

Thank you for using our product.

Before using the product, please read this manual carefully to avoid unnecessary damage due to improper operation. If you still have any question, please contact our technical experts.

User Manual

Temperature Controller



Table of Contents

1. Basic Parameters and Features.....	1
2. Schematic Diagram of Operation Panel.....	2-3
3. Common Functional Operations.....	3
4. Check before Temperature Controller Use.....	4
5.64-pin connector connection mode.....	5
6. Wiring Diagram of 3-phse Power Supply.....	6
7. Wiring Diagram of Single-phase Power Supply 7. Change in Wiring Diagram of Power Supply.....	7-8
8. Faults and Solutions.....	8-9
9. Maintenance.....	10-11

Product overview:

The QA80E series temperature controller is applicable to all hot runner systems with a single load of no more than 20A. We have made a technological breakthrough through dedicated development over years, so the temperature controller features the mature technology and more stable performance. Its output interface is equipped with an industrial socket conforming to general international standards, which can be widely applied in hot runner systems around the world. This product has been subjected to operational inspections, with a good reputation among users. It is suitable for hot runner molds and systems.

Note: Please check whether the mold hot runner and temperature control box are connected in the same way before use

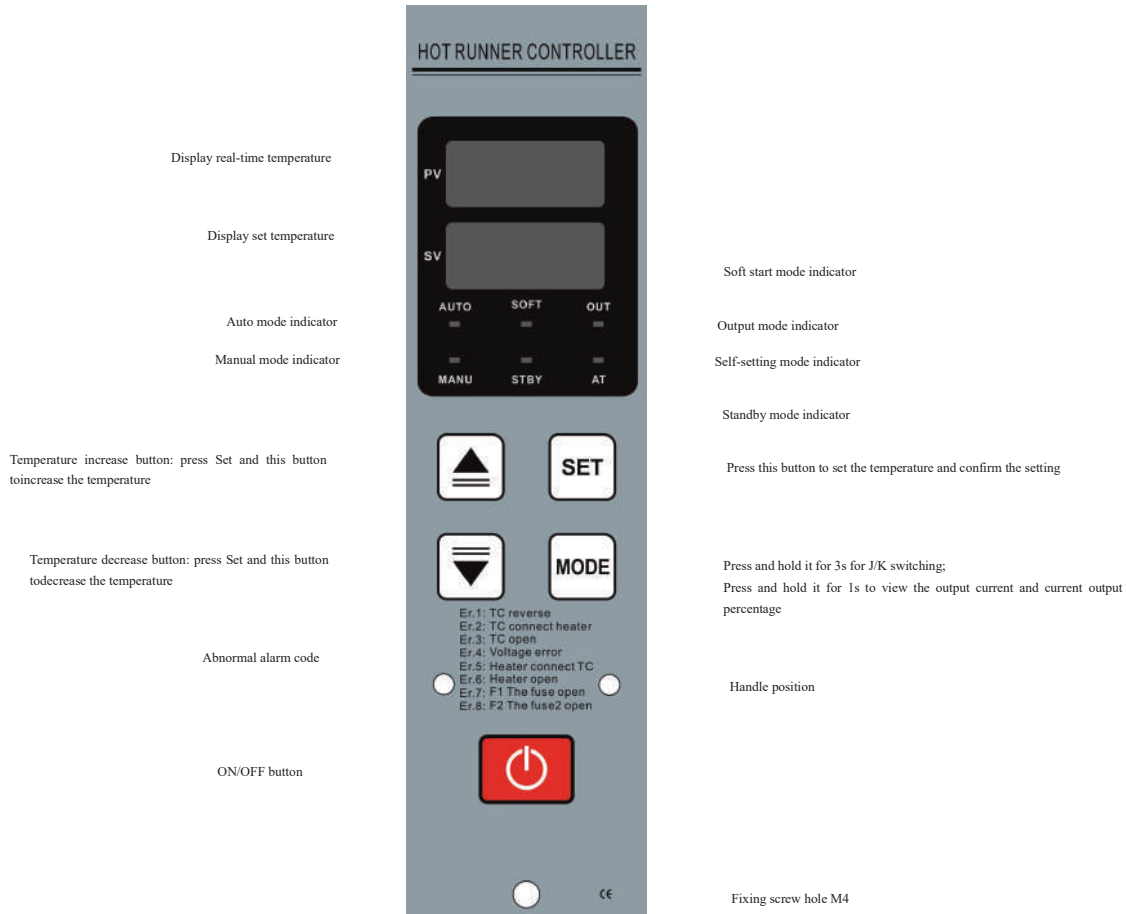
I. Basic Parameters

Model	QA80E
Input voltage	AC180V-240V 50/60HZ
Load power	25W-3300W
Temperature range	30°C-999°C
Control accuracy	0.2%FTS
Type of temperature sensor	J or K type temperature sensor cable
Output mode	Phase shift output
Temperature unit	°C or °F
Cold compensation	Dynamic tracking
Fuse specification	6mm×30mm, 20A
Working environment	-10°C to 55°C
Storage environment	-20°C to 80°C

Features

- ◆ Fuse damage detection
- ◆ Load open-circuit detection
- ◆ Power-on and soft start function (3 minutes by default, output power of 20%, adjustable)
- ◆ Over-temperature power-off protection (default over-temperature 20°C, adjustable)
- ◆ Thermocouple open-circuit and reversal detection
