SHINWA

Work Together

Item Code 73100

Infrared Thermometer for High Temperature with Dual Laser Pointer H Emissivity Adjustable Model

Instruction Manual

Introduction

Thank you for purchasing the Shinwa Infrared Thermometer for High Temperature with Dual Laser Pointer H 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.

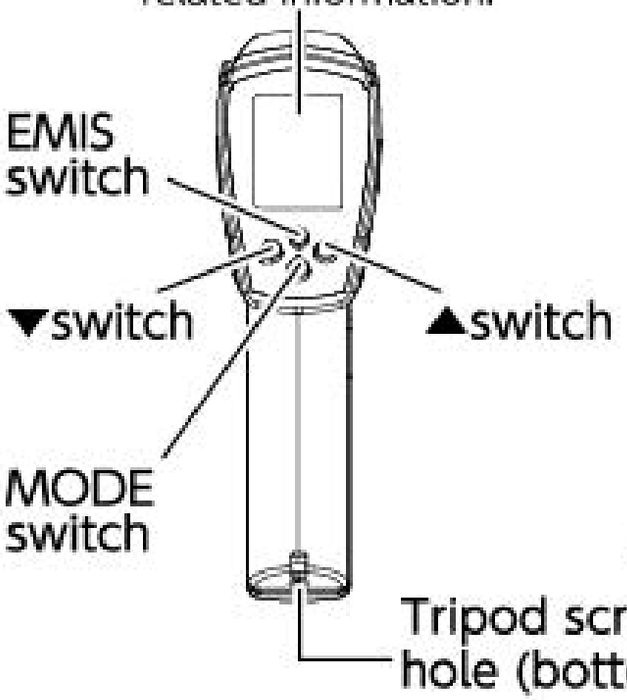
■Specifications

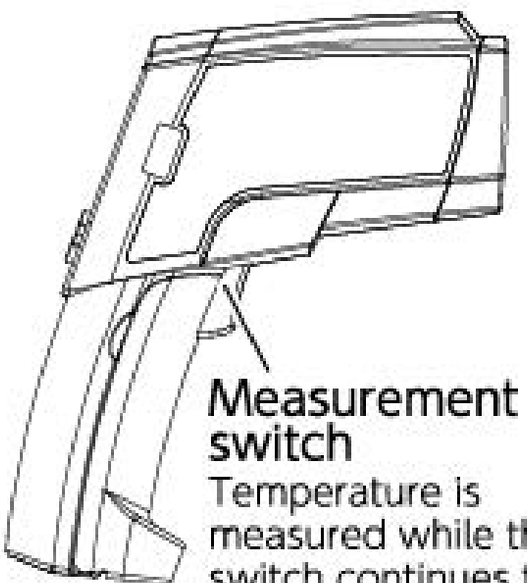
Accuracy	0 – 1,500℃: ±2% or 2℃(higher value) -35 – 0℃: ±{2℃+(displayed value x 0.05)}℃
Measuring Range	-35 – 1,500℃
Resolution	−35～999.9℃: 0.1℃　Other values: 1℃
Measuring Interval	1 sec
Operating Temperature	0 – 50℃
Emissivity	Adjustable 0.1 – 1 (default as 0.95)
Auto Power Off	60 seconds after stopped operation
Battery Life	12 hours (continuous use)*
Power Source	2x AAA Alkaline batteries (Batteries included are for trial use only and may not last as long)
Laser Wavelength	635 – 660 nm
Output	1 mW or less (JIS Class2)
Tripod Screw	1/4 inch
Body Size	204 × 58 × 179 mm
Weight	370 g (with battery)
Material	Body: ABS resin

