STALWART

SMK Series
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.

Before connecting the power supply, make sure that the voltage of the power supply is consistent with the voltage required by the instrument. And make sure that the rated load of the power socket is not less than the requirements of the instrument.

This instrument should be placed in a place with low humidity, little dust and far away from water source and avoid direct sunlight and strong light source. The room should be well ventilated and free from corrosive gas or strong magnetic field interference. It should be far away from heating, furnace and other heat sources.Do not place the instrument in damp or dusty places.

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

- Tray and clamping of the instrument should be regularly cleaned with clean soft cloth drenched with a small amount of anhydrous alcohol.
- If there is any stain on the surface of the instrument, it can be cleaned with soft cloth soaked with cleaning paste.

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.

Contents

Chapter 1 Introduction

The digital magnetic stirrer SMK Series adopts magnetic stirrer mixing technology and is designed with humanized operation. This product is mainly used in the fields of medicine, bioengineering, chemistry, medicine, food, and other research fields. It is a routine instrument necessary for the biological laboratory to stir and mix various reagents, solutions and chemical substances.

Features:

1. Can stir 50ml-20L standard or non-standard reaction bottles.
2. Equiped with silicone pad upon the working surface, the shell is made of metal, high strength, high temperature resistance, corrosion resistance.
3. Exquisite and compact design of the whole machine, 30° bevel control panel is suitable for sitting and standing viewing angles. Digital display speed and time.
4. High magnetic flux design, strong mixing ability, adopt no motor drive mode, low noise.

Chapter 2 Specifications

1. The Normal Operation Condition

Ambient Temperature: 4°C ~45°C

Relative Humidity: ≤70%

Power: AC220V~ 50/60Hz

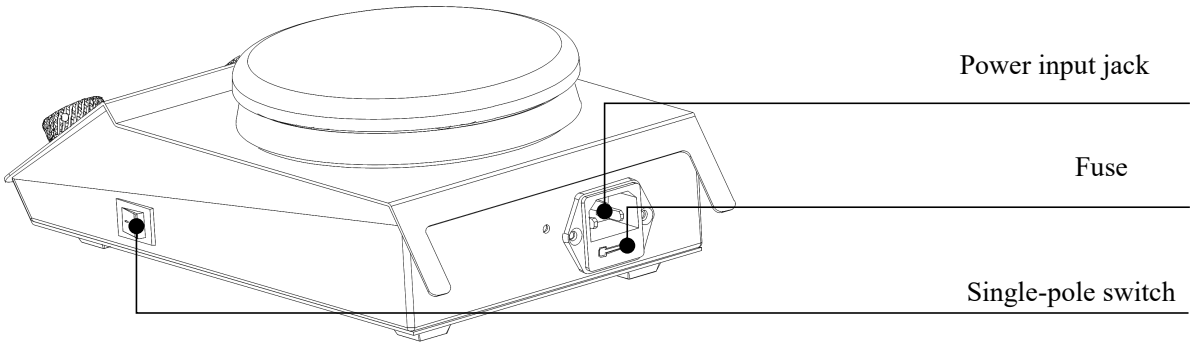
2. The Basic Parameters and Specifications

Type / Parameter	SMK Series
Operation Plate Size	φ137 mm
Operation Plate Material	Silicone pad
Speed Range	200 ~1600 rpm
Timing range	0～99h59min
Quantity of Stirrer Point	1 point
Max. Stirrer Capacity (H2O)	20 L
Motor Type	DC Brushless Motor
Voltage	100 ~240 V
Frequency	50/60 Hz
Power Input	20W
Fuse	250V, 1A,Φ5x20
Dimension (WxDxH)	160*270*70 mm
Net Weight	1.88kgs

