Non-contact thermometer
(Forehead type)

Compliant to EN60601-1, EN12470-5

Manual instruction

Please read this manual instruction thoroughly before use.

Version: V1.0
Date: 2012-2-1

Table of contents

1. Introduction & classification

This is a non-contact infrared thermometer applicable to forehead measurement. The thermometer measures body temperature by collecting heat radiation emitting by forehead. It's simply operational, hygeian, reliable and highly accurate. Users can get precise reading within one second by one touch. This thermometer is widely used in schools, customs, hospitals and for domestic.

This thermometer is also capable of measuring object temperature ranging from 0℃-118℃.It is employed in the field of agriculture, industry, food, petrochemical industry, etc.

This thermometer is classified as a Class II Medical Device, sorted as internally- powered equipment and type B application device. Water proof rating is: IPX0. It's prohibited to use this thermometer in flammable anesthetic gas or gas mixture of air and oxygen or nitrous oxide. This is a continuous operation equipment. It's classified as II a by EU.

2. Working principle

Any object can generate certain proportion of infrared radiant energy as per its own temperature. The radiant energy and its wavelength distribution are subjected to its surface temperature. Based on this principle, this thermometer is designed to detect infrared radiation at 5~14um by high precise infrared sensor made in Germany. By adopting this high quality sensor plus special calculation and calibration, this thermometer is able to take accurate body temperature.

3. Features

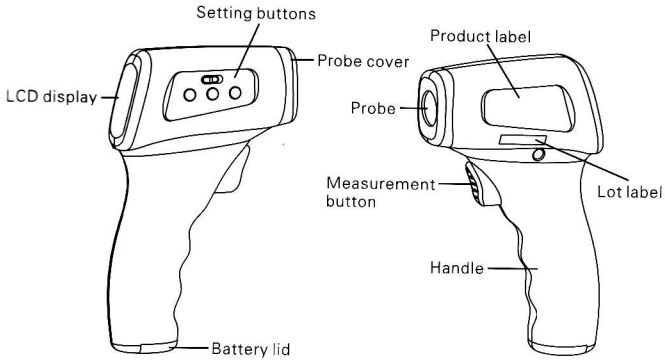
- Adopts reliable sensor made in German;
- All-new & patented probe design ensures high accuracy;
- Excellent adaption to ambient temperature. Accurate and reliable even under complicated surrounding;
- Body mode and object mode available. One switch to change mode.
- Beeper for fever or high temperature (alarm value can be defined by user);
- Automatic recall of last reading;

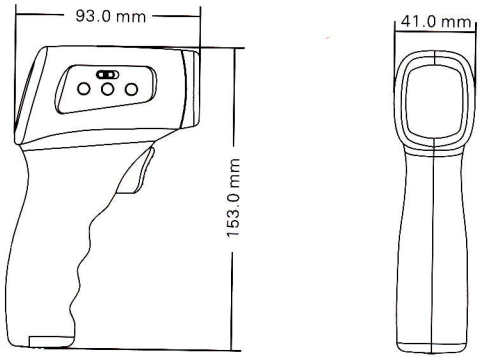
- Large LCD with back-lit;
- C/F reading available;
- Automatic shut off.

4. Technical parameters

Measurement method	Non-contact	
Effective distance	5cm ~ 8cm	
Range	Human body	35.5℃ ~ 42.9℃ (85.9℉~ 109.2℉)
	Object	0℃ ~ 118℃ (32℉~ 244℉)
Accuracy	Human body	±0.2℃/0.4℉
	Object	±1.0℃/1.8℉
Resolution	0.1℃/℉	
Working condition	10℃ ~ 40℃ (50℉ ~ 104℉) RH≤80% Non-condensing	
Storage condition	-25℃ ~ 55℃ (-13℉~ 131℉) RH≤90% Non-condensing	
Power supply	d.c. 3V 2 AA alkaline Battery	
Power consumption	When off≤10uW	
	When measurement≤30mW	
Power level indicator	Indication for low power level	
Memory	Automatic recall of last reading	
Display	LCD back-lit display	
Reading scale	Celsius or Fahrenheit	
Automatic shut off	In 30 seconds	
Dimensions	93mm x 153mm x 41mm	
Net weight	125g	
Standards	EN60601-1、EN 12470-5、ASTM 1965-98	

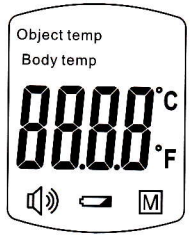
5. Illustration



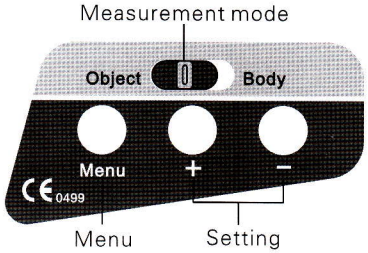


6. Function definition of buttons

Function definition	Icon	Details	
Battery level		When it is visible	The battery is in low lever, but the thermometer is functional properly. Please replace battery asap
		When it flashes	The battery is exhausted and ther –mometer can not function properly. Please replace battery immediately
		When it is invisible	Battery power is sufficient
Beeper		When it is visible	Beeper is on
		When it is invisible	Beeper is off
Measurement mode	Body temp	Body mode	
	Object temp	Object mode	
Reading scale	°C	Celsius reading	
	°F	Fahrenheit reading	
Reading display	88.8.8	Temperature value	
Memory	M	Temperature value of last measurement	



