ADVOCATE®

Non-Contact Infrared Thermometer
Model No: EF001S

USER MANUAL

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Table of Contents

Cautions and Warnings

- As with any thermometer, proper technique is crucial to obtain accurate temperature readings. **Please read this manual thoroughly and carefully before using**.
- Always operate the thermometer in an operating temperature range of 50.0°F-104.0°F (10.0°C-40.0°C) Rh ≦ 80%.
- Store the thermometer within the following temperature and humidity ranges: -13.0°F-131.0°F (-25.0°C-55.0°C) Rh ≦ 95%.
- Avoid direct sunlight.
- Avoid dropping the thermometer, if it happens and you think the thermometer may be damaged, please contact Customer Service immediately.
- **Do not** disassemble the thermometer.
- Basic safety precautions should always be observed, especially when the thermometer is used on or near children and disabled persons.
- This thermometer is not intended to substitute for a consultation with your physician.
- This thermometer and the patient must remain in a stable environment for at least 30 minutes before measuring the temperature.
- Choking from swallowing small parts and batteries by children or pets is possible; please keep small parts and batteries away from where children and pets can reach them.
- Elevated temperature may signal a serious illness, especially in neonates and infants, or in adults who are old, frail, or have a weakened immune system. Please seek professional advice immediately when there is a elevated temperature and if you are taking temperature on:
  - Neonates and infants under 3 months (Consult your physician immediately if the temperature exceeds 37.5°C)
  - Patients over 60 years of age (Fever may be blunted or absent in older patients)
  - Patients having diabetes mellitus or a weakened immune system (e.g., HIV positive, cancer chemotherapy, chronic steroid treatment, splenectomy)
  - Patients who are bedridden (e.g., nursing home patient, stroke, chronic illness, recovering from surgery)
  - A transplant patient (e.g., liver, heart, lung, kidney)

Do not allow children to take their temperatures unattended.
Please consult your doctor if you see symptoms such as unexplained irritability, vomiting, diarrhea, dehydration, changes in appetite or activity, seizure, muscle pain, shivering, stiff neck, pain when urinating, etc., even in the absence of fever.
Even in the absence of fever, those who exhibit a normal temperature may still need to receive medical attention. People who are on antibiotics, analgesics, or antipyretics should not be assessed solely on temperature readings to determine the severity of their illness.

Indications for Use:

ADVOCATE® Non-Contact Infrared Thermometer is a non-sterile, reusable, handheld device. It can be used by consumers in a homecare environment and doctors in a clinic as reference. It is intended for measuring human body temperature by detecting infrared heat from the forehead.
* This thermometer is not intended for pre-term or low birth weight infants.
* This thermometer is not intended to interpret hypothermic temperatures.

1. Contents

(1) Non-Contact Infrared Thermometer
(1) User Manual with Warranty Information
(2) AAA batteries

2. Product Overview

The ADVOCATE® Non-Contact Infrared Thermometer measures temperatures by detecting the infrared energy radiated directly from the forehead without physical contact. The device is composed of an **Infrared Sensor** that detects the infrared energy, an **LCD** PMMA **Display** to display the information, a **SCAN** button to start measuring temperatures, a **Power** button to turn the device on or off, a **Body/Ambient** switch to change between two measuring modes, as shown in the outline drawing below.

The device has the following features:

- One-second measuring time
- Measuring Body or Ambient temperature
- 12-memory recall
- °F/°C unit switchable
- Over and under range message (Hi/Lo)
- Low battery indication
- Auto display of the last reading when powered on
- Auto shut-off when the device is idle for 60 seconds
- Optional Speaking function (When the device starts, "Please measure" in English or in Spanish will be heard. When completed, the result will be heard in additional to the data display.)

3. Outline Drawing

4. The Definition of Symbols

8888	Reading Display
	Forehead Measuring Mode
	Ambient Temperature Measuring Mode
°C	Celsius Scale
°F	Fahrenheit Scale
	Low Battery
M	Last Memory

5. Measuring Temperature

5.1 Choosing "Ambient" or "Forehead" temperature modes

The ADVOCATE® IR Thermometer allows the user to switch the mode between ambient temperature and forehead temperature mode. To switch the mode, slide the switch to the ambient temperature mode or forehead temperature mode position and take a temperature reading. An icon will appear on the screen (as or) to indicate which mode the thermometer is in.

5.2 Forehead measuring mode

NOTE: Before measuring, please make sure your forehead is clean and dry.

