AccuMed

Instruction Manual

Infrared Forehead & Ear Thermometer

AC-AT2108

V.1

October 27, 2017

www.AccuMed.com

Contents

Introduction

The AccuMed Infrared Ear and Forehead Thermometer is the latest development in care products that offers efficient, hygienic, and a safe solution to temperature measuring. We hope this product is useful to you. We recommend reading this user manual in its entirety for instructions on how to take temperature reading for most accurate results, best use of product and maintenance.

Please keep this instruction manual for reference.

Unpacking Check

Please open the package and check that all items are included.

- AccuMed Infrared Ear and Forehead Thermometer
- 1 Pouch
- 2 AAA Batteries
- Instruction Manual

Examine product and all accessories to check that nothing is damaged. Perform installation and operation following this user manual. If any damage or operation problem is observed, please contact AccuMed immediately.

To contact AccuMed support, please do one of the following:

- Visit **http://accumed.com/contacts/** and use the email form
- Call AccuMed Support at **1(713) 904-1955**
- Email AccuMed Customer Support **support@accumed.com**

Safety Precautions

Read the following precautions carefully before using the thermometer.

⚠ **Attention**
❖ Handle temperature probe lens with care. Lens is fragile.
❖ Dispose used batteries with care. To protect the environment, we recommend sending used batteries to a designated collection point.
❖ Remove batteries if thermometer will not be used for more than two months.
❖ Do not immerse the thermometer in water or expose it to direct sunlight for a long period of time.
❖ Do not subject the thermometer to vibration or impact.
❖ The normal body temperature varies from person to person. Tracking a person's body temperature will help determine whether they have a fever.
❖ Wait at least an hour after hard exercise or a hot bath to take body temperature. Wait at least 20 minutes after light exercise, you smoke, eat, drink hot or cold liquid.
❖ Clean the thermometer probe after each use.
❖ Do not use the thermometer on newborns or for continuous temperature monitoring purposes.
❖ Do not use the thermometer for any other purpose not specified in this instruction manual. Follow instructions in the "Measurement Process" section and carefully operate the thermometer when measuring temperature.
❖ Do not immerse the thermometer in water or other liquid, as it is not waterproof. Clean and disinfect the thermometer as described in the "Cleaning and Disinfection" section of this user manual.

❖ Do not touch the tip of the temperature probe, on which a precise temperature sensor resides.
❖ Keep the temperature probe clean to ensure accurate readings.
❖ Before measuring the temperature from the ear canal, clean any excessive earwax.
❖ The ambient temperature must not be too high or low. To ensure accurate readings, keep the thermometer at room temperature for more than 30 minutes before use.
❖ Do not use the thermometer under an ambient temperature higher than 40°C (104°F) or lower than 10°C (50°F), which is beyond the operating temperature range of the thermometer.
❖ **Risk of pollution!** We recommend disposing thermometer at local garbage site or send it back to us.
❖ 2 AAA batteries of 1.5V are the only replaceable accessories of the thermometer. Please do not use the batteries of other voltages or specifications.

Warning

⚠ **Warning**
⃠ Do not force the temperature probe of the thermometer into an ear canal. Otherwise, the ear canal may get injured.
⃠ Keep the thermometer out of the reach of children.
⃠ The thermometer is not intended to diagnose or treat any health problem or disease. The measurement results are for reference only.
⃠ It is dangerous to self-diagnose or self-treat based on measurement results. Please consult a doctor.
⃠ Do not charge an alkaline dry-cell battery or throw it in fire. Otherwise, the battery may explode.
⃠ Do not disassemble attempt to repair thermometer. Otherwise, permanent damage may occur.

⊘ Do not take temperature measurements on body parts other than forehead and ears. Otherwise, temperature readings may be inaccurate.
⊘ During measurement, do not use a phone or any other device that may cause electromagnetic interference.
⊘ Do not use the thermometer in an environment where flammable anesthetic mixture with air or with oxygen or nitrous oxide is available.

