SK SATO

Instruction Manual of

Infrared Thermometer Model SK-8350

Read this manual thoroughly before use, and keep it for future reference.

Important Notices

Beware of Explosion

SK-8350 is not explosion-proof. Never use it in an atmosphere containing flammable gases.

Beware of Laser

Do not look into the laser window or point the laser at eyes.

SK-8350 conforms to Class II, Standard for Safe Use of Laser Products (JIS C6802) which is defined as follows: visible light (wavelength between 400 and 700 nm) with an output level of less than 1 mW, against which a human's protective response is effective.

Cautions

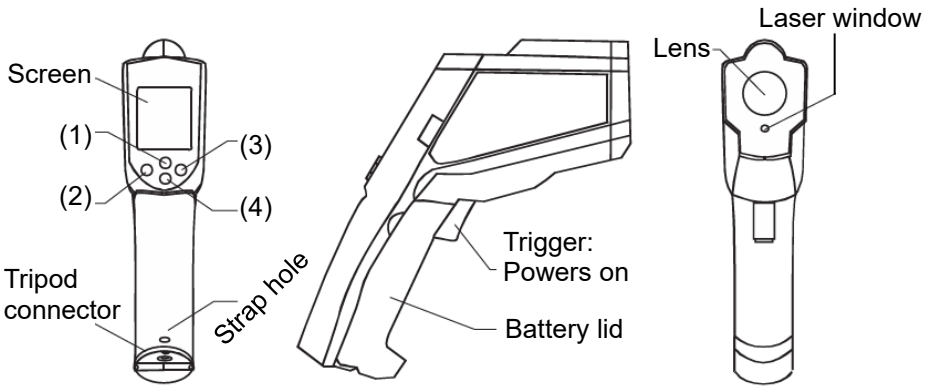
To use SK-8350 properly, follow the instructions below.

- Do not use the device as a clinical thermometer.
- Do not allow the device to touch objects, especially hot surfaces.
- Do not measure temperature out of the specified measuring range.
- Do not disassemble or modify the device, as this may cause malfunction.
- Measuring accuracy and stability may deteriorate when the device is used near sources of electrical noise, such as induction cookers.
- Do not use the device under direct sunlight or near a heat source.
- Do not leave the device in locations such as an automobile on a hot summer day. Extreme heat may damage the device.
- Do not drop, vibrate, or subject the device to shock, as it is a precision instrument.
- Do not break the LCD screen. If the screen is cracked, do not touch the liquid crystal. If the liquid enters the mouth, rinse thoroughly and consult a doctor immediately. If it contacts the eyes or skin, rinse with water for more than 15 minutes and consult a doctor.
- The device is not waterproof. Do not expose it to water.

- If condensation forms on the device, turn it off immediately and dry it at room temperature before reuse.
- Do not allow the lens to contact sharp or hard objects.
- Do not aim the device at high energy source such as the sun or lasers.
- Remove dust or dirt from the lens before measurement, referring to Maintenance.
- Do not clean the device with alcohol, thinner, or other organic solvents. If it becomes dirty, wipe it with a tightly wrung cloth dampened with warm water and a neutral detergent.
- For repair or calibration, or if the device is damaged before use, contact us or the retailer from which it was purchased.

Names of Sections

- **Body**



- **Operation Keys**

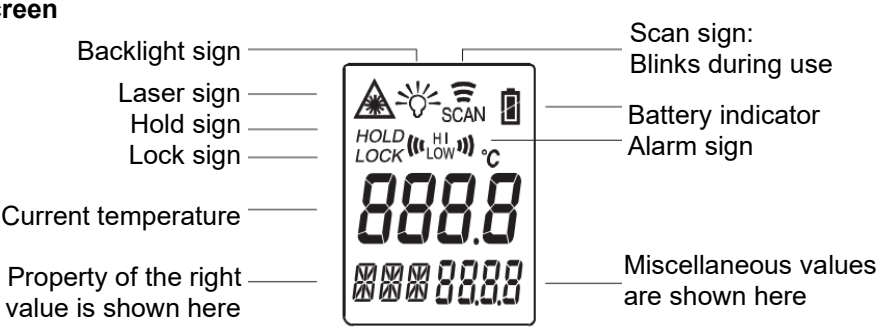
(1) Emis key: Modifies the emissivity coefficient.

