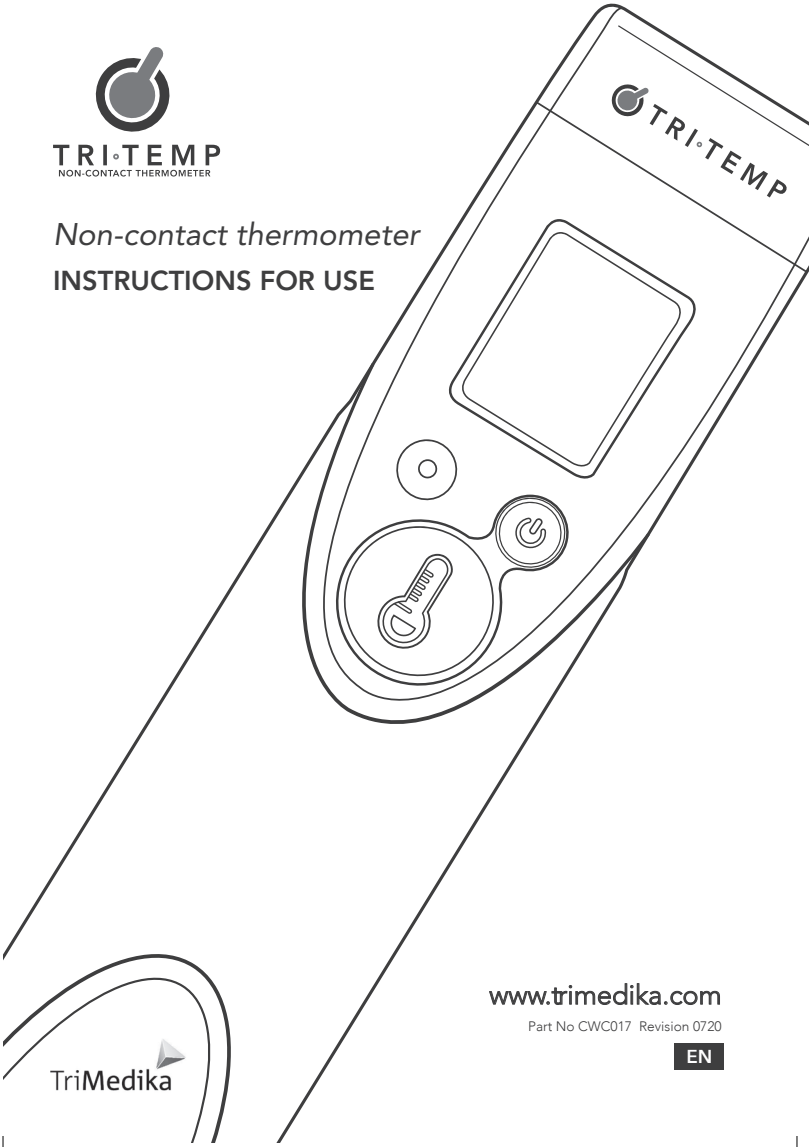
TRI·TEMP
NON-CONTACT THERMOMETER

Non-contact thermometer

INSTRUCTIONS FOR USE



TriMedika

www.trimedika.com

Part No CWC017 Revision 0720

EN

English

Contents

I. Introduction

TriMedika **TRITEMP™** Non-contact thermometer is a hand held, battery powered device used for detecting the body temperature of people of any age. It measures the infrared energy emitted from the skin surface of the forehead requires zero contact, and zero consumables which offers significant time and cost savings for any healthcare organisation.

This manual was prepared for the operator of TriMedika **TRITEMP™** thermometer. It is intended to guide the user on how to set up, operate, maintain and troubleshoot the device.

This thermometer is designed for use by trained healthcare personnel only and must be used in accordance with the instructions in this manual. All users must familiarise themselves with the safety instructions and guidance detailed in this manual before operating the device.

Initial Set Up

Remove the thermometer, batteries and other accessories from the unit box and visually examine the contents to ensure no damage has occurred. If there is any damage evident to the device, contact TriMedika Customer Support.