Symbols

Symbol	Description
	Type BF applied part.
	Attention must be paid.
	The action is prohibited.
	Information about the manufacturer.
	Date of manufacture.
	Consult the instructions for use.
CE 0482	This product complies with the MDD93/42/EEC requirements.
	Waste electrical materials should be sent to a dedicated recycling site.
	A personal injury or damage to the thermometer may occur if the thermometer is not used correctly.
	Inaccurate reading or damage to the thermometer may occur if the thermometer is not used correctly.

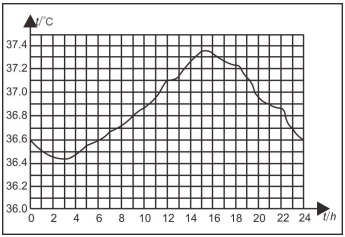
Body Temperature Basics

Generally, you can take a body temperature on the forehead, in ear canal, under armpit, in mouth, or in anus. The temperature measured at different parts of the body may differ slightly.

Body Part	Normal Temperature Range
Forehead	36.1°C–37.5°C / 97.0°F–99.5°F
Ear canal	35.8°C–38.0°C / 96.44°F–100.40°F
Mouth	35.5°C–37.5°C / 95.9°F–99.5°F
Armpit	34.7°C–37.3°C / 94.46°F–99.14°F
Anus	36.6°C–38.0°C / 97.88°F–100.40°F

The normal body temperature range slightly varies with age and gender. Generally, newborns or children have higher body temperature than adults, and adults have higher body temperature than the elderly. Women's body temperature are appropriately 0.3°C higher than men's.

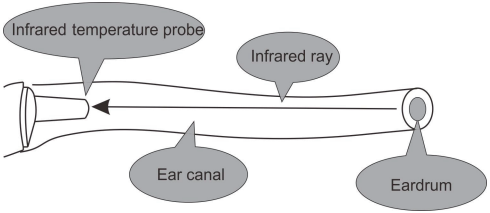
Variation in body temperature



Normal body temperature varies by the time of day and is also affected by external factors.

The body temperature of an individual is the lowest between 2:00 a.m. and 4:00 a.m. and the highest between 2:00 p.m. and 6:00 p.m. An individual's body temperature typically changes by less than 1°C each day.

Product Description



Overview

Infrared Thermometer measures body temperature based on the infrared energy emitted from the eardrum or the forehead. Users can quickly get measurement results after properly positioning the temperature probe in the ear canal or forehead.

Structure

The thermometer consists of a shell, an LCD, a measure button, a beeper, an infrared temperature sensor, and a Microprocessor.

Operating principle

The infrared temperature sensor collects infrared energy emitted by the eardrum or the skin surface. After being focused by a lens, the energy is converted into a temperature reading by the thermopiles and measurement circuits.

Intended use

The AccuMed Dual Mode Digital Infrared Thermometer is intended for the measurement of human body temperatures. The forehead mode is indicated for use by people of all ages and the eardrum mode is indicated for use by people above three months old.

Contraindications

Do not use the thermometer if the ear is infected with otitis or suppuration.

Features

Hygienic

- o Gentle infrared receiving technology
- o Easy to clean

Easy operation

- o Ergonomic design
- o One button measurement

Quick measurement

- o 1-second measurement

Very accuracy

- o Advanced infrared temperature sensor, with high sensitivity
- o High accuracy with automatic temperature calibration

