



## MICROPLATE SHAKER

SHA31-1500



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# 1. Introduction

Micro-plate shaker is a powerful variable speed shaker which provides efficient orbital motion. Speed and time are under microprocessor control. The shaker can be applicable in different laboratories such as microbiology, chemistry, immunology, biochemistry, and molecular biology.

Features:

- LCD display, easy to setup and use.
- Set-up the digital timer from 1min to 100h. Beep-signal when stop of the timing completion.
- Gentle, reliable shaking with long-life direct brushless motor.

## 2. Specifications

### 2.1 The normal operating condition

Ambient temperature: 4C ~45C

The relative humidity: ≤ 70%

Power supply: AC90 ~230V 1.0A

### 2.2 The basic parameters and function

Type Parameter	SHA31-1500
Shaking Speed	200 ~1500rpm standard micro-plates 200 ~1000rpm deep micro-plates
Orbit	3mm
Digital Timer	1min ~99h59min
Max. Load Capacity	4 micro-plates
Power Supply	50W
Dimension (L×W×H)	284 x 264 x 121 mm
Weight	5.2 kgs

Table 1

# 3. Preparations

This chapter introduces structure of this instrument and the central panel's functions and some preparations before power on. You have to be familiar with this chapter before the instrument is first operated.

## 3.1 Structure description

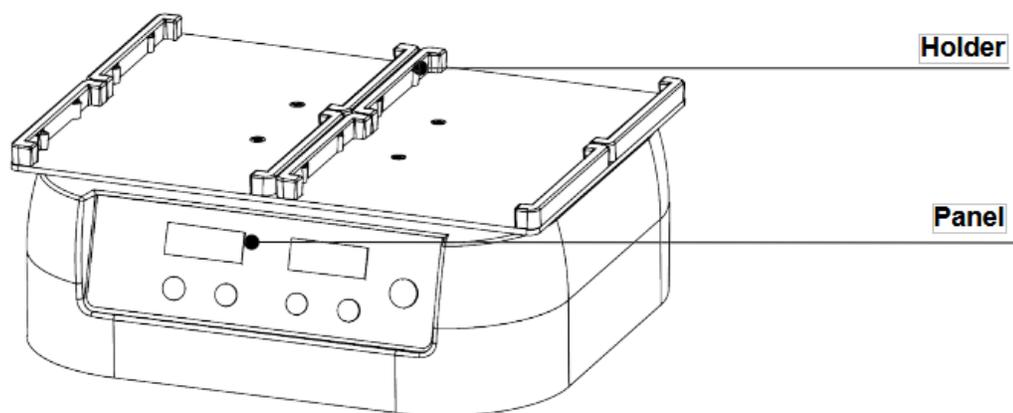


Figure 1

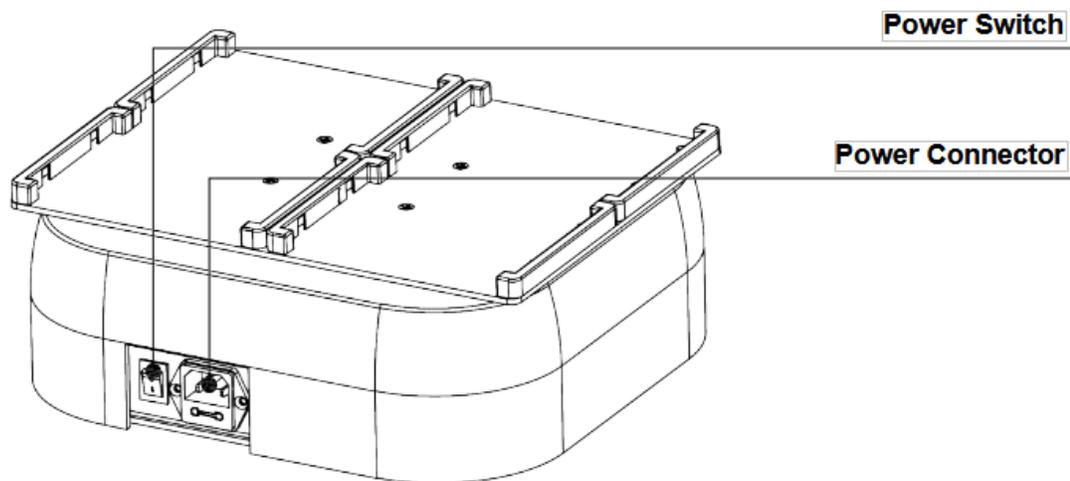


