CE 0482

Infrared Thermometer
Instruction Manual

Zewa, Inc

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Product Information

Product Name: Infrared Thermometer

Model: 11110 (JPD-FR202)

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Statement

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Introduction

Thank you for purchasing this Infrared Thermometer. Please read the Instruction Manual carefully to make sure safe and proper use of this thermometer.

Please read and fully understand the Safety Precautions before use.

Keep the Instruction Manual with this thermometer for future reference.

Contents

Unpacking Check

Please open the package carefully before use, check whether all accessories are available or not and whether any component is damaged during transportation, and perform installation and operation following this user manual. In case of any damage or operation problem, please contact the dealer or contact Zewa directly. You will need the following information when making your claim: Device model, serial number, purchase date, and your contact information and address.

Package Contents

No.	Name	Quantity
1	Infrared Thermometer	1
2	Pouch	1
3	Battery (AAA)	2
4	Instruction Manual	1

Safety Precautions

Read the following precautions carefully before using the thermometer.

⚠ Attention	
◆	Take care of the temperature probe lens, which is fragile.
◆	Dispose used batteries with care. To protect the environment, you are recommended to send the used batteries to a designated collection point.
◆	Remove the batteries if the thermometer will not be used for more than two months.
◆	Do not immerse the thermometer in water or expose it to direct sunlight.
◆	Do not subject the thermometer to vibration or impact.
◆	Do not take body temperature readings within 20 minutes after you do physical exercises or get excited.
◆	Do not use the thermometer for continuous temperature monitoring purposes.
◆	Do not immerse the thermometer into water or other liquid. Clean and disinfect the thermometer as described in the "Cleaning and Disinfection" chapter.
◆	Do not touch the tip of the temperature probe, on which a precise temperature sensor resides.
◆	The ambient temperature must not be extremely high or low. To make sure accurate readings, keep the thermometer under room temperature for more than 30 minutes before use.
◆	Do not use the thermometer under an ambient temperature higher than 40°C (104°F) or lower than 10°C (50°F), which is beyond the

operating temperature range of the thermometer.
◆ **Risk of pollution!** The user is recommended to send the overdue thermometer to local garbage disposal site or send it back to us.
◆ 2 AAA batteries of 1.5V are the only replaceable accessories of the thermometer. Please do not use the batteries of other voltages or specifications.

Warning

⚠ **Warning**
● The thermometer is not intended to diagnose or treat any health problem or disease. The measurement results are for reference only.
● It is dangerous to make a self-diagnosis or self-treatment based on the obtained measurement results. For such purposes, please consult a physician or other medical professionals.
⊘ Do not charge an alkaline dry-cell battery or throw it in fire. Otherwise, the battery may explode.
⊘ Do not disassemble the thermometer or attempt to repair it. Otherwise, the thermometer may be damaged permanently.
⊘ During measurement, do not use a mobile phone or any other device that may cause electromagnetic interference.
⊘ Do not use the thermometer in an environment where flammable anesthetic mixture with air or with oxygen, or nitrous oxide is available.
⊘ Please keep the thermometer out of the reach of children.
⊘ The result may be inaccurate if you use the overdue thermometer.

Symbols

Symbol	Description
	Type BF applied part.
	Attention must be paid.
	The action is prohibited.
	Information about the manufacturer.
	Date of manufacture.
	Consult the instructions for use.
CE 0482	This product complies with the MDD93/42/EEC requirements.
	Waste electrical materials should be sent to a dedicated collection point for recycling.
IPX0	Degree of protection against the Ingress of water.
 Warning	A personal injury or damage to the thermometer may occur if the thermometer is not used correctly.
 Attention	Inaccurate reading or damage to the thermometer may occur if the thermometer is not used correctly.

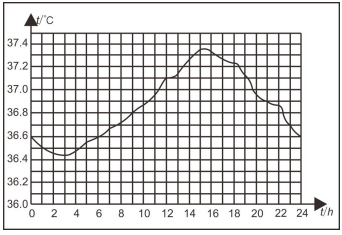
Body Temperature Basics

You can take a body temperature on the forehead, in the ear canal, under the armpit, in the mouth, or in the anus. The temperature measured at different parts of the body may differ slightly.

Body Part	Normal Temperature Range
Forehead	36.1°C–37.5°C / 97.0°F–99.5°F
Ear canal	35.8°C–38.0°C / 96.44°F–100.40°F
Mouth	35.5°C–37.5°C / 95.9°F–99.5°F
Armpit	34.7°C–37.3°C / 94.46°F–99.14°F
Anus	36.6°C–38.0°C / 97.88°F–100.40°F

The normal body temperature range slightly varies with age and gender. Generally, newborns or children have higher body temperature than adults, and adults have higher body temperature than the elderly. Women's body temperature are appropriately 0.3°C higher than men's.

