

Operation Manual



Series 200

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 Safety Warnings and Guidelines

1 Important operation information of the security

Users should have an entire conception of how to use the instrument properly before operating it. Please read this operation manual carefully before using the instrument.



It is forbidden operating before read the operation manual. Read the guidelines and directions below and carry out the countermeasure according to them.

2 Security

The operation, maintenance and repair of the Instrument should comply with the basic guidelines and the remarked warning below. Otherwise, it will affect the scheduled using life of the Instrument and the protection provided.



This product is a normal and an indoor Instrument which conforms to Standard B style- I.



Before operation, read the manual carefully. These units are designed for using in the laboratory environments by who're knowledgeable in safe laboratory practices.



The operator should not open or repair the instrument by himself. Otherwise, the instrument will lose the qualification of repair guarantee or cause accidents. The company will repair the instrument based on warranty description.



A.C. power's grounding should be reliable to safeguard against an electric shock. The 3-pin plug supplied with thermo-shaker's power cable is a safety device that should be matched with a suitable grounded socket.



The instrument should be put in the place where of low temperature, little dust, no water, no sunshine or hard light, and of good aeration, no corrosively gas or strong disturbing magnetic field, and far away from central heating, camp stove and other hot resource. Do not put the instrument in wet and dusty place. The vent on the instrument is designed for aeration. Do not wall up or cover the vent.



Power off when operation finished. If do not use the instrument for a long period, pull off the connector plug, cover a piece of cloth on the instrument to prevent from dust.



Pull the connector plug from the jack at once in the following case, and contact the vendor.

- There is some liquid flowing into the instrument;
- Drenched or fire burned;
- Abnormal operation: such as abnormal sound or smell;
- Instrument dropping or outer shell damaged;
- The function has obviously changed.

3 Instruments Maintenance

The instrument and the accessories should be cleaned by cloth drenched with alcohol.

If there are smudges on the instrument, clean them with cloth.

4 After Service

1) Warranty Description

Within one month of delivery, the company is responsible of exchange for breakdown caused by material or manufacture.

Within 12 months of delivery, the company is responsible of free repair for breakdown caused by material or manufacture. Proven with defect under warranty, the company will repair instrument.

Freight from user to maintenance department will be borne by user. Freight for instrument resent to user will be borne by the company.

Repair out of warranty will be charged reasonable cost.

2) Warranty Coverage

Breakdown due to improper use, operation in inappropriate conditions, maintain or refitting without authorization are not in warranty coverage.

02 Introduction

The orbital shaker is powerful variable speed shaker which provides efficient orbital motion. It is microprocessor controlled instrument with long-life brushless motor. It can be applicable in different laboratories in microbiology, chemistry, immunology, biochemistry and molecular biology.

Features:

1. Applicable in different laboratories.
2. Microprocessor control digital speed and working time
3. Low voltage designed
4. Gentle, reliable mixing with long-life brushless motor
5. Universal platform, flat platform or platforms with clamps

