



## MT-330

Instruction manual

EN



26.04.2019 rev.3.0

CE 0197

**Infrared contactless digital thermometer**

## 1. GENERAL SAFETY INSTRUCTIONS AND WARNINGS

This document contains important safety instructions and precautions for the safe and proper operation and use of the “medical device - body temperature measurement “. Its compliance helps the user avoid risks, increase reliability and product life.

### 1.1 General safety instructions



Read these operating instructions thoroughly before putting the device into operation. Keep it in case of need in the future. Get more detailed information about your body temperature from your doctor.

- The safety instructions and warnings in this manual do not cover all the possible conditions and situations that may arise when using the device. The user must understand that a factor that can not be incorporated into any of the products is personal responsibility and caution. These factors must therefore be ensured by users serving this device.
- Failure to follow the safety instructions and warnings is forbidden by the manufacturer for any damage to health or equipment!
- Make sure that the appliance is complete and shows no signs of damage before using the appliance for the first time. If the product is defective or if it has any visible damage, do not use the product.
- Keep the operating instructions as close to the device as possible throughout its service life. Always keep the operating instructions together with the device for future use and use by new users.
- Use the appliance only for the purpose for which it is intended and in the manner specified by the manufacturer.
- The device is designed for home and similar indoor use without special focus.
- Not for professional and commercial use.
- Do not change the technical parameters and features of the device by unauthorized modification or modification of any part of the device.
- The manufacturer is not responsible for damages caused during transportation, misuse, damage or destruction of the equipment due to adverse weather conditions.

### 1.2 Characteristics of the operating environment

- Do not use the device in an industrial environment or outside environment.
- Always keep operating and storage environment clean and dry.
- Protect your device from dirt and dust. Do not expose the device to direct sunlight, excessive heat, strong mechanical stress or vibration.
- Do not expose the unit to temperatures above 60 ° C.
- Features of the operating environment
  1. Ambient temperature: +10 ÷ +40 ° C
  2. Humidity: 30 ÷ 85%

### 1.3 Safety instructions for power supply - batteries

- The device is powered from its own internal source - from the battery.
- The device operates with a safe low voltage.
- Always store batteries out of reach of children. In case of battery swallowing, immediately seek medical advice.
- Wipe the batteries with a dry cloth before insertion. This will ensure a better electrical contact.
- Always carefully check and observe the correct battery polarity when inserting batteries into the device. Insert the batteries to match the "+" and "-" symbols on the batteries and on the inside of the cover.
- Do not handle the batteries with metal tools (eg tweezers, etc.). Conductive contact between the two poles of the battery may cause a short circuit.
- If you are not using the device for a long time, it is recommended to remove the batteries from the device. This protects your device from damage from leaking batteries.
- Dispose of batteries in accordance with applicable local regulations and standards.

#### **Warning!**

In case of improper handling, the battery may explode. Do not charge, disassemble, or even throw into the fire.

### 1.4 Safety of persons

- The appliance is intended for use by persons without electrotechnical qualifications (laics) according to the instructions specified by the manufacturer.
- Only devices such as power on/off, user manipulation, visual or auditory controls, and user cleaning are provided by the attendant.
- This device may be used by children 8 years of age and older and persons with reduced physical, sensory or mental abilities or lack of experience and knowledge unless they are under the supervision or guidance of the responsible person have been instructed to use the equipment in a safe manner and understand the potential hazards .
- Cleaning of the facility can be carried out by children under the age of 8 and older only under the supervision of the responsible person.
- Children may not play with the device.
- Always keep the appliance out of reach of children during use and storage.

#### **Warning!**

The device contains small parts - batteries where there is a risk of swallowing these parts by children.

### 1.5 Cleaning and maintenance

- Observe the usual user cleaning and maintenance only in the recommended way according to the instructions and procedures in "Cleaning, disinfection and maintenance".
- Do not disassemble the device.
- Never fix the appliance yourself. In the event of a fault, please have the repair serviced by an authorized service center.

## 2. SPECIAL SAFETY INSTRUCTIONS AND WARNINGS

- The device is designed exclusively for private, non-commercial use - body temperature measurement. Verification of accuracy of measurement is possible by comparison with another verified measuring device. Verification interval is recommended once every 2 years.
- Never clean the appliance under running water or immerse yourself in water or other liquids. Clean the device with a damp cloth (in a suitable solution) and wipe dry or let it dry.
- Never overload the equipment beyond the limits specified by the technical parameters and operating environment characteristics!
- Never underestimate the potential hazards and exercise caution!

