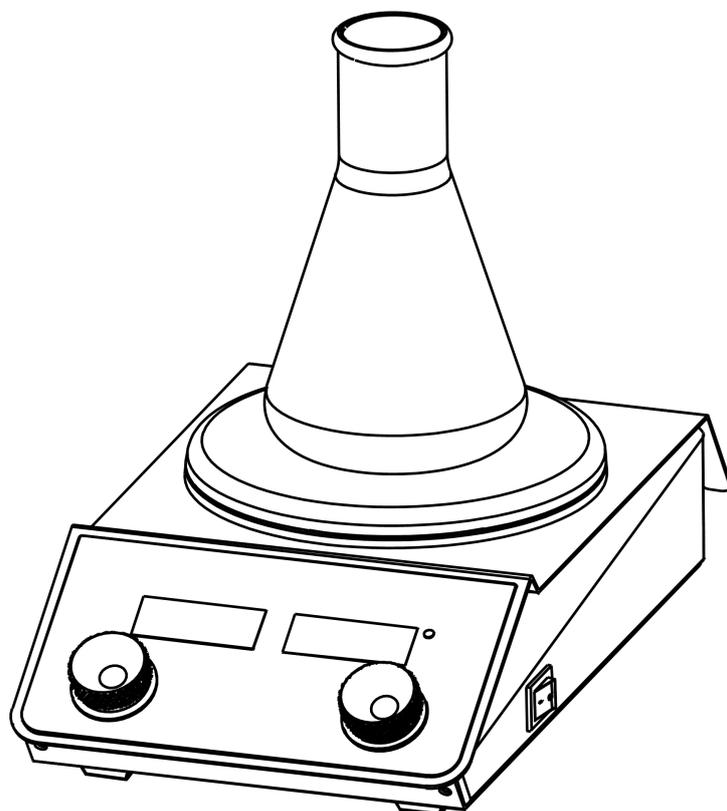


STALWART

SMK-25S
Digital Magnetic Stirrer



Operations Manual

PREFACE

Thanks for choosing Digital Magnetic Stirrer. This operation manual describes function and operation of the instrument. In order to use the instrument properly, please read this manual carefully before operating the Instrument.

Opening Check

Please check the instrument and appendix with the packing list when you first open the packing case. If anything does not match with the packing list, please contact with the vendor or the producer.

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 type- GB9706.1.



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 smutches 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 exchange the instrument or free repair it alternatively.

Instrument under warranty period should be delivered to the appointed maintenance department by user. 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.

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Chapter 1 Introduction

The digital magnetic stirrer SMK-25S is humanization designed with stir technology of stirrer bar. It is mainly apply to territories of medical science, bioengineering, chemistry, medicine, foodstuff, etc. It is necessary and general laboratory Instrument for stir and mix of various reagents, solution, and chemical substances

Features:

1. Available for stirring standard/non-standard reaction flasks between 50ml and 1000ml.
2. DC brushless motor, stable operation, low noise, long life, and no spark.
3. Metal plate shell, firm and durable, thermostability and anti-corrosion.
4. Digital display. The control panel designed 30° slopes for convenient operation.
5. Magnetic stirring technology. Steady working at low speed, powerful working at high speed.