On initial use, the **TRITEMP™** thermometer will show factory settings of ***'Body'*** mode and the ***Celsius (°C)*** temperature unit. It is recommended that a Biomedical technician check these settings before use.

(see Section XI. Adjustment of settings).

II. Features

- Fast **BODY** temperature measurement at a 3-5cm distance from the forehead, meeting ASTM E1965-98.
- **ZERO** consumables and **ZERO** stocking and disposal of plastic probe covers.
- Never touches the patient for optimal infection control.
- Reliable and stable measurement of infrared energy.
- Screen colour indicator which appears in **BODY** mode
  - **GREEN**
    ≤37.3°C (99.1°F)
    Normal range
  - **ORANGE**
    37.4–37.9°C (99.3-100.2°F)
    Slight fever
  - **RED**
    ≥38°C (100.4°F)
    Febrile
- Audible alarm if temperature is >38°C (100.4°F)
- Temperature can be displayed in °C or °F
- Turns off automatically after 30 seconds not in use.
- Low battery indicator.
- Practical and easy to use.
- Thermometer can be easily wiped clean with common cleaning agents *(See section XVI. Cleaning the device)*
- Body temperature measurement between 32°C -42.9°C (89.6°F-109.2°F).

III. Safety Precautions

This thermometer is designed for use by trained healthcare personnel only and must be used in accordance with the instructions in this manual. All users must familiarise themselves with the safety instructions and guidance detailed in this manual before operating the device.

Warnings and cautions can appear on the thermometer, the packaging, the shipping carton, or in the user manual. Failure to understand and observe warnings in this manual could lead to patient injury and/or damage to the thermometer which could affect the accuracy of the device.

- **TRITEMP™** is a precision device and must be handled carefully and not used if dropped.
- The thermometer is not water proof and must be stored in a clean dry area and never submerged in water or any other liquid.
- Do not expose the thermometer to direct sunlight.
- Do not autoclave the thermometer.
- Do not point the thermometer at a heat source before use as it could raise the sensor temperature and produce erroneous results.
- The thermometer should only be used for the purposes described in this manual.
- The thermometer should not be exposed to electric shocks.
- Body temperature measurements are determined for forehead readings only and accuracy is not guaranteed for other locations on the body.
- The device must be used in ambient temperatures ranging from 10°C (50°F) to 40°C (104°F). Do not expose to extremes of temperature >55°C (131°F) or <-20°C (-4°F).
- Do not use at a relative humidity higher than 85%.
- Do not touch the sensor with your fingers and only clean sensor in accordance with the instructions in this manual.
- Always ensure the sensor is clean and free from all dust, debris and moisture before use to ensure accurate readings.
- Ensure the thermometer is between 3-5cm (2 fingers width) from the forehead before taking a reading. Accuracy cannot be guaranteed outside this recommended range.

- Removal of batteries is recommended if the thermometer is not used for an extended period.
- Rechargeable batteries should not be used in the thermometer.
- New batteries with the required specification should always be used in the thermometer.
- Always remove old batteries as leakage or outgassing will cause damage to the thermometer. Always use protective gloves to remove leaking batteries. Keep batteries out of reach of children.
- Any modifications to the thermometer are not permitted and will invalidate the warranty.
- If the tamperproof sticker on the back of the thermometer box is broken on delivery please contact your supplier.
- Thermometers no longer in use must be disposed of according to the institutional guidelines.

Patient Safety

- If the accuracy of the thermometer is in question, use an alternative method to determine the patient's temperature and then ask your Biomedical technician to check the device is working properly.
- The **TRITEMP™** infrared thermometer is intended for intermittent measurement of patient temperature only.
- Both the patient and thermometer should be kept at the same temperature for 15 to 20 minutes before any measurement.
- Many factors can influence body temperature so avoid taking temperatures for 30 minutes after physical activity, eating, drinking or spending time outdoors as it may affect the body temperature.
- Ensure the site for taking temperature is exposed and is free from hair and sweat.
- Ensure 3-5 seconds between temperature readings.

