microlife®

CE 0044

IB FR 1DZ1 EN 1420

FR 1DZ1 User Manual

Non-contact Infrared Forehead Thermometer

Dear customer,

We thank you for having purchased Microlife FR1DZ1, the thermometer that takes a fast, precise body temperature reading from a distance.

Microlife FR1DZ1 is a high quality product incorporating the latest technology and tested in accordance with international standards. With its unique technology, the Microlife FR1DZ1 can provide a stable, heat-interference-free reading with each measurement. The instrument performs a self-test every time it is switched on to always guarantee the specified accuracy of measurement.

The Microlife FR1DZ1 allows a simple and quick measurement of body temperature. Please keep in mind that, like any skin temperature, the temperature at the forehead and temporal area might differ from the core body temperature (e.g. obtained by rectal measurement). For example a basic physiologic effect called vasoconstriction can occur in the early stages of fever, resulting in a cool skin effect, so the recorded temperature using a forehead thermometer may be suspiciously low. If the measurement result is not consistent with the patient's finding or suspiciously low, repeat the measurement every 15 minutes or double check the result by another core body temperature measurement, e.g. use an infrared – eardrum thermometer or a rectal pen-type thermometer. Skin temperature of babies reacts very quickly to the ambient temperature. Therefore, do not take a measurement while or after nursing, as the skin temperature may be lower than the core temperature.

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1. Features

Non-contact Measurement within seconds

The innovative infrared sensor measures temperature without even touching the subject for a safe and sanitary measurement within seconds.

Human and Object Measurement

Conveniently measures the temperature of a human being or an object with its sliding switch.

Customized and Localized Option of Measurement

Reference site selection function enables you to take measurement for readings comparable to readings taken at conventional measuring sites (rectal, oral, axillar) with a common pen-type thermometer.

Tracking light

Blue tracking light easily keeps you concentrated to the measured area while scanning the forehead above the eye brow with the thermometer at a distance.

Fever Alarm
Red LCD glow and ten short beeps alert the patient that he/she may have a fever.

Multiple Reading Recalls
Recall the last 30 readings when you enter the Memory Mode.

Auto-Display Memory
The last reading is automatically displayed for 2 seconds when the unit is switched on.

2. Important Safety Instructions

- This instrument may be used only for the purpose described in this booklet. The manufacturer cannot be held liable for damage caused by incorrect application.
- Never immerse the thermometer into water or other liquids (not waterproof). For cleaning, please follow the instructions in the "Cleaning and Storage" section.
- Keep the instrument away from direct exposure to the sun and keep it in a dust-free, dry area with a temperature between -20 to 50 °C   (-4.0 – 122 °F).
- Do not use the thermometer if there are signs of damage on the probe area or on the unit itself. If damaged, do not attempt to repair the instrument. Please contact the nearest Microlife customer service center.
- This thermometer consists of high-quality precision parts. Do not drop the unit! Protect it from severe impact. Do not twist the unit or the measuring probe.
- Ensure that children do not use this device unsupervised;some parts are small enough to be swallowed.
- Using the unit in the immediate vicinity of mobile phones, microwave appliances or other devices with strong electromagnetic fields may result in impaired functioning.
- Batteries and electronic instruments must be disposed of in accordance with the locally applicable regulations, and not as domestic waste.
- Do not use this device close to strong electromagnetic fields,such as mobile telephones or radio installations. Keep a distance from such devices when using this unit.

Warning:
☛The use of this thermometer is not a substitute for consultation with your physician.

3. Product Overview

Side View   **Back View**
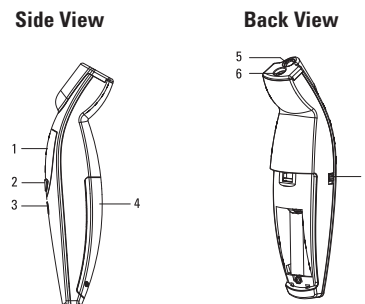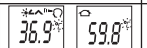
No.	Item	Mode	Description
1	Display area	-	Displays measurements and other thermometer symbols
2	Start button	Power Off	• Press and release immediately to enter Memory Mode. • Press and hold for 3 seconds to switch between °C and °F .
		Power on	Press to measure the temperature.
3	O/I button	-	Press to switch the thermometer on or off.
4	Battery cover	-	Covers the battery for protection.
5	Tracking light	-	Focus on the subject to measure temperature.
6	Probe	-	Infrared sensor to measure the temperature.
7	Slide switch	Power on	Sliding the switch down and up again activates the reference site selection. See "Selecting the Reference Site".
		Power on/off	• Slide the switch up to activate the body mode. • Slide the switch down to activate the object mode.