03 Specifications

1. The Normal Operation Condition

Ambient Temperature: 4°C ~ 45°C

Relative Humidity: ≤70%

Power: AC100-240V~ 1A

2. The Basic Parameters and Specifications

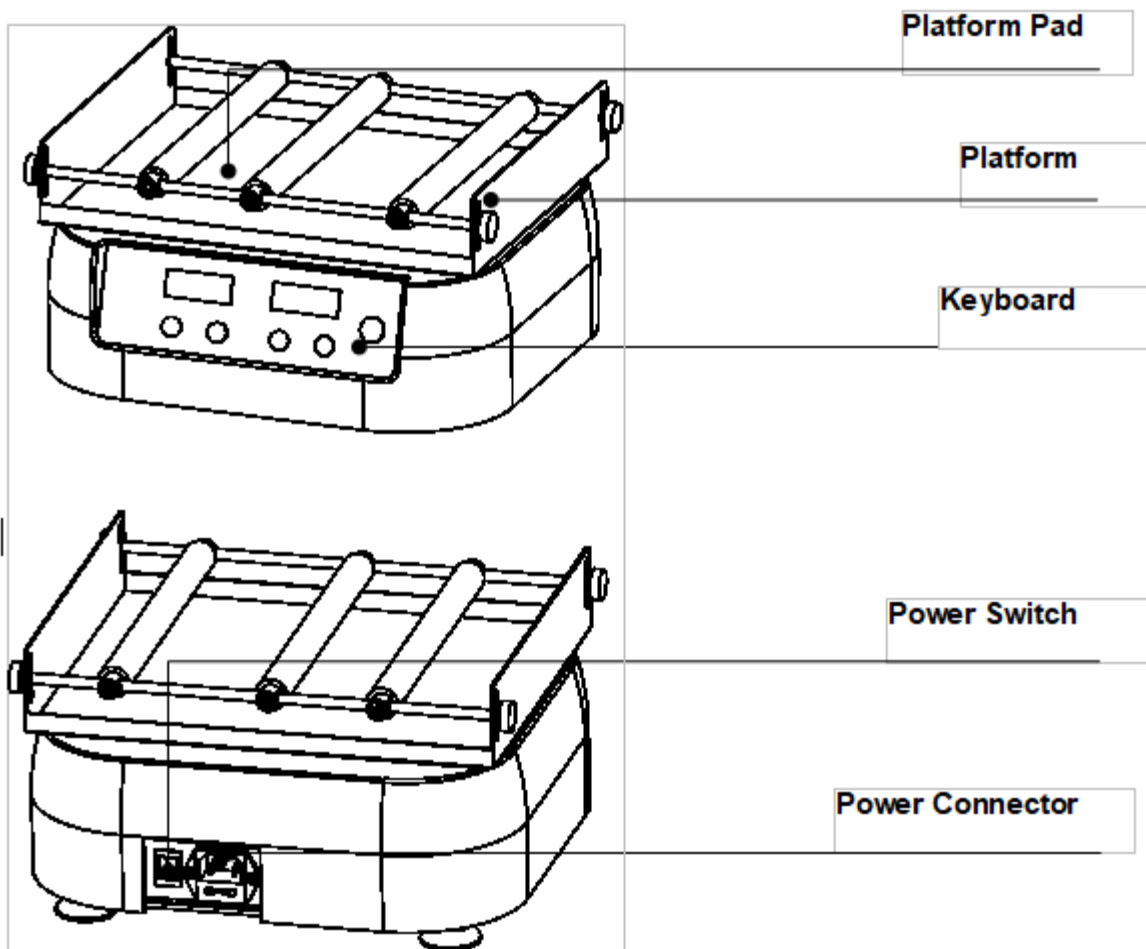
Type Parameter	BSOT-201	BSOT-202	BSOT-203
Mixing Range	50 ~ 350rpm	50 ~ 300rpm	50 ~ 250rpm
Orbit	10mm	20mm	30mm
Timing Range	1min ~99h59min	1min ~99h59min	1min ~99h59min

Max. Capacity	2.0kg	2.0kg	2.0kg
Power	50W	50W	50W
Dimension (mm)	284x264x108	284x264x108	284x264x108
Net Weight (kg)	5.6	5.6	5.6

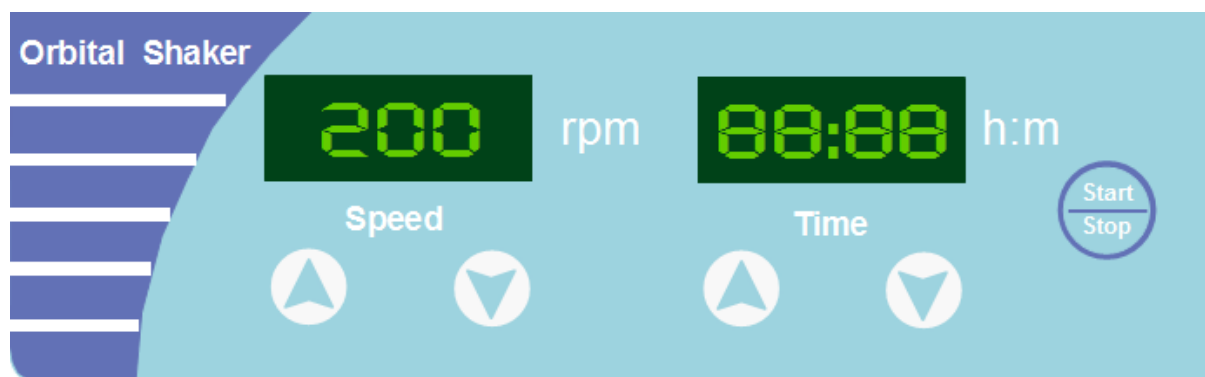
04 Preparation

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 orbital shaker is to be operated at the first time.

