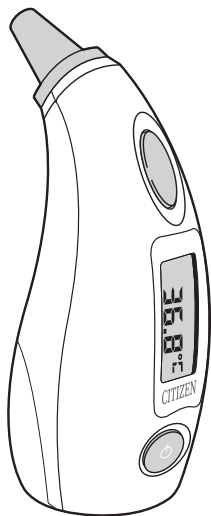


INSTRUCTION MANUAL FOR DIGITAL EAR THERMOMETER

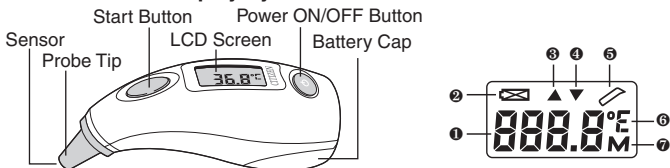
Model: CTD 505
(Antibacterial Model)



English

**Instruction Manual for
Digital Ear Thermometer
Model: CTD 505 (Antibacterial Model)**

PARTS NAMES / Display Symbols



Symbol	Description
①	Measuring Result. Displays the result in Fahrenheit or Celsius.
②	Low Battery Symbol. Flashes to alert the user to change the battery.
③	Too High Ambient Temperature. Refer to “Troubleshooting” for details.
④	Too Low Ambient Temperature. Refer to “Troubleshooting” for details.
⑤	Ready to Use Symbol. The CTD505 is ready to use.
⑥	Temperature Unit. The default setting is Celsius.
⑦	Memory Mode Symbol. With this symbol, the LCD screen displays the previous result.

PRECAUTIONS (Intended Use)

1. The CTD505 is a clinical electronic thermometer that uses an infrared sensor to detect the body temperature of people of any age from the auditory canal in a home setting.
2. Do not use the CTD505 as a replacement for medical advice. Consult your doctor if you have any concerns.
3. ONLY the CTD505 probe tip is waterproof. Do not immerse it in water or any other liquid.
4. Do not drop the CTD505, and avoid any strong impact.
5. Do not use the CTD505 on any body part other than your ear.
6. Do not move or shake your body while measuring.
7. Do not use for any purpose other than the intended use. The manufacturer is not liable for misuse.
8. The CTD505 can measure up to six times a day. To know your normal body temperature range, we suggest you measure regularly.
9. If any damage occurs to the sensor inside the probe tip or to the unit itself, return the product to your local distributor.
10. Keep the CTD505 away from children. Do not let them use the CTD505 on their own. They may choke on the battery or tiny component parts by accident.
11. Install a new CR2032 lithium battery when the power is low. Use of any other battery may lead to inaccurate results or malfunction.

12. Without regular recalibration, the results may not be accurate. Every CTD505 is calibrated right after production. See “Warranty and Recalibration” for details.
13. Keep the CTD505 away from sunlight and dusty places.




Important Notice:

The CTD505 does not require a probe cover during use. It is important to clean and disinfect the CTD505 before and after each use. See “Cleaning and Disinfection” for details.


For measurement:

- When asleep, pressure on the ear may cause higher-than-normal temperature. Wait a few minutes, and then measure again.
- Clean your external ear before measuring. To ensure an accurate result, keep your ear free from obstructions or excess earwax.
- The measuring results from the left and right ears may differ slightly. We recommend measuring in the same ear.
- Before measuring, the user and the CTD505 should be in a steady room temperature for at least 30 minutes. The user should also rest for 30 minutes after exercising.

HOW TO OPERATE

1. Press the  button. The backlight is switched on for approximately 2 seconds. The LCD screen displays all digital segments. 
2. If the CTD505 has saved past results, the LCD screen automatically displays the latest result.
3. When  flashes with a short beep, the CTD505 is ready to use.
 1. To improve accuracy, follow the illustrations below. For adults, pull the ear up and back. For infants and children, pull the ear back.

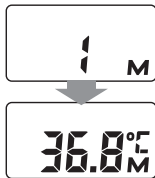


2. Fit the probe tip into the ear canal, and then press the **START** button. Release the button and wait a few seconds until you hear a long beep. 
3. Take the CTD505 out of the ear canal. The LCD displays the latest measuring result. The backlight is switched on for approximately 5 seconds. Without any operation, the CTD505 automatically shuts off after 1 minute.

