

# Medical Infrared Thermometer PC859/PC859EV

## User's Manual



Version 1.0  
2019.12.01

# 1. Introduction

Thank you for choosing our medical infrared thermometer. The PC859/PC859EV medical infrared thermometer is used to measure human forehead temperature or object's surface temperature based on the relationship between temperature and measurable infrared radiation. Simply aim the unit's probe toward the surface to be measured to obtain a quick and accurate temperature.

To ensure proper use this product, please be sure to read this user manual carefully before using, paying close attention to the section 2 'safety precautions'.

Please keep the instructions on the side for easy checking.

Models covered for this manual and their differences are as follows:

<b>Model</b>	<b>Difference</b>
PC859	At the end of temperature measurement, the buzzer gives a 'beep' cue.
PC859EV	At the end of temperature measurement, the speaker broadcasts the temperature in English.

Aside from the above differences, the expected use of the two models is exactly the same.

## Basic principles:

All objects above absolute zero temperature emits certain percentage of infrared radiation energy based on its temperature. The amount of the radiation energy and the distribution of the wavelength have very closely relationship. When human forehead's temperature in 36-37°C, it emits wavelength 9-13um of infrared radiation. Based on this principle, according to the relationship between surface forehead temperature and human forehead's temperature, we are able to measure the human forehead's actual temperature through measuring surface forehead temperature.

## 2. Safety precautions

### Warning

- The infrared thermometer is a kind of body temperature screening device, use of this thermometer is not intended as a substitute for consultation with your physician. It is dangerous for user to perform a self-evaluation and self-treatment based on the measuring result.

- Keep the thermometer out of reach of children. For accidental swallow of battery or other component, please consult the doctor at once.

- Don't throw the battery into fire.

- Keep the thermometer out of direct sunlight in a dry, dust-free, well-ventilated area. Do not use the thermometer in the following cases:

- a) Beyond the specified humidity range 15–95% RH to operate;

- b) Beyond the specified temperature and humidity range to storage or shipping:

Temperature: -25.0–50.0°C (-13.0–122.0°F);

Humidity: ≤95% RH, non-condensing.

Otherwise the measured temperature may be inaccurate.

- ASTM laboratory accuracy requirements in the display range of 37°C to 39°C (98°F to 102°F) for IR thermometers is  $\pm 0.2^{\circ}\text{C}$  ( $\pm 0.4^{\circ}\text{F}$ ), whereas for mercury-in-glass and electronic thermometers, the requirement per ASTM Standards E667-86 and E 1112-86 is  $\pm 0.1^{\circ}\text{C}$  ( $\pm 0.2^{\circ}\text{F}$ ).

### Notice

- The device is precision instrument, don't drop, tramp or impose any vibration or impact on the thermometer.

- Do not touch the lens of the probe with your fingers, and do not disassemble the device by yourself.

- Before measuring forehead temperature, make sure the hair removed, sweat dried.

- After you do some exercise, eating and bathing, you should stay still indoor about 30 minutes before measurement.

- To make the measurement data reliable and stable, when ambient temperature varies a lot, the thermometer should be placed indoors for about 30 minutes before using.

- When we measure somebody continuously, the temperature should be measured every minute, if you need to measure yourself continuously for a short time, there are some slight errors when you read the temperature, which is a normal phenomenon. At this time, we should choose the average. We recommend that you measure yourself continuously maximum of three in a unit of time, and because the temperature of the human will conduct to the thermometer, it may affect the accuracy of measurement.
- There is no absolute standard about the temperature of the human, so please try to collect the recording of individual temperature in the usual, as a reference for having a fever or not.
- Do not measure the sites of scarred tissue or tissue compromised by skin disorders, because sensing body temperature is not accurate from sites of scarred tissue or tissue compromised by skin disorders.
- Do not measure forehead temperature if the patient has trauma on forehead.
- Do not immerse the device into water or any other liquid, and not directly sunlight exposure.
- Do not use a mobile phone or cordless phone near the thermometer when measuring.
- During the therapeutic period of the drug, the body temperature may rise, please don't measure.
- In order to ensure the accuracy of measurement data, please don't take measurement of body temperature in strong electromagnetic interference environment (such as microwave, high frequency equipment operation environment).
- Do not disassemble, repair, or modify the thermometer.
- Do not touch the battery output when measuring.
- The thermometer must be stored according to the technical specifications. The materials (ABS) of expect contact with patient had passed the ISO 10993-5 and ISO 10993-10 standard test, no toxicity, allergy and irritation reaction. Based on the current science and technology, other potential allergic reactions are unknown.
- The patient is an intended operator. The patient can measure, read data and replace battery under normal circumstances and maintain the device and its accessories according to the user manual.
- The device is not intended use for PATIENT transport outside a health care facility.

