STALWART

STP-40

4-Head Magnetic Hot Plate Stirrer

Operation Manual

Foreword

Thank you for purchasing 4-Head Magnetic Hot Plate Stirrer. This Manual for users contains function and operation of the Instrument. In order to use the instrument properly, please read this manual carefully before using the Instrument.

Opening Check

Please check the instrument and appendix with the packing list when you first open the packing case. If you find there is something wrong with the instrument or the appendix, please contact the vendor or the producer.

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Safety Warnings and Guidelines

1. Important operation information of the security

Before operation, please have a perfect conception of how to use the Instrument. Read this manual carefully before using it.

Operation before reading the Manual is forbidden. 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, which will result in losing the qualification of repair guarantee or occur accident. If there is some wrong with the Instrument, the company will repair it.

Before power on, guarantee the voltage used should be accordant to the voltage needed, and the rated load of electrical outlet should not lower than the demand. If the electric line is damaged, you should replace it with the same type. You should assure there's nothing on the electric line and you should not put the electric line in the ambulatory place. Hold the jack when you pull out the electric line, and don't pull the electric line.

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 you finish your work. Pull off the connector plug when there's long time no use of the Instrument and cover it with a cloth or plastic paper to prevent from dust.

Pull the connector plug from the jack immediately in the following cases, 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. The maintenance of Instrument

- **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 Sale Service Commitment

A) Content of warranty

The company will be responsible for replacement due to fault caused by the materials and manufacturing from the date of delivery within 1 month. The company will provide free warranty due to fault caused by the materials and manufacturing from the date of delivery within 12 months. In the warranty period, the company will provide free repair service or replacement for those machines which are proved as defective apparatus selectively.

B）Scope of Warranty

Improper use or use under unmoral condition, damage caused by repair or modify without authority etc. do not belong to the scope of warranty. Out of Warranty period, charge the cost of fees appropriately.

Content

Chapter 1 Introduction

STP-40 4-Head Magnetic Hot Plate Stirrer adopts special enamel plate heating technology, whose highest surface temperature can reach 340 ℃. Magnetic stirrer stirring technology and humanized operation design can meet a variety of heating and stirring experimental requirements.

Its feathers are as followings：

- Four heating plates independently control temperature and speed, independent display.
- The outer casing is made of metal, with high strength, high temperature resistanceand corrosion resistance.
- The temperature control adopts PID control algorithm, digital display, high precision, small flushing temperature (within ±5°C), and internal and external PT1000 temperature measurement.
- Can heat or stirre 50ml~20L standard or non-standard reaction bottles.
- Brushless DC motor, stable performance, low noise, long life and no sparks.
- Heated by an enamel heating plate and the maximum surface temperature can reach 340 °C.
- The 30° bevel control panel is suitable for sitting and standing angles.
- Magnetic stirring technology, stable at low speed, strong at high speed.

Chapter 2 Specifications

1.The normal operating condition:

