

**ENS LYON**

**P101.41**

# Heating Mantle (Digital, Magnetic)

## User Manual



- 98-I-B Manual Heating Mantle
- 98-II-B Magnetic Heating Mantle
- 98-I-C / 98-II-C Digital Heating Mantle
- 98-III-B Magnetic and Digital Heating Mantle
- 98-IV-B Rows Manual Heating Mantle
- 98-V-B Rows Magnetic Heating Mantle

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

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## Preface

Thank you for purchasing our products: Heating Mantle. Users should read this Manual carefully, follow the instructions and procedures, and beware of all the cautions when using this instrument.

## Warranty

You have purchased a Faithful instrument. This instrument is warranted to be free from defects in materials and workmanship under normal use and service, for a period of 12 months from the date of invoice. The warranty is extended only to the original purchaser. It shall not apply to any product or parts which have been damaged on account of improper installation, improper connections, misuse, accident or abnormal conditions of operation.

For claim under the warranty please contact with us. You may also send the instrument direct to our works or we send you the spare parts to help you resolve this problem in next order, enclosing the invoice copy and by giving reasons for the claim. You would be solely liable for freight costs.

## 1 Safety Instructions



Connect the device to an earthed power supply to ensure safety of machine and experiment; connect the power as the machine required.



This equipment is forbidden to use in inflammable and explosive, poisonous and strong corrosive experiments.



Make sure horizontal installation.



Non-professionals are not allowed to disassemble and repair this machine.



Pay attention to the set temperature while dealing with the inflammable matters.



Make sure dry the resin container, if the temperature is setting too high by accident, the container would be dissolved and then fall on the heater to cause fire.



Overfilled of sample will lead to overheat of working room under parts, which will dissolve the inflammable material and cause fire.



While the machine is working, don't touch the top, window and exhaust port of the device to protect from high-temperature burns.



Read the instruction book before operation.

- When working, wear the personal guard to avoid the risk from:
  - Splashing and evaporation of liquids
  - Release of toxic or combustible gases.
- Set up the instrument in a spacious area on a stable, clean, non-slip, dry and fireproof surface; do not operate the instrument in explosive atmospheres, with hazardous substances or under water.
- Temperature must always be set to at least 25°C lower than the fire point of the media used.
- Beware of hazards due to:
  - Flammable material or media with a low boiling temperature
  - Overfilling of media
  - Unsafe container
- Process pathogenic materials only in closed vessels.
- Check the instrument and accessories before hand for damage each time you use them. Do not use damaged components. 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 fitting accessories.
- Ensure that the external temperature sensor is inserted in the media to a depth of at least 20mm.
- When using metal vessels, do not place the temperature sensors on the bottom of the vessel. Placing sensors on the vessel bottom can cause excessively high temperature to be measured especially in media which have poor conductivity. The tip of the measuring sensor must be at least 5mm from the vessel bottom, a distance of 10mm is ideal.
- The instrument can only be disconnected from the main power supply by pulling out the mains plug or the connector plug.
- The voltage stated on the label must correspond to the main power supply.
- Ensure that the mains power supply cable does not touch the heating base plate. Do not cover the device.
- Keep away from high magnetic field.

## 2 Proper Uses

The instrument is designed for mixing and / or heating liquids in schools, laboratories or factories. This device is not suitable for using in residential areas.

## 3 Inspections

### 3.1 Receiving Inspection

Unpack the equipment carefully and check for any damages which may have arisen during transport. If it happens, please contact manufacturer for technical support.



Note:

If there is any apparent damage to the system,

Please do not plug it into the power line.

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### 3.2 Listing of Items

The packing includes the following items:

98-I-B Manual Heating Mantle	
Items	Qty
Main unit	1
Power Cable	1
User Manual	1

Table 2

98-I-C/98-II-C Digital Heating Mantle	
Items	Qty
Main unit	1
Power Cable	1
User Manual	1
Rack Rods	1

Table 4

98-II-B Magnetic Heating Mantle	
Items	Qty
Main unit	1
Power Cable	1
User Manual	1
Stir Bar	1

Table 3

98-III-B Magnetic and Digital Heating Mantle	
Items	Qty
Main unit	1
Power Cable	1
User Manual	1
Rack Rods	1
Stir Bar	1

