

INFRARED THERMOMETER

Model:E122

Congratulations on your purchase of our Infrared Thermometer. This thermometer is intended for scanning groups of individuals or monitoring an individual for elevated temperatures. Always use a clinical thermometer when high accuracy body temperature measurements are required.

Considerations and Warnings:

1. Read this manual before using this Infrared thermometer.
2. For the most accurate results, make reading with an ambient condition of 15°C to 40°C, RH≤85%(non-condense), 70kPa~106kPa.
3. For keep the performance, please storage with an ambient condition of -20°C to 55°C, RH≤93%(non-condense), 50kPa~106kPa.
4. Make sure the skin is dry and that no hair interferes with the measurements.
5. Do not immerse the thermometer in water.
6. Avoid touching and / or scratching the infrared sensor lens;
7. Always use a clinical thermometer to verify any abnormal temperature measurements.
8. Clean the lens area by gently blowing with compressed air and use a damp swab to wipe the lens. Do not use any solvents to clean the lens.
9. If you have any problems with this device, such as setting up, maintaining or using, please contact with manufacturer or agency.
10. Don't open or repair the device by yourself.
11. Don't use the device if it is damaged in anyway, the continuous use of a damaged unit may cause injury, improper results, or serious danger.
12. When not in use, store the device in a dry room and protect it against extreme moisture, heat, lint, dust and direct sunlight. Never place any heavy objects on the storage case.
13. The internal electrical power source couldn't be changed by yourself, if you need it, please contact the manufacturer.
14. This infrared thermometer is an adjusted mode thermometer.
15. The patient also is an intended operator.
16. Prohibit patient from servicing and maintaining while the IR thermometer is in use.
17. The patient will contract the button and outer shell of IR while the IR thermometer is in use.
18. If the thermometer has been stored in a cold or hot environment, allow it at least 15~20 minutes to acclimate to room temperature before making measurements
19. After heavy exercise always wait at least 10 minutes before taking forehead temperature readings.
20. Measuring site and reference body site of the clinical thermometer are forehead and oter respectively.
21. Please dispose of the device / battery / packing in accordance with the legal obligation in your area.
22. Object temperature mode equals direct mode, human mode equals correction mode;
- 23.If the environment condition (eg, temperature and humidity) change suddenly, which could lead to inaccuracy measured results.
- 24.Prohibit patients or operators from sucking and swallowing the small parts left from this infrared thermometer.
- 25.You take temperature measurements during a particular diagnosis or treatment, there may be mutual interference

- that may cause the infrared thermometer to be inaccurate.
- 26.Repeated cleaning and disinfection of the equipment will not affect the accuracy of the infrared thermometer.
- 27.This device is not intended to use in oxygen enrichment conditions.
- 28.Degraded sensors and electrodes, or loosened electrodes that can degrade performance or cause other problems.
- 29.The alkaline battery are consumable, and may be have battery leakage if used for a long time.

Product Description

Operating Principle

All objects above absolute zero temperature emits certain percentage of infrared radiation energy based on its temperature. The amount of the radiation energy and the distribution of the wavelength have very closely relationship. When human forehead's temperature in 36~37°C, it emits wavelength 9-13um of infrared radiation. Based on this principle, according to the relationship between surface forehead temperature, we are able to measure the human forehead's actual temperature through measuring surface forehead temperature.

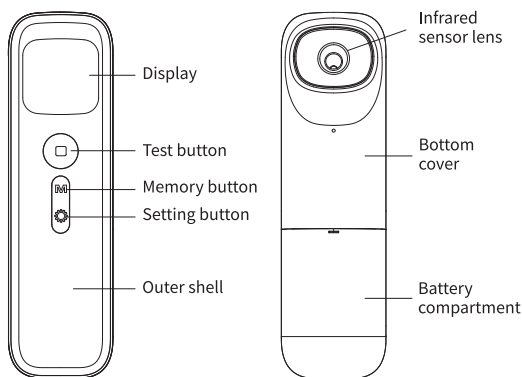
Intended use

The infrared thermometer is an electronic thermometer using an infrared sensor to measure human body temperature for people of all ages. Its operation is based on measuring the natural thermal radiation emanating from the forehead.