## Recommendations

- Don't use this thermometer for other purposes. It is forbidden to leave the product exposed to any chemical solvent, direct sunshine or high temperature.
- Do not measure while talking on the phone.
- Please report to MANUFACTURER if any unexpected operation or events occur.

## 3. Intended use

This non-contact infrared thermometer is intended to measure forehead temperature at home or hospital, including anyone, such as infants, children and adults. Infants or children's temperature must be measured by their parents or adults. It's intended used in the home healthcare environment.

## 4. Temperature measurement mode and range description

The infrared thermometer has the following measurement mode:

- 1) Forehead measurement mode – measure the skin surface to obtain the human forehead temperature accurately, take the place of traditional mercury thermometer and electrical thermometer.
- 2) Object measurement mode – measure the object's surface temperature, such as ambient, bathwater and milk temperature etc.

**Normal temperature range for different measuring position**

Measuring position	Normal temperature (°C)	Normal temperature (°F)
Anus	36.6-38.0	97.9-100.4
Oral	35.5-37.5	95.9-99.5
Armpit	34.7-37.3	94.5-99.1
Forehead	35.8-38.0	96.4-100.4

### Normal forehead temperature range for different ages

Ages	Normal temperature (°C)	Normal temperature (°F)
0-2 years old	36.4-38.0	97.5-100.4
3-10 years old	36.1-37.8	97.0-100.0
11-65 years old	35.9-37.6	96.6-99.7
> 65 years old	35.8-37.5	96.4-99.5

#### **NOTE:**

- The normal temperature and difference between the different body parts is individual. To define yours, measure your temperature for at least 2 weeks at the same forehead position and time.
- When consulting your physician, communicate with him/her what measured site is important, note the individual's normal temperature range as additional reference.
- Because the forehead temperature is affected obviously by the external environment (e.g., environment, air convection and skin tone, etc.), we advice that you take the forehead temperature only as reference.

## **5. Feature**

- Precise non-contact measurement
- Convertible °C and °F
- Set warning temperature value
- Automatic data hold and auto power save
- Automatic selection range and display resolution 0.1°C (0.1°F)
- 3 colors backlight
  - Green LED indicates ready for use
  - Orange LED indicates low fever status
  - Red LED indicates a warning of high fever status
- 2 measurement mode: Forehead and surface mode

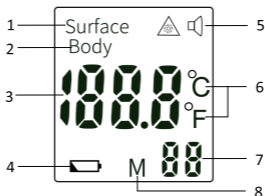
## 6. Overall description

### 【Main component description】



- |                  |                      |
|------------------|----------------------|
| 1. IR sensor     | 2. LCD display       |
| 3. Buzzer Key    | 4. Mode Key          |
| 5. Memory Key    | 6. Power/Scan button |
| 7. Battery cover |                      |

### 【LCD display description】



- |                      |                               |
|----------------------|-------------------------------|
| 1. Surface mode      | 2. Body mode                  |
| 3. Temperature value | 4. Low battery symbol         |
| 5. buzzer            | 6. °C(Celsius)/°F(Fahrenheit) |
| 7. Saved data number | 8. Memory symbol              |

