

SOVARCATE 960

Infrared Thermometer User Manual

Model: 960

Brand: SOVARCATE

1. INTRODUCTION

This user manual provides detailed instructions for the safe and effective operation of your SOVARCATE Infrared Thermometer, Model 960. This non-contact digital laser temperature gun is designed for measuring surface temperatures in various applications such as cooking, BBQ, freezer monitoring, industrial use, and repair. It features an LCD color display, adjustable emissivity, and a wide temperature range.

Important Note: This device is not a medical thermometer and is not intended for measuring human or animal body temperature. It measures surface temperatures only.

2. SAFETY INFORMATION

Please read all safety warnings and instructions carefully before using this product to prevent injury or damage to the device.

- **Laser Safety:** This device uses a Class 2 laser. Do not stare directly into the laser beam or point it at people or animals. Avoid direct eye exposure.
- **Not for Medical Use:** This thermometer is designed for industrial and household surface temperature measurements. It is not intended for medical use on humans or animals.
- **Temperature Range:** Do not expose the device to extreme temperatures outside its operating range (-50°C to 600°C / -58°F to 1112°F).
- **Battery Safety:** Use only specified AAA batteries. Do not mix old and new batteries or different types of batteries. Dispose of used batteries properly.

- **Cleaning:** Clean the device with a soft, damp cloth. Do not use abrasive cleaners or immerse the device in water.
- **Storage:** Store the device in a cool, dry place away from direct sunlight and extreme temperatures.

3. PRODUCT FEATURES

High Accuracy

Combines the latest temperature sensor technology and advanced Fresnel lens for high accuracy readings (up to $\pm 2\%$) in just 0.5 seconds. Adjustable emissivity (0.1-1.0) allows for more accurate measurement of various surfaces.

Precise Positioning

Features a built-in red laser for precise aiming, helping to accurately find the measurement target. The distance to spot ratio is 12:1, enabling measurements from a longer distance. For optimal accuracy, maintain a distance of 14 inches (36 cm) from the object.

Versatile Functions

Accurately tests temperatures from -58°F to 1112°F (-50°C to 600°C). Easily toggle between Celsius and Fahrenheit. Includes an LCD backlight for visibility in dark conditions and an auto-power-off function to conserve battery life.

Wide Application

Infrared technology makes this thermometer suitable for daily and industrial environments. Safely measure high-temperature, toxic, or hard-to-reach objects. Ideal for cooking, automotive maintenance, home repairs, and various commercial applications.

4. SETUP

4.1. Unpacking

Carefully remove the thermometer and all accessories from the packaging. Verify that all components are present:

- SOVARCATE Infrared Thermometer (Model 960)
- 2 x AAA Batteries
- User Manual



Product Accessories



Figure 4.1: Product Accessories. The image shows the SOVARCATE infrared thermometer in its retail packaging, alongside two AAA batteries and the instruction manual.

4.2. Battery Installation

The thermometer requires 2 AAA batteries (included). To install or replace batteries:

1. Locate the battery compartment on the handle of the thermometer.
2. Gently pull the battery cover downwards or slide it open as indicated by the arrow.
3. Insert two AAA batteries, ensuring the correct polarity (+ and -) as marked inside the compartment.
4. Close the battery cover securely until it clicks into place.



Easy Battery Replacement

Battery included inside hand-held unit



Highly sensitive sensor:
laser indication, 0.5 second
fast measurement

Figure 4.2: Easy Battery Replacement. This image illustrates the process of opening the handle to access the battery compartment and insert the AAA batteries.

5. OPERATING INSTRUCTIONS

5.1. Device Overview



Positive Display

Practical function buttons for easy operation;
color screen display for easier reading.



Figure 5.1: Positive Display and Controls. This diagram highlights the various indicators on the LCD screen and the functions of the buttons, including scanning, laser status, low battery, current temperature display, backlight, emissivity adjustment, and temperature unit switch.

- **SCAN Button:** Press and hold to initiate measurement.
- **°C/°F Button:** Toggles between Celsius and Fahrenheit temperature units.
- **EMS Button:** Adjusts emissivity.
- **LCD Display:** Shows temperature readings, battery status, laser indicator, and other settings.
- **Laser Aperture:** Emits the aiming laser.
- **Infrared Sensor:** Detects infrared radiation for temperature measurement.

5.2. Taking a Measurement

1. **Power On:** Press the trigger (SCAN button) to turn on the thermometer. The LCD display will light up.
2. **Aim:** Point the infrared sensor and laser beam at the target surface. The laser dot indicates the center of the measurement area.

3. **Measure:** Press and hold the trigger (SCAN button). The current temperature will be displayed on the LCD.
4. **Read:** Release the trigger to hold the reading on the display. The device will automatically power off after a period of inactivity to save battery.



Figure 5.2: Taking a Measurement. This image shows the SOVARCATE infrared thermometer being held and aimed, ready for a temperature reading.