Contraindications
There are no contraindications identified for the **TRITEMP™** non-contact thermometer.

IV. Symbols

WARNING

Meets essential requirements of European Medical Directive 93/42/EEC

Consult operating instructions

WEEE Directive (2002/96/EC)

IP22 **IEC 60529 Ingress Protection**

Fragile

Keep Dry

SN **Serial Number**

IEC 60417-5034 Direct Current

IEC 60417-5333, Type BF applied part

V. About the thermometer

TRITEMP™ is a clinical grade thermometer that measures body temperature and requires ZERO consumables, ZERO contact and is manufactured in Europe.

What are the advantages of using Infra-red thermometer?

1. It is easy to use and fast, saving time and allowing more measurements.
2. It enables temperature measurement without touching the patient and therefore offer optimal infection control.
3. Measurements can be taken when the patient is asleep and offers maximum patient comfort.
4. Low energy device - with an auto switch off after 30 secs and a short-read time of 1 second only, offers extended battery life.

What to remember when using an IR thermometer:

1. The forehead must be optically visible to the IR thermometer. Any obstacle such as hair, sweat, dust, etc., will affect the measurement.
2. The sensor must be protected from dust, liquids and other particles.
3. The thermometer must be pointed directly at the forehead and NOT at an angle.

How does it work?

All objects emit energy in the form of radiation and the intensity of the energy varies according to its temperature. This radiation is outside the visible wavelength range and cannot normally be seen with the naked eye. This area lies within the red area of visible light and has therefore been called "infra"-red.

The thermometer design consists of a lens to focus the infrared (IR) energy on to a detector, which converts the energy to an electrical signal that can be displayed in units of temperature after being compensated for ambient temperature variation. This configuration facilitates temperature measurement from a distance without contact with the object to be measured. Temperature taken from the forehead measures the heat generated from arterial flow and is a good indication of the body temperature.

VI. Overview of the thermometer

Fig 1. Button Functions

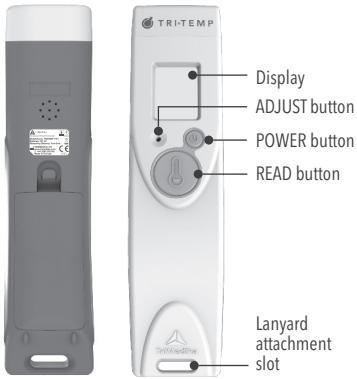
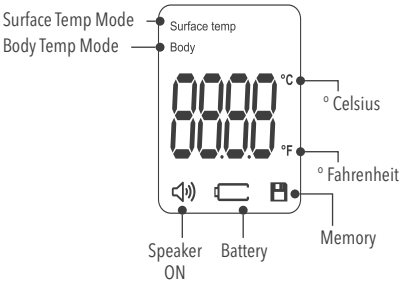
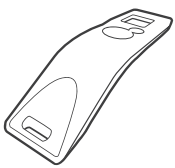


Fig 2. LCD Display



VII. Getting Started

TRITEMP TR1



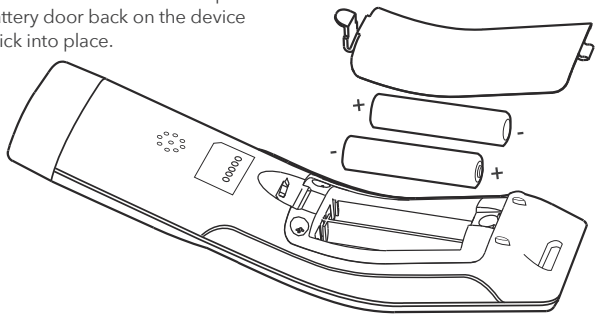
2 X AAA DC

MANUAL

VIII. Inserting the Batteries

- Remove the 2 x AAA batteries from the plastic film.
- Remove the battery cover from the rear of the **TRITEMP™** device.
- Insert the 2 x AAA batteries into the device as shown below. Check the orientation of the batteries using the guide on the interior of the device.
- When the batteries are inserted put the battery door back on the device and click into place.

