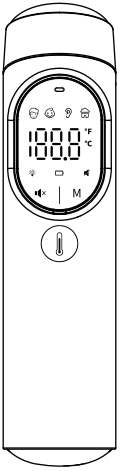
AOJ-20F



Instruction Manual

Infrared Thermometer

Notice

• Dear user, thank you for purchasing our Infrared Thermometer. For proper use of this product, please read the Instruction Manual carefully before use and operate the thermometer according to the instructions.
• Before using this product, please be sure to read and follow the "Safety Precautions".
• Please keep the Instruction Manual in a safe place for future reference.

Contents

Unpacking and Inspection

Before initial use, please carefully open the package and check whether all parts are intact based on the packing list and whether the parts are damaged during transportation, and strictly follow the instruction manual for installation and operation. If there is any damage or operation-related problem, please directly contact us and provide us with your order number, device model, serial number and email address, we' ll try our best to help you until you' re satisfied.

Packing List

No.	Name	Quantity
1	Infrared Thermometer	1
2	Pouch	1
3	Quick Start Guide	1
4	Instruction Manual	1

Safety Precautions

Before using this thermometer, please carefully read the following precautions:

⚠ Caution
• The lens of the probe is a fragile part of the infrared thermometer. Please protect it carefully.
• Do not throw away used batteries at will, because waste batteries pose an environment hazard. It' s recommended to send the waste batteries to a designated collection point for disposal, so as to prevent environmental pollution.
• If the thermometer is not going to be used for more than 2 months, remove the batteries and keep the thermometer properly.
• Do not immerse the thermometer into water or put it under sunlight for direct exposure.
• The thermometer should be avoided from strong impact or vibration, otherwise it may be damaged.
• A normal body temperature varies from person to person. Keeping track of a person' s body temperature changes will help determine whether a person has a fever.
• Do not take a measurement if you just exercise or are emotionally excited. You should rest for about 20 minutes before taking a measurement.
• The probe should be cleaned after each use.
• Do not use the thermometer on newborns or for continuous temperature monitoring purposes.
• Do not use the thermometer for other than its intended purposes. Please follow the measuring instructions in the manual and be careful when measuring a child' s temperature.

- Do not immerse the thermometer into water or any other liquid. For cleaning and disinfecting methods, please follow instructions in “Cleaning and Disinfection”.
- Do not directly touch the top of the probe, because there is a precise temperature sensor on the top.
- Keep the probe clean to ensure accurate measurement results.
- If the ear canal is dirty, first clean the ear canal with a cotton swab before taking a measurement.
- The temperature of the measuring environment should not be too cold or too hot. If you enter the measuring environment from storage environment, you should stay in the measuring environment for over 30 minutes before taking a measurement.
- Do not take a measurement in an environment with temperature higher than 40°C (104°F) or lower than 0°C (32.0°F), because the normal operating temperature of the thermometer is exceeded under such environment.
- When the thermometer reaches the expiration of its service life, throwing it away at will poses an environment hazard. It’s recommended to send it to your local collection point for handling or send it back to the manufacturer for recycling.
- Replaceable accessories of the thermometer include two 1.5V AAA batteries. Do not use batteries of different voltage or specification. There are no other replaceable parts and materials.

⚠ Warning

- Do not forcibly insert the probe into the ear canal, otherwise the ear canal may get injured.
- Keep the thermometer out of reach of children.
- If the thermometer is still in use when it has reached the specified service life, it will cause inaccurate measurement results.
- This thermometer is not intended for diagnosis or treatment of any illness. The measured temperature results are for reference only.
- It is dangerous to make a self-diagnosis or self-treatment based on the obtained measurement results. Please take a doctor’s diagnosis as a standard.

Do not charge ordinary alkaline batteries or throw them into a fire, otherwise the batteries may explode.

Do not dismantle the thermometer or try to repair it, otherwise it may be permanently damaged.

Portable and mobile RF communication devices may affect the performance of the infrared thermometer. When measuring, please do not use mobile phone or other devices with strong ectromagnetic interference around.

This device is prohibited to be used in an environment with the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

Symbols and Descriptions

Symbol	Description
	Type BF applied part
	Caution! Please refer to the Instruction Manual.
	Indicates prohibited practices in the general sense.
	Waste products and electronic materials must be sent to a designated collection point for recycling.
IPX0	Ingress Protection rating, this thermometer is not waterproof.
⚠ **Warning**	Incorrect use of the thermometer may cause injury to the person or damage to the device.
⚠ **Caution**	Incorrect use of the thermometer may cause injury to the person or damage to the device.

