babyFever Smart Thermometer

Product Manual

Ref.20170715Mjy-1

Model: TB-100

English

English

Shenzhen Ming Jin Yuan Technology Co., Ltd.

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EC REP

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AFTER-SALES SERVICE

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The first release data of this instruction for use: 2017.07.15 Versions: A/0

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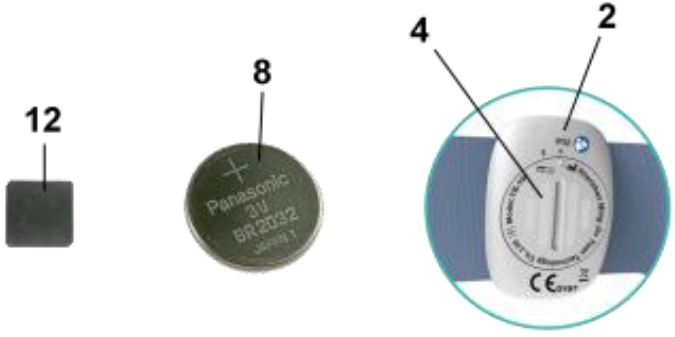
1. PRODUCT BRIEF INTRODUCTION

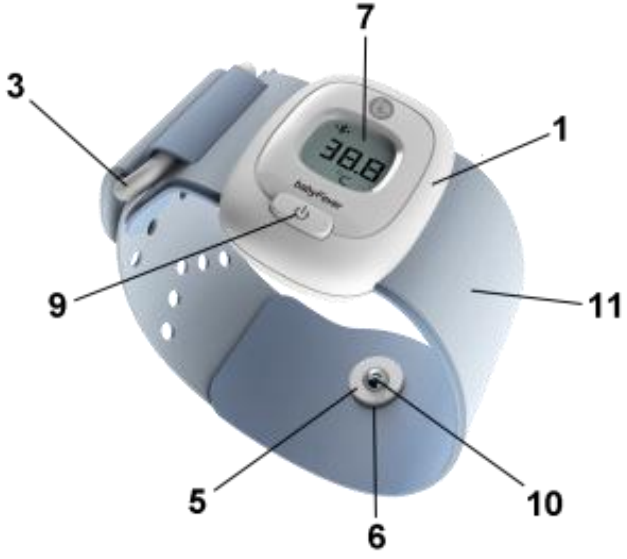
Product name: babyFever Smart Thermometer
Product model specifications: TB-100

2. PRODUCT INTENDED USE

The babyFever Smart Thermometer is used for intermittently/continuously measurement of axillary temperature for infants and children (3 months to 4 years old) in household and medical units.

3. PRIMARY STRUCTURE OF THE PRODUCT





Nº	Part Name	Materials
1	Thermometer surface shell	PC
2	Thermometer bottom shell	PC
3	Arm belt ring	PC
4	Battery cover	PC
5	Sensor surface shell	PC
6	Sensor bottom shell	PC
7	LCD bracket	PC
8	CR2032 battery	Li
9	Button	PC
10	Temperature sensor point	Stainless steel
11	Arm belt	Nylon
12	Opening tool	Stainless steel

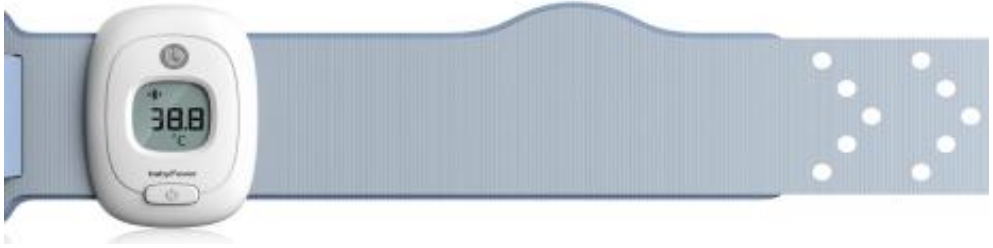
Note: Thermometer surface shell, thermometer bottom shell, arm belt ring, battery cover, sensor surface shell, arm belt, sensor bottom shell, button, temperature sensor point, and opening tool may touch user skin.

