MARSDEN

UFR103 Non Contact Infrared Thermometer

User Manual

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Version 1.0 07/20

Contents

Thank you for purchasing this Marsden UFR103 Non Contact Infrared Thermometer. This thermometer uses advanced infrared (IR) technology to measure forehead or object temperature instantly and accurately. To ensure accurate use of the UFR103, please read this user manual before use and keep to hand for future reference.

Declaration of Conformity

- This product is approved under 93/42/EEC Medical Devices Directive.
- Full responsibility for the conformance of this product to the Standard is assumed by Shenzhen Urion Technology Co., Ltd, Floor 4-6th Floor Building D, Jiale Science & Technology Industrial Zone, No.3, ChuangWei Road, Heshuikou Community, MaTian Street, GuangMing New District, 518106 Shenzen.

EN 60601-1-2:2015	Medical electrical equipment -- Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic disturbances - Requirements and tests
IEC 60601-1-2:2014	Medical electrical equipment -- Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic disturbances - Requirements and tests
EN 60601-1-11:2015	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 the home healthcare environment Clause 12 of IEC 60601-1-11
IEC 60601-1-11:2015	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 the home healthcare environment Clause 12 of IEC 60601-1-11
ISO 80601-2-56:2017	Medical electrical equipment —Part 2-56: Particular requirements for basic safety and essential performance of clinical thermometers for body temperature measurement Clause 202 of ISO 80601-2-56

This does not guarantee in any way that the device will not be affected by electromagnetic interference. Avoid using the device in a high electromagnetic environment.

Classification

1. Internally powered equipment;
2. Type BF applied part;
3. Protection against ingress of water or particulate matter: IP21;
4. Not category AP/APG equipment;
5. Mode of operation: Continuous operation.

Note: the user must check that the equipment functions safely and ensure that it is in proper working condition before it being used.

Specification

Measurement Range/Accuracy	Body mode：32.0℃~43.0℃(89.6℉~109.4℉) Object mode：0.0℃~100.0℃(32.0℉~199.9℉) Ambient temperature：0.0℃～40.0℃(32.0℉~104.0℉)
Measuring Distance	1cm – 3cm
Temperature Unit	℃/℉
Display Resolution	0.1℃/0.1℉
Accuracy	±0.2°C/±0.4°F (within 35.0°C~42.0C/ 95.0°F~107.6°F)
Memory Function	20 sets memory of measurement values
Buzzer Function	(1)Turn on the device：1Short beep (2) Measurement completed: 1 long beep (3) Fever> 37.5 °C or 99.5 °F: 10 short beeps
Power	2x AAA batteries
Auto Power Off	1 minute±5seconds
Device Weight	Approx.98g (without batteries)
Device Dimensions	152mm x 103mm x 39mm
Battery Life	Upto 300 temperature measurements
Operating Environment	Body mode: 10~40℃ (50℉ to 104℉) Object mode: 5℃~40℃(41℉ to 104℉) Relative humidity range：≤85%RH; Atmospheric pressure range：70kPa～106kPa.
Storage & Shipping Environment	Ambient temperature range：-20℃～+50℃; Relative humidity range：15%～95%RH; Atmospheric pressure range：70kPa～106kPa.

Symbol Descriptions

The following symbols may appear in this manual, on the label, on the device or on accessories. Some of the symbols represent standards and compliances associated with the device and its use.	
	WARNING: This alert identifies hazards that may cause serious personal injury or death
	CAUTION: This alert identifies hazards that may cause minor personal injury, product damage or property damage
	Type BF applied part
	Manufacturer
SN	Specifies serial number
	DISPOSAL: Do not dispose of this product as unsorted municipal waste. This product should be treated as electronic waste
	Direct current
	Follow instructions for use

Important Safety Instructions

Before using this device, please read the following instructions with care.

⚠ **WARNING:**

- This thermometer is not intended to substitute for a consultation with your physician. The forehead scan temperature serves as a reference only.
- Basic safety precautions should always be observed, especially when the thermometer is used on or near children and disabled persons.
- Please place the device out of reach of children.
- Avoid using or leaving the device in direct sunlight.
- Do not touch the lens.
- Do not attempt to modify the device.
- The swallowing of small parts like packing bag, battery, battery cover and so on may cause suffocation.

