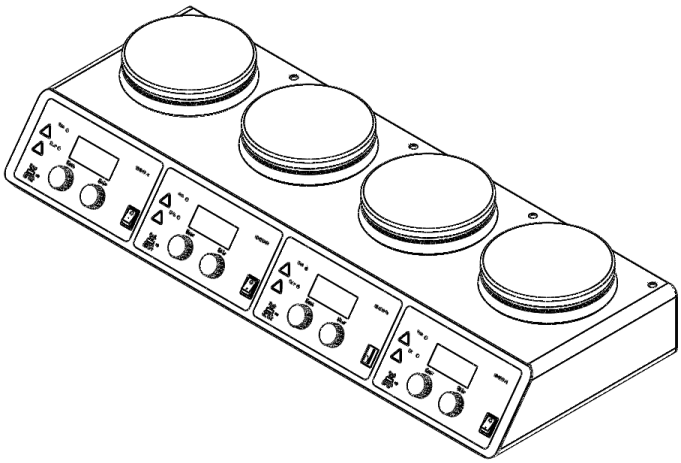
Magnetic Hotplate Stirrer

SCI340-4

LCD 4-Channel

Digital Magnetic Hotplate Stirrer

Operating Instructions



Please read and follow the user manual operation and safety instructions provided. Please keep this manual for future reference.

Disclaimer

- The intellectual property right on this manual belongs to the company.
- We elaborately prepared this manual with the attitude of being responsible for the users. But we can't guarantee that the contents of the manual are fully correct. If any occasional or subsequent loss is caused by this manual, the company will not be liable for this at all.
- The manual is a pure technical document, free of any implication or oblique hint of any third party. Moreover, we won't be liable for any printing error(s).
- The company and any of the company's employees will not bear any liability for direct/indirect loss of information or stop of business (if any) caused by the information of the manual or the product it mentions.
- The company reserves the right to change specification and price of the product.
- Technical specifications and outline are subject to change without prior notice.

Table of Contents

1. Safety notes

Symbol	Additional Description
	**Warning!** • **Please check the instrument working condition before use.** • Ensure that every user is aware of the instrument operation. • Operate the instrument according to the instructions provided in this user manual.
	**Caution!** • Do not touch the work plate or housing parts during operation as the work plate temperature can reach up to 380 ℃ during operation. • Keep the instrument away from explosive and flammable materials.
	**Protective ground contact！** • Make sure that socket is earthed before use (protective from ground contact)

- Ensure that label indicated the correct voltage before connecting the instrument to power supply
- Set up the hotplate magnetic stirrer in a spacious area on an even, stable, clean, non-slip, dry and fireproof surface.
- Ensure good working environment free of explosive, hazardous and inflammable substances or water.
- Before every use, ensure that the device, accessories and are free of damages and fixed properly
  - For the purpose of safety, please use the standard accessories listed in the chapter “Accessories” in accordance with the manual. Accessories must be firmly connected to the product in a way that avoids separation.

- Wear personal safety guards to avoid the risk of splashing and evaporation of liquids, release of toxic or combustible gases during operation.
  - Heated liquid splashes, vaporizes or releases toxic or flammable gas
  - The Heating substances will start to react as they achieve a certain temperature.
- Keep the magnetic Stirrer away from the effects of high magnetic field
- Heating temperature must be set to atleast 50 ℃ lower than the fire point of the chemicals used.
- For stirring a pathogenic sample, a closed vessel must be used.
- The external temperature sensor should be placed atleast 5-10mm away from all the sides.
- Please prevent water from splashing on the electrical elements of the product.
- Ensure that the mains power is disconnected before assembly, disassembly, cleaning or maintenance.

2. Product overview

2.1 Scope of application

The instrument is designed for mixing and heating applications

- The altitude can't exceed 2000 meters.
- Environmental temperature between 10 ℃ to 40 ℃
- Installation type: the product is to connect thee indoor outlet.

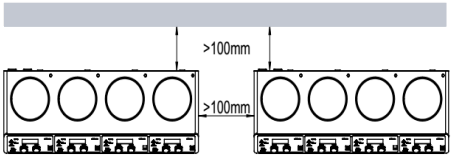


Fig. 2.1

- Voltage fluctuation is not more than ±10%
- The distance from the other equipments and the wall should be more than100mm.