Table 5

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98-IV-B Rows Manual Heating Mantle	
Items	Qty
Main unit	1
Power Cable	1
User Manual	1

Table 6

98-V-B Rows Magnetic Heating Mantle	
Items	Qty
Main unit	1
Power Cable	1
User Manual	1
Stirrer bar	Rows

Table 7

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

### 4 Trial Runs

- Make sure the required operating voltage and power supply voltage match.
- Ensure the socket must be earthed reliably.
- Ensure the power be off
- Plug in the power cable, ensure the power be on and begin initializing.
- Add the medium into the vessel with a stirring bar if with the magnetic stirrer function.
- Put the vessel on the work plate.
- Adjust the stirring speed and start stirring if with the magnetic stirrer function..
- Observe the stirring bar and LCD display if with digital function.
- Adjust the temperature and start heating.

- Observe the real temperature on LCD display if with the digital function.
- Stop the heating and stirring functions.

If these operations above are normal, the device is ready to operate. If these operations are not normal, the device may be damaged during transportation, please contact manufacture for technical support.

## 5 Operating Modes

The instrument is designed for mixing and / or heating liquids in schools, laboratories or factories. This device is not suitable for using in residential areas.

### 5.1 98-I-B Manual Heating Mantle and 98-IV-B Rows Manual Heating Mantle:

- Place the equipment on level worktable, and then put the container with liquid inside into heating mantle.
- Switch on the power accords with the machine, then power indicator light will be lighten; turn on the power of regulation knob, and turn the knob clockwise, then the working indicator light will be lighten; in the process of regulating, the light intensity changes according to different regulation position, and the temperature rises as well.



Note:

The power must accord with the machine.

Make sure the power line has safety distance from the heating mantle.

When the machine meets fault please cut off the Electricity first



### 5.2 98-II-B Magnetic Heating Mantle and 98-V-B Rows Magnetic Heating Mantle:

- Place the equipment on level worktable, and then put the container with liquid inside into heating mantle.
- Switch on the power accords with the machine, then power indicator light will be lighten; turn on the power of regulation knob, and turn the knob clockwise, then the working indicator light will be lighten; in the process of regulating, the light intensity changes according to different regulation position, and the temperature rises as well.
- The same to adjust the magnetic stirring power.



Note:

The power must accord with the machine.

Adjust the speed slowly; please adjust the speed when too high speed makes the stir breakaway.

Make sure the power line has safety distance from the heating mantle.

When the machine meets fault please cut off the Electricity first.



### 5.3 98-I-C Digital Heating Mantle:

- Place the equipment on level worktable, and then put the container with liquid inside into heating mantle.
- Install the Sensor Rack with Stainless Rods on the heating mantle back holder.
- Put the temperature sensor into the liquid.
- Turn the knob anticlockwise to the left place, Setting the inquiry temperature and the equipment will working slowly.
- If the temperature on the screen can't up to the setting temperature, turn the knob clockwise slowly, the real temperature on the screen will increase slowly.
- If the temperature still can't up to the setting temperature, do this process again.
- If the temperature higher than the setting temperature, turn the knob anticlockwise to make the temperature down



**Note:**

The power must accord with the machine.  
Make sure the power line has safety distance  
from the heating mantle.  
When the machine meets fault please cut off the Electricity first.

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### 5.4 98-II-C Digital Heating Mantle :

- Place the equipment on level worktable, and then put the container with liquid inside into heating mantle.
- Install the Sensor Rack with Stainless Rods on the heating mantle back holder.
- Put the temperature sensor into the liquid.
- Press the S keyboard comes into the setting condition. Adjust the temperature by press the up and down keyboard.
- Press the S keyboard again to finish the temperature setting and then the equipment comes into the working condition.



**Note:**

The power must accord with the machine.  
Make sure the power line has safety G  
distance from the heating mantle.  
When the machine meets fault please cut off the Electricity first.

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### 5.5 98-III-B Magnetic and Digital Heating Mantle:

- Place the equipment on level worktable, and then put the container with liquid inside into heating mantle.
- Install the Sensor Rack with Stainless Rods on the heating mantle back holder.
- Put the temperature sensor into the liquid.
- Press the S keyboard comes into the setting condition. Adjust the temperature by press the up and down keyboard.
- Press the S keyboard again to finish the temperature setting and then the equipment comes into the working condition.
- Turn the knob clockwise and anticlockwise to adjust the magnetic stirrer power.