Variation in body temperature



Normal body temperature varies by the time of day and is also affected by external factors.
The body temperature of an individual is the lowest between 2:00 a.m. and 4:00 a.m. and the highest between 14:00 p.m. and 20:00 p.m. An individual's body temperature typically changes by less than 1°C each day.

Product Description

1) Overview

The Infrared Thermometer measures the human body or an object temperature based on the infrared energy emitted by the forehead or an object (such as milk and water). You can quickly get measurement results after pointing the temperature probe to the target.

2) Structure

The thermometer consists of a shell, an LCD, buttons, a beeper, an infrared temperature sensor, and a Microprocessor.

3) Operating principle

The infrared temperature sensor collects infrared energy emitted by the forehead. After being focused by a lens, the energy is converted into a temperature reading by the thermopiles and the measurement circuit.

4) Intended use

The Infrared Thermometer is a non-contact infrared thermometer intended to obtain the body temperature from the forehead. It may be used by medical professionals or by consumers in a home environment.

5) Contraindications

None

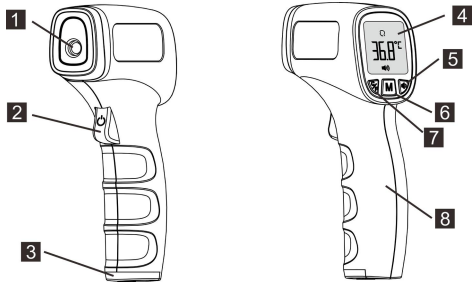
Features

1. **Good safety**
   - Passive infrared receiving technology
   - Non-contact measurement, preventing cross-infection
2. **Easy operation**
   - Handheld design, easy operation
   - One-click automatic temperature measurement
3. **Quick response**

   1-second measurement
4. **High accuracy**
   - Advanced infrared temperature sensor, with high sensitivity
   - Enhanced accuracy with automatic temperature calibration
5. **Diverse functions**
   - 20 temperature readings stored in memory
   - Forehead/Object temperature measurement
   - Fever alert, with a configurable alert threshold
   - Switching between ℃ and ℉
   - Switching between mute/un-mute mode (measuring sound notification)
   - Automatic power-off, power-saving
6. **Extensive application scope**

   Applicable to all groups of people

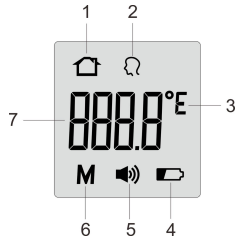
Product Structure



1、IR sensor
2、Power-on button / Measure button
3、Battery cover
4、LCD display
5、Mute / Un-mute button
6、Mode button
7、Celsius / Fahrenheit Switch button
8、Handgrip

Display description

1. Object temperature mode
2. Forehead temperature mode
3. Temperature unit (˚C / ˚F)
4. Low power indicator
5. Mute / un-mute
6. Memory mode
7. Temperature value



Sounds and backlight instructions

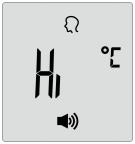
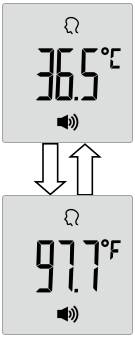
Range	Sounds	Backlight
Forehead temperature		
34.9℃-37.5℃/94.8℉-99.5℉	A long beep	Green
37.6℃-42.2℃/99.6℉-108.0℉	3 short double beeps	Red
Object temperature		
0℃-100℃/32.0℉-212.0℉	A long beep	White

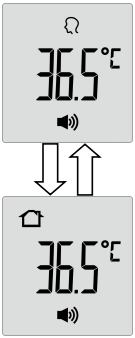
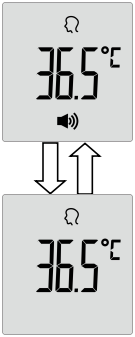
Note: When the temperature is between 34.9°C/94.8℉ and 37.5°C/99.5℉, there will be a long beep and a green backlight.

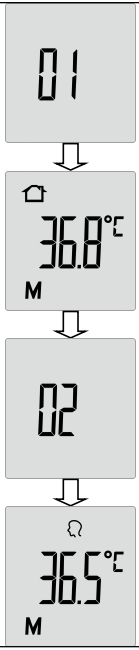
When the temperature is between 37.6°C/99.6℉ and 42.2°C/108.0℉, there will be 3 short double beeps and a red backlight. This indicates that the body temperature is a little high and you may have a fever. Please consult your doctor if you are not sure.

