



Work Together

Item Code 73017

Infrared Thermometer with Probe D Emissivity Adjustable Model

Instruction Manual

Introduction

Thank you for purchasing the Shinwa Infrared Thermometer with Probe D Emissivity Adjustable Model. Before using the product, please read the instructions contained in this manual to ensure correct use. After having read this manual, always keep it with you or in a safe place.

■ Specifications

Accuracy	Infrared $\pm 2\%$ or $\pm 2^{\circ}\text{C}$ (higher value) Probe 65°C up: $\pm 1\%$ $-5 - 65^{\circ}\text{C}$: $\pm 0.5^{\circ}\text{C}$ -5°C or less: $\pm 1^{\circ}\text{C}$
Measuring Range	$-33 - 220^{\circ}\text{C}$
Resolution	$-9.9 - 199^{\circ}\text{C}$: 0.1°C Other values: 1°C
Measuring Interval	1 sec
Operating Temperature	$0 - 50^{\circ}\text{C}$
Emissivity	Adjustable 0.1 – 1 (default as 0.95)
Auto Power Off	15 seconds after stopped operation
Battery Life	40 hours (continuous use)
Power Source	1x Lithium battery CR2450 (Battery included is for trial use only and may not last as long)
Probe	Temperature sensor: Thermocouple*1 Size: $\phi 2.9 \times 110$ mm
Dust/Waterproof	IP54*2
Body Size	$165 \times 20 \times 46$ mm
Weight	92 g (with battery)
Material	Body: ABS resin

*1 The temperature-sensitive part of the probe is 5 mm from the tip.

*2 5 Dustproof performance : A small amount of dust that has penetrated inside will not hinder normal operation.

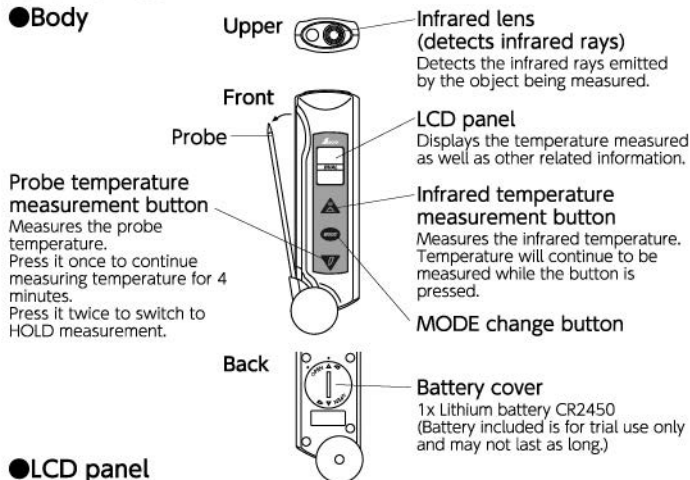
4 Waterproof performance : It will not be harmfully affected by a splash of water from any direction.

■ Before Using

Pull out the insulating tape that is sandwiched between the battery cover on the back of the device and press the ON/Measure button to turn on the power.

■ Part Names

● Body



● LCD panel

Battery icon

Displays the amount of battery power remaining.

Infrared temperature display

Displays the temperature measured. Displays every 0.1°C from -9.9°C up to less than 200°C, while no decimal points will be displayed for other measurement values.

Probe temperature display

Displays the temperature measured. Displays every 0.1°C from -9.9°C up to less than 200°C, while no decimal points will be displayed for other measurement values.

MIN/MAX icons

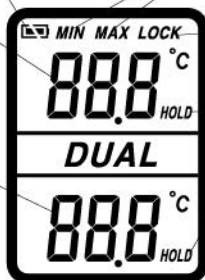
These turn on when measuring minimum/maximum temperature.

LOCK icon

Turns on during LOCK measurement mode.

HOLD icon

Turns on after temperature measurement during HOLD measurement mode.

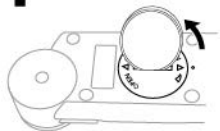


■ Changing the Battery

The thermometer will not work when the battery is low. We recommend immediately replacing with a new lithium battery (CR2450).

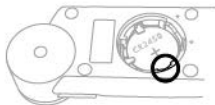


Make sure the device is OFF before changing the battery.



- ① Turn the battery lid in the OPEN direction with a coin or similar object and remove it.

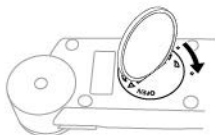
*Using small diameter coins or screwdrivers could damage the battery cover.



- ② Insert a toothpick or similar object into the recess indicated by the ○, pry up the battery and remove it.



