MESTEK IR05A

MESTEK IR05A Dual-Mode Infrared Thermometer User Manual

Model: IR05A

1. Safety Information

Please read all safety warnings and instructions carefully before using this device. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- **Laser Safety:** This device uses a Class 2 laser. Do not stare directly into the laser beam or point it at people or animals. Direct eye exposure can cause permanent eye damage.
- **Temperature Measurement:** Do not use this thermometer on people or animals. It is designed for industrial and object temperature measurement only.
- **Handling:** Avoid dropping the device or subjecting it to strong impacts.
- **Environment:** Do not expose the device to extreme temperatures, humidity, or corrosive environments.
- **Maintenance:** Do not attempt to disassemble or modify the device. Refer all servicing to qualified personnel.



Figure 1.1: Important safety reminder: Do not use the MESTEK IR05A thermometer on people or animals.

2. Product Overview

The MESTEK IR05A is a versatile dual-mode infrared thermometer designed for accurate and rapid temperature measurement across a wide range of applications. It features both non-contact infrared measurement and contact K-type thermocouple measurement.



Figure 2.1: MESTEK IR05A Infrared Thermometer and included accessories.

2.1 Key Features

- **Dual Measurement Modes:** Non-contact infrared and contact K-type thermocouple.
- **Wide Temperature Range:** Infrared: -40°C to 1600°C (-40°F to 2912°F); K-type: -10°C to 500°C (14°F to 932°F).
- **High Distance-to-Spot Ratio (D:S):** 50:1 for safe measurement of distant or high-temperature objects.
- **Dual Laser Pointers:** For precise targeting and accurate measurement.
- **Adjustable Emissivity:** (0.1 - 1.0) for improved accuracy on various surfaces.
- **Multiple Measurement Modes:** MAX (Maximum), MIN (Minimum), AVG (Average), DIF (Difference).
- **High/Low Temperature Alarms:** User-definable alarms to detect anomalies.
- **VA Reverse Display Color LCD:** Clear readability even in dark environments.
- **Convenience Features:** Low battery indication, 35-second auto-shutdown, °C/°F unit switch.

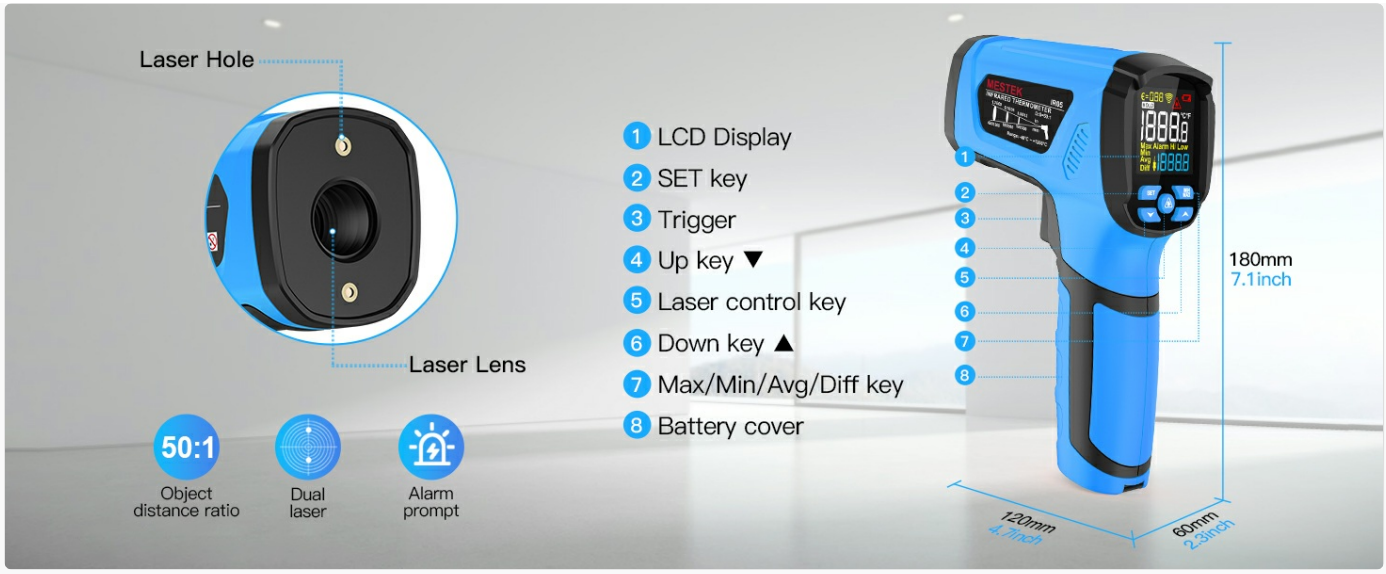


Figure 2.2: MESTEK IR05A component diagram and dimensions.

3. Setup

3.1 Battery Installation

1. Locate the battery compartment cover on the handle of the thermometer.
2. Open the battery compartment cover. No screwdriver is required.
3. Insert two (2) AA batteries, ensuring correct polarity (+/-).
4. Close the battery compartment cover securely.



Figure 3.1: The LCD display shows a low battery indicator when replacement is needed.

3.2 K-Type Thermocouple Probe Connection

1. Locate the K-type thermocouple input port on the top of the thermometer.
2. Insert the K-type thermocouple probe into the port, ensuring the positive pole of the probe aligns with the positive pole of the input.
3. The device will automatically switch to K-type measurement mode when the probe is connected.



Figure 3.2: Connecting and using the K-type thermocouple probe for liquid temperature measurement.

