

**Non-contact Infrared
Thermometer
w/White LED
Flashlight
Model: SIL2**



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OPERATOR'S MANUAL

Symbols used:

Caution, refer to manual.

Ground

Double insulation

Alternating current

Direct current

SPECIFICATIONS

Display: 3½ digit liquid crystal display (LCD) with a maximum reading of 1999.
Polarity: Automatic, (-) polarity indication.
Overrange: "OL" mark indication.
Auto power off: approx. 10 minutes.
Operating environment: 32°F to 104°F at <70%RH.
Storage temperature: -4°F to 140°F, 0 to 80% R.H. with battery removed.

Description

The SIL2 thermometer is a 2-in-1 infrared thermometer and LED flashlight. The SIL2 is designed to be as portable as a pen. The flashlight has a separate battery so the thermometer will still work, even if the flashlight battery is dead. The infrared (IR) lens has a protective twist on/off cap for.

Twist off the cap and aim the thermometer at the target. Press the rubber IR button near the display to read the surface temperature. The temperature measured will be the average of all the temperatures in the field of view. The closer you are to the target, the smaller the area (greater accuracy). The further away, the larger the area measured.

Applications

The infrared temperature measurement is fast and easy. It works best for fast readings or temperature readings of hard to reach places. The following are some applications:

- "Shoot" an inside wall for quick and fast indoor ambient temperature reading.
- Motor bearings: high temperature can indicate bearings that might need replacement.
- Circuit breakers: a circuit breaker that is not operating properly can get hot. By scanning a panel, you will be able to find the hot one.
- Poor power line connections: a bad connection can get hot.

IR Temperature Measurement

When something is hot, it radiates infrared (IR) energy. The hotter it is, the more infrared energy. If there's enough of it, you can feel it. The SIL2 infrared thermometer collects infrared energy from a circular viewing area and measures the total amount of energy collected. The SIL2 converts the total energy measured to a temperature. Distance doesn't matter because the further you go from the target, the increase in area "seen" by the sensor exactly balances

Temperature coefficient: 0.1x(specified accuracy) per °F. (32°F to 64°F, 82°F to 104°F).

Altitude: 6561.7 feet (2000m)

Power: Two 1.5V button-type batteries (IEC # LR-44, EDA # 1166A).

Battery life: 70 hours continuous operation.

Measurement rate: 2 times per second, nominal.

Safety: UL61010B-1, UL61010B-2-031, EN61010-1, EN61010-2-031, CAT II 600V, CAT III 300V, Class 2, Pollution degree II, Indoor use, CE.

Resistance (autoranging)

Ranges: 200Ω, 2kΩ, 20kΩ, 2MΩ, 20MΩ

Resolution: 100mΩ

Accuracy:

- ±(2.0% rdg + 5 dgts) on 200Ω range
- ±(2.0% rdg + 4 dgts) on 2kΩ, 20kΩ, 200kΩ ranges
- ±(3.0% rdg + 4 dgts) on 2MΩ range
- ±(5.0% rdg + 5 dgts) on 20MΩ range

the loss of energy collected from a given area.

If you want to get the temperature of something small, such as a pipe, you must get close enough so the pipe takes up the whole viewing area circle. Otherwise the pipe and the background temperatures will be averaged into the reading.

The accuracy of many infrared temperature measuring systems is adversely affected by ambient temperature.

You need to be aware that if the target surface is reflective enough, it may reflect infrared from other objects. For example, if you take a reading of a shiny metal surface, the infrared energy of your face may reflect enough energy off the surface to affect the reading.

"Emissivity" of the target surface also affects the temperature reading. For a given temperature, the higher the emissivity, the higher the reading. The lower the emissivity, the lower the reading.

Emissivity of a surface indicates how easy it is for the infrared to get out. Emissivity for a dull, black surface is high (nearly 100%) so it's easy for the infrared to get out. Emissivity for a shiny surface can be much lower. If the emissivity is low, the measured temperature will be lower than actual. For relative readings of the same kind of surface, this isn't a problem. For some applications, it may be necessary to spray dull, black paint, or cover the object in masking tape to insure a more accurate reading.

For best accuracy use contact sensors (thermocouples, thermistors, etc.) anytime you take a temperature measurement. Use IR when you need quick readings or hard to reach targets.

WARNING

As with any flashlight, never look into direct-beam of light as eye damage may occur. Keep out of the reach of children.

Open circuit volts: -0.45VDC typical, (-1.2VDC on 200Ω range)

Overload protection: 450VDC or AC rms

Continuity

Audible indication: Less than 25Ω

Response time: 500ms

Overload protection: 450VDC or AC rms

Diode test

Audible indication: Less than .25V

Range: 2V

Resolution: 10mV

Accuracy: ±(3.0% rdg + 3 dgts)

Test current: 1.2mA

Overload protection: 450VDC or AC rms

DC volts (autoranging)

Ranges: 2V, 20V, 200V, 600V

Resolution: 1mV

Accuracy: ±(2.0% rdg + 2 dgt)

Input impedance: 10MΩ on 2V, 9.1MΩ all other

Overload protection: 600VDC or AC rms

AC volts 50/60Hz (autoranging)

Ranges: 2V, 20V, 200V, 600V

Resolution: 1mV

Accuracy: ±(4.0% rdg + 5 dgts)

Input impedance: 10MΩ on 2V, 9.1MΩ all other

Overload protection: 600V DC or AC rms