- ◆ Improper power supply (380V) protection function
- ◆ Detection of incorrect heating circuit connection of thermocouple
- ◆ High current limit, and long-term use of temperature control board
- ◆ Linear voltage control output for heating tube protection
- ◆ Communication (optional)
- ◆ Current and output ratio display, upper and lower limit alarm, manual/auto output
- ◆ Compatibility of the temperature control board with general brands in the market, such as YUDO, Athena, DME, PCS, INCOE, etc.

II. Schematic Diagram of Operation Panel







III. Common Functional Operations


1. Temperature setting: press “**SET**” and the PV window will display “**5u**”. Then press “**▲**” or “**▼**” to increase or decrease the temperature. Press “**SET**” again to save the setting.

2. J/K switching: press and hold “**MODE**” for 3s in the normal interface. When the first English letter in the PV window change to “**E**”, it indicates that the K mode is enabled. Similarly, press and hold “**MODE**” for 3s until the first English letter in the PV window change to “**J**”, indicating that the J mode is enabled.

3. Enabling of the manual mode: in case of an “**Er.3**” alarm (disconnection of the temperature sensor cable), enable the manual mode to continue production. First, press and hold “**▲**” for 3s until “**□**” flashes slowly in the SV window. Then press “**SET**”. The PV window

will display “**nAn**”. When “**0**” flashes quickly in the SV window, press “” or “” to adjust the output power (0-99%). Then press “” for confirmation. Press and hold “” for 3s to return to the normal interface.

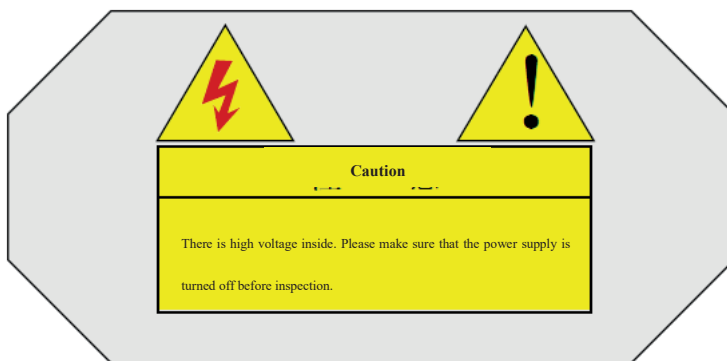
4. Enabling of the self-setting mode: this is used for resetting in case of inaccurate temperature control. It is suitable for switching under normal circumstances or operation in the event of

inaccurate temperature control. Press and hold “” for 3s in the normal interface until the temperature in the PV window flashes. The AT indicator will also flash. Wait for a few minutes until the temperature in the PV window stops flashing. Thus, self-setting is completed (the temperature will change during self-setting, which is normal).