This instrument is not suitable for using in residential areas or other constraints mentioned in Chapter 1.

2.2 Technical parameters

Technical parameters	SCI340-4
Size of tray	Φ134mm
Material of tray	Stainless steel ceramic coating
Type of motor	DC brushless
Input power of motor [W]	1.8W×4
Total power [W]	515W×4
Heating power [W]	500×4
Input power	100-120V,60Hz; 200-240V,50 Hz
Stirring position	4
Max. stirring capacity (H_2O) [L]	3L×4
Single-head max. stirring capacity (H_2O) [L]	10L
Max. stirring bar [mm]	40
Speed range [rpm]	200-1500
Speed display	LCD
Temperature display	LCD
Speed control accuracy [rpm]	±20
Temperature control range [℃]	25-340℃
Over temperature protection temperature [℃]	420
Temperature display error [℃]	±0.1
External sensor	PT1000
IP protection	IP21
External dimension [W x D x H, mm]	698*270*128
Weight [kg]	9.5kg
Allowable ambient temperature [℃]	5～40
Allowable RH	80%RH

2.3 Components

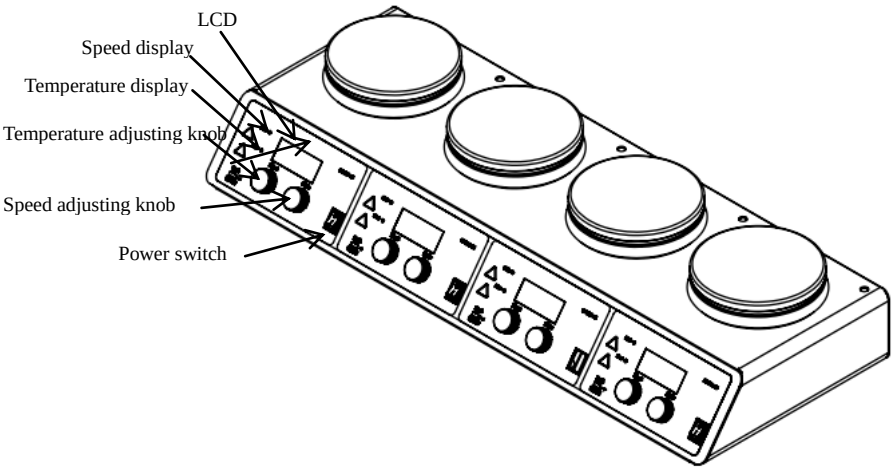


Fig. 2.3.1 Magnetic Hotplate Stirrer

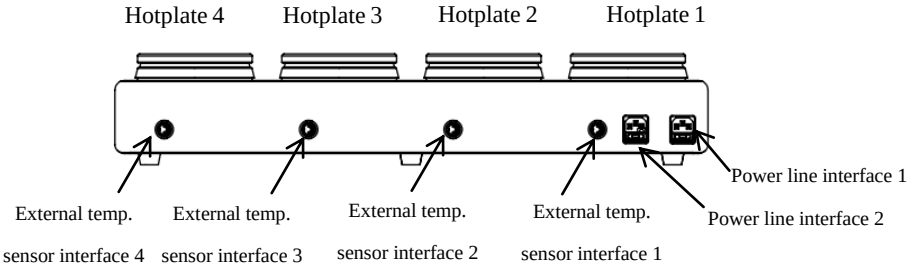


Fig. 2.3.2

2.4 Control display

2.4.1 Control

	Name	Description
Heating/ stirring	Temperature adjusting knob Heat	Set the control temperature within the range of 25-340℃, press the knob to enable and disable the heating function
	Speed adjusting knob Stir	Set the speed within the range of 200-1500rpm, press the knob to enable and disable the stirring function
	LCD display	LCD screen displays current working state of the product and its settings
	External temperature probe indicator	The character "Probe" is displayed when an external temperature probe PT1000 is inserted
	Power switch	To switch power ON/OFF
Power line	Power line interface 1	Power input of Hotplate 1 and Hotplate 2
	Power line interface 2	Power input of Hotplate 3 and Hotplate 4