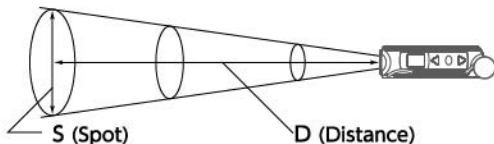
- ③ Insert a new battery with the + side facing up while being careful not to bend the terminal.



- ④ Replace the battery cover, turn it in the opposite direction of OPEN, and tighten it securely.

*When the battery is removed, emissivity will return to the default setting (0.95).

■ Measurement Distance and Range



[Distance coefficient] D (Distance) : S (Spot) = 2.5 : 1

Example: 5 cm distance to the object being measured → 2 cm spot
1 m distance to the object being measured → 40 cm spot

*Measuring range minimum diameter: 10 mm

■About This Device and Emissivity

This device is a non-contact thermometer which reads the infrared rays emitted from an object, converts them to temperature, and displays them on the LCD panel.

The emissivity of infrared rays will differ depending on the object. To take an accurate measurement of temperature, it is necessary to match this device with the emissivity of the object.

The emissivity of a mirrored surface or an object through which light passes will be strongly affected by reflectivity and transmittance. To take an accurate measurement of temperature, please measure after first affixing black-body tape or coating with a black-body paint.

Emissivity Chart

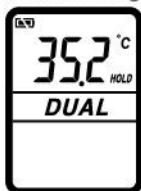
Measured Object	Emissivity
Water/ice	0.98
Soil	0.92 - 0.96
Stone/asbestos	0.92
Plastic	0.90 - 0.95
Rubber (black color)	0.95
Wood	0.98

Measured Object	Emissivity
Paper	0.92
Vegetables/fruit	0.98
Meat	0.98
Copper oxide	0.5 - 0.6
Iron oxide	0.7 - 0.8
Tile	0.8

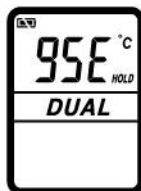
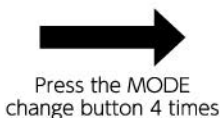
*Emissivity may differ slightly depending on factors such as the temperature of the object measured, the condition of its surface, and its color. Please use the Emissivity Chart above only as a reference.

■How to Set Emissivity

- ① Press the Infrared temperature measurement button and turn the power on.
- ② From the initial screen, press the MODE change button 4 times and the LCD panel will change to the set emissivity screen.
*The default setting is 95E (=0.95 emissivity).
- ③ Press the Infrared temperature measurement button and set the emissivity. Press the MODE change button to change the mode and finalize the setting.



Initial screen



Set emissivity screen

*The temperature displayed varies depending on the environment.

■ Infrared Temperature Measurement (Non-contact Measurement)

Point the device's lens toward the object to be measured, press the infrared temperature measurement button, and take a reading of the temperature on the display (displayed on the upper part of the LCD panel).

● Setting HOLD Measurement mode *1,

LOCK Measurement mode *2

*1 In HOLD Measurement mode, the temperature will be continuously measured while the measurement button is pressed, and when it is released, the temperature will remain fixed.

*2 LOCK Measurement mode allows continuous measurement regardless of whether the measurement button is pressed or not.

① When the Infrared temperature measurement button is pressed and the power turns on, the upper part of the LCD panel will display HOLD and the device will go into HOLD Measurement mode.

② Press the Infrared temperature measurement button and turn the power on. Press the MODE change button, then press the Infrared temperature measurement button while the LOCK icon is flashing in the upper part of the LCD panel to begin LOCK measurement mode. The device will return to HOLD Measurement mode either after 60 minutes have elapsed, after the Infrared temperature measurement button has been pressed for about 1 second, or after the Probe temperature measurement button has been pressed.

⚠ Caution

- Note that steam, dust, and smoke can affect the accuracy of the temperature measurement.
- Infrared temperature measurement is non-contact measurement. Do not allow it to touch the object being measured. Contact with an object at a very high temperature may cause a mistaken measurement to be displayed or cause the device to break down.
- Differences in infrared temperature measurement may occur depending on factors such as material, luster, thickness, color and emissivity of the object being measured.
- Keep the lens (the part that detects infrared rays) clean. To clean it, wipe with a soft cloth or cotton fabric dampened in water or alcohol for medicinal use (ethyl alcohol). Measurements taken while the device is wet could cause malfunction, so make sure that it is dry before using.

■ Auto Power Off

The power will turn off (Auto Power Off) after 15 seconds pass without operation while in HOLD Measurement mode. The emissivity setting will be retained even if the device automatically turns off.