Fig 3. Inserting the batteries



IX. How to take a measurement of patient

- Allow the device to equilibrate to room temperature for 15-20 minutes before use. This is necessary to ensure the sensor is at room temperature.
- **Press the POWER button** *(See Fig 1. Button Functions)* **and release immediately** to turn on the device. The screen will light Green and current settings will be displayed.
- Check the screen settings are the required parameters i.e. Body Temperature, °C and the speaker symbol is visible (for audio). If the settings are not those required *(See Section XI. Adjustment of settings)* for adjustment of the settings.
- Ensure the site for taking temperature is exposed and is free from hair, sweat, etc.
- Remove any covering (e.g. hat, dressing, etc.) that would insulate the forehead and prevent release of infra red.
- Point the **TRITEMP™** straight onto the forehead (not at an angle) approximately 3-5cm (2 finger widths) from the skin and press the READ button. The device will 'bleep' to indicate a temperature has been taken and the reading is displayed on screen in 1 second.
- Screen colour indicator appears
  - **GREEN**
    ≤37.3°C (99.8°F)
    Normal range
  - **ORANGE**
    37.4–37.9°C (100 -100.2°F)
    Slight fever
  - **RED**
    ≥38°C (100.4°F)
    Febrile
- The device has a HIGH temperature alarm which will sound if the Body temperature is 38°C (100.4°F) or above.
- The device will automatically switch off in 30 seconds to preserve the battery.

- If you press the POWER button and hold until there is an audible bleep, °C will start flashing on the green screen. You are now in the MODE settings Menu.
- If you inadvertently enter the MODE settings menu, continue to press and release the POWER button a further 4 times to scroll through the options and turn off the device.
- To restart the device, press and release the Power button to turn the Thermometer ON.

X. How to take the measurement of an object

Please refer to **Section XI.** Adjustment of **MODE** setting **'SETTING THE READ MODE'**

XI. Adjustment of MODE settings

The device has 4 MODE options as follows:

1. Unit of temperature °C or °F
2. Audio enabled ON / OFF
3. READ Mode BODY / SURFACE TEMP
4. OFFSET > +3 to -3 °C / +5.4 to -5.4°F.

- The device is supplied with factory settings and the device screen will display °C , Audio ON, BODY and 0.0 offset.
- Alteration of the factory settings must only be performed by a qualified Biomedical technician which are aligned with the requirements of the clinical team.
- To adjust any MODE settings press and hold the POWER button until you hear an audible bleep. *(See Figure 1. Button Functions, Pg 10).* Release POWER button and °C will start flashing on the screen. The user can the move through each MODE option (from 1 to 4 as listed above) by pressing the POWER button each time.

SETTING THE UNIT TEMPERATURE (°C OR °F)

- To change the unit of measurement from °C to °F
  - o Press and hold the POWER button until you hear an audible bleep.
  - o Release POWER button and °C will start flashing on the screen.
  - o Press the READ button to change to °F. The °F will start to flash on the display.
  - o Press the POWER button 4 times to move through the MODE options and switch off the device
- To change the unit of measurement from °F to °C
  - o Press and hold the POWER button until you hear an audible bleep.
  - o Release POWER button and °F will start flashing on the screen.
  - o Press the recessed adjust button with the tip of a paperclip to revert back to °C.
  - o Press the POWER button 4 times to move through the MODE options and switch off the device. The device will display °C when turned ON.