⚠ **CAUTION:**

- Please do not use a dilution agent, alcohol or petrol to clean the unit. Please use the device with care.
- Please do not immerse the device in liquid.
- Please remove the batteries if you do not intend to use the device for more than three months.
- Replace the batteries if the device shows a low battery symbol.
- Do not mix old and new batteries.
- Do not use the device during transportation.

Disposal

- Do not dispose of electrical appliances as unsorted municipal waste: use separate collection facilities. Contact your local government for information. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into groundwater.

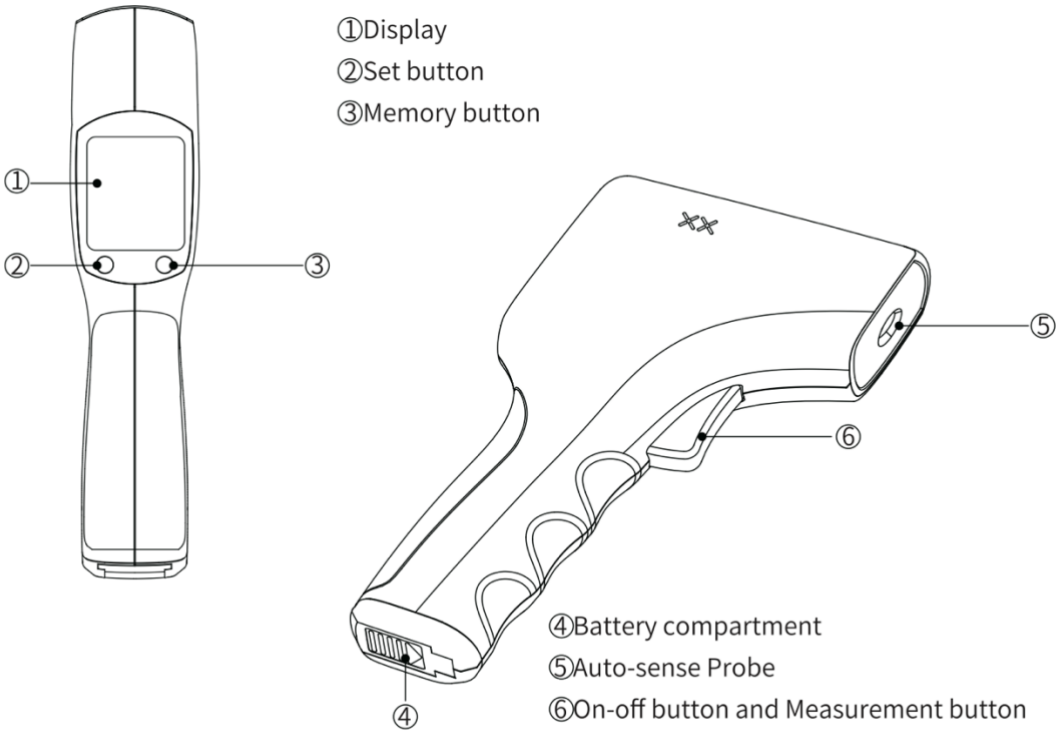
Care and Maintenance

- Keep the device in its box when not in use, and store in a dry location.
- Clean the device with a soft, dry cloth. Do not use any abrasive cleaners.
- Never immerse the device in water.
- NOTE: The manufacturer/supplier will not be responsible for any quality or technical issues that arise from improper use/maintenance as highlighted in this user manual.

▲ **Intended Use**

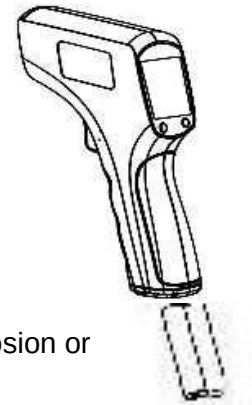
The Infrared Thermometer is intended for the intermittent measurement and monitoring of human body temperature from forehead or object. The device is indicated for use by people of all ages at homecare and in hospital.

Parts Identification



Battery Installation

1. Remove the battery cover from the battery compartment.
2. Insert two 1.5V AAA batteries ensuring each one is facing the correct way. Positive (+) and Negative (-) are displayed on the back of battery cover.
3. Replace the battery cover.