Note: **Before re-measurement, wait 1 – 3 minutes.**

RECALL MEMORY



1. In power-off mode, press and release the **START** button to enter Memory Recall Mode. Press the **START** button again. The LCD screen displays the first memory set number with the latest measuring result.
2. Press the **START** button repeatedly to scroll through all 12 stored results in a loop.



ERASE MEMORY

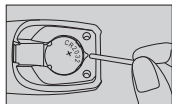
1. While holding the **START** button, press and release the **I/O** button. The CTD505 starts up.
2. When the LCD displays the previous measuring result, release the **START** button.
3. To check memory erasing, turn the CTD505 off, and enter Memory Recall Mode again.

BATTERY REPLACEMENT

-  flashes: You can still measure, but the accuracy may not be impaired.
-  lights or no reaction at all: Change the battery as soon as possible.

Note: Change the battery away from small children and any source of heat.

1. Press the upper part of the battery cap to unlock it.
2. Insert the tip of a tool into the gap at the side of the battery compartment. Remove the worn-out battery.
3. Insert a new CR2032 lithium battery into the CTD505, according to the polarities in the figure. Push it firmly into place with a "click", then replace the cap.



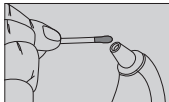
CLEANING INSTRUCTIONS

The CTD505 does not require a probe cover during use. Clean and disinfect the CTD505 before and after each use. If you wish to share the CTD505 with others, follow the instructions below.

◆ Preparation

1. Cotton bud: Available in supermarkets.
2. 70 % concentration alcohol swab: Available in supermarkets.

Note: Dispose of used cotton buds and alcohol swabs in accordance with local regulations.



◆ Cleaning : Probe area

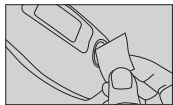
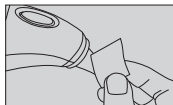
Use a clean cotton bud to wipe off any visible dirt or ear wax. Gently wipe the area clean.

Note: The most delicate and sensitive part of the CTD505 is the sensor inside the probe tip. Poking it with force may cause damage to the CTD505. When cleaning, take extra care.

Hold the CTD505 facing down to prevent water getting into the CTD505. Use an alcohol swab to clean the probe area in a circular motion for 15 seconds (around 20 times).

DISINFECTION (Probe & Exterior Area)

1. Hold the CTD505 facing down to prevent water getting into the CTD505. Use an alcohol swab to clean the probe area in a circular motion for 15 seconds (around 20 times).
2. Then, use the same alcohol swab to wipe the exterior area back and forth for another 15 seconds (around 20 times).
3. Wait at least 30 seconds until the CTD505 is completely dry.



Continue to set units on the next page, and start measuring. Repeat the steps above when measurement is done.

NOTE:

Do not use detergent or any strong chemicals on the CTD505.

FEVER ALERT

The CTD505 has a built-in “Fever Alert” feature.

If you have a fever between 37.5 °C – 43.0 °C, the “Fever Alert” function will inform you by a flashing result, red LED backlight, and a series of beeps.

NOTE:

Do not use the CTD505 as a replacement for medical advice. Consult your doctor if you have any concerns.

MAINTENANCE and STORAGE

◆ Storage

1. If you will not use the CTD505 for over 2 months, remove the battery from the compartment.
2. Always store the CTD505 in its container after use.
3. ONLY the CTD505 probe tip is waterproof. Do not dip it in water or any other liquid.
4. Keep the CTD505 away from:
 - Extreme temperatures
 - Overly humid or dry environment
 - Direct sunlight
 - Dusty places.
5. For details of environmental conditions, refer to “Specifications”. Using the CTD505 outside the stated range may lead to inaccurate results or malfunction.

◆ Maintenance

1. Do not disassemble or change any parts of the CTD505. Such action may reduce its accuracy.
2. Do not drop the CTD505, and avoid any strong impact.

