HKN-2001

INFANT RADIANT WARMER

Operator's Manual

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DAVID

1.6 SPECIFICATION

This product's classification as follows:

By the electric shock protection type classification: Type I equipment.

By the degree of shock proof classification: Type BF application part

By the specified of IEC60529 for liquid protection degree classification: Heatable Bassinet is IPX2.

By the manufacturers recommended disinfection and sterilization method classification: Use neutral disinfection solvents or solution to clean.

By the air mixer of flammable gas or with oxygen or nitrous oxide mixture of flammable anaesthetic gas safety degree classification: It should not use in air mixer of flammable gas or with oxygen or nitrous oxide mixture of flammable anaesthetic gas.

By operational mode classification: Continuous operation.

Specifications for the Infant Incubator are provided in table 1.1.

TABLE 1.1 SPECIFICATIONS

Power requirements……………………………………………………………AC220-230V/50Hz, 900VA
Radiant heater………………………………………………………………………2X 330W±15W
Mattress heater……………………………………………………………………...130W±20W
Blue light LED…………………………………………………………………………10W
Working light……………………………………………………………………………20W
Night light………………………………………………………………………………8W
Auxiliary mains output of Controller………………………………… AC220-230V, 50Hz, MAX:5A
Auxiliary mains output of VHA……………………………………AC220-230V, 50Hz, MAX:1A
Temperature control mode*………………………………………………………Pre-warm mode
Manual mode
Baby mode
Baby mode Temperature Control range……………………………………………34.5℃~37.5℃
Measuring Range………………………………………………………………5℃～65℃
Deviation between the measure baby temperature by the sensor and control temperature……………………………………………………………………………≤0.5℃
Accuracy of skin temperature sensor……………………………………… within ±0.2℃
Temperature uniformity of mattress*………………………………………………≤2℃
The total irradiance Ebi on the effective surface ares*……………………………… ≥1mW/cm^2
Average value general bilirubin radiation of the mattress effective range………≥0.8mW/cm^2
Bilirubin uniformity of radiating on the mattress effective range*……………………………> 0.4
MATTRESS HEATING
Mattress Temperature Control Range………………………………………………25℃～38℃
Veracity of range…………………………………………………………………±0.7℃

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TABLE 1.1　SPECIFICATIONS（continued）

ALARM（**See section 3.4**）...Power failurem alarm

Sensor failure alarm

Deviation alarm

Over temperature alarm

Setting alarm

Checking alarm

System alarm

ENVIRONMENT TEMP（**Not to use in the environment exceed specified**）

Operating range...18℃～30℃

Storage and transport range...-20℃～+55℃

ENVIRONMENT HUMIDITY

Operating range..30％～75％

Storage and transport range...≤93％

ATMOSPHERE PRESSURE

Storage and transport atmospheric pressure range.......................500hPa～1060hPa

Working atmosphere pressure range....................................800hPa～1060hPa

Application environment altitude...≤2000m

Overvoltage category..Ⅱ

Pollution degree...2

AIR FLOW RATE

Ambient air movement rate...<0.3m/s

OTHER SPECIFICATION

APGAR Timer..Tones at 1, 5 and 10 minutes

* Please see the content of table of definitions and symbols.

NOTE：Changing the inside room air flow rate or the angle of declination of bassinet, or using the heating device beside this mode, may affect the relations among temperature uniformity of mattress, indicated temperature or baby temperature.

ALARM INTRODUCTION

Alarm no.	Alarm information	Alarm character	Alarm activate condition	Control mode	Radiation heater state	Mattress heater state	Alarm level	Alarm delay time
1	Power off alarm	Power failure alarm light on, red alarm light flashes, alarm sound responses immediately	When no power supply, turn on the switch	All	Off	Off	High priority	<5s
2	Mattress temperature sensor faul	Red alarm indication light flashes, shows "Alarm: mattress temperature sensor Fault", alarm sound responses immediately	Failure occurs on the inner main probe of Mattress sensor	All	/	Off	High priority	<5s
3	Isolated Mattress temperature sensor fault	Red alarm indication light flashes, shows "Alarm: isolated Mattress temperature sensor Fault", alarm sound responses immediately	Failure occurs on the inner independent probe of Mattress sensor	All	/	Off	High priority	<5s
4	Mattress temperature sensor difference fault	Red alarm indication light flashes, shows "Alarm : mattress temperature Sensor difference Fault", alarm sound responses immediately	Difference between main probe and independent probe of mattress sensor is above 0.8℃	All	/	Off	High priority	<50s
5	Skin temperature sensor faul	Red alarm indication light flashes, shows "Alarm: skin temperature sensor Fault", alarm sound responses immediately	Failure occurs on the inner main probe of skin sensor	Baby	Off	/	High priority	<5s
6	Isolated Skin temperature sensor fault	Red alarm indication light flashes, shows "Alarm : isolated Skin temperature sensor Fault ", alarm sound responses immediately	Failure occurs on the inner independent probe of skin sensor	Baby	Off	/	High priority	<5s