Ambient temperature: 4□C □ 45□C

The relative humidity: ≤70%

Power supply: AC220V 5A 50/60Hz

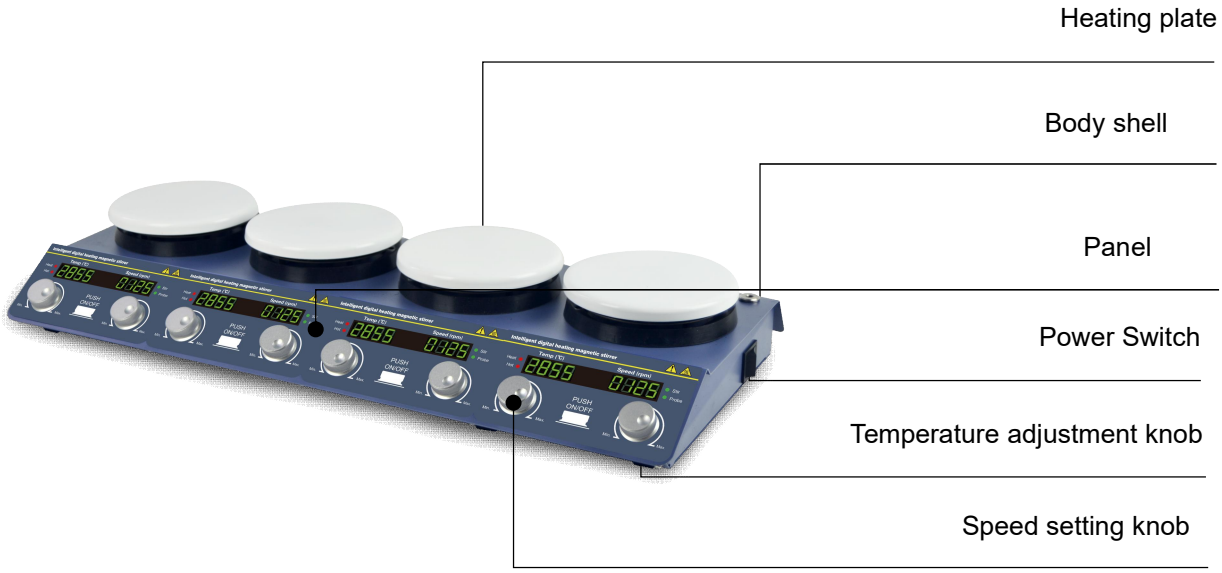
2. The parameters and function

Type	STP-40
Diameter of Heating Plate	Φ137mm
Heating Plate Material	Ceramic
Speed Range	200～1200rpm
Temp control range	R.T+5℃～340℃
Temp setting range	30℃～340℃
Temp stability	±3℃
Timing range	\
Number of stir point	4
Max. Stir Capacity (H2O)	20L
Max length of stirrer	80mm
External temperature sensor interface	PT1000
Minimum adjustable safety temperature loop	50℃
Max adjustable safety temperature loop	350℃
Supply power	AC220V, 50/60Hz
Power	1600W
Fuse	250V, 10A, Φ5x20
Dimension（W x D x H）	W.610×D.272×H.86mm
Net weight(kg)	8.5kgs

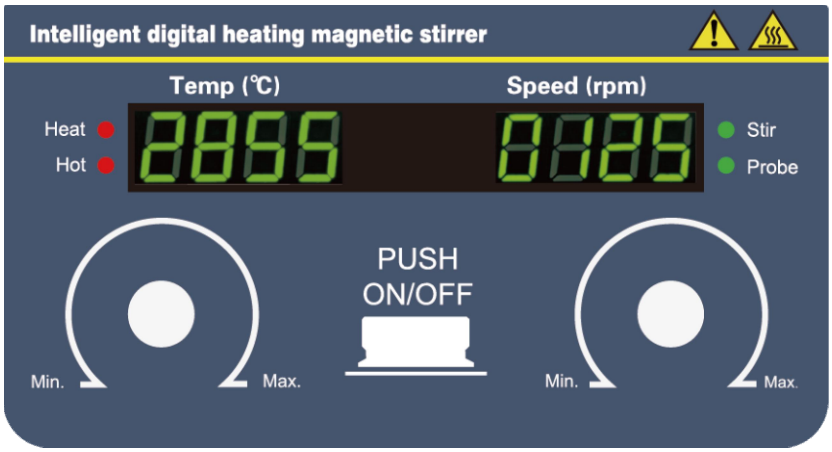
Chapter 3 Basic Operation

This chapter mainly introduces the structure of the instrument, the function of the operation panel, and the preparatory work before starting up. When using this instrument for the first time, you should be familiar with the contents of this chapter before starting it up.

1. Structure sketch



2. Keyboard and Display Panel



3. Knob description

Left knob is used to set the temperature, clockwise rotate to increase knob, anticlockwise rotate to decrease knob.Press the knob to start heating and press again to stop heating.

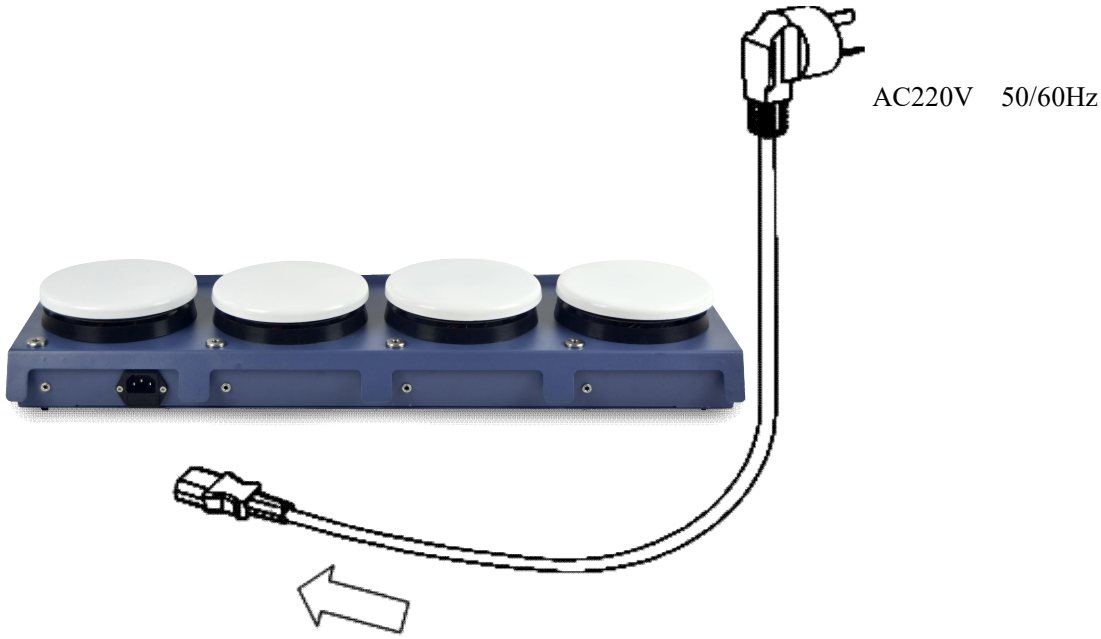
Right knob is used to set speed, clockwise rotate to increase knob, anticlockwise rotate to decrease knob. Press the knob to start stirring and press again to stop stirring.

