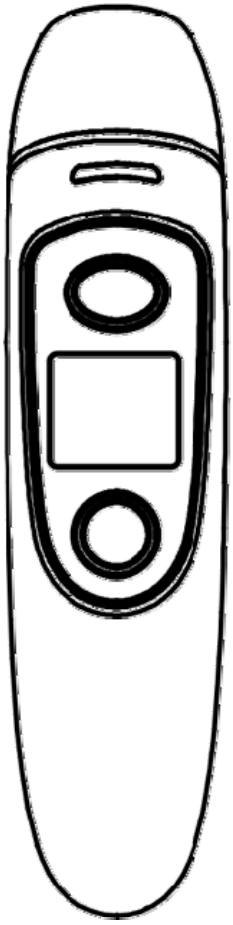
User manual

Operating Manual
Infrared thermometer



Model: FC-IR101

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1. Introduction

FC-IR101 measures the body temperature through receiving the infrared energy radiation from the object of objects. It is with forehead temperature mode, and ear temperature mode. The measurement result directly shows on the LED screen.
The device is widely used for home healthcare, medical institutes and many other occasions.
The product is mainly composed with infrared temperature sensors, signal receiving processor, buttons, buzzer, LED display, battery, etc.

1.1 Indications for Use

The infrared thermometer is intended for the measurement and monitoring of human body temperature by doctor or customers in the hospital or home.

1.2 Safety Information

 **Warnings：**

- Read the instruction manual before using this device.
- The measurement results cannot replace the physician diagnosis.
- The thermometer is placed in the position not touched by children.
- Never point the device at ones' eyes when measuring.
- Do not try to change the product factory settings.
- Use the thermometer in a stable temperature environment. If the environment temperature changes too much, for example from outdoor to indoor, please put the thermometer and wait for about half an hour minutes before measuring.
- After measuring extremely high or low temperature, don't measure body temperatures immediately, you should measure 10 minutes later.
- Prohibit the thermometer into any liquid.
- Don't use in high or low temperature environment for a long time.
- No collision, falling and sharp objects mix, it is forbidden to disassemble the thermometer.
- Don't use in strong electromagnetic interference environment.
- Avoid using the thermometer when drying the hair, drenching water, sweating, and putting on skin cosmetics.
- Don't measure the temperature after doing sports, washing and 30 minutes before dinner.
- Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the thermometer, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.
- No special maintenance is needed to the use process. Please contact the vendor or manufacturer for fault.

2. Principle

Any object in which temperature is higher than absolute zero degree will transmit some infrared radiation energy according to its own temperature. The radiation energy and its

distribution per wavelength are closely associated with its object temperature. Based on the principle, it is possible to measure the forehead object temperature and then adjust the offset between forehead temperature and actual body temperature, which will result in the correct display of body temperature.

3. Product features

- ●Contact-type infrared measurement；
- ●Forehead, ear temperature, dual modes of measurement；
- ●High definition LED backlight, clearly and softly display;
- ●Fever alarm function;
- ●Capacity of storing 35 sets measurements；
- ●Switching between °C and °F
- ●Auto shut-down and power-saving;
- ●Switching between mute and un-mute mode
- ●Can be connected with smart phone via Bluetooth 4.0.