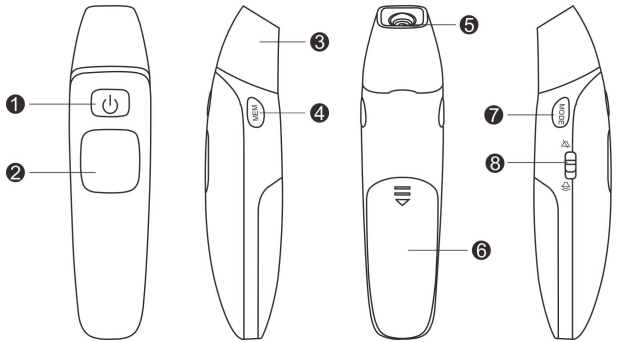
Diverse functions

- o 20 memory readings recall
- o Fever alert
- o Switch between °C and °F
- o Automatic power-off, power saving

Extensive application scopes

- o Forehead temperature measurement applicable to all age groups
- o Ear temperature measurement applicable to children older than three months, adults, and the elderly.

Product Structure



(1) Power button / Measure button
(2) LCD display screen
(3) Probe cover (use cover when measuring forehead temperature)
(4) Memory button / Unit switch button
(5) Probe (take off cover when measuring the ear temperature)
(6) Battery cover
(7) Mode button (Forehead / Ear / Object)
(8) Sound switch

Display Description

1. Object temperature mode
2. Forehead temperature mode
3. Ear temperature mode
4. Low battery
5. Mute / un-mute
6. Fahrenheit / Celsius degrees
7. Memory recall
8. Temperature value

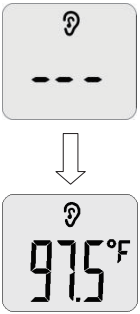
Sounds and Backlight Instructions

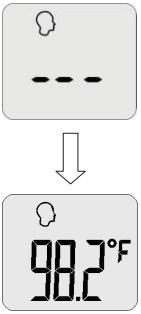
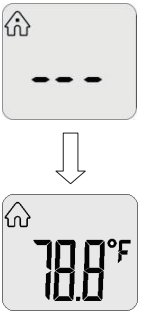
Range	Sounds	Backlight
Forehead temperature		
35.0°C-37.5°C/95.0°F-99.5°F	A long beep	Green
37.6°C-42.2°C/99.6°F-108.0°F	3 short double beeps	Red
Ear temperature		
32.0°C-37.5°C/89.6°F-99.5°F	A long beep	Green
37.6°C-42.2°C/99.6°F-108.0°F	3 short double beeps	Red
Object temperature		
0°C-100°C/32.0°F-212°F	A long beep	White

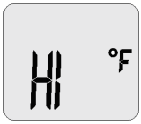
Note: When the forehead temperature is between 35.0°C/95.0 ℉ and 37.5°C/99.5 ℉, and the ear temperature is between 32.0°C/89.6 ℉ and 37.5°C/99.5 ℉, there will be a long beep and a green backlight.

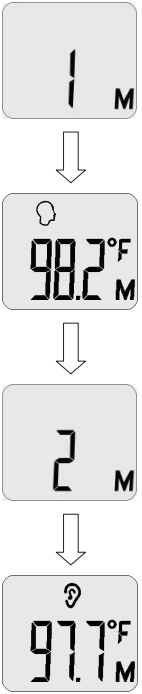
When the forehead and the ear temperature is between 37.6°C/99.6 ℉ and 42.2°C/108.0 ℉, there will be 3 short double beeps and a red backlight. This indicates that the body temperature is a little high. You may have a fever. Please consult your doctor if you are not sure.

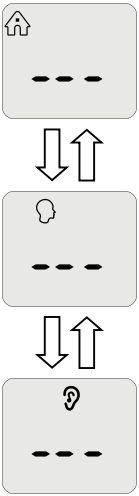
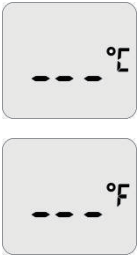
Display and Operating Instructions