ABOUT THE EAR THERMOMETER

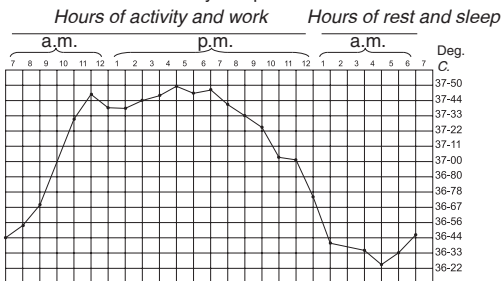
Normal body temperature differs by body parts, time and age. Here are two tables for your reference:

1. Normal Body Temperature Range

Age Site	0 – 2 years old	3 – 10 years old	11 – 65 years old	Over 65 years old
Oral	N/A	35.5 – 37.5 °C	36.4 – 37.6 °C	35.8 – 36.9 °C
Rectal	36.6 – 38.0 °C	36.6 – 38.0 °C	37.0 – 38.1 °C	36.2 – 37.3 °C
Axillary	34.7 – 37.3 °C	35.9 – 36.7 °C	35.2 – 36.9 °C	35.6 – 36.3 °C
Ear	36.4 – 38.0 °C	36.1 – 37.8 °C	35.9 – 37.6 °C	35.8 – 37.5 °C
Core	36.4 – 38.0 °C	36.4 – 37.8 °C	36.8 – 37.9 °C	35.8 – 37.1 °C

Source: Official Health Central, <http://www.officialhealthcentral.com>.





2. Figure: Diurnal Variations in Body Temperature



Source: 1911, Encyclopedia Britannica, 11th edition, Volume 2, Part 1, Slice 1, p95.

TROUBLESHOOTING

LCD screen	Description & Solution
	<p> flashes</p> <p>Battery power is low, but the CTD505 can still measure.</p> <p>→ Remove the worn-out battery. Insert a new CR2032 battery as soon as possible. Without enough energy, the CTD505 cannot function as it should.</p>
	<p> lights</p> <p>Battery power is too low to measure.</p> <p>→ Remove the worn-out battery. Insert a new CR2032 battery as soon as possible.</p>
	<p>Too high ambient temperature</p> <p>Ambient temperature is higher than 40.0 °C</p> <p>→ Leave the CTD505 in a room around 10.0 °C – 40.0 °C for 30 minutes. Then measure again.</p>
	<p>Too low ambient temperature</p> <p>Ambient temperature is lower than 10.0 °C</p> <p>→ Leave the CTD505 in a room around 10.0 °C – 40.0 °C for 30 minutes. Then measure again.</p>

LCD screen	Description & Solution
	<p>Outside displayed temperature range I</p> <p>Result is higher than 43.0 °C.</p> <p>→ The user should rest in a steady room temperature for at least 30 minutes. Then measure again.</p>
	<p>Outside displayed temperature range II</p> <p>Result is lower than 34.0 °C.</p> <p>→ The user should rest in a steady room temperature for at least 30 minutes. Then measure again.</p>
	<p>Error symbol I</p> <p>Disturbance occurred while measuring.</p> <p>→ Repeat the measuring steps again. If the error persists, return the CTD505 to your local distributor.</p>
	<p>Error symbol II</p> <p>Memory error occurred while measuring.</p> <p>→ Repeat the measuring steps again. If the error persists, return the CTD505 to your local distributor.</p>

OTHER INFORMATION

This product conforms to the provisions of the EC directive 93/42/EEC (Medical Device Directive). And also complies with following standards (included but not limited):



Safety standard:

EN 60601-1 Medical electrical equipment part 1: General requirements for safety

EMC standard:

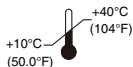
EN 60601-1-2 Medical electrical equipment part 1-2: General requirements for safety- Collateral standard: Electromagnetic compatibility- Requirements and tests

Performance standards:

EN 12470-5, Clinical thermometers - Part 5: Performance of infra-red ear thermometers (with maximum device)



Follow instructions for use.



The upper and lower limits of temperature.
(Operating conditions)



Keep dry.

