INSTRUCTION MANUAL FOR CITIZEN DIGITAL FOREHEAD AND EAR THERMOMETER CTD710

CITIZEN

Thank you very much for purchasing the CITIZEN digital forehead and ear thermometer.

ℹ️ • Please read all of the information in this instruction manual before operating the device.
• Be sure to have this instruction manual to hand during use.

1902LA

• Intended use: The infrared ear/forehead thermometer can measure the infrared heat generated by eardrum/central forehead area and surrounding tissues to reflect patient's body temperature accurately.

• Intended operator: At least 11 years old (5 years intensive reading experience), no maximum.

Safety Precautions
Be sure to read the following instructions before using the device.

⚠️ **Warning:**
Indicates a potentially hazardous situation which it may result in death or serious injury.

• Consult your physician before using the device. Do not use measurement results for self-diagnosis and self-treatment. Always consult your physician.
• Keep the battery out of reach of children as they could choke on it if they mistakenly swallow it.
• Should a child swallow the battery, there is a risk of chemical burns, penetration of the mucous membrane and other complications that could lead to death. It is therefore important to seek immediate medical attention to remove the battery.
• If the battery fluid gets in your eyes or on your skin, rinse it off with water immediately and then receive treatment from your physician.
• Do not use the device on persons suffering from otitis externa, tympanitis and other ear infections as it may aggravate the symptoms.
• Carefully clean and disinfect the probe after use.
• Do not use the device by force when inserting the probe as there is a risk of injury.
• Do not use the device if the probe tip or other parts have been damaged.
• Do not use the device in the vicinity of flammable gases such as those used for anesthesia. It could ignite the gases and cause an explosion.
• Do not use the device in enriched oxygen environments such as a hospital's hyperbaric chamber or oxygen tent. It could ignite the oxygen and cause a fire.

⚠️ **Caution:**
Indicates a potentially hazardous situation which it may result in injury or property damage. The property damage refers to consequential damage to buildings, household, belongings, livestock, and pets.

• Do not attempt to disassemble, repair or modify the device.
• Do not shake it holding the probe tip. Do not forcibly bend the probe tip or expose it to strong impact.
• Use the device only to measure human body temperature.
• Do not expose the device to water.
• Be sure to insert the battery so that the + and - poles are oriented correctly.
• Do not use device near a mobile phone, other devices that emit electromagnetic fields or in high electromagnetic environment. This could cause malfunction.

Symbol Explanations

ℹ️	Refer to instruction manual before use.
🧍	Type BF applied part
IP22	Classification for water ingress and particulate matter.
⚠️	Warning
⚠️	Caution

🚫 Indicates this device is subject to the Waste Electrical and Electronic Equipment Directive in the European Union. To protect the environment, dispose of useless device at appropriate collection sites according to national or local regulations.
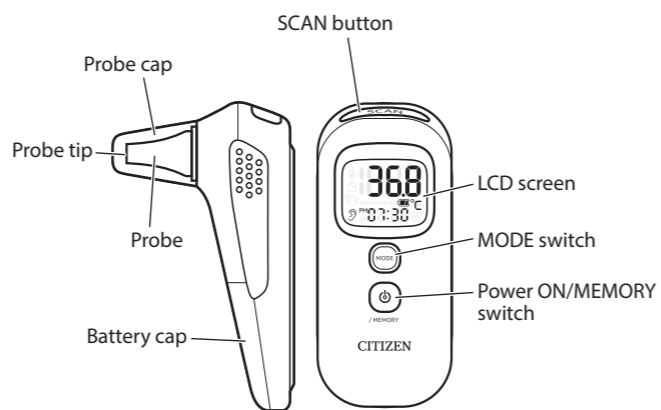
♻️ Paper Recycling