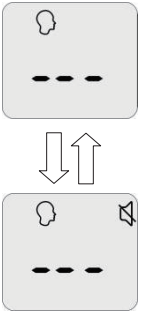
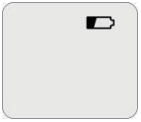
Screen Display	Operating Instructions Displayed State	Sound and backlight
Measuring Ear temperature		
	Take off the probe cover, press and release the **Power button** for 1 second to power on the thermometer. Press the **Mode button**, the thermometer enters the **Ear mode**. The symbol "Ear" is displayed on the screen. Insert the temperature probe into a proper position in the ear canal. Press the **Measure button** to start a measurement.	See the table in the "Sounds and backlight instructions" section

Screen Display	Operating Instructions Displayed State	Sound and backlight
Measuring Forehead temperature		
	Put the cover on the probe, press and release the **Power button** for 1 second to power on the thermometer. Press the **Mode button**, the thermometer enters the **Forehead mode.** The "Head" symbol is displayed on the screen. Point the thermometer at the temple of the forehead.about ½" to 2" (1-5cm) away from the skin surface. Press and release the **Measure button**. The temperature will be displayed on the screen.	See the table in the "Sounds and backlight instructions" section
Measuring Object temperature		
	Press and release the **Power button** for 1 second to power on the thermometer. Then press the **Mode button**. The thermometer enters the **Object mode**. The "House" symbol is displayed on the screen. Point the thermometer to the center of the object. Press and release the **Measure button**. The temperature will be displayed on the screen.	See the table in the "Sounds and backlight instructions" section

Screen Display	Operating Instructions Displayed State	Sound and backlight
Out of the measuring range display		
	In Ear mode, a temperature reading of more than 42.2°C (108.0°F) In Forehead mode, a temperature reading of more than 42.2°C (108.0°F) In Object mode, a temperature reading of more than 100°C (212.0°F)	3 short beeps
	In Ear mode, a temperature reading of less than 32.0°C (89.6°F) In Forehead mode, a temperature reading of less than 35.0°C (95.0°F) In Object mode, a temperature reading of less than 0°C (32.0°F)	3 short beeps

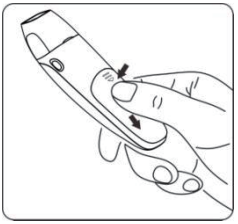
Screen Display	Operating Instructions Displayed State	Sound and backlight
Recall 20 memories		
	In a power-on state, press the **Memory button** enter the memory mode. When the **Memory button** is released, 1 will be shown, followed by the recorded reading. Press the **Memory button** again for the next recorded data. 2 will be shown, followed by the recorded reading. A maximum of 20 temperature readings can be recalled. **Note:** 1 represents the newest data.	Silent

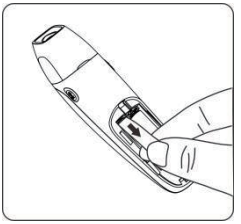
Screen Display	Operating Instructions Displayed State	Sound and backlight
Switching between object temperature and body temperature		
	Press the **Mode button** to switch between object temperature and body temperature. Body temperature contains the Forehead temperature and Ear temperature.	Silent
Switching between °F/°C		
	In a power-on state, press and hold the **Unit switch button** for more than 4 seconds to enter the temperature switching mode. **°C** or **°F** are flashing. Press the **Unit switch button** to switch between °C and °F. The thermometer shuts down after 10 seconds, the set-up is successful.	Silent

Screen Display	Operating Instructions Displayed State	Sound and backlight
Switching between mute and un-mute		
	Toggle the **Sound switch** to switch between mute and un-mute The symbol is displayed in Mute mode and disappears in Un-mute mode.	Silent
Error information & low battery		
	The ambient temperature is higher than 40.0°C (104.0°F) or lower than 10.0°C (50.0°F).	3 short beeps
	An error occurs when data is being read from or written to the memory, or the temperature correction is not complete.	3 short beeps
	When the battery voltage is lower than 2.5V ± 0.1V, the low battery symbol will appear on the display. Please replace the batteries.	Silent