2.4.2 Display

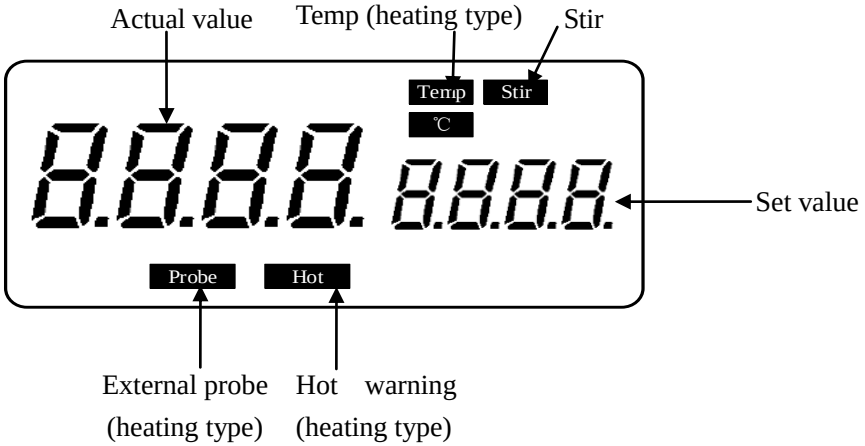


Table 2.4.2

Display	Description
Stir	It is displayed when stirring function is enabled
Temp & ℃	It is displayed when heating function is disabled
Hot	It is displayed when the temperature of a hotplate is higher than 50℃ no matter whether heating function is enabled or not
Probe	It is displayed when an external probe is inserted
Set value / actual value	The numerical value is displayed when heating function and stirring functions are enabled

3. Operating instructions

3.1 Open-package inspection

Unpack the instrument carefully and check for any damages which may have arisen during transport. Open-package inspection aims to confirm the completeness of associated parts.

The packing list is given below:

Table 3.1

Name	Qty.
Main unit	1
Power line	2
Operating manual	1

Caution:

If there is any apparent damage to the system, please do not plug it into the main power line.

3.2 Operation

1. Ensure that label indicated the correct voltage before connecting the instrument to power supply.
2. Do not operate the unit with a damaged power cord.
3. Connect the power cord to the unit in the socket provided.
4. Switch power ON and the instrument will start to self-check.
5. Mount a vessel with stirring liquid and stirring bar on to the work plate.
6. Temperature and Stirring can be set using two control knobs below the display panel.
7. Set the target temperature and stirring speed and start heating and stirring.
8. Put the external sensor probe into the vessel on the hotplate.
9. Ensure that the tip of the sensor is at least 5-10mm away from the bottom of the vessel.
10. The LCD displays the actual temperature and set temperature.
11. Disable the heating function and stirring function to switch OFF the operation.

If the above operations are normal, the instrument is ready to operate. If there is any problem during above operation, then instrument may be damaged during transportation, please contact manufacturer/supplier for technical support.

	**Cautions:** Don't remove the container in the running process of the product. Once the container is separated from the working tray surface of the product, stirring function should be stopped before the container is placed again; stirring function can be enabled again after the container is placed properly.

Functions

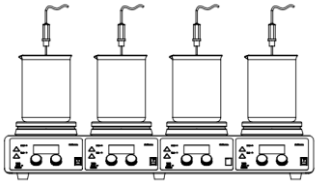
4.1 Heating function

The system has two independent safety circuits to control the temperature of hotplates. Safety detection circuit can monitor the temperature of hotplates.

- Switch power ON to see the normal screen display with last run parameters.
- When heating function is enabled, actual temperature is displayed on the left side and set temperature on the right side of LCD screen.
- Press the temperature adjusting knob to enable/disable the heating function.

EXTERNAL SENSOR INSTALLATION

- Connect the external sensor in the port provided at the back of the unit.
- Put the external sensor probe into the vessel on the hotplate.
- The external temperature sensor PT1000 used for this product is a standard optional accessory of the manufacturer.