4. If the low battery symbol appears on the display, please replace the batteries. Ensure that only identical 1.5V AAA batteries are used.

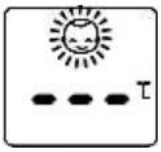
⚠ **WARNING:**

Dispose of batteries in accordance with local laws. To avoid explosion or fire, do not burn or incinerate batteries.

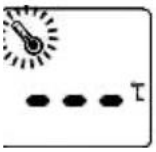
Do not used batteries beyond their expiry date.

Mode Setting

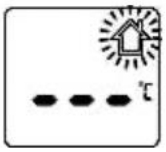
1. Switch the scale on using the ON/OFF button.
2. Default start-up setting for the device is Body Mode. Short press the SET button once to switch to Object Mode.
3. Press the SET button again to switch to Ambient Temperature Mode.
4. Pressing the SET button again will revert the device to Body Mode.



Body Mode



Object Mode



Ambient Temperatur e Mode

Note: The Body Mode is used to measure forehead temperature. Object Mode is used to measure object temperature, and Ambient Temperature Mode is used to measure ambient temperature.

Unit & Sound Setting

1. With the device switched on, long press the SET button for three seconds to enter ℃/℉ and sound switch settings.
2. Press the MEMORY button to toggle between ℃ and ℉.
3. Press the SET button to confirm section. The device then enters the sound settings.
4. Press the SET button again to confirm and exit settings.

1. To change sound settings, follow points 1-3 above, and then press the MEMORY button to toggle sounds on/off.
2. Press the SET button to exit settings.

NOTE: On restart, default settings will be ℃ and sounds on.

Note: The Body Mode is used to measure forehead temperature. Object Mode is used to measure object temperature, and Ambient Temperature Mode is used to measure ambient temperature.

Before Use: About Normal Body Temperature & Fever

Forehead and temple area temperature differs from internal temperature, which can be taken orally or rectally.
Vasoconstriction, an effect which constricts the blood vessels and cools the skin, can occur during the early stages of a fever.
In this case, the temperature measured by the Infrared thermometer may be unusually low. If the measurement therefore does not match the patient's own perception or is unusually low, repeat the measurement every 15 minutes. As a reference, you can also measure the internal body temperature using a conventional oral or rectal thermometer.
Body temperature can vary from one individual/person to next.
An individual's temperature will also vary depending on location and time of day. The table below shows the statistical normal ranges from different sites.
Please keep in mind that temperatures measured from different sites, even at the same time, should not be directly compared. Fever indicates that the body temperature is higher than normal. This symptom may be caused by infection, overdressing or immunisation. Some people may not experience fever even when they are ill.
These include, but are not limited to, infants younger than 3 months old, individuals with compromised immune systems, individuals taking antibiotics, steroids, or antipyretics (aspirin, ibuprofen, acetaminophen), or individuals with certain chronic illnesses. Please consult your physician when you feel ill even if you do not have fever.

Normal Temperatures According to Measurement Method

Measurement Method	Normal Temp Range ºC	Normal Temp Range ºF
Rectal/Ear	36.6 to 38	97.8 to 100.4
Oral	35.5 to 37	95.9 to 98.6
Axillary	34.7 to 37.3	94.4 to 99.1

Note: Body Temperature at WebMD: Website:http://firstaid.webmd.com/body-temperature; retrieved at 2010 Jan 7

Operation: As a Body Thermometer

1. Press the ON/OFF button.
2. When the preparation screen displays (see below) the device is ready for temperature measurement.
3. Align the device with the centre of the forehead, ensuring the distance between the forehead and the device is 10mm.
4. Press the ON/OFF button to take temperature. The temperature will appear on the display, accompanied by one long beep.

- If the reading is between 37.5°C(99.5°F) and 43°C(109.4°F), the display will be accompanied by ten short beeps.
- As forehead temperature measurement could be affected by sweat, oil and the ambient temperature of the location, the reading should be taken as a reference only.
- If the probe is placed at an angle close to the forehead, the reading will be affected by surrounding temperature.
- Babies' skin reacts very quickly to ambient temperature. Therefore, do not take their temperature during/after breastfeeding as the skin temperature may be lower than their internal body temperature.

