ENGLISH USER MANUAL

MEDICAL INFRARED THERMOMETER AIR101

READ THIS MANUAL CAREFULLY BEFORE USE

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CONTENTS

I. SAFETY PRECAUTIONS

- Follow the maintenance advice stipulated in this manual.
- This device must only be used for the purposes described in this instruction manual.
- This device must only be used in an ambient temperature between 10°C and 40°C.
- The thermometer must always be kept in a clean, dry area.
- Do not expose this thermometer to extreme temperature conditions of >50°C or <-20°C.
- Do not use this device in relative humidity higher than 85%.
- Do not touch the glass of the infrared lens.
- Do not expose the thermometer to sunlight or to water.
- Never drop the device.
- Should a problem occur with your device, please contact your retailer. Do not attempt to repair this device yourself.

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Get started:

1. Insert the batteries.
2. Push the SCAN button to turn on the thermometer.
3. Point the thermometer towards the temporal area of the forehead, 3-5 cm. distance.
4. Push the SCAN button again and see the result.

II. INTRODUCTION

The **Airon Medical Infrared Thermometer AIR101** has been developed by using the latest infrared technology. This technology allows temporal artery (TA) temperature to be taken at a distance of about 3 to 5cm away from the forehead. Precise, Instantaneous and without contact the AIR101 is the most suitable thermometer for no risk temperature measurement. It has been demonstrated that this method of TA temperature measurement is more precise than the tympanic thermometry and better tolerated than rectal thermometry (1). However, as with other types of thermometers, it is essential to use the AIR101 properly in order to obtain reliable and stable results. You are advised to read this instruction manual and the safety precautions carefully before use.

(1) Greenes D, Fleisher G. Accuracy of a Non-invasive Temporal Artery Thermometer for Use in Infants. Arch Pediatr Adolesc Med 2001;155:376.

III. PRECAUTIONS BEFORE USE

The AIR101 is pre-set at the factory. It is not necessary to calibrate the device when starting it up. In order to obtain reliable and stable results, you are advised each time there is a significant change in the ambient temperature due to a change in environment, to allow the AIR101 to acclimatize to this ambient temperature for 15 minutes before using it. If you don't, you might experience varying results at first, but they will stabilize when the thermometer is acclimatized. It is important to allow 3-5 seconds interval between two measurements.

IV. OPERATING PRINCIPLE

All objects, solid, liquid or gas, emit energy by radiation. The intensity of this energy depends on the temperature of the object. **AIR101** is able to measure the temperature of a person by the energy the person emits. This measurement can be taken thanks to an external temperature probe on the device that permanently analyses and registers the ambient temperature. When the operator holds the thermometer near the body and activates the radiation sensor, the measurement is taken instantly by detection of the infrared heat generated by the arterial blood flow.

THE DIFFERENT METHODS OF TEMPERATURE MEASUREMENT

Core temperature
Core temperature is the most precise measurement and it involves measuring the temperature in the pulmonary artery by means of a catheter equipped with a thermal probe, which can read the temperature in situ. The same method is employed for probes measuring the oesophageal temperature. However, such invasive temperature measurement methods require specific equipment and expertise.

Rectal thermometry
Rectal temperature adjusts slowly in comparison to the evolution of the body's internal temperature. It has been demonstrated that rectal temperature remains raised long after the internal temperature of the patient has started to drop and vice versa. Furthermore, rectal perforations has been known to occur as a result using of this method, and without appropriate sterilization techniques, rectal thermometry can spread germs often found in feces.

Oral thermometry
Oral temperature is easily influenced by recent ingestion of food or drinks and by breathing through the mouth. To measure oral temperature, the mouth must remain closed and the tongue lowered for three to four minutes which is a difficult task for young children to accomplish.

Axillary (armpit) temperature
Although it may be easy to measure axillary temperature, it has been proven that it does not provide an accurate measurement of the child's internal temperature. To make this kind of measurement, the thermometer must be wedged tightly over the axillary artery. Despite the low sensitivity and relative inaccuracy of axillary temperature in detecting fever, this method is recommended by The American Academy of Pediatrics as a screening test for fever in newborns.

Tympanic (ear) thermometry
In order to obtain a precise temperature reading, good command of the measurement technique is required. The thermometer probe must be placed as close as possible to the warmest part of the external ear canal. An incorrectly placed probe could lead to a false temperature reading.