Figure 2

## 3.2 Keyboard and display panel

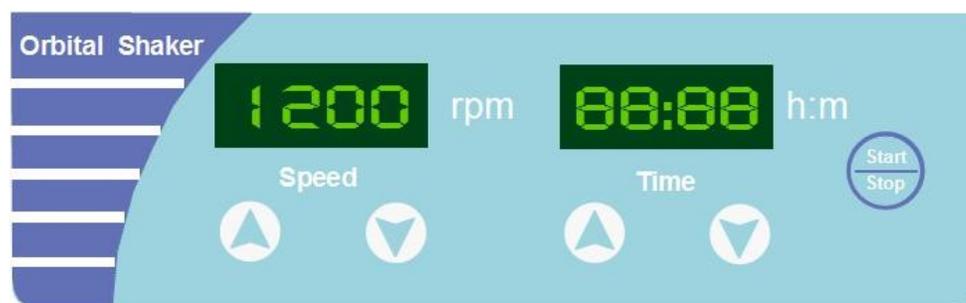


Figure 3

▼ Decreasing the key for speed and time, it can setup speed and time.

▲ Increasing the key for speed and time, it can setup speed and time.

START/STOP- Run or stop. Press the button after finish setting of temperature and timing to confirm and start. During operation, press this button to stop.

### 3.3 Power connection

Place the instrument on the horizontal and even bench top. Plug the extend power supply unit into the socket at the rear side of the instrument. The external power adapter (AC100~240V) ensures the external safety of the instrument.

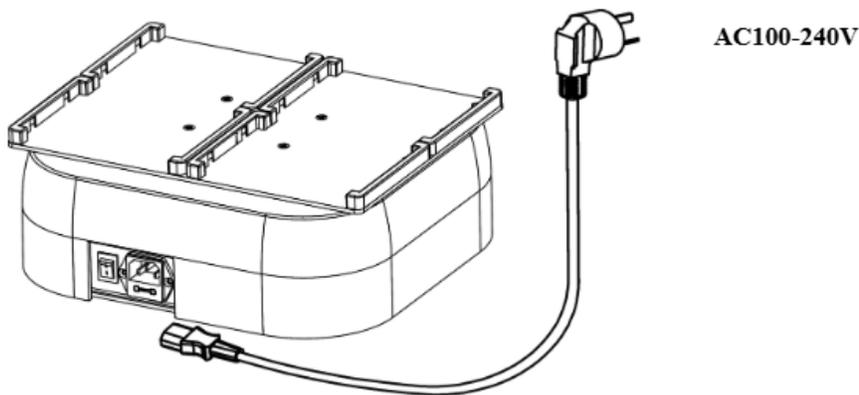


Figure 4

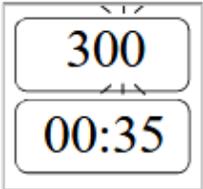
## 4. Operation Guide

### 4.1 Speed and time setting

a) All digital of LED display **8** 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 "300" 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 350rpm, continuously press "▲" till speed value displays "350", release the "▲" key. The program confirms and saves the value "350" automatically.



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

E.g., to set the time at 1hour 20 minutes, press "▲" till time value displays "01:20", release the "▲" key. The program confirms and saves the value "01:20" automatically.



NOTICE: The time value displays 00:00 means running time is  $\infty$ .