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ALARM INTRODUCTION （Continued）

Alarm no.	Alarm information	Alarm character	Alarm activate condition	Control mode	Radiation heater state	Mattress heater state	Alarm level	Alarm delay time
7	Skin temperature Sensor difference fault	Red alarm indication light flashes, shows "Alarm: skin temperature Sensor difference fault", alarm sound responses immediately	Difference between main probe and independent probe of skin sensor is above 0.8℃	Baby	Off	/	High priority	<70s
8	Mattress temperature over	Red alarm indication light flashes, shows "Alarm: mattress temperature Over", alarm sound responses immediately	The temperature measured by Mattress sensor is more than 39.5℃	All	30%	Off	High priority	<5s
9	Skin temperature over	Red alarm indication light flashes, shows "Alarm: skin temperature Over", alarm sound responses immediately	The temperature measured by Skin sensor is more than 38.5℃	Baby	Off	Off	High priority	<5s
10	Mattress temperature upper deviation	Red alarm indication light flashes, shows "Alarm : mattress temperature upper deviation", alarm sound responses immediately	If the mattress temperature indication 1.0℃ more than the set value	All	/	Off	High priority	<5s
11	Mattress temperature lower deviation	Red alarm indication light flashes, shows "Alarm : mattress temperature lower deviation", alarm sound responses immediately	If the mattress temperature indication 1.0℃ less than the set value	All	/	On	High priority	<5s
12	Skin temperature upper deviation	Red alarm indication light flashes, shows "Alarm: skin temperature upper deviation", alarm sound responses immediately	If the temperature of skin temperature sensor 1.0℃ more than the set value	Baby	Off	/	High priority	<5s
13	Skin temperature lower deviation	Red alarm indication light flashes, shows "Alarm: skin temperature lower deviation", alarm sound responses immediately	If the temperature of skin temperature sensor 1.0℃ less than the set value	Baby	On	/	High priority	<5s

ALARM INTRODUCTION （Continued）

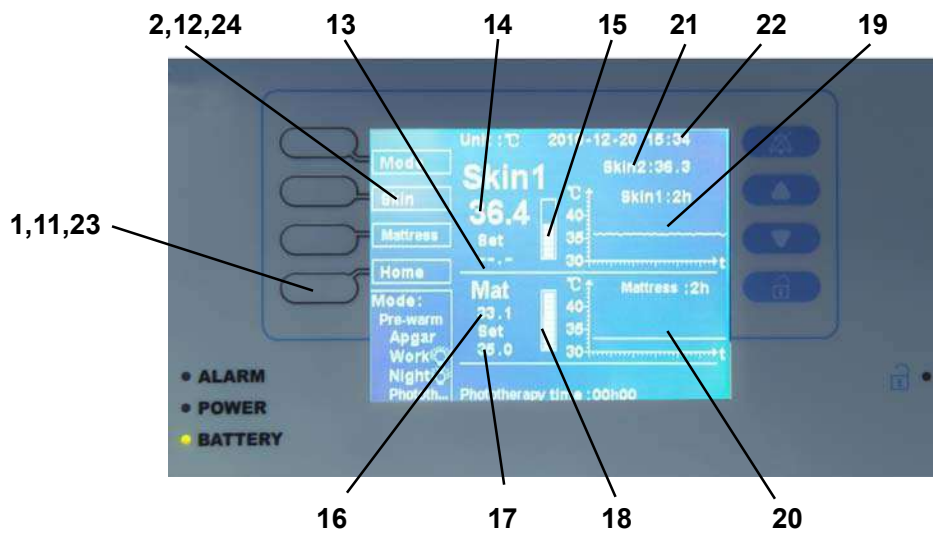| Alarm no.	Alarm information	Alarm character	Alarm activate condition	Control mode	Radiation heater state	Mattress heater state	Alarm level	Alarm delay time
14	Check skin sensor	Red alarm indication light flashes, shows "Alarm : check Skin Sensor", alarm sound responses immediately	In baby mode, the measured value is lower than set value 0.4℃ or above, and no deviation alarm	Baby	Off	/	High priority	<3min
15	Check manual mode	Red alarm indication light flashes, shows "Alarm: check Manual Mode", alarm sound responses immediately	In Manual Mode, the alarm will happen every 15mins	Manual	On	/	High priority	<15min