Chapter 2 Specifications

1. The Normal Operation Condition

Ambient Temperature: 5°C ~40°C

Relative Humidity: ≤70%

Power: AC100-240V~ 1.5A

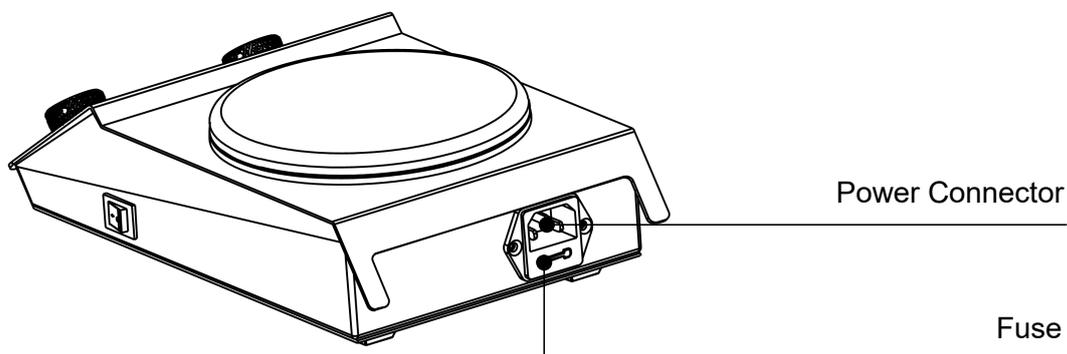
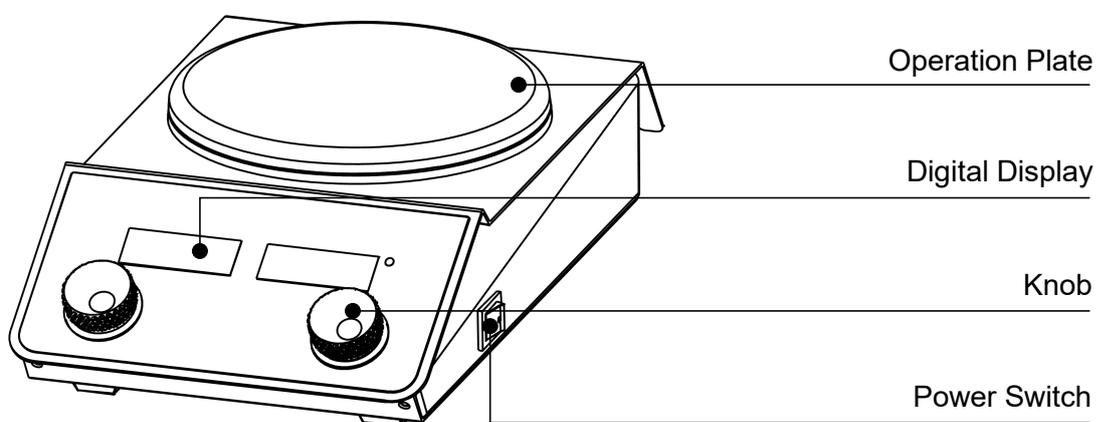
2. The Basic Parameters and Specifications

Parameter \ Type	SMK-25S
Operation Plate Size	φ135 mm
Operation Plate Material	Stainless Steel
Motor Type	DC Brushless Motor
Power Input	30W
Voltage	100 ~240 V
Frequency	50/60 Hz
Quantity of Stirrer Point	1 point
Max. Stirrer Capacity (H ₂ O)	3 L
Max. Length of Stirrer Bar	80 mm
Speed Range	100 ~1800 rpm
Dimension (WxDxH)	156*270*70 mm
Net Weight	2.6kgs

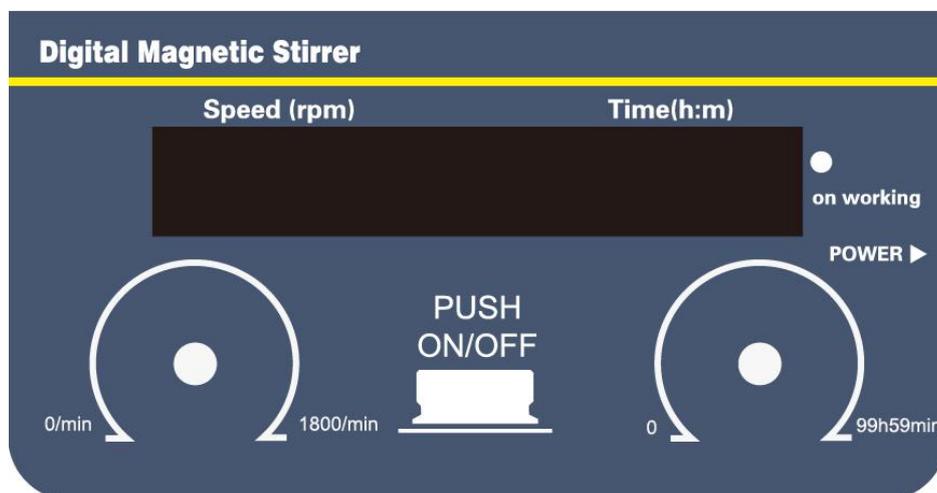
Chapter 3 Preparation

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 orbital shaker is to be operated at the first time.

