Electronic thermometer

Product operation manual

Dear users, thank you for choosing our company's electronic thermometer （RIT-P02-MED、RIT-P02-RR、RIT-P02-RS、RIT-P02-MM and RIT-P02-R1）. In order to better understand this product and correct use, please read this instruction carefully and keep it properly.

[Statement]

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2. Refresh intelligent company may upgrade the product due to some requirements, and the accompanying manual will also be upgraded. Any change to this manual is subject to no prior notice, please understand.
3. Before using this product, medical institutions, doctors or patients should carefully read all the contents of this manual. If you need detailed understanding, please contact after-sales service.
4.The picture may be different from the physical appearance, please refer to the physical.

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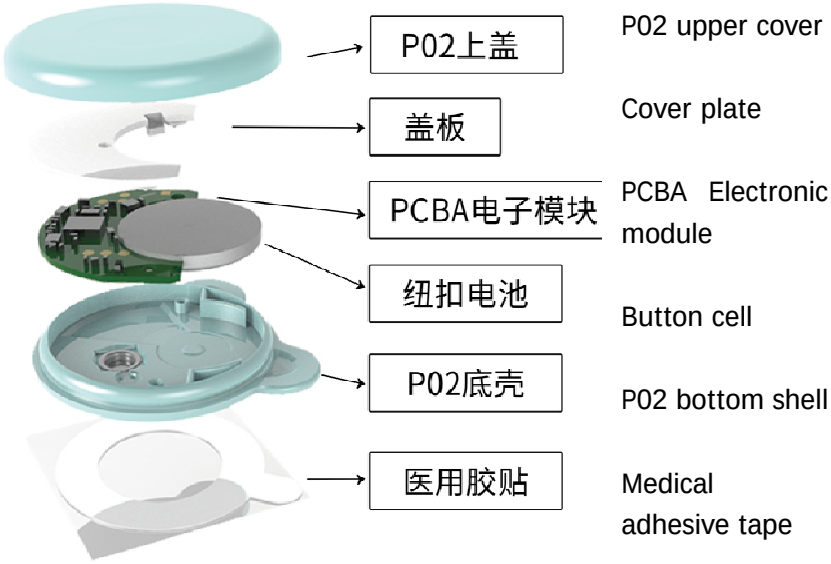
Chapter 1 Product introduction

1. Product introduction

This product is a wearable intelligent temperature detection device. It uses the temperature sensor at the bottom of the device to measure the temperature quickly and accurately.The thermometer is small in size, skin-friendly on the bottom, portable and convenient. It can be worn continuously for 24 hours to monitor body temperature.



Software Interface Product Structure Diagram

2. Product features

- Comfortable wearing: small size, skin-friendly design;
- Continuous monitoring: 24-hour continuous monitoring and data viewing on APP;
- Over temperature alarm: the device will prompt if the set temperature is exceeded;
- Economical and convenient: button cell can be replaced and the electronic thermometer can be used repeatedly;
- Report sharing: automatically generate test report, which can be publised to WeChat;

3. Product name and model

Product name:Electronic thermometer

Model and specification

Model	Structure	Color
RIT-P02-MED	Bear-look, flashing indicator light	Blue
RIT-P02-MM	Bear-look, flashing indicator light	White
RIT-P02-RR	Circle-look，Vertical indicator light	White
RIT-P02-RS	Circle-look，ring indicator light	White
RIT-P02-R1	Circular, annular indicator light	White

4. Structure and components

This product is composed of mainframe, button cell, medical adhesive and mobile terminal application software.

5. Application

Applicable to the continuousmeasurement of body temperature.

6. Working environment

Applicable to the continuous measurement of body temperature by family or medical institution. The environmental requirements are as follows:

	Working environment	Storage and transport
Temperature	-10℃～+55℃	-25℃～+55℃
Humidity	10%RH～93%RH	10%RH～93%RH
Atmospheric pressure	70kpa～106kPa	50kpa～106kPa

7. Parameters

Power mode	Internal power
Safety type	type BF for application part
Button cell specification	CR1220 button cell
Voltage	2.5~3.6V (note:load pressure)
Dimension	Bear-look: 23.12mm×23.70mm×3.6mm，diameter 22.6mm；

