

Digital Heating Mantle

2L/5L/12L/22L



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Keep this manual on-hand so it can be used by all operators of the unit.
Use the unit only in the way described in this manual.
Failure to follow the instruction in this manual may cause wrong operation.

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01. General Description

Thank you for purchasing our product.
We know that in today's competitive marketplace,
customers have many choices when purchasing laboratory equipment.
We appreciate your choosing our quality product.
We stand behind our products and want to let you know we are here
if you need us.

Before you use the unit, read this entire manual carefully to understand
how to install, operate and maintain the unit in a safe manner.
Your satisfaction with the unit will be maximized as you read this manual thoroughly.

Our capable products will satisfy you by the best performance with easy operation.

02. Graphic Symbols

BE SURE THAT YOU UNDERSTAND ALL OF THESE SYMBOLS BEFORE OPERATING THE UNIT.



Important operating and / or maintenance instruction.
Read the accompanying text carefully.



This symbol indicates items and procedures that are **STRICTY PROHIBITED** with regards to the unit.



Potential electrical hazards.



Explosive.



No disassemble.

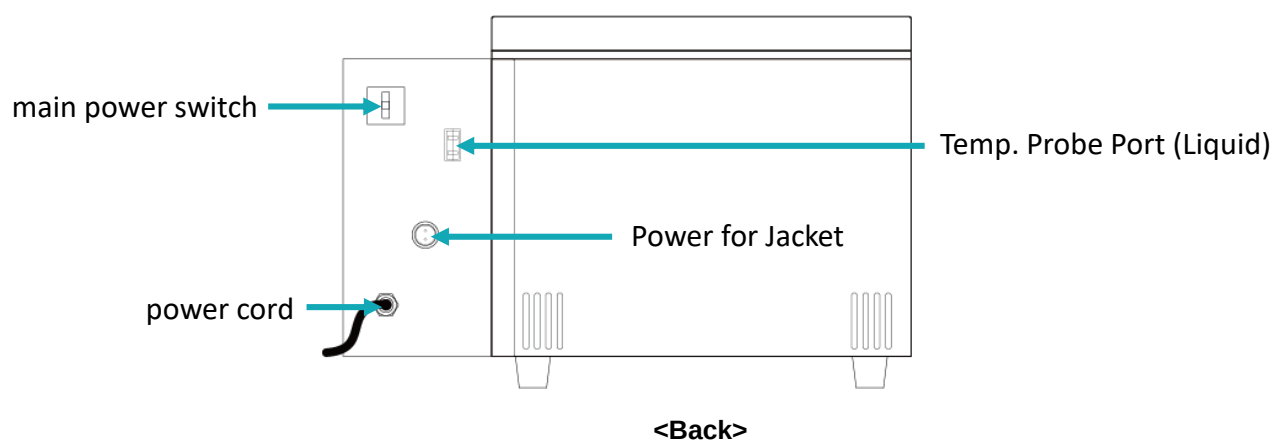
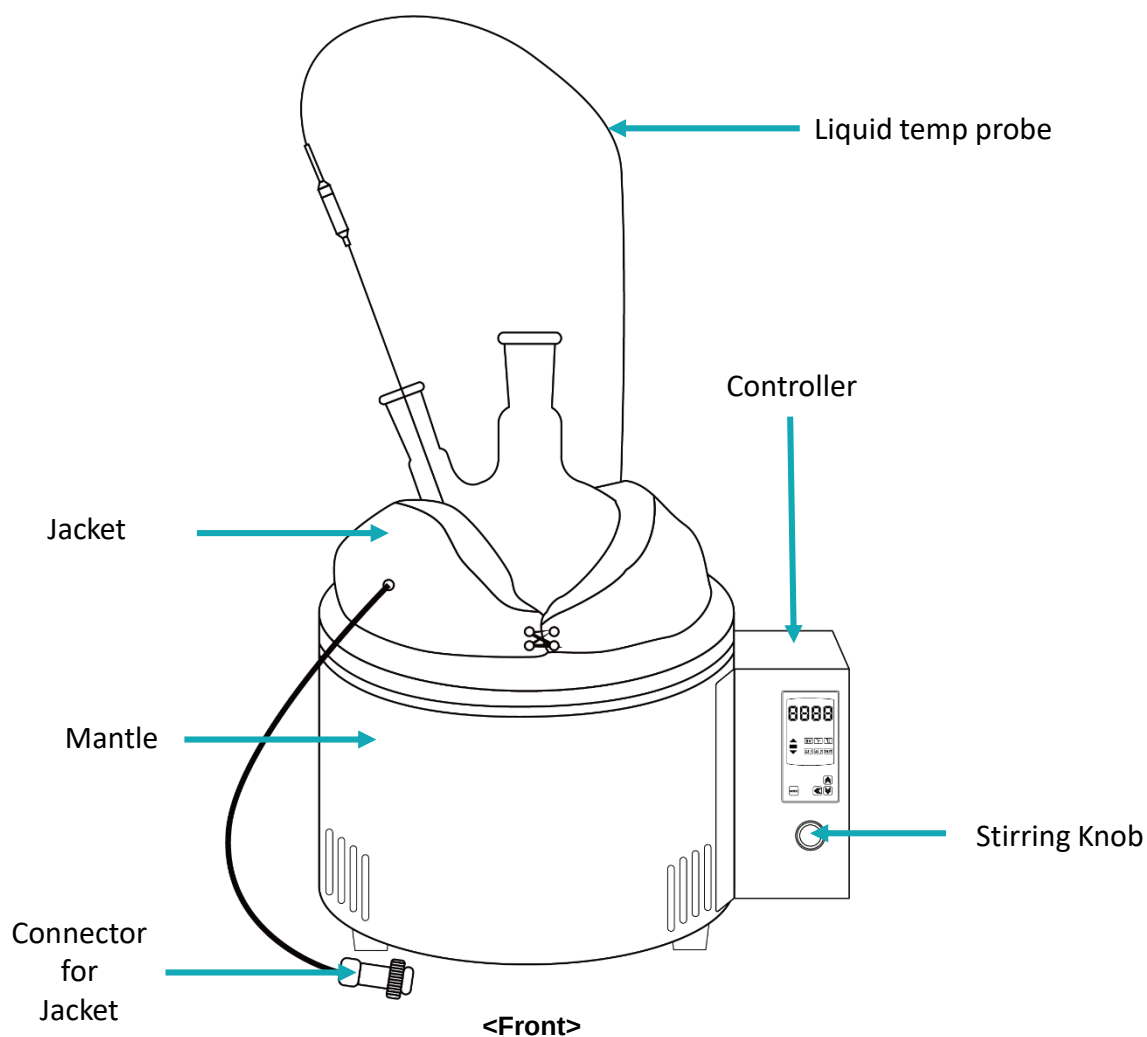