Factory: KunShan Radiant Innovation Co., Ltd.
No. 20, TaiHong Road, WuSongJiang Development Zone, YuShan Town, KunShan City, JiangSu, China
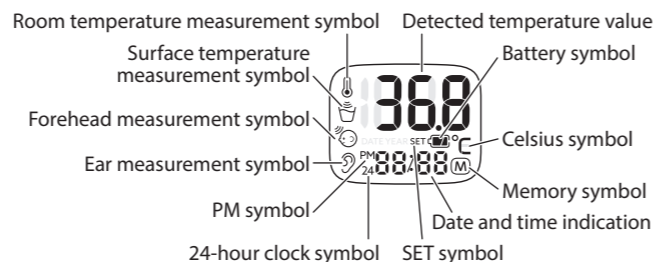
Names of Parts

The device and its accessories

Make sure that the package contains all the following items.
• Device
• Instruction manual
• EMC technical data

Device

- SCAN button
- Probe cap
- Probe tip
- Probe
- Battery cap
- LCD screen
- MODE switch
- Power ON/MEMORY switch
- CITIZEN

*Remove the transparent plastic seal covering the LCD screen and the Power ON/MEMORY switch before use.

LCD screen

- Room temperature measurement symbol
- Surface temperature measurement symbol
- Forehead measurement symbol
- Ear measurement symbol
- PM symbol
- 24-hour clock symbol
- Detected temperature value
- Battery symbol
- Celsius symbol
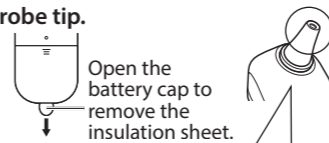- Memory symbol
- Date and time indication
- SET symbol

Measuring body temperature (temperature detection)

Remove the probe cap and check the probe tip.
*When using it for the first time, open the battery cap and remove the insulation sheet under the battery cap.

Open the battery cap to remove the insulation sheet.

⚠️ **Keeping the probe window clean**

Probe window

○ ✕ ✕ ✕

Dirt in the probe window will impact the accuracy of temperature detection.

• Use commercially available cotton buds without applying any cleaning agent to clean the probe window.
• If this fails to remove the dirt, moisten a cotton bud in alcohol for disinfection before cleaning.

Ear mode measurements
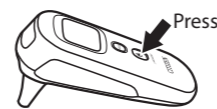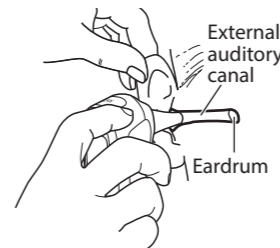(1) Press the Power ON/MEMORY switch.

Press

Repeated beeps are heard when you press the Power ON/MEMORY switch. When the thermometer mode is on, " 🔊 " (ear measurement symbol) appears. (Figure 1)

Figure 1

(2) Orient the probe in the direction of the eardrum, pull the ear back slightly to straighten out the ear canal (external auditory canal) and slowly and gently insert the probe.
(3) Press the SCAN button. Temperature detection ends when the buzzer beeps. (Measurement time: Approx. 1 sec.)
(4) Then remove the probe from the ear canal and check the measurement result.

External auditory canal
Eardrum

Forehead mode measurements
(1) Press the Power ON/MEMORY switch first and then press the MODE switch once to enter the forehead measurement mode.
The " 😮 " (forehead measurement symbol) appears. (Figure 2)

Figure 2

(2) When the buzzer starts beeping, move the probe tip to within 1 cm away from the center of the forehead (or even touching it) and press the SCAN button. (Figure 3) Temperature detection ends when the buzzer beeps. Check the measurement result.
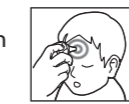When taking the temperature of small children, measure the temperature from above so that they do not see thermometer themselves.

Figure 3

* Let the device acclimatize to room temperature for 15 minutes before use. In forehead mode, an accurate temperature measurement may not be obtained in an environment where the temperature is less than 20℃. It is recommended to take a measurement by ear measurement mode or measure at a place where the temperature is above 20℃.

CAUTION:
• The detected temperature is converted to a sublingual temperature.
• It may not be possible to obtain an accurate body temperature within 30 minutes after exercise or taking a bath.