	Circular：thickness4.4mm，diameter 25.3mm	
Weight	Bear-look: about 2.0g Circular: about 3.9g	
Temperature range	25.0℃~45.0℃	
Measurement error	±0.3℃（25.0℃~45.0℃）；	
Display resolution	0.1℃	
Transmission distance	10m(in open,without wall place)	
Temperature unit	Celsius(℃)or Fahrenheit(℉)	
Waterproof level	IP22	
Bluetooth	Operational Frequency range	2402-2480MHz;
	Maximum power	0 dB，10mw
	Modes	GFSK

8. Contraindications

People with damaged or inflamed skin are prohibited

9. Precautions, warnings and notes

Safety precautions

- Do not disassemble the product except to install or replace the button cell.
- Do not use in places with strong electromagnetics, since the bluetooth signal transmission may be interfered.
- Before and after the measurement, it is recommended to use medical alcohol to wipe the temperature sensing parts and body parts of the electronic thermometer for disinfection.
- After each use, please put the electronic thermometer into a clean storage box and keep it in a dry and ventilated place.
- Please do not place the electronic thermometer directly in water or other liquids for cleaning.
- Medical adhesive is a disposable consumable material. It is only used by one person. It should not be applied to many people to avoid cross infection.
- Medical adhesive has great stickiness. Make sure there is no hair on the adhesive

site before pasting.

- When the adhesive is torn off the skin, please tear it carefully and slowly to prevent the skin or pore injury caused by the strong stickiness of the adhesive.
- Continuous body temperature measurements should be conducted regularly. Due to sweating at the measuring part, the adhesive loses its stickiness. Please replace the adhesive in time.
- The effective wireless transmission distance of host in accessible environment is 10 meters. Human tissues will affect the transmission of wireless signals. When placed in the axillary temperature measurement, the effective transmission range of signals will be reduced.
- All illustrations provided in this manual are for reference only. The illustrations may not be completely consistent with your product.
- Do not use electronic thermometer for a period of time, please take out the batteries in the thermometer.

Warnings

- In order to offer a maximum comfort for children to wear and use, we design the device with maximum system integration. Because of its small size, please use it safely and avoid children swallow it accidentally. Children under 6 years can only use it by the help of their parents.
- Please dispose the button cell properly to avoid environmental pollution. Keep product and button batteries out of reach of children to prevent swallowing. If it swallowed by children, take them to the hospital for treatment immediately.
- The test results cannot be used for self-diagnosis. Self-diagnosis and treatment is dangerous and you should follow the doctor's diagnosis.
- If you have a fever for a long time, go to the hospital as soon as possible.
- This electronic thermometer is only used to measure the temperature of the armpit in human body, do not use it to measure other parts (such as forehead, mouth, ears).
- Do not use this product in the environment of flammable anesthetic gases.
- Because the temperature measurement results are affected by many factors, the temperature readings obtained by this device are only for reference.

- Do not put this product into the fire, its internal battery and other components may explode in the fire.
- Read carefully and follow the instructions to ensure that the product can work normally for a long time and the temperature readings are accurate.
- Any changes or modifications not expressly approved by the party responsible for compliance could void the users authority to operate this equipment.
- This device complieswith part 15 of the FCC Rules. Operation is subject to the following twoconditions: (1) This device may not cause harmful interference, and (2) thisdevice must accept any interference received, including interference that maycause 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.

10. Packing list

Electronic thermometer x1, Storage box x1, CR1220 button cells x2，Open tools x1

User manual x1,Medical adhesive tape x1,Protective jacket(optional) x3，Service card x1

11. Symbols and description

Symbol	**Description**
	Notice, Check the random files
	Type BF for application part
	Cannot be discarded at will
IP22	Dustproof grade is 2, waterproof grade is 2
	Reference instruction
	Bluetooth device
	Non-ionizing radiation
	The service life is 3 years
	This device complies with part 15 of the FCC Rules.

Chapter 2 Application

1. Software download

- The Android user download the client software, which can be downloaded through the application market, or scan the QR code below to download directly.

- iOS users can also search "YoYo Patch" in the app store and click to download it.