Operation: As an Object Thermometer

1. Press the ON/OFF button.
2. Ensure the device is in Object Mode (see Page 7)
3. Point the device at the object to be measured.
4. Press the ON/OFF button to take temperature. The temperature will appear on the display, accompanied by one beep.

- As forehead temperature measurement could be affected by sweat, oil and the ambient temperature of the location, the reading should be taken as a reference only.
- If the probe is placed at an angle close to the object, the reading will be affected by surrounding temperature.

Operation: As an Ambient Thermometer

1. Press the ON/OFF button.
2. Ensure the device is in Ambient Temperature Mode (see Page 7)
3. Press the ON/OFF button to take temperature. The temperature will appear on the display, accompanied by one beep.

Memory Recall of Measurements

1. With the device switched off, press the MEMORY button to enter Read Memory Mode.
2. The ‘M’ icon and the first recorded memory appears.
3. Press the MEMORY button to move through the saved measurements.

Clear Measurements Memory

1. With the device switched off, long press the MEMORY button for eight seconds.
2. The display will show ‘CLr’
3. Press the ON/OFF button to confirm. ‘CLr’ will flash three times, accompanied by beeps, and the memory will be cleared.

Error Messages

Symbol	Explanation
	In Body Mode, measured temperature is above the measuring range of 43 ℃/109.4℉.
	In Body Mode, measured temperature is below the measuring range of 32℃/89.6℉.
	In Object Mode, measured temperature is above the measuring range 100.0℃/199.9℉,or environmental temperature is above the measuring range of 40℃/104.0℉.
	In Object Mode, measured temperature is below the measuring range of 0.0℃/32.0℉, or environmental temperature is below the measuring range of 5℃/41.0℉.
	In Ambient Mode, measured temperature is above the measuring range of 40.0°C/104.0°F.
	In Ambient Mode, measured temperature is below the measuring range of 0.0°C/32.0°F.
	Low battery, replace the batteries.
Err	Device has failed or is affected by electric magnetic field.

Warranty

- The device is guaranteed to be free of defects in workmanship and materials under normal use for a period of 1 Year from the date of purchase.
- For repair under this warranty, our authorised service agent must be advised of the fault within the period of the warranty. This warranty only covers parts and labour service under normal operations. Any defect resulting from natural causes, eg.flood, hurricane etc, is not covered in this guarantee. This guarantee does not cover damage incurred by use of the unit not in accordance with the instructions, accidental damage, or being tampered or serviced by unauthorised service agents.
- The following will be excluded from this warranty: If the thermometer has been misused, abused, or there has been neglect in following the manual's instructions on purpose and unauthorised repair or modifications.
- The device requires no calibration.
- The device is not repairable and contains no user serviceable parts.

EMC Declaration

Table 1

Guidance and manufacturer's declaration-electromagnetic emissions		
The Infrared forehead thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of the infrared forehead 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 forehead 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 forehead thermometer is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic Emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ Flicker emissions IEC 61000-3-3	Complies	

Table 2

Guidance and manufacturer's declaration-electromagnetic emissions			
The Infrared forehead thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of the infrared forehead thermometer should assure that it is used in such an environment			
Immunity Test	**IEC 60601 Test level**	**Compliance level**	**Electromagnetic Environment-guidance**
Electromagnetic Discharge （ESD） IEC 61000-4-	±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

2			at least 30%
Electrical fast transient/burst IEC 61000-4-4	Power supply lines:±2 kV Input/output Lines:±1 kV	Power supply Lines:±2 kV Input/output Lines:±1 kV	Mains power quality Should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	line(s) to line(s):±1 kV line(s) to earth:±2 kV 100 kHz repetition frequency	line(s) to line(s) :±1 kV. line(s) to earth:±2 kV. 100 kHz repetition frequency	Mains power quality Should be that of a typical commercial or hospital environment.
Voltage dips,short interruptions and voltage variations on power supply input lines IEC 61000-4-11	0% 0.5 cycle At 0°,45°,90°,135°,180°, 225°,270° and 315° 0% 1 cycle And 70% 25/30 cycles Single phase: at 0 0% 300 cycle	0% 0.5 cycle At 0°,45°,90°,135°,180°,225°,270° and 315° 0% 1 cycle And 70% 25/30 cycles Single phase: at 0 0% 300 cycle	Mains power quality Should be that of a typical commercial or hospital environment.
Power frequency (50/60Hz) magnetic field IEC 61000-4-8	30 A/m 50Hz/60Hz	30 A/m 50Hz/60Hz	Power frequency magnetic fields should be at levels characteristic of a typical commercial or hospital environment.
NOTE U is the a.c. mains voltage prior to application of the test level.			

