rossmax

Model: **RA600**

EN

Instruction Manual

www.rossmax.com

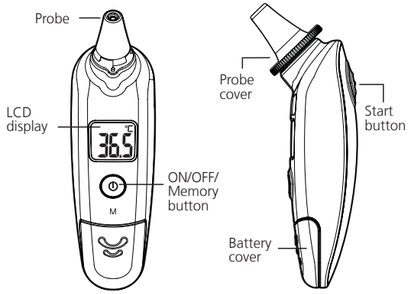
Please read the instruction manual carefully before using the product and be sure to keep this manual.

RA600 Infrared Ear Thermometer

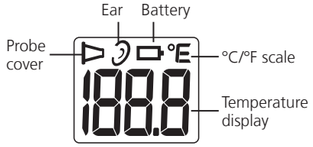
The Rossmax Infrared Ear thermometer has been carefully developed for accurate, safe and fast temperature measurements in the ear.

It is a non-invasive ear thermometer using an infrared detector to detect body temperature from the auditory canal for adult and child.

- The quality of the infrared ear thermometer has been verified and conforms to the provisions of the EC council directive 93/42/EEC(Medical Device Directive) Annex I essential requirements and applied harmonized standards. EN 12470-5: 2003 Clinical thermometers-Part 5: Performance of infrared ear thermometers (with maximum device.)
- This thermometer converts the ear temperature to display its "oral equivalent." (according to the result of the clinical evaluation)



LCD display

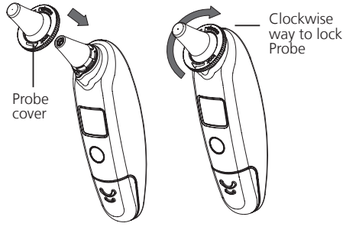


- It means measurable and reminds to use a probe cover for measurement.
- When battery icon always appears, please replace the battery.

How to use the RA600 Infrared Ear Thermometer

1. To achieve accurate readings, make sure a new, clean probe cover is in place before each measurement and the ear canal is clean.
   a. Install the probe cover by clockwise rotating then fix it.
   b. Remove the probe cover by anti-clockwise rotating then releasing it.
2. Press the ⏻ "On/Off/Memory" button, the thermometer is ready for use after the ear icon is flashing, two beeps are sounded, and three dash segments are appeared.
3. Gently pull the ear back to straighten the ear canal and snugly position the probe into the ear canal, aiming towards the membrane of the eardrum to obtain an accurate reading.

⚠ a. Before measurement, correct installation of the probe cover ensures accurate measurement.



⚠ b. Replace the probe cover after each use to ensure an accurate reading and avoid cross contamination.
c. This thermometer must only be used with rossmax probe covers, other covers can lead to inaccuracy. If running out of probe covers, please contact with the original seller or distributor for buying new probe covers.

4. Measuring the ear temperature: Use the index finger to trigger, by pressing "Start" button, a long beep will be sounded when measurement is done.
5. For the next measurement, remove the used probe cover and put on a new one.
6. Power off: If left idle for more than 1 minute, device will automatically shut off for extending battery life. Or press ⏻ "On/Off/Memory" button for at least 3 seconds to turn the device off.
7. Fever alarm: When the measuring temperature is higher than 37.5 °C(93.2°F), the reading will flash, the backlight will be enabled, and 4 short beeps will be sounded. If measuring temperature is higher than 42.2 °C(108°F), the display will show "Hi", the backlight will be enabled, and 4 short beeps will be sounded.

⚠ a. It is recommended that you measure 3 times with the same ear within a short period of time. If the 3 consecutive measurements are different, select the highest temperature.
b. To avoid the risk of cross contamination, please clean the probe according to "Clean and Storage" section after each use.

Scanning Mode

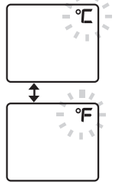
If you continuously obtain different measurement results, it is recommended that you use Scanning Mode to measure.
Measuring the ear temperature: Use the index finger to trigger, press and hold the "Start" button for 3 seconds to take measurement. During the measuring process, gently pivoting the probe side-to-side to view the entire ear canal or in order to find the highest temperature. Release the "Start" button until hearing a long beep sound and the measurement is completed.

Enabling or disabling the beep sound

1. Turn off the device.
2. Hold down the "Start" button, then press and hold the"ON/OFF/Memory" button until the LCD shows °C.
3. Press the "ON/OFF/Memory" change beep sound from on to off, then release the "ON/OFF/Memory" button.
4. After 6 seconds without changing, the beep On/Off setting will be completed, and the unit will be entered into the measurement mode.

