



CA Electronic Control Technical Manual



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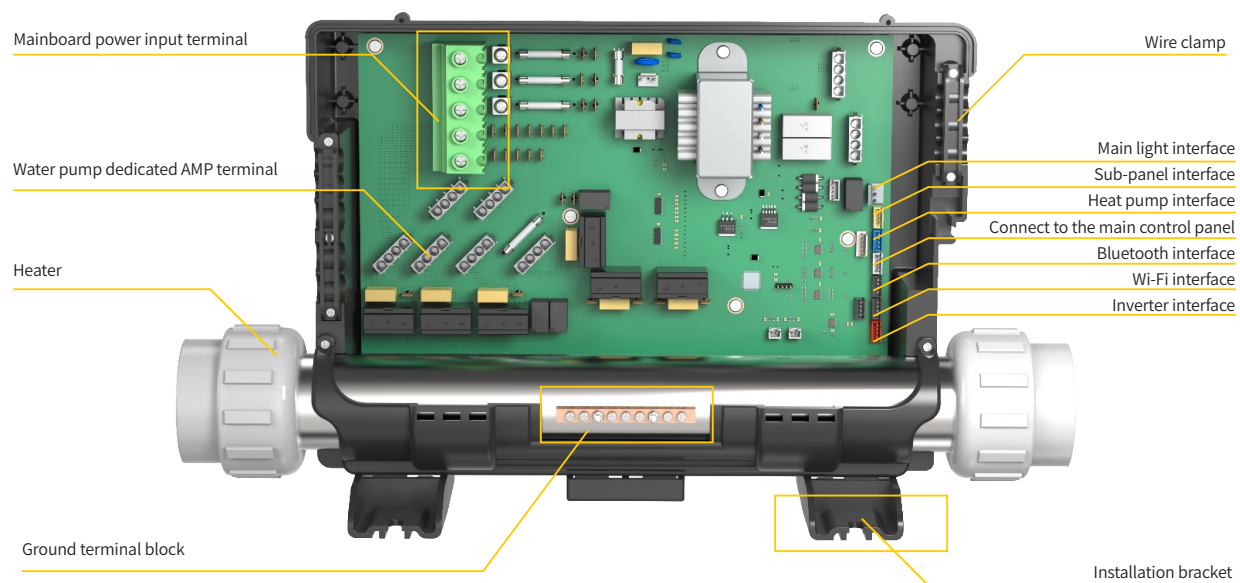
The CA electronic control system is the next-generation touchscreen digital control system of SPATECH, equipped with the latest touch control and full-color display technology panel, features high definition, wide viewing angles, anti-interference, and high reliability. It meets the needs of most SPA products and can be expanded to include cloud control, smart networking, and sports health functions.

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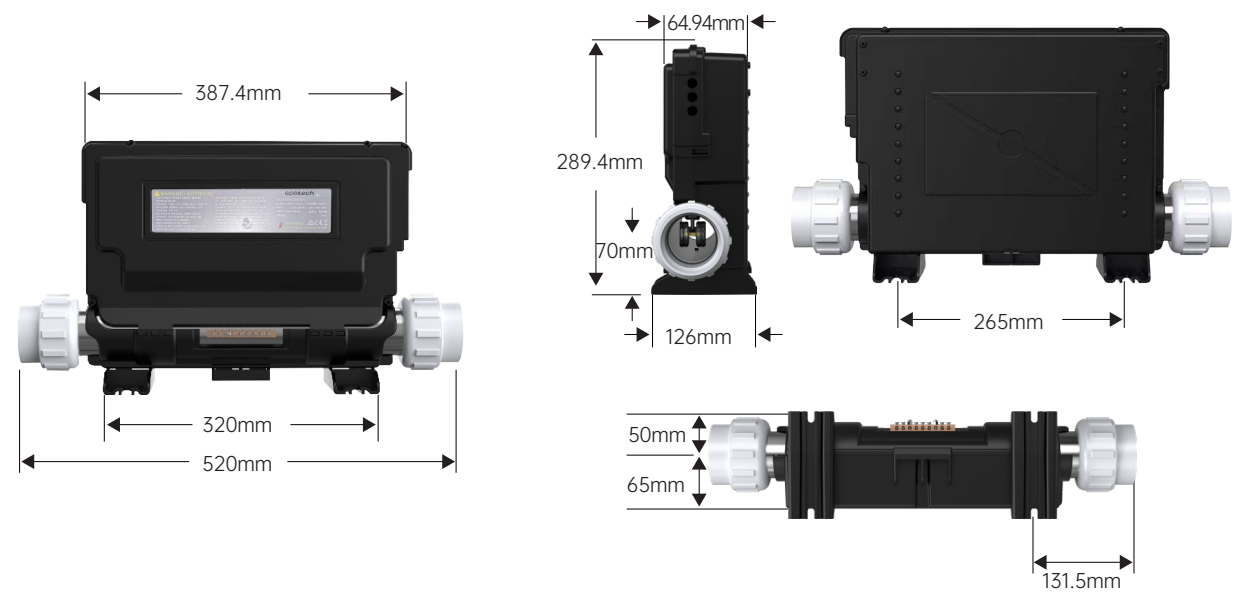
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I. Overview of CA Electric Control Appearance

