lbx instruments

H20SQC LED Digital magnetic stirrer with heating Glass ceramic

Please read the User Manual carefully before use and follow all operating and safety instructions!

user manual

english

User Manual

EN

H20SQC LED Digital magnetic stirrer with heating - Glassceramic

Preface

Users should read this Manual carefully, follow the instructions and procedures, and beware of allthe cautions when using this instrument.

Service

If help is needed, you can always contact your dealer or Labbox via:

www.labbox.com

Please, provide the customer service representative with the following information:

- Serial number (on the back side)
- Description of the problem
- Your contact information

Warranty

This instrument is guaranteed to be free from defects in materials and workmanship under normal use and service, for a period of 24 months from the date of invoice. The warranty is extended only tothe original purchaser. It shall not apply to any product or parts which have been damaged on accountof improper installation, improper connections, misuse, accident or abnormal conditions of operation.For claim under the warranty, please contact your supplier.

1. Safety Instructions

	Warning! • Read the operating instructions carefully before use. • Make sure only trained staff works with the equipment.
	Risk of burns! • Caution when touching parts of the chassis and the hotplate, which can reach temperatures of 550°C. • Pay attention to the residual heat after switching off the equipment.
	Protective ground contact! • Make sure that the socket is earthed (with protective ground contact) before use.

- When working wear personal protective equipment to avoid risks from:
  - Splashing and evaporation of liquids
  - Release of toxic or combustible gases
- Set up the instrument on a spacious, stable, clean, non-slip, dry, and fireproof surface. Do notoperate the equipment in explosive atmospheres, with hazardous substances or under water.
- Increase the speed gradually. Reduce the speed if:
  - Stirring bar breaks due to high speed
  - The equipment is not running smoothly or the container moves on the base plate.
- Temperature must always be set at least 50 ºC below the combustion point of the media used.
- Beware of hazards due to:
  - Flammable materials or media with a low boiling temperature
  - Overfilling of the container
  - Unsafe container
- Process pathogenic materials only in closed vessels.

- If the stirrer bar contains PTFE, please note:
  - Elemental fluorine, three fluoride and alkali metals will corrode the PTFE and Halogen alkanes expand at room temperature.
  - Molten alkali, alkaline earth metals or their solution, as well as the powder in second andthird ethnic of the Periodic Table of Elements will react with PTFE if the temperature reaches 300 ~ 400 ºC .

- Check the instrument and the accessories for damage prior to every use. Do not use damaged components. A safe operation is only guaranteed with the accessories described in the “Accessories” chapter. Accessories must be securely attached to the device and cannot come off by themselves. Always disconnect the plug before the assembly or disassembly of accessories.

- When the external temperature sensor is needed, the tip of the measuring sensor must be at least5-10 mm away from the vessel bottom and wall.

- The equipment can only be disconnected from the main power supply by pulling out the mains plug.

- The voltage stated on the label must correspond to the main power supply.

- Make sure that the main power supply cable does not touch the hotplate. Do not cover the device.

- Do not exert pressure on the ceramic glass surface or expose it to overheated media; it may causethe surface to break.

- The instrument may only be opened by expert authorized electronic technicians.

- Keep away from high magnetic fields.

- Observe the minimum distances between devices, between the device and the wall, and above theassembly (min. 100 mm.)

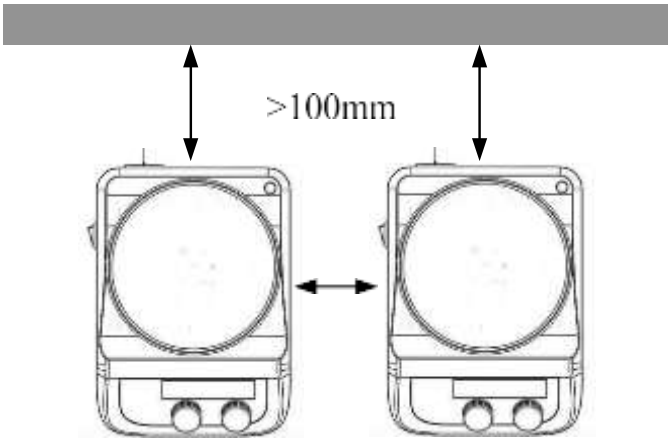

Figure 1

2. Proper Use

The instrument is designed for mixing and/or heating liquids in schools, laboratories, or factories.This device is not suitable for use in residential areas or other restrictions mentioned in Chapter 1.

