

INFRARED THERMOMETER BT-36

Operation Manual



In order to properly use this product, please be sure to read the user's manual before use.

P/N: 36-ENG-OPM-EXP-R00

This product is a medical device.

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Bistos Co. Ltd.

7th Fl., A Bldg, Woolim Lions Valley 5-cha, 302, Galmachi-ro, Jungwon-gu, Seongnam-si,
Gyeonggi-do, Republic of Korea

Telephone : 031-750-0340

Fax : 031-750-0344

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1. Safety information

1.1. General information

Purpose of use



- This Operation manual contains how to use BT-36, Contactless infrared thermometer of Bistos Co. Ltd. So please read this manual before use the device.
- BT-36 is contactless thermometer that can safely measure body temperature from inconvenient by body insertion, skin contact or risk of infection by detecting infrared emitted from the skin and measures body temperature.
- In general, body temperature refers to the internal temperature of the human body. Body temperature varies depending on the part of the body being measured, the time of the day being measured, the ambient temperature, the activity just before the measurement, and the age etc.
- The surface temperature of human body is lower than actual body temperature. BT-36 displays calibrated oral temperature by rewarding from measured skin temperature in body temperature measurement mode.
- The recommended part of BT-36 body temperature measurement mode is from 2 ~ 5 cm by the center of forehead.
- BT-36 operates with 2 kinds of measurement mode(body & object temperature), it can measure temperature within a second and continue measuring temperature directly after finishing former measurement.
- This device doesn't need any special training or education. Anyone can use the device easily if the user knows how to use it.
- You can see the normal temperature range according to each body part by the table below.

Body Part	Normal Temperature Range
Ear (tympanic)	35.8°C ~ 38.0°C (96.44°F ~ 100.4°F)
Mouth (oral)	35.5°C ~ 37.5°C (95.9°F ~ 99.5°F)
Armpit (axillary)	34.7°C ~ 37.3°C (94.5°F ~ 99.1°F)
Rectal	36.6°C ~ 38.0°C (37.9°F ~ 100.4°F)
















<Normal temperature range according to body part>



1.2. Meaning of symbols

The following symbols identify all instructions that are important to safety. Failure to follow these instructions can cause injury or damage to contactless infrared thermometer. When used in conjunction with the following words, the symbols indicate :

	WARNING	Can lead to serious injury or death.
	CAUTION	Can lead to minor injury or product/property damage.
	NOTICE	Provide information to clarify specific steps or procedures.

The following symbols are placed on product, label, packing and this manual in order to stand for the information about:

	Used to display safety information for warnings. Before using the BT-36, please be fully understand the information provided with the device.
	Used to display safety information for caution. Before using the BT-36, please be fully understand the information provided with the device.
IP22	Indicates the protection level against the ingress of solid object and liquid. IP2X is protection against solid foreign object like a finger. IPX2 is protection against some falling water drops vertically when enclosure tilted up to 15°.
	Refer to the operation manual. Read the manual before placing the device.
	Indicates the production date.
	Indicates the manufacturer.
	Indicates the serial number of the device.
	Indicates a reference number.
	Indicates to keep the device dry.
	Indicates the medical device that is fragile if not handled carefully.
	Indicates to keep upright.
	Indicates to keep the device away from sunlight.
	Indicates the temperature limitation for transport and storage.
	Indicates the humidity limitation for transport and storage.
	Indicates the range of atmospheric pressure to which the medical device can be safely exposed for transport and storage.
	Indicates the packing material is recyclable.

	Indicates this product shouldn't be disposed with other trash, it should be recycled appropriately in accordance with local regulation.
	Indicates that this product contains BF type applied part. (Applied part : Main body of the device, Button)

1.3. Warnings & Cautions

Before using BT-36 contactless infrared thermometer, read the manual for use, understand and follow the instructions and safety information to avoid injury.



