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# 01 Instruction for Safety



## 1.1 Danger

The improper use of this unit may cause property damage and / or personnel injury.

1. This product must be earthed reliably and kept far away from electromagnetic interference source (Zero line or neutral line should never be used as earth wire).
2. Please ensure the voltage and frequency of the power supply is compatible with the incubator power requirements prior to use.
3. The product should be connected to a separate power outlet and both the plug and outlet are earthed properly.
4. It is not allowed to pull off or insert the power plug wantonly without turning off the power switch while the product is in operation.
5. It is not permissible to lengthen or shorten the power line at random.
6. No repairs may be done without permission and the equipment must be maintained by an electrician entrusted by our company.

## 1.2 Warning

Caution (It may cause serious loss in property or injuries and deaths)

1. Operation shall be done only after the directions for use are read and understood fully.
2. 304 stainless steel is not acid resistant, please pay attention to anti-corrosion measures.
3. The power line should never be drawn directly when pulling off the plug.
4. In one of the following cases, the power plug must be pulled off:
  - Replacement of fuse.
  - Under inspection and repair when the product fails.
  - Suspension from use for a long time.
  - In movement.
5. The product is placed on a hard and firm work surface (ground). It must be adjusted to the horizontal level of the cabinet with 4 adjustable feet and the height of the casters from the ground is not less than 5mm! And check that it is stable, to avoid shifting of the oscillating box due to long-time work and falling from the bench, to cause serious loss in product or property injury and deaths.

### 1.3 Caution

Otherwise its service life may be affected, resulting in its inability to work regularly.

1. Some space shall be left around the product.
2. The product must be put into use under given working conditions.

## 02 Product introduction

1. Front View (take BSOR-107/BSOR-110 as an example)



# 03 Product use

## 1. Preparation before use

- 1.1 Ambient temperature: 15 ° C ~ 35 ° C, relative humidity is not more than 85%;
- 1.2 Power supply: (220 ± 22) V (50 ± 1) Hz;
- 1.3 Atmospheric pressure: (86 ~ 106) KPa;
- 1.4 The altitude is not higher than 2000 meters;
- 1.5 There is no strong vibration source and strong electromagnetic field around it;
- 1.6 There should be no serious dust and no corrosive gas in the room;
- 1.7 Place it on a stable, sturdy surface that is not exposed to direct sunlight. Install the four supporting feet that come with the unit on the base of the product and check that it is stable.
- 1.8 There should be a space gap of not less than 50cm around the product (front, back, left, right, top).

## 2. Main features

- 2.1 Three-dimensional eccentric drive mechanism, smooth and stable operation, durable and reliable.
- 2.2 Intelligent sound and light alarm environment scanning micro-processing controller, tilting humanized pattern operation interface control panel, large-screen backlit LCD screen, more good visual effects.
- 2.3 With the operating parameter memory saving function, it can avoid cumbersome operations.
- 2.4 Operation parameter encryption lock to avoid human error.
- 2.5 High-precision frequency control system with frequency accuracy of  $\pm 1$  rpm. The liquid crystal display shows the set frequency and actual frequency.
- 2.6 The movement is made of high quality cast iron and NSK imported bearings to make the machine more durable
- 2.7 AC induction long life motor, wide speed regulation, constant torque, constant speed, no carbon brush, maintenance free.
- 2.8 Unique motor overheating, temperature out of control automatic power off protection

device.

2.9 With timing function, the training time is set between 1 minute and 500 hours, and the LCD displays the time and remaining time. At that time, the instrument will automatically stop and sound and light alarm.

2.10 Electrostatic spray box, stainless steel electric polishing spring, flask clamp.

2.11 The whole machine is silently designed.

## 04 LCD controller operation method

### 1. Controller panel diagram



#### 1.1 Indicator description

- 1) TIME : Time display window; TIME shows the running time when the controller is running;
- 2) REV : Display measurement speed;
- 3) SET : Display set speed, or display parameter code.