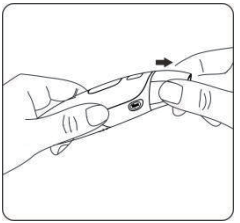
Measuring Ear Temperature

1. When using the thermometer for the first time, move the battery's insulating piece away.



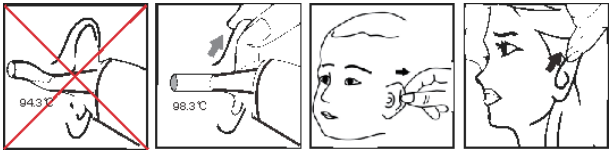


2. Take the probe cover off from the thermometer before measuring the ear temperature.



3. Press the Power button to power on the thermometer.
4. Press the Mode button, the thermometer enters the Ear mode. The "Ear" symbol is displayed on the screen.
5. Insert the temperature probe into the ear canal.
6. Press and release the Measure button. The ear temperature reading will be display on the screen instantly.

Note: Children under 1 year: Pull the ear straight back.
Children aged 1 year to adult: Pull the ear up and back.



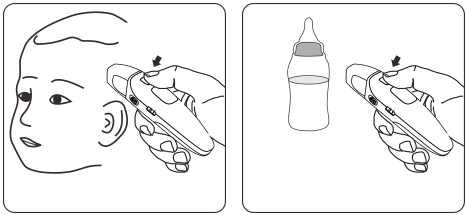
⚠ Do not force the thermometer into the ear canal. Otherwise, the ear canal may get injured.

⚠ When taking the temperature on an adult, gently pull the ear up and back to make sure the ear canal is straight, so that the temperature probe can receive an infrared ray from the eardrum.

⚠ Be careful when taking temperature on a child, whose ear canal is small.

Measuring Forehead Temperature

1. Put the cover on the probe of thermometer.
2. Press the **Power button** to power on the thermometer.
3. Press the **Mode button**, the thermometer enters the **Forehead mode**. The "Head" symbol is displayed on the screen.
4. Point the thermometer probe to the temple of the forehead, about ½" to 2" (1-5cm) away from the skin surface.
5. Press and release the **Measure button** for 1 second. The temperature reading will be displayed on the screen instantly.
6. If no activity is detected, the thermometer will power off automatically in 10 seconds.



Measuring Object Temperature

1. Put the cover on the probe of thermometer.
2. Press the **Power button** to power on the thermometer.
3. Press the **Mode button**, the thermometer enters the **Object mode**. The "House" symbol is displayed on the screen.
4. Point the thermometer probe at the center of the object, about ½" to 2" (1-5cm) away from the object surface.
5. Press and release the **Measure button** for 1 second. The temperature reading will be displayed on the screen instantly.
6. If no activity is detected, the thermometer will power off automatically in 10 seconds.

After a measurement

(1) After each measurement, you can enter the recall mode and query earlier temperature readings. For more details, see "Recall 20 memories" in the preceding table.

(2) After each measurement, clean the temperature probe with a soft cloth, and put the thermometer in a dry and well-ventilated place.

⚠ It is dangerous to self-diagnosese or self-treat based on the obtained measurement results. For such purposes, please consult a doctor.

Notes:

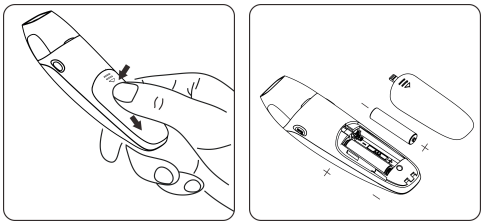
(1) The thermometer is suitable for an indoor environment without strong air convection (for example, winds from a fan, an air-conditioner, or a heater) between the thermometer and the person.

(2) Make sure that the ear canal is clean and dry before starting a measurement. It is recommended to clean the ear canal with a cotton swab if any dirt exists. Otherwise, the temperature probe may be polluted, and temperature readings may be inaccurate.