3. Inspection

3.1 Unpacking

Unpack the equipment carefully and check for any damages which may have arisen duringtransportation.
Please contact the manufacturer/supplier for technical support.

⚠	Note: If there is any apparent damage to thesystem, please do not plug it into the power line.

3.2 Listing of Items

The package includes the following items:

Items	Qty
Main unit	1
Power cable	1
Stirrer bar	1
User Manual	1

Table 1

4. Control

4.1 Control elements

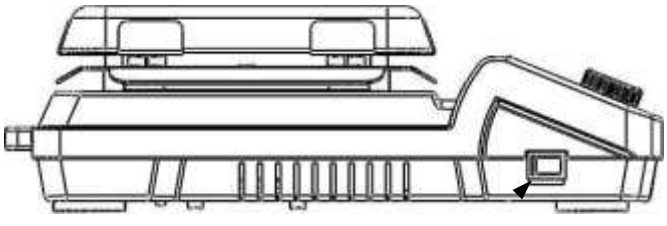

Figure 2

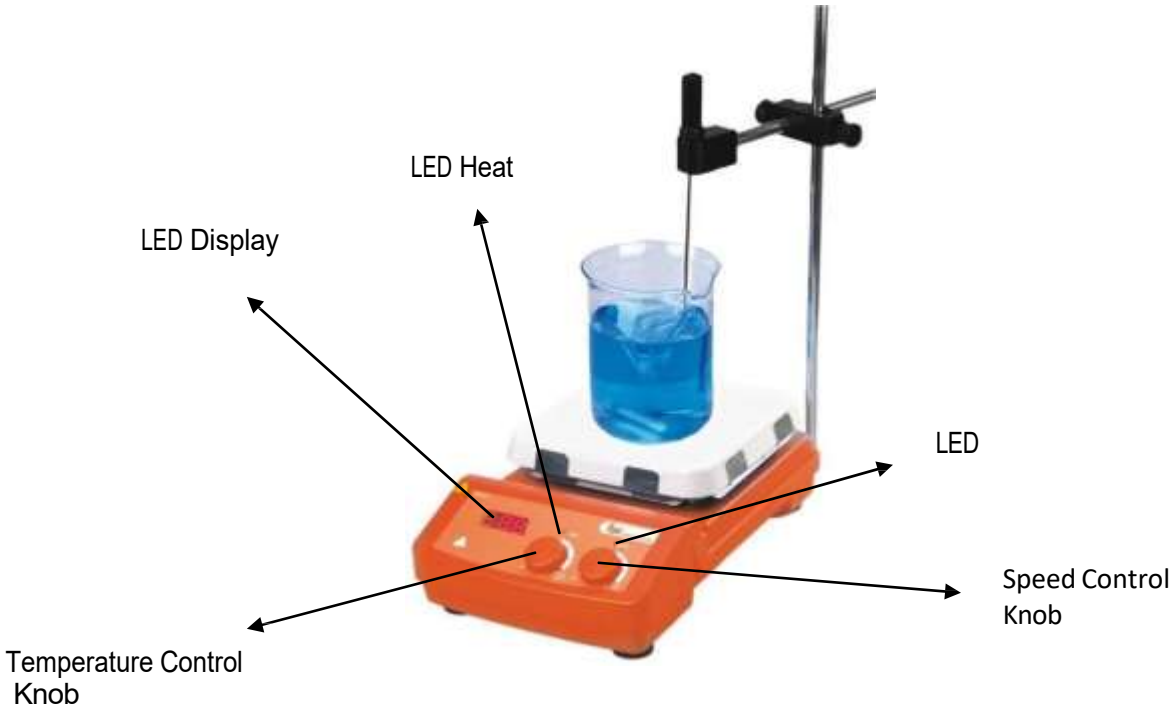

Figure 3

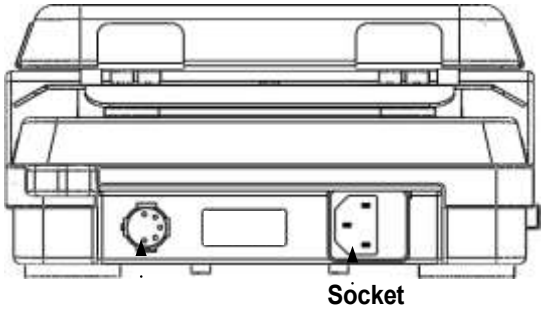

Figure 4

Items	Descriptions
Speed control knobStir	The stirring function and its speed areadjusted with this knob. To increase the value, turn the knob clockwise. To stop the function, turn the knob all the way counterclockwise.
Temperature controlknob Heat	The heating function and the temperatureare adjusted with this knob. To increase the value, turn the knob clockwise. To stop the function, turn the knob all the way counterclockwise.
LED screen	LED screen displays the settings and the real temperature.
Heat LED	When the heating function is activated, the Heat LED lights up until the set temperature isreached. If the temperature drops or is changed, the LED lights up again until the set temperature is reached.
Stir LED	When the instrument is ON, the Stir LED lights up.
Power Switch	Switch the instrument ON/OFF.

Table 2

4.2 Display

Figure 5

Display	Descriptions
Display area for the temperature	When the heating function is ON, the LED screen displays the temperature setting value for 5 seconds and then shifts to the real value. Once the heating function is switched OFF but the hotplate temperature is still above 50ºC, the LED screen displays “Hot”; otherwise, the LED screen displays “0”.

Table 3

5. Trial Run

- Make sure the required operating voltage and power supply voltage match.
- Ensure the socket is properly earthed.
- Plug in the power cable, ensure the power is on.