# 7. Operation Instruction

## 【Preparation】

- 1) Check battery: replace the batteries to ensure power supply is enough if there is low voltage icon showed on the LCD screen.
- 2) Check sensor: if have pollution and spray, clean the sensor before using, the cleaning method see the chapter 7 Care and Cleaning for detailed; If the sensor's lens is damaged, please stop using.
- 3) Check thermometer: when you press the [Power/Scan] button, the system will have self testing of software and hardware. If there are problems, LCD will display 'Err' symbol.
- 4) In order to obtain accurate measuring results, put the thermometer in the room temperature environment 30 minutes before using.
- 5) Unexpected fluctuations of ambient temperature may decrease the measurement results accuracy. If the ambient temperature various a lot, or test temperature in front of the air conditioner, it will not be able to obtain accurate results.
- 6) Before you measure forehead temperature, clean forehead, arrange hair and wipe sweat, make sure your forehead is clean and not be covered, in order to ensure the accuracy of measurement.

## 【Instruction for use】

- 1) Advice for the first use

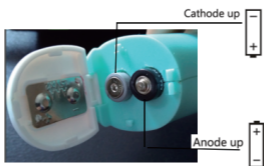
For stable and reliable results, it is essential to check the infrared thermometer and changes as needed, as follows:

1st step:	Take the temperature of a person using a conventional thermometer, you will get 37.5°C(99.5°F ) for instance.
2nd step:	Take the temperature of the same person using the device keeping the 3 to 5cm distance between the thermometer and forehead (take care to remove any obstacle which could alter the measurement (hair, perspiration ...))



## 2) Use

### 1. Install batteries

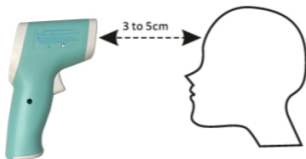


### Notice

- Please take out the battery if the device is not used for a long period.
- Please don't put the battery in the fire.
- Please observe the related national laws of disposing the abandoned battery and don't litter to the garbage can.

**To protect the environment, dispose of empty battery at your retail store or at appropriate collection sites according to national or local regulations.**

2. For the first use or when inserting new batteries, please wait about 10 minutes for the warm-up of the apparatus.
3. If the device is not used for a long time, once you turn it on again, the device will test the room temperature first and will delay turning on for one or two seconds.
4. Select body mode, aim towards the forehead, from distance of 5cm(2in), press the measuring key, the temperature is displayed immediately, accompanied by a beep sound. Making sure there is no hair, perspiration, cosmetic or cap covered on the forehead.



5. The cutoff temperature of low fever is 37.5°C. If the temperature is higher than 37.5 °C, the back light lit orange, please double check. We recommend measurement for 3 times to reference.

6. The cutoff temperature of high fever is 38.0°C. If the measurement temperature is higher than 38.0°C , the sound should be “be-be-be-be-be” 5 rapid sounds and the back light lit red, please double check. We recommend measurement for 3 times to reference.

#### **TEMPERATURE TAKING HINTS**



- Before take the temperature, please fix the forehead hair to prevent measured deviation.
- The sweat on head or cosmetic can affect the accuracy of measurement, please maintain the cleanness of the forehead when measuring.
- It is normal that there may be temperature difference depending on various skin types and color, since different skin type will reflect different voltage of infrared ray.
- Don't use the thermometer outdoors.

7. Select surface mode for measuring room temperature, surface temperature etc.

#### **TEMPERATURE TAKING HINTS**

- For heat-insulated object, please don't measure the surface.
- For the hot liquid, please do not directly measure the surface, because the hot steam fog can condense in the sensor lens and cause the measurement deviation.

### 3) Setting operation

	<b>Function</b>	<b>Operation step</b>
1	Set buzzer on/off	Press  button to select the buzzer is on/off.
2	Measurement mode	Press MODE key can select measurement modes . The are 2 measurement modes for this device. That is body and surface. It is able to take the body temperature of human begins, take the surface temperature of an area or an object, a food, a liquid or a room.
		Body mode Press the MODE key, the screen will display “Body” on the upper left, measurement range 32.0 to 43.0°C(89.6 to 109.4°F).
		Surface mode Press the MODE key, the screen will display “Surface” on the upper left, measurement range 0 to 100°C(32.0 to 212.0°F).
3	3 colors backlight	In body mode, the device is able to judge whether a fever or not by different color of backlight: 32.0 to 37.4°C (89.6 to 99.3°F) – Green 37.5 to 37.9°C (99.5 to 100.2°F) – Orange 38.0 to 42.9°C (100.4 to 109.4°F) – Red In surface mode, the backlight always keeps green.
4	Data memory	Date memory automatically after temperature measurements, which will display at the bottom of LCD. Press the “MEM” key to display the last recorded human body temperature.
5	°C and °F conversion	Hold pressing  button, until °C/°F symbol appears on the screen, press MODE/MEM button to convert the using temperature unit to another one.

