SK SATO

Instruction Manual of
Infrared Thermometer with Circular Laser Marker
Model SK-8750

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

Important Notices

Beware of Explosion

SK-8750 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 on eyes.

SK-8750 conforms to Class II, Standard for Safe Use of Laser Products (JIS C6802) which is defined as follows: A visible light (wavelength between 400 and 700 nm) with an output level less than 1 mW that a human's protective response can resist.

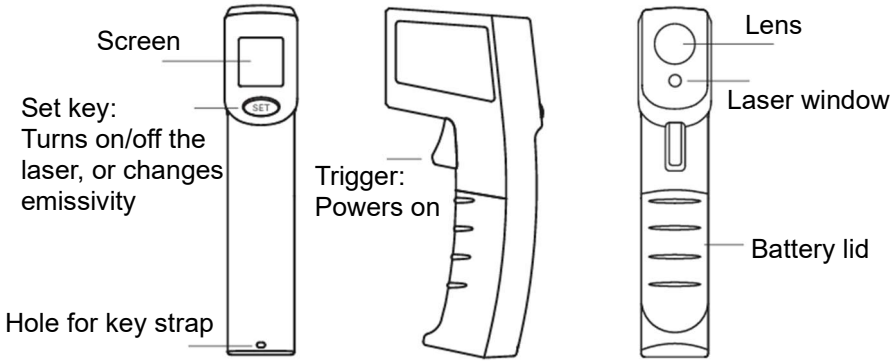
Cautions

To use SK-8750 properly, follow the instructions below.

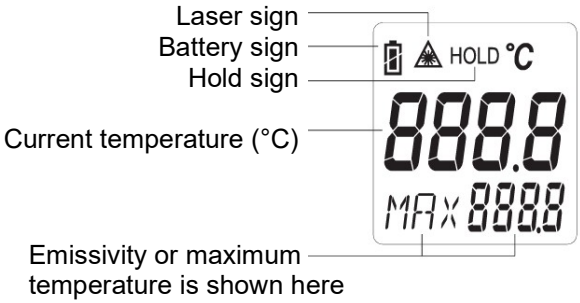
- Do not use the device as a clinical thermometer.
- Do not let this contactless device touch objects, especially hot things. Also, do not let the lens touch a sharp or hard object.
- Do not disassemble or customize the device, or it may cause malfunction.
- Do not drop, vibrate, or give a shock to the device, as it is a sensitive instrument.
- The device is not waterproof. Do not wet it.
- Do not face the device toward high energy source such as sunlight or laser.
- Do not use the device under direct sunlight or aside a heat source.
- If the device gets condensed, turn off the power immediately and dry it in room temperature before using it again.
- Do not measure temperature out of the measurable range.

- The measuring accuracy and stability may be worsened when working close to electrical noise.
- Wait for a while before use if the ambient temperature fluctuates excessively, to prevent the accuracy from being affected.
- Do not leave the device in a place like an automobile on a fine summer day, or the extreme heat may damage it.
- Do not wash or wipe the device with alcohol, thinner, or other organic solvents. If the device becomes dirty, wipe it with a tightly-wrung towel that has been dipped in warm water with neutral detergent.
- For repair or calibration, or if the device is broken before use, contact us or a retailer from which you have purchased.

Names of Sections



- **Screen**



Battery sign	
	Full
	Less than 50%
	Runs out in 15 sec.

Battery Replacement

Follow below to install batteries before an initial use or when the battery sign blinks.

1. Slide down the battery lid to remove it.

2. Remove old batteries if exist. Insert new batteries paying attention to polarity.
3. Place back the battery lid. Check if the configuration of laser marker and emissivity is maintained.

Cautions Related to Batteries

- Replacement batteries must be new and of the same type.
- If battery fluid leaks out, wipe it away immediately without touching it directly.
- Do not heat, disassemble, short-circuit, or solder batteries. Do not dispose of batteries in a fire.
- For environmental conservation purposes, dispose of batteries in compliance with local rules and regulations.
- Keep batteries away from children. If they are swallowed accidentally, consult a doctor immediately.
- Remove batteries if not used for a long period, or it may lead to fluid leakage.
- When battery fluid is attached to clothing or skin, rinse it with clean water. If the fluid contacts with eyes, rinse it with water and consult a doctor immediately.