- Add the medium into the vessel with an appropriate magnetic stirring bar.
- Place the vessel on the work plate.
- Stirring: Set the stirring speed and begin (see Chapter 7: Stirring Function).
- Observe the magnetic stirring bat as it moves.
- Heating: Set the target temperature and start heating.
- Observe the real temperature value on the LED screen.
- Stop the heating and stirring functions.
- Power OFF the equipment by pressing the ON/OFF switch.

If the operations above cause no abnormalities, the device is ready to operate. Otherwise, the device may have been damaged during transportation; please contact manufacturer/supplier for technicalsupport.

Warning!
Forbidden to transfer/manipulate the vessel while the instrument is working.

6. Function: Heating

The device is controlled by digital temperature control technology, which has two separate safe circuits.

- If an external sensor PT1000 is used, always connect it to the device BEFORE turning the poweron and submerge it into the sample BEFORE starting to heat (see section 6.1).
- Turn the unit on by pressing the ON/OFF switch.
- Select the target temperature by slowly turning the temperature knob towards the desired value.
- When the heating function is ON, the LED screen displays the target temperature value for 5 seconds and then shifts to the real value. The Heat LED also lights up until the set temperature isreached.
- At the end of the operation, turn off the heating function by turning the temperature knob all theway to the left.
- Turn off the unit by pressing the ON/OFF switch.

The heating function will be stopped automatically under abnormal conditions. The device has a fixedsafety temperature of 580ºC; therefore, it automatically stops heating once that temperature is reached.

- If working with an external temperature sensor, make sure it is inserted into the media to beheated.
- Switch ON the instrument and run the heating function.

If the heating function is still not working, please contact the manufacturer/supplier for technicalsupport.