NORMAL TEMPERATURES ACCORDING TO MEASUREMENT METHOD

MEASUREMENT METHOD	NORMAL TEMP. °
RECTAL	36,6 °C – 38 °C
ORAL	35,5 °C – 37,5 °C
AXILLARY (ARMPIT)	34,7 °C – 37,3 °C
AURICULAR (EAR)	35,8 °C – 38 °C
TEMPORAL (FOREHEAD)	35,8 °C – 37,8 °C

ADVANTAGES OF TEMPORAL ARTERY MEASUREMENT

It has been demonstrated that Infrared arterial temperature is more precise than tympanic thermometry and better tolerated than rectal thermometry.

The **AIR101** thermometer is designed to produce an instant forehead temperature reading without any contact with the temporal artery. This artery is quite close to the surface of this skin and therefore accessible. It has a permanent and regular blood flow so it allows precise measurement of the temperature. This artery is linked to the heart by the carotid artery, which is directly linked to the aorta. The efficiency, speed and comfort of taking a temperature from this area make it ideal compared with other temperature measurements methods.

NORMAL TEMPERATURES ACCORDING TO AGE

Alder	°C	°F
0-2 years	36,4-38,0	97,5-100,4
3-10 years	36,1-37,8	97,0-100,0
11-65 years	35,9-37,6	96,6-99,7
> 65 years	35,8-37,5	96,4-99,5

PRACTICAL CONSIDERATIONS WHEN TAKING A TEMPERATURE

- In order to ensure that precise and accurate temperature measurements are obtained, it is essential that each user has received adequate information on and training in the temperature measurement technique when using this device.
- Temperature should be taken in a neutral context. The patient must not have undertaken vigorous physical activity prior to taking his/her temperature, and the room temperature must be moderate.

- Be aware of physiological variations in temperature, which must be taken into consideration when evaluating the results: temperature increases by 0.5℃ between 6am and 3pm. Women have a temperature that is higher, on average, by around 0.2 ℃. Their temperature also varies in accordance with their ovarian cycle. It rises by 0.5 ℃ in the second half of the cycle and at the early stages of pregnancy.

HOW TO TAKE A TEMPERATURE

Turn on the thermometer by pushing the SCAN button. Aim at the forehead, over the temporal region, from a distance of about 3-5cm. press the SCAN button, and the temperature is instantly displayed.

Measurements can be done on other parts of the body, but the reliability of the measurement cannot be guaranteed if the temperature is measured on other body parts (armpit, torso, etc.).

INSTRUCTIONS

Please observe the following before any temperature measurement to ensure a stable and reliable result:
- Push back hair from the forehead
- Wipe away any perspiration from the forehead
- Avoid any draft (e.g. open windows, air conditioning)
- Allow one minute interval between measurements.
- Each time there is a significant change in the ambient temperature; allow the thermometer to acclimatize to this ambient temperature for at least 15 minutes before using it.

V. DESCRIPTION OF THE THERMOMETER

VI. FUNCTIONS

1. Specially designed to take the human body temperature from a distance.
2. Reliable and stable measurement, thanks to the advantage of the Infrared Detection System.
3. Sound alarm when detecting fever.
4. Memorizes the last 32 measurements.
5. Backlit LCD digital display screen.
6. Temperature can be displayed in either ^{0}C or ^{0}F.
7. Automatic power-off (30 sec.) to conserve energy.
8. Longevity use (40,000 reading).
9. Practical, easy to use.

ADDITIONAL USAGE:

AIR101 can also be used to measure the temperature of a baby-bottle or bath, or room temperature (by using the Surface Temp function). This function is in accordance with the Directive 89/336/EEC Electromagnetic Compatibility.

VII. USE

1. Install battery.
2. For the first use, or when inserting new batteries, wait 15 minutes for the warm-up of the apparatus.
3. Push the SCAN key to turn the thermometer on. Aim towards the temporal region of the forehead, from a distance of 3-5 cm. Press the SCAN key again, and the temperature is instantly displayed.
4. Before taking the temperature, make sure to remove hair and perspiration from the forehead.

VIII. SETTINGS AND MENU FUNCTIONS

1. MODE: BODY, ROOM OR SURFACE TEMPERATURE

Switch on the device by pressing the «SCAN» key. Press the «MODE» key to change between Body, Room or Surface temperature. Make sure it is in Body mode when measuring fever.