Flammable.

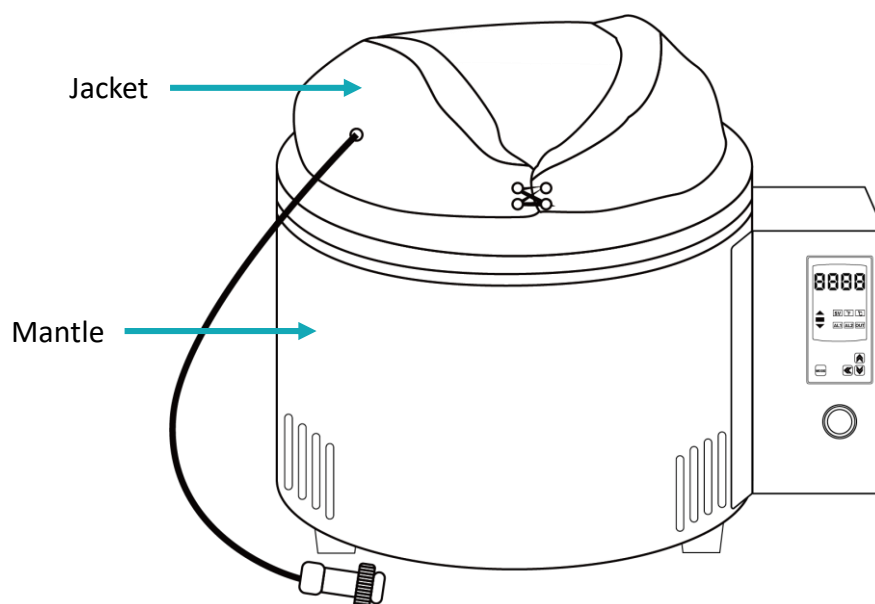


Hot surface or steam.