Generally, the LED display does not indicate the actual temperature of the sample in the vessel or onthe hotplate surface. There are temperatures differences between the following:

- Hotplate center and outer edge.
- The sample in the container and the hotplate.

In order to ensure an accurate measurement of the temperature inside the container, use theexternal temperature sensor PT1000.

6.1 Working with an external temperature sensor

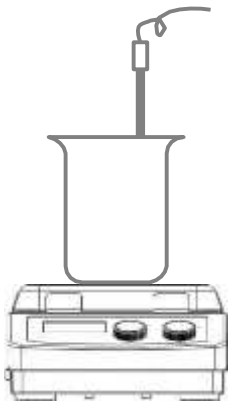

Figure 6

The external temperature sensor PT1000 is a standard accessory of the manufacturer. Compared to the hotplate's temperature control, the external temperature sensor can control the medium's temperature with a higher accuracy.

- If the external temperature sensor is needed, it must be plugged into the device BEFORE turningON the device.
- Ensure the external temperature sensor is firmly connected and inserted into the media beforeheating.
- Switch ON the equipment and start heating.
- The LED screen displays the set target temperature for 5 seconds and then shifts to the realtemperature.

	Warning! Forbidden to plug in/pull out the external temperature sensor while the equipment is ON

6.2 Residual heat warning (HOT)

In order to prevent the risk of burns from the hotplate, the digital hotplate has a residual heatwarning function.
While the heating function is switched OFF but the heating plate temperature is still above 50ºC,
"Hot" will flash on the LED screen to warn that there is a hazard of burns from the hotplate.When the hotplate temperature drops to below 50ºC, the LED screen displays "0".
If users want to turn OFF the LED display immediately (the warning message keeps popping up), justpull out the plug directly. Once unplugged, the residual heat message stops flashing

7. Function: Stirring

The stirring function is turned ON/OFF by turning the speed control knob. The speed is adjusted with the knob (from 10 to 1500 rpm in 10 rpm intervals). When the heating and stirring functionsare switched ON at the same time, the LED screen displays the set temperature value for 5 secondsfirst and then shifts to the real temperature value.

- Turn the unit ON by pressing the ON/OFF switch.
- Adjust the stirring speed by slowly turning the speed control towards the desired value.
- When the stirring function is ON, the Stir LED lights up during the entire operation.
- At the end of the operation, turn OFF the stirring function by turning the speed control all theway to the left.
- Turn the unit OFF by pressing the ON/OFF switch.

8. Faults

- Instruments cannot be turned ON.
  - ➢ Check whether the power cable is plugged in.
  - ➢ Check whether the fuse is broken or loose.

- Stir speed cannot reach the set point.
  - ➢ Excessive medium viscosity may cause abnormal motor speed reduction.

- Unit cannot be powered OFF when pressing the ON/OFF switch.
  - ➢ Check if the residual heat warning function is still ON and the hotplate temperature isabove 50ºC (the LED screen still works and “Hot” flashes on the LED screen).

If these faults are not resolved, please contact the manufacturer/supplier.

9. Maintenance and Cleaning

- Proper maintenance can keep instruments working properly and lengthen their lifetime.
- Do not spray cleanser onto the instrument when cleaning.
- Unplug the power line when cleaning.
- Only use recommended cleansers:

Dyes	Isopropyl alcohol
Construction materials	Water containing surfactants / Isopropyl alcohol
Cosmetics	Water containing surfactants / Isopropyl alcohol
Foodstuffs	Water containing surfactants
Fuels	Water containing surfactants

Table 4

- Before using another cleaning or decontamination method, the user must verify with themanufacturer that this method will not harm the instrument.
- Wear proper protective gloves while cleaning the instrument.
- If maintenance service is needed, the equipment must be cleaned and shipped in its original packaging in order to avoid pollution from hazardous substances.
- The ceramic coating makes the hotplate more resistant to acids and bases and easier to maintain.However, it is equally vulnerable to extreme temperature fluctuations and impact forces (risk of cracking and/or detaching of the coating).