2. SOUND SIGNAL

Switch on the device by pressing the «SCAN» key. Press the «Sound signal» key to turn the signal on/off.

3. MEMORY

Switch on the device by pressing the «SCAN» key. Press the «MEM» key to see the last 32 temperature readings.

4. CALIBRATION

Switch on the device by pressing the «SCAN» key. Hold the «MODE» key and the «Sound signal» key simultaneously for two seconds, and F-4 and 0.0 will appear in the display. You can now set the thermometer to show higher temperatures by pressing the «Sound signal» key, and lower temperatures by pressing the «MODE» key. Confirm the setting by pressing the «MEM» key twice.

5. TEMPERATURE UNIT °C/°F

Switch on the device by pressing the «SCAN» key. Hold the «MODE» key and the «Sound signal» key simultaneously for two seconds, and F-4 and 0.0 will appear in the display. Press the «MEM» key and set the temperature unit to °C by pushing the MODE key and °F by pushing the sound signal key. Confirm the setting by pressing the «MEM» key.

6. CHANGING BATTERIES

When the screen displays “Battery”, open the lid by pushing down the grey part of the handle, and change batteries.

IX. TECHNICAL DATA

1. Normal using condition
   Ambient temperature: 10 °C – 40 °C (50 °F – 104 °F)
   Relative humidity: ≤ 85%
2. Power: DC 3V (2 pcs AA batteries)
3. Unit size: 175 x 50 x 52 mm (L x W x H)
4. Unit weight: 148g
5. Display-resolution: 0,1 °C
6. Measuring range:
   In Body-mode: 34 °C – 42,5 °C
   In Surface Temp-mode: 0 °C ~ 60 °C
7. Precision: From 36°C to 39°C = +/-0.2°C
   Under 36 °C and over 39 °C = +/-0.3°C
8. Consumption: ≤ 150mW.
9. Measuring distance: 3 - 5 cm.
10. Automatic power-off: 30 sec.

Precision

From 34 °C til 35,9 °C = ± 0,3 °C	According to ASTM-standard E1965-1998 (2003)
From 36 °C til 39 °C = ± 0,2 °C	
From 39 °C til 42.5 °C = ± 0,3 °C	

AIR101 can take temperature readings below 34 °C or above 42.5 °C (89.6°F to 109.2°F) but precision is not guaranteed outside of this range.

X. ADVICE

- The lens is the most important and fragile part of the thermometer, please take great care of it.
- Do not use other batteries than mentioned batteries. Do not recharge non-rechargeable batteries. Do not throw in fire.
- Remove the batteries when thermometer is not used for an extended period of time.
- Do not expose the thermometer to sunlight or water.
- An impact will damage the product.

XI. ACCESSORIES SUPPLIED

User manual
Storage case
Two AA alkaline batteries

XII. TROUBLESHOOTING

If you have problems while using your thermometer, please refer to this guide to help resolve the problem. If the problem persists, please contact us on **info@airon.no**, or contact the store where you bought the thermometer.

THE SCREEN SHOWS TEMPERATURES OVER 42,9 °C

The temperature is in Fahrenheit. See point 5 page 11 above how to change back to °C.

THE SCREEN SHOWS UNUSUALLY LOW BODY TEMPERATURES.

To take the surface temperature, press the “Mode” button and set the reading to “Body”.

THE SCREEN DISPLAYS THE MESSAGE HI

When using the Thermometer, the message “HI” can show on the screen.

In this case, the temperature is above the human measurement range (above 42.9 °C (109.2°F) in Body Mode).

THE SCREEN DISPLAYS THE MESSAGE LO

When using the thermometer, the message “LO” can show on the screen.

In this case, the temperature analyzed is under the measuring range selected (below 32°C (89.6°F) in Body Mode).

This message displays for various reasons. Please find below a list of the main issues:

Reasons for LO message	Advice
Temperature reading hampered by hair or perspiration.	Make sure there is no hair in the way, and that the forehead is dry.
Temperature hampered by air draft or change in ambient temperature.	Make sure there is no draft where you use the thermometer.
The measuring distance is too far.	Take measurements at the recommended distance 3 - 5cm.

WARRANTY:
Airon warrants its products free of defects for a period of **two years** from the date of retail purchase. This warranty does not cover damages caused by misuse, unauthorized repairs or shock/drop.

Certificate of conformity:
In accordance with the Medical Device Directive93/42/EEC.
Model JXB182.

EC REP

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