4. Indicator light description

a) Heat: Heating operation indicator
b) Hot: High temperature indicator
c) Stir: Stir running indicator
d) Probe: External sensor

5. Power connection and external PT1000 connection

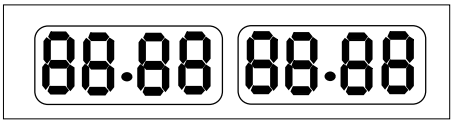
Put the instrument on a stable and level table. Insert the columnar socket of the power line into the power input socket on the back of the instrument as the following picture shows, and connect the other end of the power line to the power grid. The power grid voltage is required to be AC220V. Insert the external PT1000 plug into the round hole on the back of the instrument, and then fix it on the bracket.



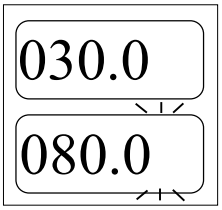
Chapter 4 Operation Guide

1. Setting of speed and temperature

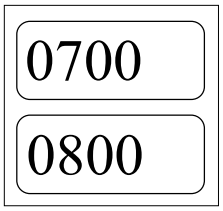
a) Turn on the power switch, the display will show “ 8 one by one, and the instrument enters initialization.



b) The display at Temp shows 30.0, indicating that the temperature of the last instrument operation was 30 degrees. The left knob increases the setting value clockwise, and decreases the setting value counterclockwise. To change the setting value to 80 ° C, rotate the left knob clockwise until the display window value is 80.0 and stop turning.The speed is continuously variable, without screen, Clockwise rotate the right knob to increase value, contrarotate the knob to decrease value.



c) 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 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.



d) Supports the instrument to reset the target value without pressing the stop key during operation, which is convenient for users to operate.

e)

e) When the surface temperature is higher than 50 degrees, turn off the single-pole switch. The display of the instrument does not turn off to remind the user that the instrument is still in a high temperature state, and the hot light next to it is always on. When the instrument is temperature-controlled, the Temp light flashes, and the instrument temperature is constant, it will longtime on; when the motor is in the

stirring state, the Motor light is on, and when the display shows the temperature of the external PT1000, the probe light is on.

2. Start and stop

a) Click the Speed knob once to run the current program, click again to stop, the buzzer will sound an alarm.

b) Click the knob at Temp once to run the current program, click again to stop, the buzzer will sound an alarm.

Operation precautions:

1. When using an external sensor, please insert the sensor into the tested product with a depth of more than 10mm.

2. It is forbidden to move the instrument, or adjust the knob at will and pull out the sensor head during the operation of the instrument, otherwise the instrument will operate abnormally, and some damage will be caused in serious cases; you should press the knob first, and then perform the operation after the instrument stops.

Chapter 5 Failure Analysis and Handling

Failure analysis and processing procedures

No.	Phenomenon	Cause	Remedy
1	No display	No power	Check the connection of power
		Switch Failure	Exchange the switch
		Others	Contact the seller
2	Shaking too heavily	Mixing samples are placed asymmetrically	Place the mixing samples symmetrically
3	The actual speed is different from the displayed speed	Failure in control board	Contact the seller
4	Heating plate does not heat	Temperature sensor breakdown	Contact the seller
		Heat block damage	
5	Press invalid	Press-key failure	Contact the seller

Annex 1：Wiring Diagram of Magnetic Hot Plate Stirrer

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