SETTING THE AUDIO - (ON/OFF)

- **To switch audio function off**
  - o Press and hold the POWER button until you hear an audible bleep
  - o Release POWER button and °C will start flashing on the screen
  - o Press the POWER again to move through to the Audio mode option. The screen display will flash ON.
  - o Press ADJUST button to revert back to OFF
  - o Press the POWER button 3 times to move through the MODE options and switch off the device
- **To switch Audio Function ON**
  - o Press and hold the POWER button until you hear an audible bleep
  - o Release POWER button and °C will start flashing on the screen
  - o Press the POWER again to move through to the Audio mode option. The screen display will flash OFF
  - o Press the READ button to switch audio ON
  - o Press the POWER button 3 times to move through the MODE options and switch off the device

SETTING THE READ MODE

- **Body/ surface temp**
  - o BODY mode is the default setting and is used for the body measurement of a patient and the measurement range is ***32°C to 42.9°C (89.6°F-109.2°F).***
  - o SURFACE TEMP mode is used to measure the temperature of an object or liquid and should NOT be used for patients. Surface temperature measurements are between ***0°C to 60°C (32°F to 140°F).***
- **To move from BODY mode to SURFACE mode**
  - o Press and hold the POWER button until you hear an audible bleep
  - o Release POWER button and °C will start flashing on the screen.
  - o Press the POWER button 2 more times to move through to the READ location mode option. The screen display will flash BODY.
  - o Press the READ button to change to SURFACE TEMP.
  - o Press the POWER button 2 times to move through the MODE options and switch off the device

- **To move from SURFACE mode to BODY mode**

  - o Press and hold the POWER button until you hear an audible bleep
  - o Release POWER button and °C will start flashing on the screen
  - o Press the POWER button 2 more times to move through to the READ location mode option. The screen display will flash SURFACE TEMP.
  - o Press ADJUST button to revert back to body.
  - o Press the POWER button 2 times to move through the MODE options and switch off the device.

SETTING THE OFFSET (-3 TO +3°)

- o OFFSET default setting is 0.0. This is sometimes used if a user wants to compare with another device e.g. mercury thermometer and this enables them to use a known offset value to give a comparable reading. It is NOT recommended for any other application.
- o Press and hold the POWER button until you hear an audible bleep
- o Release POWER button and °C will start flashing on the screen.
- o Press the POWER 3 more times to move through to the OFFSET mode option. The screen display will flash 0.0.
- o Press the READ button to increase the OFFSET by 0.1°. Each press of the READ button will ***increase*** the OFFSET by increments of 0.1°. The maximum OFFSET is +3°.
- o To decrease the OFFSET press ADJUST button to ***decrease*** by 0.1° increments. The minimum OFFSET is -3°.
- o Press the POWER button 1 time to switch off the device.

XII. Review previous measurements

The **TRITEMP™** will retain measurements of the last 32 readings.

- To access this information press the POWER button and release.
- Insert the end of a paperclip into the recessed ADJUST button and press and release. The device will present the last 32 readings taken by the device. On each press the device will present as follows:
  - o 01 Reading from last measurement
  - o 02 Reading from 1 measurement before last.
  - o 03 Reading from 2 measurements before last.
- On release the measurement will be displayed in the selected units.
- To delete the Memory press the ADJUST button and hold for 4 secs and all readings will be deleted.
- Press the ADJUST button again to confirm that all have been cleared and the Display will read CLR.

XIII. Change the batteries

- The 2 x AAA batteries provided with the device will enable 20,000 measurements.

Battery icon

- When the LCD screen displays the battery icon , the batteries need to be replaced.
- Remove the battery cover from the rear of the **TRITEMP™** device.
- Insert the 2 x AAA batteries into the device as shown in diagram below. Check the orientation of the batteries using the guide on the *interior of the device. (See Figure 3. Inserting the batteries, Pg 11).*
- Incorrect placement of the batteries could compromise the device and affect the warranty of the device. When the batteries are inserted put the battery door back on the device and click into place.