03. The Outward

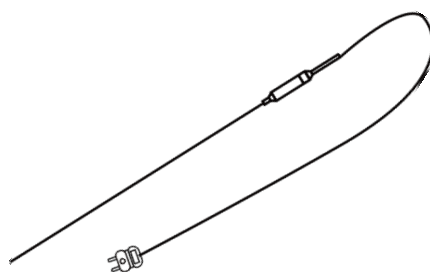


04. Basic Parts



<Main Unit>

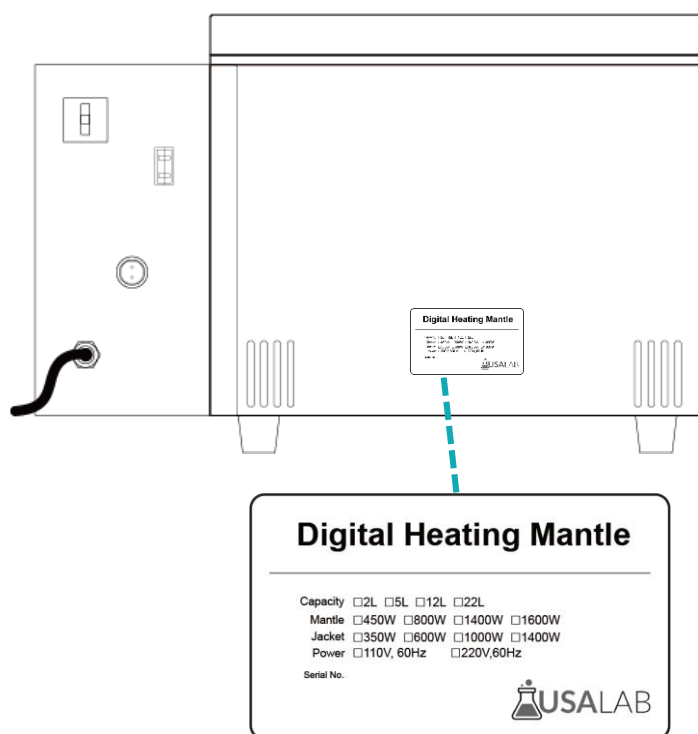
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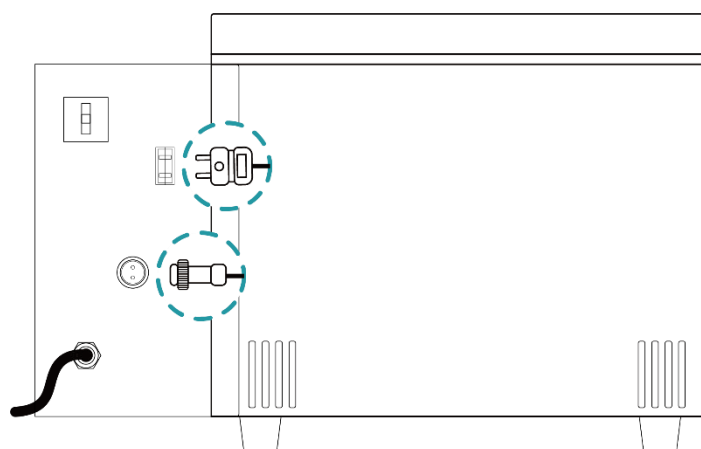
< Temp Probe >

Capa	Sensor & Q-ty
2L	400mm(15.74inch), 1EA
5L	400mm(15.74inch), 1EA
12L	600mm(23.62inch), 1EA
22L	600mm(23.62inch), 1EA

05. Installation

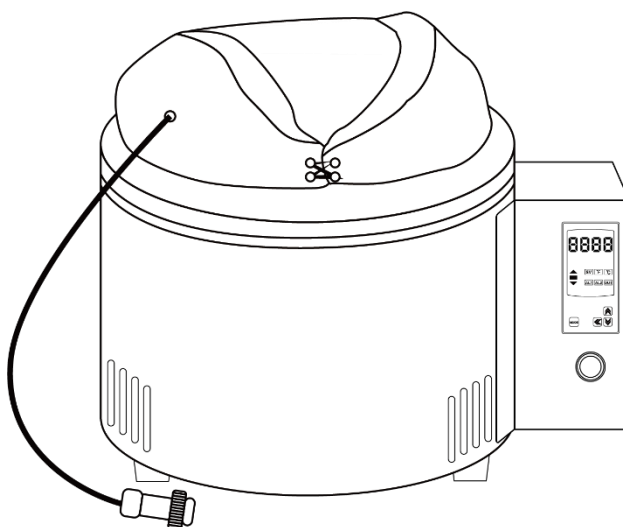


Serial label shows the electric power specification of the unit.
Connect main power cord to outlet and turn on the main power switch.



Connect jacket connector and sensor to the controller.