Note:

- Electronic devices cannot be cleaned with cleanser.
- If maintenance service is needed, the equipment must be cleaned and packed intothe original carton before shipping in order to avoid pollution from hazardous substances.
- If the instrument will not be used for a long time, please power OFF and place in a dry, clean, and stable location at room temperature

10. Associated Standards and Regulations

Construction in accordance with the following safety standards:
EN 61010-1 UL 3101-1 CAN/CSA C22.2(1010-1) EN 61010-2-10
Construction in accordance with the following EMC standards:
EN 61326-1
Associated EU guidelines:
EMC-guidelines: 2004/108/CE Instrument guidelines: 73/023/EWG

11. Technical data

Voltage [VAC]	100-120/200-240
Frequency [Hz]	50/60
Power [W]	1030
Stirring point position quantity	1
Max. stirring quantity (H_2O) [L]	10
Max. magnetic bar [L×Ø, mm]	80×10
Motor type	Shaded pole Motor
Max. power input of motor [W]	15
Max. power output of motor [W]	1.5
Speed range [rpm]	10-1500
Rotary speed display	Scale
Plate material	Glass ceramic
Dimensions of workplate [mm]	184×184
Heating power [W]	1000
Temperature range [°C]	25-550, increment: 5
Temperature display [°C]	LED

Temperature display accuracy [°C]	±1
The safety temperature of the hotplate[℃]	580
Temperature sensor in medium	PT1000
Control accuracy of heating temperature with temperaturesensor [ºC]	±0.5
Residual heat warning	50℃
Dimensions [mm]	215×360×112
Weight [kg]	4.5
Permitted ambient temperature [°C]	5-40
Permitted relative humidity	80%
Protection class acc. to DIN 60529	IP21

Table 5

12. Accessories

Please contact our company to order the following accessories available for these devices: magnetic stirring bars, PT1000 temperature sensor with glass coated and support clamp for temperature sensor.

Nota importante para los aparatos electrónicos vendidos en España

Instrucciones sobre la protección del medio ambiente y la eliminación de aparatos electrónicos:

Los aparatos eléctricos y electrónicos marcados con este símbolo no pueden ser eliminados en forma de residuos urbanos.

De conformidad con la Directiva 2012/19/UE, los usuarios de la Unión Europea de aparatos eléctricos y electrónicos, tienen la posibilidad de devolver sus RAEE para su eliminación al distribuidor o fabricante del equipo después de la compra de uno nuevo. La eliminación ilegal de aparatos eléctricos y electrónicos es castigada con multa administrativa.

Remarque importante pour les appareils électroniques vendus en France

Informations sur la protection du milieu environnemental et élimination des déchets électroniques :

Les appareils électriques et électroniques portant ce symbole ne peuvent pas être jetés dans les décharges.
En réponse à la règlementation, Labbox remplit ses obligations relatives à la fin de vie des équipements électriques de laboratoire qu'il met sur le marché en finançant la filière de recyclage de ecosystem dédiée aux DEEE Pro qui les reprend gratuitement (plus d'informations sur www.ecosystem.eco).
L'élimination illégale d'appareils électriques et électroniques est punie d'amende administrative.

Nota importante per le apparecchiature elettroniche vendute in Italia

Istruzioni sulla protezione ambientale e sullo smaltimento dei dispositivi elettronici:

Le apparecchiature elettriche ed elettroniche contrassegnate con questo simbolo non possono essere smaltite come rifiuti urbani.
In conformità con la Direttiva 2012/19 / UE, gli utenti dell'Unione Europea di apparecchiature elettriche ed elettroniche hanno la possibilità di restituire i propri RAEE per lo smaltimento al distributore o al produttore di apparecchiature dopo averne acquistato uno nuovo. La rimozione illegale di apparecchiature elettriche ed elettroniche è punibile con una sanzione amministrativa.

www.labbox.com