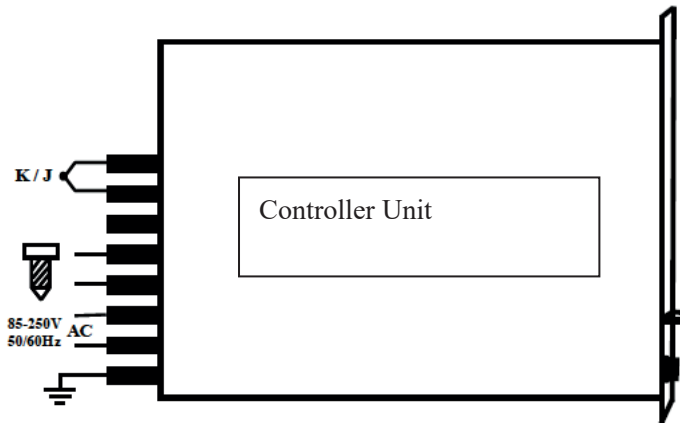
5. Alarm Codes

Er. 1	Positive and negative reversal of temperature sensor cable
Er. 2	Connection of temperature sensor cable with heater
Er. 3	Open circuit of temperature sensor cable
Er. 4	Incorrect connection to 380V power supply
Er. 5	Connection of heater and temperature sensor cable
Er. 6	Heater disconnection or thyristor breakdown
Er. 7	Disconnection of Fuse 1
Er. 8	Disconnection of Fuse 2

IV. Check before Temperature Controller Use and Steps of Operation



- ✓ Make sure that the internal wiring of the temperature controller is defined in the same way as its plug, with the same wiring sequence.



- ✓ Make sure that the wiring of the socket on the mold and the type of the temperature sensor cable matches with the temperature controller used.
- ✓ Make sure of the resistance and insulation status of the heating wire and the connection of the temperature sensor cable.
- ✓ Check whether the main power supply and the ON/OFF button of the temperature control board are turned off.
- ✓ Ensure that the voltage of the input power supply (220V380V) is the same as the set voltage of the temperature controller before connecting the power cable. The temperature controller must be connected with an AC220V input power supply. If the voltage is too high or low, the temperature controller may be damaged.
- ✓ The temperature control board must be connected with the ground wire of the temperature controller. The temperature controller must be connected with the ground wire.
- ✓ Turn on the main power switch.
- ✓ Turn on the power switch of the temperature control board.
- ✓ Set the desired temperature.
- ✓ Make sure that the temperature reaches the set value and then check whether the temperature is stable.
- ✓ The temperature controller must meet the requirements for heat radiation.

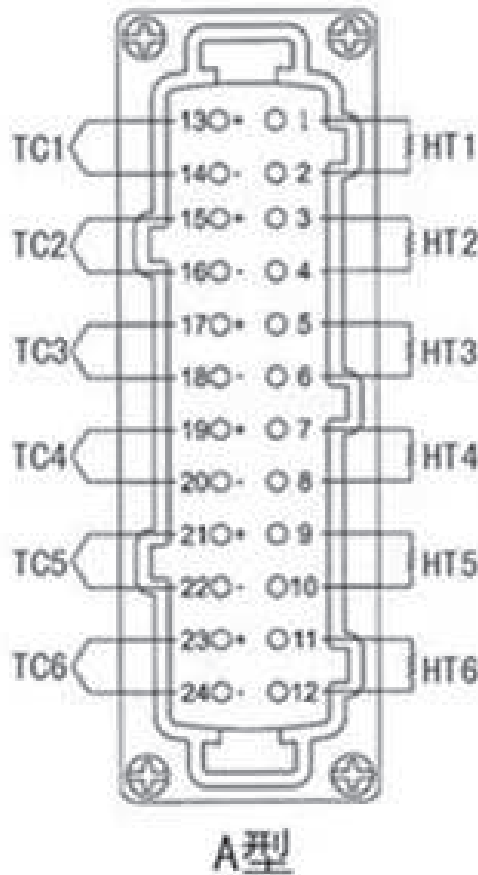
V. Use of Temperature Control Board (2 steps)

1: First, connect the power cable and mold connecting wire correctly. Then, turn on the main power switch on the rear panel. Once the power supply is turned on, a beep sound will be uttered, and the machine will be in the standby state. Press the POWER button to heat a mold. The machine will always send alarm (if any) and not work, with the beeping alarm sound and flashing indicator. Refer to the alarm details.