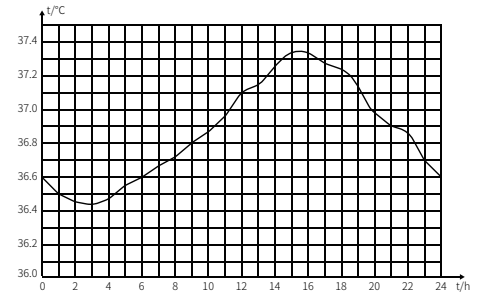
Common Knowledge of Human Body Temperature

Generally, human body temperature is measured via the following main sites: forehead, cochlea, armpit, oral cavity and anus, etc., because temperature readings obtained from the above sites are the closest to human body temperature. However, there exist certain differences for actual temperature readings measured from different sites. The specific differences are as follows:

Measuring site	Normal temperature range
Forehead temperature	36.1°C–37.5°C / 97.0°F–99.5°F
Ear temperature	35.8°C–38.0°C / 96.44°F–100.40°F
Oral temperature	35.5°C–37.5°C / 95.9°F–99.5°F
Axillary temperature	34.7°C–37.3°C / 94.46°F–99.14°F
Rectal temperature	36.6°C–38.0°C / 97.88°F–100.40°F

People of different ages and genders have little difference in terms of normal body temperature. In general, the temperature of a newborn baby or child is higher than that of an adult, the temperature of an adult is higher than that of an elder, and the temperature of a female is about 0.3°C higher than that of a male.

Body Temperature Day-Night Variation Graph



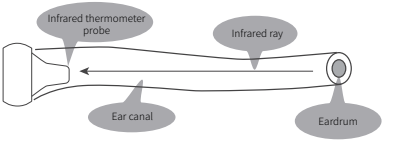
Human body temperature fluctuates over time during a day and is affected by external factors.
The same person has the lowest temperature during 02~04 a.m. and has the highest temperature during 14~20 p.m. Under normal circumstances, the day-night temperature difference is not greater than 1°C.

Product Introduction

1) Overview
Infrared thermometer is a measuring instrument which utilizes infrared receiver principle to measure human body temperature. During use, you only need to aim the probe at the human forehead or eardrum, then press measure button, and you' ll get quick and accurate measured temperature readings.

2) Product Structure
The thermometer consists of an outer casing, LED screen, a buzzer, an infrared temperature sensor and a microprocessor, etc.

3) Measuring Principle
The infrared temperature sensor collects the infrared energy emitted from the eardrum or forehead skin surface, the collected energy passes through the optical filter and is then absorbed by the thermopiles to generate heat to raise their own temperature, and the temperature difference on both sides of the thermopiles produces voltage output, which is then converted to temperature value via the measurement circuits.



4) Intended Uses
Infrared thermometer is intended for taking human body temperature via the eardrum or the forehead. The forehead temperature mode applies to people of all ages and the ear temperature mode applies to people above three months old.

5) Contraindications
Do not use the thermometer if the ear is infected with otitis or suppuration.

6) Physiological Effects
The product will not produce toxic substances, no harm to human body or cause any sensitization, etc.

Product Features

1) Safe to Use
- Passive infrared receiver technology.

2) Easy to Operate
- Handheld design, easy to operate.
- One button operation, automatic measurement.

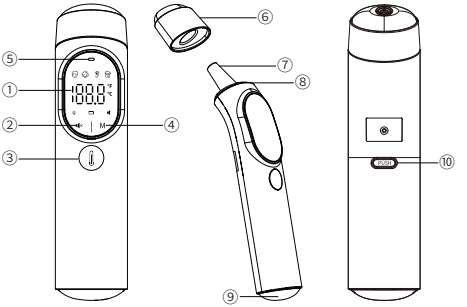
3) Quick Measurement
- 1 second fast measurement.

4) High Accuracy
- Adopts advanced infrared temperature-sensing element with high sensitivity.
- Features temperature calibration program and accurate algorithm, and the measured result can truly reflect human body temperature.

5) Practical Functions
- 40 sets of memories for easy recall;
- Fever warning;
- Front light;
- Mute/Unmute;
- °C/°F unit switching;
- Auto shut-down, low power consumption.