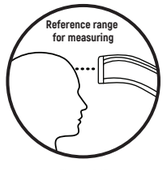


Figure 5.1B

a. Press the **POWER** button on the thermometer. All the icons will appear briefly as shown in Figure 5.2B
b. You will see the most recent result from memory, as shown in Figure 5.3B.
c. When the forehead symbol is displayed on the screen as shown in Figure 5.4B; and at the same time, the °C or °F symbol blinks, the forehead temperature can now be measured.
d. Point the **INFRARED SENSOR** portion of the thermometer 2 to 3.9 inches (5 to 10cm) away from the center of forehead as shown in figure 5.1B and press the **SCAN** button. When you hear the beep, the measurement is complete, and the reading will appear as shown in Figure 5.5B.
e. You can take a new reading once the °F or °C symbol begins flashing again.
f. The power will shut off when idle for 60 seconds.

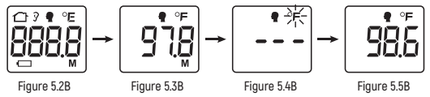
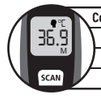


Figure 5.2B Figure 5.3B Figure 5.4B Figure 5.5B

High temperature indication

The thermometer contains three backlight colors: green, yellow and red. These colors suggest the temperature reading corresponds to a "Normal" temperature range, a "Moderately High" temperature range and a "High" temperature range, respectively.
The following table shows the colors, temperature ranges and the suggested meaning.



Color Range	Reading	Meaning
Green	>96.3°F - 99.4°F >(35.7°C - 37.4°C)	Normal
Yellow	99.5°F-101.3°F (37.5°C-38.5°C)	Moderate
Red	101.4°F-109.2°F (38.6°C-42.9°C)	High temperature

Note: Backlight remains OFF when below temperature readings are registered: 96.1°F - 91.4°F (35.6°C - 33.0°C)

5.3 Ambient temperature measuring mode

a. Press the **POWER** button on the ADVOCATE® IR Thermometer. All the icons will appear briefly as show in Figure 5.1C.
b. You will see the last thermometer reading as shown in Figure 5.2C.
c. When ambient mode symbol is displayed on the screen as shown in Figure 5.3C; and at the same time, the °F or °C symbol blinks, the ambient temperature can now be measured.
d. To measure the ambient temperature, point the **INFRARED SENSOR** into the air and press the **SCAN** button. The measurement will be finished in 1 second when you hear the beep. The reading will appear on the display as shown in Figure 5.4C.
e. You can take a new reading once the °F or °C symbol begins appearing.

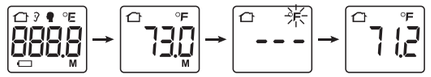
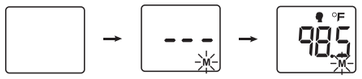


Figure 5.1C Figure 5.2C Figure 5.3C Figure 5.4C

6. Thermometer Memory

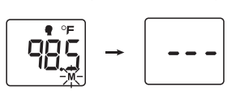
How to access the 12 memory recall

When the ADVOCATE® IR Thermometer is powered off, press and release the **SCAN** button. You will see 3 dashes and a flashing **M**. To view the most recent stored result, press and release the **SCAN** button. The number 1 will display briefly, followed by the most recent result. Pressing **SCAN** again shows 2 briefly, then the 2nd most recent stored result. Continue pressing the **SCAN** button to scroll through the rest of the stored results.



How to delete the entire memory

When the ADVOCATE® IR Thermometer is powered off, press the **SCAN** button and release immediately. Press the **SCAN** button again to display the latest reading entered into the memory bank. Press the **POWER** button for 3 seconds until the LCD displays "---" and release the button, then all 12 memory entries are deleted completely.



7. Changing Thermometer Settings

Using the SCAN button to change settings

Changing settings for either the **sound feature** (ON or OFF), the **language** (English or Spanish) or the **temperature scale** (Fahrenheit or Celsius) involves pressing and holding the **SCAN** button for approximately 5 seconds, 10 seconds or 15 seconds, respectively to view the set of options for each change.

How to switch all sound (voice and beep alerts) ON or OFF

1. While the device is powered off, press and hold the **SCAN** button until ON or OFF is displayed, then release the **SCAN** button.
2. Press the **SCAN** button again to switch from ON to OFF or from OFF to ON.

See flowchart for setting sound function below.