High temperature alert
If the measurement result is 37.5℃ or more, the buzzer will first "beep" once and then sound repeated "beeps." (In ear/forehead measurement mode only)

Power off
Hold down the Power ON/MEMORY switch (for about 6 sec) until " oFF " appears on the LCD screen. (When not in room temperature mode)
* Even if the Power ON/MEMORY switch is not pressed, the thermometer is automatically turned off after one minute of inaction. After use, wipe clean the device, the probe and probe tip using tissue or wet tissue. Use a dry cloth to dry it and place the probe cap before storing it.

How to measure correctly in the ear measurement mode

Temperature basics
All objects radiate heat. This device consists of a probe with a built-in infrared sensor that measures body temperature by detecting the heat radiated by the eardrum and surrounding tissue. Figure 4 shows the tortuous anatomy of a normal ear canal. As shown in Figure 5, hold the ear and gently pull it back at an angle or pull it straight back to straighten out the ear canal. The shape of the ear canal differs from individual, check before measurement. Accurate temperature measurements make it essential to straighten the ear canal so that the probe tip directly faces the eardrum.

External auditory canal
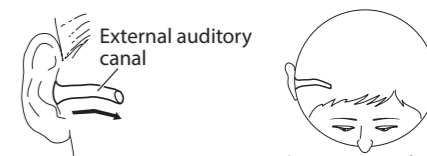
[Figure showing view from above]

Figure 4 A normal ear canal. It is sinuous.

Pull back at an angle
Eardrum
Pull back

[Figure showing view from above]
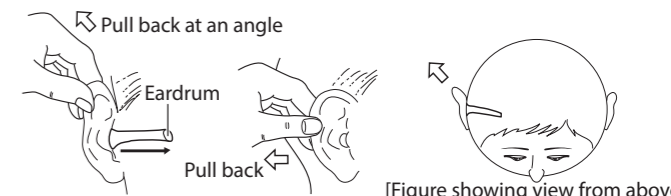
Figure 5 Pull back to straighten the ear canal

### Taking the temperature of children or infants

Hold the head gently.
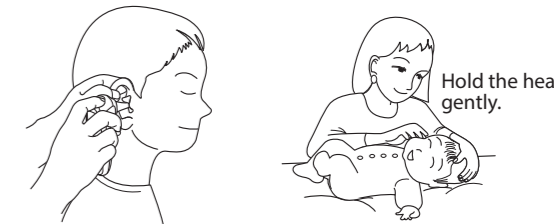
• Look deep into the ear before slowly inserting the probe.
• Insert the probe into a narrow ear canal so that it faces the eardrum and completely closes off the entrance of the canal.

Displaying measurements stored in memory

This device stores the 9 latest body temperature measurements together with their dates and the measurement modes used (ear or forehead) to enable later confirmation.

(1) Press the Power ON/MEMORY switch to turn on the device. After the buzzer beeps, press the Power ON/MEMORY switch again and the most recent measurement and " Ⓜ " (Memory symbol) will appear.
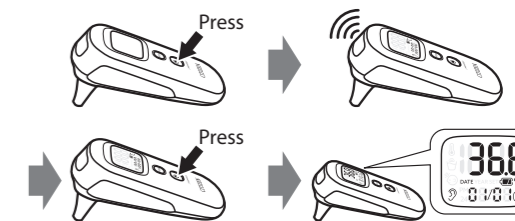
Press
Press

(2) Press the Power ON/MEMORY switch again to display the measurement prior to the most recent measurement.

* The device will automatically return to measurement mode if left inactive for about 10 seconds.

Deleting measurements in memory

* Individual measurements cannot be deleted.

In power off mode, hold down both the SCAN button and the Power ON/MEMORY switch (for about 3 sec) to delete all measurements in memory.

Other Functions

Clock function

Date and time can be set. When set, the measurement value and date and time of measurement are stored.

Setting method:

(1) Press the Power ON/MEMORY switch and the buzzer beeps to indicate the power is on.

(2) Hold down the Power ON/MEMORY switch for about 3 seconds and the SET symbol will start to blink on the LCD screen indicating it has entered the time setting mode.
(Figure 6)

Figure 6

(3) Press the SCAN button and the 24 symbol will start to blink indicating you can select between the 12-hour and 24-hour clock.