Structure and Composition

It mainly contains shell, temperature probe, button, display screen and battery.

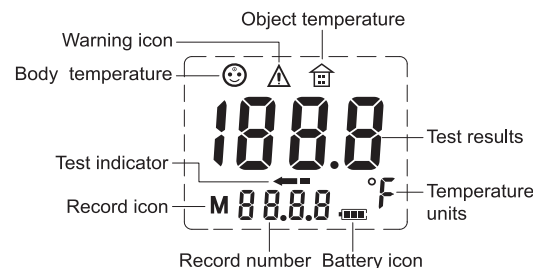
Product Interface



No.	Button name	Description
1	Setting button	Multi-function button, short press to switch body/object temperature
2	Memory button	Multi-function button, short press enter memory search
3	Test button	Multi-function button, short press start testing

In the Off state, long press setting button for 3 seconds, temperature symbol "°C" or "°F" will flash, press again setting button to switch °C and ofF mode, press test button to confirm.

Display



Performance Parameter

Note: If the device is used other than in accordance with the specifications, perfect functioning cannot be guaranteed! We reserve the right to make technical changes to improve and develop the product. The accuracy of this thermometer has been carefully checked and developed with regard to a long useful life. Precise instructions for checking accuracy may be requested from the service address.

Product name	Infrared thermometer
Product model	E122
Rated output range	34.0°C~43.0°C
Rated extended output range	32.0°C~33.9°C
Laboratory measurement precision	±0.3°C (34.0°C~43.°C) ±0.4°C (32.0°C~33.9°C)
Display Precision	0.1°C/°F
Measurement units	°C/°F
Measure time	1s
Auto power off time	15s
Ambient operation	15~40°C, RHs85%(non-condense), 70kPa ~106kPa
Storage environment	-20~55°C, RH≤93%(non-condense), 50kPa ~106kPa
Dimensions	140x40x40(mm)
weight	About 95g (include battery)
battery	AAAx2, DC 3V
Accessory	manual, AAA battery x2
Protection against electric shock	Internally powered equipment
Mode of operation	continuous operation
Expected service life	6 years

Operating Instructions

1. Before measuring the body temperature, be sure choose the correct mode.
2. Press test button to turn on the machine, the machine will self-test, and all symbols will be displayed normally (Figure 1).
3. The device must keep 1-5 cm distance with the forehead of patient(Figure 2), press test button.
4. In one seconds, the results will displayed(Figure 3). At this time, the data can be read according to the display result to determine whether the temperature is abnormal.
5. If the machine is not operated within ten minutes after the measurement, it will automatically shut down.



(Figure 1)

(Figure 2)

(Figure 3)

Caution:

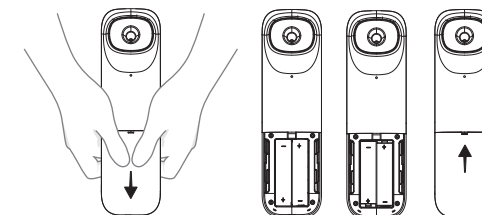
- 1) To keep the sensor lens stay clean, do not block the front by anything.
- 2) In order to maintain accurate measurement, please wait for 15-20 minutes to measure after you enter a new environment with a large ambient temperature change.
- 3) When measuring a fairly high or relatively low object temperature, wait for ten minutes before measuring body temperature.
- 4) The sweat and stains on the forehead will affect the measurement accuracy. Do not measure the body temperature in 30 minutes after meal, shower, or exercise.

Unit switch

This product is available in two temperature measurement units, Celsius and Fahrenheit. In the off state, long press the setting button for about 3 seconds, the temperature symbol °C or °F flashes, continue to press the setting button, you can switch °C and °F mode, press test button to confirm.