Warnings

- If children under the age of 12 use directly the device, make sure the user read the operation manual before using it.
- Follow normal safety precautions when children are using the device.
- Never use the device for purposes other than those for which it has been intended.
- Do not immerse this device in water or other liquids.
- Follow the instructions in <4. Cleaning and Storage> for cleaning and disinfection.
- Be cautious not to get dust or especially metallic objects into the device.
- Do not place the device where it is too humid or changes temperature drastically.
- Do not use the device at environmental conditions for humidity, temperature and atmospheric pressure outside those specified in this manual.
- Do not leave the device in dangerous places that chemicals or explosive gases leak.
- If the user has allergic reaction when using the device, be sure not to using it.



Cautions

Please read the instructions carefully before using this device.

- The user of this device could be patient itself.
- The device operates within the ambient temperature range of 15°C ~ 40°C(59°F ~ 104°F).
- Users (patients) should not eat or engage in physical activities before measuring their temperature, and are advised to wait approximately 15 minutes before measuring if they have done physical activities or eating.
- If the device is damaged or not working properly, stop using the device and request repair through the place of purchase or Bistos Co., Ltd.

- Please do not modify or repair the device arbitrarily. The company has no responsibility for any malfunction or damage caused by disassembly.
- If you don't use the device for a long time, remove the battery from the device and store it separately.
- Recycle the battery when replacing it.
- Do not use the device directly against fire or heating devices.
- Be sure to follow the safety regulations when using it for infants or newborns.
- If there is an abnormality in the body temperature measurement value, be sure to consult a doctor.
- Be careful not to damage the temperature sensing part or to get foreign substances in the sensor.
- If liquid permeates to the thermometer, it can cause malfunction and damage.
- When measuring temperature, check the temperature measurement mode.
- During measurement, if you look at the LCD screen while pressing the button to check the measurement value, it may show incorrect measured values. Always place the temperature sensing part on the measurement area or on the object target, and check the measurement result through LCD screen when you hear a notification sound after pressing the button.




NOTE

Body temperature measurement values cannot replace the specialist care or counseling.

If the temperature reading is abnormal, please consult a doctor.

2. Product Configuration

When unpacking the box, check all the following components are enclosed. The standard configuration is composed:

Name	User manual	Main body	Battery (AAA)
Shape			
Qty.	1	1	2








CAUTION




- Check consumables for wear or damage before use and replace if necessary.
-

2.1. Description of each part



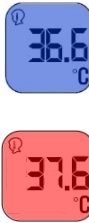


BT-36, the contactless infrared thermometer is configured as shown below.






No.	Name	Description
①	LCD display	Show current operation status. (Body / Object temperature measurement mode, °C / °F Setting, Sound on/off, Memory mode, Measurement result value)
②	Sound On/Off Button 	When Sound On status, if you press this button,  this icon will show up on the screen and goes to Sound Off status. If you press again, it goes to Sound On status. (Default : Sound On)
③	MODE selection button 	This button is to change the measurement mode. If the button is pressed once shortly, the change of the temperature measurement mode icon is confirmed as shown below. ( : Body temperature measurement mode /  : Object temperature measurement mode) If the button is pressed and hold the button longer, it changes to Celsius to Fahrenheit or Fahrenheit to Celsius temperature measurement mode. °C : Celsius / °F : Fahrenheit (Default : Body temperature measurement mode & Celsius)

④	<p>MEMORY button</p> 	<p>When the button is pressed, following icon  appears on the screen and enters MEMORY mode.</p> <p>The previously measured temperature values are saved up to 10 times.</p>
⑤	<p>POWER(START) button</p> 	<p>The button is for turn on the device or start temperature measurement.</p> <p>If the button is pressed while the device is turned off, the power will be turned on. Whenever the button is pressed while the device power is on, the temperature is measured through the sensor.</p> <p>(The device turns off if there is no any action for a certain period of time.)</p>
⑥	<p>Temperature sensing part</p>	<p>IR sensor that can measure body temperature or object temperature without any contacts is placed in this part.</p>
⑦	<p>Battery cover</p>	<p>This device uses 2 AAA type batteries.</p> <p>Press the top of the cover on the back of the device to open it, insert the batteries and close the cover to use.</p>