2: Press SET in the working interface. The main screen will display “SV”. Press “+” or “-” to select the desired temperature. Then press SET to confirm and save the set temperature. Press and hold “+” or “-” to increase or decrease the set temperature to the desired value and then press SET to confirm the setting. (Tip: Self-setting of PID parameters is recommended when the temperature control board is used for the first time, so that the temperature is controlled more ably. If “-” is pressed and held during self-setting, the AT indicator will flash.)

Optional: The power cable and temperature sensor cable should be separated (2 cables in total).

2. 24-pin connector connection mode

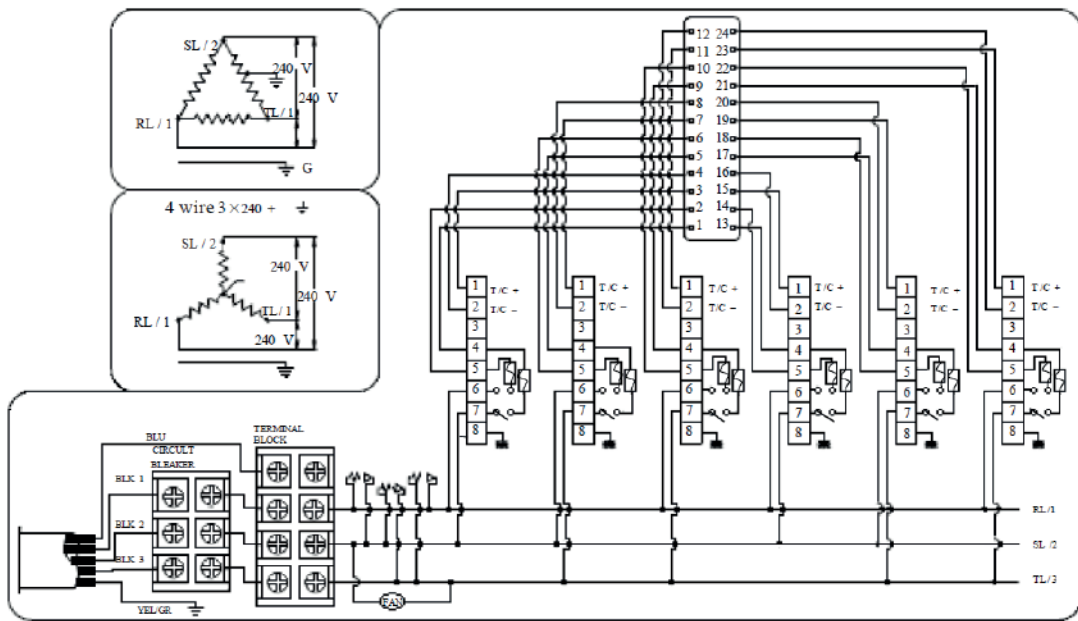


1.2: The heater

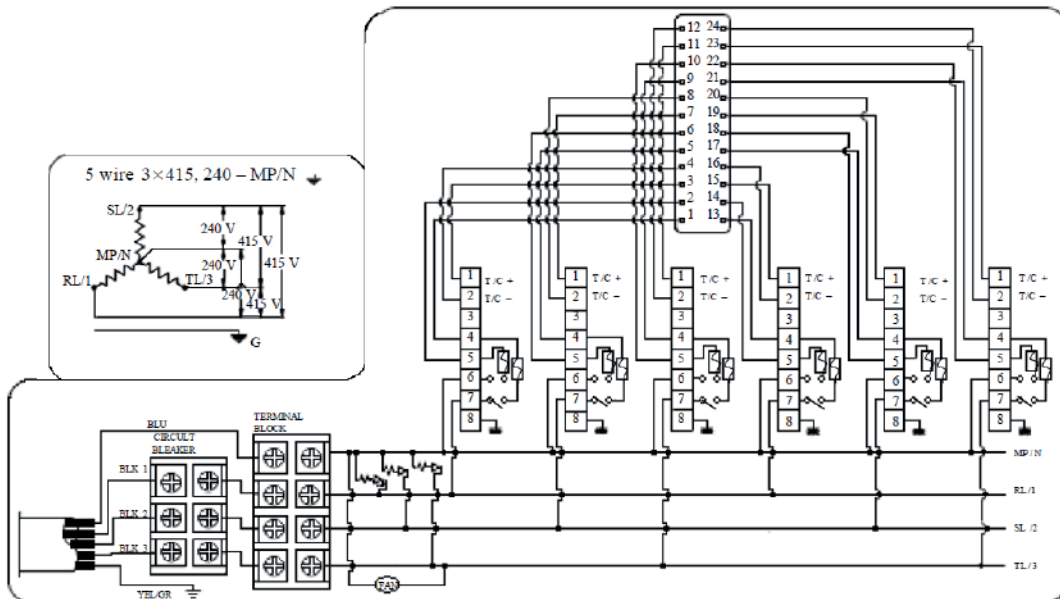
13.14: thermocouple