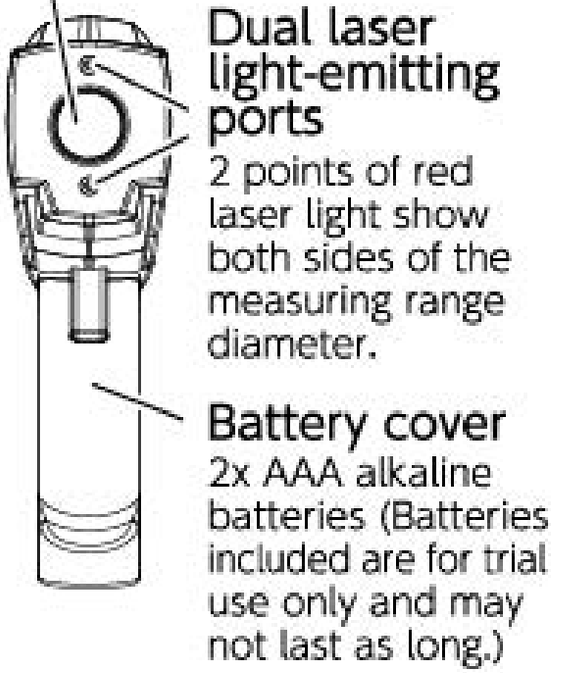
*When the laser pointer is not on, the device can be used continuously for 140 hours.