2.2. LCD descriptions

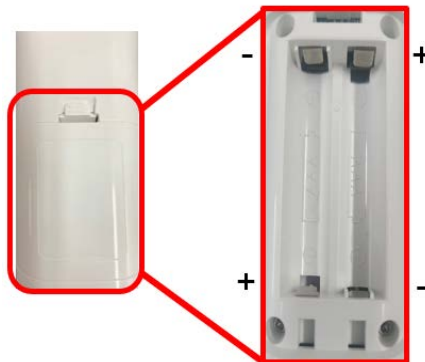
Figure	Name	Description
	Start screen	After the POWER is on, measure the ambient temperature around the sensor once.
	Ready screen	Basic screen display after the start screen.
	Body temperature measurement screen	If you press the start button while this symbol  (body temperature measurement mode) is displayed on the upper left of the LCD screen, the blue light illuminates to confirm the measured body temperature. If the measured value is higher than 37.5°C(99.5°F), the red light will illuminated to indicate that user have fever.
	Object temperature	If you press the start button while this symbol

	<p>measurement screen</p>	 (object temperature measurement mode) is displayed on the upper left of the LCD screen, the blue light illuminates to confirm the measured object temperature.
	<p>Error screen</p>	<p>If the measured temperature is exceeds the measurable temperature range, the 'Err' is displayed and the red light is illuminates.</p> <p>(Measurable temperature range :</p> <ol style="list-style-type: none"> 1) Human body : 34°C ~ 43°C (93.2°F ~ 109.4°F) 2) Object : 15°C ~ 50°C (59°F ~ 122°F)
	<p>Low battery icon</p>	<p>If the battery voltage is low, a Low battery icon is displayed on the upper right of the LCD screen to indicate that the battery should be replaced.</p>

3. How to use

3.1. Preparation before use


Open the battery cover on the back of the main body and insert two AAA batteries by matching the electrodes as indicated on the battery slot.



Note


To protect the environment, do not dispose of the empty batteries with general household waste instead of appropriate collection sites according to national or local regulations.


3.2. Power on

Once the  Power(START) button is pressed, it displays the ready screen right after the start screen has displayed.


3.3. Mode selection


3.3.1 Body / Object temperature measurement mode

Press the  mode button to set the temperature measurement mode.


( : Body temperature measurement /  : Object temperature measurement)

3.3.2 Sound On / Off

Press the  Sound On/Off button to set the sound output mode.


( : Sound Off)

3.3.3 Celsius / Fahrenheit


Press and hold the  Mode button to set whether the measurement temperature is displayed as Celsius or Fahrenheit.

(**°C** : Celsius / **°F** : Fahrenheit)

3.4. Body temperature measurement

- ① Turn on the device with pressing START button
- ② Check the measurement mode whether is body temperature measurement mode().


- ③ Place the device 2 ~ 5 cm distance from center of forehead.


- ④ Start measurement by pressing START button().

When the measurement is complete, you can hear beep sound and the measured value is displayed on screen. If the device sound is off, wait for a second after you press the button. If the measured value within the measurable temperature range, then the blue light is illuminated with the measured value displayed. If the measured value is higher than 37.5°C(99.5°F), the red light will illuminated to indicate that user have fever. If the measured value exceeds the measurable temperature range, then the red light is illuminated with the error(Err).

(When measuring, any movement may affect the temperature reading.)

3.5. Object temperature measurement


- ① Turn on the device with pressing START button
- ② Check the measurement mode whether is object temperature measurement mode().
- ③ Place the device 2 ~ 5 cm distance from the object that you want to measure temperature.

- ④ Start measurement by pressing START button().