VI. Wiring Diagram of Power Supply

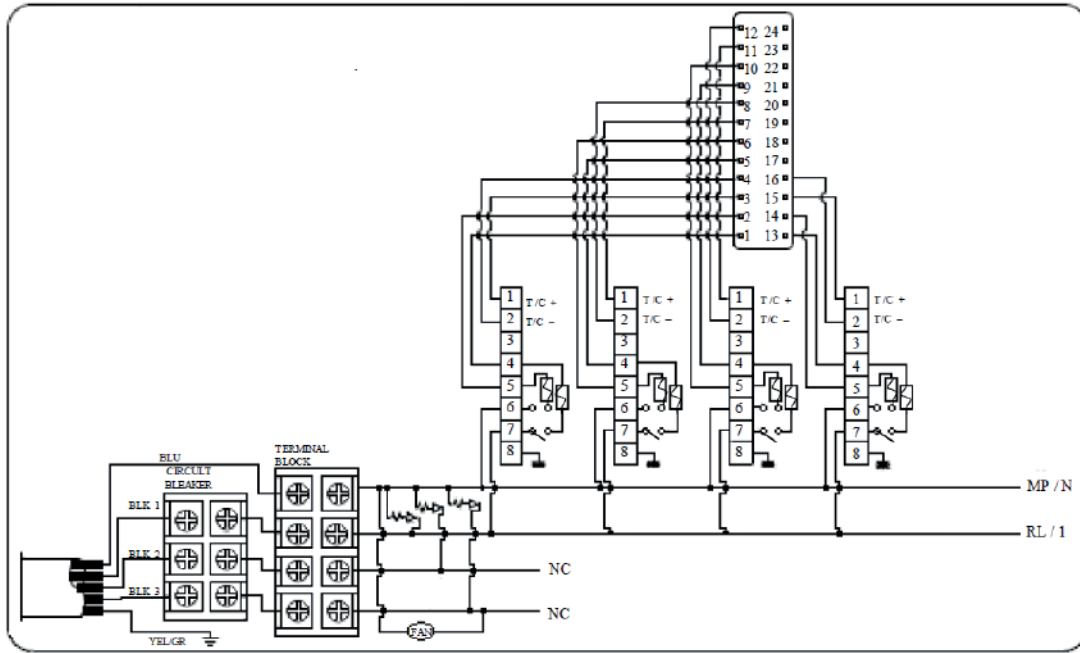
1: 220V 3-phase 3-wire type



2: 380/414V 3-phase 4-wire type



VII. 220V Single-phase 2-wire Type

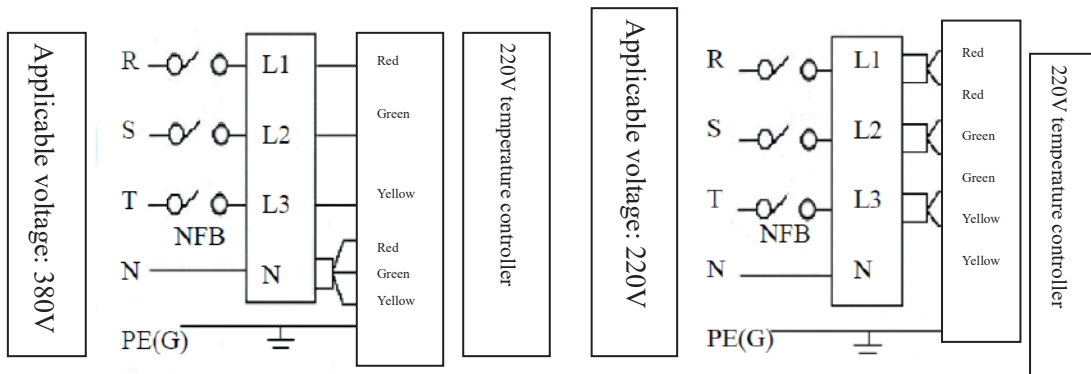


1: Change in wiring

The Tongce temperature controller is delivered with a 380V-450V 3-phase 4-wire AC power supply and should be operated with the 220V-240V AC power supply. If a 3-phase 220V AC power supply is used, the wiring is as follows. Please check the current wiring.

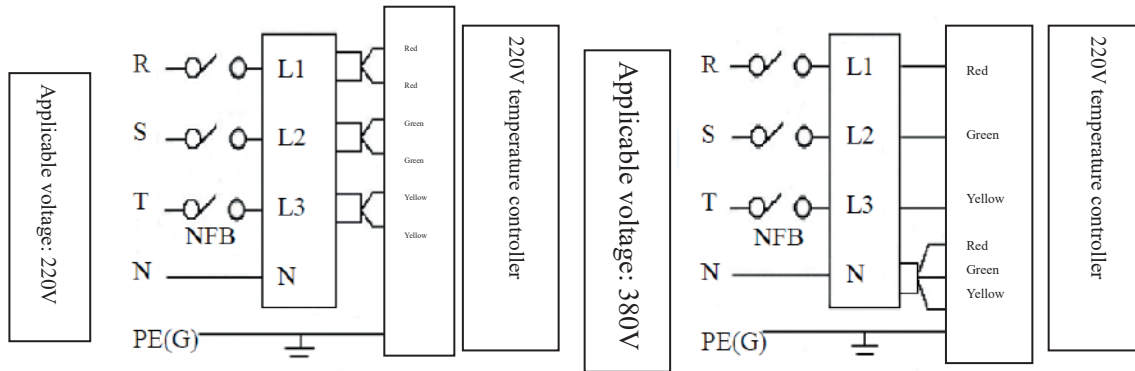
Note: Please make sure that the main AC power switch and the power switch of the temperature controller are turned off before connecting wires again.

Wiring change from the 380V AC power supply to 220V AC power supply:



1. Turn off the power supply.	2. Open the rear cover of the temperature controller.
3. Remove all wires from the pole N.	4. Connect the red wire with black casing to L1.
4. Connect the green wire with black casing to L2.	6. Connect the yellow wire with black casing to L3.

VIII. Wiring Change from 2200V AC Power Supply to 380V AC Power Supply





Steps of change from AC220V to AC280V

1. Turn off the power supply.	2. Open the rear cover of the temperature controller.
3. Remove the red wire with black casing from L1.	4. Connect the green wire with black casing to L2.
4. Remove the yellow wire with black casing from L3.	6. Remove L1, L2 and L3.

Note: Do not plug the PE wire into N pole; otherwise, the temperature controller may be damaged, and the company will not be liable for such damage.

IX. Safety Signs

	Be cautious of internal high voltage.
	Turn off the power supply before maintenance.