System failure alarm introduction

When system failure alarm occurs, the alarm light flashes, the display screen shows the system alarm code, and the alarm sound starts. The system failure alarm means the warmer can not work properly; the warmer should be stopped immediately, and should be repaired by the qualified maintenance personnel. The specific alarm delay time and the alarm activate condition, please see the service manual.
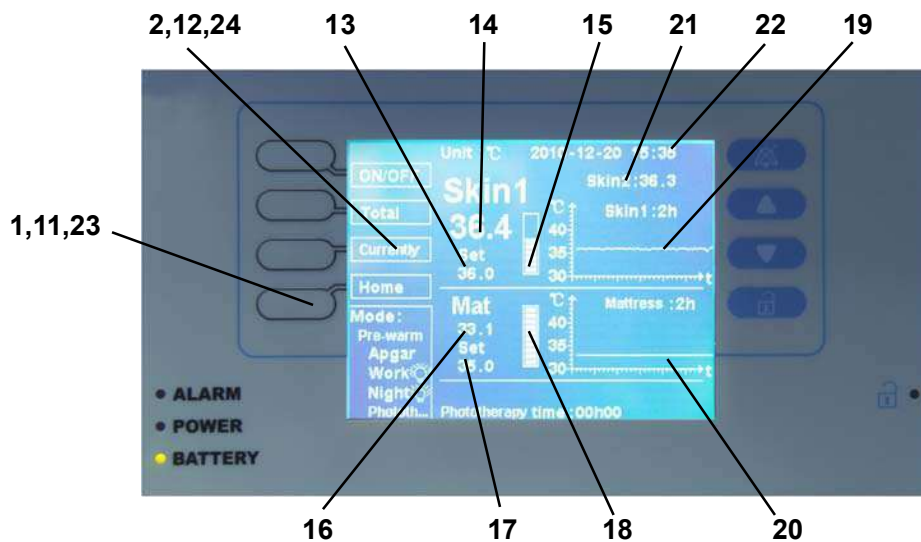
NOTE: 1. All the above alarms except the deviation alarm and skin over temperature alarm in baby mode are belong to physiological alarm status, the power failure alarm belongs to other alarm status; The others are all technology alarm status.

2. Except for the power failure alarm, the other alarms are all can silence by pressing silence/reset key, the time for silence is 4mins. When the silence time is over, if the alarm condition is still not solved, the alarm will have to activate. If occur multiple alarm at the same time, the device will give an alarm firstly for the higher grade. Press the twice of silence /reset key can cancel the alarm state then the equipment back to the set condition to monitor the alarm.

3. If checking alarm active, and the operator doesn't press the silence/reset key, the heater output will be limited to 30% automatically. This does not mean there is something wrong with the equipment, but for giving a hint that the operator should check and monitor the body temperature of patient.

4. The power failure alarm lasts at least 10 mins, if the power supply recover before the alarm, the device will back to the alarm setting before the outage.

5. Alarm system will save the all the alarm logs automatically. When the equipment is outage, the saved log contents did not changed.

WARNING: When using the infant radiant warmer in any independent place, if use different alarm preset, there will be the potential risk.

SECOND INTERFACE A：TEMPERATURE OPERATING INTERFACE

SECOND DISPLAY INTERFACE B：PHOTOTHERAPY OPERATING INTERFACE

SECOND DISPLAY INTERFACE C：LAMP OPERATING INTERFACE

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