(2) Laser▼ key: Decrements the setting value.
Turns on or off the laser when the trigger is pulled.

(3) Lock▲ key: Increments the setting value.
Starts or quits continuous measurement (lock mode).
Turns on or off the backlight when the trigger is pulled.

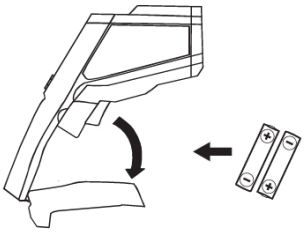
(4) Mode key: Changes the displayed item.

- **Screen**



Battery Replacement

Install batteries before initial use or when the battery indicator blinks.



1. Pull the upper rim of the battery lid to open it.
2. Remove old batteries, if present.
3. Insert new batteries paying attention to polarity.
4. Close the battery lid securely.

All settings are initialized after battery replacement.

Battery Safety Cautions

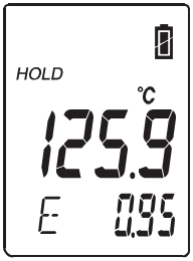
- Replacement batteries must be new and of the same type.
- Remove batteries if the device will not be used for a long period, as leakage may occur.
- Do not heat, disassemble, short-circuit, solder, or dispose of batteries in fire.
- If battery fluid leaks, wipe it away immediately without touching it directly. If the fluid contacts clothing or skin, rinse with water. If it enters the eyes, rinse with water and consult a doctor immediately.
- Insulate batteries with tape when storing or disposing of them.
- Dispose of batteries in accordance with local regulations.
- Keep batteries out of reach of children. If swallowed, consult a doctor immediately.

Battery Indicator

	Full
	Less than 50%
	Runs out in 15 sec.

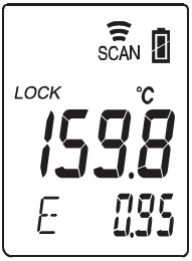
Measurement

SK-8350 offers two measurement modes.



- **Manual Measurement**
  1. Aim the lens at the object and pull the trigger for more than 1 second. The power turns on and the current temperature is displayed.
  2. The display updates every 0.5 seconds while the trigger is held.
  3. When the trigger is released, the reading is held for 1 minute with the **HOLD** sign displayed, after which the power turns off automatically.

- **Continuous Measurement (Lock Mode)**
  1. Aim the lens at the object and pull the trigger for more than 1 second. The power turns on and the current temperature is displayed.
  2. Press the Lock▲ key to start continuous measurement. The **LOCK** sign is displayed. During this mode, the trigger controls only the laser.
  3. Press the Lock▲ key again to return to manual measurement. Otherwise, the power turns off automatically after 90 minutes.



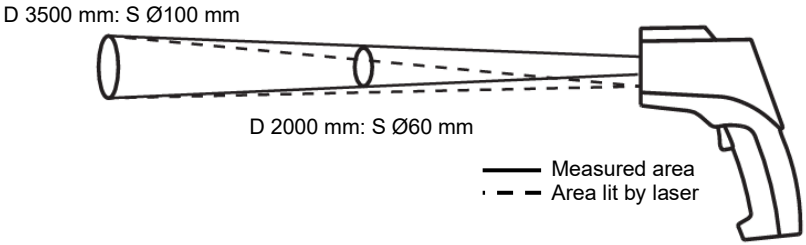
Switching between two modes is disabled while **HAL** or **LAL** is displayed.

Notices for Measurement

- Infrared radiation does not penetrate glass; the surface temperature of the glass will be measured instead.
- Water vapor, dust, and smoke absorb infrared energy and may impair measurement accuracy.
- Allow the device to acclimate to ambient temperature if temperature changes are significant.
- Maintain an appropriate distance when measuring hot objects to avoid burns from heat or thermal radiation.