- When an external temperature sensor is connected, the character “Probe” is always displayed, which shows that the external temperature sensor starts working.
- Heating function will automatically shut down when an abnormal circumstance is detected

3.3 Stirring function

- The product uses the closed loop circuit to control the motor and the motor drives the permanent magnet to rotate. Set the target speed by rotating the speed control knob slowly to desired setting.
- The set value is confirmed and stirring is switched “ON” by pushing the stirring control knob.
- The LCD displays the target speed value on the right-hand side during stirring.
- The stirring function is switched “OFF” by pushing the same stirring control knob again.

4. Cleaning and Maintenance

- Proper maintenance can keep instruments work properly and increase its lifetime.
- Please keep the instrument in dry and clean surface.
- Please do not connect the power supply before the surface dry.
- If the solid or liquid particles might have got into the instrument, please disconnect the power supply quickly and contact the manufacturer/supplier for more advice
- Do not spray cleanser into the instrument when cleaning.
- Unplug the power line before cleaning. Please use the recommended cleansers.

Warning!
Before any maintenance or inspection, the power cable must be pulled out of the socket.

Dye	Isopropanol
Building material	Aqueous solution with active agent / isopropanol
Cosmetic	Aqueous solution with active agent / isopropanol
Food	Aqueous solution with active agent
Fuel oil	Aqueous solution with active agent

- You can consult the manufacturer about the materials that are not listed in the above table. Before using other cleaning methods, the user must confirm with the manufacturer that the method will not damage the product. When cleaning the product, please wear suitable protective gloves.
- If the product is not in use for long time, please store it in a dry, clean, and stable and room temperature environment.

Please refer to the *product Service Manual* for details on machine maintenance.

Fault diagnosis

- The instrument adapts to the advanced production technology and testing methods. Each unit had been tested thoroughly before dispatch, with good reliability.
- The common errors generally occur due to improper operation.
- **If the error occurred cannot be handled, please contact the local dealers or can contact us directly.**

Problem	Cause analysis	Solutions
No display found and no operation	power line connection is insecure	Check power line connection and reconnect it securely.
	Power fuse damage or loose	Check whether the power fuse is damaged or loose
ERR5	The temperature exceeds the protection temperature	The sensor failure or heating element short circuit
ERR6	Temperature rises even after the heating is switched OFF	The thyristor short circuit or failure
ERR7	Temperature do not rise even after heating is switched ON	Heating circuit is broken or the sensor failure
ERR8	Motor speed detection error	The motor fails to run or the speed acquisition sensor fails to function

Accessories

Name	Specification
PT1000-A external temperature sensor probe	Length: 230mm
PT1000-B external temperature sensor probe with a glass sleeve	Specially used with digital magnetic hotplate stirrer. Length of 230mm
Temperature probe support assembly	Apply to PT1000
Round bottom flask heating block	50mL
	100mL
	250mL
	500mL
Magnetic stirring core, permanent magnet below 150℃	About 10mm x 6mm
	About 15/20/25mm x 8mm
	About 30mm x 6mm
	About 40/51mm x 8mm
Magnetic stirring core extractor	200mm

Product Certification

DLAB certifies that the construction of this product conforms in accordance to China national and industry standards and ISO9001 standards, and other international standards organizations.

Structure in accordance with the following safety standards:
EN 61010-1 UL 61010-1 CAN/CSA C22.2No.61010-1 EN 61010-2-010
Construction in accordance with the following EMC standards:
EN 61326-1
Associated EU guidelines:
EMC standard： 2014/30/EU LVD standard： 2014/35/EU

Warranty policy

- All DLAB products are supplied with a warranty of 12 Months for Liquid handling range and 24 Months for instruments range from the date of shipment.
- This instrument is warranted to be free from defects in material and workmanship and it must be operated in accordance with our operating guidelines, serviced and maintained on a regular basis in accordance with the terms specified in the relevant user manual.
- Warranty shall not apply to any product or parts which have been damaged due to mishandling or improper installation or abnormal conditions of operation.
- Although great care is used when packaging items for shipment, DLAB cannot accept liability for transportation of goods from DLAB and transit damage is not covered by warranty

For claims under the warranty please contact your local supplier. You may also send the instrument directly to manufacturer, enclosing the invoice copy and giving reasons for the claim. Manufacturer will not be liable for freight costs.