Press the SCAN button to select "PM" (12-hour clock) or "24" (24-hour clock). (Figure 7)

* The PM symbol is not displayed between 0 AM and 11 o'clock.

Figure 7

(4) Press the Power ON/MEMORY switch to set "hour → min → year → month → day" in indicated order.

When the respective symbol on the LCD screen starts to blink during settings, use the SCAN button to select and the Power ON/MEMORY switch to determine. Then the next symbol will start to blink, repeat operation in step (4).

Surface temperature measurement mode

This device can be used to measure the surface temperature of liquid or solid object.

(Example: water, milk, etc.)

Operation description:

(1) Before making a measurement, make sure the probe tip is clean and not damaged.

(2) When the power is on, press the MODE switch twice to enter the surface temperature measurement mode.

" 👆 " (the surface temperature measurement symbol) appears. (Figure 8)

Figure 8

(3) Press the SCAN button and the surface temperature of the object will appear in about 1 second.

Each time the SCAN button is pressed, a new measurement is made. If the temperature of the object being measured changes, the value on the LCD screen also changes. While holding down SCAN button, the measured value keeps changing.

(4) Hold the device 1 or 2 cm from the object whose temperature you want to measure to obtain an accurate measurement.

*Temperatures measured in surface temperature measurement mode indicate the surface temperature of an object. The surface temperature measurement mode cannot be used for measuring body temperature.

Room temperature measurement mode

Indicates atmospheric temperature or the temperature of a room. (changes in real time)

Operation description:

(1) Let the device acclimatize to room temperature for 15 minutes before use.

(2) When the power is on, press the MODE switch three times to enter the room temperature measurement mode.

" 🌡 " (the room temperature measurement symbol) and the room temperature appear on the LCD screen. (Figure 9)

Figure 9

(3) To check room temperature, place the device in the room on a table or desk not exposed to direct sunlight, the down draft from an air conditioner or other location subject to temperature fluctuations.

Replacing the battery and precaution

When the " 🔋 " symbol appears, replace the battery as soon as possible.

When the " 🔋 " symbol appears, measurements are no longer possible. Replace the battery.

(1) Open the battery cap.

Turn over the device and press the battery cap upwards to open the battery compartment. (Figure 10)

* If it is difficult to open, insert a pointed (non-metallic) object in the hole between the battery cap and the probe to push it open.

(2) Use the pointed (non-metallic) object to remove the battery.
(Figure 11)

(3) Hold the new battery (CR2032) at an angle to insert it under the hook and press it in until it clicks into place.

Make sure that the plus pole of the battery faces upwards. (Figure 12)

(4) Close the battery cap.

* Be sure to dispose of used batteries as soon as possible and in a location out of reach of children.
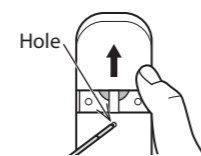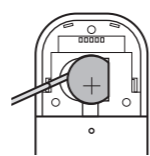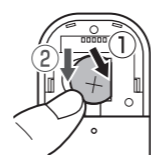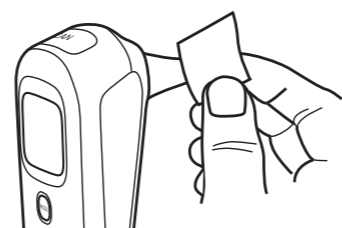
Hole

Figure 10   Figure 11   Figure 12

Maintenance and Storage Methods

• After use, wipe clean the device, the probe and probe tip using tissue or wet tissue. Use a dry cloth to dry it to prevent staining and place the probe cap before storing it. Any dirt in the probe tip that is left as is will prevent you from obtaining accurate measurements. Damage may result.

• Do not submerge the device in disinfectant or other cleaning agent. [Damage may result]

• Thinner, petrol, benzine must not be used as they will damage the device.

• Do not clean using an ultrasonic cleaning device. [Damage may result]

• This device is not water-proof. Do not immerse it in water or clean it in tap water.