Flowchart: turning the sound feature ON or OFF

ON = All sounds are on
OFF = All sounds are off

Action	Display shows	Description
STEP 1 Press and hold the **SCAN** button for 5 seconds, release when ON or OFF is displayed	OFF or ON	Display is blank for 4 seconds... Then either ON of OFF is displayed
STEP 2 Press and release the **SCAN** button	OFF → ON or ON → OFF	OFF changes to ON ON changes to OFF

Switching between English or Spanish

1. While the ADVOCATE® IR Thermometer is powered off, press the **SCAN** button until a number (01 – 06) appears, then release the button.
2. Press and release the **SCAN** button to advance the number by one. The numbers displayed correspond to:
   01 = English
   02 = Spanish
   Note: Numbers 03 through 06 are also English

Flowchart: switching languages (English or Spanish)

Note: 01 is for English and 02 is for Spanish. (03, 04, 05, 06 is also for English)

Action	Display shows	Description
STEP 1 Press and hold the **SCAN** button for 10 seconds, release when 01 or 02 is displayed	01 or 02	Display is blank for 4 seconds... Then either ON of OFF is displayed
STEP 2 Press and release the **SCAN** button	01 or 02 03 04 05 06	01 is for English 02 is for Spanish 03, 04, 05 and 06 is also English

How to switch temperature scale (°F or °C)

1. While the ADVOCATE® IR thermometer is powered off, press the **SCAN** button until a dashed line (---) with a temperature scale (°F or °C) appears, then release the button.
2. Press and release the **SCAN** button to switch between the measurement modes (from °F to °C or from °C to °F).

Flowchart: switching temperature scale (°For °C)

Action	Display shows	Description
STEP 1 Press and hold the **SCAN** button for 15 seconds, release when °F or °C is displayed	°F --- °C ---	Display is blank for 4 seconds... Then either ON of OFF is displayed
STEP 2 Press and release the **SCAN** button	--- ---	When °F or °C flashes Choose °F for Fahrenheit Choose °C for Celcius

8. Battery Replacement & Voltage Display

Low battery: When the LCD displays LO, the batteries must be replaced to ensure accurate readings. See Figure 6.1.

How to replace the battery:

- Remove the battery compartment cover by gently pushing down on the arrow and sliding cover forward.
- Correctly place the batteries into the compartment with positive (+) and negative (-) battery terminals matching the positive (+) and negative (-) indicators in the battery compartment.
- Close the battery cover by gently sliding it into the compartment and pressing it into place.

Figure 6.1

9. Operation Precautions

a. Keep the thermometer unit dry, away from all types of liquids.
b. Do not expose the thermometer directly to sunlight. Keep it away from dust, dirt and sharp objects.
c. Do not disassemble the IR Thermometer.
d. Take a forehead temperature measurement only when you are relaxed and never after exercise or a shower or bath. Rest at least 30 minutes after exercise or exertion before taking any forehead temperature measurements.
e. Please keep your mobile phone away from the ADVOCATE® IR Thermometer to prevent incorrect readings.
f. Even though in the absence of fever, those who exhibit a normal temperature may still need to receive medical attention. People who are on antibiotics, analgesics, or antipyretics should not be assessed solely on temperature readings to determine the severity of their illness.
g. This thermometer can be used by consumers in a homecare environment and doctors in a clinic as reference.

Cleaning and Storage:

The **INFRARED SENSOR** lens is the most delicate part of the thermometer. Use care when cleaning the **INFRARED SENSOR** lens to avoid damage.

- Periodically clean the entire thermometer with a clean cloth dampened with 70% isopropyl alcohol or a sterile 70% isopropyl alcohol prep pad.
- Clean the **INFRARED SENSOR** including the lens after each use to ensure an accurate reading and avoid cross contamination.
- Allow the lens to fully dry for at least 1 minute.
- Keep the unit dry and away from any liquids and direct sunlight.

10. Precaution for Measuring Temperature

Description	Meaning
H1	Measuring temperature over 109.2°F (42.9 °C)
Lo	Measuring temperature lower than 91.4°F (33.0°C)
Err	Environment temperatures are outside the working temperature range of 50.0°F~104.0°F (10.0°C~40.0°C)

11. Product Specification

Model No.	EF001S
Measuring Range	Body 89.6°F-109.4°F (32.0°C - 43.0°C) Surface 32°F-212.0°F (0°C-100.0°C)
Accuracy	±0.6°F/0.3°C 93.2°F-94.82°F (34.0°C-34.9°C) ±0.4°F/0.2°C 95.0°F-107.6°F (35.0°C-42.0°C) ±0.6°F/0.3°C 107. 8°F -109.4°F (42.1°C-43.0°C)
Resolution	0.2°F/0.1°C
Operation Condition	50.0°F-104.0°F (10.0°C-40.0°C) Rh ≦ 80%
Storage Condition	-13.0°F-131.0°F (-25.0°C-55.0°C) Rh ≦ 95%
Battery	AAA 2 pcs
Size (body)	H5.4*W1.5*D1.4 inches (H138*W38*D35 mm)
Weight	2.7 oz (76g) (including battery)
Measuring Distance	2 - 3.9 inches (5 to 10 cm)