4. Icons and Control Display

The icons on the display indicate different settings of the thermometer:

Icon	Setting	Description
🙂	Body mode	The thermometer will take or has taken a body temperature.
⌂	Object mode	The thermometer will take or has taken an object temperature.
°C	Celsius display	The thermometer will take or has taken a temperature in degree Centigrade.
°F	Fahrenheit display	The thermometer will take or has taken a temperature in degree Fahrenheit.
●	Oral reference site	When this icon flashes, the body temperature measured corresponds to the oral temperature.
◣	Axillary reference site	When this icon flashes, the body temperature measured corresponds to the axillary temperature.
⌃	Rectal reference site	When this icon flashes, the body temperature measured corresponds to the rectal temperature.
M	Memory recall	The thermometer displays a stored temperature from the memory.

In different stages of the operation sequence, the display shows different types of information.

| Display area	Sequence	Description
888.8	Power On	Press the O/I button to turn on the unit. All segments are displayed for 2 seconds.
36.8M 58.8M	Last Memory	The last reading is displayed for 2 seconds with M icon, measuring Mode icon (body or object), and reference site icon(rectal, oral or axillar)
- - - - - -	Ready	The °C or °F icon is continuously flashing. The unit is ready for measurement with measuring Mode icon (body or object), and reference site icon (rectal, oral or axillar) in Body mode.
36.9°C 59.8°C	Measurement Completed	The reading is shown on the display area with measuring Mode icon (body or object), and reference site icon(rectal, oral or axillar) in Body mode.
36.9°C 59.8°C	Further Measurement	After 2 seconds, the °C or °F icon flashes again. The unit is now ready for the next measurement.

5. Directions of Use

Measuring Body Temperature

1. Make sure the mode switch is in the upper position to enter the Body Mode.

2. Press the O/I button. The LCD is activated and performs an all segment check.
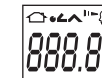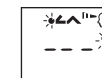
3. The last readings are displayed on the LCD for 2 seconds.

4. The thermometer is ready for measurement when
   ✓ A short beep sound is heard
   ✓ The °C/°F and the reference site icon on the LCD are flashing.

5. For starting the measurement, aim the probe at the center of the forehead with any distance of no more than 5cm. If the forehead area is covered with hair, sweat or dirt, please remove them beforehand to improve the reading accuracy.
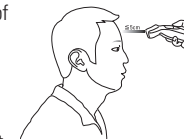
6. Then keep pressing the Start button. The blue tracking light is activated as a reference of area under detection.You can take measurement at any distance within 5 cm seeing the blue light. Steadily move the thermometer towards the temple to detect the body temperature. As the sensor scans the area, quick beep sounds will be emitted as indicator of temperature detecting process. The beep sounds will slow down to indicate that the body temperature has already been detected.

7. As soon as beeps slow down, please release the Start button to get the result. Stop aiming the probe. The display area shows the measured temperature.

8. Body temperature intelligent analysis.
   • If the detected temperature is lower than fever level, a long beep is emitted and the result is displayed with a green backlight.
   • If the detected temperature is equal to or higher than fever level, ten short beeps

will be emitted while the result is displayed with a red backlight to alert the patient of possible fever.

| Reference Site Option	Fever level
Rectal	37.8°C/100.04°F
Oral	37.5°C/99.5°F
Underarm	37.2°C/98.96°F

Forehead scanning ONLY and NOT at any part of the body.
(Based on physician recommendation, temperatures taken at different body sites belong to varied ranges. Fever levels also comply with this logic.)

Measuring Object Temperature
1.Make sure that the mode switch is in the lower position to enter the Object Mode.

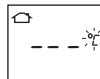2.Press the O/I button. The LCD is activated and performs an all segment check.
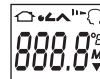
3.The last reading is displayed on the LCD for 2 seconds.

4.The thermometer is ready for measurement when
  ✓A short beep sound is heard
  ✓°C/°F icon on the LCD is flashing.

5.Aim the probe at the center of the object with any distance of no more than 5 cm. If there is water, dust or dirt, please wipe them beforehand to improve the reading accuracy.

6.Then keep pressing the Start button. The blue tracking light is activated and the sensor measures the temperature.

7.Release the Start button after a few seconds to get the result and a long beep will be heard. Stop aiming the probe. The display area shows the measured temperature.