When the measurement is complete, you can hear beep sound and the measured value is displayed on screen. If the device sound is off, wait for a second after you press the button. If the measured value within the measurable temperature range, then the blue light is illuminated with the measured value displayed. If the measured value exceeds the measurable temperature range, then the red light is illuminated with the error(Err).

(When measuring, any movement may affect the temperature reading.)


3.6. Memory mode

- ① Press the  Memory mode button to switch to memory mode.
- ② The temperature is stored in memory from No. 0 to No. 9 in order from the latest data to the previous data.
- ③ If there is no other input for a certain period of time, it goes back to Ready screen.
- ④ Results of object temperature and errors are not stored in memory.

3.7. Power off

The power is automatically shut down if there is no other input about 15 seconds after measurement.

3.8. Battery replacement

When lack of the battery icon() displayed on right top of the screen, the battery should be replaced. (It may be inaccurate if the user measures the temperature value.)

4. Cleaning & Storage

- Since the sensor part of the device is a very sensitive part, always keep it clean and intact for accurate measurements.
- Do not immerse the device in a container with liquid.
- If the sensor needs to be cleaned, apply alcohol to a cotton swab or soft cloth and carefully clean it. Use the device after 20 ~ 30 minutes after cleaning.
- Store the device in a place that can avoid direct sunlight and free of dust or pollutants.
- Remove the batteries if the device is not in use for a long time.

5. Trouble shooting

Problem	Solution
The power does not turned on.	<ul style="list-style-type: none"> • Check the battery charging status. • Check the status of the battery insertion in the main body.
The main body gets wet	<ul style="list-style-type: none"> • Remove the batteries from main body. • Wipe the body with a dry cloth and store it in a warm and dry place for at least 12 hours.
If the measurement is not working properly	<ul style="list-style-type: none"> • When measuring infants or children, if they struggle too much, measurement errors may occur because the distance between the skin surface and the sensor may not be constant, so please measure again after they calm down. • It is recommended to measure body temperature after stabilizing at room temperature(15~25°C, 59°F~77°F). • Temperature measurements may be inaccurate if measuring temperature immediately after exercise, come back from outside, or taking a bath, and measurements may also be inaccurate when measuring outside instead of indoors. • For accurate measurement, remove hair, foreign substances, or makeup between the thermometer and the skin. • If the battery is not replaced when the low battery icon in displayed on the LCD screen, the measurement value may not be accurate. • If user measure temperature close from air conditioner, fan, heater, it may cause inaccurate results.

※ If the problem is not solved or have additional questions, please contact the Bistos Co., Ltd. service center.

6. Product specifications

Function		
Category	Contactless infrared thermometer	
Display	Type	LCD
	Temperature	Numbers & icons (00.0 °C, °F)
	Mode selection	Icon display
	Backlight	Blue, Red
Function	Mode	Body temperature measurement mode Object temperature measurement mode
	Measuring method	Infrared sensing of skin surface Non-contact measurement
	Display method	Mono LCD
	Expected lifetime	1 year

Power	
Battery	3V (1.5V AAA battery 2EA)

Standard configuration	
User Manual	1EA
Main body	1EA
Battery	1.5V AAA 2EA

Environmental conditions	
Operation	
Operating temperature	15 to 40°C (59 to 104°F)
Measurement range (Body)	34°C ~ 43°C (93.2°F ~ 109.4°F) (Accuracy: ±0.3°C)
Measurement range (Object)	15°C ~ 50°C (59°F ~ 122°F) (Accuracy: ±0.3°C)
Unit of measurement	0.1°C/°F
Operating humidity	25% ~ 85%
Atmospheric pressure	70~106 kPa

Storage and Transport

Storage temperature	-20°C ~ 50°C
Storage humidity	15% ~ 95%
Atmospheric pressure	70~106 kPa

Size

Main body	149.8 x 38.0 x 37.3mm
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Weight

Main body	70g (Except batteries)
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7. Manufacturer's declaration on EMC

BT-36 needs special precautions regarding EMC (Electromagnetic compatibility) and needs to be used according to the EMC information provided in this user manual. Wireless communications equipment such as wireless home network devices, mobile phones, cordless telephones and their base stations, walkie-talkies can affect the BT-36 and should be kept at least 1m away from the equipment.