06. Specifications



Capacity	2L	5L	12L	22L
Dimension	Φ270x220mm Φ10.62x8.66inch	Φ330x220mm Φ12.99x8.66inch	Φ400x300mm Φ15.74X11.81inch	Φ450x330mm Φ17.71x12.99
Jacket Heater	110V, 350W	110V, 600W	220V, 1000W	220V, 1400W
Mantle Heater	110V, 450W	110V, 800W	220V, 1400W	220V, 1600W
Motor	10W	10W	60W	60W
Net Weight	TBA	13kg /28.66lb	22kg / 48.50lb	TBA

* IMPORTANT NOTICE *

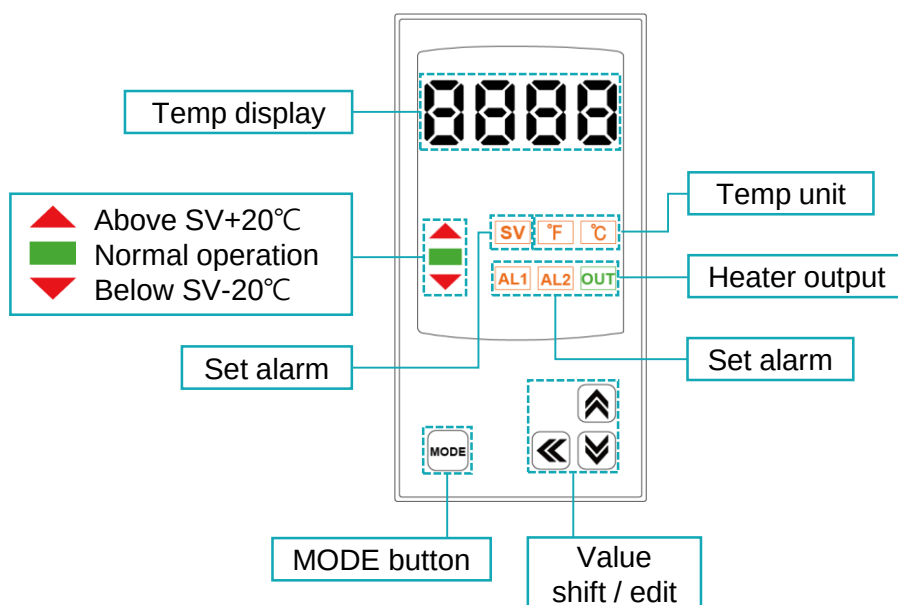
The size and weight of spin bars affect the function of mantle motor and may cause damage if you choose wrong pills.

Please keep this selection guide for your spin bars so you can enjoy stable and long operation with our mantles.

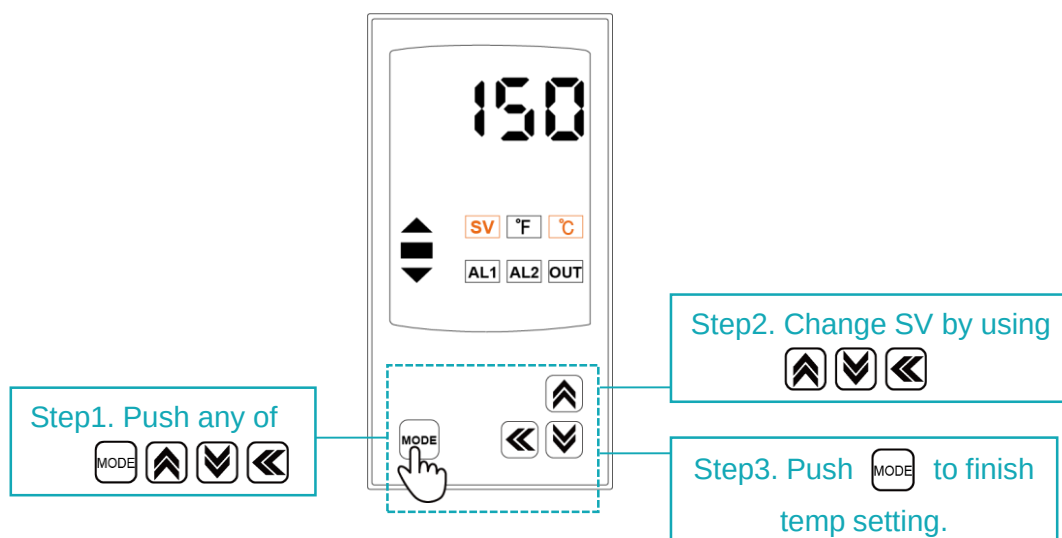
- 2L/5L mantles - 26x10mm or similar, 15grams or less
- 12L/22L mantles - 51x10mm or similar, 60grams or less