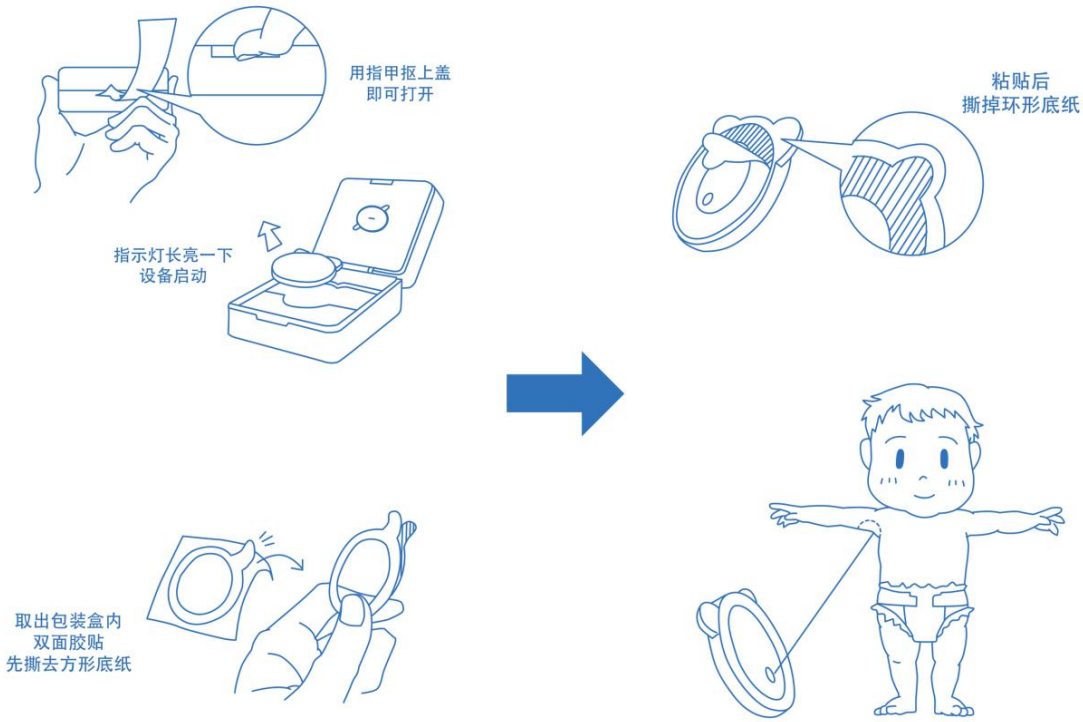
2. Devices that software supports

- Android devices: run Android 5.0 and higher level systems and support android devices with bluetooth 4.2.
- Apple devices: run iOS 9.0 and higher level systems and support apple devices with bluetooth 4.2.

3. Electronic thermometer wearing and application

- Open the package.
- Take out the electronic thermometer from the storage box and the device will start up automatically; If the light does not flicker, it means that the button cell is not installed or it is run out of the button cell, please refer to **Button cell replacement.**
- Start the APP client, please refer to **Software download** if you haven't install the APP.
- Take a piece of medical adhesive and stick it to the side of the thermometer with temperature sensor. Then stick the thermometer to the axillary part (if there is sweat under the axilla, wipe it first).
- Turn on bluetooth of the mobile phone, scan and connect the device, ensure the device is worn well, and start the test.
- The device starts to continuously monitor the temperature and update the temperature data every 3 seconds.

- During the test, process events can be recorded in the APP, alarms can be set and test reports can be generated and etc.
- After use, gently remove the device, tear off the double coated medical tape on the back of the device, put it into the storage box, and the device will automatically enter the sleep status.



Schematic diagram of electronic thermometer

Take out the Medical adhesive tape and the standby button cell from the storage box

Tear off the squre-shaped backing paper first

Tear off the ring-shaped backing paper after pasted

4. Button cell replacement

- Withhold the grooved part on the two sides of the thermometer by your thumb,open the lid upwards;
- Press on the edge of the button cell by your nail,the button cell will pop up automatically. Load new button button cell with positive pole downwards;
- Close the lid (the lid has no direction), check the lid around, and ensure the lid is closed properly;

Press your finger on the edge of the button cell and the it pops up

5. Cleaning and sterilization

- **Cleaning:**

If there is dirt on the device or temperature sensing parts, use a small amount of water or neutral cleaner on a clean soft cloth and wring it dry before wiping.

Do not use acidic or alkaline cleaners.

- **Sterilization:**

Before and after use, wipe the temperature sensing parts and device with a small amount of 75% medical alcohol with a clean soft cloth. Let it dry naturally.

(Note: please do not put the electronic thermometer into the liquid to clean or sterilize it. Prevent the liquid flow into the electronic thermometer.)