1. Internal Layout of Electronic Control

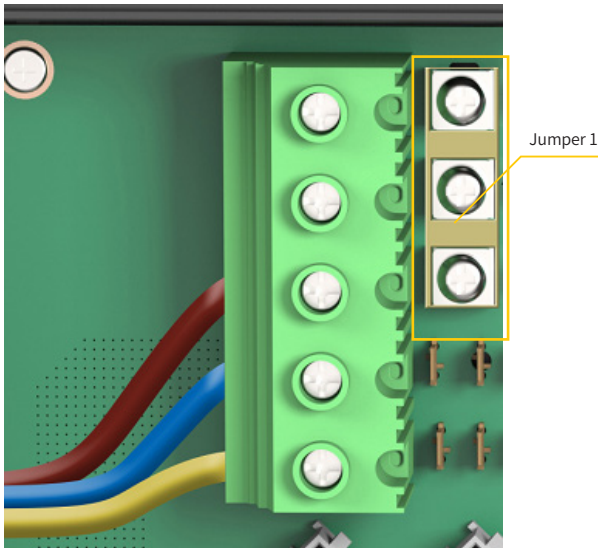


2. Electronic Control Dimensions

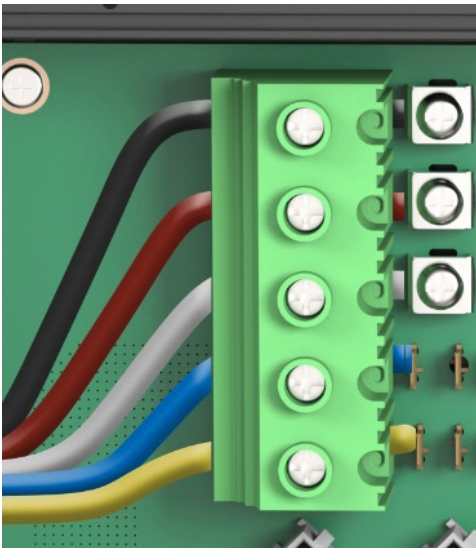


II. Power Supply Settings

1. Input Power Single-Phase and Three-Phase Jumper



Single-phase power supply: Jumper 1 copper piece connects J13-J17-J20; Brown - L1, blue - N, yellow/green - G.

