

# Fieldpiece

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



## 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 bal-

ances 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.

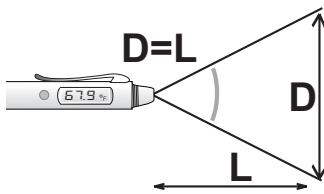
**⚠ WARNING ⚠**

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

## Operation

1. To use the flashlight, press the circular chrome button near the bottom of the SIL2. There is no auto-off for the flashlight so be sure to turn it off.
2. For IR measurement, twist off the protective metal cap at the top of the SIL2.
3. Point the exposed lens at the target and press the rubber button near the display to measure.
4. As long as the button is held down, the SIL2 will constantly update the measurement.

5. Once the button is released, the last measurement will be shown and held until the button is pressed again or until the SIL2 turns off.



## Field of View

The SIL2 has a circular field of view that is 1:1. The SIL2 reads all the IR temperatures in this circle of vision and displays the average. The diameter of this circle of surface temperatures measured is equal to the distance between the target surface and the tip of the SIL2. For example, if the IR lens of the SIL2 is 2 feet from your target, the size of the circle the SIL2 is measuring and giving you the average of is 2 feet wide.

## °F or °C

To switch between °F and °C press the pick hole on the opposite side of the display with a paperclip. The display indicates which scale it is using.

## Battery Replacement

**Thermometer:** When the battery icon flashes in the display, the thermometer battery is low and should be replaced. Twist off the thermometer portion of the SIL2 and replace the (2) 1.5V LR44 batteries.



FLASHLIGHT

THERMOMETER

**LED flashlight:** When the chrome button no longer activates the flashlight, the battery needs replaced. Twist off the flashlight portion of the SIL2 and replace the 1.5V AAA battery.

## Cleaning

Since the laser aperture and lens are delicate, keep protective cap on the SIL2 when not in use. These can be cleaned with a lens cloth. When the case gets dirty, clean with a damp cloth and mild detergent. Do not use abrasives or solvents.

## Specifications

- Temperature range:** -27°F to 230°F
- Resolution:** 0.5°F
- Response time:** 1 second
- Emissivity:** Fixed 0.95
- Battery:** LR-44 x 2 (thermometer), AAA x 1 (LED)
- Operating temperature:** 32°F to 122°F
- Storage temperature:** -4°F to 149°F
- Accuracy:** ±1.5°F (32°F to 120°F), ±5°F or ±2.5%rdg (-27°F to 32°F, 122°F to 230°F), whichever is greater
- Field of view:** 1:1 (distance:diameter)
- Display:** 199.9 count LCD
- Auto-off:** Approx. 15 seconds
- Accessories:** Protective IR lens cover, batteries (installed), and operator's manual.

## Warranty

The product is warranted to the original purchaser against defects in material or workmanship for a period of one (1) year from the date of purchase. During the warranty period, Fieldpiece Instruments will, at its option, replace or repair the defective unit.

This warranty does not apply to defects resulting from abuse, neglect, accident, unauthorized repair, alteration, or unreasonable use of the instrument.

Any implied warranty arising out of the sale of Fieldpiece's products including but not limited to implied warranties of merchantability, and fitness for purpose, are limited to the above. Fieldpiece shall not be liable for incidental or consequential damages.

## Service

Any defective SIL2 should be returned to Fieldpiece Instruments for warranty service along with proof of purchase. Call Fieldpiece for a return material authorization (RMA). For out of warranty service, send the SIL2 along with a check or money order for \$20.00 to Fieldpiece. Your SIL2 will be repaired or replaced at Fieldpiece's discretion.



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