Chapter 3 Maintenance and troubleshooting

Maintenance

After use, put the electronic thermometer in a clean storage box and keep it in a ventilated, dry and dust-free place.

When using it, try to prevent the electronic thermometer from falling or forceful collision, so as not to damage the internal devices.

Do not use acetone, gasoline and other strong solvent for cleaning.

Troubleshooting

Situations	Possible causes	Solutions
The rear light does not flash when the device is taken out from the storage box and cannot be connected	A. Button cell is out of power	A、Replace new button cell with the same type(type：CR1220)
	B. No button cell is installed	B、Install new button cell with the same type (type：CR1220)
	C. Wrong polarity of button cell	C. Load the button cell according to the correct polarity
The device flashes but the phone cannot be connected	A. Bluetooth is not turned on	A. turn on bluetooth
	B. It is too far from the equipment or the signal is blocked by obstacles	B. Take the phone connected near to the device
	C. The equipment is occupied during the operation	Apply for authorization or reset the device
No data transmits to the APP	The device stops working or disconnects	A. Turn off the APP and restart, or close the device and restart; B. If A cannot be solved and the button cell power is normal, please contact the customer service;

Chapter 4 Electromagnetic compatibility

Electromagnetic compatibility statement

⚠Notice：

Electronic thermometer(RIT-P02-MED、RIT-P02-RR、RIT-P02-RS、RIT-P02-MM、RIT-P02-R1) meets the relevant requirements of electromagnetic compatibility of YY0505 standard;

The user shall install and use the device by the electromagnetic compatibility information provided by the random file;

Portable and mobile RF communication equipment may affect the performance. Avoid strong electromagnetic interference when using, such as close to the mobile phone, microwave oven, etc.

Please refer to the attachment for the guidance and manufacturer's statement.

⚠Warning：

Electronic thermometer(RIT-P02-MED、RIT-P02-RR、RIT-P02-RS、RIT-P02-MM、RIT-P02-R1) shall not be used close to or stacked with other equipment. If it has to be used close or stacked with other equipment, it should be observed to verify that it works properly under the configuration it uses.

In addition to the cables sold by the manufacturer as spare parts for internal components, the use of accessories and cables other than those specified may result in increased emission or reduced anti-interference of the product.

Even if other equipment conforms to the corresponding national standard emission requirements, the equipment may still be interfered by other equipment.

The bluetooth receiving and transmitting working frequency of medical electronic thermometer is 2.402GHz-2.480GHzISM frequency band, and channel bandwidth is 2MHz. The frequency hopping technique GFSK modulation is adopted, and the transmitted power is CLASS2 with the maximum transmitted power of 0dbm (typical).

Guide and manufacturer's statement - Electromagnetic emission

Electronic thermometer(RIT-P02-MED、RIT-P02-RR、RIT-P02-RS、RIT-P02-MM、RIT-P02-R1) is intended to be used in the electromagnetic environment specified below. The purchaser or user of the		
Emission test	Conformity	Electromagnetic environment - guide
Radio-frequency emission GB4824	Group 1	Radio frequency energy is used only for internal functions of the device. As a result, it has very low radio-frequency emission and is unlikely to interfere with nearby electronic devices.
Radio-frequency emission GB4824	Class B	The equipment is suitable for use in all facilities, including household facilities and directly connected to public low-voltage power supply network of the household residential
Harmonic emission GB17625.1	Not applicable	
Pressure fluctuation/scintillation emission GB17625.2	Not applicable	

Guide and manufacturer's statement –Electromagnetic immunity			
Electronic thermometer(RIT-P02-MED、RIT-P02-RR、RIT-P02-RS、RIT-P02-MM、RIT-P02-R1) is intended to be used in the electromagnetic environment specified below. The purchaser or user of the device shall ensure that it is used in such an electromagnetic environment			
Immunity test	Test level	Qualified level	Electromagnetic environment - guide
Electrostatic discharge GB/T17626.2	±2kV/±4kV/±6Kv contact discharge ±2kV/±4kV/±8Kv air discharge	±2kV/±4kV/±6Kv contact discharge ±2kV/±4kV/±8Kv air discharge	The floor should be wood, concrete or tile, and if the floor is covered with synthetic material, relative humidity should be at least 30%.

