

USER MANUAL



I .Introduction

It is used liquid heating in industry, agriculture, health and medicine, scientific research and college labs etc.

II .Characteristics

- Heating and magnetic stirring can be carried out simultaneously; adjust the heating power and rotate speed to achieve best result.
- With easy operation, stable performance and stepless speed adjustment, it is used for liquid stirring in a large speed range, particularly for small volume sample stirring; it is the essential equipment for labs of petroleum, chemistry, medicine, environment protection, biochemistry, education and scientific research etc.

III. Operation

- Put the machine on worktable, and switch on power.
- Turn on the stirring power clockwise, and set rotating speed as needs.
- Set the temperature as the follow controller user manual.

IV. Digital type operation:

1. The Main Technological Qualification

- . Temperature sensor: Pt100 Thermal Resistive
- . Speed Sensor: Hall Speed Sensor
- . Temperature Setting Range: 0—400°C; Temperature Measuring Range: -10—410°C
- . The Error of Temperature Measurement: < 0.5%

2. Digital type operation:

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2.2 Control Panel Instructions

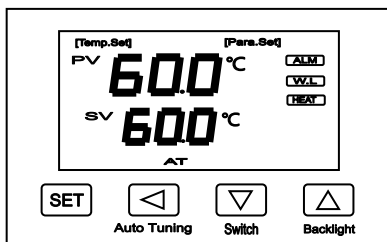


Figure 5

Key Definition:

- SET** :Setting or checking the temperature value and inter parameters.
- ←** :Without set condition, press the key about five seconds, you can open or close the auto tuning program; within Set Condition, press the key, you can Move the set value.
- ▽** : long press this key to enable the set value continuously decrease.
- △** : Press the key to open or close the backlight in the normal display status; in setting state, click this key to increase set value, long press this key to enable the set value continuously increase.

2.3 Operation and Use of Methods

- . On power-up, all signs are lighted. The controller display “Lc” on the upper display window and range value on the lower display window. After three seconds, the controller will be into normal display status.

. Temperature Setting Function

Press “ **SET** ” to enter setting mode, The controller display “SP” on the upper display window and set value on the lower display window; Using “ **←** ” “ **▽** ” “ **△** ” to change the set **←** the **▽** but **△** press “ **SET** ” again, the controller will exit setting mode, and set value will be auto saved. **SET**

. Over Temperature Alarm

When there is an over temperature alarm, The buzzer sounds, “ **ALM** ” alarm identifier lights. If the over temperature alarm produces due to change the set value, alarm identifier lights all the same, but the buzzer does not sounds.

Over temperature alarm, controller will automatically disconnect the heating output.

. Temperature Measurement Abnormal Alarm

The controller displays “Er-2” on the upper display window. It means that the temperature sensor faults, temperature exceeds the measuring range or controller itself faults. Controller will automatically disconnect the heating output, the buzzer sounds, “ALM” alarm identifier lights. Please check over the temperature sensor and wiring carefully.

- If the controller displays “SEr” on the upper display window, it means the temperature sensor falls off, “ALM” alarm identifier lights, Please check over the temperature sensor carefully.
- In setting status, Without any key press in one minute, the controller will be return normal display status.
- You can press any key to make it silence when the buzzer sounds.

2.4 Self-tuning function

In the normal display status, the controller will enter the PID auto-tuning program by pressing the “ ” button for five seconds, “AT” indicator flashes, it will be not flash when PID auto-tuning program is completed. When it is running of the auto-tuning of PID, it can be stopped by pressing the “ ” for five seconds again. When the auto-tuning program is over, one group of PID parameters make the control work in the best state can be calculated automatically.

2.5 The Internal Temperature Parameters Setting

In normal displays status, press “SET” for three seconds, the controller display “Lc” on the upper display window, password value is displayed on the lower of display window. press “ ”, “ ” and “ ”, changing the password value. press “ ” gain. If the password value is correct, controller will automatically enter the internal temperature parameters state. press “ ” once more, each parameter value can be modified. Then press “ ” for three seconds, you can exit the internal temperature parameters state, and each parameter will be auto saved.

Parameter list one

Parameter indicator	Name	Instruction of the function	Setting range (factory set value)
Lc-	Password	Lc=3, you can enter the parameters listed	0
P-	Proportional	Adjustment of proportional function	(1~rH) 30
I-	Integration	Adjustment of integration function	(1~1000) 200
d-	Differential	Adjustment of differential function	(0~1000) 100
T-	Control cycle	The control cycle of temperature control	(1~60S) 5
rH1	Channel one full-scale value	The maximum temperature setting value	(0~400°C) 400

Table 4

Parameter list two

Parameter indicator	Name	Instruction of the function	Setting range (factory set value)
Lc-	password	Lc=9, you can enter the parameters listed	0
EnS	Sensor Selection	0: Use the first channel sensor control to measure the hot plate temperature. 2: Use the second channel sensor control to measure the liquid temperature.	(0~2) 2
AL2	Channel two alarm value	The Channel two temperature is beyond “SP+AL2”, the ALM indicator lights, the buzzer sounds, the heat output turns off	(0~100°C) 10
Pb2	Channel two zero point adjust	Update the measurement error(zero error)	(-99~99°C) 0
PK2	Channel two full point adjust	Update the measurement error(full error) PK2=1000 × (actual value — measured	(-999~999) 0

rH2	Channel two full-scale vale	The maximum temperature setting value	(0~400℃) 400
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6.3.6. Wiring

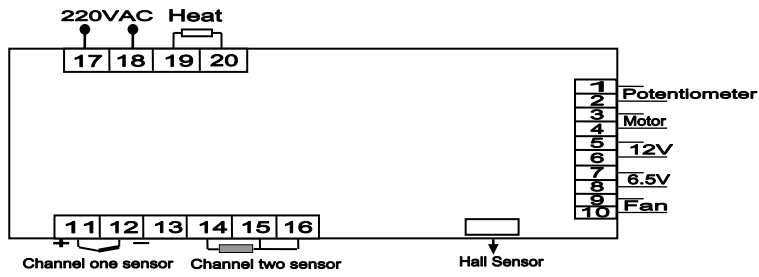


Figure 6



Note:

The controller can control the heating load within 1000 Watt!!!