Battery replacement

When the battery symbol shows on the screen, please replace the battery. Otherwise the measurement result will be affected. Open the battery compartment, take out the exhausted battery, put in 2 AAA batteries, please pay attention to the polarity of the battery, do not reverse.



Caution:

- 1) Remove the battery when not in use for a long time.
- 2) Please do not throw the used battery into the fire.
- 3) Please dispose of used batteries in accordance with local laws and regulations.

Display Message

Display	Possible reason	Solution
Hi	Measure temperature≥43°C	Please read thorough the guide and test again
Lo	Measure temperatures≤31.9°C	
Er1	Ambient temperature is out of range	Ambient operation between 15~40°C
ERR	Ambient temperature unstable	Rest for a while, try again after the ambient temperature is stable

Cleaning and Maintenance

Cleaning Method
Check the probe if damage or dirty before clean device. Use a clean cotton swab be moistened with alcohol or warm water. To clean the entire device please use a soft cloth cleaning the display screen and shall, do not use disinfectants and do not soak in water or other liquids.

Transport and storage

- 1. The device transport and storage should be under temperature control: Humidity -20°C-55°C, relative humidity≤93%, no condensation environment.
- 2. Must do package transport simulation test after device package, will allow to use ordinary transport but must avoid rain, moist, extrusion and collision.
- 3. The device must not be stored or used at an excessively high or low temperature or humidity (see technical data), in sunlight, in association with an electrical current or in dusty locations. Otherwise inaccuracies can occur.

Clinical Information

Infrared thermometers have been tested with effective clinical accuracy and reproducibility, enabling temperature measurements for adults, children and newborns. The clinical bias, limits of agreement and clinical repeatability of infrared thermometer see the table below.

Age Range	Clinical Bias (Δ _{CL})	Limits of Agreement (L _A)	Clinical Repeatability (C _R)
0 to one year	0.20	0.44	0.08
Older than one year to five years	0.21	0.32	0.05
Older than five years	0.21	0.20	0.05

Reference body site of infrared thermometer is oxter.

Suggestion

- a. When you tell the doctor about the measured temperature, please indicate that you are measuring with an infrared thermometer.
- b. Do not force or fall or step on the thermometer.
- c. Do not disassemble or repair the thermometer.
- d. The product is not waterproof, please be careful not to let liquid (alcohol, water droplets, hot water, etc.) enter inside.
- e. The product must be kept clean and dry.
- f. If you find any problems, you should contact the seller and you cannot repair the product by yourself.
- g. Do not use in an electromagnetic interference environment.
- h. Dispose of waste and residue at the end of its useful life in accordance with local laws and regulations.

Normal body temperature range for different measurement body part

Body part	Normal temperature°C	Normal temperature°F
Anus	36.6-38.0	97.8-100.4
Oral cavity	35.5-37.5	95.9-99.5
Underarm	34.7-37.3	94.4-99.1
Ear	35.8-38.0	96.4-100.4

People's body temperature varies with different times of the day, and is also affected by other external conditions, such as age, gender, and skin color.

Normal body temperature range for different age

Age	Normal temperature°C	Normal temperature°F
0-2 years old	36.4-38.0	97.5-100.4
3-10 years old	36.1-37.8	97-100.0
11-65 years old	35.9-37.8	96.6-99.7
>65 years old	35.8-37.5	96.4-99.5

Symbols information

	Type BF applied part
	Attention and read before use
	Indicates the medical device manufacturer
	Indicates the authorized representative in the European community
	The device against ingress of solid foreign objects≥12.5mm diameter and water (15° tilted)
	Refer to instruction manual
	Please dispose of the device / battery / packing in accordance with the legal obligation in your area.
	Serial number
	Operation temperature limit
	Date of manufacture

EMC statement

This device has been tested and homologated in accordance with EN 60601-1-2. This does not guarantee in any way that the device will not be affected by electromagnetic interference. Avoid using the device in high electromagnetic environment.