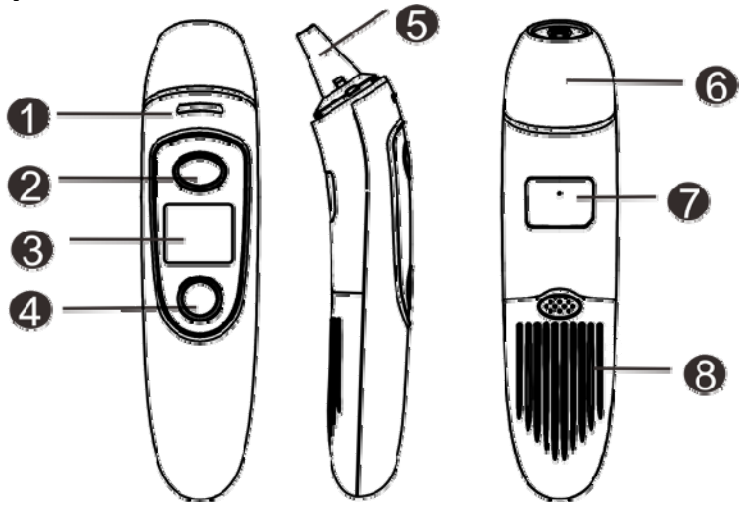
4. Technical parameters

Table 1

Measurement method	Contact-Type	
Measurement Mode	Body Mode	32.0°C～42.9°C（89.6°F~109.2°F)
	object Mode	0°C～100°C(32°F~212F)
Measurement accuracy	Body Mode	±0.2°C/0.4°F
	object Mode	±1.0°C/1.8°F
Display resolution	0.1°C/°F	
Operating environment	15° C ~ 35 ° C (59° F to 95 ° F) ≦ 85% moisture condensation	
Storage condition	- 25 ° ~ 55 ° C - (-13° F to 131 ° F)≦ 90% moisture condensation	
Power supply	DC1.5V×2	
Power consumption	When off ≦ 10 uw	
power-off	When measuring≦ 30 mw	
	In 30 seconds	

Weight	About 70 g (without battery)
Dimensions	160mm *39 mm *27.3mm(length x width x height)
Product accessories	2x AAA batteries and 1x User Manual

5. Shape structure



①Temperature light ②Measure button

③LCD display screen ④Memory/Mute-unmute button

⑤Probe ⑥Probe cover (take it off when measuring ear temperature)

⑦Rating label ⑧Battery cover

6. Display icon definition

1. Temperature value
2. Object temperature mode
3. Forehead temperature mode
4. Ear temperature mode
5. Battery level
6. Mute /Un-mute
7. Fahrenheit / Celsius degrees
8. Bluetooth icon
9. Memory recall

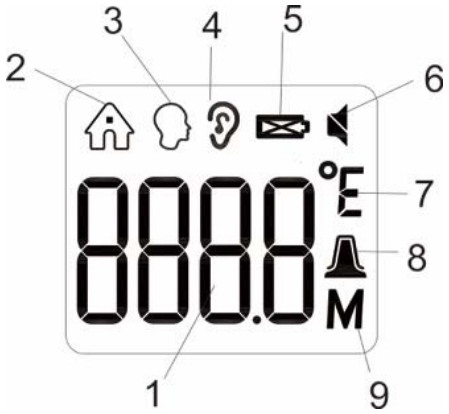
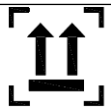


Table 2 Icon Definition Description

Icon	Definition
	Follow instructions for use
	General warning
	Caution
	Don’t dispose with household waste after use

	Flammable and explosive
	Manufacturer
	BF type application device
	Keep dry
	Upward
	Fragile, handle with care
IP22	2 Protected against solid foreign objects of 12,5 mm Ø and greater； 2 If keep the thermometer in 15 degree angle, it still can prevent the water drop.

7. Function keys

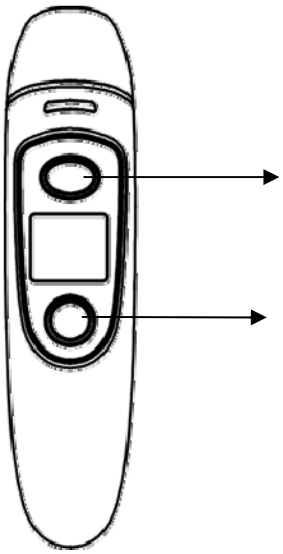


Table 3

Function key	functional description
Measure button	Press to measure
Memory button	Press to get the latest 35 sets memories temp.
Shutdown button	Keep pressing the button for 5-7 seconds, device will power off
Mute and un-mute button	Keep pressing the button for 2-3 seconds to switch from un-mute to mute.
Conversion button	Keep pressing for 5-7 seconds to switch from °F to °C

8. Settings

A: Memory mode：

When power on or power off, press the **Memory/Mute-unmute button** to check the latest 35 sets measurement value.

Note:

a. The record order is 1, 2, 3...35 and so on.

b. The record will be deleted when uninstall the battery.

B: Temperature unit setting：

Keep pressing **Memory/Mute-unmute button** for 5-7 seconds to switch from °F to °C.

C: Switching between mute and un-mute：

When the thermometer is turned on, keep pressing the **Memory/Mute-unmute button** for 2-3 seconds, to switch from un-mute to mute.