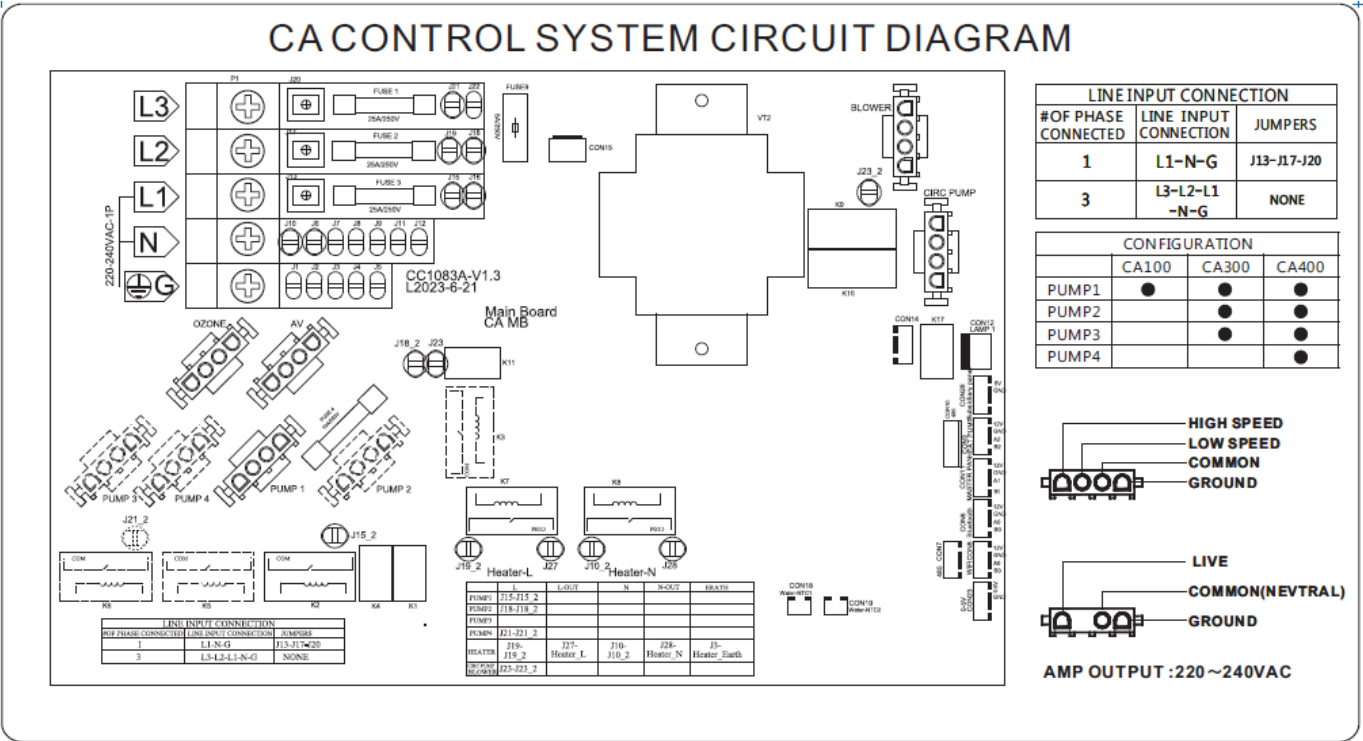


Three-phase power supply: Remove the jumper 1 copper piece. Gray-L1, brown-L2, black-L3, blue-N, yellow-green-G

Note: 1) Single-phase input is 220~240V AC 50 / 60 HZ, and the maximum input current is 48A.
2) Three-phase voltage (live- neutral voltage) input 220~240V AC, 50 / 60Hz, 3P, 16A (maximum fuse current per phase 20A).

2. Electronic Control Output

The electric control schematic diagram is pasted on the inside of the electric control cover, and the corresponding load name of each port can be checked.



The CA series electronic control system has different configurations for pumps 1 to 4 and heater based on the model, but other configurations (such as the air pump, ozone, circulation pump, AV interface, etc.) are equipped in all models. The specific configurations are as follows:

CA100: Only pump 1, heater is 2KW.

CA300: Pump 1, 2 and 3, heater is 3KW.

	CONFIGURATION		
	CA100	CA300	CA400
PUMP1	●	●	●
PUMP2		●	●
PUMP3		●	●
PUMP4			●

The definition and characteristics of each output port of the system are as follows:

Port Name	Voltage	Feature	Remarks
Pump1	220~240V AC	Pump 1, dual speed, maximum current of 12A, set S1=1; Single speed, set S1=0;	
Pump2	220~240V AC	Pump 2, dual speed, maximum current 12A, set S2=1; Single speed, set S2=0;	
Pump3	220~240V AC	Pump 3, single speed, with a maximum current of 12A	
Pump4	220~240V AC	Pump 4, single speed, maximum current of 12A	
Blower	220~240V AC	Air pump, single speed, maximum current of 4A	
Circulating Pump	220~240V AC	Cycle pump, single speed, maximum current of 2A	At S1=1, no output from the circulation pump port
Ozone	220~240V AC	Maximum current is 0.5A	Follow the cycle start
Light	12V AC	Maximum current 2A	
A/V	220~240V AC	Maximum current 1A	Normal electricity output
Heater	220~240V AC	2kW or 3kW	The CA100 is standard with 2kW The CA300 is standard with 3kW

III. CA Electronic Control Parameter Settings

1. TP10 Panel Parameter Settings

1) Set the menu



Click the  button at the bottom left of the main panel interface to enter the secondary settings menu.

Click the  button at the bottom of the secondary menu to find the settings menu .

