



Digital Display Ceramic Hotplate **LB-11THP**

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1. Safety Measures

Safety instructions:

Read the entire instruction manual before operating the hotplate.

- **WARNING:** Do not use the hotplate in a hazardous atmosphere or with hazardous materials for which the unit was not designed. Also, the user should be aware that the protection provided by the equipment may be impaired if used with accessories not provided or recommended by the manufacturer or used in a manner not specified by the manufacturer. Always operate the unit on a level surface for best performance and maximum safety.
- Do not lift the unit by the top plate.
- **Caution:** To avoid electrical shock, completely cut off power to the unit by disconnecting the power cord from the unit or unplug from the wall outlet. Disconnect the unit from the power supply before maintenance and servicing. Spills should be removed promptly after the unit has cooled down.
- Do not immerse the unit for cleaning. Alkaline spills, hydrofluoric acid, or phosphoric acid spills may damage the unit and lead to thermal failure.
- **Caution:** The top plate can reach 400°C, do not touch the heated surface. Always use caution. Keep the unit away from explosive vapors and clear of papers, drapery, and other flammable materials. Keep the power cord away from the heater plate.
- Do not operate the unit at high temperatures without a vessel/sample on the top plate.
- **Warning:** Units are not explosion-proof. Use caution when heating volatile materials.
- Do not operate the unit if it shows signs of electrical or mechanical damage.
Earth Ground—Protective Conductor Terminal Alternating Current.

Warnings:

- 1) Use an electrical outlet that operates with a fuse or circuit breaker and a ground fault interrupt circuit (GFCI).
- 2) Disconnect the mantle from the power supply before maintenance and servicing to avoid personal injury:
 - Don't use in the presence of flammable or combustible materials, fire or explosion may result.
 - Refer servicing to qualified personnel only.
 - Flask or vessels should be handled with care. Appropriate safety clothing, glasses, gloves, and coats should be worn when operating all mantles.
- 3) **CAUTION!** To avoid electrical shock, completely cut off power to the unit by disconnecting the power cord from the unit or unplug from the wall outlet. Disconnect the unit from the power supply before maintenance and servicing. Spills should be removed promptly after the unit has cooled down.
- 4) **CAUTION!** The heating mantle can reach 400°C, do not touch the heated surface. Always use caution. Keep the unit away from explosive vapors and clear of papers, drapery, and other flammable materials. Keep the power cord away from the heating mantle. Do not operate the unit at high temperatures without a vessel/sample into the heating mantle.

2. Introduction

Digital Display Ceramic Hotplate LB-11THP is an intelligent hot plate with a PID controlled temperature of 400 °C for uniform heat distribution. Features a heating capacity for flasks of 2 L. It offers digital temperature control and it contains an outer thermocouple that measures and controls the liquid temperature value together with the front panel. The inner thermocouple, controls and measures the hotplate stirrer temperature.

3. Features

1. Continuous working time
2. PID controlled temperature
3. Digital display

4. Specifications

Model No.	LB-11THP
Heat capacity	2 L
Ceramic plate dimension	180 mm × 180 mm
Power	410 W
Temperature	400 °C
Temperature accuracy	± 1 °C
Voltage	160 V~ 240 V, 110 V~ 120 V
Weight	4.9 kgs

5. Applications

Used in laboratories to apply heat to containers , samples , for distillations that require high temperatures , health care and other fields

6. Instrument Introduction

Control Panel:

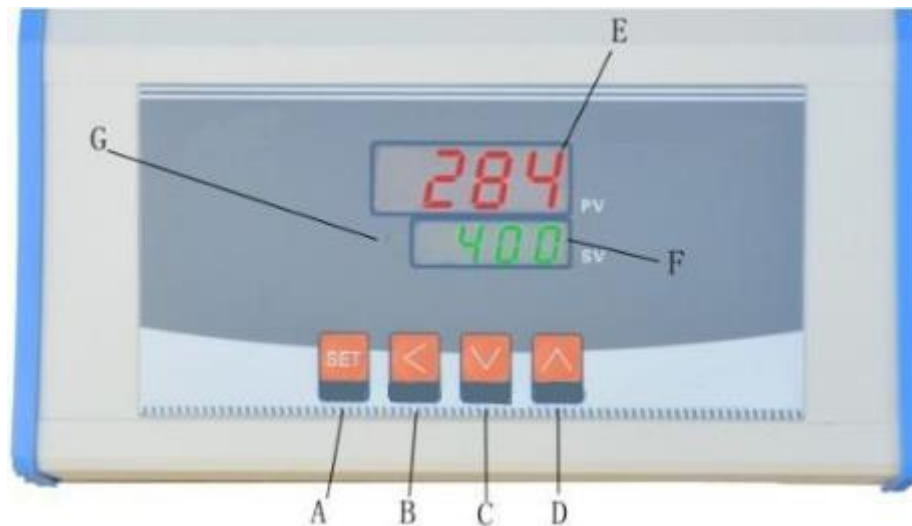


Figure-1

- A. Set temperature value button.
- B. Translocated button/self-tuning button.
- C. Reduce temperature value Button.
- D. Add temperature value Button
- E. Measured temperature value display window PV.
- F. Set temperature value display windows SV.
- G. Output indicator LED

7. Installation

7.1 Instrument installation

- 1) Upon receiving the Hotplate, check to ensure that no damage has occurred in the shipment. Any damage that occurred in transport must be detected at the time of unpacking.
- 2) After unpacking, place the Hotplate on a level bench or table, away from explosive vapors. Ensure that the surface on which the unit is placed will withstand typical heat produced by the unit and place the unit a minimum of 30 cm from vertical surfaces. Always place the unit on a sturdy work surface.
- 3) The Hotplate can be plugged into a properly grounded outlet. The 110V unit plugs into a 110-volt, 50/60 Hz source. The 220V unit plugs into a 220-volt, 50/60 Hz source.

7.2 Environmental Conditions

Operating conditions:

- 1) Indoor use only.
- 2) **Temperature:** 5 to 40°C (41 to 104°F)
- 3) **Humidity:** 20% to 80% relative humidity, non-condensing
- 4) **Altitude:** 0 to 6,562 ft (2000 M) above sea level.

Non-operating Storage:

- 1) **Temperature:** -20 to 65°C (-4 to 149°F)
- 2) **Humidity:** 20% to 80% relative humidity, non-condensing.

8. Operations

Heating Operating Instructions:

The Hotplates have a microprocessor-controlled heater that is designed to bring samples to temperature quickly and accurately.

8.1 Getting ready

- 1) Fix the support rod into the screw hole (at the back of the instrument); Adjust the height of the cross clip and fasten the glassware tightly with clip.



Figure-2

- 2) Place a vessel with a solution and the appropriate accessories in the center of the top plate. This is important because the vessel should be over the hottest part of the top plate.
- 3) Put the inner thermocouple on the machine.



Figure-3 Inner thermocouple

8.2 Operating instructions for temperature adjustment

8.2.1 How to open the electrical power

- 1) Turn on the power button in the lateral. (As shown in **Figure 4**)



Figure-4

- 2) PV display “K” means machine thermocouple is K type thermocouple. SV displays “400” (means the temperature range of the machine is ambient to 400 degrees) at the same time. Both disappeared within 3 seconds.
- 3) SV windows display the set temperature last time, and PV windows display the measured temperature by inner thermocouple.