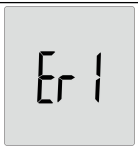
Display and Operating Instructions

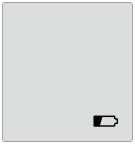
Screen Display	Operating Instructions/ Displayed State	Description
Measuring Forehead temperature		
	In a power-off state, point the IR sensor to the center of the forehead. Move the thermometer towards the forehead. For effective measurement, the distance between the thermometer and the forehead must be ½" to 2" (1-5 cm). Press and release the **Measure button**. The forehead temperature will be displayed on the screen.	See the table in the "Sounds and Backlight Instructions" section
Measuring Object temperature		
	In a power-on state, press the "**Mode button**", the thermometer enters the **Object mode**. Point the IR sensor to the center of the object, then press and release the **Measure button**. the object temperature will be displayed on the screen.	See the table in the "Sounds and Backlight Instructions" section

Screen Display	Operating Instructions/ Displayed State	Description
Out of the measuring range display		
	In Object mode, a temperature reading of more than 100ºC (212.0ºF) In Forehead mode, a temperature reading of more than 42.2ºC (108.0ºF)	A long beep and a green backlight for 3 seconds.
	In Object mode, a temperature reading of less than 0ºC (32.0ºF) In Forehead mode, a temperature reading of less than 34.9ºC (94.8ºF)	A long beep and a green backlight for 3 seconds.
Switching between ºC and ºF		
	In a power-on state, press the **ºC/ºF button** to switch between ºC and ºF.	Silent

Screen Display	Operating Instructions/ Displayed State	Description
Switching between forehead temperature and object temperature		
	In a power-on state, press the **Mode button** to switch between forehead temperature ( ) and object temperature ( ).	Silent
Switching between mute and un-mute		
	In a power-on state, press the **Mute/Un-mute button** ( ) to switch between mute and un-mute.	The symbol is displayed in Un-mute mode and disappears in mute mode.

Screen Display	Operating Instructions/ Displayed State	Description
Recall 20 memories		
	In a power-on state, press and hold the **Mode button** for more than 2 seconds. "**F-1**" is displayed.	Press the Measure button to return to the measurement interface.
	Press the ºC/ºF or the button, **1** will be shown, followed by the recorded reading. Press the "ºC/ºF button" again for the next recorded data. **2** will be shown, followed by the recorded reading. A maximum of 20 temperature readings can be recalled. **Note:** **1** represents the newest data.	Silent

Screen Display	Operating Instructions/ Displayed State	Description
Fever alert threshold settings		
	When **"F-1"** is displayed, press the **Mode button**. Then **"F-2"** is displayed.	Press the Measure button to return to the measurement interface.
	Press the ℃/℉ or the button. The fever alert threshold is displayed. The threshold value increments by 0.1℃/℉ every time the ℃/℉ button is pressed, and decrements by 0.1℃/℉ every time the button is pressed. The tunable range is 35.0℃–42.0℃ (95.0℉–107.6℉).	The default fever alert threshold is 37.6℃.
Error information & low battery		
	The ambient temperature is higher than 40.0℃ (104.0℉) or lower than 10.0℃ (50.0℉).	A long beep and a red backlight for 3 seconds.
	An error occurs when data is being read from or written to the memory, or the temperature correction is not complete.	A long beep and a red backlight for 3 seconds.

Screen Display	Operating Instructions/ Displayed State	Description
	When the battery voltage is lower than 2.5V ± 0.1V, the low battery symbol will appear on the display. Please replace the batteries.	Silent
Power-off		
In any mode, if there is no operation in 10 seconds, the thermometer will power off automatically.		

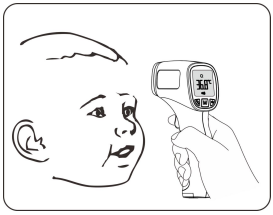
Measurement Process

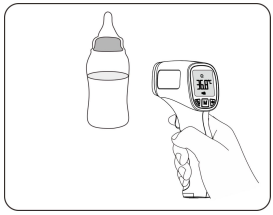
1. Select the measurement mode.

- Press the **Measure button** to power on the thermometer. Select the measurement mode using the Mode button.
- The symbol indicates the Forehead temperature mode. The symbol indicates the Object temperature mode.