■ Probe Temperature Measurement (Contact Measurement)

Insert the probe into the object, press the Probe temperature measurement button, and take a reading of the temperature on the display (displayed on the lower part of the LCD panel).

● Setting HOLD Measurement mode *1, LOCK Measurement mode *2

*1 In HOLD Measurement mode, the temperature will be continuously measured while the measurement button is pressed, and when it is released, the temperature will remain fixed.

*2 LOCK Measurement mode allows continuous measurement regardless of whether the measurement button is pressed or not.

① Pressing the Probe temperature measurement button and turning on the power will cause the °C icon to flash in the lower part of the LCD panel, and the device will enter into LOCK Measurement mode. The power will turn off automatically after 4 minutes.

② Press the Probe temperature measurement button to turn on the power. If you press the Probe temperature measurement button again, HOLD will be displayed in the lower part of the LCD panel, and the device will enter into HOLD Measurement mode where displayed values will be saved on the screen.

Caution

- Do not twist the probe or rotate it in the wrong direction.
- Excessive force on the probe could cause malfunction. Do not force the probe when inserting or allow it to bend.
- Heat can remain in the probe after measuring a high temperature. Return the probe to its storage position only after allowing residual heat to cool off sufficiently, as residual heat could cause burns and damage to the device.
- Be sure to return the probe to its storage position when not being used to prevent injury or damage to the probe.
- Do not point the probe at a person.
- Do not use the probe to measure an electrical circuit that is greater than 24 V AC or 60 V DC, as this could cause electric shock, malfunction or damage.

■ Minimum temperature, maximum temperature display (only for infrared temperature measurement)

Minimum temperature display

From the initial screen press the MODE change button once, and MIN will be displayed on the LCD panel. The lowest temperature measured from the time the Infrared temperature measurement button is pressed until it is released will be displayed.

Maximum temperature display

From the initial screen press the MODE change button twice, and MAX will be displayed on the LCD panel. The highest temperature measured from the time the Infrared temperature measurement button is pressed until it is released will be displayed.

⚠ Caution

- Do not use the thermometer as a clinical thermometer.
- The device is not completely resistant against water. Do not use in an area where it could get wet, as this could damage it.
- Do not disassemble or alter the device, as this may lead to malfunctioning.
- Do not drop or subject to strong impact as this may cause the device to operate incorrectly.
- Store out of the reach of children.
- Remove the battery before storing the device when not being used for a long period.
- Be sure to check that the power is off before replacing the battery. Removing the battery while the power is on could cause malfunction.
- See the ■ Specifications section for details about the accuracy of this device. For temperature control that requires greater accuracy, please purchase a precision thermometer.
- When using the device in an environment with electronic noise, the display could become unstable or there may be significant errors. Also, do not bring the thermometer close to electrified objects.
- Do not wash or wipe the device with alcohol, thinner, or any other organic solvent. To wipe dirt away, soak a gauze or similar fabric with neutral detergent in lukewarm water and wipe only after thoroughly wringing out the cloth.
- A rapid change in the ambient temperature may affect the accuracy. Use the device after it has sufficiently adjusted to the ambient temperature. In the case that the ambient temperature changes by more than 10°C, it will take the device more than 30 minutes to adjust to it.
- We shall not be liable for any consequential, incidental, or indirect damages such as losses and lost profits to the customer as well as a third party resulting from the operation of this product, regardless of whether or not they were foreseeable or the possibility was reasonably foreseeable. However, this shall not apply in the case where there is willful or gross negligence or when the customer is a consumer according to the Consumer Contract Act. In the event that we are liable for the use of this product, we shall be liable for damages limited to an amount equal to the price of the product.

■ Troubleshooting

Hi	Outside measurement range (higher than 220°C)
	Measure a temperature cooler than 220°C.
Lo	Outside measurement range (lower than -33°C)
	Measure a temperature that is warmer than -33°C.
Er2	Rapid change in temperature
	Measure after the device has adjusted to the ambient temperature.
Er3	Outside operating temperature range (lower than 0°C or higher than 50°C)
	Measure after the device has sufficiently adjusted to its operating temperature range.
Er	Other error messages
	After removing the battery and waiting for at least 1 minute, reinsert it, then turn the device on and try measuring again.

The thermometer requires at least 30 minutes to adjust to the ambient temperature. For all other error messages, it is necessary to reset the thermometer. To reset, turn the device off, remove the battery and wait for at least 1 minute, then reinsert the battery and turn on. Please contact us if the error message remains.