4. PRODUCT MODEL DIFFERENCE TABLE

Not applicable

5. PRODUCT SPECIFICATIONS

Module	TB-100
Operation principle	Firstly, the thermistor which is at top of the measuring part works as a temperature transmitter. Secondly, while the target temperature changed, the value of the thermistor will change with it. Meanwhile, Bluetooth chip will calibrate and deal with the value of the circuit thermistor, the Bluetooth chip will transmit the temperature data and changing curve to mobile device for display through Bluetooth connection.
Structure	The babyFever Thermometer is mainly composed of a host, temperature probe, battery and medical arm belt (while temperature probe is composed of a temperature cap and a sensor).
Power supply	CR2032 Button battery, DC 3V, 210mAh
Battery life	1000hours (approximately)
Shape	The shape of bracelet
Dimension (cm)	24.5 x 4.0 x 1.2 cm
Weight	16g（excluding battery)

Range	32°C ~ 43°C (89.6°F ~109.4°F)
Accuracy	±0.1°C (Before the product leave the manufacture, for the metrological verification, to ensure the accuracy of measurement)
Units	It can change the unit °C or °F
Data acquisition time of device	Once every 2 seconds
Device transient response time	15 seconds
The time required to obtain a steady reading	At least 5 minutes
Bluetooth operation distance	10 meters (effective distance in a barrier-free environment)
IP Rating	IP22
Working current	0.12mA
Working voltage	3V
Electrical safety classification	External power supply type BF device
Product picture	

Environmental requirements	Thermometer	Humidity	Atmospheric pressure
Working	+5°C~+40°C (+41°F~+104°F)	<85%RH	860hpa~1050hpa
Storage/Transport	-20°C~+50°C (-4°F~+122°F)	<85%RH	860hpa~1050hpa

6. ACCESSORIES AND PARTS

6.1. Packaging list

Nº	Object	Material code	Quantity
01	Thermometer	3.0100007	1
02	CR2032 Button battery	1.0100013	1
03	Instruction manual (include warranty card)	1.0300014	1
04	Opening tool	1.0300026	1

6.2 Product design

- Battery cover magnetic end of the design.
- Double injection molding. Bayer quality polycarbonate molds.
- Product shell scrub the surface.

Exquisite craftmanship and design

7. INSTRUCTIONS OF ACCESSORIES, CONSUMABLES REPLACEMENT CYCLE AND METHOD

For CR2032 button battery, when the device shows low battery capacity, please replace the battery according to the guideline of instruction for use and user can check the power in the APP. Detailed installation guidelines please refer to “Upload Battery”.

8. FEATURES

- Support 24 hours continuously monitoring of temperature change. When it measures temperature with correct method, we start measuring. The APP draw a temperature point every 2 minutes, and then the APP will drawing curve according to these temperature points.
- With high accuracy, auto high temperature alert, prompt actions on health risks, easy for you to work and sleep without worries.
- Small and easy to use, with only 1.2cm of thickness
- Low power consumption Bluetooth (BLE4.0) wireless transmission. With iOS or Android App for babyFever Smart Temperature measuring.
- Specialized App design for parents, easy to use.
- Smart power supply management with low power-consumption. It will automatically turn off when lower than human temperature.

- Support platforms of iOS 8.0 or above, Android 4.3 or above, support devices including smart phones, Pads.
- Auto alert through voice and message when real-time temperature exceeds the self-defined temperature.
- Bluetooth anti-loss function.
- Share data and multi-user sharing.

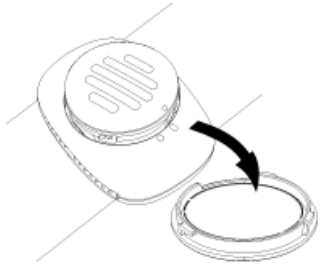
9. INSTALLATION AND OPERATION GUIDELINES

9.1. Download APP

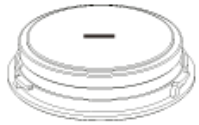
Please scan QR code or access to website **thermoblue.com** for download the software according your smart device OS.

9.2 Upload Battery

1. Rotate the battery cover with the tool counterclockwise to align it to the left 15 degree concave point



2. Remove the battery covert



3. Put the battery into the device according to the polarity markings in the diagram

4. Use the tool to tighten the battery cover clockwise

9.3 Wearing Description

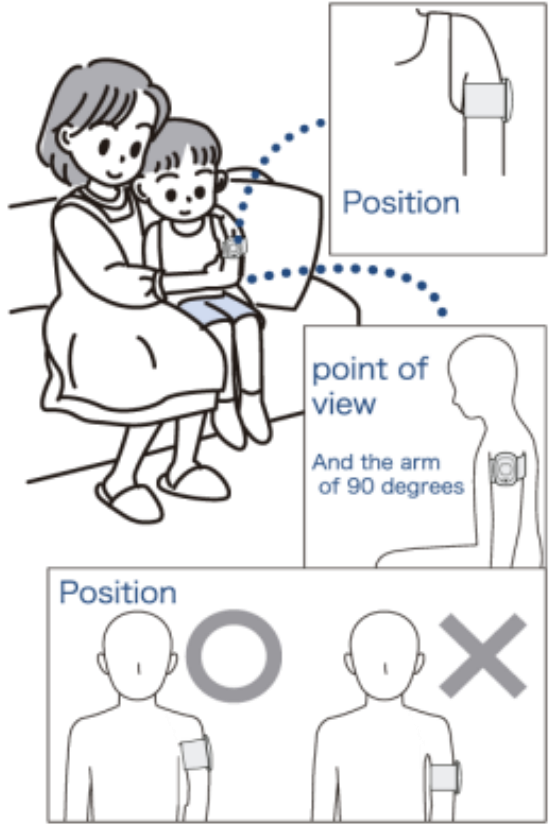
If your child is a baby please hold the arm, to prevent loosening.