(3) Do not hold the thermometer for a long time, because it is sensitive to the ambient temperature.
(4) Make sure the forehead is clean before use.
(5) Make sure the forehead has no sweat and no hairs covered before measure the forehead temperature; otherwise, the result could be incorrect.
(6) No intense emotion or strenuous exercises before measuring

Replacing Batteries

1. Slide the battery cover off along the marked direction.
2. Insert the two AAA batteries into the compartment according to the stated polarities.



⚠ Make sure that the batteries are installed correctly. Otherwise, the thermometer may be damaged.

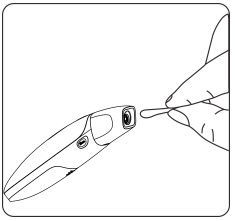
⚠ If the low-battery symbol is displayed on the screen, replace the batteries.

⚠ Batteries of a same type should be used. Dispose the used batteries in accordance with the local environmental policies.

⚠ The thermometer is shipped with batteries. First open the battery cover, then remove the insulating piece.

Cleaning and Disinfection

Cleaning



Recommended detergents:

* Medical detergents;
* Home use mild detergents;

Cleaning steps:

(1) Take the batteries out before cleaning.

(2) Clean the temperature probe with a soft cloth. Clean the lens of the temperature probe with a cotton swab.

(3) Wipe the thermometer body with a slightly damp soft cloth.

⚠ Keep water out off the lens during the cleaning process. Otherwise, the lens may be damaged.

⚠ The lens may be scratched if it is cleaned with a hard object, which might result in inaccurate readings.

⚠ Do not clean the thermometer with corrosive cleansers. During the cleaning process, do not immerse any part of the thermometer into liquid, or allow liquid to penetrate the thermometer.

Disinfection

Recommended disinfectants:

* Isopropyl alcohol solution (concentration: 70%)
* Medicinal alcohol (concentration: 75%)
* Sodium hypochlorite solution (concentration: 3%)

Disinfecting steps:

(1) Wet the clean soft cloth with a small quantity of disinfectant, wipe the thermometer and quickly dry it.

(2) Disinfect the thermometer body and the area around the temperature probe with a cloth slightly moistened with 75% medical alcohol.

⚠ Do not use hot steam or ultraviolet radiation for disinfection. Otherwise, the thermometer may be damaged or quickly aged.

⚠ Clean and disinfect the thermometer under the temperature of +10℃~+40℃(50℉-104℉), the relative humidity of 15%~85%RH (no condensation) and the barometric pressure of 86kPa~106kPa.

Maintenance

Preventive inspection & maintenance period

(1) Ensure the safety of thermometer, and check whether it has potential safety hazards in normal use each week, e.g. whether the lens is broken, the shell has cracks and the sensing head is polluted. Do not use the thermometer with potential safety hazard. Clean the thermometer if not used for a long time.
(2) After each use, clean the temperature probe as described in the "Cleaning and Disinfection" chapter.
(3) Store the thermometer in a dry, dust-free, and well-ventilated place. Make sure that the thermometer is not exposed to sunlight. Make sure that the storage and transportation environments meet the requirements.
(4) Check regularly whether safety risks exist.
(5) Remove the batteries if the thermometer will not be used for more than two months.

Troubleshooting

Problem	Possible Cause	Solution
The thermometer fails to power on.	Low battery	Change the batteries.
	Polarities of the batteries are reversed.	Make sure that the batteries are installed correctly
	The temperature probe is damaged.	Contact the manufacturer.
"Er1" is displayed.	The ambient temperature is lower than 10°C (50.0°F) or higher than 40°C (104°F).	Take a measurement under an ambient temperature between 10°C (50.0°F) and 40°C (104°F).
The temperature reading is lower than the typical body temperature range.	The lens of the temperature probe is dirty.	Clean the lens using a cotton swab.
	The thermometer probe is not aligned to the eardrum.	Reposition the thermometer probe so that it is aligned to the eardrum.
	The thermometer is used within 30 minutes after being taken from a cold environment.	Wait for more than 30 minutes after the thermometer is moved into the measurement environment.
The temperature reading is higher than the typical body temperature range.	The temperature probe is damaged.	Contact the manufacturer.

