



SR20-D2

Digital Class A Pyranometer



Overview

The SR20-D2, manufactured by Hukseflux Thermal Sensors, is an ISO 9060:2018 spectrally flat Class A (secondary standard) digital pyranometer that measures solar short-wave radiation in a full hemisphere of the sky. It connects directly to a Campbell Scientific data logger and is designed for Modbus

RTU applications that require high measurement accuracy in demanding applications such as scientific meteorological observation networks and utility scale solar-energy-power production sites.

Benefits and Features

- › Low temperature dependence
- › Onboard digital temperature sensor
- › Ultra robust connector, desiccant holder, and sun screen
- › Temperature dependence characterized and supplied for each instrument
- › Directional response tested on each instrument
- › Digital output (Modbus RTU)

Specifications

Sensor	High-quality blackened thermopile protected by two glass domes	(response to 200 W/m ² net thermal radiation)
Measurement Description	Monitors solar radiation for the full solar spectrum range	Zero Offset B
ISO Classification	Spectrally flat Class A (secondary standard) pyranometer (ISO 9060:2018)	$\leq \pm 2 \text{ W/m}^2$ (response to 5 K/h change in ambient temperature)
WMO Performance Level	High-quality pyranometer	Non-Stability
Response Time	4.5 s	$\leq \pm 0.5\%$ change per year
Zero Offset A	5 W/m ² (unventilated), 2.5 W/m ² (ventilated)	Non-Linearity
		$\leq \pm 0.2\%$ (100 to 1000 W/m ²)
		Directional Response
		$< \pm 10 \text{ W/m}^2$
		Spectral Selectivity
		$< \pm 3\%$ (0.35 to $1.5 \times 10^{-6} \text{ m}$)
		Temperature Response
		$< \pm 0.4\%$ (-30° to +50°C)



Tilt Response	< ± 0.2% (0 to 90° at 1000 W/m ²)
Heater	No heater available
Steady-state Zero Offset	» < ± 0.8 W/m ² (-40° to +80°C) » < ± 0.5 W/m ² (at +20°C)
Calibration Uncertainty	< 1.2% (k=2)
Level Accuracy	< 0.1° (bubble entirely in ring)
Operating Temperature Range	-40° to +80°C

Field of View (FOV)	180°
Measurement Range	-400 to 4000 W/m ²
Spectral Range	285 to 3000 x 10 ⁻⁹ m (20% transmission points)
Sensitivity	Digital output
Output Definition	Running average over 4 measurements (refreshed every 0.1 s)