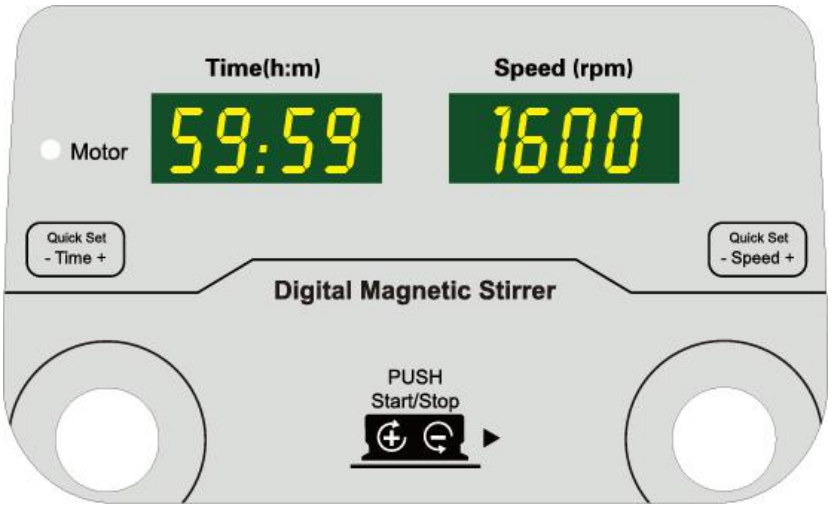
Chapter 3 Preparation

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



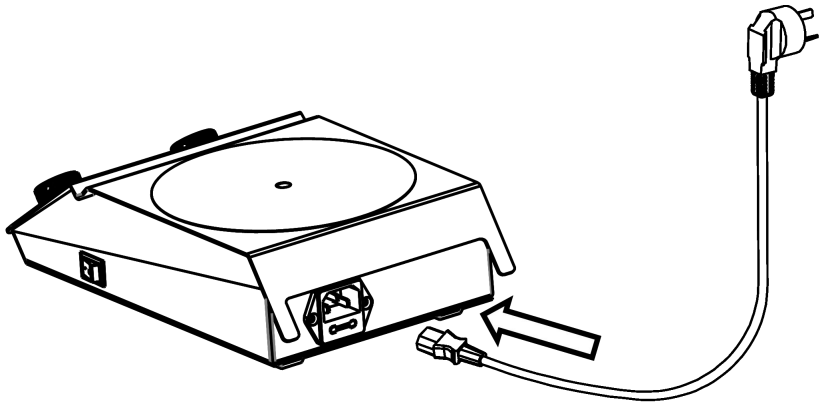
3. Knob instructions

Clockwise rotate the left knob to increase the setting time, anticlockwise rotate the knob to decrease the setting time.

Rotate the right knob clockwise to increase the setting speed of the instrument, rotate the counter clockwise to decrease the setting speed, press the right knob to start operation, press again it will stop operation.

4. Power Connection

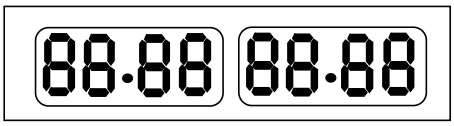
Put the instrument on a horizontal and even working table. Connect power as below figure. DC socket is on the rear part of the instrument. Voltage should be AC220V.



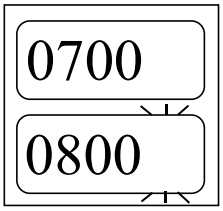
Chapter 4 Operation Guide

1. Speed and Time Setting

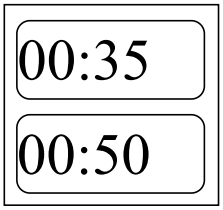
a) Turn on the power switch, the screen displays "8" one by one, and the instrument enters initialization.



b) The display at Speed shows 700, which indicates that the speed of the last instrument operation was 700 rpm. The right knob increases the setting value clockwise, and the right knob decreases the setting value counterclockwise. To change the setting value to 800RPM, turn the right knob clockwise until the display window value is 800 and stop turning.



c) The The display screen at Time shows 00:35, indicating that the set Time of last operation is 35 minutes.The left knob increases the set value clockwise, decreases the set value counterclockwise. To change the setting value to 50min, turn the left knob clockwise until the display window value is 00:50 and stop rotating.



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

2. Stop / Start

a) Click the speed knob once to run the current program. The timer ends and the operation stops. The buzzer beeps.

b) After the operation is completed, the buzzer will sound an alarm, and the instrument waits for instructions at the end interface. At this time, turning the SPEED or TIME knob can reset the speed or time; directly click the Speed knob to start the program according to the last set speed time parameter.

c) During the operation, click the Speed knob to stop the instrument. Press again to restart the 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	Motor does not work	Motor damaged	Contact with the seller
3	Knob does not work	Broken knob	Contact with the seller
4	Actual speed and displayed speed are not matching	Broken controller	Contact with the seller

Appendix A：Wiring Diagram of SMK Series

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