

Precision Infrared Thermocouple Sensor

Model IRTS-P

The IRTS-P is a precision, infrared thermocouple sensor manufactured by Apogee Instruments to make continuous measurements in field conditions. It is a unique, self-powered sensor that measures emitted radiation and outputs the surface temperatures as a type-K thermocouple signal. The detector is custom built for Apogee by Exergen Corporation and is modified to improve measurement accuracy with our dataloggers. An aluminum body stabilizes the reference temperature, and sensor body temperature is output as a second thermocouple signal.

Accuracy is further enhanced by the precision thermocouple measurements made by our dataloggers. Each sensor is supplied with a 12-instruction datalogger program that adjusts for the effect of sensor body temperature on the target temperature.



The IRTS-P's silicon lens (far left) provides a 3:1 field of view. The 1/4"-20 threaded hole (left) and a 15-foot cable are included for mounting the IRTS-P. The IRTS-P can mount directly to a camera tripod or to a UT20 or UT30 tower via a 14475 bracket and UT018 Tower Mounting Bracket.

Ordering Information

- IRTS-P Precision Infrared Thermocouple with 15-foot cable
- CM230 Adjustable Angle Mounting Kit allows the sensor to be mounted perpendicular to the ground when the ground surface is on an incline.
- 14475 IRTS-P Mounting Kit for attaching sensor to a UT20 or UT30 tower via a UT018 Tower Mounting Bracket



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Specifications

Power Supply Requirements:	none, self-powered
Accuracy:	$\pm 0.2^{\circ}\text{C}$ from 15° to 35°C $\pm 0.3^{\circ}\text{C}$ from 5° to 45°C $\pm 0.1^{\circ}\text{C}$ when sensor body and target are at the same temperature
Repeatability:	0.05°C from 15° to 35°C
Response Time:	<1 s to changes in target temperature
Target Temperature Output Signal:	type-K thermocouple
Body Temperature Output Signal:	type-K thermocouple
Optics:	Silicon lens
Wavelength Range:	6 to $14\ \mu\text{m}$
Field of View:	3:1 (At 3 m from sensor, the FOV is a 1 m diameter circle, as calculated from the geometry of the sensor and lens. Under typical conditions, 80 to 90 percent of the IR signal is from the field of view and 10 to 20 percent is from the area surrounding the field of view.)
Weight:	<3.5 oz. (100 g)
Dimensions:	0.9" (2.3 cm) diameter, 2.4" (6 cm) length
Field of View:	25° half angle, 50° full angle for 90% of target. Also referred to as 3:1 field of view (at 3 m from sensor the FOV is a 1 m diameter circle)
Operating Temperature:	0° to 50°C



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