## 3. INTENDED USE OF THE DEVICE

The device is intended solely for private, non-commercial use to measure the body temperature of persons in the ear or forehead and to measure the surface temperature of objects to the extent specified by the technical and operating parameters and functions of the device, safety and user instructions and external influences of the operating environment.

### **Warning!**

The use of the device does not replace professional examination with qualified medical personnel.

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## Before first use

Please read this instruction manual carefully before using it for the first time, because correct temperature measurement is only possible when handling the unit correctly. Because of external influences, it is otherwise likely that the measured values will not be correct.

This manual describes the steps in measuring temperature with this thermometer and contains important and useful tips for a reliable body temperature. Carefully store these instructions for use.

The thermometer is designed to measure the body temperature measured by infrared technology. Compared with conventional thermometers, it has the advantage of measuring faster. In addition, it is no longer necessary to measure body temperature in the oral cavity, rectum or underarm. By inserting it into the ear canal to measure the ear drum temperature or by attaching it to the forehead, the thermometer can reliably measure body temperature. However, since the measurement is faster than with conventional thermometers, and because the ear drum and face are on the surface of the body, it is necessary to carefully observe certain measuring conditions so that the measured temperature is accurate. The thermometer is a high quality product for measuring human body temperature in the ear and forehead. It is ideal for measuring temperature in children (recommended for 6 months), but can also be used by adults.

When properly used, the thermometer guarantees fast, accurate and comfortable measurement of body temperature.

We wish you all good health!

## Advantages of the thermometer

### **Two measurement methods: measurement from ear and forehead**

1. Thermometer measures body temperature (Body Temp mode) from ear and forehead. Depending on what you prefer, you can choose a place for temperature measurement.

2. The thermometer also measures the surface temperature of objects (Surface mode). High measurement accuracy with the latest measurement sensor technology the latest generation of measurement sensors guarantees a very high accuracy of temperature measurement when measured from ear and forehead.

When measuring the temperature of objects, the thermometer only needs to focus on the desired object.

### **Due to infrared technology is very fast.**

The measuring sensor captures the infrared radiation emanating from the drum, respectively. from the face of the forehead and report the measurement result at a time.

### **Simple operation**

The instrument is operated very easily and safely with the buttons. Use the power button (memory data recall) to turn the device on or off and also to start the measurement.

### **Principle of operation**

Each object produces a certain amount of energy of infrared radiation. The energy of the radiation emitted and its wavelength depends on the surface temperature. The human body at a temperature in the range of 35.5 - 43.0 °C emits infrared rays with a wavelength of 5 - 13 µm. Based on this fact, we can accurately calculate the body temperature from the difference between body temperature and temperature at the face surface.

### **Advantages of the thermometer**

The thermometer measures Body Temperature from ear or forehead. Depending on what you prefer, you can choose a place to measure body temperature.

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## General body temperature information

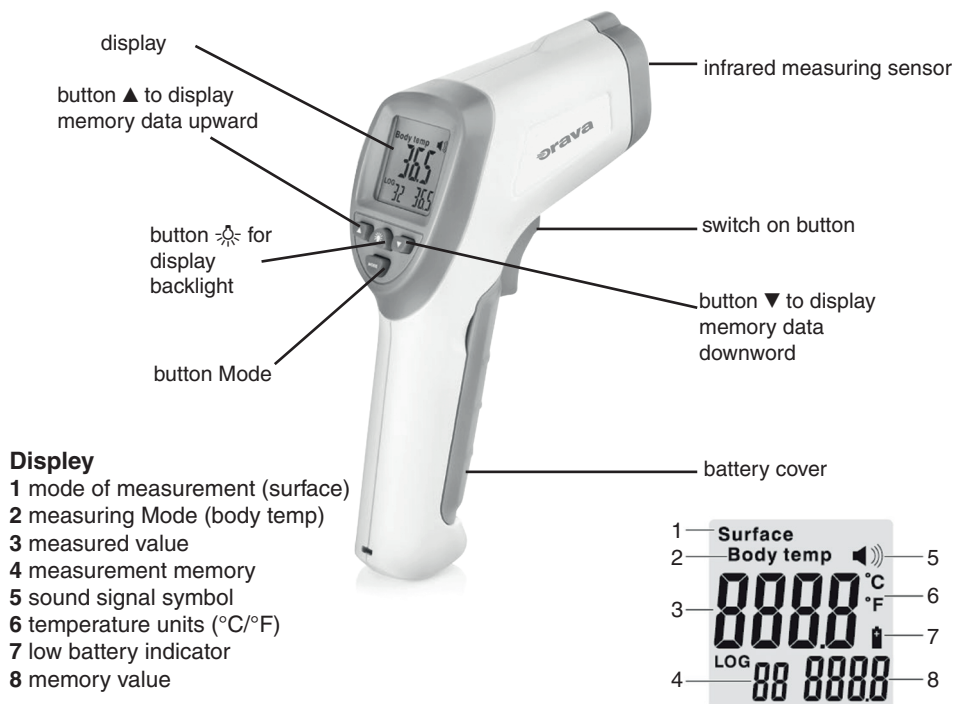
The human body regulates the body temperature to the desired value - it is up to 1 °C throughout the day. The temperature in the body (core body temperature) and surface temperature on the skin show different values. So there really is no "normal" body temperature - it always depends on measurement site. Body temperature is also affected by external temperature, age, stress, sleep time, hormones and physical activity. While the classic glass thermometer and digital thermometer directly measure body temperature, measurement of body core temperature through infrared radiation of the body is measured in the ear and forehead. This can also differ slightly from the temperature measured in the rectum, the oral cavity, or in the armpit with a digital thermometer even if measured correctly. During life, the average body temperature can fall by up to 0.5 °C.