7. Funtion definition of buttons



Buttons	Description
Body/object	To switch measurement mode between human body and object
Menu	Activates menu and save setting
+	Increases parameter or select relevant parameter when setting parameter
−	Reduces parameter or select relevant parameter when setting parameter

8. Setting

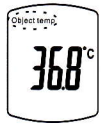
User can change reading scale between Celsius or Fahrenheit, switch on or switch off beeper, set alarm value, set deviation value and change measurement mode between human body or object. Please refer to below chart.

Menu	Function	"−"	"+"	Default	Remarks
F-1	Reading scale setting	℃	℉	℃	
F-2	Beeper on/off	Off	On	Off	
F-3	Alarm value setting	Decrease 0.1℃	Increase 0.1℃	38℃	Effective range: 37℃~42℃
F-4	Deviation value setting	Decrease 0.1℃	Increase 0.1℃	0.8℃	Effective range: 0℃~3℃
SAVE	Save and automatic shut off				

Measurement mode setting:

When thermometer is on, it displays current measurement mode (fig.8.1). Switch the "Body/Object" button to change measurement mode (fig.8.2).

(fig8.1)



(fig8.2)

Reading scale setting: F-1

Activates setting menu by pressing "SET" button. F-1 will be displayed. Press "+" to select Fahrenheit °F as temp unit (icon 'F' is twinkling, fig. 8.3);or press"−" to select centigrade °C as temp unit (icon '°C' is twinkling, fig.8.4).

(fig8.3)

(fig8.4)

Beeper setting: F-2

Press "SET" again to save the setup and F-2 will be displayed (fig.8.5). Beeper is defaulted as "OPEN". Press "+" to switch on beeper and "OPEN" will be displayed (fig.8.6). Press "−" to switch off beeper and "CLOS" will be displayed (fig.8.7).

(fig8.5)

(fig8.6)

(fig8.7)

Alarm value setting: F-3

Press SET again to save the setup and F-3 will be displayed (fig.8.8). Defaulted value "38.0°C" will be displayed (fig.8.9). Press "+" or "−" to increase or decrease alarm value (fig. 8.10). Value will be increased or decreased by 0.1°C step by step.

(fig8.8)

(fig8.9)

(fig8.10)

Deviation value setting: F-4

Press SET again to save the setup and F-4 will be displayed (fig. 8.11). Defaulted deviation value is 0.8C (fig.8.12). When defaulted deviation value is twinkling, press "+" or "−" to increase or decrease deviation value (fig.8.13). Deviation value will be increased or decreased by 0.1C step by step.

(fig8.11)

(fig8.12)

(fig8.13)

Save and exit (automatic shut off) :

Press SET to save the setup and "SAVE" will be displayed (fig.8.14). All setup will be saved and thermometer will automatically shut off (fig.8.15).

(fig8.14)

(fig8.15)

After activating setup menu, users may select specific functions (F1/F2/F3/F4) directly to do specific setting.

New setup will not be saved if the thermometer is shut off unexpectedly during the procedure of setting.

After activating setup menu, the thermometer is unable to measure temperature. There's no response when pressing measurement button.

⚠Notice:

1.Temperature under human body mode is obtained from dynamic compensation of environmental temp and forehead surface temp.

2. Object temperature mode is to test surface temperature of an object. The temperature get from forehead under this mode is merely temperature of forehead surface but not body temperature.

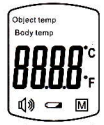
3. Deviation setting is able to adjust measurement value from 0℃ to 3.0℃ according to testing distance, surrounding temperature, skin difference, etc. Defaulted value is 0.8°C.

For example: if the tested body temp is 36.2℃ while the temp is supposed to be 37.0℃, 'F-4' to set up the value and adjust to 1.6℃, then the measurement value will be 37.0℃.

9. Measurement

9. 1 Body temperature

- Press measurement button to turn on thermometer and it displays boot screen (fig.9.1). After POST and two beeps, it will display value of last reading and be ready for measurement (fig.9.2).
- Make sure the thermometer is under body mode.
- Keep distance at 5cm to 8cm from upper eyebrows to the probe (fig.9.3). Press measurement button and when it gives a "beep" measurement is finished and value will be displayed (fig.9.4). If measurement value is exceeding alarm value (Defaulted value is 38℃) ,it gives "beep. beep. beep" as a indication.
- After measurement, if the thermometer is idle in 30 seconds, it will display "OFF" (fig.9.5) and gives a "beep" and shut off automatically.

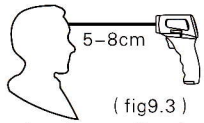


(fig9.1)

(fig9.2)

(fig9.4)

(fig9.5)



(fig9.3)

⚠Notice:

1.Keep the sensor and probe cavity clean before and after use.

