



### **Applications**

Solar Monitoring for PV  
Weather Services  
Hydrological Networks  
Agriculture

## **Pyranometer**

For reliable Class B measurement of solar irradiance

**ISO 9060 Spectrally Flat Class B**

**Extremely robust construction**

**Active temperature correction**

**Analog and digital outputs**

**5 years warranty**

### **ISO 9060 & IEC 61724 Class B**

Fully compliant with ISO 9060:2018 spectrally flat Class B specifications, the CMP6 and SMP6 deliver excellent spectral absorption and long-term stability characteristics. Compared to the CMP3 & SMP3 models, these instruments provide improved performance due to the increased thermal mass and the double glass dome construction.

### **Minimized maintenance**

The CMP6 and SMP6 are robust pyranometers that have been designed to provide high quality measurements with little maintenance needs. The CMP6 has an easy-to-remove drying cartridge filled with easy-to-replace desiccant that is supplied in convenient refill packets. In contrast, the SMP6 is fitted with a maintenance-free internal desiccant that lasts at least 10 years.

### **Analog or digital outputs**

The CMP6 does not require any power. Incoming solar radiation generates a continuous millivolt output, which is converted in a data logger to irradiance in  $W/m^2$  using the calibrated sensitivity. For easy integration into SCADA systems the SMP6 has Modbus® RTU RS-485 serial communication, plus an amplified analog output. The sensitivity is stored inside for standardized outputs and it features improved response time and digital temperature compensation.

### **5 years warranty**

All pyranometers from Kipp & Zonen come with a 5-year warranty and we have service and calibration centers around the world.

# Technical Specifications

	<b>CMP6</b>	<b>SMP6</b>
Classification to ISO 9060:2018	Spectrally Flat Class B	Spectrally Flat Class B
Sensitivity	5 to 20 $\mu\text{V}/\text{W}/\text{m}^2$	-
Impedance	20 to 200 $\Omega$	-
Expected output range (0 to 1500 $\text{W}/\text{m}^2$ )	0 to 30 mV	-
Maximum operational irradiance	2000 $\text{W}/\text{m}^2$	2000 $\text{W}/\text{m}^2$
Analogue output • V-version	-	0 to 1 V
Analogue output range • V-version*	-	-200 to 2000 $\text{W}/\text{m}^2$
Analogue output • A-version	-	4 to 20 mA
Analogue output range • A-version*	-	0 to 1600 $\text{W}/\text{m}^2$
Serial output	-	RS-485 Modbus® RTU
Serial output range	-	-400 to 2000 $\text{W}/\text{m}^2$
Response time (63 %)	< 6 s	< 1.5 s
Response time (95 %)	< 12 s	< 12 s
Spectral range (20 % points)	270 to 3000 nm	270 to 3000 nm
Spectral range (50 % points)	285 to 2800 nm	285 to 2800 nm
Zero offsets (unventilated)		
(a) thermal radiation (at 200 $\text{W}/\text{m}^2$ )	< $\pm 8 \text{ W}/\text{m}^2$	< $\pm 8 \text{ W}/\text{m}^2$
(b) temperature change (5 K/h)	< $\pm 2 \text{ W}/\text{m}^2$	< $\pm 2 \text{ W}/\text{m}^2$
(c) total zero offset	< $\pm 10 \text{ W}/\text{m}^2$	< $\pm 10 \text{ W}/\text{m}^2$
Non-stability (change/year)	< $\pm 1\%$	< $\pm 1\%$
Non-linearity (100 to 1000 $\text{W}/\text{m}^2$ )	< $\pm 1\%$	< $\pm 1\%$
Directional response (up to 80° with 1000 $\text{W}/\text{m}^2$ beam)	< $\pm 20 \text{ W}/\text{m}^2$	< $\pm 15 \text{ W}/\text{m}^2$
Spectral selectivity (350 to 1500 nm)	< $\pm 3\%$	< $\pm 3\%$
Tilt response (0° to 180° at 1000 $\text{W}/\text{m}^2$ )	< $\pm 1\%$	< $\pm 1\%$
Temperature response	< $\pm 2\%$ (-10 to +40°C)	< $\pm 2\%$ (-10 to +40°C) < $\pm 4\%$ (-40 to +70°C)
Field of view	180°	180°
Accuracy of bubble level	$\pm 0.1^\circ$	$\pm 0.1^\circ$
Power consumption (at 12 VDC)	-	V-version: 55 mW A-version: 100 mW
Supply voltage	-	5 to 30 VDC
Software, Windows™	-	SmartExplorer Software, for configuration, test and data logging
Detector type	Thermopile	Thermopile
Operating temperature range	-40 °C to +80 °C	-40 °C to +70 °C
Storage temperature range	-40 °C to +80 °C	-40 °C to +80 °C
Humidity range	0 to 100%	0 to 100%
MTBF (Mean Time Between Failures)	> 10 years	> 10 years
Ingress Protection (IP) rating	IP67	IP67
Recommended applications	Good quality measurements for hydrology networks, greenhouse climate control	Good quality measurements for hydrology networks, greenhouse climate control
Dimensions	<b>CMP6</b>	<b>SMP6</b>
Diameter x height	150 x 92.5 mm	150 x 92.5 mm
Diffusor height	68 mm	68 mm
Cable length	10, 25, or 50 m	10, 25, or 50 m

\* adjustable with SmartExplorer Software | Note: The performance specifications quoted are worst-case and/or maximum values