1 Structure Description



2. Keyboard and Display Panel



3. Key Function

decrease the time value or speed value

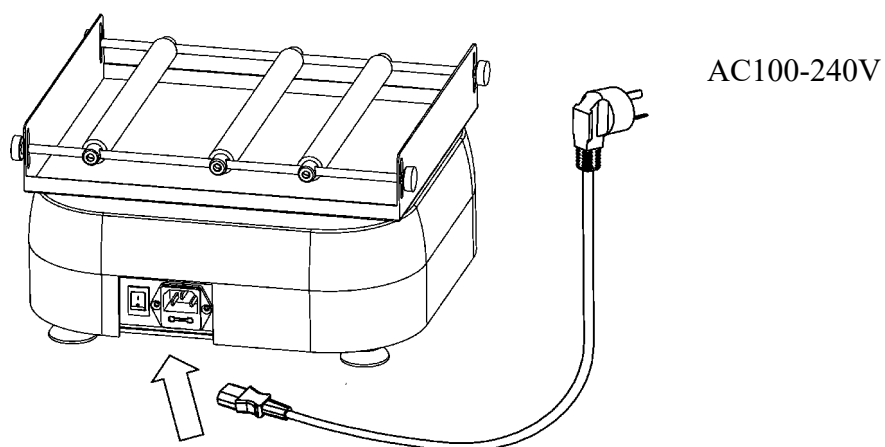
increase the time value or speed value

START/STOP

Key for start or stop. Press Start/Stop key to start or stop the program.

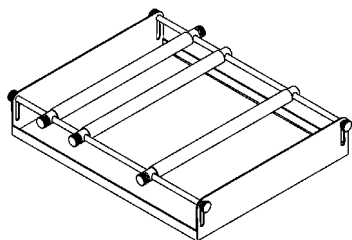
4. Power Connection

Put the instrument on a horizontal and even working table. Connect power as below figure. DC socket is on the rear part of the instrument. Voltage should be between 100V and 240V.

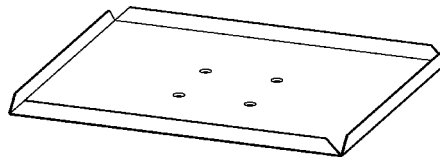


5. Platform Installation

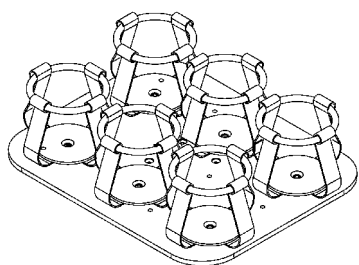
Six kinds of platforms BX-103555, BX-103551, BX-103554, BX-103553, BX-103552, BX-103556 are optional for orbital shaker.



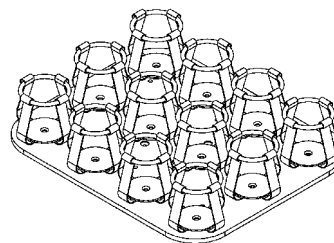
BX-103555



BX-103551

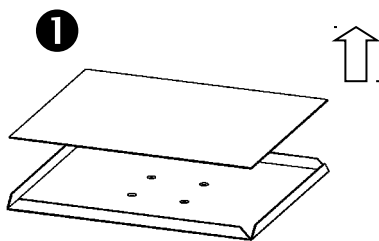


BX-103554

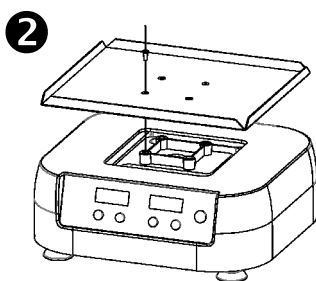


BX-103553

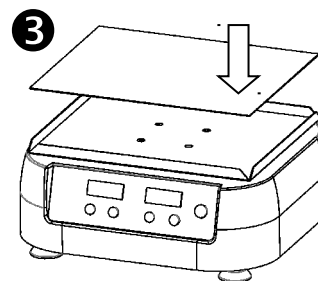
1) Installation for BX-103555, BX-103551, BX-103552, BX-103556