2.To ensure the accuracy of measurement, it is recommended to start measurement after ten minutes when carrying the thermometer to a new environment.

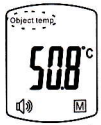
3.Wait for 10 minutes to measure body temperature after measuring extremely high temperature or extremely low temperature objects.

4.Wait for 5 minutes to start a measurement when a measuring target (object or human) is from an environment with enormous difference in temperature.

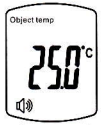
5.Breeze, water, sweating, cosmetic on forehead may affect measurement. Do not measure body temperature in 30 minutes after exercise, bath or meals.

9.2 Object temperature

- Press measurement button to turn on thermometer (fig.9.6).
- Make sure the thermometer is under object mode.
- Keep vertical distance at 5cm to 8cm from object to measu –rement probe. Press measurement button and when it gives a "beep" measurement is finished and value will be displayed (fig.9.7).
- After measurement, if the thermometer is idle in 30 seconds, it will display "OFF" (fig.9.8) and gives a "beep" and shut off automatically.



(fig9.6)



(fig9.7)

(fig9.8)

⚠Notice:

1. The value under this mode is object surface temperature instead of core temperature.
2. The defaulted infrared emissivity is 0.95. The reading will be deviated from the real temperature according to different emissivity. For example, the reading on stainless steel will be obviously lower than real temperature. BE CAUTIOUS FOR SCALDING.

9.3 Exceeding measurement range

Body mode:

When measurement value is lower than 35.5°C, it displays Lo (fig. 9.9) and gives "beep.beep.beep.beep".

When measurement value is higher than 42.0 °C, it displays Hi (fig. 9.10) and gives "beep.beep.beep.beep".

Object mode:

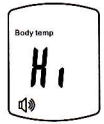
When measurement value is lower than 0°C, it displays Lo (fig. 9.11) and gives "beep.beep.beep.beep".

When measurement value is higher than 118.0 °C, it displays Hi (fig.9.12) and gives "beep.beep.beep.beep".

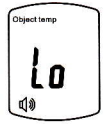
⚠Notice:

When surrounding temperature is lower than 10.0°C or higher than 40.0°C, it displays Err. It's not allowed to measure or accuracy is not assured.

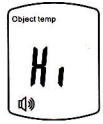
(fig9.9)



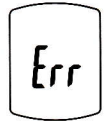
(fig9.10)



(fig9.11)



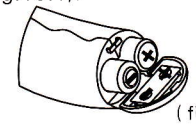
(fig9.12)



(fig9.13)

10. Battery replacement

- Open the battery lid and take out exhausted battery.
- Put into 2 AA alkaline batteries and close up battery lid. After new battery is installed, thermometer will give "Beep.Beep". If there's no beeps, check if the positive and negative pole is correct (see fig.10.1).


(fig10.1)

⚠Notice:

1. Take out battery in case the thermometer is not used for long period. Don't put the battery to fire.
2. Dispose battery according to local regulations.

11. Maintenance & tips

- Make sure the sensor and probe cavity is clean otherwise it will affect accuracy. Cleaning method for probe:
  1. Use the cotton stick or soft cloth with water or alcohol to wipe the casing.
  2. Use the cotton stick or soft cloth with alcohol to wipe the sensor surface or probe cavity gently. Don't use thermometer before alcohol is vaporized.
- Read this manual book thoroughly before use. Make sure battery is well installed.

- It is not allowed to put the thermometer in any liquid or expose to strong sunlight or extremely low temperature.
- Strong crash or hit to the product will cause its damage.
- Do not dismantle this thermometer by yourself.
- Keep the thermometer from children's reach.
- Do not use the thermometer under circumstance of strong electromagnetic interfere.
- The measurement results are probably fluctuating due to improper measurement ways. Please practice adequate measurements in order to improve your skill.
- The measurement results can not supersede a doctor's diagnosis.
- Special maintenance is unnecessary for this thermometer. Please contact distributor or manufacturer in case of malfunction.

12. Trouble shooting

Description	Solutions
LCD display "LO" or "HI"	1.Breeze, water, sweating, cosmetic on forehead may affect measurement. 2.Check deviation value setting. Defaulted value is 0.8°C。 3.While if the testing environmental temp changes so enormously or if the thermometer is used directly from high –temp object to very low–temp one, the measurement difference will happen. The thermometer should be kept in a relative stable environment for 10 minutes to get heat balance before starting a new measurement. 4.Ensure measurement distance is 5cm to 8cm.
No response when pressing measurement button	1.Take out and reassemble battery. 2.Check if the thermometer is under menu setup. In procedure of menu setting, thermometer is unable to measure and therefore no response.
No display or improper display	1.Take out battery and install battery again.
No beeper	1.Check if the beeper is switched off.
Shut off right after switching on	1.Check battery level or take out and install the battery again.

13. Quality commitment & after-sale service

One year guarantee is available since purchasing.
Any damage caused by illegal use or product disassemble will not be covered by guarantee.

⚠Notice:
Please keep your guarantee card and purchase receipt for future repair.