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TILSWALL IR02B

Tilswall Infrared Thermometer with Probe

MODEL: IR02B USER MANUAL

Introduction

This manual provides detailed instructions for the safe and effective operation of your Tilswall Infrared Thermometer with Probe, Model IR02B. This device is designed for non-contact surface temperature measurement and contact internal temperature measurement using the included probe. It is suitable for various applications such as cooking, BBQ, freezer monitoring, and automotive use. **This thermometer is NOT intended for measuring human or animal body temperature.**

Important Safety Information

- **Laser Safety:** This product uses a Class 2 laser. Avoid direct eye exposure to the laser beam. Do not stare into the beam.
- **Not for Human Use:** This thermometer is designed for inanimate objects only. Temperature readings for humans or animals will not be accurate.
- Do not immerse the device in water or other liquids.
- Do not use the device in environments with explosive gas, steam, or dust.
- Keep the device away from strong electromagnetic fields.
- Remove batteries if the device will not be used for an extended period.

Product Components and Features

The Tilswall IR02B Infrared Thermometer package includes the following items:

- 1 x Tilswall Infrared Thermometer (IR02B)
- 1 x K-type Temperature Probe
- 2 x AAA Batteries
- 1 x User Manual (this document)



Figure 1: Tilswall Infrared Thermometer IR02B, showing the main unit, K-type probe, and two AAA batteries.

The device features a high-sensitive sensor for quick measurements and a clear LCD display with backlight for easy reading.

High-Sensitive Sensor

laser indication, 0.5 second fast measurement



Figure 2: Close-up of the thermometer's front, highlighting the high-sensitive sensor and laser indication for precise targeting. It features an accuracy of $\pm 1.5\%$, response time of 0.5 seconds, and adjustable emissivity from 0.10 to 1.0.

Setup

1. Battery Installation

1. Open the battery compartment cover located at the handle of the thermometer.
2. Insert the two AAA batteries, ensuring correct polarity (+/-).
3. Close the battery compartment cover securely.

2. Probe Connection

The K-type temperature probe allows for contact measurement of internal temperatures.

1. Locate the probe input port on the side of the thermometer.
2. Insert the K-type probe connector firmly into the port.
3. When the probe is connected, the thermometer will automatically switch to probe measurement mode or allow selection via the MODE button.

Equipped with Temperature Probe

Connect the temperature probe to the thermometer, and make the probe contact the inside of the liquid or the surface of the object to be measured



Figure 3: The thermometer with the K-type probe connected, demonstrating its use for measuring the internal temperature of a liquid. The display shows both infrared and probe temperature ranges.

Operating Instructions

1. Power On/Off

Press the trigger to power on the device. The device will automatically power off after 30 seconds of inactivity to conserve battery life.



Figure 4: The thermometer's display, illustrating the 30-second auto-off function which helps conserve battery power.

2. Infrared Temperature Measurement

1. Point the thermometer at the target object.
2. Press and hold the trigger. The laser pointer will activate to indicate the measurement area.
3. The measured temperature will be displayed on the screen. Release the trigger to hold the reading.

The infrared measurement range is -58°F to 1472°F (-50°C to 800°C).

Non-Contact Infrared Thermometer

Measure surface temperatures ranging from
-58°F to 1472°F (-50°C to 800°C)



Figure 5: Examples of non-contact infrared temperature measurement, showing the thermometer used to measure temperatures in a freezer (-58°F) and on hot metal (1472°F).

3. Probe Temperature Measurement

Ensure the K-type probe is connected. The probe measures internal temperatures from -14°F to 932°F (-10°C to 500°C).

1. Insert the metal tip of the probe into the substance or object whose internal temperature you wish to measure.
2. The temperature reading from the probe will be displayed on the screen.
3. **Caution:** When measuring boiling liquids, avoid direct contact of water vapor with the temperature sensing area of the main unit. Maintain a measuring angle of approximately 45°-60° to prevent affecting accuracy.