Measurement

1. Face the lens toward the object, then pull the trigger. The power and backlight turn on and a measured temperature is displayed on the screen.
2. Current and maximum temperatures keep updated while the trigger is pulled.
3. Releasing the trigger makes the indication frozen for 15 seconds with a sign of **HOLD** turned on. After then the maximum temperature is reset and the power automatically turns off.

Notices for Measurement

- The infrared ray emitted from this device does not penetrate glass. A surface temperature on the glass is measured instead in such a case.

- Also, because water vapor, air dust, and smoke absorb infrared energy, the device does not work properly in environments filled with them.
- Wait until the device gets accustomed to the ambient temperature when it changes rapidly.
- Continuous measurement of a hot object may heat the device and worsen the accuracy. Finish measuring quickly in such cases.
- Holding of the device in hand for a long time may also heat the device to impact the performance. Finish measuring as soon as possible.

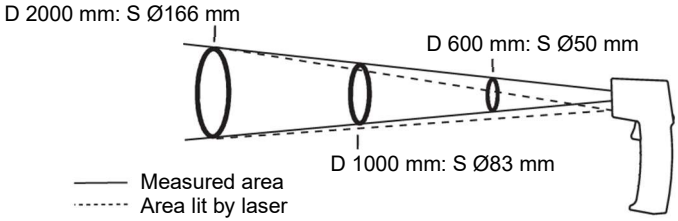
- If the ambient temperature is not between 20 and 26°C, take into account the temperature coefficient to evaluate the accuracy. Keeping the recommended ambient is preferable.

  For example, if the ambient is 5°C, measured value is 5°C:

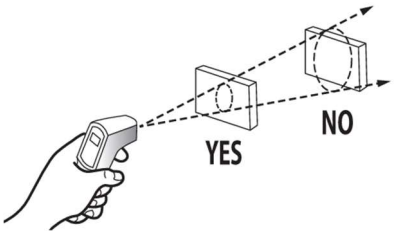
  1. Calculate the difference between the actual ambient and the bottom of the recommended ambient: 20°C − 5°C = 15°C.
  2. Multiply the temperature coefficient by the difference above: 15°C × 0.2°C/°C = 3°C
  3. Add the value above to the accuracy: ± 2.5°C + 3°C = ± 5.5°C

Measured Area

As for SK-8750, a D:S ratio, which is the ratio of the Distance between the object and the thermometer to a diameter of the Spot, is 12:1.



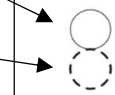
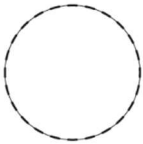
The spot circle is defined as an area to receive 90% of emitted energy from the object. A measured temperature is given as an average temperature of the area. Make sure that the measured area is smaller than the object, preferably less than 1/2 of the area of the object, to prevent from scanning outside the object.



Laser Marker

The laser marker helps find the measured area at a glance. To switch it on or off, press the set key while pulling the trigger. A laser sign is lit on the screen when the laser is enabled, then blinks during the measurement.

The laser circle and the actual measured area fully overlap when the measurement distance is 2000 mm. Note that the nearer to the object, the wider the discrepancy between the measured area and the laser circle becomes. The smallest available spot diameter is 18 mm.

Distance	200 mm	600 mm	1000 mm	2000 mm
Spot diameter	18 mm Minimum	50 mm	83 mm	166 mm
Measured area Laser circle				
Laser circle appears…	18 mm under measured area	14 mm under measured area	10 mm under measured area	To match measured area

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 set key while the hold sign is shown. A character of E and the emissivity coefficient is displayed beneath the current temperature.
2. Press the set key again to choose the emissivity from 0.95, 0.70, or 0.30 referring to the table next page.
3. Pull the trigger to confirm.