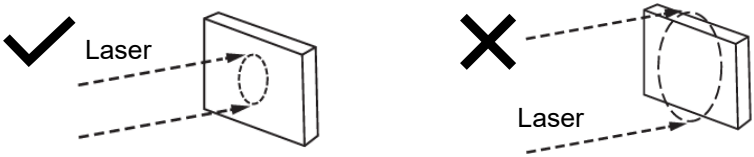
Measured Area

SK-8350 has a D:S ratio of 35:1, where D is the distance from the object and S is the diameter of the measured spot.



The spot circle represents the area receiving 90% of the emitted energy. The measured temperature is the average temperature within this area.

Ensure the measured area is smaller than the object, preferably less than half its size, to prevent measuring outside the target area.



Backlight

The backlight improves screen visibility in low-light conditions. To turn it on or off, press the Lock▲ key while pulling the trigger. The backlight sign is displayed when enabled.

Initially it is off.

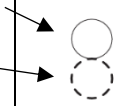
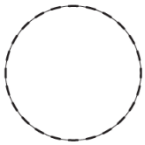
Laser Marker

The laser marker helps find the measured area. To turn it on or off, press the Laser▼ key while pulling the trigger. The laser is emitted only while the trigger is pulled, in both manual and continuous measurement modes.

The laser sign is displayed when enabled, then blinks during radiation.

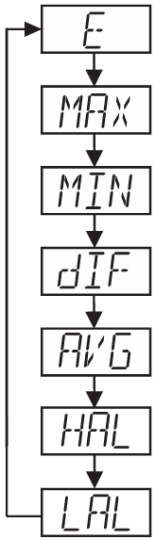
Initially it is off.

The laser circle and measured area fully overlap at a distance of 3500 mm. At shorter distances, the discrepancy between the circle and the measured area increases.

Distance	200 mm	600 mm	2000 mm	3500 mm
Spot diameter	25 mm	37 mm	60 mm	100 mm
Measured area Laser circle				
Laser circle appears…	22 mm under the measured area	18 mm under the measured area	10 mm under the measured area	To match the measured area

Miscellaneous Settings

Pressing the Mode key during the power is on changes an item shown in the bottom of the screen in the following order.



Emissivity: Refer to Emissivity Coefficient

Highest (maximum) temperature

Lowest (minimum) temperature

Difference between the highest and the lowest temperatures

Average temperature

High alarm threshold: Refer to High Alarm

Low alarm threshold: Refer to Low Alarm

The last measured temperature is displayed when the Mode key is pressed during the power is off.

Note: MAX, MIN, DIF, and AVG values are reset at the moment when the trigger gets pulled or continuous measurement begins.
Emissivity, HAL, LAL, and the last measured temperature are initialized after battery replacement.

- **Emissivity Coefficient**

The level of infrared emissions per temperature depends on each material and surface condition. Follow below to set the emissivity coefficient appropriately.

1. Press the Emis key. A character of E and the coefficient is displayed beneath the current temperature. Initially it is 0.95.
2. Press the Lock▲ key or Laser▼ key to adjust the emissivity between 0.10 and 1.00.
3. Press the Emis key or Mode key to confirm.

Emissivity Coefficient Table

Material	Emissivity
Wood, Carbon, Water, Meat, Fish, Vegetables, Bread, Confectionery, Grain, Oil	0.98
Human skin	0.97
Concrete, Soil, Plastics, Rubber	0.95
Paper	0.92
Asbestos	0.90
Iron, Cast iron, Glass, Asphalt	0.85
Copper, Ceramics, Tiles	0.80
Textile	0.75
Brass, Nichrome	0.60
Aluminum	0.30

Metals above are oxidized.

Note that the data above are for reference purposes. The emissivity fluctuates depending on temperature and surface conditions.

Apply heat-resistant paint or spray with its emissivity around 0.96 to 0.98 to the object if the coefficient of the object is unknown.

- **High Alarm**

  If a measured temperature exceeds the high alarm threshold set in advance, a sign of ((HI)) blinks and the buzzer beeps to alert. Follow below to set it.

  1. Return to manual measurement if the device is performing continuous measurement.
  2. Press the Mode key repeatedly until letters of **HAL** is displayed.
  3. Press the Lock▲ key or Laser▼ key to adjust the threshold between −60 and 1500°C. Initially it is 1550°C.

- **Low Alarm**

  If a measured temperature falls below the low alarm threshold set in advance, a sign of ((LOW)) blinks and the buzzer beeps to alert. Follow below to set it.