### 4) Automatic shutdown

If you do nothing after the temperature measurement completed, the thermometer will automatically shutdown within 20 seconds.

## 8. Cleaning and disinfection

The probe tip and lens are the most delicate and precise part of the thermometer. Please keep clean and entirety in order to assure the accuracy of readings.

Clean the probe and lens as follows:

- Use a cotton swab or soft cloth moistened with absolute alcohol to gently wipe the surface, and wait for the alcohol completely dry out.
- If the lens is damaged, contact the distributor.

Clean and disinfect the unit body:

- Use a soft cloth moistened with clean water to wipe the thermometer display and unit body, and wait for the water completely dry out.
- If the unit body is very dirty, it is need to be disinfected, use a soft cloth moistened with 75% medical alcohol to wipe the surface.

### NOTES:

- Do not use abrasive cleaners.
- Do not use other non-recommended methods to perform clean and disinfect.
- Non-waterproof, do not drop the thermometer in the water or the other liquid.

## 9. Maintenance

- 1) We do not authorize any agency or individual to maintain and repair the product. If you have any quality issues with the product, please contact the manufacturer or distributor for handling.
- 2) Manufacturer will make available on request circuit diagrams, component part lists, descriptions, calibration instructions, etc., to assist to service personnel in parts repair.
- 3) The users must not attempt to repair the device or its accessories, please contact the retailer for repair.
- 4) Equipment disassembled by unauthorized agencies and individuals is not permitted and any warranty will be terminated in advance.
- 5) Warning: Remove the batteries if the thermometer will not be used for more than one month.
- 6) Warning: No servicing/maintenance while the ME equipment is in use.
- 7) Warning: No modification of this equipment is permitted!

## 10. Calibration

The thermometer was first calibrated at the time of manufacture, and if the user uses the product correctly according to the instructions, it does not need to be re-calibrated on a regular basis. If you have questions about the accuracy of the product measurement, you can contact the dealer or manufacturer at any time, the manufacturer information please see the last page.

## 11. Storage



- 1) Don't directly put the thermometer under the sunshine, high temperature and moist environment or someplace which maybe get in touch with fire or is vulnerable to vibration.
- 2) Take out the battery if don't use the device in a long time.

## 12. Packing list

Only use original accessories. Check that the contents of the delivery are complete.

<b>Quantity</b>	<b>Parts</b>
1 pc	PC859/PC859EV device
1 pc	User's Manual
1 pc	Storage bag
2 pcs	AAA battery

# 13. Trouble-shooting

Symptom	Possible Cause	Solution
No response/ Automatically reset	The battery level is too low	Replace the batteries.
	The polarities of the batteries are reversed	Ensure that the batteries are inserted correctly.
	The thermometer is damaged	Contact the dealer or manufacturer.
Hi		<ol style="list-style-type: none"> <li>1. First make sure that the probe lens is clean and free from dirt.</li> <li>2. If the environmental temperature is out of range, then both patient and thermometer should stay in a room between 10.0–40.0°C (50.0–104.0°F) for at least 30 minutes before taking a temperature measurement.</li> <li>3. If the problem persists after trying the above method, please contact the dealer or manufacturer.</li> </ol>
Lo	Human body temperature below 32.0°C/89.6°F.	<ol style="list-style-type: none"> <li>1. First make sure that the probe lens is clean and free from dirt.</li> <li>2. If the environmental temperature is out of range, then both patient and thermometer should stay in a room between 10.0–40.0°C (50.0–104.0°F) for at least 30 minutes before taking a temperature measurement.</li> <li>3. If the problem persists after trying the above method, please contact the dealer or manufacturer.</li> </ol>
Err	Environmental temperature is not in the 10.0–40.0°C (50.0–104.0°F) range.	<ol style="list-style-type: none"> <li>1. First make sure that the probe is clean and free from dirt.</li> <li>2. If the environmental temperature is out of range, then both patient and thermometer should stay in a room between 10.0–40.0°C (50.0–104.0°F) for at least 30 minutes before taking a temperature measurement.</li> <li>3. If the problem persists after trying the above method, please contact the dealer or manufacturer.</li> </ol>
	Low battery, but you can still use it	Keep an eye on power and continue to use.
	Lower battery, however you can't use it	Replace the new battery.