### **Overview of measured values (°C):**

Status	Ear/Face
Low temperature	< 35,7
Normal temperature	35,8 – 36,9
Increased temperature	37,0 – 37,5
Light Fever	37,6 – 38,0
Mild fever	38,1 – 38,5
High Fever	38,6 – 39,4
Very high fever	39,5 – 42,0

- The temperature measured in the ear may differ from the temperature measured on the forehead as the face temperature affects the external influences more than the temperature of the ear drum.
- The same is true when compared to measuring body temperature in the rectum, the oral cavity, or the armpit.
- Repeated measurements of consecutive measurements generally have slightly different results, however, they move within the tolerance of the measurement.

## Part description



## Device usage - temperature measurement

### Preparation

The thermometer measures body temperature in mode **Body temp** from both the head and the ear. You can use both measurement methods to measure your own body temperature (own measurement), as well as for measuring the body temperature of another person (foreign measurement). To measure body temperature, the thermometer must be set to body temperature. If after switching mode **Body temp** surface indicator is not lit when the thermometer is turned on, press **MODE** to switch the thermometer to **Body temp**.

In **surface** temperature measurement mode, the temperature sensor measures the surface temperature of various items (milk in baby bottle, building materials, etc.).

1. If there is no battery in the device, open the battery compartment cover and connect a 9 volt battery (not supplied) to the contacts. Observe the correct polarity as + and - on the battery and the battery compartment contacts. After connecting the battery, insert it into the storage compartment and close the battery compartment cover.

- 2 Before measuring, you must turn on the thermometer. Press the on/off button. Turning on the display, displaying all segments at a moment when the thermometer is switched on for the first time for a long time, the mode name and the temperature that is being measured are displayed (if the temperature sensor is in the body temperature mode and is not aimed at the human body, Lo (temperature below 32 ° C), if the temperature of the objects is in the mode, the measured temperature is displayed and the thermometer beeps. Subsequently, the thermometer is prepared for further measurement. In order to achieve accurate results, it is important to follow these guidelines: Please ensure that the thermometer and the person whose temperature is to be measured are in a room at room temperature for at least 30 minutes before measuring. To get maximum accuracy for the next measurement, wait for 30 seconds between each measurement. After sleeping, it is recommended to wait a few minutes to measure the temperature. Do not measure immediately after showering, swimming etc. when the ear or face is wet. Do not eat, drink or inject before measuring. Do not measure the temperature during or after breastfeeding. Before measuring, remove the hair and wipe the seat from the ear and forehead. Release the key and move the thermometer to a greater distance until the final beep sounds and the measured temperature is displayed. In the following situations, it is recommended to perform three temperature measurements and consider the highest value as the result of the measurement:
- in children younger than 3 years with a weakened immune system (especially when it is critical whether or not the child has a fever);
  - Users who are not yet familiar with the device until they reach constant measured values.
  - when a low measured value is suspected.
- If you have doubts about the measured temperature and the temperature does not match the patient's feel, we recommend repeating the measurement after a few minutes. Please also observe the cleaning instructions. We also recommend that you measure the temperature by another independent method or seek a doctor.
- The measured value memory is not displayed in the surface temperature measurement mode.