Switching between temperature scale Fahrenheit and Celsius

To change the Unit from °C to °F:



1. Turn off the device.
2. Hold down the "Start" button, then press and hold the"ON/OFF/Memory" button until the LCD shows °C.
3. Press the "Start" to change the °C to °F, then release the "Start" button.
4. During the setting adjustment, each old or new temperature scale setting will be flashing for 6 seconds. After 6 seconds without changing, the temperature scale adjustment will be completed, and the unit will be entered into measurement mode.

Memory function

There are total 9 set memories for measurement records. If the reading of the thermometers is within the normal temperature range of 34 °C to 42.2 °C (93.2 °F to 108°F), when the measurement is done, the measurement data is saved into memory.

- Press ⏻"On/Off/Memory" button to repeatedly to recall each temperature memory.

Cleaning and storage

The probe is the most delicate part of the thermometer. Use with care when cleaning the lens to avoid damage.

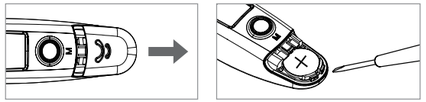
1. Please use the cotton swab with the Alcohol to clean the lens (on the inside of the probe).
2. Allow the probe to fully dry for at least 5 minutes.

⚠ a. Please check the device if it falls and damages. If you can't make sure of it, please send the complete device to the nearest retailer for recalibration.
b. Keep the unit dry and away from any liquid and direct sunlight. The probe should not be submerging into liquids.

Change the battery

1. This thermometer is equipped with one lithium cell (CR2032).
2. Turn off the thermometer before replacing the battery.
3. Open the battery cover: Hold the device and flip the battery out by sticking the pen tip into the battery storage well as illustrated.
4. Insert a new battery and ensure the battery positive polarity is facing upward.
5. Place back the battery cover.

* The positive (+) side up and the negative (-) side pointed down.



Troubleshooting

Error message	Problem	Solution
 **bi-bi-bi**	The ambient temperature is not within the range between 10°C~40°C (50°F~104°F)	Allow the thermometer to keep in a room for at least 30 minutes at room temperature: 10°C to 40°C (50°F to 104°F)
 **bi-bi-bi**	The system is not functioning properly.	Unload the battery, wait for 1 minute and re-power it. If the message reappears, contact the retailer for service.
	Device can not be powered on to the ready stage.	Change with a new battery. If the message reappears, contact the retailer for service.
 **bi-bi-bi-bi**	Temperature taken is higher than 42.2°C (108.0°F)	Ensure no break or dirt of the probe cover and take a new temperature measurement.
 **bi-bi-bi-bi**	Temperature taken is lower than 34°C (93.2°F)	Make sure the probe cover is clean and take a new temperature measurement.

	Low battery: Battery icon is flashing, still can be measurable.	Suggest to replace the battery.
	Dead battery: Battery icon always enabled, no more measure-ments are possible.	Replace the battery

Specification

Temperature measurement range	34.0~42.2°C(93.2~108.0°F)
Accuracy	±0.2°C (0.4°F) during 35.0~42.2°C (95~108.0°F) ±0.3°C (0.5°F) for other range
Operating temperature range	10 ~ 40°C (50~104°F), RH<=95%
Storage and transportation temperature	Temperature:-25~55°C (-13~131°F), RH <=95%
Memory	9 set
Display resolution	0.1
Battery	3V, lithium CR2032 x 1
Weight (with battery)	55g
Size	12.0cm(L) x 3.5cm(w) x 2.8cm(H)
Probe cover	11 pcs
Auto shut down	60 sec.
Battery life	3000 consecutive measurements or 1 year with 1-2 measurements per day including stand-by mode.
Safety classification	Type BF equipment
Clinical repeatability	0.08°C (< 1 year old) 0.10°C (1~5 years old) 0.07°C (> 5 years old)