• Do not bend, drop or expose it to strong impact.

• Do not store the device without removing accumulated dirt or moisture. [Damage may result]

• Store the device and probe cap in a location inaccessible to children.

• Do not store the device in a location that does not meet storage environment requirements. [Damage may result]
* For reference: (ambient temperature: -20 to 50℃, relative humidity: 85% RH or less)

• Do not store the device in a location exposed to water, direct sunlight, high temperature, high humidity or a location that is excessively dusty.

• Do not store it in a location near open fire or locations that are exposed to vibration or impact (this includes during transportation).

• Do not store it in a location where chemicals are also stored or where gas is generated.

Forehead and ear thermometer   Q & A

Q1 **This differs from armpit temperature! Which temperature is correct?**

A Since body temperature measured in the ear and the forehead are measured in regions that differ from the armpit, the detected temperature results may sometimes also differ. Instead of making simple comparisons, make regular measurements under controlled conditions to compare with measurement results obtained under normal conditions.
The forehead measurement mode uses an algorithm to calculate obtained data.
In the following cases, the temperature of the forehead will be impacted and it may not be possible to calculate a correct body temperature.
- When measurements are made in a location near an air conditioner or other location exposed to air movement
- When the forehead is exposed to direct sunlight
- When the forehead is wet with sweat
- During a 30-minute period after exercise or taking a bath
- When the person whose temperature is measured has been in a location with a different temperature prior to measurement
- When the device used to make the measurements was kept in a location with a different temperature prior to measurement
- When a strand of hair, cosmetics or other object between the forehead and the probe tip interferes with the measurement.
- When the forehead was covered by a cap just prior to measurement

Q2 **The temperature differs from each new measurement. Why?**

A If the temperature reading changes each time, the following are likely causes. Check and measure again.
1) A consistent method for straightening the ear canal is not being used. There are individual differences, but a normal ear canal is not straight. Accurate temperature measurements make it essential to straighten the ear canal and pointing the probe tip straight at the eardrum. Refer to the section "How to measure correctly in the ear measurement mode" in the instruction manual (front cover).
2) A consistent method for inserting the probe in the ear canal is not being used.
To ensure stable temperature detection, insert the probe in the ear canal gently. When inserting the probe into the ear canal, keep it pointed in the same direction and at the same depth or the measurement results may be inaccurate.
3) Repeated measurements are performed in a short time.
When the probe is inserted into the ear canal, the temperature inside the ear may start to be affected. To make another measurement, wait at least 1 minute.

Q3 **Why does a temperature reading from the right ear differ from a reading from the left ear?**

A Although body temperature does not basically change, the internal anatomy of the right and left ear is not the same. For this reason, the measurement results will differ slightly between individuals. To measure body temperature, measurements should use the same ear.

Q4 **Can measurements be performed without a probe cover?**

A This device has been designed so that accurate measurements can be performed without a probe cover. In addition, if a probe cover of another device is attached, accurate measurements will not be possible and should not be used.

Q5 **There is no probe cover. Is it hygienic to use the device without a probe cover?**

A The probe can be hygienically used as long as the tip is kept clean. Refer to the instructions in "Maintenance and Storage Methods."
This device is very economical because it does not need a probe cover.

Q6 **When used on yourself, is it necessary to be concerned about the probe becoming dirty?**

A When the probe tip becomes dirty, you will not obtain accurate measurements. Even if you use it only on yourself, you still have to check it for dirt build-up. And after use you have to remove dirt from the probe and probe tip and dry it completely after cleaning.

Q7 **Can you take temperature measurements using an ear affected by an inflammation?**

A Do not use the thermometer in an ear affected by otitis externa, tympanitis or other disease. Using it could spread the infection to other people and aggravate the symptoms of the patient.

Q8 **Can babies with narrow ear canals be measured?**

A The probe need not be fully inserted to enable a measurement. Straighten the ear canal, align the center of the probe with the center of the ear canal and point it towards the eardrum. There is no need to force the probe into the ear canal.