If you do not use the correct method of measurement, may not be able to obtain accurate temperature.

The correct way of wearing

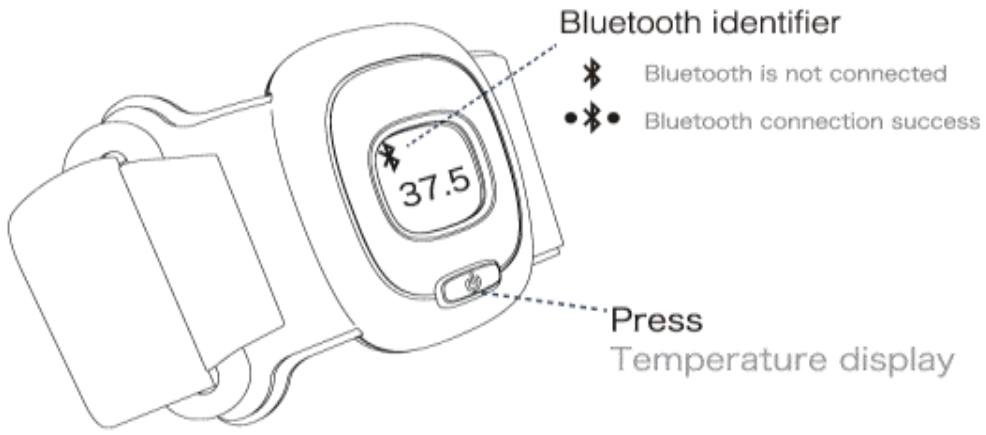
- Put in the armpit

- Clamping



9.4 Build Connection

Firstly, open the app and click the "Power button" and find the device type TB-100, and click "connect" (effective distance is 10m without obstacle).Then, you will find the Bluetooth icon as the following picture on the screen display.



9.5 Displays the status of product use

A. Product screen display in the required working environment: Bluetooth icon, temperature readings and °C.

B. After five minutes without any operation, the screen will automatically turn off the screen display.

C. When the battery level is lower than 10%, the upper right corner appears ▭.

D. The screen does not show the specific battery usage, please check the battery usage in the APP Setup option.

Displays the status of product use

10. APP INSTRUCTIONS

Example: iOS devices

10.1 BT connection

When you wanna connect device, please open the Bluetooth on the phone and then open the app, click the “Power button” of the device image in the app (Figure 1), please follow steps as below.