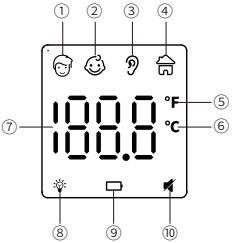
6) Wide Applications
- The forehead temperature mode applies to people of all ages and the ear temperature mode applies to people above three months old.

Main Structure



①LED display screen
②Mute-unmute button/Unit toggle button (indicated by " " button on the lower left corner of the screen)
③Measure button/Front light on/off button/Power on/off button
④Mode button (human body/adjusted temperature)/Memory button (indicated by "M" button on the lower right corner of the screen)
⑤LED indicator light
⑥Probe cover (put the cover on when measuring forehead temperature)
⑦Probe (take the cover off when measuring ear temperature)
⑧Front light (it lights up in ear temperature mode)
⑨Battery compartment
⑩Battery compartment button

Display Description



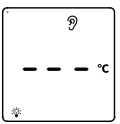
1.Adult forehead temperature mode (above 12 years old)
2.Child forehead temperature mode
3.Ear temperature mode
4.Adjusted mode
5.Fahrenheit degree °F
6.Celsius degree °C
7.Temperature value
8.Front light indicator
9.Low battery indicator
10.Mute/Unmute indicator

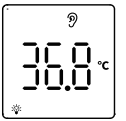
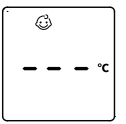
Sound and Indicator Description

Temperature range	Sound	Indicator status
Forehead temperature		
32.0°C-37.5°C/ 89.6°F-99.5°F	One long beep	Green
37.6°C-38.0°C/ 99.6°F-100.4°F	6 short beeps (2 short beeps each time)	Orange
38.1°C-42.9°C/ 100.5°F-109.2°F	6 short beeps (2 short beeps each time)	Red
Ear temperature		
32.0°C-37.5°C/89.6 °F-99.5°F	One long beep	Green
37.6°C-38.0°C/99.6 °F-100.4°F	6 short beeps (2 short beeps each time)	Orange
38.1°C-42.9°C/100.5 °F-109.2°F	6 short beeps (2 short beeps each time)	Red
Adjusted		
0°C-100°C/ 32.0°F-199.0°F	One long beep	

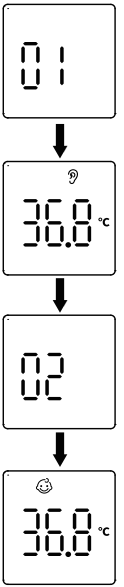
Note: When the measured forehead temperature or ear temperature falls in the range of 32.0°C-37.5°C (89.6°F-99.5°F), the buzzer of the thermometer will issue a long beep and the indicator will light up in green, indicating the temperature is normal.
When the measured forehead temperature or ear temperature falls in the range of 37.6°C-42.9°C (99.6°F-109.2°F), the buzzer of the thermometer will issue 6 short beeps (2 short beeps each time) and the indicator will light up in orange or red, indicating the temperature is rather high and you may have a fever. If you' re uncertain, please consult your doctor.

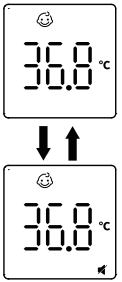
Display and Operation Description

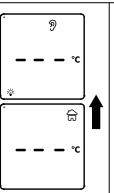
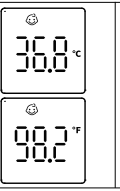
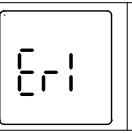
Screen display	Operating instruction /display status	Sound and indicator status
Measuring ear temperature		
	Take off the probe cover, press the measure button to turn on the thermometer, and the thermometer will automatically enter ear temperature mode and the icon will display on the screen. Or you can also press mode button (M button) to switch to ear temperature mode if necessary.	See "Sound and Indicator Description" section.

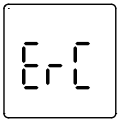
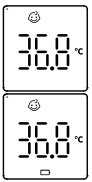
 Ear temperature	Properly insert the probe into the ear canal, press the measure button, and the ear temperature will display on the screen.	See "Sound and Indicator Description" section.
Measuring forehead temperature		
	Put on the probe cover, press the measure button to turn on the thermometer, then press the mode button (M button) to switch to human body temperature mode, and the thermometer will enter forehead temperature mode and the icon or will display on the screen.	See "Sound and Indicator Description" section.
 Child forehead temperature	Aim the probe at the center of the forehead (between the eyebrows) until touching the forehead skin or with a distance of 0-3cm (0-1.18 inches), press the measure button, and the forehead temperature will display on the screen.	

