

3.2.2 Temperature Control

Incubator temperature is adjusted through the compurgation between the **baby** temperature and the set temperature. The Infant Radiant Warmer adopts 3 kinds of control mode: Pre-warm mode, Manual mode and Baby mode, and the different mode had different way of heating. The user can choose the wanted control mode by pressing the keys on the controller.

Pre-warm mode: system will output the heat according to the programme, after a while, the system will output the heat at 30% to maintain the temperature on the mattress until the mode changes.

Manual mode: system will output the fixed heat according to the heat output proportion to make the temperature on the mattress reach the wanted value so as to make the body temperature of patient resume. The system default of heat output proportion is 30%.

Baby mode: System will adjust through the heat output proportion according to the **baby** temperature and the set temperature to keep the heat balance of patient.

3.2.3 ALARM

Alarm is used for monitoring the control system state. The system will check the state by the alarm checkout procedure. When the checked data is abnormal, it will alarm. Table 3.2 listed alarm condition.

TABLE 3.1 ALARM

ALARM MESSAGE		DESCRIPTION
Power Failure Alarm		There is no power supply.
Sensor Alarm indicator is on	code E0.1	Short-circuit or open-circuit occurs on the temperature control probe inside of skin temperature sensor, or connection with warmer is not well, the heater will stop working, please press the Silence/reset key to silence alarming for 4min, and then it can reset if there is no failure.
	code E0.2	Short-circuit or open-circuit occurs on the over-temp probe inside of skin temperature sensor, the heater will stop working, please press the Silence/reset key to silence alarming for 4min, and then it can reset if there is no failure.
	code E0.3	Deviation of baby temperature of two probes inside of skin temperature sensor is more than 0.8℃, the heater will stop working, please press the Silence/reset key to silence alarming for 4min, and then it can reset if there is no failure.
Over-Temp Alarm indicator is on	code E0.4	In the Baby mode, when the temperature measured by skin temperature sensor is >38.5℃, the heater will stop working, please press the Silence/reset key to silence alarming for 4min, and then it can reset if there is no failure.
Deviation Alarm indicator is on	code E0.5	When the indicated baby temperature is more than 1℃(set value), the heater will stop working, please press the Silence/reset key to silence alarming for 4min, and then it can reset if there is no failure.

TABLE 3.1 ALARM (CONTINUE)

ALARM MESSAGE		DESCRIPTION
Deviation Alarm indicator is on	code E0.6	When the indicated baby temperature is lower than 1℃ (set value), the heater will stop working , please press the Silence/reset key to silence alarming for 4min, and then it can reset if there is no failure.
	code E0.7	When the baby temperature is lower 3.5℃ than the setting temperature, the heater will stop working , please press the Silence/reset key to silence alarming for 4min, and then it can reset if there is no failure.
Setting Alarm indicator is on	code E0.8	When the device has entered into the steady temperature condition because of the accidental or unreasonable out of the steady temperature condition , and it will not enter into this condition in 3min without the deviation alarm, the heater will stop working , please press the Silence/reset key to silence alarming for 4min, and then it can reset if there is no failure.
	code E0.9	In the Manual mode, the “ CHECK ” alarm with audible and visual will active every 15min, the heater will keep working , please press the Silence/reset key to silence alarming for 4min; the heat output proportion will be limited to 30% without pressing the Silence/reset key.
The alarming indicator is on	code H0.1	RAM inside of main MCU fails, the heater will stop working during alarming, it is invalid to press Silence/reset key.
	code H0.2	ROM inside of main MCU fails, the heater will stop working during alarming, it is invalid to press Silence/reset key.
	code H0.3	Communication of main and auxiliary MCU fails, the heater will stop working during alarming, it is invalid to press Silence/reset key.
	code H0.4	E ² ROM inside main y MCU fails, the heater will stop working during alarming, it is invalid to press Silence/reset key.
	code H0.5	RAM inside of auxiliary MCU fails, the heater will stop working during alarming, it is invalid to press Silence/reset key.
	code H0.6	ROM inside of auxiliary MCU fails, the heater will stop working during alarming, it is invalid to press Silence/reset key.
	code H0.7	ADC1 failure(e.g., main system TLV2544, including wrong sample, chip damage, no response and so on), the heater will stop working during alarming, it is invalid to press Silence/reset key.
	code H0.8	ADC2 failure(e.g., main system TLV2544, including wrong sample, chip damage, no response and so on), the heater will stop working during alarming, it is invalid to press Silence/reset key.
	code H0.9	SRAM failure(including system cord failure), the heater will stop working during alarming, it is invalid to press Silence/reset key.
	code H1.0	The timer RTC inside the system fails or is not accurate, the heater will stop working during alarming, it is invalid to press Silence/reset key.
	code H1.1	Heat circuit failure(e.g., heater, solid relay, mechanical relay and all control circuit fails), the heater will stop working during alarming, it is invalid to press Silence/reset key.