Laser positioning

Laser-assisted positioning allows you to better find the measurement position.



Figure 5.3: Laser Positioning. The image illustrates the thermometer's laser being used to precisely target a measurement point, in this case, through a window.

5.3. Adjustable Emissivity

Emissivity is the ability of a material to emit energy by radiation. Different materials have different emissivity values. Adjusting the emissivity setting improves measurement accuracy for various surfaces.

- Press the **EMS** button to enter emissivity adjustment mode.
- Use the up/down buttons (often integrated with °C/°F or other controls) to increase or decrease the emissivity value (range 0.1 to 1.0).
- Refer to the table below for common emissivity values. If the exact emissivity of a material is unknown, a default setting of 0.95 is often suitable for many non-metallic surfaces.



Oil

Emissivity : 0.95



Ice

Emissivity : 0.98

Better Accuracy With adjustable Emissivity

Adjustable emissivity from 0.10 to 0.95 allows you to measure temperatures precisely on different surfaces such as clay, brass, wood, and marble.



Figure 5.4: Better Accuracy with Adjustable Emissivity. This image demonstrates the use of adjustable emissivity for measuring different materials like oil (emissivity 0.95) and ice (emissivity 0.98), highlighting how this feature improves measurement precision.

Common Emissivity Values

Material	Emissivity
Asphalt	0.95
Concrete	0.95
Glass (plate)	0.85
Ice	0.98
Iron (oxidized)	0.78
Paint (flat)	0.93

Material	Emissivity
Plastic	0.95
Rubber	0.95
Water	0.96
Wood	0.94

5.4. Distance to Spot Ratio (D:S)

The D:S ratio for this thermometer is 12:1. This means that for every 12 units of distance from the target, the measurement spot diameter is 1 unit. For example, if you are 12 inches away from the target, the measurement spot will be 1 inch in diameter. To ensure accurate readings, especially for smaller objects, position the thermometer closer to the target.



measuring range :
-58°F ~ 1112°F (-50°C ~ 600°C)

Figure 5.5: Measuring Range. The image shows the thermometer's display with a temperature reading, emphasizing its wide measuring

6. MAINTENANCE

6.1. Cleaning the Lens

The most critical part of the thermometer is the lens. A dirty lens can significantly affect accuracy. Clean the lens only when necessary, using the following steps:

1. Gently blow off any loose particles using clean compressed air.
2. Carefully wipe the surface with a clean, soft cotton swab or lens cloth, moistened with water or medical alcohol.
3. Allow the lens to air dry completely before use.

Do not use abrasive cleaners or solvents.

6.2. Cleaning the Casing

Clean the thermometer casing with a damp sponge or soft cloth and mild soap. Do not immerse the device in water.

6.3. Battery Replacement

When the low battery indicator appears on the display, replace the batteries as described in Section 4.2. Promptly remove depleted batteries to prevent leakage.

6.4. Storage

When not in use for extended periods, remove the batteries and store the thermometer in its original packaging or a protective case. Store in a cool, dry place, away from direct sunlight, dust, and extreme temperatures.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
No display/Device won't turn on	Dead or incorrectly installed batteries.	Replace batteries, ensuring correct polarity.
Inaccurate readings	Dirty lens. Incorrect emissivity setting. Measurement distance too far. Target object is highly reflective.	Clean the lens (Section 6.1). Adjust emissivity for the target material (Section 5.3). Move closer to the target (maintain 12:1 D:S ratio). For reflective surfaces, apply a piece of masking tape or flat black paint to the surface and measure the temperature of the tape/paint.

Problem	Possible Cause	Solution
Laser not working	Laser function disabled or malfunction.	Check if there's a dedicated laser button or setting. If not, and batteries are good, contact support.
"HI" or "LO" displayed	Temperature is outside the device's measurement range.	The device cannot measure temperatures beyond its specified range (-58°F to 1112°F / -50°C to 600°C).

8. SPECIFICATIONS

Feature	Detail
Model Number	960
Temperature Range	-50°C to 600°C (-58°F to 1112°F)
Accuracy	±2% or 2°C (±3.6°F)
Response Time	0.5 seconds
Distance to Spot Ratio (D:S)	12:1
Emissivity	Adjustable from 0.1 to 1.0
Spectral Response	8-14 μm
Laser Type	Class 2
Power Supply	2 x AAA Batteries (included)
Automatic Power Off	Yes (after 7 seconds of inactivity)
Display	LCD Color Display with Backlight
Product Dimensions	15 x 11 x 4 cm
Product Weight	210 g
Material	Plastic

9. WARRANTY AND SUPPORT

SOVARCATE provides lifelong after-sales service for this product. If you encounter any issues or have questions, please contact our customer support. We also offer a full refund within 30 days of purchase. For support, please refer to the contact information provided with your purchase or visit the official SOVARCATE website.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question