4. Operating Instructions

4.1 Power On/Off

- To power on, press the trigger. The display will light up.
- The device features a 35-second auto-shutdown function to conserve battery power if inactive.



Figure 4.1: The thermometer automatically shuts down after 35 seconds of inactivity.

4.2 Non-Contact Infrared Measurement

1. Point the thermometer at the target object.
2. Press and hold the trigger. The dual laser pointers will activate, indicating the measurement area.
3. The measured temperature will be displayed on the LCD screen.
4. Release the trigger to hold the reading on the display.



Figure 4.2: Dual laser pointers ensure precise targeting for infrared measurements.

4.3 K-Type Thermocouple Measurement

- Ensure the K-type probe is correctly connected.
- Place the tip of the probe in contact with the object or substance whose temperature you wish to measure.
- The temperature reading will appear on the display.

4.4 Unit Switching (°C/°F)

Press the **SET** button repeatedly until the C/F switching mode is displayed. Use the Up/Down arrow keys to toggle between Celsius (°C) and Fahrenheit (°F).

4.5 Adjustable Emissivity

Emissivity (ε) is a measure of an object's ability to emit infrared energy. Different materials have different emissivities. Adjusting the emissivity setting improves measurement accuracy.

1. Press the **SET** button repeatedly until the emissivity setting (ε) flashes on the display.
2. Use the Up/Down arrow keys to adjust the emissivity value between 0.1 and 1.0.
3. Refer to a standard emissivity table for common materials if precise adjustment is needed.

4.6 High/Low Temperature Alarms

The device allows you to set high and low temperature thresholds. An audible and visual alarm will activate if the measured temperature exceeds the high limit or falls below the low limit.

1. Long press the **SET** button to enter High Temperature Setting Mode. The maximum temperature will flash. Use Up/Down keys to adjust.
2. Gently press the **SET** button again to enter Low Temperature Setting Mode. The minimum temperature will flash. Use Up/Down keys to adjust.
3. Press the **SET** button again to exit the alarm setting mode.



Figure 4.3: Steps for setting high/low alarms, emissivity, and switching temperature units.

4.7 Measurement Modes (MAX/MIN/AVG/DIF)

Press the **MIN/MAX** button to cycle through the following measurement modes:

- **MAX:** Displays the maximum temperature recorded during a continuous measurement.
- **MIN:** Displays the minimum temperature recorded during a continuous measurement.
- **AVG:** Displays the average temperature recorded during a continuous measurement.
- **DIF:** Displays the difference between the maximum and minimum temperatures recorded.



Figure 4.4: Using MAX, MIN, AVG, and DIF modes for industrial applications like steel casting.



Figure 4.5: Applying MAX, MIN, AVG, and DIF modes for environmental measurements, such as a swimming pool.

5. Maintenance

5.1 Cleaning

- Wipe the device with a soft, damp cloth. Do not use abrasive cleaners or solvents.
- Do not immerse the device in water or any other liquid.
- Keep the lens clean to ensure accurate readings. Use a soft cloth or cotton swab with lens cleaner if necessary.

5.2 Battery Replacement

Replace batteries when the low battery indicator appears on the display. Follow the steps in Section 3.1 for battery installation.

5.3 Storage

When not in use for extended periods, remove the batteries and store the thermometer in its carrying bag in a cool, dry place, away from direct sunlight and extreme temperatures.

6. Troubleshooting

- **No Display/Power:** Check battery installation and ensure batteries are not depleted. Replace if necessary.
- **Inaccurate Readings:**
  - Ensure the lens is clean.
  - Verify the emissivity setting matches the material being measured.
  - Ensure the distance-to-spot ratio is appropriate for the target size and distance.
  - Allow the thermometer to stabilize if moving between environments with significant temperature differences.
- **Laser Not Working:** Check if the laser control key is pressed. If still not working, contact support.
- **K-Type Probe Not Reading:** Ensure the probe is securely connected and making proper contact with the object. Check for any visible damage to the probe.

7. Specifications

Feature	Specification
Model Number	IR05A
Infrared Temperature Range	-40°C to 1600°C (-40°F to 2912°F)
K-Type Thermocouple Range	-10°C to 500°C (14°F to 932°F)
Accuracy (Infrared)	±2%
Accuracy (K-Type)	±1.5%
Distance-to-Spot Ratio (D:S)	50:1
Emissivity	Adjustable 0.1 - 1.0
Response Time	< 0.5 seconds
Display Type	VA Reverse Display Color LCD
Power Source	2 x AA Batteries (included)
Auto-Shutdown	35 seconds
Dimensions (L x W x H)	12 x 6 x 18 cm (4.7 x 2.4 x 7.1 inches)
Weight	550 grams (approx. 1.2 lbs)
Exterior Material	Rubber
Special Features	Alarm, High Precision, Low Battery Indicator, Ultra Clear Screen



Figure 7.1: Internal components highlighting the industrial-grade design of the IR05A.

8. Package Contents

The MESTEK IR05A package includes the following items:

- 1 x MESTEK IR05A Infrared Thermometer
- 1 x K-Type Thermocouple Probe
- 1 x Carrying Bag
- 1 x User Manual (this document)
- 2 x 1.5V AA Batteries



Figure 8.1: Contents of the MESTEK IR05A product package.

9. Warranty and Support

MESTEK provides a 24-month warranty for the IR05A Infrared Thermometer. We are committed to offering lifetime technical support for our products.

- For any product-related issues or technical assistance, please contact our customer support team.
- We aim to provide a quick response within 24 hours to address your concerns.

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

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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