Electrical fast transient pulse train GB/T17626.4	±2Kv for power cord ±1Kv for input /output line	Not applicable	Not applicable
Surge GB/T17626.5	±1Kv differential mode voltage ±2kV common mode voltage	Not applicable	Not applicable
Voltage sag temporarily on power supply input line, short - term interruption and voltage variation GB/T17626.11	<5%UT, continue 0.5 cycle （above UT,>95% sage ） 40%UT, continue 5 cycles （above UT,60% sage） 70%UT ， continue 25 cycles （above UT,30% sag） <5%UT,continue 5s （above UT,>95% sage）	Not applicable	Not applicable
Power frequency magnetic field（50/60Hz） GB/T17626.8	3A/m	3A/m,50/60Hz	Power frequency magnetic fields should have the characteristics of power frequency magnetic fields in typical commercial or hospital environments.
Note: UT means the ac network voltage before the test voltage is applied			

Guide and manufacturer's statement –Electromagnetic immunity

Electronic thermometer(RIT-P02-MED、RIT-P02-RR、RIT-P02-RS、RIT-P02-MM、RIT-P02-R1) is intended to be used in the electromagnetic environment specified below. The purchaser or user of the device shall ensure that it is used in such an electromagnetic environment			
Immunity test	Test level	Qualified level	Electromagnetic environment - guide
Radio-frequency conduction GB/T17626.6 Radio-frequency radiation GB/T17626.3	3V(effective value) 150kHz ～ 80MHz 3V/m/10V/m 80MHz ～ 2.5GHz	Not applicable 3V/m	Portable and mobile RF communication equipment shall not be used closer to any part of the recommended isolation distance, including cables. The distance shall be calculated by a formula corresponding to the transmitter frequency. Recommended isolation distance d= $1.2\sqrt{P}$ d= $1.2\sqrt{P}$ 80MHz～800MHz d= $2.3\sqrt{P}$ 800MHz～2.5GHz in the formula: P — The maximum rated output power of the transmitter, in watts (W), provided by the transmitter manufacturer； d—The recommended isolation distance , in meters (m)b。 The field intensity of a stationary radio frequency transmitter is determined by an investigation of the electromagnetic field c, which should be lower than the coincidence level at each frequency range d. Interference may occur near devices marked with

			the following symbols.

Note 1: Use formula with higher frequency band at 80MHz and 800MHz frequency.

Note 2: These guideles may not be applicable for all situations, where electromagnetic transmission is affected by absorption and reflection by buildings, objects and the human body.

Recommended isolation distance between portable and mobile radio frequency communication devices and this device

Electronic thermometer(RIT-P02-MED、RIT-P02-RR、RIT-P02-RS、RIT-P02-MM、RIT-P02-R1)is intended for use in electromagnetic environments where rf radiation disturbance is controlled. Based on the maximum rated output power of the communication device, the purchaser or user may prevent electromagnetic interference by maintaining a minimum distance between portable and mobile radio frequency communication devices (transmitter) and (this device) as recommended below.

The rated maximum output power of the transmitter /W	Isolation distance corresponding to the different frequency of the transmitter /m		
0.01	Not applicable	0.12	0.23
0.1	Not applicable	0.38	0.73
1	Not applicable	1.2	2.3
10	Not applicable	3.8	7.3
100	Not applicable	12	23

For the transmitter rated maximum output power not listed in the above table, the recommended isolation distance is d,in meters (m). It can be determined by the formula in the corresponding transmitter frequency bar. Here P is the maximum output rating of the transmitter, in watts (W), provided by the transmitter manufacturer.

Note 1: Use formula with higher frequency band at 80MHz and 800MHz frequency.

Note 2: These guideles may not be applicable for all situations, where electromagnetic transmission is affected by absorption and reflection by buildings, objects and the human body.

Chapter 5 Warranty

Warranty card

Product information

Product name		
Model		Product number
Purchase date		

Customer information

Name		Contact number	
Delivery address			

Explaination

Dear users,

In order to enjoy our good service well, please read the following carefully. With this card and the invoice , we will provide you with the following after-sales service:

The whole device is guaranteed for one year from the date of sale (subject to the invoice date) with lifetime paid maintenance.

Under any of the following circumstances, maintenance shall be charged;

1. Products no longer under the warranty period;
2. Products damaged due to transportation, improper storage or failure to operate in accordance with the instructions;
3. Self-disassembling products;
4. Products without warranty card and invoice;
5. No product number or unclear number.

Please keep this warranty card properly for maintenance proof!