■Part Names

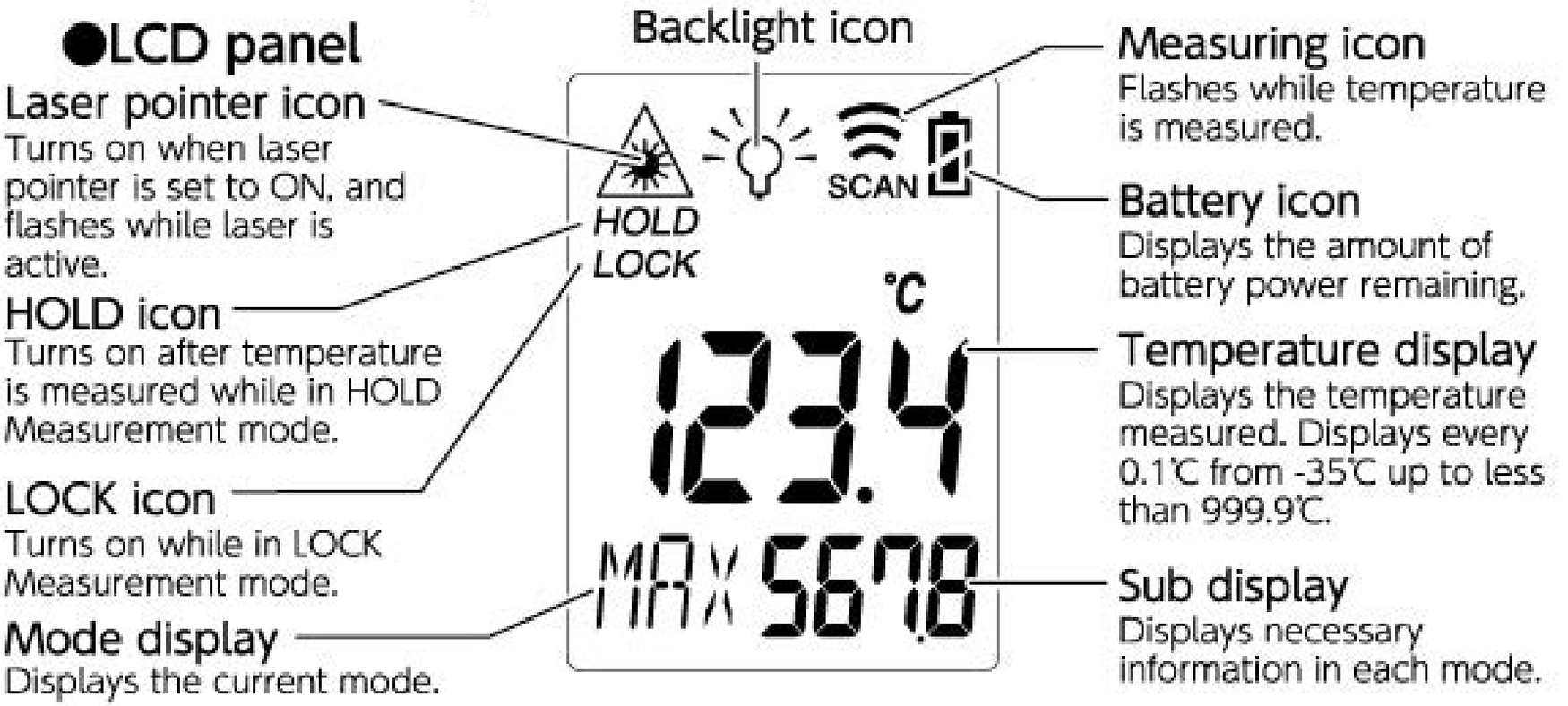
●Body



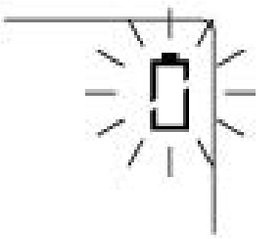




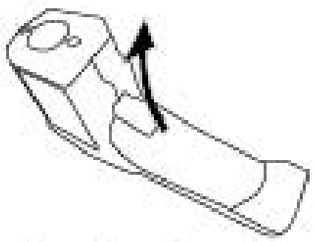
●LCD panel

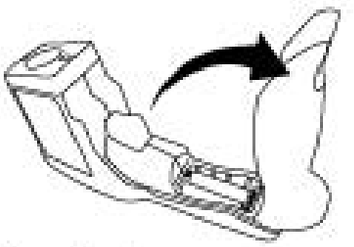


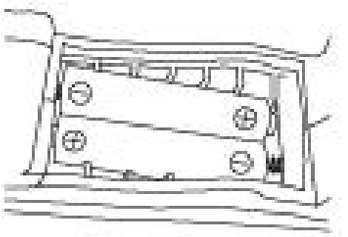
■Changing the Battery



The thermometer will not work when the battery is low. We recommend immediately replacing with new AAA alkaline batteries. Open the battery cover, and insert 2x AAA batteries in the correct position.







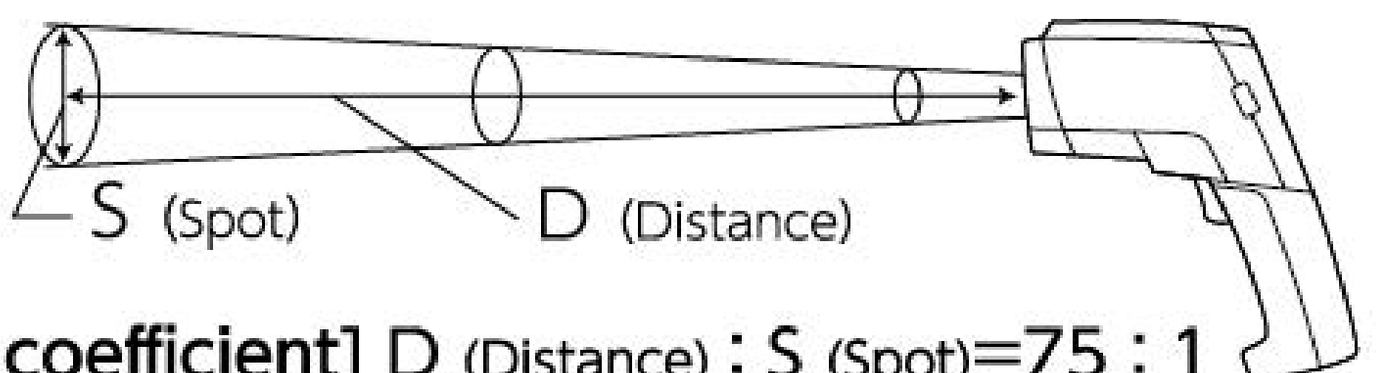
Removing the batteries will cause the device to return to the following default settings.

Default setting

Laser pointer	: OFF	Emissivity(E)	: 0.95
Backlight	: OFF	MAX,MIN,dIF,AVG	: Reset
Hold measurement mode	: ON	HAL	: 1,500
		LAL	: – 35

·Data recorded with the memory function will be retained.
·The mode and other settings will be retained even if the device automatically turns off.

■Measurement Distance and Range



[Distance coefficient] D (Distance) : S (Spot)=75 : 1

Example: 2 m 25 cm distance to the object being measured → 3 cm spot
7 m 50 cm distance to the object being measured → 10 cm spot
*Measuring range minimum diameter: 25 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

①Press the Measurement switch or MODE switch to turn on the power. Then press the EMIS switch to turn on the emissivity adjustment screen (“E” will be shown).