Figure 1

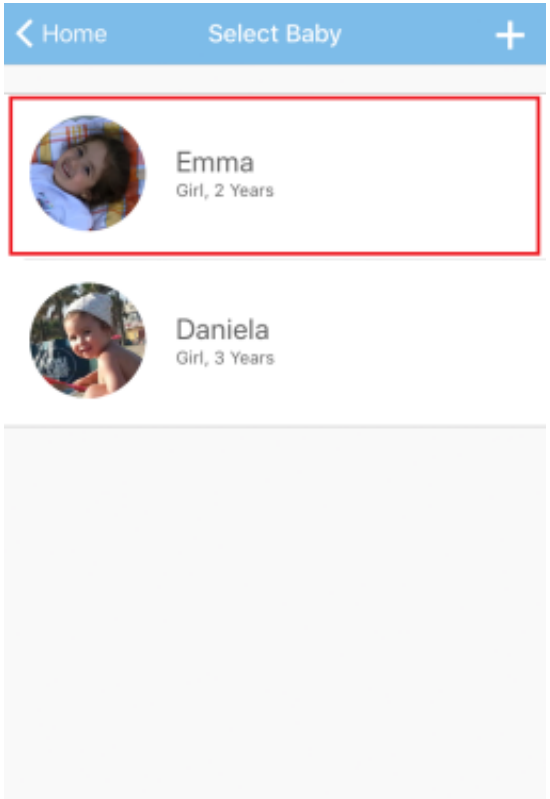


Figure 2

Figure 3

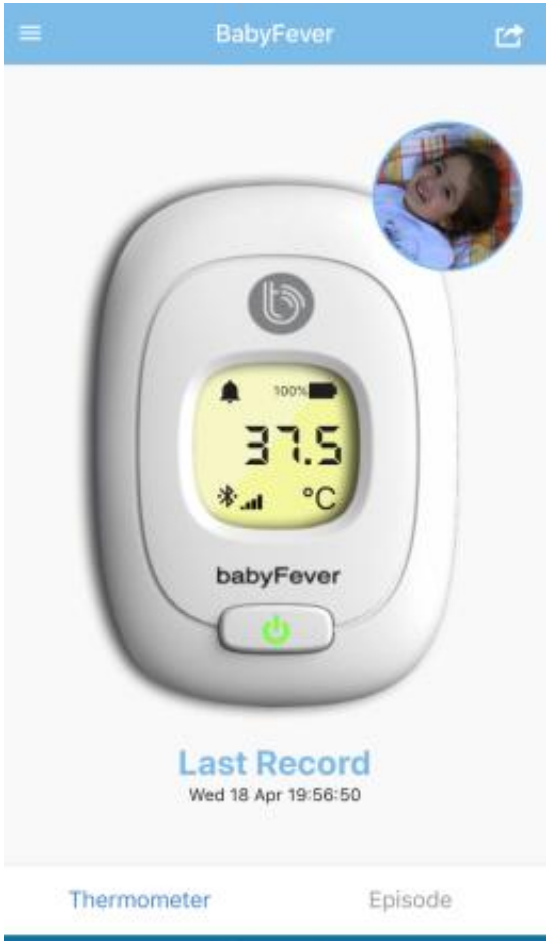


Figure 4

After click “Power button” of the device image in the app, there would be a baby select page. Select a baby from the list (Figure 2); if it does not exist you can create a new one (the creation process is explained in the following section). Finally, on the device search page, search relative device (Figure 3) and build the connection (Figure 4).

Notice: The initial name of the thermometer Type is “TB-100”. Please confirm the right device according to the MAC address under the device name.

10.2 Add baby members

Note: When you first use the device, you need add a baby to measure.

Click on the option "My babies", in the main menu (Figure 5), you can add (Figure 6.1), delete (Figure 6.2) or edit (Figure 6.3) the information (Figure 7) of the baby.