## 1.2 Key Description



Function key: Used for setting value modification; parameter recall, parameter modification confirmation;



Shift key: When in the setting state, click this button to shift;



Decrease key: When in the setting state, click this button to decrease the number by one. Press and hold the button to decrease the number continuously;






Add key: When in the setting state, click this button to add one to the number, long press this button to continuously increment the number;



Start/stop button: Press and hold this button for more than 4 seconds to control the running/stop of the program;

## 2. Operation steps


1) Timing function : Click once  key, when the time is set to 0, there is no timing function ; when the time setting is not 0, the controller has the timing function, press  key, the TIME value flashes, indicating that the time can be set as needed, By increasing, decreasing and shifting the keys, the required time value is set. When the time is up, the TIME window displays the "END" buzzer sound, which can be silenced by pressing any key.



2) Speed setting : Tap again  key, the "REV SET" window value flashes, indicating that the speed can be set as desired. The required speed is set by the increase, decrease and shift keys.

**Note :** ① **Each time a parameter is modified, it needs to be confirmed by pressing the "**  **" key;**

② **After all the parameters are set, press the "**  **" button and wait for about 4 seconds to start running.**

### 3. Reservation function

3.1 Long press  key, When the LCD screen displays LK, enter the password 3, click the MODE button to find the KA, and increase the KA to 3 by adding, reducing and shifting the keys, that is, selecting the controller to reserve the boot;

3.2 Press the key  in the standard state, the TIME value flashes, indicating that the time can be set as needed. Set the required time value for the scheduled power-on by adding, reducing and shifting keys, and then press the key  to confirm the setting, After the machine is powered off, and the power is turned on, the scheduled start time starts to count down, when the countdown is 0, the machine will automatically start running.

### 4. Alarm function

When the oscillating load is too heavy and the motor is overloaded for more than 10 seconds, the meter beeps and the oscillation stops. Press any key to silence.



# 05 Product maintenance and attention points

## 1. Maintenance points

1) Product storage conditions

1 Ambient temperature: (-40 ~ +55 ° C);

2 Relative humidity is not more than 95%;

3 atmospheric pressure: (80 ~ 106) KPa;

4 The altitude is not higher than 2000 meters;

5 There is no corrosive gas around.

## 2. Points to note

1) The product is placed on the hard and firm work surface (ground). It must be adjusted to the horizontal level of the cabinet with 4 adjustable feet and the height of the casters from the ground is not less than 5mm! And check that it is stable to prevent the movement caused by the oscillation during long-term work, causing the product to fall and causing serious damage to the product or personal injury.

2) After the equipment is grounded, if the ground is not flat, it must be leveled and cannot be used for tilting; the left and right sides of the equipment should be more than 50cm.

3) The equipment should be kept away from electromagnetic interference sources and should have good grounding.

# 06 Appendix

## 1. Technical indicators

Model	BSOR-107	BSOR-101	BSOR-108	BSOR-102
Specification				
voltage	AC220V±10% (50±1%)HZ			
input power	250W			
Tray speed	40~300 rpm			
Speed accuracy	±1 rpm			
Pendulum amplitude	35mm			
Timing range	0~99 : 59H			
Rocker size	800×600 mm <sup>2</sup>		1020×700 mm <sup>2</sup>	
Number of rocking plates	Double layer	Single layer	Double layer	Single layer
Standard configuration	500ML 60	500ML 30	1000ML 70	1000ML 35

## 2. Troubleshooting

Problem	Problem reason	Solution
The tray does not work, the LCD screen has no display	External power is not connected	If the power plug plugged in or not ; Power outlet no power or poor contact. Power switch is not open or break down.

	Fuse burned	Exchange the appropriate fuse
The tray is running and the LCD screen is not working properly.	High frequency interference source in the same line	Press the parameter modification/confirm button to resume display; Eliminate the same line interference source or set up a dedicated line
loud noise	The instrument is placed unevenly	Adjust the left foot of the instrument to make the instrument stand smoothly
	Porous tray loose	Tighten the tightening nuts at the four corners of the tray

**Product Name: Shaker**

No.	Type	Name	Unit	Qty.	Remarks
1	Document	Operating instructions		1	
2	Document	Packing list		1	
3	Spare part	Fuse		2	
4	Spare part	Power cable		1	
5	Spare part	Beaker clip			See Sheet



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