Click "Parameter Settings" and enter the password. Different passwords have different meanings.
Enter 1230 to modify the logo, language and electrical configuration.
Enter 5555 to modify the electrical configuration.

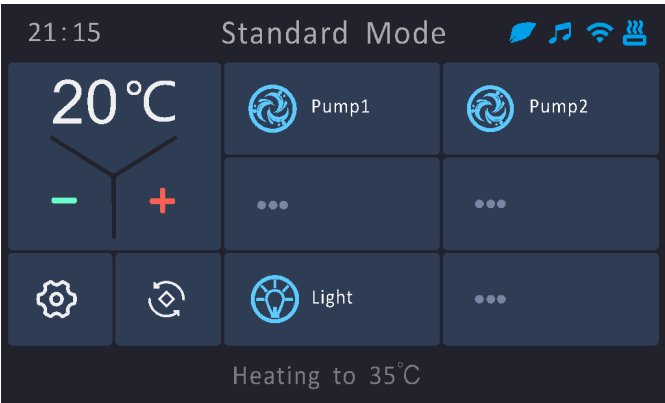
2) Modify Electrical Configuration

Enter 5555 in the "Parameter Setting" setting interface, redirect to S1-S7 parameters after confirmation, and set the corresponding parameters in Table 1, according to the requirements.

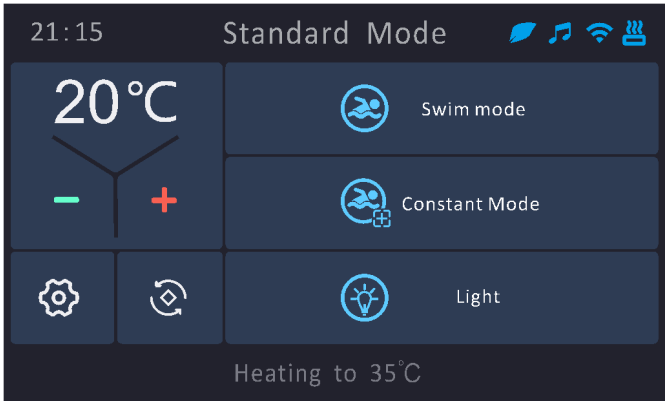
[Table 1]

Set The Code	The Parameter Name	Feature	Defaults
S1	Massage pump 1	1: Pump 1 is a dual-speed pump;	0
		0: Pump 1 is a single-speed pump;	
S2	Massage pump 2	1: Pump 2 is a dual-speed pump;	0
		0: Pump 2 is a single-speed pump;	
S3	Qty of Massage pumps	4: There are 4 massage pump electrical are configured	1
		3: Only pump 1, pump 2 and pump 3 are configured	
		2: Only pump 1, pump 2 electrical are configured	
		1: Only the pump 1 appliance are configured	
S4	Blower	1: With air pump	0
		0: No air pump	
S5	Interface parameters	3: SPA variable-speed water pump + several fixed-speed massage pump combination	0
		2: SWIM variable-speed water pump + several fixed-speed massage pump combination	
		1: Only SWIM variable speed water pump; S1-S3 parameter setting is invalid	
		0: The water pump is a fixed speed pump;	
S6	Voltage protection	1: Shield voltage protection;	0
		0: Use voltage protection;	
S7	Heat pump	Regardless of how the S7 parameter is set, if Pump 3 or Pump 4 is turned on, the heater will shut down;	0
		0: If any one pump (Pump 1, Pump 2, or the air pump) is running at high speed, the heater will stop working;	
		1: If any two pumps (Pump 1, Pump 2, or the air pump) are running at high speed, the heater will stop working;	
		2: If Pump 1, Pump 2, and the air pump are all running at high speed simultaneously, the heater will stop working;	
		3: The heater and the high-speed operation of Massage Pumps 1, 3, and 4 can work simultaneously;	

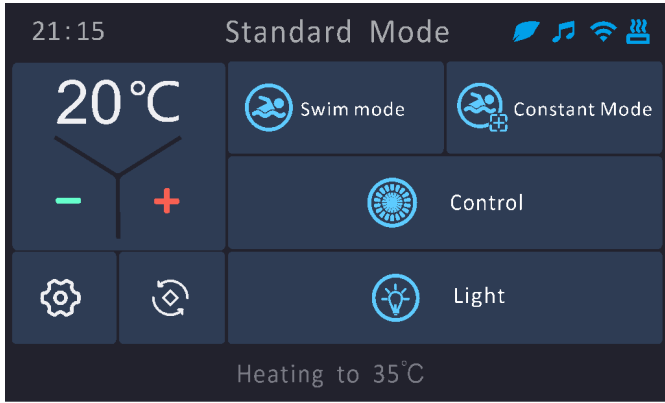
Note: The S5 interface parameters on the TP10 panel are used to set the main interface for different products. The specific function definitions for each main interface are detailed in the"TP10 Panel Quick Operation Guide."