*The initial setting is 0.95 emissivity.

②Press the ▲ switch or ▼ switch to set the emissivity. Press the MODE switch or EMIS switch to change the mode and finalize the setting.

■Before Using

●Power ON/OFF

The device can be turned ON by pressing the Measurement switch or the MODE switch.
The power will turn off (Auto Power Off) after 60 seconds pass without operation while in HOLD Measurement mode.
Auto Power Off is disabled while in LOCK Measurement mode.

●Laser pointer ON/OFF

Pressing the ▼ switch while simultaneously pressing the Measurement switch turns the laser pointer ON or OFF. The laser pointer icon () will be displayed when the laser is set to ON, and laser light will be irradiated from the laser light-emitting port while the Measurement switch is pressed.

●Backlight ON/OFF

Pressing the ▲ switch while simultaneously pressing the Measurement switch turns the backlight ON or OFF. The backlight icon () is displayed while the backlight is ON.

■How to Measure

Point the device's measuring window toward the object to be measured, and take a reading of the temperature on the display.

■Measurement Modes

●HOLD Measurement mode

In this mode, the temperature will be continuously measured while the Measurement switch is pressed, and when it is released the temperature will remain fixed.

●LOCK Measurement mode

This mode allows continuous measurement regardless of whether the Measurement switch is pressed or not.

①When pressing the Measurement switch and turning on the power, the LCD panel will display HOLD, and the device will be in HOLD Measurement mode.

②Pressing the ▲ switch when the mode display is E.MAX.MIN. dIF, or AV'G changes the device to LOCK Measurement mode, and LOCK will be displayed on the LCD panel. Press the ▲ switch again to return to HOLD Measurement mode.

*Changing mode is not possible when the mode display is "E", HAL, LAL, or MOD.

■Memory Function

Up to 24 measured values and emissivity setting values can be stored in the memory.

●Memory

①Measure the temperature and the measured value will be displayed.

②While the measured value is displayed, press the MODE switch several times until M00 is displayed.

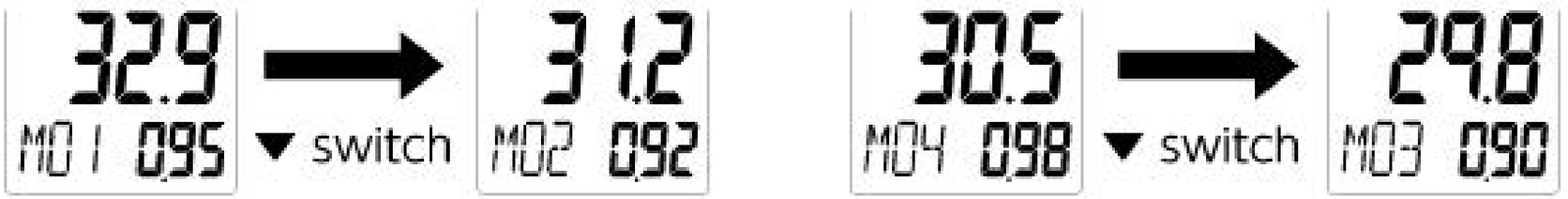
③Pressing the Measurement switch displays M01 and stores the measured value.
A measured value frozen while in HOLD Measurement mode or a measured value displayed as M00 in LOCK Measurement mode will be stored.

④To continue storing values, switch to the Measurement mode (E , MAX , MIN , dIF , AVG , HAL , LAL) again with the MODE switch and repeat steps ① to ③.
The device cannot measure during Memory Function mode. The most recent measured value is stored as M01 and the previous measured value is stored as M02. Any stored values will shift to the next number every time a new value is recorded.
*Values older than M24 will be automatically deleted.

●Recall

①To display the memory, press the MODE switch several times until M00 is displayed.

②Pressing the ▲ switch once displays M01 and the most recently stored value. (The display will shift to the next value every time the button is pressed.) Return to the previous value with the ▼ switch.



Most recent　　Second most recent

●Delete

①To erase the memory, press the MODE switch several times until M00 is displayed.