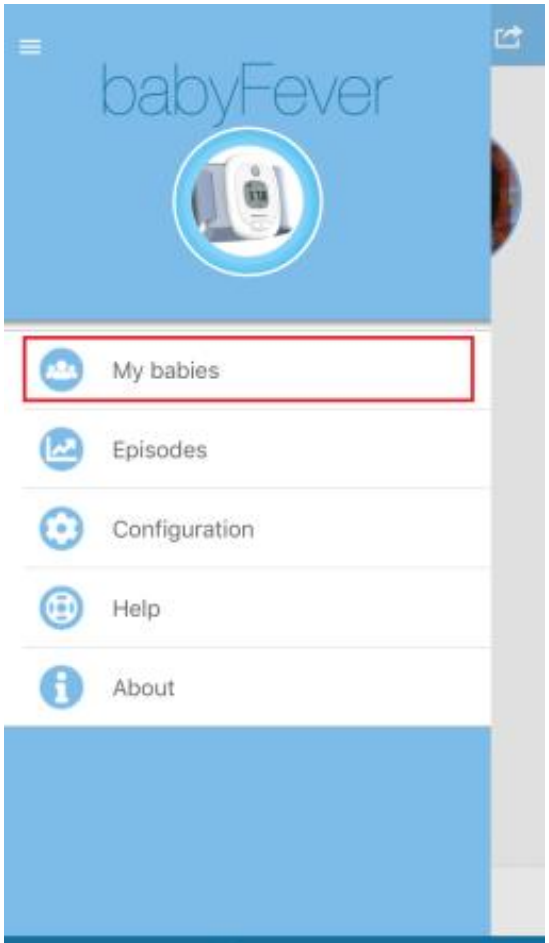


Figure 5

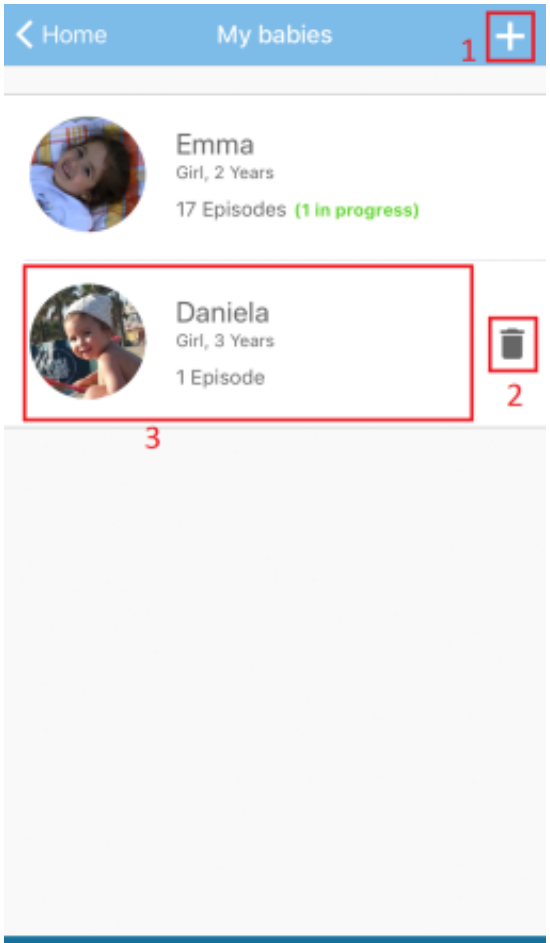


Figure 6

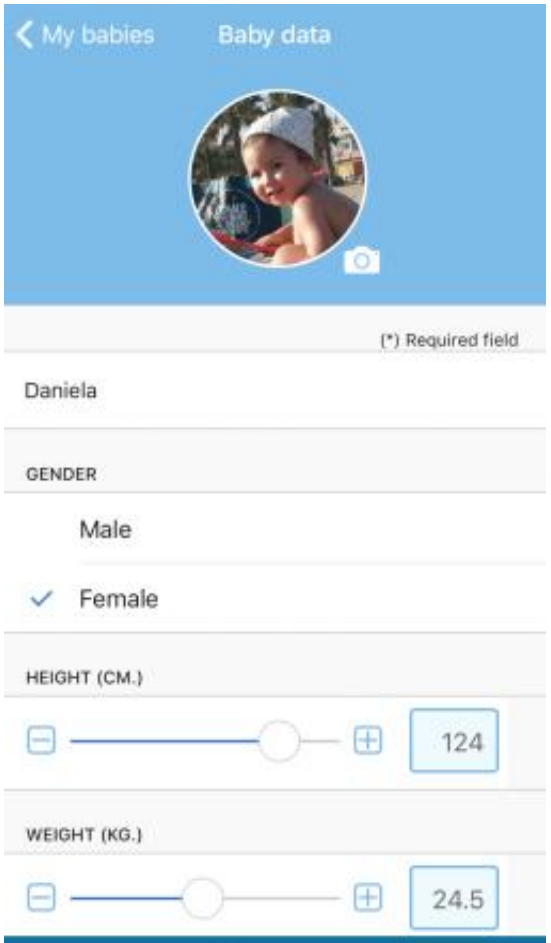


Figure 7

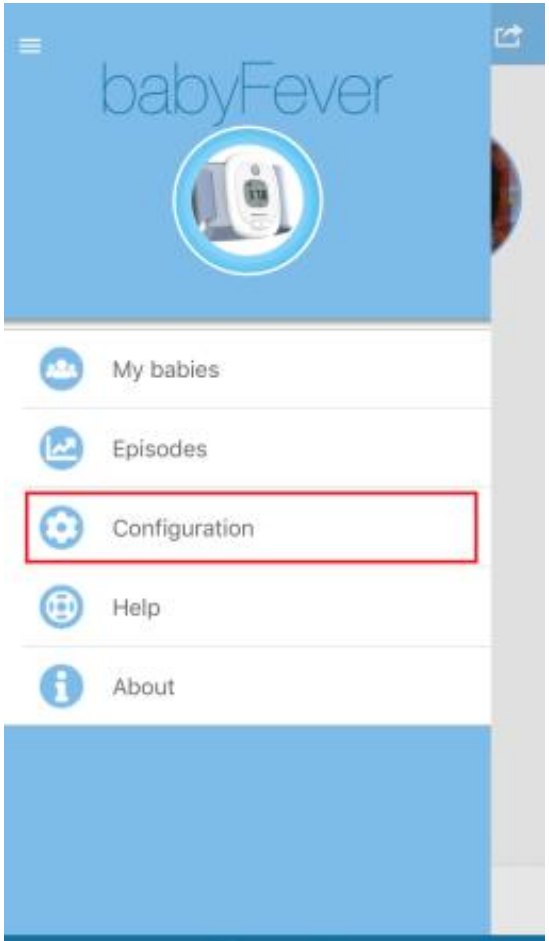


Figure 8

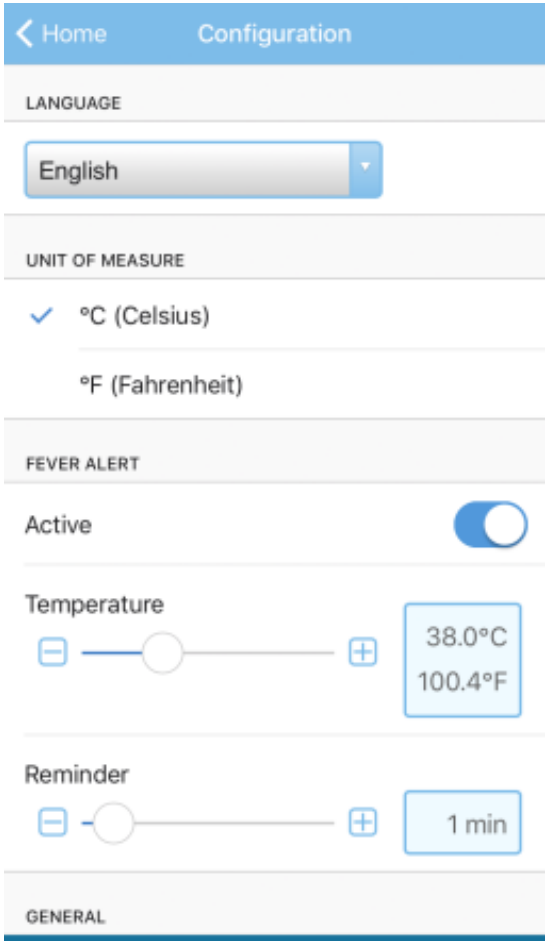


Figure 9

Figure 10

10.3 Configuration

Click the “Configuration” option in the main menu (Figure 8) to configure the language, units of measurement and temperature alerts (Figure 9).

10.3.1 Alert temperature setting

Activate or deactivate the fever warning system, set the warning temperature and the repetition time (Figure 9).

10.3.2 Alert page

When temperature exceeds the setting highest temperature, the alert page will pop up notification (Figure 10).

10.4 Temperature History

Click the buttom “Episode” (Figure 11) to check the previous temperature curve (Figure 12).
On the temperature curve, the temperature values that exceed the warning temperature will be displayed above the red line.

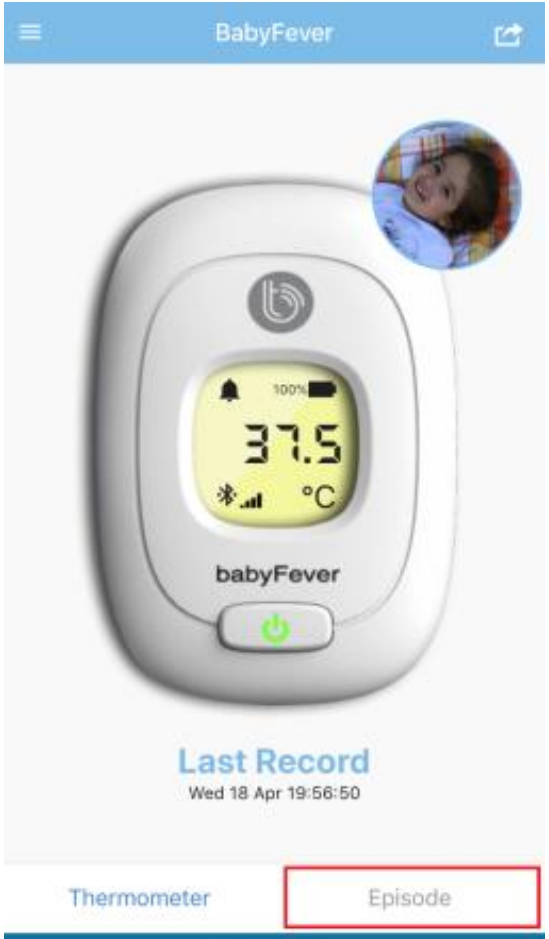


Figure 11

Figure 12

10.5 Exit safely

When user finishes the temperature measurement, please disconnect the device Bluetooth in APP and turn off the screen, put it back in the packing box.

11. PRODUCT CLEANING AND NURSING

1. Please clean the probe side surface with a moist cloth and then disinfect it with 75% concentrated medicinal alcohol before using.
2. To maintain a good status of the thermometer, please clean the surface of the device with a moist cloth and then disinfect it with 75% concentrated medical alcohol after use it, avoid direct sunlight and place the device in ventilated place.

12. SAFETY PRECAUTIONS

1. The instruction said that the purpose of warning sign and legend is safe and proper using the product by yours, and prevents the harm to you and others.
2. The warning sign and legend as well as their meaning is as follows.

Warning sigh		Meaning
	Using contraindication	It shows that it will appear the dangerous of casualties or serious injury in the error use.
	Warning	It shows that it will appear the possibility of casualties or serious injury in the error use.
	Attention	It shows that it will appear the possibility of personal injury or damaged goods in the error use.

⚠ Warning

- 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;
  (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.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

- Sterilization or high temperature sterilization is not allowed.
- If you notice any damage on the temperature sensor, please stop using the device immediately.
- It may damage the thermometer, reduce the use life or lead to safety risks if use other disinfectant except for alcohol.
- Operating or storing outside of the manufacturer's specified temperature and humidity range can result in problems with the product accuracy or even inability to work.
- If the thermometer is drop or beat, will cause the product unable to work or delayed diagnosis for patients.
- If patient temperature is below ambient temperature, will caused the product unable to work or delayed diagnosis for patients.
- Please dispose of batteries and product per local regulations. Do not dispose of batteries in fire, recharge, put in backwards, disassemble, mix with used or other battery types - they may explode or leak and cause injury.