Note:
• Patients and the thermometer should stay in steady-state room conditions for at least

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30 minutes before performing a measurement.
• Wait at least 2 minutes between consecutive measurements and the thermometer must be turned off and on again.
• Don't take a measurement while or immediately after nursing a baby.
• Don't use the thermometer in high humidity environments.
• Patients should not drink, eat, or exercise before/while taking the measurement.
• Before aiming the probe, clean the scan area; remove dirt, hair or sweat.
• Before aiming the probe at an object, remove water, dust or dirt.
• Don't move the thermometer away from the measuring area before hearing the termination beep.
• If the probe gets dirty during or after the measurement, use an alcohol swab to carefully clean the probe before putting it away for storage.
• Always take the temperature in the same location, since the temperature readings may vary from different locations.
• In the following situations, it is recommended to perform a reference measurement with a common pen-type thermometer(make sure the measuring site, rectal, oral, or axillar, is the same habitual site also selected for FR1DZ1) :
  1.If the measurement result is surprisingly low/high
  2.Newborn infants in the first 100 days.
  3.Children under three years of age with a compromised immune system and for whom the presence or absence of fever is critical.

6. Reference Site

Microlife FR1DZ1 specially enables you to take measurements and judge the readings according to your local habits. This is based on the considerations that people of different regions have their customs about where to take the measurements with an ordinary pen-type thermometer. (Rectal, oral, or axillar)
Microlife FR1DZ1 can measure for three types of readings comparable to readings measured at such three conventional measuring sites as rectal, oral, and axillar with an ordinary pen-type thermometer. We call this function as reference site.
To set the reference site:

1.Turn on the unit in Body Mode and wait until the °C or °F symbol is flashing to indicate that the thermometer is ready for measurement.

2.Slide the mode switch down and up again (if the slide switch is already down, you need to slide up, down and up again). The present reference site icon flashes while the other two icons are steady.
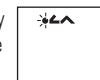
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3. Press the Start button repeatedly to scroll between the three measuring sites.

A short beep sound is heard when changing the reference site.

4. The symbol for the selected mode flashes and after 5 seconds, the flashing icon will be set as the reference site and the unit will automatically enter the ready for measurement mode.

7. Switching between °C and °F

This thermometer can display the measured temperature in either Celsius or Fahrenheit.

To switch between °C and °F, turn the unit off. Press and hold the Start button for 3 seconds. The flashing °C or °F icon is shown on the LCD. To switch the measurement scale, press the Start button again. Settings are finalized after 5 seconds and the thermometer will automatically enter the ready for measuring mode.
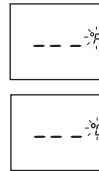
8. Recalling Readings in Memory Mode

The thermometer can recall the last 30 readings. To recall readings, do the following:

1. Press and release the Start button in the off mode to enter the Memory Mode. The   icon flashes.

2. Press and release the Start button again and 1 is shown briefly on the LCD, then the latest reading is displayed.

3. Press and release the Start button again and 2 is shown briefly on the LCD, then the second latest reading is displayed.
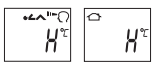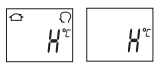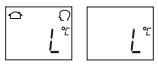
4. Press and release the Start button repeatedly to recall the readings in succession. Up to 30 readings can be recalled.

Pressing the Start button after the last 30 readings will resume the sequence from reading 1.

9. Error Messages

The thermometer is equipped with predefined error messages to notify the user of measurement discrepancies.

| Display area	Display Meaning	Possible cause and remedy
H℃ H℃	Measured temperature is too high.	Measured temperature is higher than: • 42.2 °C or 108.0 °F (Body Mode) • 100 °C or 212 °F (Object Mode)
L℃ L℃	Measured temperature is too low.	Measured temperature is lower than: • 34.0 °C or 93.2 °F (Body Mode) • 0 °C or 32.0 °F (Object Mode)
H℃ H℃	Ambient temperature is too high.	Ambient temperature is higher than • 40.0 °C or 104.0 °F (Body and Object Mode)
L℃ L℃	Ambient temperature is too low.	Ambient temperature is lower than • 15.0 °C or 59.0 °F (Body Mode) • 5.0 °C or 41.0 °F (Object Mode)
Err	Error function display	When the system has a malfunction.
	Blank display	Check if the batteries are loaded correctly.
▼	Low battery indication	The battery level is low. Please replace the batteries immediately.