Specifications

Product Name	AccuMed Infrared Ear and Forehead Thermometer
Product Model	AT2108
Power Supply Mode	Internal power supply
Operating Voltage	DC 3V
Battery Model	AAA x 2
Battery Life	Alkaline dry battery for around 20,000 measurements
Operating Mode	Continuous operating
Display	Segment LCD
Measure time	About 1 second
Latency Time	About 3 second
Measuring Range	Forehead mode: 35.0°C–42.2°C (95.0°F–108.0°F) Ear mode: 32.0°C–42.2°C (89.6°F–108.0°F) Object mode: 0.0°C–100.0°C (32.0°F–212.0°F)
Accuracy (Laboratory)	±0.2°C (±0.4°F)
Resolution	0.1°C (0.1°F)
Memory	20 temperature readings
Low-battery Alert	The low-battery symbol is displayed if the power voltage is lower than 2.5 V±0.1V
Automatic Power-off	The thermometer automatically powers off if it is not used in 10±1 seconds.
Outer dimensions (mm)	157.5×39×36.5mm
Weight (g)	Thermometer (with batteries): 86.9 g
Operating Environment	Temperature: 10°C~ 40°C (50°F–104°F)
	Humidity: 15%–95% RH, non-condensing
	Atmospheric pressure: 86–106 kPa

The infrared thermometer has been tested and conforms to the standard ASTM E1965-98. ASTM laboratory accuracy requirements in the display range of 96.8°F to102.2°F (36°C-39°C) for ear canal IR thermometers is ±0.4°F (±0.2°C). Note that for mercury-in-glass and electronic thermometers, the requirement per ASTM Standards E667-86 and E1112-86 is ±0.2°F (±0.1°C).

Security Class

Type of protection against electric shock: internally powered equipment.

Degree of protection against electric shock:  Type BF applied part.

- Degree of protection against ingress of water:IPX0
- Safety degree of using in flammable anesthetic gas blending with air, oxygen or nitrous oxide: Non-AP/APG
- No application parts of the thermometer prevents defibrillation charge effect.
- No application parts of the thermometer output signal.
- The thermometer is impermanent installed device.

Storage and Transportation

The thermometer can be transported using general transportation tools. Severe vibration, shock, or rain must be avoided during transportation.

The thermometer must be packaged and then stored in a well-ventilated room without corrosive gas. The ambient temperature must be between –20°C and +55°C (-4°F–131°F), the relative humidity must be lower than 95% (non-condensing), and the atmospheric pressure must be 50–106 kPa.

EMC Information-Guidance and Manufacture's Declaration

⚠ CAUTION:

The Infrared Thermometer needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided for in the ACCOMPANYING DOCUMENTS.

- ❖ Portable and mobile RF communications equipment can affect thermometer.
- ❖ The thermometer should not be used adjacent to or stacked with other equipment.

Warranty and After-Sale Service

The device is under warranty for one year from the date of purchase.

The batteries, the packaging, and any damage caused by improper use are not covered by the warranty.

Excluding the following user-caused failures:

(1) Failure resulting from unauthorized disassembly and modification.

(2) Failure resulting from an unexpected dropping during application or transportation.

(3) Failure resulting from not following the instructions in the user's manual.

To contact AccuMed support, please do one of the following:

- ❖ Visit **http://accumed.com/contacts/** and use the email form
- ❖ Call AccuMed Support at **1(713) 904-1955**
- ❖ Email AccuMed Customer Support **support@accumed.com**

For more information please visit **www.AccuMed.com**

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