Out of measurement range		
	Ear temperature mode: when the measured ear temperature is higher than 42.9°C (109.2°F). Forehead temperature mode: when the measured forehead temperature is higher than 42.9°C (109.2°F).	One long beep, the indicator lights up in red.
	Ear temperature mode: when the measured ear temperature is lower than 32.0°C (89.6°F). Forehead temperature mode: when the measured forehead temperature is lower than 32.0°C (89.6°F).	One long beep, the indicator lights up in red.

Checking 40 sets of memory data		
	In power-on status or power-off status, press and hold the memory button (M button) for about 5s to enter memory mode. The screen display “01”, then displays the 1st group of recorded temperature value. Press the memory button again to check the next recorded value, and the screen displays “02”, then displays the recorded value. You can check a total of 40 temperature readings. When the maximum number of records is exceeded, the earliest recorded data will be overwritten. Note: 01 indicates the last recorded temperature value. Forehead temperature and ear temperature can both be recorded.	No sound.

Switching between mute/unmute		
	In power-on status, press the mute/unmute buttton (× button) to turn on or turn off the sound. When the sound is turned on, there will be a long beep; when the sound is turned off, the mute icon will be displayed.	One long beep when the sound is turned on.
Switching between Adjusted/forehead/ear temperature mode		
	Press the mode button (M button) to switch between adjusted temperature ( ) mode and human body temperature mode.	No sound.

	Human body temperature mode includes forehead temperature (or) mode and ear temperature ( ) mode.	No sound.
Switching between °C/°F		
	In power-on status, press and hold the unit toggle button (× button) for about 5s to switch between °C and °F.	No sound
Error message/low battery		
	When the ambient temperature is higher than 40.0°C (104.0°F) or lower than 0.0°C (32.0°F)	One long beep, the indicator lights up in red.

	Internal storage data error or temperature calibration is not completed, and the thermometer will automatically turn off after 3s.	One long beep, the indicator lights up in red.
	When the thermometer is powered on and activated and the battery voltage is between 2.4V and 2.7V, then low battery icon will flash. However, this will not affect your normal use.	No sound
	When the thermometer is powered on and activated and the battery voltage is lower than 2.4±0.1V, then only the low battery icon will be displayed, and the thermometer will automatically turn off after 3s.	No sound
Manual power-off	In non-ear temperature mode, press and hold the measure button for 5s, and the thermometer will turn off.	The screen turns off.

Measuring Ear Temperature

1.For initial use of the thermometer, please first install the batteries.
2.Take off the probe cover before measuring the ear temperature.
3.Press the measure button to turn on the thermometer, and the thermometer will automatically enter ear temperature mode and the icon will display on the screen. Or you can also press mode button (M button) to switch to ear temperature mode if necessary.
4.Carefully insert the probe into the ear canal, press the measure button again, and the ear temperature reading will display on the screen immediately.

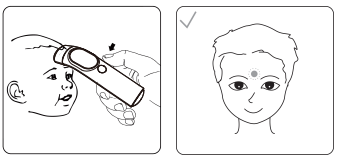
Note:
For children under a year old, pull the ear straight backwards.
For children above a year old, pull the ear up and straight backwards.

⚠ Do not forcibly insert the probe into the ear canal, otherwise the ear canal may get injured.

⚠ Be careful when measuring the ear temperature of a child, as a child' s earhole is small.

Measuring Forehead Temperature

1.For initial use of the thermometer, please first install the batteries.
2.Keep the probe cover on when measuring the forehead temperature.
3.Press the measure button to turn on the thermometer.
4.Press the mode button (M button), and the thermometer will enter forehead temperature mode and the icon or will display on the screen.
5.Point the probe at the center of the forehead (between the eyebrows) until touching the forehead skin or with a distance of 0-3cm (0-1.18 inches)



6.Press the measure button again, and the forehead temperature reading will display on the screen immediately.
7.The thermometer will automatically turn off if there is no operation within 30s. Or you can also press and hold the measure button for 5s to manually turn off the thermometer (with probe cover attached).