**BF Classification:**

- Internally powered equipment
- BF type applied part
- IPX0
- Not suitable for use in presence of flammable anesthetic mixture with air or with oxygen or nitrous oxide
- Continuous operation with short-time loading



To avoid inaccurate results caused by electromagnetic interference between electrical and electronic equipments, do not use the device near a mobile phone or microwave oven. At least keep a maximum output power of 2 w yields and a distance 3.3m away from this equipment.



Discard the used product to the recycling collection point according to local regulations.

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Warranty & Recalibration**Warranty For One Year from Manufacturing Date**

CITIZEN SYSTEMS JAPAN Co., Ltd. grants a 1 year warranty on the product commencing on the date of purchase. Within the limited time, we will eliminate any defects in the appliance resulting from faults in the material or workmanship free of charge.

Please note that this service does not cover damage caused by misuse or abuse; accident; the attachment of any unauthorized accessory; alteration to the product; improper installation; unauthorized repairs or modification; improper use of electrical/power supply; loss of power; dropped product; malfunction or damage of an operation part due to failure to provide the manufacturer's recommended maintenance; transportation damage; theft; neglect; vandalism; or environmental conditions; loss of use during the period the product is at a repair facility or otherwise awaiting parts or repair; or any other conditions whatsoever that are beyond the control of the importers or distributors.


Recalibration Notice

Every CTD505 is properly calibrated right after production.

We recommend that USERS bring the CTD505 to certain laboratories every 2 years for proper recalibration.

The CTD505 does not need periodic recalibration, if the user handles it according to this manual.

SPECIFICATIONS

Measurement method	Infrared
Dimension (L x W x H)	120 x 39 x 52 mm
Weight (without battery)	66.80 g
Measurement range	34.0 °C – 43.0 °C
Low temperature display	Temperature < 34.0 °C : display: L °C
High temperature display	Temperature > 43.0 °C : display: H °C
Display resolution	0.1 °C
Lab accuracy	35.5 °C – 42.0 °C: ± 0.2 °C Other range: ± 0.3 °C
Clinical accuracy (repeatability)	± 0.3 °C
Memory sets	12
Auto power off	1 minute
Battery	CR2032 lithium battery (3V) x 1
Battery life	1000 times
Operating conditions	Temperature: 10.0 °C – 40.0 °C Humidity: 15 % – 95 % R.H.
Storage/Transportation conditions	Temperature: -25.0 °C – 55.0 °C Humidity: ≤ 95 % R.H.
Safety classification	 BF Type equipment
Accessory	CR2032 lithium battery (3V) x 1

Appendix


Guidance and manufacturer's declaration - electromagnetic emissions

The device is intended for use in the electromagnetic environments listed below, and should only be used in such environments:

Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	RF energy is used only to maintain the device's operation. Therefore, its RF emissions are so low that it is not likely to cause any interference in nearby electronic equipment.
RF emissions CIS PR 11	Class B	The device is suitable for use in all establishments, including domestic establishments, and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Not Applicable	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Not Applicable	

Guidance and manufacturer's declaration - electromagnetic immunity

The device is intended for use in the electromagnetic environments listed below, and should only be used in such environments:

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 MHz to 80 GHz	Not Applicable	Portable and mobile RF communications equipment should be used no closer to any part of the device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	Not Applicable $d = 1,2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2,3 \sqrt{P}$ 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 meters (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 ^{b)} . 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.

- 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 device is used exceeds the applicable RF compliance level above, the device should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the device.
- b). Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Guidance and manufacturer's declaration - electromagnetic immunity

The device is intended for use in the electromagnetic environments listed below, and should only be used in such environments:

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 %.
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.

Recommended separation distances between portable and mobile RF communication equipment and the device.

The device is intended for use in an electromagnetic environment where radiated RF disturbances are under control. The user can help prevent electromagnetic interference by keeping the device at a minimum distance from portable and mobile RF communications equipment (transmitters).

The table below details the maximum output power of the transmitter:

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz N/A	80 MHz to 800 MHz $d = 1.2 \sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3 \sqrt{P}$
0.01	N/A	0.12	0.23
0.1	N/A	0.38	0.73
1	N/A	1.2	2.3
10	N/A	3.8	7.3
100	N/A	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.

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