4. Adjusting Emissivity (E)

Emissivity (E) is the ability of a material to emit thermal energy. Different materials have different emissivity values. Adjusting the emissivity improves measurement accuracy for various surfaces. The default emissivity is 0.95.

- Press the 'MODE' button until 'E' appears on the display.
- Use the Up/Down arrow buttons to adjust the emissivity value from 0.10 to 1.00.

- Refer to a standard emissivity table for common materials to set the appropriate value. Most organic or metal oxide surfaces have an emissivity between 0.85 and 0.98.

5. Changing Temperature Units (°C/°F)

Press the 'MODE' button to cycle through available settings. When the temperature unit is highlighted, use the Up/Down arrow buttons to switch between Celsius (°C) and Fahrenheit (°F).

6. High/Low Temperature Alarm

This feature allows you to set high and low temperature thresholds. An alarm will sound if the measured temperature exceeds the high limit or falls below the low limit.

- Press the 'MODE' button until the High Alarm (HAL) or Low Alarm (LAL) setting is displayed.
- Use the Up/Down arrow buttons to adjust the desired temperature threshold.
- Press 'MODE' again to confirm and exit.

7. Distance to Spot Ratio (D:S)

The D:S ratio for this thermometer is 12:1. This means that at a distance of 12 units from the target, the measurement spot diameter will be 1 unit. For optimal accuracy, ensure the target object completely fills the measurement spot.



Figure 6: A visual representation of the 12:1 Distance to Spot Ratio (D:S), showing how the measurement spot size increases with distance from the target. For precise measurement, the target should be larger than the spot size.

Maintenance

1. Cleaning

- Clean the lens with a soft, damp cloth or cotton swab. Do not use abrasive cleaners.
- Wipe the device casing with a damp cloth. Do not use solvents or harsh chemicals.

2. Storage

Store the thermometer in a clean, dry environment when not in use. Avoid extreme temperatures and direct sunlight.

3. Battery Replacement

When the battery indicator appears on the display, replace the AAA batteries as described in the 'Battery Installation' section.

Troubleshooting

Problem	Possible Cause	Solution
No display/Device won't turn on	Low batteries; Incorrect battery installation	Replace batteries; Check battery polarity
Inaccurate readings	Incorrect emissivity setting; Distance too far/spot size too small; Lens dirty; Rapid temperature changes	Adjust emissivity; Move closer to target; Clean lens; Allow device to stabilize to ambient temperature
Laser not working	Laser function disabled; Device malfunction	Check settings (if applicable); Contact support
Probe reading incorrect or unstable	Probe not fully inserted; Damaged probe; Water vapor interference	Ensure probe is fully inserted; Replace probe; Avoid water vapor contact

Specifications

Feature	Specification
Model Number	IR02B
Infrared Temperature Range	-58°F to 1472°F (-50°C to 800°C)
Probe Temperature Range	-14°F to 932°F (-10°C to 500°C)
Accuracy	±1.5%
Response Time	0.5 seconds
Distance to Spot Ratio (D:S)	12:1

Feature	Specification
Emissivity	Adjustable 0.10 - 1.00 (Default 0.95)
Display Type	Digital LCD with Backlight
Auto-Off	30 seconds
Power Supply	2 x AAA Batteries (included)
Product Dimensions	30.48 x 0.03 x 0.03 cm
Weight	260 g
Certifications	CE, FCC, RoHS
Included Components	Infrared Thermometer, K-type Probe, 2 AAA Batteries

Warranty and Support

Tilswall provides a **28-month after-sales service** for this product. If you encounter any issues or have questions regarding the operation, maintenance, or performance of your Tilswall Infrared Thermometer, please contact Tilswall customer support. Please retain your proof of purchase for warranty claims.

For further assistance, please visit the official Tilswall website or contact their customer service department through the platform where you purchased the product.