2. Press the Measure button to start a measurement.

- When taking the forehead temperature, point the IR sensor to the center of the forehead. Move the thermometer towards the forehead. the distance between the thermometer and the forehead must be ½" to 2" (1-5 cm). Press and release the **Measure button**. The forehead temperature will be displayed on the screen.
- When taking the object temperature, Point the IR sensor to the center of the object. The distance between the thermometer and the object must be ½" to 2" (1-5 cm). Press and release the **Measure button**. The object temperature will be displayed on the screen.





3. After a measurement

- After each measurement, clean the thermometer with a dry soft cloth, and put the thermometer in a dry and well-ventilated place.
- The thermometer automatically powers off if it is not used in 10 seconds.

Notes:

(1) The thermometer is suitable for an indoor environment without strong air convection between the thermometer and the target. For example, winds from a fan, an air-conditioner, or a heater.

(2) Do not hold the thermometer for a long time, because it is sensitive to the ambient temperature.

(3) Make sure the sense head is free of foreign matters before use;

(4) Make sure the forehead has no sweat and no hairs covered before measure the forehead temperature; otherwise, the result could be incorrect;

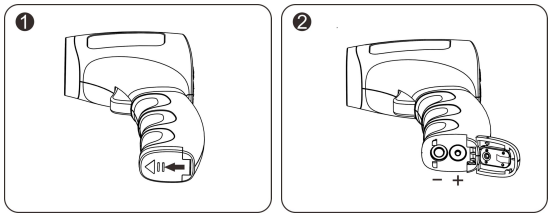
(5) No intense emotion or strenuous exercises before measuring;

Replacing Batteries

1) Slide the battery cover off along the marked direction. Insert the two

AAA batteries into the compartment correctly.

2) If the low-battery symbol is displayed on the screen, replace the batteries.



⚠ Make sure that the batteries are installed correctly. Otherwise, the thermometer may be damaged.

⚠ Batteries of a same type should be used. Dispose the used batteries in accordance with the local environmental policies.

⚠ The thermometer is provided with batteries that were installed in the factory. When you start to use it in the first time, open the battery cover, then remove the insulating piece.

Cleaning and Disinfection

Cleaning

Recommended detergents:

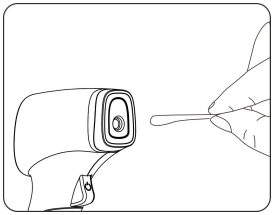
* Medical detergents;
* Home use mild detergents;

Cleaning steps:

1) Take the batteries out before cleaning.
2) Clean the temperature with a soft cloth. Clean the lens of the

temperature probe with a cotton swab.

3) Wipe the thermometer body with a slightly damp soft cloth.



⚠ Keep water off the lens during the cleaning process. Otherwise, the lens may be damaged.

⚠ The lens may be scratched if it is cleaned with a piece of tissue paper, which might result in inaccurate readings.

⚠ Do not clean the thermometer with corrosive cleansers. During the cleaning process, do not touch the lens using hard objects, do not immerse any part of the thermometer into liquid, or allow liquid to penetrate the thermometer.

Disinfection

Recommended disinfectants:

* Isopropyl alcohol solution (concentration: 70%)
* Medicinal alcohol (concentration: 75%)
* Sodium hypochlorite solution (concentration: 3%)

Disinfecting steps:

1) Wet the clean soft cloth with a small quantity of disinfectant, wipe the thermometer and quickly dry it.

2) Disinfect the thermometer body with a cloth slightly moistened with 75% medical alcohol.

⚠ Do not use hot steam or ultraviolet radiation for disinfection. Otherwise, the thermometer may be damaged or quickly aged.

⚠Clean and disinfect the thermometer under the temperature of +10℃~+40℃(50℉-104℉), the relative humidity of 15%~85%RH (no condensation) and the barometric pressure of 86kPa~106kPa.

Maintenance

Preventive inspection & maintenance period

1) Ensure the safety of thermometer, and check whether it has potential safety hazards in normal use each week, e.g. whether the lens is broken, the shell has cracks and the sensing head is polluted. Do not use the thermometer with potential safety hazard. Clean the thermometer if not used for a long time.
2) Store the thermometer in a dry, dust-free, and well-ventilated place. Make sure that the thermometer is not exposed to sunlight. Make sure that the storage and transportation environments meet the requirements.
3) Remove the batteries if the thermometer will not be used for more than two months.