# 14. Specifications

Product name	Medical Infrared Thermometer
Product model	PC859/PC859EV
Applicable regulations and laws	ASTM E 1965-98 / EN12470-5 / GB/T 19146
Power supply	DC 3.0V (2 × AAA batteries)
Battery life	More than 2,000 measurements
Low battery indicator	Appears on the screen when the voltage is below 2.7V
Measurement modes	Forehead & object surface temperature modes
Measurement time	1 second
Temperature units	°C and °F (convertible)
Measurement range	32.0–43.0°C (89.6–109.4°F)
Accuracy (At laboratory conditions)	35.0–42.0°C (95.0–107.6°F) ±0.2°C/0.4°F
	Other ranges ±0.3°C/0.5°F
Clinical repeatability	Within ±0.3°C
Measuring site	Forehead (keep distance 3-5cm from forehead)
Reference body site	Human core
Auto shut down	within 20 seconds
Display resolution	0.1°C/°F
Memory	99 saved readings
Operation environment	Temperature: 10.0–40.0°C (50.0–104.0°F) Humidity: 15–95% RH, non-condensing Atmospheric pressure: 70–106kPa
Storage and shipping environment	Temperature: -25.0–50.0°C (-13.0–122.0°F) Humidity: ≤95% RH, non-condensing Atmospheric pressure: 70–106 kPa
Date of manufacture	See label
Expected service life	5 years
Net weight	97 g (not including batteries)
Dimension	140 × 105 × 42 mm
Grade of waterproof	IP22
Electric shock	Internally powered ME equipment
Software version	B04

Note:

1. Not intended to be sterilized;
2. Not intended for use in an oxygen rich environment;
3. Not intended for use in conjunction with flammable anaesthetics or flammable agents;
4. Surface temperature mode is direct mode, forehead temperature mode is adjust mode, surface temperature mode is test mode of forehead temperature mode.

\*The above specifications are subject to change without prior notice.

Shenzhen PACOM Medical Instruments Co., Ltd declares that the PC859/PC859EV complies with following applicable standards:

EN 980	Symbols for use in the labeling of medical devices
EN 1041	Information supplied by the manufacturer with medical devices
EN 60601-1	Medical electrical equipment Part 1: General requirements for basic safety and essential performance
EN 60601-1-2	Medical electrical equipment -- Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic compatibility - Requirements and tests
EN 60601-1-6	Medical electrical equipment – Part1-6: General requirements for basic safety and essential performance – Collateral standard: Usability
EN 60601-1-11	Medical electrical equipment – Part 1-11: General requirements for basic safety and essential performance – Collateral standard: Requirements for medical electrical equipment and medical electrical systems used in home healthcare environment
EN 12470-5	Clinical thermometers – Part 5: Performance of infra-red ear thermometers (with maximum device)
ISO 80601-2-56	Medical electrical equipment part 2-56: particular requirements for basic safety and essential performance of clinical thermometers for body temperature measurement
EN 62304	Medical device software - Software life-cycle processes
EN 62366	Medical devices – Application of usability engineering to medical devices
EN ISO 10993-1	Biological evaluation of medical devices - Part 1: Evaluation and testing within a risk management process



## 15. Disposal



Dispose of the device in accordance with the regulation applicable at the place of operation.

Dispose of at public collection point in the EU countries – 2002/96/EC WEEE Directive.

If you have any queries, please refer to the local authorities responsible for waste disposal.

### NOTES:

- Handling of battery and wastes method, please act according to the native law to proceed to handle. Take out the battery if you are not going to use the unit for a long time.