  4. Return to manual measurement if the device is performing continuous measurement.
  5. Press the Mode key repeatedly until letters of **LAL** is displayed.
  6. Press the Lock▲ key or Laser▼ key to adjust the threshold between −60 and 1500°C. Initially it is −60°C.

  In case the high alarm threshold is set lower than the low alarm threshold, the low threshold is updated to the same as the high threshold. Vice versa for the low alarm threshold.

Maintenance

Dust or dirt on the lens reduces measurement accuracy. To prevent such, use an air blower first. If contamination remains, remove the batteries for safety and gently wipe the lens with a swab moistened with water or lens-cleaning solution.

Do not apply any detergents other than lens-cleaning solution to the lens.

Troubleshooting

Issue	Possible cause	Solution
Error message “Hi”	Measured temperature is too high.	Use within the measuring range between −60 and 1550°C.
Error message “Lo”	Measured temperature is too low.	
Error message “Er2”	Ambient temperature has changed suddenly.	Wait until the temperatures of the air and the device gets equal.
Error message “Er3”	Operating ambient does not meet the required condition.	Make sure the ambient is within 0 to 50°C, less than 85%rh, with no condensation.
Error message “Er4” to “Er9”	Internal error	Remove batteries, wait for a while then insert them again.
Power does not turn on	Batteries have run out.	Replace batteries with new ones referring to Battery Replacement.
Laser marker does not work	Laser marker is disabled.	Enable the laser marker referring to Laser Marker.
Abnormal indication	Measured area is larger than the object.	Follow Measured Area in this manual.
	Temperature of the object is unstable.	Measure another thing with stable temperature to check performance.
	Dust or dirt is attached to the lens.	Clean the lens referring to Maintenance.
	Ambient temperature has changed suddenly.	Wait until the temperatures of the air and the device gets equal.
	Emissivity is set wrongly.	Follow Emissivity Coefficient in this manual.

If problems persist after troubleshooting, contact us or the retailer from which the product was purchased.

Specifications

Product name	Infrared Thermometer Model SK-8350
Catalog no.	8268-50
Measuring range	−60.0 to 1550°C
Resolution	0.1°C (−60.0 to 999.9°C) 1°C (1000 to 1550°C)
Accuracy	±2°C or ±2% reading, whichever is larger (≥ 0°C) ±(2°C +5% reading) (< 0°C) where the ambient 23°C±3°C, emissivity 0.95
Temperature coefficient	±0.2°C/°C where the ambient is not 23°C±3°C
Response time	90% response in approx. 1 second
Emissivity	Adjustable between 0.10 and 1.00 in steps of 0.01
D:S ratio	Approx. 35:1 (D is distance, S is diameter of spot circle)
Lens	Silicon lens
Detector	Thermopile
Spectral range	8 to 14 µm
Laser marker	Red circular laser, 650 nm Output: Less than 1 mW Certified for PSC, a standard based on Japan's Consumer Product Safety Act, as a class II portable laser device
Operating ambient	0 to 50°C, less than 85%rh without condensing
Storage ambient	−10 to 50°C without condensing
Power	AAA battery x2 (3V DC)
Battery life	12 hours if alkaline batteries are used and both the laser and backlight are on in continuous measurement, at room temperature 160 hours if both the laser and backlight are turned off Attached batteries are for test purpose and may last shorter.
Material	ABS resin, Silicone rubber
Dimensions	48 x 212 x 154 mm (W x H x D)
Weight	350 g including batteries
Accessories	AAA alkaline battery x2, Neck strap x1, Carrying case x1, Instruction manual

Specifications and appearance are subject to change for improvement.
Visit our website https://www.sksato.co.jp/en/ for the latest information.

Warranty Policy

This product is warranted to be free from defects for one year from the date of delivery. If repair is required within this period, return the products to us on freight prepaid basis. Repairs will be performed free of charge if the defect is not due to misuse, force majeure, or transportation not arranged by us. The cause of defects shall be determined solely by us.

Out-of-warranty repairs are available for a fee upon request.

Kindly obtain authorization before returning the product.

For details, contact us or the retailer from which the product was purchased.

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