Dr.meter IR-20

Dr.meter IR-20 Non-Contact Digital Infrared Thermometer User Manual

Model: IR-20

1. Introduction

The Dr.meter IR-20 Non-Contact Digital Infrared Thermometer is designed for safe and accurate temperature measurement of various surfaces. This device utilizes infrared technology to provide quick readings without direct contact, making it ideal for measuring temperatures of objects that are difficult to reach, hazardous, or too hot/cold to touch. It features a backlit LCD display for easy readability and a laser pointer for precise targeting.

Figure 1: Dr.meter IR-20 Non-Contact Digital Infrared Thermometer.

2. Product Features

- **Non-Contact Measurement:** Safely measure surface temperatures from a distance.
- **Wide Temperature Range:** Measures from -50°C to +550°C (-58°F to 1022°F).
- **High Accuracy:** Features a 12:1 distance-to-spot ratio for accurate readings at greater distances, with an accuracy of +/- 2% on 0.95 emissive surfaces.
- **Fast Response Time:** Provides temperature readings in approximately 500ms.
- **Built-in Laser Pointer:** For precise targeting of the measurement area.
- **Backlit LCD Display:** Large, clear display for easy reading, even in low-light conditions.
- **Switchable Units:** Easily switch between Celsius (°C) and Fahrenheit (°F).
- **Data Hold Function:** Freezes the current temperature reading on the display.
- **Auto Shut-off:** Automatically powers off after a period of inactivity to conserve battery life.
- **MIN/MAX Mode:** Allows tracking of minimum and maximum temperatures during a scan.

3. Technical Specifications

Parameter	Value
Model Name	IR-20
Temperature Range	-50°C to +550°C (-58°F to 1022°F)
Accuracy	+/- 2% or 2°C (whichever is greater) on 0.95 emissive surfaces
Distance to Spot Ratio (D:S)	12:1
Response Time	500ms
Emissivity	Fixed at 0.95
Display Type	LCD with Backlight
Power Source	9V Battery (not included as per product spec, but some images show it included)
Dimensions	Approximately 5 x 5 x 5 inches
Item Weight	6.4 ounces

Figure 2: Key components of the Dr.meter IR-20 Infrared Thermometer.

4. Setup

4.1 Battery Installation

1. Locate the battery cover on the handle of the thermometer.
2. Open the battery cover.
3. Insert a 9V battery, ensuring correct polarity (+/-).
4. Close the battery cover securely.

Figure 3: Illustration of battery installation.

5. Operating Instructions

5.1 Taking a Measurement

1. Point the thermometer at the target surface.
2. Press and hold the "Measure Key" (trigger) to begin scanning. The laser pointer will activate to indicate the measurement area.
3. The temperature reading will appear on the LCD display.
4. Release the "Measure Key" to hold the reading on the display (Data Hold function). The device will automatically shut off after a period of inactivity.

5.2 Button Functions

- **Light Button ( ):** Toggles the backlight of the LCD display on or off.
- **°C/°F Button ( ):** Switches the temperature unit between Celsius and Fahrenheit.
- **Laser Button ( ):** Toggles the laser pointer on or off.
- **MODE Button:** Cycles through measurement modes:
    - **Continuous Mode:** Default mode, continuously updates temperature readings while the trigger is held.
    - **MIN Mode:** Displays the minimum temperature recorded during a scan.
    - **MAX Mode:** Displays the maximum temperature recorded during a scan.

Figure 4: Detailed view of the LCD display and buttons.

5.3 Distance to Spot Ratio (D:S)

The IR-20 has a Distance to Spot Ratio (D:S) of 12:1. This means that at a distance of 12 inches from the target, the measurement spot diameter will be 1 inch. To ensure accurate readings, position the thermometer at an appropriate distance from the target so that the measurement spot is entirely within the object you wish to measure. Measuring too far away may result in inaccurate readings due to the inclusion of surrounding temperatures.

Figure 5: Understanding the Distance to Spot Ratio (D:S).

6. Maintenance

- **Cleaning:** Wipe clean the device with a soft, damp cloth. Do not use abrasive cleaners or solvents.
- **Lens Care:** The infrared lens is the most delicate part of the thermometer. Clean it carefully with a soft cloth or cotton swab moistened with water or medical alcohol.
- **Storage:** Store the thermometer in a cool, dry place away from direct sunlight and extreme temperatures. Remove the battery if the device will not be used for an extended period.

7. Troubleshooting

Problem	Possible Cause	Solution
"Err" or "OL" displayed	Temperature is outside the measurement range (-50°C to +550°C).	Ensure the target temperature is within the device's specified range.

Problem	Possible Cause	Solution
Inaccurate readings on reflective surfaces	Infrared thermometers may struggle with highly reflective surfaces (e.g., polished metal, mirrors) due to their fixed emissivity.	To measure reflective surfaces, apply a piece of masking tape or a non-reflective matte paint to the surface and measure the temperature of the tape/paint.
Device does not power on	Low or dead battery; incorrect battery installation.	Replace the 9V battery with a new one. Check battery polarity.
Temperature reading fluctuates	Rapid changes in ambient temperature; measuring a moving target; device not held steady.	Allow the thermometer to stabilize in the environment. Ensure the target is stationary and hold the device steady during measurement.

8. Safety Information

- **Laser Safety:** This device uses a Class II laser product. Do not stare directly into the laser beam or point it at people or animals. Avoid direct eye exposure.
- **Non-Medical Use:** This thermometer is designed for industrial and household use only. It is *not* intended for measuring human or animal body temperature. Readings for biological subjects will not be accurate.
- **Electrical Safety:** Do not expose the device to water or extreme humidity. Do not attempt to disassemble or modify the thermometer.
- **Temperature Limits:** Do not expose the device to temperatures outside its operating range.

9. Warranty and Support

For warranty information or technical support, please refer to the official Dr.meter website or contact their customer service. Keep your purchase receipt as proof of purchase.