Troubleshooting

Problem	Possible Cause	Solution
The thermometer fails to power on.	Low battery	Change the batteries.
	Polarities of the batteries are reversed.	Make sure that the batteries are installed correctly.
	The thermometer is damaged.	Contact the manufacturer.
"Er1" is displayed.	The ambient temperature is lower than 10°C (50.0°F) or higher than 40°C (104°F).	Take a measurement under an ambient temperature between 10°C (50.0°F) and 40°C (104°F).
The temperature reading is lower than the typical body temperature range.	The lens of the temperature probe is dirty.	Clean the lens using a cotton swab.
	The distance between the temperature probe and the target is too long.	Move the thermometer closer to the target.
	The thermometer is used within 30 minutes after being taken from a cold environment.	Wait for more than 30 minutes after the thermometer is moved into the measurement environment.
The temperature reading is higher than the typical body temperature range.	The temperature probe is damaged.	Contact the manufacturer.

Specifications

Product Name	Infrared Thermometer
Product Model	11110 (JPD-FR202)
Power Supply Mode	Internal power supply
Operating Voltage	DC 3V
Battery Model	AAA x 2
Operating Mode	Continuous operating
Display	Segment LCD
Measure time	About 1 second
Latency Time	About 1 second
Emissivity	0.95
Measuring Distance	½" to 2" (1 to 5 cm)
Measuring Range	Forehead: 34.9°C–42.2°C (94.8°F–108.0°F)
	Object: 0.0°C–100.0°C (32.0°F–212.0°F)
Accuracy (Laboratory)	±0.4°F/±0.2°C from 94.8°F to 108.0°F (34.9°C to 42.2°C) ±0.5°F/±0.3°C, Outside the range of 94.8°F to 108.0°F (34.9°C to 42.2°C)
Resolution	0.1°C (0.1°F)
Memory	20 temperature readings
Low-battery Alert	The low-battery symbol is displayed if the power voltage is lower than 2.5 V±0.1V.
Automatic Power-off	The thermometer automatically powers off if it is not used in 10±1 seconds.
Dimensions (mm)	150×88.2×40.6
Weight (g)	109.5 g (with batteries)
Operating Environment	Temperature: 10°C–40°C (50°F–104°F)
	Humidity: 15%–95% RH, non-condensing
	Atmospheric pressure: 86–106 kPa
Storage and Transportation	Temperature: -20°C to 55°C (-4°F–131°F)
	Humidity:0- 95% RH, non-condensing
	Atmospheric pressure: 50–106 kPa

The infrared thermometer has been tested and conforms to the standard ASTM E1965-98. ASTM laboratory accuracy requirements in the display range of 98°F to102°F (37°C-39°C) for skin IR thermometers is ±0.5°F (±0.3°C). Note that for mercury-in-glass and electronic thermometers, the requirement per ASTM Standards E667-86 and E1112-86 is ±0.2°F (±0.1°C).

Security Class

- Type of protection against electric shock: internally powered equipment.
- Degree of protection against electric shock: Type BF applied part.
- Degree of protection against ingress of water: IPX0
- Safety degree of using in flammable anesthetic gas blending with air, oxygen or nitrous oxide: Non-AP/APG
- No application parts of the thermometer prevents defibrillation charge effect.
- No application parts of the thermometer output signal.
- The thermometer is impermanent installed device.

Storage and Transportation

1) Transportation

The thermometer can be transported using general transportation tools. Severe vibration, shock, or rain must be avoided during transportation.

2) Storage

The thermometer must be packaged and then stored in a well-ventilated room without corrosive gas. The ambient temperature must be between –20°C and +55°C（-4°F–131°F）, the relative humidity must be lower than 95% (non-condensing), and the atmospheric pressure must be 50–106 kPa.

EMC Information-Guidance and Manufacture's Declaration

CAUTION:

●The Infrared Thermometer needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided for in the ACCOMPANYING DOCUMENTS.

●Portable and mobile RF communications equipment can affect Infrared Thermometer.

●The Infrared Thermometer should not be used adjacent to or stacked with other equipment.

Guidance and manufacturer´s declaration – Electromagnetic emission –for all equipment and systems

Guidance and manufacturer´s declaration – Electromagnetic emission		
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 used for domestic purposes.

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	±6 kV contact ±8 kV air	±6 kV contact ±8 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 (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

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 80 MHz to 2.5 GHz	3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the thermometer, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.

			Recommended separation distance $d = [\frac{3.5}{E_1}]\sqrt{P}$ 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 the recommended separation distance in metres (m).[b] 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 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 Thermometer is used exceeds the applicable RF compliance level above, the 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

JPD-FR202.
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 EQUIPMENT or SYSTEM -for EQUIPMENT and SYSTEMS that are not LIFE-SUPPORTING

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	
	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 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.

Warranty and After-Sale Service

The device is under warranty for one year 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:

1. Failure resulting from unauthorized disassembly and modification.
2. Failure resulting from an unexpected dropping during application or transportation.
3. Failure resulting from not following the instructions in the user's manual.

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