To protect the environment, dispose of empty battery at your retail store or at appropriate collection sites according to national or local regulations.

Dispose of at public collection point in the EU countries – 2006/66/EC Directive.

## 16. Normalized symbols

Symbol	Description
	Disposal in accordance with Directive 2012/19/EU (WEEE)
	Please read the instructions carefully.
	Manufacturer
	Date of manufacture
	Serial number
	Batch code
IP22	IP code of the device: this device' s grade of against ingress of solid foreign objects -- $\cong$ 12.5mm diameter (and the against access to hazardous parts with finger); the grade of waterproof is dripping (150 tilted).

## 17. Appendix A: EMC Information - Guidance and Manufacturer's Declaration

### CAUTION!

- This Medical Infrared Thermometer requires special precautions regarding EMC, and must be installed and put into service according to the EMC information provided in the ACCOMPANYING DOCUMENTS.
- Portable and mobile RF communications equipment can affect the thermometer.
- This device should not be used adjacent to or stacked with other electric equipment.


### Guidance and manufacturer's declaration - electromagnetic emissions - for all EQUIPMENT and SYSTEMS

Guidance and manufacturer's declaration - electromagnetic emissions		
The Medical Infrared Thermometer is intended for use in the electromagnetic environment specified below. The customer or user of the device should ensure that it is only used in such an environment.		
Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	As this device only uses RF energy for its internal functions, its RF emissions are very low and not likely to cause any interference to nearby electronic equipment.
RF emissions CISPR 11	Class B	The device is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network which supplies buildings for domestic purposes.

## Guidance and manufacture's declaration - electromagnetic immunity - for all EQUIPMENT and SYSTEMS

Guidance and manufacturer's declaration - electromagnetic immunity			
The Medical Infrared Thermometer is intended for use in the electromagnetic environment specified below. The customer or user of the device should ensure that it is only used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	$\pm 6\text{KV}$ contact $\pm 8\text{KV}$ air	$\pm 6\text{KV}$ contact $\pm 8\text{KV}$ air	Floors should be wooden, 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 Medical Infrared Thermometer is intended for use in the electromagnetic environment specified below. The customer or user of the device should ensure that it is only 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 not be used closer to any part of the device.
			<p>Infrared Thermometer, including cables, than the recommended separation distance calculated by the equation applicable to the frequency of the transmitter. Recommended separation distance:</p> $d = \left[ \frac{3.5}{V1} \right] \sqrt{P}$ $d = \left[ \frac{3.5}{E1} \right] \sqrt{P} \quad 80 \text{ MHz to } 800 \text{ MHz}$ $d = \left[ \frac{7}{E1} \right] \sqrt{P} \quad 800 \text{ MHz to } 2.5 \text{ GHz}$ <p>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 mixed 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: </p>
<p>Note 1: At 80 MHz and 800 MHz, the higher frequency range applies.            Note 2: These guidelines may not apply in all situations. Electromagnetism is affected by absorption and reflection from structures, objects and people.</p>			
<p>Theoretically, the field strengths of such fixed transmitters as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radios, AM and FM radio signals and TV signals cannot be predicted with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. The field strength in the location in which the thermometer is to be used should be measured to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the thermometer. Over the frequency range of 150 kHz to 80 MHz, the field strength should be less than 3 V/m.</p>			

**Recommended separation distances 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 Medical Infrared Thermometer.

The Infrared Thermometer is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or 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 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 $d = \left[ \frac{3.5}{V1} \right] \sqrt{P}$	80 MHz to 800 MHz $d = \left[ \frac{3.5}{E1} \right] \sqrt{P}$	800 MHz to 2.5 GHz $d = \left[ \frac{7}{E1} \right] \sqrt{P}$
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 metres (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.

## 18. Guarantee

This device is under warranty for one year from the date of acquisition. Applications for repairs should be presented during the warranty period. Damage caused by improper use does not fall under the scope of the warranty. Batteries and packaging are also not covered by the warranty.

## 19. Manufacturer information



**Shenzhen Pacom Medical Instruments Co., Ltd.**

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