

# Accurately Measure Surface Temperature



- Model SI-111 FOV = 22.0°
- Model SI-121 FOV = 18.0°
- Model SI-131 FOV = 14.0°
- Model SI-1H1 FOV = Horizontal 32.0°  
Vertical 13.0°

The SI-100 series sensors measure the temperatures of road surfaces, plant canopies, and soil, snow and water surfaces.

- Measures surface temperature rapidly
- Calibrated target temperature range from -30 to 65°C
- Uncertainty of 0.2°C (95% confidence)
- 8-14 μm germanium atmospheric window (see Figure 1)

- Radiation shield included
- Multiple field of view (FOV) options
- Rugged and lightweight

Field of View (FOV) is reported as the half-angle of the apex of the cone formed by the target (cone base) and the detector (cone apex). The target is a circle from which 98% of the radiation being viewed by the detector is being emitted.

### Atmospheric Transmission

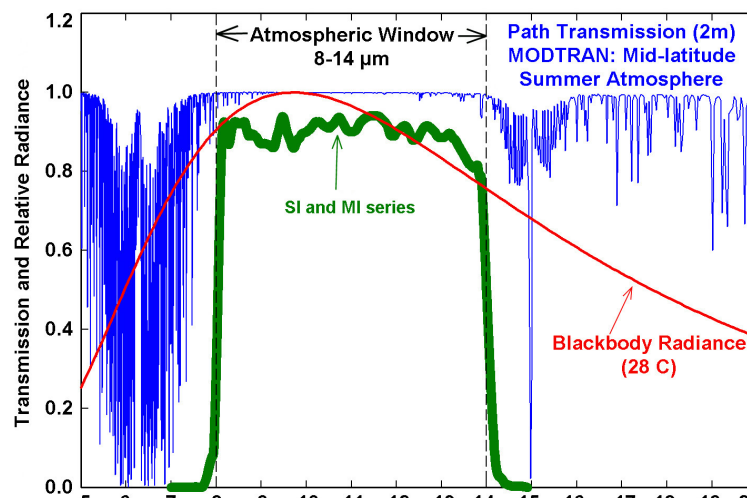


Figure 1:

The 8-14 μm window of the SI models corresponds to the atmospheric window. This minimizes the effects of water bands below 8 μm and above 14 μm.

# Specifications

## Field of View

- SI-111: 22° half angle
- SI-121: 18° half angle
- SI-131: 14° half angle
- SI-1H1: Horizontal 32°  
Vertical 13°

## Wavelength Range

- 8 - 14  $\mu\text{m}$  (corresponds to atmospheric window)

## Response Time

- < 1 second to changes in target temperature

## Warranty

- 1 year against defects in materials and workmanship

## Accuracy -10 to 65 C

Where target temp within 20 C from sensor body temp

- $\pm 0.2$  C (SI-111, SI-121, SI-1H1)
- $\pm 0.3$  C (SI-131)
- $\pm 0.1$  C uniformity
- $\pm 0.05$  C repeatability

## Accuracy -40 to 70 C

Where target temp greater than 20 C from sensor body temp

- $\pm 0.5$  C (SI-111, SI-121, SI-1H1)
- $\pm 0.6$  C (SI-131)
- $\pm 0.3$  C uniformity
- $\pm 0.1$  C repeatability

## Output Target Temp

- SI-111: 60  $\mu\text{V}$  per C difference from sensor body
- SI-121: 40  $\mu\text{V}$  per C difference from sensor body
- SI-131: 20  $\mu\text{V}$  per C difference from sensor body

## Cable

- 5 meters twisted-pair 4-conductor wire
- Foil shield
- Santoprene jacket
- Ending in pigtail leads
- Additional cable is available in multiples of 5 meters

## Output Sensor Body Temp

- 0 - 2500 mV

## Mass

- 190 g

## Input Power

- 2.5 V excitation

## Datalogger Channels

- 1 differential (detector)
- 1 single-ended (thermistor)

## Optics

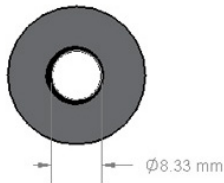
- Germanium lens

## Operating Environment

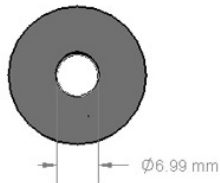
- -55 to 80 C
- 0 to 100% non-condensing relative humidity
- Water resistant
- Designed for continuous outdoor use

# Measurements

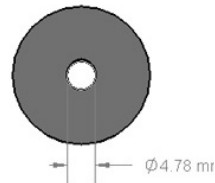
SI-111



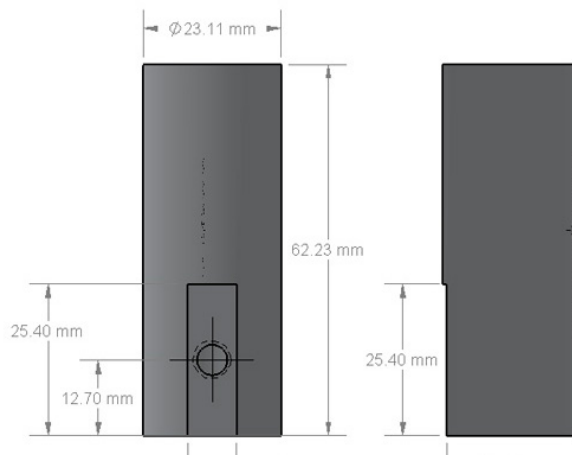
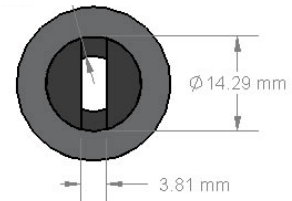
SI-121



SI-131



SI-1H1



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