D: To turn off

The unit will shut down automatically after 30 seconds of no use. Or you can keep pressing the **Measure button** for 5-7 seconds.

9. Measuring method

9.1 Forehead temperature measurement.

Press the **Measure button** to power on.

Position the thermometer on the forehead, just above the middle of the eyebrow. Press and release the **Measure button** in 1 second, the beep is heard, you can now read the value.

⚠ If the eyebrow area is covered with hair, sweat or dirt, please clean the area beforehand to improve the reading accuracy.

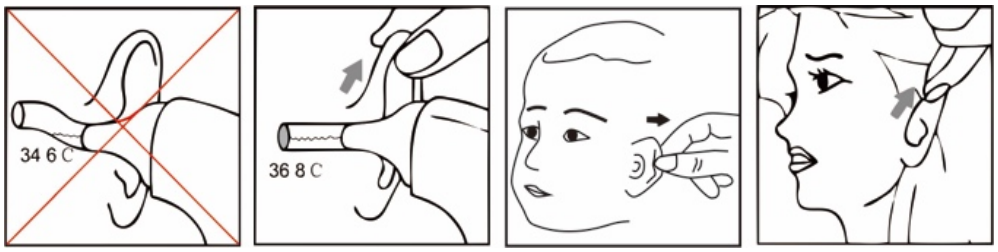
9.2 Ear temperature measurement

Press the **Measure button** to power on.

Take off the probe cover, fit the probe snuggly into the ear canal. Press and release the **Measure button** in 1 second, the beep is heard (in un-mute mode), you can now read the value.

⚠ Please make sure that the ear is clean, with no earwax or obstructions.

⚠ The right ear reading may differ from the reading taken at the left ear. Therefore, always take the temperature in the same ear.



⚠ Children under 1 year: Pull the ear straight back.

Children aged 1 year to adult: Pull the ear up and back.

⚠ Do not force the thermometer into the ear canal. Otherwise, the ear canal may get injured.

⚠ Be careful when taking temperature on a child, whose ear canal is small.

- Keep the battery beyond the child's reach and prevent it from being swallowed. If the battery is swallowed, please contact the doctor immediately.
- The measurement results from thermometer is only for reference and cannot replace the clinical diagnosis result. If feeling abnormal, please consult the doctor in time.

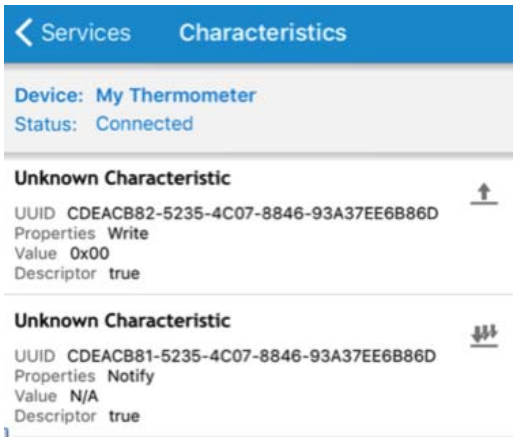
⚠ Caution

1. All memory records will loss when uninstall or reinstall the battery.
2. All settings will come to default when uninstall the battery. If need adjust the settings, please power on and make the new settings.
3. The thermometer will power off automatically after 30s without any operation.

4. When the measurement vale is between 37.5-37.9℃, it is considered low fever, it is suggested to consult the doctor.

9.3 To be connected with your smart phone

1. By searching “nRF Connect” from Android Market or App Store and download the software.
2. Open the Bluetooth of your smart phone.
3. Turn on your thermometer.
4. Search Bluetooth in SCANNER of the software “nRF Connect”
5. Click “CONNECT” in the right side when it shows “My Thermometer”.
6. Click ”Unknown Service”, and then click “Unknown Characteristic”, see the 3 down arrows, clickswipe right to check the data.



10. Replacement of batteries

- The battery life is approx. 3000 readings one year and 90 minutes when in constant use.
- Open the battery cover, and remove the old battery.
- Put in new battery, and take care of the direction of the electrodes.

⚠ Caution

1. When not used for 1 month, please take out the battery to prevent leakage. It is forbidden to put waste battery in the fire.
2. According to local regulations, properly handle the waste batteries to avoid pollution.