After a Measurement

1.After each measurement, you can enter memory mode to query the recorded temperature readings. For more details, please see "Checking 40 sets of memory data".
2.After the measurement, clean the thermometer with a dry, soft cloth and then place it in a dry and well-ventilated place.

⚠ It is dangerous to make a self-diagnosis or self-treatment based on the obtained measurement results. For such purposes, please consult a doctor.

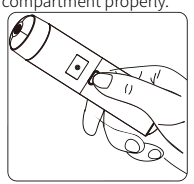
Note:

1.The thermometer is intended for indoor use. Ensure there is no strong air convection (for example, winds blowing from an electric fan, an air conditioner or a heater) when using this device to measure the temperature of a target.
2.Ensure the ear canal is clean before measuring the ear temperature. If there is earwax, it's recommended to clean it with a cotton swab, otherwise it may cause inaccurate measurement results or make the probe dirty.
3.Do not hold the thermometer for a long time, because it is sensitive to the ambient temperature.
4.Ensure the probe is clean and without obstruction before use.
5.Ensure there is no sweat or obstruction (such as hairs, etc.) before measuring the forehead temperature, otherwise it may cause inaccurate measurement results.
6.If there is sweat on your forehead or you apply a cold compress or take other cooling measures, it will result in lower temperature readings. Therefore, measurement under such circumstances shall be avoided.

7.Let the thermometer rest in current environment for more than 30 minutes before taking a measurement. When measuring, do not touch the probe with your hands so as to reduce measurement error. Similarly, when a testee comes from a place where the temperature differs greatly from that of the current measuring environment, the testee should stay in the measuring environment for at least 5 minutes and then take a measurement when his/her temperature accords with the environment temperature, otherwise it may affect the measurement results.
8.Please make sure that there is no intense emotion and movement before measuring.
9.After taking a measurement, you need to wait until the unit icon flashes and then you can take next measurement.
10.When measuring the temperature of smooth metal adjusted (such as kettles, etc.), you' ll get lower temperature readings due to factors like thermal radiation and diffused reflection of the adjusted surface. Therefore, measurement under such circumstances shall be avoided.

Replacing the Batteries

1.Press the battery compartment button to eject the battery compartment.
2.Install 2xAAA batteries according to correct polarities and then close the battery compartment properly.



⚠ Please make sure the polarities of the batteries are not reversed when installing the batteries, otherwise damage may be caused to the thermometer.

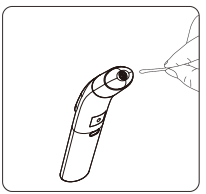
⚠ If you' re unable to take a measurement with the low battery icon displaying on the screen, you need to replace with new batteries.

⚠ Please choose batteries of the same model or specification. Waste batteries should be disposed of according to your local environmental protection requirements.

Cleaning and Disinfection

Cleaning:

Recommended cleaning agents:
· Medical cleaning agent
· Household neutral cleaning agent
Steps for cleaning:
1.Remove the batteries before cleaning.
2.Wipe the body of the thermometer with a clean, soft cloth and clean the lens with a dry cotton swab.
3.You can also wipe the body of the thermometer with a clean, soft cloth dipped with little neutral cleaning agent or water.



⚠ Do not let water immerse into the lens of the probe, as this can cause damage!

⚠ Wiping the lens with a tissue may scratch the lens of the probe, resulting in inaccurate measurement results.

⚠ Corrosive cleaning agent is not allowed. Be extra careful while cleaning. Do not touch the lens of the probe with hard adjusted and do not immerse any part of the thermometer into water to avoid any liquid getting into the thermometer.

⚠ It' s recommended to clean the thermometer once every week, and each cleaning should be completed within 3 minutes. You shouldn' t repeatedly clean the thermometer for more than 3 times each time. After disinfection, you need to wait for at least 10 minutes before next-time use.

⚠ After cleaning the thermometer with medical alcohol, you need to wait for 5 minutes before next-time use, otherwise the measurement results may be affected.

Disinfection:

Recommended disinfecting agents:
· 70% isopropyl alcohol solution
· 75% medical alcohol
· 3% sodium hypochlorite solution
Steps for disinfection:
1.Wipe the body of the thermometer with a clean, soft cloth dipped with little disinfectant, then wipe it dry immediately.
2.You can also wipe the body of the thermometer with a clean, soft cloth dipped with little 75% medical alcohol for disinfection.