1. Structure Description



2. Keyboard and Display Panel



3. Key Function



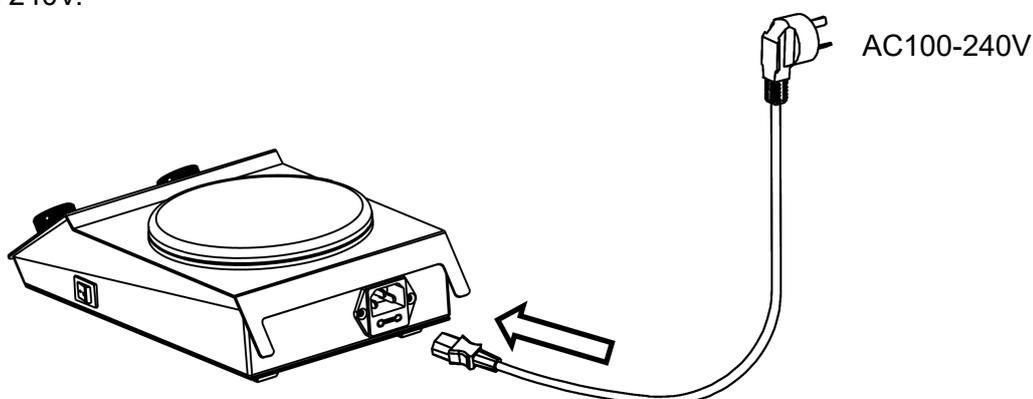
Clockwise rotate the left knob to increase speed, anticlockwise rotate the knob to decrease speed. Press the knob to start operation.



Clockwise rotate the knob to increase time setting per min, anticlockwise rotate the knob to decrease time setting per min. Press the knob to change the adjusting unit from 1 minute to 10 minutes to 1 hour to 10 hours.

4. Power Connection

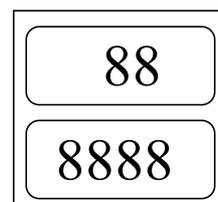
Put the instrument on a horizontal and even working table. Connect power as below figure. DC socket is on the rear part of the instrument. Voltage should be between 100V and 240V.



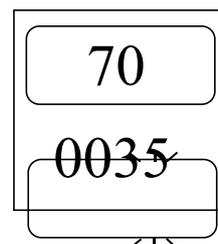
Chapter 4 Operation Guide

1. Speed and Timing Setting

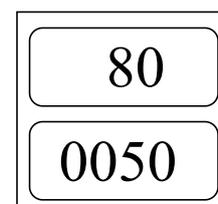
- a) Switch on the instrument, all digital of LED display **8** as the right chart. The instrument enters into the initial program with beep.



- b) The LED of speed displays last running speed. Refer to the right chart, it is "70" rpm. Clockwise rotate the speed knob to increase the speed value, contrarotate the speed knob to decrease the speed value. E.g. to set speed to 80rpm, clockwise rotate the speed knob till the LED display "80".



- c) The LED of time displays last setting time. Refer to the right chart, it is "35" min. Clockwise rotate the time knob to increase the timing value, contrarotate the time knob to decrease the timing value. E.g. to set timing to 50min, clockwise rotate the time knob till the LED display "0050".



To change the timing value fast, press the time knob to change the adjusting unit. Press the time knob once, the flicker digit will change from 1minute to 10 minutes. Press the time knob again, the flicker digit will change to 1 hour... When the flicker digit is the demand, rotate the time knob to change the value.

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

2. Stop / Start

- a) Press speed knob to start or stop operation.
- b) When times up, instrument stops running and alerts.
- c) When the program completes, the instrument turns to complete state. Rotate the speed knob or time knob to reset speed and timing, press speed knob to start operation.
- d) Press speed knob directly without adjust speed or timing in complete state, the instrument operate the program as last time.
- e) In operation mode, press speed knob to stop operation, press speed knob again, restart operation.

Chapter 5 Failure Analysis and Trouble Shooting

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 SMK-25S

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

