SILICON-CELL PYRANOMETERS

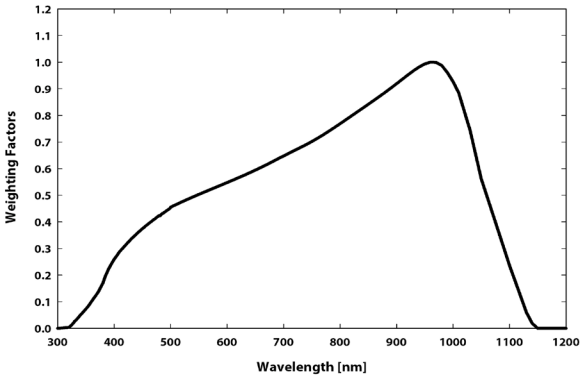
SP-100, SP-200, & SP-400 Series

Accurate and stable global shortwave (solar) radiation measurement

Output Options

- 0 to 350 mV
- 0 to 5 V
- USB
- Modbus
- 0 to 2.5 V
- 4 to 20 mA
- SDI-12
- Hand-held meter

Spectral Response



Spectral response estimate of **Apogee silicon-cell pyranometers.**

Product Specifications

	SP-110-SS	SP-212-SS	SP-214-SS	SP-215-SS	SP-230-SS	SP-420	SP-421-SS	SP-422-SS
ISO 9060:2018	Class C (fast response)							
Power Supply	Self-powered	5 to 24 V DC	7 to 24 V DC	5.5 to 24 V DC	12 V DC for heater	5 V USB	5.5 T0 24 V DC	
Current Draw	–	300 µA	22 mA maximum, 2 mA quiescent	300 µA	15.4 mA	61 mA when logging	1.5 mA (quiescent); 1.9 mA (active)	RS-232 37 mA; RS-485 quiescent 37 mA, active 42 mA
Output (sensitivity)	0.2 mV per W m^{-2}	1.25 mV per W m^{-2}	0.008 mA per W m^{-2}	2.5 mV per W m^{-2}	0.2 mV per W m^{-2}	USB	SDI-12	Modbus
Calibration Factor (reciprocal of output)	5 W m^{-2} per mV	0.8 W m^{-2} per mV	125 W m^{-2} per mA, 4 mA offset	0.4 W m^{-2} per mV	5 W m^{-2} per mV	Custom for each sensor and stored in firmware		
Calibration Uncertainty at 1000 W m^{-2}	Less than 3 %							
Measurement Repeatability	Less than 1 %							
Long-term Drift	Less than 2 % per year							
Non-linearity	Less than 1 % up to 2000 W m^{-2}							
Response Time	Less than 1 ms					Updates every second	Less than 0.6 s	Less than 200 ms
Field of View	180°							
Spectral Range	360 to 1120 nm							
Directional (Cosine) Response	± 5 % at 75° zenith angle							
Temperature Response	0.04 ± 0.04 % per C							
Operating Environment	-40 to 70 C; 0 to 100 % relative humidity; can be submerged in water up to 30 m							
Dimensions	24 mm d; 33 mm h	30.5 mm diameter, 37 mm height				24 mm d; 33 mm h	30.5 mm diameter, 37 mm height	
Mass (with 5 m of cable)	90 g	140 g			90 g			
Cable	5 m of shielded, twisted-pair wire; TPR jacket (high water resistance, high UV stability, flexibility in cold conditions); pigtail lead wires							
Warranty	4 years against defects in materials and workmanship							