⚠ Do not use high-temperature steam, ultraviolet irradiation, and etc. for disinfection, as this may cause damage to the equipment or accelerate aging!

⚠ It' s recommended to disinfect the thermometer before and after each use, and each disinfection should be completed within 1 minute. You shouldn' t repeatedly disinfect the thermometer for more than 2 times each time. After disinfection, you need to wait for at least 10 minutes before next-time use.

Cleaning and disinfection should be carried out under the following conditions:
Temperature: +0°C~+40°C (32°F-104°F), relative humidity: 15%~85%RH, non-condensing, atmospheric pressure: 86kPa~106kPa.

Maintenance

Preventive inspection and maintenance cycle
1.During normal use, a weekly check should be performed to see if the thermometer poses a potential safety hazard, such as whether the lens is broken, whether the outer casing has cracks, and whether the probe is dirty, so as to ensure your usage safety. If there is a safety hazard, please stop using it immediately. The thermometer should be cleaned once a year if it is not going to be used for an extended period.
2.After each use, please clean the probe according to the methods mentioned in "Cleaning and Disinfection".
3.Please keep the thermometer in a dry, well-ventilated, dust-free and pollution-free place without direct sunlight. Ensure the storage and transportation conditions meet the requirements.
4.Regularly check whether the thermometer poses a safety hazard.
5.If the thermometer is not going to be used for an extended period (more than 2 months), please remove the batteries and keep the thermometer properly.

Troubleshooting

Malfunction	Possible cause	Solution
Unable to power on	The battery level is too low.	Replace with new batteries.
	Polarities of the batteries are reversed.	Check the polarities of the batteries and install the batteries correctly.
	The thermometer is damaged.	Contact the manufacturer.
"Er1" is displayed when powered on	The ambient temperature is higher than 40°C (104°F) or lower than 0°C (32°F).	Please take a measurement with ambient temperature in the range of 0°C~40°C (32°F-104°F).
The measured temperature is too low compared to normal temperature range	The lens of the probe is dirty.	Clean the lens of the probe with a cotton swab.
	The distance of the probe and the measuring target is too far.	Adjust the measuring distance and move the thermometer probe close to the measuring target.

	The thermometer is moved from a cold environment to the measuring environment and has not stayed for more than 30 minutes.	Let the thermometer stay in the measuring environment for more than 30 minutes, then take a measurement again.
The measured temperature is too high compared to normal temperature range	The probe is damaged.	Contact the manufacturer.

Technical Specifications

Product name	Infrared thermometer
Model	AOJ-20F
Power supply mode	Battery-powered
Working voltage	DC 3V
Battery specification	2xAAA batteries
Working mode	Continuous operation
Display mode	LED screen display
Measurement time	About 1 second

Temperature display range	Forehead temperature: 32.0°C–42.9°C (89.6°F–109.2°F)
	Ear temperature: 32.0°C–42.9°C (89.6°F–109.2°F)
	Adjusted temperature: 0.0°C–100.0°C (32.0°F–199.0°F)
Maximum allowable error	Forehead temperature: within the range of 32.0°C–42.9°C (89.6°F–109.2°F), the maximum allowable error is ±0.2°C/±0.4°F; Out of this range, the maximum allowable error is ±0.3°C/±0.6°F.
	Ear temperature: within the range of 32.0°C–42.9°C (89.6°F–109.2°F), the maximum allowable error is ±0.2°C/±0.4°F; out of this range, the maximum allowable error is ±0.3°C/±0.6°F.
	Adjusted temperature: within the range of 0.0°C–100.0°C (32.0°F–199.0°F), the error is ±1.0°C/±2.0°F.
Display resolution	0.1°C/0.1°F
Memory data	40 sets of measured temperatures
Low battery indicator	Within 2.4V-2.7V, the low battery icon will flash when powered on; Lower than 2.4V±0.1V, only the low battery icon will be displayed when powered on.

Auto shut-down	The thermometer will automatically turn off if there is no operation within 30s.
Dimensions (mm)	165.0mm×40.0mm×43.0mm
Weight (g)	75g (without batteries)
Normal operating condition	Temperature: +10°C~+40°C (50 °F-104°F)
	Relative humidity: 15%~95%RH, non-condensing
	Atmospheric pressure: 70kPa~106kPa
Storage and transportation condition	Temperature: -20°C~+55°C (-4 °F-131°F)
	Relative humidity: 0~95%RH, non-condensing
	Atmospheric pressure: 50kPa~106kPa

Security Type

Type of protection against electric shock: Internally powered equipment.
Degree of protection against electric shock: Type BF applied part, indicated by the icon .
Ingress Protection rating: IPX0, not waterproof.
Type of protection for use in the presence of a flammable anesthetic air mixture with air or with oxygen or nitrous oxide: Non-AP/APG.
This product doesn't have defibrillation-proof applied parts.
This product doesn't have signal output part.
This product is non-permanently installed equipment.