**Warnings**

- Use of accessories other than those specified or provided by the manufacturer of this device could result in increased electromagnetic emissions or decreased electromagnetic immunity of this device and result improper operation.
- Electric medical devices require special precautions regarding EMC and should be used in accordance with the EMC information provided in this user manual.
- BT-36 should not be used adjacent to or stacked with other equipment. It may not work properly. If adjacent or stacked use is necessary, BT-36 should be observed to verify normal operation in the configuration in which it will be used.


7.1. Electromagnetic emissions

BT-36 is intended for use in the electromagnetic environment specified below. The customer or the user of the BT-36 should assure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1	BT-36 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause interference in nearby electronic equipment.
RF emissions	Class B	Note : The emission characteristics of this device are

CISPR 11		suitable for use at home or in hospitals.
Harmonic emissions IEC 61000-3-2	Not applicable	This device is powered by batteries only.
Voltage fluctuations / flicker emissions IEC 61000-3-3	Not applicable	

7.2. Electromagnetic immunity

<p>BT-36 is intended for use in the electromagnetic environment specified below. The customer or the user of the BT-36 should assure that it is used in such an environment.</p>			
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 HCP, ±8 kV VCP	Complies	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Immunity RF IEC 61000-4-3	10V/m 80MHz -2.7GHz	Complies	<p>The electric field strength outside the electromagnetic wave shielding location from the fixed RF transmitter determined through the investigation of the electromagnetic wave generation location should be less than 3V/m.</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol.</p> <div style="text-align: center;">  </div> <p>Recommended separation distance</p> $d = 1.2\sqrt{P} \sqrt{P} \quad 150 \text{ kHz} \sim 80 \text{ MHz}$ $d = 1.2\sqrt{P} \sqrt{P} \quad 80 \text{ MHz} \sim 800 \text{ MHz}$ $d = 2.3\sqrt{P} \sqrt{P} \quad 800 \text{ MHz} \sim 2.7 \text{ MHz}$ <p>Where P is the maximum output</p>
Conducted RF IEC61000-4-6	3Vrms 150 kHz to 80 MHz	Not applicable (No electrical cable connection)	

			power rating of the transmitter (W) according to the transmitter manufacturer and <i>d</i> is the recommended separation distance in meters(m).
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	Not applicable	This device is powered by batteries only.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	Not applicable	
Power frequency (50 Hz and 60 Hz) magnetic field IEC 61000-4-8	30 A/m	Complies	Power frequency magnetic fields should be at levels characteristic of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	> 95% dip for 0.5 cycles 60% dip for 5 cycles 70% dip for 25 cycles 95% dip for 5 seconds	Not applicable	This device is powered by batteries only.

Product Warranty

Product name	Contactless infrared thermometer
Model	BT-36
Product name	
Manufacturing certification	
Serial number	Marked on the product label.
Date of manufacture	Marked on the product label.
Packing unit	1pc
Warranty period	1year
Date of purchase	
Customer information	Name : Address : Contact :
Seller	Bistos Co., Ltd.
Manufacturer	Bistos Co., Ltd.

- ※ Thank you for purchasing the Contactless infrared thermometer.
- ※ This product has passed through strict quality control and inspection.
- ※ The compensation standard for repair, exchange, and refund of this product is subject to the Fair Trade Commission's "Consumer Basic Law".

Service Contact

Headquarters	7 th Fl., A Bldg, Woolim Lions Valley 5-cha, 302, Galmachi-ro, Jungwon-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
Phone	+82-31-750-0340
Fax	+82-31-750-0344
Homepage	www.bistos.co.kr
Email	bistos@bistos.co.kr