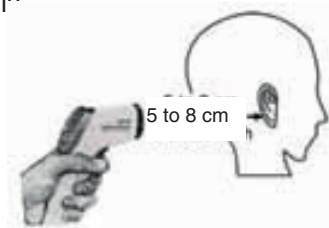
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## Body temperature measurement in the ear

### Measurement from ear

You can measure from the right or left ear. The thermometer measures infrared radiation emitted from the drum and the ear canal. The sensor captures this radiation and converts it to its temperature.

- 1 Turn the thermometer on by briefly pressing the on/off button, and in the body temperature mode (Body temp), point the measuring sensor to the ear canal at a distance of max. 5 to 8 cm from the ear. From your ear, remove hair and any obstacles.
- 2 To start the measurement, press the o /off button again and release it after the beep sounds.  
Measurement takes about one second. When the measurement stops, a beep sounds and a measurement result is displayed.  
After the measurement, the thermometer will be ready for further measurement.
- 3 If you do not perform any operation for up to 15 seconds, the thermometer switches off automatically.



### Important information for measuring the temperature in the ear:

- Temperature values may be different for each ear. Therefore, please always measure the temperature from the same ear.
- If you were lying on one ear, the temperature may be measured shortly afterwards in this ear.
- Do not measure the temperature from the ear in which an inflammatory disease occurs, even after an ear injury (eg drum damage) or is in the healing phase after surgery. If drugs are administered in the ear, they should not be measured from that ear. In these cases, consult your physician beforehand.

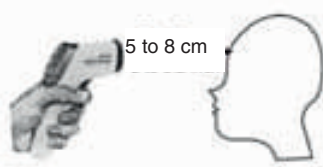


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## Measuring body temperature on forehead

The thermometer measures infrared radiation emitted from the skin in the forehead and sleep area and surrounding tissue. Radiation captures sensors and converts them to temperature.

- 1 Turn on the thermometer by briefly pressing the on/off button in the body temperature measurement mode (**Body temp**), point the measuring sensor on the face at a distance of max. 5 to 8 cm from the front. From your forehead remove hair and any obstacles.
- 2 To start the measurement, press the **on/off** button again and release it after the beep sounds. Measurement takes about one second. When the measurement stops, a beep sounds and a measurement result is displayed.  
After the measurement, the thermometer will be ready for further measurement.



### Important information for temperature measurement from the forehead

- Remove hair, sweat, cosmetics or dirt from your forehead to ensure optimal measurement accuracy.
- Staying outdoors for longer periods of time (such as cool air in the winter or in the sun in the summer) and wearing the headgear can affect the face temperature. Therefore, it is advisable to measure the temperature at the head first after 30 minutes of stay in rooms with room temperature

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## Using the device - Measuring the surface temperature of objects

### Preparation

The thermometer measures the temperature of objects in surface mode. To measure the temperature of the objects, the thermometer must be set in Surface mode. If the **Surface** indicator of Body temperature is not illuminated when the thermometer is turned on, press **MODE** to switch the thermometer to Surface mode.

In **surface** temperature measurement mode, the temperature sensor measures the surface temperature of various items (milk in baby bottle, building materials, etc.).

- 1 Turn the thermometer on by briefly pressing the on/off button in the **Surface** temperature measurement mode and direct the measuring sensor to the object at a distance of max. 5 to 8 cm from the surface of the object. Avoid any obstructions between the thermometer sensor and the object surface.

- 2 To start the measurement, press the **on/off** button and release it after a beep sounds.  
Measurement takes about one second. When the measurement stops, a beep sounds and a measurement result is displayed.  
After the measurement, the thermometer will be ready for further measurement.
- 3 If you do not perform any operation within 15 seconds, the thermometer will turn off automatically..
- 4 No measured value memory is displayed in the temperature measurement mode on the surface of objects or objects.



### Repeated measurement

Repeat the measurement by repeating the above steps.

### Switching the measurement mode

You can switch between the **Body temp** (Temperature modes) and a **Surface** by pressing the MODE button.

### Turn on the backlight of the display

The display can be backlit for better visibility. Briefly press the  (Backlight) button to turn on the backlight. To turn off the backlight, press the  (Backlight) button again. If you do not perform any operation for about 15 seconds, the thermometer will automatically shut down.

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## Setting the thermometer


You can make different settings for F1 to F3 on the thermometer.

Press the MODE button for more than 3 seconds to turn on the setting mode by turning on the device to display F1. Briefly press the MODE button to toggle between setting modes. The F1, F2, and F3 modes are switched sequentially.

### **Setting F1 (Unit setting °C or °F)**



Turn on the thermometer and press and hold the MODE button for more than 3 seconds when the device is turned on to display F1.


Then, set the desired temperature measurement units - ° C (Celsius) or ° F (Fahrenheit) with the / buttons.