Emissivity Coefficient Table

Material	Standard E.	Set E. as
Bread, Confectionery, Vegetables, Meat, Fish, Grain, Sea water, Oil, Carbon, Paint	0.98	0.95
Ice	0.97	
Water, Rubber, Concrete, Soil	0.95	
Dried mortar	0.94	
Iron with heavy rust	0.93	
Paper	0.92	
Asbestos, Black glossy paper, Sand, Drywall	0.90	
Ceramics, Tiles, Copper oxide	0.80	0.70
Anodized aluminum	0.77	
Oxidized steel	0.74	
White paper, Fire bricks	0.68	
Oxidized brass	0.63	
Oxidized titanium	0.40	0.30
Lime	0.35	
Oxidized aluminum, Oxidized lead	0.30	
Galvanized iron	0.28	
Aluminum oxide powder	0.25	

Temperature is indicated lower than actual when the chosen emissivity is higher than the true emissivity of the object, and vice versa.

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 close to 0.95 on the object if the coefficient of the object is far from any of 0.95, 0.70, or 0.30.

Maintenance

Dust or dirt on the lens worsens the measurement accuracy. To prevent such, using an air blower is recommended first. If a stain still remains, remove the batteries for safety, then wipe the lens gently with a swab dipped in water or lens cleaner solution.

Do not put any detergent other than lens cleaner solution on the lens.

Troubleshooting

Issue	Possible cause	Solution
Error message “Hi”	Measured temperature is too high.	Use within the measuring range between −34 and 356°C.
Error message “Lo”	Measured temperature is too low.	
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.
Power does not turn on	Batteries have run out.	Replace batteries with new ones.
Laser marker does not work	Laser marker is disabled.	Enable the laser marker referring to **Laser Marker** in this manual.
Abnormal indication	Measured area is larger than the object.	Follow **Measured Area** in this manual.
	Emissivity is set wrongly.	Follow **Emissivity Coefficient** in this manual.
	Ambient temperature has changed.	Wait until the temperatures of the air and the device gets equal.
	Ambient temperature is not within 23°C±3°C.	Calculate the temperature coefficient according to **Notices for Measurement**.
	Dust or dirt is attached to the lens.	Clean the lens referring to **Maintenance**.

Contact us or a retailer from which you have purchased if the issue still remains after troubleshooting.

Warranty Policy

Our products are warranted to be free from defects for one year from the date of delivery. If repair becomes necessary within this period, return the products to us on freight prepaid basis. We shall repair without fees if the defect is not a result of misuse, force majeure, or transportation arranged not by us. Note that we alone determine the cause of the defect. Out-of-warranty products can be repaired for a fee if requested.
Before returning, request for our acknowledgement first.
For details, contact us or a retailer from which you have purchased.

Sato Keiryoki Mfg. Co., Ltd.
3-4, Kanda-kajicho, Chiyoda-ku, Tokyo 101-0045, Japan
https://www.sksato.co.jp/en/

Specifications

Product name	Infrared Thermometer with Circular Laser Marker Model SK-8750
Catalog no.	8270-00
Measuring range	−34 to +356°C
Resolution	0.2°C (−9.9 to +199.9°C, odd values are rounded up to the nearest even values) 1°C (other)
Accuracy	±2.5°C or ±2.5% reading, whichever is larger (≥ 0.0°C) ±(2.5°C +5% reading) (< 0.0°C) where ambient 23°C±3°C, emissivity 0.95
Temp. coefficient	±0.2°C/°C where ambient is not 23°C±3°C
Response time	90% response in approx. 1 second
Emissivity	Selectable from 0.95, 0.70, and 0.30
D:S ratio	Approx. 12:1 (D is distance, S is diameter of spot circle)
Sensor	Infrared thermopile array sensor
Spectral range	8 to 14 µm
Laser marker	Red circular laser Source wavelength: 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
Battery life	16 hours if alkaline batteries are used and the laser is on in continuous measurement, within the ambient 23°C Attached batteries are for test purpose and may last shorter.
Material	ABS resin, Silicone rubber
Dimensions	36 x 173 x 72 mm (W x H x D)
Weight	152 g including batteries
Accessories	AAA battery x2, Neck strap 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.