②Press and hold the ▲ switch and the ▼ switch simultaneously. When CLr is displayed the entire memory will be erased.

※Measurement values can be stored by the memory function even during LOCK Measurement mode.
When M00 is displayed during LOCK Measurement mode, the device switches to HOLD Measurement mode and the HOLD and LOCK icons will be simultaneously displayed. To return to the LOCK Measurement mode again, please refer to ■Measurement Modes on page 6.

■Maximum Temperature / Minimum Temperature / Difference Between Max and Min Temperature / Average Temperature

Pressing the MODE switch from the Start Screen (below) allows the device to switch between different types of temperature display.

Start Screen

①The device can be turned ON by pressing the Measurement switch or the MODE switch.
②Pressing the MODE switch several times, E will be displayed in the lower left of the screen.
*Values displayed will vary with the settings.

●Maximum temperature display

①From the Start Screen (E will be shown), press the MODE switch 1 time, and MAX will be displayed in the lower left of the LCD panel.
②The maximum temperature measured will be displayed from when the Measurement switch is first pressed to when it is released.

●Minimum temperature display

①From the Start Screen (E will be shown), press the MODE switch 2 times, and MIN will be displayed in the lower left of the LCD panel.
②The minimum temperature measured will be displayed from when the Measurement switch is first pressed to when it is released.

●**Difference between max/min temperature**

①From the Start Screen (E will be shown), press the Mode switch 3 times, and dIF will be displayed in the lower left of the LCD panel.

②The difference between the maximum temperature and the minimum temperature measured will be displayed from when the Measurement switch is first pressed to when it is released.

●**Average temperature**

①From the Start Screen (E will be shown), press the MODE switch 4 times, and AVG will be displayed in the lower left of the LCD panel.

②The average temperature will be displayed from when the Measurement switch is first pressed to when it is released.

■HI/LOW Alarm Functions

●**HI Alarm**

①From the Start Screen (E will be shown), press the MODE switch 5 times, and HAL will be displayed in the lower left of the LCD panel.

②Set the alarm temperature with the ▲/▼ switches.

③When a temperature higher than the one set in the alarm is measured, the device will notify you with a buzzer and display an ((HI)).

*Alarm disappears when the temperature is lower than the set temperature.

●LOW Alarm

①From the Start Screen (E will be shown), press the MODE switch 6 times, and LAL will be displayed.

②Set the alarm temperature with the ▲/▼ switches.

③When a temperature lower than the one set in the alarm is measured, the device will notify you with a buzzer and display an ((LOW)) .

*Alarm disappears when the temperature is higher than the set temperature.

■Troubleshooting

Hi	**Outside measurement range (higher than 1,500℃)**
	Measure a temperature cooler than 1,500℃.
Lo	**Outside measurement range (lower than -35℃)**
	Measure a temperature that is warmer than -35℃.
Er2	**Rapid change in temperature**
	Measure after the device has adjusted to the ambient temperature.
Er3	**Outside operating temperature range (lower than 0℃ or greater than 50℃)**
	Measure after the device has sufficiently adjusted to its operating temperature range.
Er	**Other error messages**
	After removing the batteries and waiting for at least 1 minute, reinsert them, 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 it, turn the device off, remove the batteries and wait for at least 1 minute, then reinsert the batteries and turn on. Please contact us if the error message remains.

⚠ Warning

- Never look at the laser source directly or point the laser at others. The laser light could cause vision loss if it directly enters the eye.
- Keep the thermometer out of the reach of children.

⚠ Caution

- Do not use the thermometer as a clinical thermometer.
- The device is not 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.
- Keep the measuring window (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.
- Note that steam, dust, and smoke can affect the accuracy of the temperature measurement.
- Remove the battery before storing the device when not being used for a long period.
- This is a non-contact infrared thermometer. 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.
- See the ■Specifications section for details about the accuracy of this device. For temperature control that requires greater accuracy, please purchase a precision thermometer.
- Measurement differences may occur depending on factors such as material, luster, thickness, color and emissivity of the object.
- 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. Do not allow the gauze or fabric to make direct contact with the temperature measuring part.
- 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.