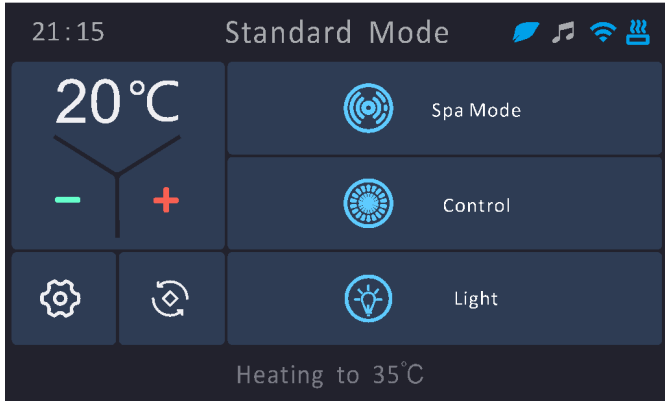
Interface parameter S5=0, showing the left main interface. Mainly suitable for SPA / SWIMSPA / POOL with fixed-speed pump. This interface can also be used for variable speed + fixed speed control. The power supply of the variable speed water pump is used as the signal line through the pump 1 to control the opening and break of the AC contactor. See the control wiring schematic diagram of the variable speed system for details.



Interface parameter S5=1, showing the left main interface. Mainly suitable for SWIMSPA / POOL with swim machine.

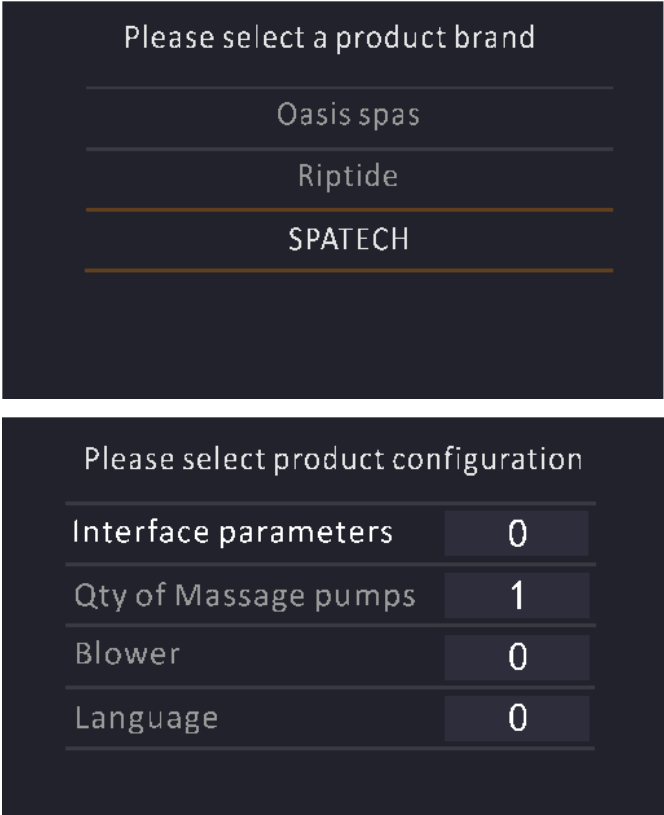


Interface parameter S5=2, showing the left main interface. Mainly suitable for swim machine SWIMSPA / POOL products with fixed-speed pump or a variable speed + fixed-speed pumpconfiguration.



Interface parameter S5=3, showing the left main interface. Mainly suitable for SPA product variable speed + fixed-speed pump products

3) Modify the trademark logo, language and electrical configuration



Enter 1230 in the "parameter setting" setting interface, and return to the main interface after confirmation. Click the flip key  , and the system will return to the factory settings.

The panel shows the logo list, select the desired logo, wait for a moment to automatically jump to the next interface, when the logo setting is complete.

After Logo settings is complete, automatically redirect to the product configuration and language settings. Refer to "Modify Electrical Configuration" for defining interface parameters, massage pumps and air pumps. The language bar definitions are shown in Table 2.