⚠ Contraindication

- Those with heart pacemakers are prohibited from use.
- Those with injury on armpit or chafing are prohibited from use.
- The device can not be used for self-diagnosis.
- This product should not encourage self-medication or adaptation of the treatment.
- Always consult the doctor if the patient has any questions or he believes he has abnormal measurement.
- Is the product of all parts and replacement parts (button battery CR2032), does not belong to the common parts, such as the need to change please contact the store sales or Shenzhen Ming Jin Yuan Technology Co., Ltd.

⚠ Precautions

- When in use, probe on the thermometer need to be touched fully with skin.
- To avoid external temperature interference, please use this product indoors and try to keep yourself at calm status.
- Please stop use the device, if there's any discomfort or allergy symptoms, consult a doctor and replace device if necessary.
- If the measure result comes with a high temperature during measuring, please contact your doctor in time. This product is only used for temperature measuring and without therapeutic

properties.

- For long time of measuring, skin should be paid attention whether there's any allergy symptom, if yes, the measuring should be stopped immediately.
- Don't use it when skin has cut, canker, and please do not cross use more than one person.
- Except for battery replacement, please do not disassemble any parts.
- Please prevent the thermometer from drop or beat.
- Please remove the button battery if the thermometer is not on use for long term (two months or above).
- Please save the thermometer out of reach of children and pets and don't swallow batteries!
- This product could not be heating cleaning, please clean it with 75% concentrated medicinal alcohol.
- If you notice any damage and degeneration on the shell, sensor or other parts, please stop using the device immediately.
- The opening tool should keep out of the reach of children and pets to avoid swallowing.
- Some device will become interference signal(like Microwave Oven, Router, Signal transmitter, Signal shield device, etc) when it occurs, please user gets away from it and stops use device.
- This thermometer need to be used with the corresponding App developed by our company, if there's any connection problem, please read this user manual carefully or contact us.

13. TROUBLESHOOTING

(1) When it measures temperature normally, it will show “Lo” below 32°C and show “Hi” above 43°C in the device.

If the device display “Lo” when you measure temperature, please check that the device is in good condition or correct wearing and re-measurement according to instructions for use; if the temperature of the re-measurement is still lower than 32°C, other equipment will be used to reassess the temperature or contact your doctor.

If the device display “Hi”, it means that your temperature is higher than 43°C, please contact your doctor or go to the hospital.

(2) If the display screen can not display: the battery power might runs out, please check the battery and replace it; or the display screen might be damaged, please stop to use and contact after-sale company.

(3) If the thermometer does not connect to mobile device: the Bluetooth might not active on mobile device, please turn on the Bluetooth; or Android version on mobile device isn’t 4.3 or higher, please upgrade Android OS to version 4.3 or higher; or iOS version on mobile device isn’t 8.0 or higher, please upgrade iOS OS to version 8.0 or higher; or Bluetooth version is not 4.0, please use the mobile device with Bluetooth 4.0; or out of connection range, please close to bring mobile device closer to thermometer; or position is wrong, please adjust the position of thermometer.

(4) If you cannot turn on the thermometer: the battery power might be low, please check the battery and replace it; or the device itself might be damaged, please stop to use and contact the after-sale company.
(5) If the App can not operate (such as register error, log in error): the mobile device might not connected to the network, please connect to the network and operate the APP; or Android version on mobile device isn't 4.3 or higher, please upgrade Android OS to version 4.3 or higher; or iOS version on mobile device isn't 8.0 or higher, please upgrade iOS OS to version 8.0 or higher.
(6) If the product is malfunctioned or damaged, please stop using and contact after-sale company. Manufacturer will provide circuit diagrams, component part lists, descriptions, calibration instructions to assist to service personnel in parts repair.
(7) Product protection-degree is IP22, the user should get away from high dust, lint and Strong light space. If the device is in the bad protection-degree, it might be degraded and malfunctioned. When there is any malfunctions, the user should stop to use and contact after-sale company.

14. EMC DECLARATION

- babyFever Smart Thermometer meet the requirement of electromagnetic compatibility in IEC60601-1-2.
- The user needs to install and use according to electromagnetism compatibility information

which is attached with it.

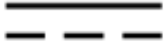
- Portable and mobile RF communication device may influence performance, so babyFever Smart Thermometer should be kept away from them during using.
- Guidance and manufacture's declaration stated in the appendix A.

⚠ **Warning** ⚠ babyFever Smart Thermometer should not be used adjacent to or stacked with other equipment and that if adjacent or stacked use is necessary, the babyFever Smart Thermometer should be observed to verify normal operation in the configuration in which it will be used.