Storage and Transportation Condition

When using common means of transportation, strong impact, vibration and rain splash should be avoided during transportation. The transportation and storage of the packaged infrared thermometer should meet the following conditions: ambient temperature between -20°C～+55°C (-4°F-131°F), relative humidity less than 95%, non-condensing, atmospheric pressure between 50kPa～106kPa, with no corrosive gases, and in a well-ventilated indoor environment.

Warranty and After-Sales Service

The device is under warranty for 12 months from the date of purchase. The batteries, the packaging, and any damage caused by improper use are not covered by the warranty.
Excluding the following user-caused failures:

· Failure resulting from unauthorized disassembly and modification.
· Failure resulting from an unexpected dropping during application or transportation.
· Failure resulting from not following the instructions in the instruction manual.

EMC Information

⚠ Caution

· The Infrared thermometer needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in the ACCOMPANYING DOCUMENTS.
· Portable and mobile RF communications equipment may affect the performance of the Infrared Thermometer, and please avoid strong electromagnetic interference such as getting close to mobile phone, microwave oven, etc. while using.
· For guidance and manufacturer' s declarations, see appendix.

⚠ Warning

· Use of this device adjacent to or stacked with other equipment should be avoided. If such use is necessary, this device and other equipment should be observed to verify that they are operating normally.

Appendix

Guidance and manufacturer' s declaration - electromagnetic emissions - for ALL EQUIPMENT AND SYSTEMS

Guidance and manufacturer' s declaration - electromagnetic emissions		
The Infrared Thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of the Infrared Thermometer should assure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment - guidance**
RF emissions CISPR 11	Group 1	The Infrared Thermometer 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 Infrared Thermometer is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings.

Guidance and manufacturer's declaration - electromagnetic immunity - for ALL EQUIPMENT AND SYSTEMS

Guidance and manufacturer's declaration - electromagnetic immunity			
The Infrared Thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of the Infrared Thermometer 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 ±15 kV air	±8 kV contact ±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%.
Power frequency (50/60Hz) 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.

Guidance and manufacturer's declaration - electromagnetic immunity - for EQUIPMENT AND SYSTEMS that are not LIFE-SUPPORTING

Guidance and manufacturer's declaration - electromagnetic immunity			
The Infrared Thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of the Infrared Thermometer should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Radiated RF IEC 61000-4-3	3 V/m 80MHz to 2.5 GHz	3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the Infrared Thermometer, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.

			Recommended separation distance $d=[\frac{3.5}{V_1}]\sqrt{P}$ $d=[\frac{3.5}{E_1}]\sqrt{P}$ 80 MHz to 800 MHz $d=[\frac{7}{E_1}]\sqrt{P}$ 800 MHz to 2.5 GHz Where p is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range. 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.

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 Infrared Thermometer is used exceeds the applicable RF compliance level above, the Infrared Thermometer should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the Infrared Thermometer.

Recommended separation distance between portable and mobile RF communications equipment and the EQUIPMENT or SYSTEM - for EQUIPMENT and SYSTEMS that are not LIFE-SUPPORTING

Recommended separation distances between portable and mobile RF communications equipment and the infrared thermometer

The Infrared Thermometer is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Infrared Thermometer can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Infrared Thermometer 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)		
	150 kHz to 80 MHz $d=[\frac{3.5}{V_1}]\sqrt{p}$	80 MHz to 800 MHz $d=[\frac{3.5}{E_1}]\sqrt{p}$	800 MHz to 2.5 GHz $d=[\frac{7}{E_1}]\sqrt{p}$
0.01	/	0.12	0.23
0.1	/	0.38	0.73
1	/	1.2	2.3
10	/	3.8	7.3
100	/	12	23

For rated maximum output power of transmitter not listed above, the recommended separation distance d in meters (m) can be calculated 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 higher frequency range applies.
NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, adjusted and people.

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