[Table 2]

The Parameter Name	Parameter Numerical Description	Feature
Language	0: The language column offers options for English, German, French, and Dutch, with English displayed by default.	0
	1: The language column only offers Chinese as an option.	

2.The MP31 Panel Settings

Press and hold the "Air Pump" button for more than 15 seconds to enter the S1 parameter settings. Use the "Up" and "Down" buttons to adjust the S1 parameter, and press the "Set" button to confirm and proceed to the next S2 parameter settings. Repeat the process to set parameters from S1 to S7. During the parameter setting process, pressing any other button will exit the settings. If no action is taken within 15 seconds, the settings will automatically exit. See Table 1 for configuration parameters.(**Note:** The S5 parameter is not applicable to MP31.) For other function operations, please refer to the "MP31 Panel Quick Operation Guide."

IV. Accessories Function Description

1. C.TOUCH Module

This module is used for the electric control IoT, allowing users to check the product status anytime and anywhere. For detailed functions, please refer to the "U-Spa APP Quick Operation Guide."

2. C.STREAM Module

Connect the power cable to the A/V port and the communication cable to CON6. The Bluetooth pairing password for the phone is 2288. Music can be controlled simultaneously from either the control panel or the phone.

3. Heat Pump Module

This module is used for controlling the heat pump heating/cooling through RS485 in the CA electric control system. For detailed functions, please refer to the "PH Heat Pump Manual."

4. Sub Panel Module

This module is used for the sub panel of SPA & SWIMSPA products, with the main function of controlling the water pump/air pump/lights. For details, please refer to the sub panel function introduction in the Quick Operation Guide of the corresponding main panel.

V. Troubleshooting

When the system protection function is activated, all loads will be automatically locked and cannot be started. After the fault is resolved, power off and restart (temperature protection will be automatically removed) to restore functionality. When multiple error codes appear simultaneously, they will alternate and display in a 2-second cycle.

Error Description	Error Code	Cause	Solution
Communication fault	E0	Poor contact between the control panel and the electronic control main control board;	1. Insert the plug of control panel into the main control board CON11 (MASTER PAN) port and secure it. 2. Contact your dealer to replace the main control board or control panel
Temperature sensor 1 is faulty	E1	1. Temperature sensor 1 is disconnected from the electronic control main board; 2. Temperature sensor 1 is faulty.	1. Insert the plug of temperature sensor 1 into the main control board CON18 (Water-NTC1) port and secure it. 2. Replace temperature sensor 1.
Temperature sensor 2 is faulty	E2	1. Temperature sensor 2 is disconnected from the electronic control main board; 2. Temperature sensor 2 is faulty.	1. Insert the plug of temperature sensor 2 into the main control board CON 19 (Water-NTC 2) and secure it; 2. Replace the temperature sensor 2 .
Keep pressure or underpressure	E5	Alarm range: 220V power supply: U < AC155V or U> AC270V; 115V power supply: U < AC 92 V or U> AC132V;	Check whether the power supply voltage is normal
Abnormal water flow alarm	E9	Lack of water or abnormal water flow alarm in the circulation pipeline	1. Check and ensure that the valves in the circulation water path are fully open. Turn off the power, loosen the quick connector of the circulation pump or dual-speed pump, bleed the air from the pipes, then tighten the quick connector and reconnect the power. 2. Check if the heater temperature sensor is damaged. 3. If no issues are found, turn off the power and restart the system. 4. If the problem remains, please get in touch with the dealer.
Low temperature protection	C	1. Actual water temperature $\leq 6^{\circ}\text{C}$; 2. Temperature sensor is faulty.	1. The word "C" disappears after heating the water to 12°C ; 2. If the actual temperature is lower than 6°C for a long time, please contact the dealer.
High temperature protection	H	1. Current water temperature is $\geq 43^{\circ}\text{C}$; 2. Temperature sensor is faulty.	1. Turn off the power supply until the actual water temperature is $\leq 41^{\circ}\text{C}$; 2. If the problem remains, please get in touch with the dealer.
Ultra-high temperature protection	HH	1. Current water temperature is $\geq 47^{\circ}\text{C}$; 2. Temperature sensor is faulty.	1. Turn off the power supply until the actual water temperature is $\leq 40^{\circ}\text{C}$; 2. If the problem remains, please get in touch with the dealer.

Note: The above faults have the highest priority for low temperature protection.

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