15. The paraphrase of graphic symbol

Label	Explanation	Label	Explanation
SN	Product serial number		General prohibition sign

	Manufacturer	CE 0197	CE mark
EC REP	Authorized representative in the European Community	IP22	Dust proof and water proof level: protected against vertically falling water drops when enclosure tilted up to 15° and protected against solid foreign objects of 12.5mm Φ and greater
	Date of manufacture		Keep away from sunlight
	This way up	FC	FCC identification

	Caution		Keep dry
	General warning sign		“WEEE （Waste Electrical and Electronic Equipment）”. The waste products should be handled legally.
	Type BF applied part		Refer to instruction manual
	Direct current		Fragile, handle with care

	RoHs identification		Environmentally and recyclable
	Wake up device and standby		General mandatory action sign.
	Low power level		

16. WARRANTY

(1) The babyFever Smart Thermometer is warranted from manufacturing defects for one year from date of retail purchase.

(2) The free repair service does not cover the damages resulting from personal reasons listed as below:

a) Damages resulting from unauthorized adjustment and repair.

b) Damages resulting from dropping to floor during use or transportation.
c) Damages resulting from inappropriate maintenance.
d) Damages resulting from misuse by not following guidelines of under manual.

(3) When apply for free repair service, please hold the Warranty card and purchase proof of purchase date.

(4) Warranty Card

Warranty Card

Model Purchased: _____ **Customer Name:**

Date of Purchase: _____ **Address:**

Store of Purchase: _____ **Post code:**

Address: _____ **Tel:**

Distributor

Manufacturer: Shenzhen Ming Jin Yuan Technology Co., Ltd.
Manufacturer address: Room 303, Unit A6, Building A4, Gonghe 4th Industrial Area, Shajing Town, Bao'an District, Shenzhen, Guangdong, 518104, China

Contact number: +86 755 23729283
For more information about the product or accessories, please consult the manufacturer, or please visit the website: http://www.mingjinyuan.com

Appendix A EMC Information

Guidance and manufacturer's declaration – electromagnetic emissions		
The model TB-100 is intended for use in the electromagnetic environment specified below. The customer or the user of the model TB-100 should assure that it is used in such an environment.		
Emission test	**Compliance**	**Electromagnetic environment-- guidance**
RF emissions CISPR 11	Group 1	The model TB-100 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 emissions CISPR 11	Class B	The model TB-100 is suitable for use in all establishments, including domestic establishments and those directly
Harmonic emissions	Not applicable	

IEC 61000-3-2		connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Not applicable	

Guidance and manufacturer's declaration – electromagnetic immunity			
The model TB-100 is intended for use in the electromagnetic environment specified below. The customer or the user of the model TB-100 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	±8 kV contact ±2 kV, ±4 kV, ±8 kV, ±15 kV air	±8 kV contact ±2 kV, ±4 kV, ±8 kV, ±15 kV air	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	±2kV for power supply lines ±1 kV for Input/output lines	Not applicable	Mains power quality should be that of a typical commercial or hospital environment.

Surge IEC 61000-4-5	±1 kV line to line *±2* kV line to earth	Not applicable	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-1	<5 % U_T (>95% dip in U_T.) for 0.5 cycle 40 % U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95 % dip in U_T) for 5 sec	Not applicable	Mains power quality should be that of a typical commercial or hospital environment. If the user of the model TB-100 requires continued operation during power mains interruptions, it is recommended that the model TB-100 be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	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.
NOTE U_T is the a.c. mains voltage prior to application of the test level			

Guidance and manufacturer's declaration – electromagnetic immunity			
The model TB-100 is intended for use in the electromagnetic environment specified below. The customer or the user of the model TB-100 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	3 Vrms 150 kHz to 80 MHz 6 Vrms in ISM bands 10 V/m 80 MHz to 2.7 GHz 385MHz-5785MHz Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communication equipment (Refer to	3 Vrms 150 kHz to 80 MHz 6 Vrms in ISM bands 10 V/m 80 MHz to 2.7 GHz 385MHz-5785MHz Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communication equipment (Refer to	Portable and mobile RF communications equipment should be used no closer to any part of the model TB-100, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** $d=[3,5/V_1]\times P^{1/2}$ $d=1.2\times P^{1/2}$ 80 MHz to 800 MHz $d=2.3\times P^{1/2}$ 800 MHz to 2.7 GHz
Radiated RF IEC 61000-4-3			

	table 9 of IEC 60601-1-2: 2014)	table 9 of IEC 60601-1-2: 2014)	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 meters (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 model TB-100 is used exceeds the applicable RF compliance level above, the model TB-100 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the model TB-100.
b. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended separation distances between portable and mobile RF communications equipment and the model TB-100

The model TB-100 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the model TB-100 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the model TB-100 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)		
	150kHz to 80MHz $d=1.2\times P^{1/2}$	80MHz to 800MHz $d=1.2\times P^{1/2}$	800MHz to 2,5GHz $d=2.3\times P^{1/2}$
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.