To turn off the setting mode, press  (Backlight).

### **Setting F2 (Setting the Body Temperature Alert)**

Turn on the thermometer and press and hold the MODE button for more than 3 seconds when the device is turned on to display F1. Press the button again to display F2.

The preset value for the high temperature alert is 38.0 ° C. Use the / keys to set the desired temperature for the alarm to an elevated temperature (you can increase or decrease the value by 0.1 ° C).

To turn off the setting mode, press  (Backlight).

### **Setting F3 (Turning on or off the beep/signal)**

Turn on the thermometer and press the **MODE** button for more than 3 seconds until **F1** appears on the display. Then double-press the **MODE** button to enter the F3 setting. Pressing ▼ turns off the sound, indicator 🔊 disappears. Press the V button to turn on the sound, indicator 🔊 appears on the display.

### **If Hi (High temperature) appears in the display,**

The measured temperature exceeded 42.5 ° C.

### **If Lo (Low Temp) appears on the display,**

The temperature measured is less than 32 ° C.

### **View memory of measured results (in Body temp mode)**

By pressing the **on/off** button, measuring and displaying the measured value, you can switch the display of the last 32 measured values (LOG 01 to LOG 32) using the ▲/▼ buttons. The last measured value erases the measured value from the thermometer memory.

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## **Replace the battery**

If the symbol of the discharged battery 🔋 starts flashing on the right, it indicates that the battery is low and needs to be replaced..

- 1 Open the battery compartment cover by pulling the top of the battery compartment cover at the point of the on/off button.
- 2 Select and disconnect the old battery and connect and insert a new 9 volt battery. If the polarity is incorrect, the thermometer does not work and the battery may be short-circuited and leaking!  
Dispose of the spent battery according to local regulations and standards. If the thermometer does not plan to use for a long time, the battery should be removed to prevent it from leaking.
- 3 Flip the battery compartment cover back on the thermometer so that it clicks.

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## Cleaning and maintenance

The measuring sensor is the most important and sensitive part of the thermometer. In order to guarantee the most accurate measurement results, the measuring head must always be clean and undamaged.

Clean the head with the measuring sensor with a suitable cleaning cloth, a damp cloth, and a suitable alcohol solution (70% isopropyl). Please do not use any aggressive detergents or solvents as this may damage both the thermometer and the display. Ensure that no liquid comes into the thermometer.

To protect from external influences, keep the thermometer in its packaging material.

Store the thermometer in a dry, dark and dusty environment.

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## Technical specifications

<b>Model:</b>	MT-330
<b>Measuring range:</b>	Body temperature: 32.0 °C to 42.5 °C Surface Surface Temperature 0 °C to 100 °C below the indicated range, "Lo" appears on the display and the display shows "Hi"
<b>Measurement accuracy:</b>	Body Temperature $\pm 0.3$ °C (at standard ambient temperature 22 °C) Surface Temperature $\pm 1.0$ °C at Standard ambient Temperature 22 °C)
<b>Measurement distance:</b>	5 to 8 cm
<b>Display:</b>	LCD (liquid crystal) display, 3-digit
<b>Power:</b>	1x 9 V battery, type 6F22
<b>Battery life:</b>	approx. 40,000 measurements depending on the quality of the battery being used
<b>Dimensions:</b>	150 x 75 x 40 mm (H x W x D)
<b>Weight:</b>	approx. 172 g without battery, approx. 400 g including battery
<b>Audible signal:</b>	when the thermometer is switched on, after the measurement has ended and at temperature alert
<b>Operating conditions:</b>	ambient temperature: 10 °C - 40 °C relative humidity: 30% - 85%

**Applied part:**  = typ BF

### Accuracy of the contactless infrared thermometer

in the range of 32,0 až 35,9 °C  $\pm 0,3$  °C

in the range of 36,0 až 39,0 °C  $\pm 0,2$  °C

in the range of 39,1 až 42,5 °C  $\pm 0,3$  °C

The right to change is reserved!



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This device meets the requirements of  
European Directive 93/42 / EEC.



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**DISPOSAL OF USED ELECTRICAL AND ELECTRONIC EQUIPMENT**

The symbol on the product or on its packaging indicates that this product does not belong to household waste. It is necessary to take it to a collection point for electrical recycling and electronic equipment. By ensuring proper disposal of this product, you will help prevent negative consequences to the environment and human health that would otherwise be caused by inappropriate disposal of this product. For more detailed information about recycling of this product, please contact your local authority, your household waste disposal service or the shop where you purchased the product.