X. Faults and Solutions

NO	Fault	Cause	Solution and Checkpoint
1	ER..1	“+” and “-” reversal of temperature sensor cable	Exchange the “+” and “-” of the temperature sensor cable.
2	ER..2	Connection of the temperature sensor cable with heater port	Correctly connect the temperature sensor cable with the designated temperature sensor port.
3	ER.3	Disconnection of the temperature sensor cable	Check the temperature sensor cable and circuit.
4	ER.4	Incorrect connection with the 380V power supply	Correctly connect the phase lines of the main power supply.
5	ER.5	Connection of heater and temperature sensor port	Correctly connect the heater wire to designated heater port.
6	ER.6	Disconnection of the heater wire or short circuit of thyristor	1. Check whether the heater is in the normal state. 2. Check the thyristor for a short

USER'S MANUAL

			circuit.
7	ER.7	Disconnection of the fuse F-1 due to instantaneous over-current	Replace the fuse F-1 (250V 20A).
8	ER.8	Disconnection of the fuse F-2 due to instantaneous over-current	Replace the fuse F-2 (250V 20A).
9	Continuous temperature rise	Damage to the thyristor on the heat sink of the meter	Check the pins of the thyristor: short circuit or 2 or 3 pins
10	Continuous temperature drop	<ol style="list-style-type: none"> 1. Disconnection of the fuse F S2 2. Disconnection of the heater wire 3. Disconnection of the heater wire connector 4. Disconnection of the temperature sensor cable 	<ol style="list-style-type: none"> 1. Replace the fuse. 2. Check the resistance of heater wire with a multimeter. 3. Check the heater wire connector. 4. Check the temperature sensor cable for disconnection.
11	Large deviation of the actual temperature from set temperature	<ol style="list-style-type: none"> 1. Improper contact of the temperature sensor cable 2. Nonconforming model of the temperature sensor cable 	<ol style="list-style-type: none"> 1. Check the contact status of the temperature sensor cable. 2. Check the model of the temperature sensor cable.
12	Too hot heater wire at the normal temperature of temperature controller	Temperature sensor cable on the mold or damage to the mold wrap	Check and replace the temperature sensor cable.
13	Too hot heater wire but at the set temperature of the temperature controller	Inconsistency between the temperature sensor cables of mold and temperature controller, such as CA(K)--IC(J) and IC(J)--CA(K)	Use the same temperature sensor cables on the mold and temperature controller.

XI. Maintenance

NO	Item	Judgment	Cycle
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1	Temperature control board	The actual temperature is the same as the set temperature, without major fluctuation.	Once per shift during operation
2	Main power switch	Normal switching without failure; service life: about 25,000 times	Once per shift before operation
3	Power cable	Intact surface and waterproof plug	Once per shift before operation
4	Data cable	Intact surface and two-port connector, and normal data transmission	Once per shift before operation
5	Heavy-duty connector	Tight connector, intact interface, without grease or impurities in the interface	Once per shift before operation
6	Operation button	Normal use without failure; service life: about 25,000 times	Once per shift before operation
7	Power indicator	Normally ON after the main power supply is turned on, and normally OFF after the main power supply is turned off	Once per shift before operation
8	Exhaust fan	Normal operation after the main power supply is turned on, without abnormal noise	Once per shift before operation
9	Chassis	Dry and well-ventilated, without heavy load or liquid	Once per shift before operation
10	Caster	No visual defect, with flexible bearings and properly working brake	Once per shift before operation
11	Indicators	Completeness of the power outlet label, air switch label, wiring sign, nameplate/logo, etc.	Once per shift before operation
12	Self-testing	If the temperature controller is not used for six consecutive months, it must be powered on, followed by self-testing and warm-up by 10min; if it has been used under load for one week, it must be powered off for 30min, to extend its service	Depending on actual conditions

USER'S MANUAL

		life.	
13	Working environment	Working temperature: -10°C to 55°C; relative humidity: 10%-85%RH, non-condensing. Storage: -20°C to 80°C, ventilated and dry.	According to the standards

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