*Dispose of device and batteries according to local regulations

Caution

1. Besides the oral temperature, the body temperature measured by ear may be different from measurements taken by rectal or axillary. Therefore, there is no any meaning to compare them. Take the temperature periodically to find out the normal ear temperature reading , then use that reading as the basis for comparison with any measurement taken when you suspect a fever.
2. This thermometer is designed for ear temperature measurement. Do not use this thermometer for other body site measurement.
3. Keep the unit dry and away from where it might be exposed to moisture, liquids, direct sunlight, high temperature, high humidity, or excessive dust.
4. This device is not shock-protected. Do not drop, heavily pressure the unit or fall from high place.
5. Do not bend the device.
6. Do not disassemble or make modifications on the device.
7. Please do not dispose of the product in the household waste at the end of its useful life. Disposal can take place at your local retailer or at appropriate collection points provided in your country.
8. Do not boil the probe.
9. Do not use the device if it operates abnormally or error massage is showed.
10. Do not use thinner or benzene to clean the device.
11. Wipe the device clean before storing.
12. When taking the device from storage below or above 10~40°C(50~104°F), place it in 10~ 40°C(50~104°F) temperature range for at least 30 minutes before use.
13. Remove the battery if this device is not used for a period of time.
14. If this device is used according to the operation instruction, periodic re-calibration is not required. If you still have questions, please send the complete device to dealers.
15. Please note that this is a home healthcare product only, and it is not intended to serve as a substitute for the advice of a physician or medical professional.
16. Do not use this device for diagnosis or treatment of any health problem or disease. Measurement results are for reference only. Contact your physician if you have or suspect any medical problems. Do not change your medications without the advice of your physician or healthcare professional.
17. This device may not meet its performance specification if stored or used outside temperature and humidity ranges specified in specifications.
18. Battery should neither be charged nor placed into the extreme environment, or it may explode.
19. The thermometer contains small parts (ex: battery, etc.) that can be swallowed by children. Therefore never leave the thermometer unattended to children.
20. After wearing the probe cover, the ear thermometer probe must be vertically and snugly inserted into the ear channel so as to get the correct temperature reading.
21. Be sure to consult a doctor if you feel that your health is in poor condition.
22. Do not judge your health only on the presence or absence of a fever.

EMC guidance and manufacturer's declaration

Guidance and manufacturer's declaration-electromagnetic emissions

The RA600 is intended for use in the electromagnetic environment specified below.
The customer or the user of the RA600 should assure that it is used in such an environment.

Emission test	Compliance	Electromagnetic environment-guidance
RF emissions CISPR 11	Group 1	The RA600 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The RA600 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 RA600 is intended for use in the electromagnetic environment specified below.
The customer or the user of the RA600 should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 KHz to 80 MHz	Not applicable	Portable and mobile RF communications equipment should be used no closer to any part of the RA600 series, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance: d = 1,2 √P d = 1,2 √P 80MHz to 800 MHz d = 2,3 √P 800MHz to 2,5 GHz Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, [a] should be less than the compliance level in each frequency range. [b] Interference may occur in the vicinity of equipment marked with the following symbol:
Radiated RF IEC 61000-4-3	3 V/m 80MHz to 2,5 GHz	3 V/m	

NOTE1: At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE2: 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 RA600 series is used exceeds the applicable RF compliance level above, the RA600 series should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the RA600 series.

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 RA600 is intended for use in the electromagnetic environment specified below.
The customer or the user of the RA600 should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%
Electrical fast transient/burst IEC 61000-4-4	± 2kV for power supply lines ± 1kV for input/output lines	Not applicable Not applicable	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1kV line(s) to line(s) ± 2kV line(s) to earth	Not applicable Not applicable	Mains power quality should be that of a typical commercial or hospital environment.
Voltage Dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% UT(>95% dip in UT) for 0,5 cycle 40% UT(60% dip in UT) for 5 cycles 70% UT(30% dip in UT) for 25 cycles <5% UT(>95% dip in UT) for 5 s	Not applicable Not applicable Not applicable Not applicable	Mains power quality should be that of a typical commercial or hospital environment. If the user of the RA600 series requires continued operation during power mains interruptions, it is recommended that the RA600 series be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	The RA600 power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

NOTE: UT is the a.c. mains voltage prior to application of the test level.

Recommended separation distance between portable and mobile RF communications equipment and the RA600

The RA600 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the RA600 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the RA600 as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter / W	Separation distance according to frequency of transmitter / m		
	150 kHz to 80 MHz / d=1,2√P	80 MHz to 800 MHz / d=1,2√P	800 MHz to 2,5 GHz / d=2,3√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 metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.
NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Warranty

This instrument is covered by a **5 year guarantee** from the date of purchase, batteries and accessories are not included. The guarantee is valid only on presentation of the guarantee card completed by the dealer confirming date of purchase or the receipt. Opening or altering the instrument invalidates the guarantee. The guarantee does not cover damage, accidents or non-compliance with the instruction manual. Please contact Rossmax Service.

Product Information

Date of purchase:

Store where purchased:

Price Paid (excl. Tax):

Purchase for:

Rossmax International Ltd.
12F., No. 189, Kang Chien Rd., Taipei, 114, Taiwan.
EC REP Rossmax Swiss GmbH,
Tramstrasse 16, CH-9442 Berneck, Switzerland

ISO 9001/13485 CE 0120

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