07. Setting and Operation

(1) Controller overview



(2) Temp setting & Start

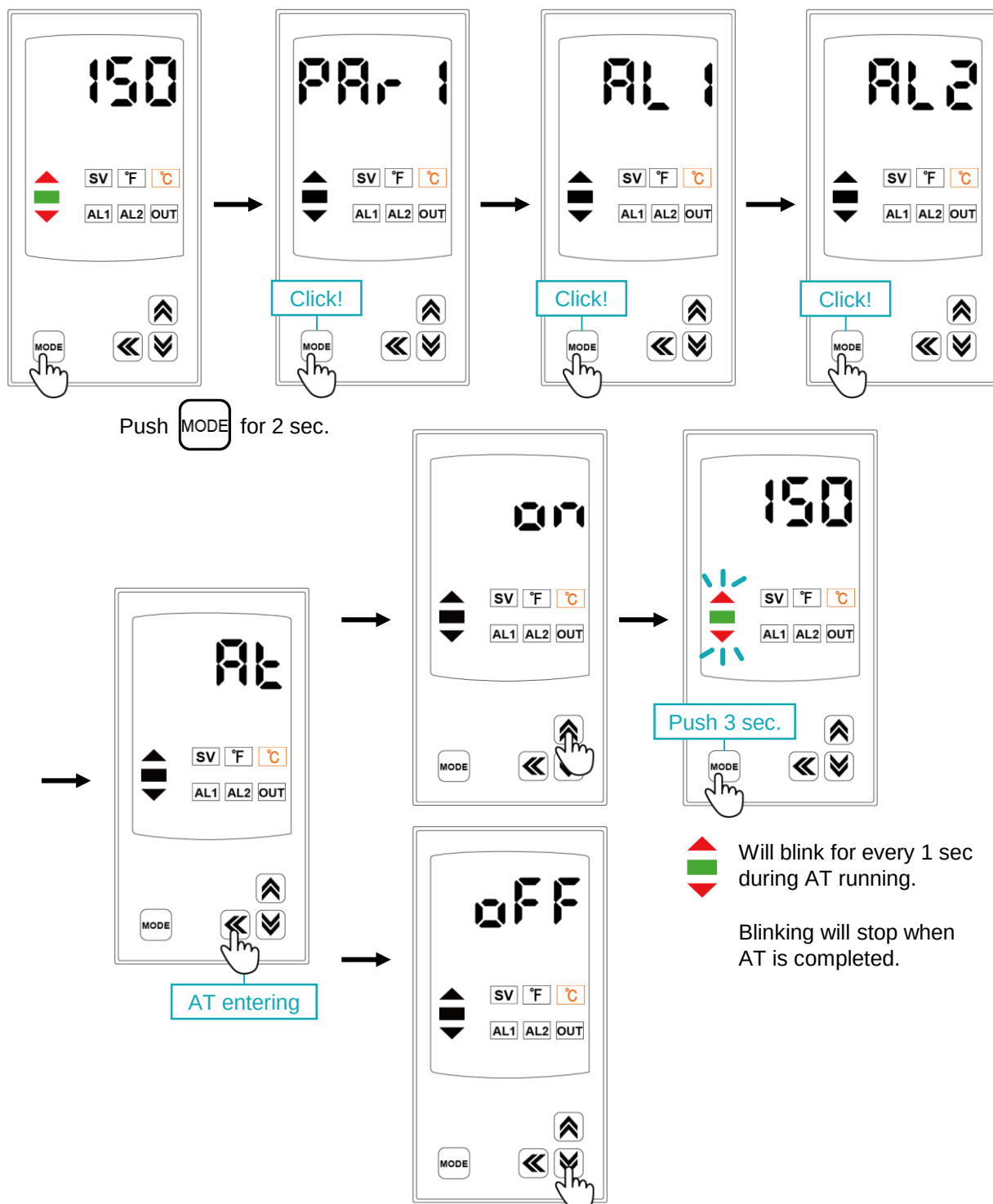


Wait a few minute, mantle is going to run

07. Setting and Operation

(3) Auto Tuning(AT) setting

Auto tuning is a process of optimizing mantle's performance, which should be done mandatorily prior to operation at site. Through this process, the output of heater inside mantle is delicately controlled, which increases and decreases the output per your target temperature. This will prevent overshooting too. Please do this process and be patient until it is completed by itself.



08. Troubleshooting

Symptom	Corrective action
SV fluctuation	Do auto tuning under your planned condition (temp, material, stirring).
Unstable stirring	When viscosity of material is too thick to be stirred and when you stir too fast, a stirring pill might not spin or it might wobble. It is not a problem of stirring and you need to find a right stirring position versus material's thickness, material's temp, material's volume and etc.



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