Table 3

Guidance and manufacturer's declaration-electromagnetic emissions			
The Infrared forehead thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of the Infrared forehead thermometer should assure that it is used in such an environment			
Immunity Test	IEC 60601 Test level	Compliance level	Electromagnetic environment-guidance

Conduced RF IEC61000-4-6	150KHz to 80MHz: 6Vrms (in ISM and amateur radio bands) 80% Arm at 1kHz	150KHz to 80MHz: 3Vrms 6Vrms(in ISM and amateur radio bands) 80% Arm at 1kHz	Portable and mobile RF communications equipment should be used no closer to any part of the Infrared forehead thermometer, including cables, than the recommended separation distance calculated from the equation appropriate for the frequency of the transmitter. Recommended separation distances: d=0.35; d=1.2;	
Radiated RF IEC61000-4-3	10V/m,80% Am at 1kHz	10V/m,80% Am at 1kHz	80MHz to 800MHz: d=1.2 800MHz to 2.7GHz : d=2.3	Where, P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer, d is the 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 forehead thermometer is used exceeds the applicable RF compliance level above, the Infrared forehead 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 forehead
thermometer.
Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Table 4

Recommended separation distances between portable and mobile RF communications equipment and the			
The Infrared forehead thermometer is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Infrared forehead thermometer can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Infrared forehead thermometer as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter	Separation distance according to frequency of transmitter		
	150 kHz to 80 MHz d=3.5	80MHz to 800MHz d=1.2	800MHz to 2.7GHz D=2.3
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.			

Table 5

Guidance and manufacturer's declaration-electromagnetic emissions							
The Infrared forehead thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of the infrared forehead thermometer should assure that it is used in such an environment							
Radiated RF IEC61000-4-3 (Test	Test Frequency (MHz)	Band a) (MHz)	Service a)	Modulation b)	Modulation b)(W)	Distance (m)	IMMUNITY TEST LEVEL (V/m)

specifications for ENCLOSURE PORT IMMUNITY to RF wireless communications equipment)	385	380-390	TETRA 400	Pulse modulation b) 18 Hz	1,8	0,3	27
	450	380-390	GMRS 460, FRS 460	FM c) ±5 kHz deviation 1 kHz sine	2	0,3	28
	710 745 780	704-787	LTE Band 13,17	Pulse modulation b) 217 Hz	0,2	0,3	9
	810 870 930	800-960	GSM 800/900, TETRA 800, IDEN 820, CDMA 850, LTE Band 1,3,4,25;UMTS	Pulse modulation b) 18 Hz	2	0,3	28
	1720 1845 1970	1700-1900	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1,3,4,25; UMTS	Pulse modulation b) 217 Hz	2	0,3	28
	2450	2400-2570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE	Pulse modulation b) 217 Hz	2	0,3	28

			Band 7				
	5240 5240 5785	5100-5800	WLAN 802.11 a/n	Pulse modulation b) 217 Hz	0,2	0,3	9
NOTE If necessary to achieve the IMMUNITY TEST LEVEL, the distance between the transmitting antenna and the ME EQUIPMENT or ME SYSTEM may be reduced to 1 m. The 1 m test distance is permitted by IEC 6100-4-3.							
a) For some services, only the uplink frequencies are included. b) The carrier shall be modulated using a 50 % duty cycle square wave signal. c) As an alternative to FM modulation, 50 % pulse modulation at 18 Hz may be used because while it does not represent actual modulation. it would be worst case.							
The MANUFACTURER should consider reducing the minimum separation distance, based on RISK MANAGEMENT, and using higher IMMUNITY TEST LEVELS that are appropriate for the reduced minimum separation distance. Minimum separation distances for higher IMMUNITY TEST LEVELS shall be calculated using the following equation: $E=6/d\sqrt{P}$ Where P is the maximum power in W, d is the minimum separation distance in m, and E is the IMMUNITY TEST LEVEL in V/m.							

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