Take out the pad of the platform.

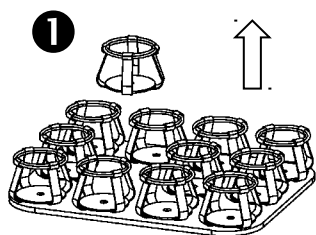


Fix the platform with 4 M4X8 screws.

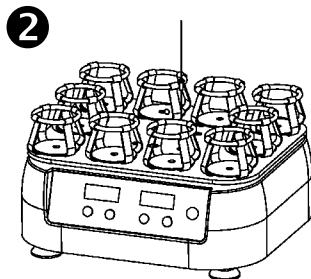


Put back the pad to the platform.

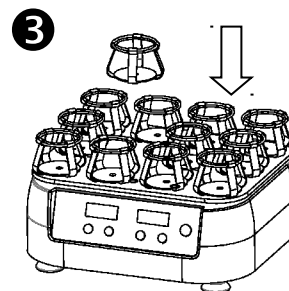
2) Installation for BX-103554 or BX-103553



Take out the 2 flask clamps in the middle.




Fix the platform with 4 M4X8 screws.

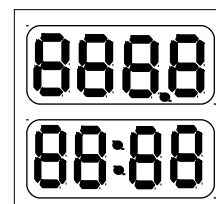






Put back the 2 flask clamps to the platform.

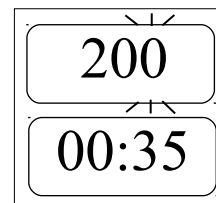
05 Operation Guide



1. Speed and Timing Setting

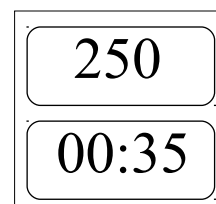
- a) All digital of LED display  as the right chart when power on. The instrument enters into the initial program with beep.



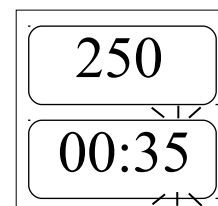
Press  or  of speed key. It displays last running speed. Refer to the right chart, it is "200" rpm. The unit digit flickers. Press  or  of speed key to adjust the speed value. Continuously pressing leads the value to increase or decrease from unit digit, tens digit to hundreds digit.



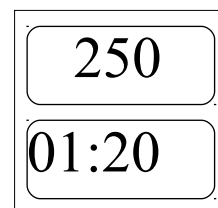
E.g., to set the speed to 250rpm, continuously press  till speed value displays "250", release the  key. The instrument confirms and saves the setting value "250".



- b) Press \nearrow or $-$ of time key. It displays last setting time. Refer to the right chart, it is "00:35" (timing is 35 minutes). The last digit flickers. Press \nearrow or $-$ of time key to adjust the timing value. Continuously pressing leads the value increase or decrease in X10 speed.



E.g., to set the timing at 1hour 20 minutes, press " \nearrow " until time value displays "01:20", release the \nearrow key. The instrument confirms and saves the setting value "01:20".



NOTICE: The timing value displays 00:00 means running timing is ∞ .

2. Stop / Start

- a) Press "start/stop" key to start or stop the program.
- b) Press "start/stop" to run the program after speed and timing are set as requested. When times up, instrument stops running and alerts.
- c) Press "stop/start" to stop the running program.
- d) When the program completes, or program stopped by pressing "stop/start" key, the instrument will be in ready mode. In ready mode, press \nearrow or $-$ of speed key or timing key to reset speed and timing.
- e) Press "start/stop" directly without adjust speed or timing in ready mode, the instrument operate the program as last time.