11. Cleaning and maintenance

Use only the Finicare-approved substances and methods listed in this chapter to clean or disinfect your equipment. Warranty does not cover damage caused by using unapproved substances or methods.
Finicare has validated the cleaning and disinfection instructions included in this User Manual. It is the responsibility of the healthcare professional to ensure that the instructions are followed so as to ensure adequate cleaning and disinfection.

11.1 General Points

Keep your thermometer free of dust and dirt. To prevent the device from damage, please follow the procedure:

- Use only recommended cleaning substances and disinfectants listed in this manual. Others may cause damage (not covered by warranty), reduce product lifetime or cause safety hazards.
- Always dilute according to the manufacturer's instructions.
- Unless otherwise specified, do not immerse any part of the device in liquid.
- Do not pour liquid onto the system.
- Do not allow liquid to enter the case.
- Never use abrasive material (such as steel wool or silver polish).
- Inspect the device after they are cleaned and disinfected.

 **Warning**

1. If you spill liquid on the probe sensor, LCD or they are accidentally immersed in liquid, contact your service personnel or service engineer.
2. Before cleaning or disinfection make sure that the device is switched off and disconnected from the power line.
3. After cleaning with isopropyl alcohol, allow the thermometer to air dry. Use a soft, dry cloth to clean the thermometer body and LCD display.
4. Do not use abrasive cleaners. Never submerge this thermometer in water or any other liquid.
5. Please keep the inner cavity of the sensors and probes clean, otherwise it will affect the measuring accuracy.

11.2 Cleaning

If the point(s) has been in contact with the patient without the replaceable ear cover co-packaged, e.g. surface of infrared probe and protective cover, then cleaning and disinfection is required after every use to avoid contamination. If there has been no patient contact and there is no visible contamination, including the handle, battery cover and compartment, LCD, keys and inside surface of the protective cover, or when the probe is used with the replaceable ear cover, daily cleaning and disinfection is appropriate, and the suggestion is do it weekly.
The validated cleaning agents for cleaning the monitor and reusable accessories are:

- Isopropanol (70%)

Cleaning agents should be applied and removed using a clean, soft, non-abrasive cloth or paper towel.
To do surface-cleaning to the thermometer, please follow these steps:

1. Switch off the monitor and disconnect it from the power line.
2. Wipe the entire exterior surface, including the handle, battery cover and compartment, LCD, keys and inside surface of the protective cover, of the equipment using a soft cloth dampened with the cleaning solution thoroughly until no visible contaminants remain.
3. Wipe off the cleaning solution with a fresh cloth or towel, dampened with tap water after cleaning until no visible cleaning agent remains.
4. Dry the monitor in a ventilated and cool place.

11.3 Disinfection

If the point(s) has been in contact with the patient without the replaceable ear cover co-packaged, e.g. surface of infrared probe and protective cover, then cleaning and disinfection is required after every use to avoid patient cross infection. If there has been no patient contact and there is no visible contamination, including the handle, battery cover and compartment, LCD, keys and inside surface of the protective cover, or when the probe is used with the replaceable ear cover, daily cleaning and disinfection is appropriate, and the suggestion is do it weekly.
For the whole unit, low level disinfection is appropriate since it is a complete surface contacting device. Clean the device before disinfection. The validated disinfectant for cleaning the device is:

- Isopropanol (70%)

Since Isopropanol is used for both cleaning and disinfecting, a new cloth is required to be used for the disinfection step.

To disinfect the monitor, follow these steps:

1. Switch off the monitor and disconnect it from the power line.
2. Wipe the display screen using a soft, clean cloth dampened with the disinfectant solution.
3. Wipe the exterior surface of the equipment using a soft cloth dampened with the disinfectant solution.
4. Wipe off the disinfectant solution with a dry cloth after disinfection if necessary
5. Dry the monitor for at least 30 minutes in a ventilated and cool place.

12. Troubleshooting

Table 4

Diagnosis	Solution
The screen shows " Hi " or "Lo”	1. Check the measurement object. It is unable to ensure the measurement of the forehead hair, water, sweating, and applying cosmetics case. 2. Check the operation environment. Environment changes will greatly influence the measurement. 3. Temperature change is too big or the thermometer tests target of low temperature immediately after being switched from a high temperature measuring. It's better to use after 5 minutes to achieve a new heat balance.