8.2.2 How to set the temperature adjustment

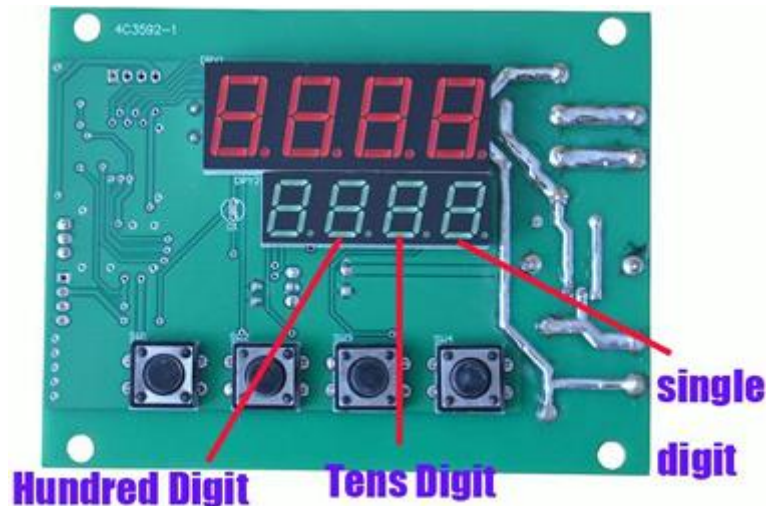


Figure-5

- 1) Press  the button for 3 seconds, and the single-digit figure flashes in the SV windows display.
- 2) Press  or  to for more than 2 seconds quickly to set the temperature you require for a single digit. The SV windows display the changed value, PV windows display the ambient temperature.
- 3) Press the Self-tuning button / translocated button for 2 seconds again when the single-digit temperature is finished if you need a higher temperature. Then Tens digit flashes, press  or  to set the temperature you require for the tens digit. The SV windows display the changed value, PV windows display the ambient temperature. (**Note:** Press  again if you don't need the tens digit temperature, then the set temperature is finished)
- 4) Press the Self-tuning button / translocated button for 2 seconds again when the tens digit temperature is finished if you need a higher temperature. Then hundreds of digits flash, Press  or  set the temperature you require for hundreds of digits. The SV windows display the changed value, PV windows display the ambient temperature. (**Note:** Press  again if you don't need the hundreds digit temperature, then the set temperature is finished)
- 5) Press  again when three digits finished their set. Then the SV windows display the set value, PV windows display the ambient temperature.

8.2.3 How to use the self-tuning function

- 1) Turn off the power button in the lateral when the PV windows temperature is increasing higher than the set temperature.
- 2) Wait for the machine temperature to return to ambient temperature.
- 3) Press self-tuning for 8 seconds until your set temperature flashes.
- 4) The self-tuning function is finished when the SV window stops flashing, and then the temperature value of PV windows is the same as SV windows.

8.2.4 Measured the liquid temperature adjustment

- 1) Pull out the inner thermocouple at the back of the product by hand. The PV windows display "HHHH", and the SV windows display the set temperature last time.
- 2) Connect the outer thermocouple 4 holes with the hotplate 4 spins PV windows display ambient temperature, and SV displays the set temperature.
- 3) Put the another stainless steel part of outer thermocouple 20mm-30mm length into the liquid you measured PV windows display the changed temperature and SV displays the set temperature.
- 4) Burn-out protection Function, when the outer thermocouple is disconnected, the window displays "hhhh", the green light is off, hotplate stops working. When this occurs check it before using.
- 5) Pull out the outer thermocouple from the hotplate, PV displays the HHHH, and SV displays the set temperature. Turn off the power button. Clean the outer thermocouple, and store the thermocouple in the sealed, cool, and dry condition time if you don't set the stirring speed again.



Figure-6 Outer thermocouple

9. Maintenance

- 1) Hotplate is built for long, trouble-free, dependable service. It needs no user maintenance beyond keeping the surfaces clean.
- 2) The unit should be given the care normally required for any electrical appliance.
- 3) Avoid wetting or unnecessary exposure to fumes.
- 4) Spills should be removed promptly after the unit has cooled down.
- 5) Do not use a cleaning agent or solvent on the front panel or top plate that is abrasive or harmful to plastics, nor one that is flammable.
- 6) Ensure the power is disconnected from the unit before any cleaning.

10. Accessories

Standard Accessories

Accessories No	Accessories	Quantity
A1	Removable holder	1
A2	Clamp with screw	1
A3	Inner Thermocouple 4 -spin	1
A4	Outer Thermocouple 4-spins	1



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