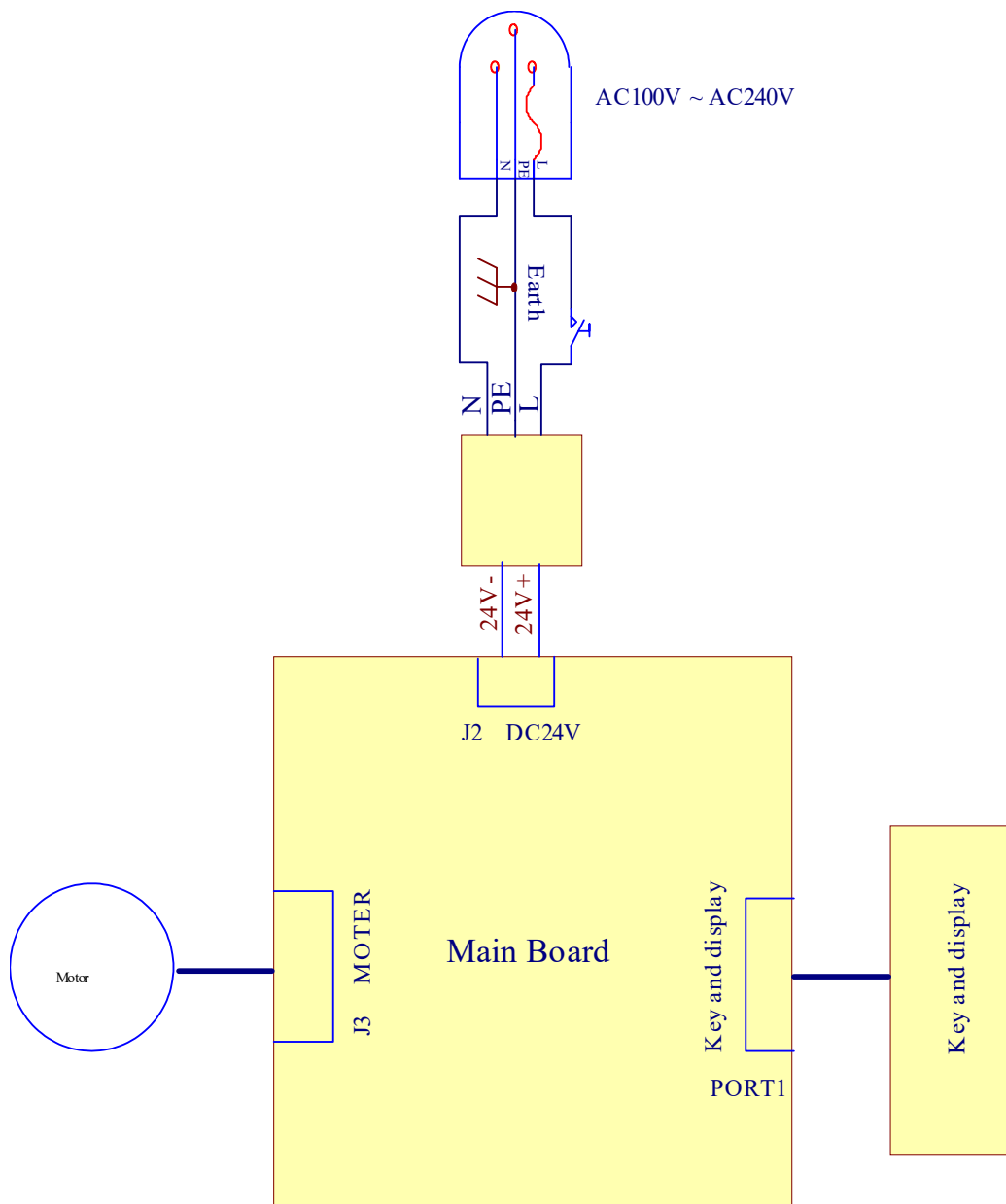
06 Failure Analysis and Troubleshooting

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

Appendix A: Wiring Diagram of Orbital Shaker

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





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