XIV. Troubleshooting and Error messages

- Please refer to this guide to help resolve any problems using the device. If the problem persists please contact your supplier or TriMedika customer service.
- The device has Error messages that will be displayed on the Display as follows:

Lo appears on the screen when the BODY temperature measured is under the measuring range or <32°C (89.6°F)

HI appears on the screen when the BODY temperature measured is above the measuring range or >42.9°C (109.2°F)

Reasons for Lo message	Action
Hair or perspiration on forehead	Remove hair or any other obstruction prior to taking a temperature
Air draft or rapid change in ambient temperature	Ensure there is no direct air flow in the area of use.
Readings are too close together	Ensure there is 3-5 seconds between temperature readings.
Thermometer is held too far away from the forehead	Temperature must be taken 3-5cm (2 finger widths) from forehead.
Measurement taken after cold compress, taking medicine or bathing.	Ensure environment temperature is between 10-40°C
Reasons for HI message	**Action**
When body temperature is above 42.9°C (109.2°F)	Make sure there is no source of hot air in area of use. Seek immediate medical attention.
Ambient temperature is above 40°C (104°F)	Ensure the operating temperature is between 10°C to 40°C (50°F to104°F).
When surface temperature is above 60°C (140°F)	Temperature reading exceeds measurement range of 0°C to 60°C (32°F to 140°F).

XV. Guidelines

- **TRITEMP™** complies with EU Directive 93/42/EC concerning medical products.
- **TRITEMP™** is traceable to ASTM E 1965-98 and European standard EN60601-1-2 and is subject to precautions with regard to electromagnetic compatibility.

XVI. Cleaning the thermometer

The sensor is the most fragile part of the device and great care should be taken when cleaning the device. Use only the cleaning agents recommended in this manual.

- To clean the sensor use a cotton bud moistened with isopropyl or ethyl alcohol and gently wipe the lens of the device using a side to side motion. Avoid touching the lens except when cleaning is required.
- The device exterior can be cleaned by wiping gently with a cloth moistened in a mild soapy detergent.
- Ensure liquid does not enter the device and NEVER submerge in water or liquid.
- Do not use water to clean the lens. Ensure the device is completely dry before use.

XVII. Calibration check of the thermometer

The device is factory calibrated at the time of manufacture and if used according to the instructions in this manual should not require periodic adjustment.

TriMedika recommends an annual calibration check or when the accuracy of the measurement is in question.

XVIII. Disposal of the thermometer

The thermometer should be disposed of in accordance with the EC Directive – WEEE (Waste Electrical and Electronic Equipment).

XIX. Warranty Guarantee

TriMedika warrants the product to be free from defects and to perform in accordance with the manufacturers specifications for a period of 2 years from the date of purchase from TriMedika.

Warranty date starts on the date of purchase which is the invoiced shipping date. To activate the warranty on your device please contact TriMedika Ltd to register your device.

The warranty does not cover damage caused by:

1. Handling during shipment

2. Use of the device outside those detailed in this document.

3. Alteration or repair of the device not authorised by TriMedika.

4. Accidental damage.

Shipping cost to return the device is not included in the warranty and a Return Material Authorisation (RMA) number must be obtained from TriMedika prior to return of the device to TriMedika service engineers.

The RMA can be obtained from TriMedika Technical support
Email: Info@trimedika.com

TriMedika obligation under this warranty is limited to repair or replacement of the device containing a defect.

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XX. Technical Specifications

Measurement Method	Non-Contact Infrared thermometer
Model No	TR1
Device Dimensions & Weight	200mm x 50mm x50mm, 90g (without battery)
Basic Functions	Forehead measurement of Body temperature Surface Temperature of an object.
Batteries	DC 3V (2 x AAA batteries) Alkaline
Measurement Units	Celsius (°C) or Fahrenheit (°F)
Operating temperature & humidity	10°C-40°C (50°F– 104°F) ≤85% Relative Humidity
Storage Conditions	-20°C to 50°C (-4°F to 122°F) ≤85% Relative Humidity
Measuring distance	3-5cm (2 finger widths) from measurement site.
Measuring range	Body Mode: 32.0°C – 42.9°C (89.6°F – 109.2°F) 3 colour back lights in Body mode: **GREEN** ≤37.3°C (99.1°F) **Normal Range** **ORANGE** 37.4–37.9°C (99.3 -100.2°F) **Slight fever** **RED** ≥38°C (100.4°F) **Febrile**