12. Temperature Measurement Hints

- **It is important to know each individual's normal temperature when they are well. This is the only way to accurately diagnose a fever. To determine normal temperature, take multiple readings when healthy.**
- A child's normal temperature can be as high as 37.7°C (99.9°F) or as low as 36.1°C (97.0°F). Re-measure with a standard digital thermometer for confirmation. This unit reads approximately 0.5°C (0.9°F) lower than a rectal digital measurement.
- Patient and thermometer must be inside and at the same ambient temperature for 30 minutes before taking a forehead temperature measurement.
- Don't take a measurement while or immediately after nursing a baby.
- Patients should not drink, eat, or be physically active before/while taking the measurement. Remove hats and wait 10 minutes before taking a measurement.
- Remove dirt or hair from the forehead before taking a measurement. The presence of any hair in the path of the measurement may cause higher readings. We recommend waiting at least 10 minutes after washing the forehead area before taking a measurement.
- Always take the temperature exactly as directed. **Temperature results may vary if the thermometer is positioned incorrectly during measurement.**
- In the following situations it is recommended that three consecutive measurements are taken in the same location and the highest result taken as the reading:
  - Newborn infants in the first 100 days.
  - Children under three years of age with a compromised immune system and for whom the presence or absence of fever is critical.
  - When the user is learning how to use the thermometer for the first time until he/she has familiarized himself/herself with the instrument and obtains consistent readings.

13. Electromagnetic Compatibility Information

Guidance and manufacturer's declaration-electromagnetic emissions

The EF001S is intended for use in the electromagnetic environment specified below. The customer or the user of the EF001S should assure that it is used in such an environment.

Emission test	Compliance	Electromagnetic environment-guidance
RF emissions CISPR 11	Group 1	The EF001S uses RF energy only for its internal function. Therefore, its RF emissions are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The EF001S is suitable for use in all 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 **EF001S** is intended for use in the electromagnetic environment specified below.
The customer or the user of the **EF001S** 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	±6kV contact ±8kV air	±6kV contact ±8kV 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	Main power 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	Main power should be that of a typical commercial or hospital environment.
Voltage Dips, short interruptions and voltages variations on power supply input lines IEC61000-4-11	<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	Main power should be that of a typical commercial or hospital environment. If the user of the EF001S requires continued operation during power mains interruptions, it is recommended that the EF001S 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 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 main voltage prior to application of the test level.

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Guidance and manufacturer's declaration-electromagnetic immunity

The EF001S is intended for use in the electromagnetic environment specified below.
The customer or the user of the EF001S 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	3Vrms 150KHz to 80 MHz	Not applicable	Portable and mobile RF communications equipment should be used no closer to any part of the including cable, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
Radiated RF IEC 61000-4-3	3 V/M 80MHz to 2.5GHz	3 V/m	Recommended separation distance: $d = 1,2\sqrt{p}$ $d = 1,2\sqrt{p}$ 80MHz to 800MHz $d = 2,3\sqrt{p}$ 800MHz to 2,5GHz Where p is the maximum output power rating of the transmitter in watts(W) according to the transmitter manufacturer and d is the recommended reparation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, * should be less than the compliance level in each frequency range. * Interference may occur in the vicinity of equipment marked with the following symbol

NOTE1 At 80 MHz and 800MHz, 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 EF001S is used exceeds the applicable RF compliance level above, the EF001S should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the EF001S
b. Over the frequency range 150KHz to 80MHz, field strengths should be less than 3 V/m.

Recommended separation distance between portable and mobile RF communications equipment and the EF001S

The **EF001S** is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled.
The customer or the user of the **EF001S** can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the EF001S as recommended below, according to the maximum output power of the communication equipment.

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 KHz to 80 MHz $d = 1,2\sqrt{p}$	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.

Limited Warranty

This product is warrantied for 1 year from the date of purchase against manufacturing, materials or workmanship related defects. The warranty does not cover battery or packaging. The warranty is not valid in case of accidental damage, misuse or neglect or in case case of alterations or repair carried out by an unauthorized repair facility. All other damage claims excluded. A guarantee claim must be submitted with the original purchase receipt.

Thank you for choosing Advocate® as your monitor of choice. The first, most important part of using your new Advocate® monitor is to register your monitor with us online. When you register your monitor you are assured that:

1. We can notify you about any important updates or changes to your meter.
2. Registering confirms the full warranty period of your Advocate® meter.
3. Registering provides you peace of mind that you are protected.

To register your new Advocate® Monitor:
Go to: www.advocatemeters.com
Click on WARRANTY REGISTRATION in the QUICK LINKS section.
Enter your information and meter serial number. That's it!

Thank you!

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