10. Cleaning and Storage

Use an alcohol swab or cotton tissue moistened with 70% Isopropyl alcohol to clean the thermometer casing and the measuring probe. Ensure that no liquid enters the inte-

rior of the thermometer. Never use abrasive cleaning agents, thinners or benzene for cleaning. Never immerse the thermometer into water or other cleaning liquid.
Be careful not to scratch the surface of the probe lens and the display.
Remove the batteries from the instrument if it is not required for extended periods of time to avoid potential damage to the thermometer resulting from leaking batteries.
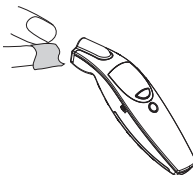
11. Battery Replacement

This instrument is supplied with 2 new, long-life 1.5V, size AAA batteries. Batteries need replacing when this icon « ▼ » is the only symbol shown on the display.
Replace the batteries – ensure correct polarity as shown by the symbols in the compartment.
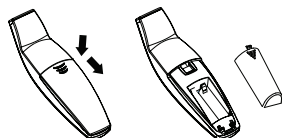
12. Guarantee

This high-quality measuring device is covered by a 2-year-guarantee from the date of purchase. The guarantee is valid only on presentation of the guarantee card completed by the dealer (see back) confirming date of purchase or the purchasing receipt. Warranty claims must be filed within the guarantee period.The guarantee covers the instrument; batteries and packaging are not included. Opening or altering the instrument invalidates the guarantee.The guarantee does not cover damages caused by improper handling, discharged batteries, accidents or non-compliance with the operating instructions.

This product was manufactured with the utmost care according to international quality standards. Should you have a reason for complaints despite this, please send the device, accompanied by the completed Guarantee Card with the dealer's stamp as well as original proof of purchase directly or through your medical supplier to your nearest Microlife Distributor.

Name and address of responsible dealer:

13. Technical Specifications

Type:	**Non-contact Forehead Thermometer FR 1DZ1**
Measuring Range And Accuracy:	Refer to the following table 1
Resolution:	0.1°C/0.1°F
Display:	LCD, 4-digits plus special icons
Acoustic:	a. The unit is turned ON and ready for measurement: 1 short beep sound.
	b. Completion of Measurement:
	Body Mode: 1 long beep sound if the reading is less than fever level (refer to diagram #1); 10 short beep sounds if the reading is equal to or higher than fever level (refer to diagram #1).
	Object Mode: 1 long beep sound
	c. System error or malfunction: 3 short beeps
	d. Fast and slow beeps during measurement.
Memory:	a. Auto-Display the last measured temperature when the unit is turned on.
	b. 30 readings recall in the Memory Mode.
Backlight:	a. The display is lighted GREEN for 4 seconds, when the unit is turned ON.
	b. The display is lighted GREEN for 5 seconds, when a measurement has been completed with a reading of less than fever level.
	c. The display is lighted RED for 5 seconds, when a measurement has been completed with a reading equal to or higher than fever level.
Storage/transport Temperature:	-20 °C to +55 °C (-4 °F to 131 °F) 15-95 % relative maximum humidity
Automatic Switch Off:	Approx. 3 minutes after the last measurement has been taken.
Battery:	Two DC 3V (AAA) batteries
Dimensions:	146.93mm (L) x 38.14mm (W) x 21.34 mm (H)
Weight:	82g (with battery), 60g (without battery)
Reference to standards Device standard:	Device corresponds to the requirements of the standard for infrared thermometers ISO 80601-2-56.

IEC 60601-1
IEC 60601-1-2   IEC 60601-1-11

Electromagnetic Compatibility:
Device fulfills the stipulations of the standard IEC 60601-1-2
Battery lifetime: approx.2000 measurements
Expected service life: 5 years
IP21:   Protected against solid foreign objects of 12.5 mm diameter
and greater.protected against the ingress of vertically falling
water drops with the device positioned on a turntable.

Keep dry

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The stipulations of EU-Directive 93/42/EEC for Medical Devices Class IIa have been fulfilled.

Table 1

TECHNICAL CHARACTERISTICS	°C/°F scale
Body mode	
Forehead measuring range	34°C to 42.2°C(93.2°F to 108.0°F)
Ambient temperature working range	15°C-40.0°C(59.0°F-104.0°F)
From 36°C to 39°C (96.8°F to 102.2°F)	+/-0.2°C /0.4°F
From 34.0°C to 35.9°C(93.2°C to 96.6°F) and from 39.1 °C to 42.2°C(102.4°F to 108.0°F)	+/-0.3°C /0.6°F
Object mode	
Measuring range	0 °C to 100°C /32°F to 212?
Ambient temperature working range	5°C to 40°C /41°F to 102°F
From 36°C to 39°C (96.8°F to 102.2°F)	+/-0.2°C /0.4°F
From 0°C to 35.9°C (32.0°F to 96.6°F) and from 39.1°C to 100°C (102.4°F to 212.0°F)	+/-1°C /2°F

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Detailed user information about our thermometers and blood pressure monitors as well as services can be found at www.microlife.com.

Batteries and electronic instruments must be disposed of in accordance with the locally applicable regulations, not with domestic waste.

Follow Instructions for Use. This document provides important product operation and safety information regarding this thermometer. Please read this document thoroughly before using the device and keep for future reference.

Type BF applied part