	4. The measured body temperature is higher than 42.9° C or lower than 32.0 ° C。 5. The measured object is not correct.
The screen shows "Er1”	1. The environment temperature is exceed the normal working arrange which is 15° C ~ 35 ° C (59° F to 95 ° F)
Buttons have no response	2. Load and unload the battery 3. Check if the setting is in the progress
No display or display abnormal	Unload the battery and load again
Power off when open	Check the battery, load and unload the battery again

13. EMC information

Table 5

Guidance and manufacturer ’s declaration-electromagnetic emissions		
The FC-IR101 is intended for using in the electromagnetic environment specified below. The customer or the user of the FC-IR101 should assure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment-guidance**
RF emissions CISPR 11	Group 1	The FC-IR101 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause and interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The FC-IR101 is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	N/A	
Voltage fluctuations /flicker emissions IEC 61000-3-3	N/A	

Table 6

Guidance and manufacturer ’s declaration-electromagnetic immunity			
The FC-IR101 is intended for use in the electromagnetic environment specified below. The customer or the user of the FC-IR101 should assure that it is used in such an environment.			
Immunity test	**IEC60601 test level**	**Compliance level**	**Electromagnetic environment -guidance**

Electrostatic discharge (ESD) IEC 61000-4-2	±2,±4,±6kV for Contact discharge ±2,±4,±8kV air discharge	±2,±4,±6 kV for Contact discharge ±2,±4,±8kV air discharge	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%
Electrical fast transient/burst IEC 61000-4-4	±2 kV for a.c. power lines ±1 kV for d.c. power lines	N/A	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	N/A	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations in power supply input lines IEC 61000-4-11	<5%U_T (>95 dip inU_T) for 0.5 cycle 40%U_T (60% dip inU_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5%U_T (>95% dip inU_T for 5 s	N/A	Mains power quality should be that of a typical commercial or hospital environment. If the user of the FC-IR101 requires continued operation during power mains interruptions, it is recommended that the FC-IR101 be powered from an uninterrupted power supply or a battery
Power frequency (50/60Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment
NOTEU_T is the a.c. mains voltage prior to application of the test level.			

Table 7

Guidance and manufacturer ’s declaration-electromagnetic immunity
The FC-IR101 is intended for use in the electromagnetic environment specified below. The customer or the user of the FC-IR101 should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Conducted RF IEC 61000-4-6	3Vrms 150kHz to 80MHz	N/A	Portable and mobile RF communications equipment should be used no closer to any part of the FC-IR101 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*
Radiated RF IEC 61000-4-3	3V/m 80kHz to 2.5GHz	3V/m	*d*=1.2 *P* 80MHz to 800MHz *d*=2.3 *P* 800MHz to 2.5MHz Here *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 meters (m). Field strengths form fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance b level in each frequency range Interference may occur in the vicinity of equipment marked with the following symbol: 
NOTE 1 At 90MHz and 800MHz, 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 FC-IR101is used exceeds the applicable RF compliance level above, the FC-IR101 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the FC-IR101 b Over the frequency range 150kHz to 80MHz, field strengths should be less than 3V/m.			

Table 8

Recommended separation distances between portable and mobile RF communications equipment and the FC-IR101

The FC-IR101 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the FC-IR101 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the FC-IR101 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**		
Rated maximum output power	**150kHz to 80MHz** $d = 1.2\ P$	**80MHz to 800MHz** $d = 1.2\ P$	**800MHz to** 2.5GHz $d = 2.3\ P$
0.01	0.01	0.12	0.23
0.1	0.1	0.38	0.73
1	1	1.2	2.3
10	10	3.8	7.3
100	100	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 80MHz and 800MHz, 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.

14. Commitment to quality and after-sales service

This product provides 1 year free maintenance service.

Note: The free service does not include the failure and damage due to user's personal reasons or unauthorized disassembling.

⚠ Caution

Please keep the purchase vouchers to facilitate future maintenance.

15. Manufacturer information

Shenzhen Finicare Co., Ltd

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Federal Communications Commission (FCC) Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications made to this device not expressly approved by **Shenzhen Finicare Co., Ltd** may void the FCC authorization to operate this device.

Note: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.