**Note:**

The power must accord with the machine.  
Make sure the power line has safety distance from the heating mantle.  
Adjust the speed slowly; please adjust the Speed  
when too high speed makes the stir breakaway  
When the machine meets fault please cut off the Electricity first.

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## 6 Faults

- Instruments can't be power ON
  - Check whether the power cable is plugged
  - Check whether the fuse is broken or loose
- Temperature cannot reach set point or stirring can't be starts when adjust the control knob
  - Check whether the heating wire broke during transport
  - Check whether the controller broke during transport

If these faults are not resolved, please set the instruments to factory default setting, or take the unit to your technical service center, or contact with the manufacturer.

## 7 Maintenance and Cleaning

- Proper maintenance can keep instruments working in a good state and lengthen its lifetime.
- Be careful not spray the cleanser into the instrument when cleaning.
- Unplug the power line when cleaning.
- Only use cleanser that we advised as below:

Dyes	Isopropyl alcohol
Construction materials	Water containing tenside
	Isopropyl alcohol
Cosmetics	water containing tenside
	Isopropyl alcohol
Foodstuffs	Water containing tenside
Fuels	Water containing tenside

## 8 Storage and transportation

Table 8

- Keep it in dry and clean room with good ventilation and no corrosive gas
- prevent it from wetting by the rain and avoid violent collision in transportation.

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## 9 Working condition

Ambient temperature: 5~40°C;

Ambient humidity: ≤90%;

Voltage: 220V ± 10%, 50/60Hz or 110V+/-10%, 50/60Hz

## 10 Main technical parameters

Model	Capacity (ml)	Voltage (V)	Max. Temp.	Power (W)	Working Time	Exterior Size (mm)	Packing Size (mm)	N.W. (KG)	G.W. (KG)
98-I-B	50	220V, 50/60Hz or 110V/60Hz	450°C	80	Continu ous	Φ200 × 160	230 × 230 × 170	2	2.5
	100			100					
	250			150					
	500			250					
	1000			350		Φ260 × 200	290 × 290 × 220	3.5	4
	2000			450		Φ300 × 230	330 × 330 × 250	4	5
	3000			600		Φ300 × 250	330 × 330 × 270	6	7
	5000			800		Φ350 × 270	380 × 380 × 290	7	8
	10000			1200		Φ420 × 320	450 × 450 × 340	10	12
	20000			2500		450 × 450 × 380	500 × 500 × 400	21	26
98-II-B	50	220V, 50/60Hz or 110V/60Hz	450°C	80	Continu ous	Φ200 × 160	230 × 230 × 170	2.5	2.8
	100			100					
	250			150					
	500			250					
	1000			350		Φ260 × 200	290 × 290 × 220	4	4.5
	2000			450		Φ300 × 230	330 × 330 × 250	5	6
	3000			600		Φ300 × 250	330 × 330 × 270	7	8
	5000			800		Φ350 × 270	380 × 380 × 290	9	10
	10000			1200		Φ420 × 320	450 × 450 × 340	12	14
	20000			2500		450 × 450 × 380	500 × 500 × 400	23	28