## 4.2 Stop / Start

a) Press "start/stop" key to start or stop the program.

b) Press "start/stop" to run the program after speed and time are set as requested. When times up, the 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 "▲" or "▼" of speed key or time key to reset speed and time.

e) Press "start/stop" directly without adjust speed or time in ready mode, the instrument operate the program as last setting.

## 5. Failure analysis and troubleshooting

Failure analysis and processing procedures

No	Phenomenon	Possible Causes	Processing Procedure
1	Display window doesn't response after power on	No power	Check the connection of power
		Switch failure	Exchange the switch
		Others	Contact the seller
2	Shaking too heavily	Mixing samples are placed dissymmetrical	Place the mixing samples symmetrical
3	The actual speed is different from the displayed speed	Broken sensor or loose contact of the module	Contact the seller
4	"ERR" in the display	Shaking speed is out of control	Contact the seller
5	Press invalid	Knob failure	Contact the seller

Table 2

## Annex 1: Wiring Diagram

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

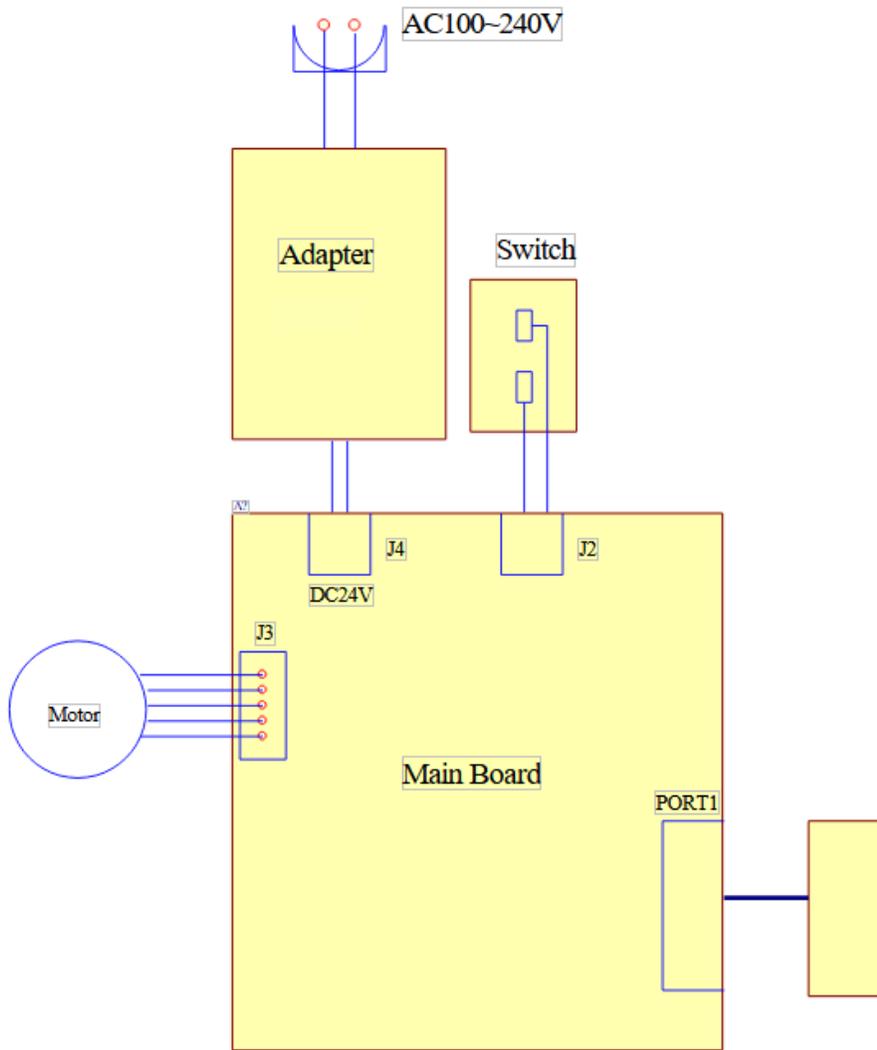


Figure 5

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