Q9 **Can you use a forehead and ear thermometer to take measurements under the armpit or under the tongue?**

A A forehead and ear thermometer cannot be used to measure the temperature under the armpit or tongue. This device consists of a probe with a built-in infrared sensor that measures body temperature by detecting the heat radiated inside the ear (eardrum and the external auditory canal) and by the forehead.

When measurements cannot be made

If you suspect that the device is not functioning properly, first perform the following inspections. If the device is not operating normally after these inspections, please contact your local distributor.

Symptom	Check point/State	Remedy
Nothing happens when buttons are pressed.	Check if the battery is correctly installed.	Refer to "Replacing the battery and battery precautions" to correctly install the battery.
	Check if the battery is depleted.	Install a fresh battery. (CR2032)
Er1	The device is not ready.	Wait about 7 seconds for the symbols on the LCD screen to stop blinking.
Er3	Ambient temperature is outside normal temperature range of 10 to 40℃.	Leave the device for 15 minutes in an environment that meets its temperature requirements.
Er5~Er9	The device is not operating normally.	Remove the battery for 1 min, reinstall it and try again. If the error persists, contact your local distributor.
Hi	①The measured value is higher than 42.2℃ in ear/forehead measurement mode ②The measured value is higher than 80℃ in surface temperature measurement mode	If the error persists when it is clear that the temperature of the measured surface is within the measurement range, contact your local distributor.
Lo	①The measured value is lower than 34.0℃ in ear/forehead measurement mode ②The measured value is lower than -22℃ in surface temperature measurement mode	
(LCD display)	Measurements do not start after turning on the device.	Remove the battery and then reinstall it.

Specifications

Model number	CTD710
Temperature detection method	Infrared
Region whose temperature is detected	Inside the ear, forehead
Rating and power supply	DC 3 V ⎓ (⎓ : direct current), CR2032 × 1 pc.
Power consumption	18 mW
Battery life	Approx. 3,000 times
Temperature indication	Numeric 3 digits + ℃, units of indication 0.1℃
Temperature indication method	Temperature correction method
Measurement range	Ear and forehead measurement mode: 34.0 to 42.2℃ Surface temperature measurement mode: -22 to 80℃ Room temperature measurement mode: 10 to 40℃
Maximum permissible error	Ear and forehead measurement mode: ±0.2℃ within 35.0 to 42.0℃ ±0.3℃ for other than above measurement range Surface temperature measurement mode: ±0.3℃ within 22 to 42.2℃ ±4% or ±2℃ whichever is larger (other than above measurement range) Room temperature measurement mode: ±1℃ * When blackbody furnace is used at a room temperature of 23℃
Weight	Approx. 63 g (including battery)
Dimensions	Approx. 45 (W) x 106 (H) x 61.2 (D) mm
Additional functions	Memory for 9 measurements, power auto off
Electric shock protection	Internal power supply 👤 (👤 : BF type applied part)
IP protection class	IP22
Operating environment	Ambient temperature: Ear: 10 to 40℃ / forehead: 15 to 40℃ Relative humidity: 85% RH or less
Storage conditions	Ambient temperature: −20 to 50℃ Relative humidity: 85% RH or less
Accessories	Monitor battery (internal), instruction manual, EMC technical data, Probe cap

* This device and old batteries removed from it must be disposed of in accordance with the rules and regulations of your local community.

* CITIZEN SYSTEMS JAPAN Co., Ltd. accepts no liability whatsoever for damages resulting from usage not specified in the instruction manual and repairs, modifications, adjustments, etc. not performed by the manufacturer.

* This device complies with EMC standard IEC 60601-1-2: 2014.

* This device is subject to change without notice due to improvements.

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• Design and specifications are subject to change without notice.

CITIZEN SYSTEMS JAPAN CO., LTD.

6-1-12, Tanashi-cho, Nishi-Tokyo- shi,
Tokyo 188-8511, Japan

E-mail: sales-oe@systems.citizen.co.jp
http://www.citizen-systems.co.jp/