Model	Capacity (ml)	Voltage (V)	Max. Temp.	Power (W)	Working Time	Exterior Size (mm)	Packing Size (mm)	N.W. (KG)	G.W. (KG)
98-I-C	50	220V, 50/60Hz or 110V/60Hz	450°C	80	Continu ous	Φ200 × 160	230 × 230 × 170	2.5	2.8
	100								
	250			150		Φ260 × 200	290 × 290 × 220	5.5	6
	500			250		Φ300 × 230	330 × 330 × 250	6.5	7
	1000			350		Φ300 × 250	300 × 330 × 270	7.5	8
	2000			450		Φ350 × 270	380 × 380 × 290	8.5	9.2
	3000			600		Φ420 × 320	450 × 450 × 340	9.8	12
	5000			800		450 × 450 × 380	500 × 500 × 400	21	26
	10000			1200					
	20000			2500					
98-II-C	50	220V, 50/60Hz or 110V/60Hz	450°C	80	Continu ous	Φ200 × 165	230 × 215 × 195	2.5	2.8
	100								
	250			150		Φ270 × 200	280 × 280 × 300	5.5	6
	500			250		Φ330 × 230	345 × 290 × 350	6.5	7
	1000			350		Φ340 × 245	365 × 365 × 295	7.5	8
	2000			450		Φ350 × 250	390 × 390 × 310	8.5	9.2
	3000			600		Φ425 × 320	470 × 470 × 380	9.8	12
	5000			800		550 × 510 × 390	540 × 540 × 420	21	26
	10000			1200					
	20000			2400					
98-III-B	100	220V, 50/60Hz or 110V/60Hz	450°C	100	Continu ous	Φ220 × 165	230 × 215 × 195	2.5	2.8
	250								
	500			250		Φ270 × 220	280 × 280 × 300	5.5	6
	1000			350		Φ330 × 230	345 × 290 × 350	6.5	7
	2000			450		Φ340 × 245	365 × 365 × 295	7.5	8
	3000			600		Φ350 × 250	390 × 390 × 310	8.5	9.2
	5000			800		Φ425 × 320	470 × 470 × 380	9.8	12
	10000			1200		550 × 510 × 390	540 × 540 × 420	21	26
	20000			2400					

Model	Capacity (ml)	Voltage (V)	Max. Temp.	Power (W)	Working Time	Exterior Size (mm)	Packing Size (mm)	N.W. (KG)	G.W. (KG)									
98-IV-B Two Rows	100	220V, 50/60Hz or 110V/60Hz	450°C	100 × 2	Continu ous	280 × 140 × 106	320 × 180 × 190	4	5									
	250			150 × 2		320 × 160 × 170	360 × 190 × 200	4	5									
	500			250 × 2		360 × 180 × 180	400 × 220 × 210	4	5									
	1000			350 × 2		420 × 210 × 200	460 × 250 × 230	7	8									
98-IV-B Four Rows	100			220V, 50/60Hz or 110V/60Hz		450°C	100 × 4	Continu ous	530 × 140 × 160	570 × 180 × 190	8	10						
	250						150 × 4		610 × 160 × 170	650 × 190 × 200	8	10						
	500						250 × 4		690 × 180 × 180	730 × 220 × 210	8	10						
	1000						350 × 4		810 × 210 × 200	850 × 250 × 230	14	16						
98-IV-B Six Rows	100						220V, 50/60Hz or 110V/60Hz		450°C	100 × 6	Continu ous	820 × 140 × 160	860 × 180 × 190	12	15			
	250									150 × 6		940 × 160 × 170	980 × 190 × 200	12	15			
	500									250 × 6		1060 × 180 × 180	1100 × 220 × 210	12	15			
	1000									350 × 6		1240 × 210 × 200	1280 × 250 × 230	21	24			
98-V-B Two Rows	100									220V, 50/60Hz or 110V/60Hz		450°C	100 × 2	Continu ous	280 × 140 × 106	320 × 180 × 190	4	5
	250												150 × 2		320 × 160 × 170	360 × 190 × 200	4	5
	500												250 × 2		360 × 180 × 180	400 × 220 × 210	4	5
	1000												350 × 2		420 × 210 × 200	460 × 250 × 230	7	8
98-V-B Four Rows	100	220V, 50/60Hz or 110V/60Hz	450°C		100 × 4								Continu ous		530 × 40 × 160	570 × 180 × 190	8	10
	250				150 × 4										610 × 160 × 170	650 × 190 × 200	8	10
	500				250 × 4										690 × 180 × 180	730 × 220 × 210	8	10
	1000				350 × 4										810 × 210 × 200	850 × 250 × 230	14	16
98-V-B Six Rows	100			220V, 50/60Hz or 110V/60Hz	450°C	100 × 6		Continu ous							820 × 140 × 160	860 × 180 × 190	12	15
	250					150 × 6									940 × 160 × 170	980 × 190 × 200	12	15
	500					250 × 6									1060 × 180 × 180	1100 × 220 × 210	12	15
	1000					350 × 6									1240 × 210 × 200	1280 × 250 × 230	21	24