Recommended separation distances between portable and mobile RF communications equipment and the E122 Infrared Thermometer.			
The E122 Infrared Thermometer is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the E122 Infrared Thermometer can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the E122 Infrared Thermometer as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter(W)	Separation distance according to frequency of transmitter (m)		
	150 kHz to 80 MHz d=1,2 √P	80 MHz to 800 MHz d=1,2 √P	800 MHz to 2,5 GHz d=2,3 √P
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer. NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies. NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

Guidance and manufacturer's declaration--electromagnetic emission		
The E122 Infrared Thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that it is used in such an environment.		
Emission test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The E122 Infrared Thermometer uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emission CISPR 11	Class B	The E122 Infrared Thermometer is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC/EN61000-3-2	Not applicable	
Voltage fluctuations /flicker emissions IEC/EN61000-3-3	Not applicable	

Guidance and manufacture's declaration--electromagnetic immunity			
The E122 Infrared Thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±8kV contact ±15kV air	±8 kV contact ±15 kV air	Floors should be wood, concrete or ceramic tile. If floor are covered with synthetic material, the relative humidity should be at least 30%.
Electrical Fast Transient/Burst IEC/EN61000-4-4	±2kV for power supply lines ±1kV for input/output lines	Not applicable	Not applicable
Surge IEC/EN61000-4-5	±1kV line(s) to line(s) ±2kV line(s) to earth	Not applicable	Not applicable
Voltage dips, short interruptions, and voltage variations on power supply input lines IEC/EN61000-4-11	<5%UT(>95% dip in UT) for 0.5cycle 40%UT(60%dip in UT) for 5 cycles 70%UT(30%dip in UT) for 25 cycles <5%UT(>95% dip in UT) for 5s	Not applicable	Not applicable
Power frequency (50Hz/60Hz) magnetic field IEC61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Guidance and manufacture's declaration--electromagnetic immunity			
The E122 Infrared Thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Conducted RF IEC61000-4-6	3 Vrms 150kHz~80MHz 6Vrmscin ISM bands between 0,15MHz and 80MHz	3 Vrms 150kHz~80MHz 6Vrmscin ISM bands between 0,15MHz and 80MHz	Portable and mobile RF communications equipment should be used no closer to any part of the E122 Infrared Thermometer, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance: d=1,2 √P 150kHz to 80MHz d=1,2 √P 80MHz to 800MHz d=2,3 √P 800MHz to 2.7GHz d=6 /E at RF wireless communications equipment bands (Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30cm (12 inches) to any part of the E122 Infrared Thermometer, including cables specified by the manufacturer).
Radiated RF IEC61000-4-3	10V/m 80MHz~2.5GHz	10V/m 80MHz~2.5GHz	

			Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, a should be less than the compliance level in each frequency range. b Interference may occur in the vicinity of equipment marked with the following symbol: 
NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies. NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			
a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the E122 Infrared Thermometer is used exceeds the applicable RF compliance level above, the SD1Ultrasonic Doppler should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the E122 Infrared Thermometer. b. Over the frequency range 150kHz to 80MHz, field strengths should be less than 3V/m. c. The ISM (industrial, scientific and medical) bands between 0,15MHz and 80MHz are 6,765MHz to 6,795MHz; 13,553MHz to 13,567MHz; 26,957MHz to 27,283MHz; and 40,66MHz to 40,70MHz. The amateur radio bands between 0,15MHz and 80MHz are 1,8MHz to 2,0MHz, 3,5MHz to 4,0MHz, 5,3MHz to 5,4MHz, 7MHz to 7,3MHz, 10,1MHz to 10,15MHz, 14MHz to 14,2MHz, 18,07MHz to 18,17MHz, 21,0MHz to 21,4MHz, 24,89MHz to 24,99MHz, 28,0MHz to 29,7MHz and 50,0MHz to 54,0MHz.			