Measurement accuracy (Forehead)	32.0°C – 35.9°C (89.6°F – 96.6°F) ±0.3°C (0.6°F) 36.0°C – 39.0°C (96.8°F – 102.2°F) ±0.2°C (0.4°F) 39.1°C – 42.9°C (102.4°F – 109.2°F ±0.3°C (0.6°F)
Measurement range (Object)	Surface Temp Mode: 0°C – 60°C (32°F – 140°F)
Display resolution	0.1°C (0.1°F)
Memory Function	Stores up to 32 measurements.
Audio	Factory setting is ON
Consumption	≤150mW
Auto Power OFF	30 seconds
Temperature read time	1 second
No of readings per device	40,000 measurements

Ordering Details for Optional Accessories

Product Number	Name	Description
TR1	**TRITEMP™**	**TRITEMP™** Non-contact thermometer
PP-TR1	**TRITEMP™** Silicone Pouch	Silicone Pouch for **TRITEMP™** TR1
WM-TR1	**TRITEMP™** Wall Mount	Metal Wall Mount for **TRITEMP™** TR1
ST-TR1	**TRITEMP™** Security Tether	Security Tether with Kevlar for **TRITEMP™** TR1
BB-TR1	Calibration Checker device	Blackbody device with TR1 attachment for checking calibration

Manufacturer's Declaration of the EUT

Guidance and manufacturer's declaration – electromagnetic emission – for all EQUIPMENT AND SYSTEMS

1	**Guidance and manufacturer's declaration – electromagnetic emission**		
2	The TriTemp TR1 Non-contact Infrared Thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of TriTemp TR1 Non-contact Infrared Thermometer should assure that it is used in such an environment.		
3	Emissions test	Compliance	Electromagnetic environment - guidance
4	RF emissions CISPR 11	Group 1	The TriTemp TR1 Non-contact 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.
5	RF emissions CISPR 11	Class B	The TriTemp TR1 Non-contact 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.
6	Harmonic emissions IEC 61000-3-2	N/A	
7	Voltage fluctuations / flicker emissions IEC 61000-3-3	N/A	

Guidance and manufacturer's declaration – electromagnetic immunity – for all EQUIPMENT and SYSTEMS

Guidance and manufacturer's declaration – electromagnetic immunity			
The TriTemp TR1 Non-contact Infrared Thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of the TriTemp TR1 Non-contact 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 %.
Electrostatic transient / burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	N/A	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	N/A	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	< 5 % U_T (>95 % dip in U_T) for 0.5 cycle 40 % U_T (60 % dip in U_T) for 5 cycles 70 % U_T (30 % dip in U_T) for 25 cycles < 5 % U_T (>95 % dip in U_T) for 5 sec	N/A	Mains power quality should be that of a typical commercial or hospital environment. If the user of the TriTemp TR1 Non-contact Infrared Thermometer requires continued operation during power mains interruptions, it is recommended that the TriTemp TR1 Non-contact Infrared Thermometer be powered from an uninterruptible power supply or a battery.
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.
NOTE	U_T is the a. c. mains voltage prior to application of the test level.		

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

Guidance and manufacturer's declaration – electromagnetic immunity

The TriTemp TR1 Non-contact Infrared Thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of the TriTemp TR1 Non-contact Infrared Thermometer should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the TriTemp TR1 Non-contact Infrared Thermometer, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance**
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	N/A	$d = [\frac{3.5}{V_1}]\sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	$d = [\frac{3.5}{E_1}]\sqrt{P}$ 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). 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. 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 TriTemp TR1 Non-contact Infrared Thermometer is used exceeds the applicable RF compliance level above, the TriTemp TR1 Non-contact Infrared Thermometer should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the TriTemp TR1 Non-contact Infrared Thermometer.

[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3V/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

Recommended separation distances between portable and mobile RF communications equipment and the TriTemp TR1 Non-contact Infrared Thermometer

The TriTemp TR1 Non-contact Infrared Thermometer is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the TriTemp TR1 Non-contact Infrared Thermometer can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the TriTemp TR1 Non-contact Infrared Thermometer as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output 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 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.

TRI·TEMP
NON-CONTACT THERMOMETER

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