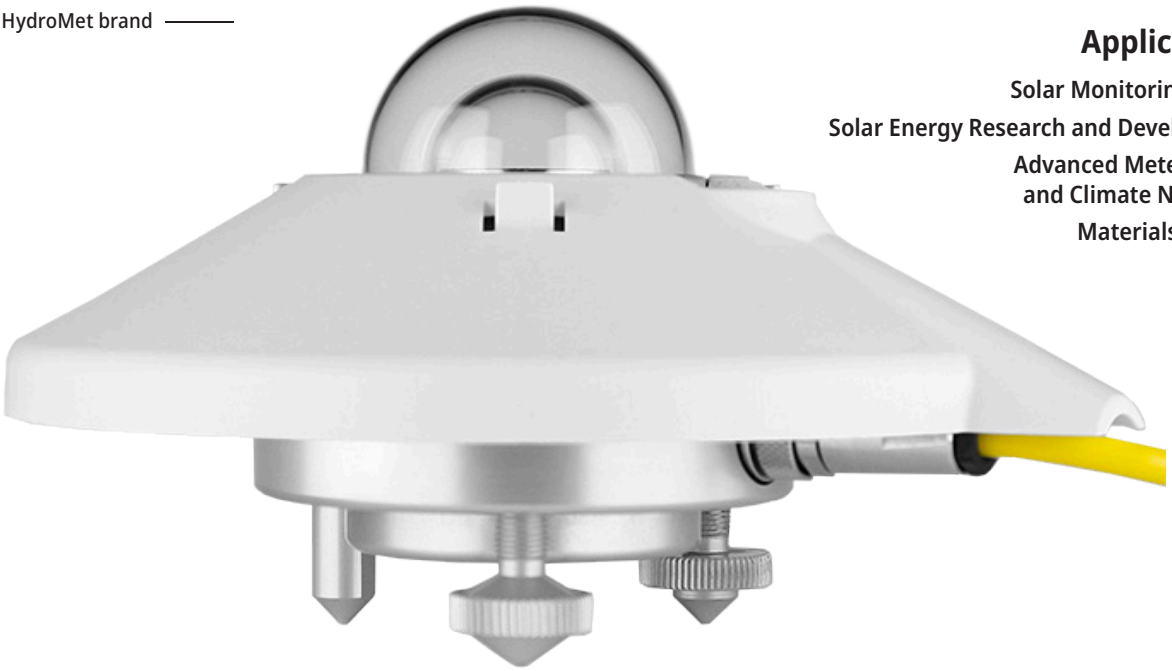
KIPP & ZONEN
an OTT HydroMet brand

CMP10 | SMP10



Applications

Solar Monitoring for PV
Solar Energy Research and Development
Advanced Meteorology and Climate Networks
Materials Testing

Pyranometer

The best-selling Kipp & Zonen Class A pyranometer

ISO 9060 Spectrally Flat Class A
Best price/performance ratio
Internal desiccant to minimize maintenance
Analog and digital outputs
5 years warranty

ISO 9060 & IEC 61724 Class A

Fully compliant with ISO 9060:2018 spectrally flat Class A specifications, the CMP10 and SMP10 come with the best price/performance ratio. Each instrument is supplied with its own temperature and directional (cosine) response data. Compared to Class C and Class B instruments, the CMP10 and SMP10 have a better linearity and long-term stability while providing lower thermal offsets.

Minimized maintenance

The CMP10 and SMP10 are robust pyranometers that have been designed to provide high quality measurements with little maintenance needs. Both are fitted with a maintenance-free internal desiccant that lasts at least 10 years.

Analog or digital outputs

The CMP10 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 SMP10 has Modbus® RTU RS-485 serial communication, plus an amplified analog output. A specific, individual polynomial correction function is stored in each SMP10.

5 years warranty

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

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Technical Specifications

	CMP10	SMP10
Classification to ISO 9060:2018	Spectrally Flat Class A	Spectrally Flat Class A
Sensitivity	7 to 14 µV/W/m²	-
Impedance	10 to 100 Ω	-
Expected output range (0 to 1500 W/m²)	0 to 21 mV	-
Maximum operational irradiance	4000 W/m²	4000 W/m²
Analogue output • V-version	-	0 to 1 V
Analogue output range • V-version*	-	-200 to 2000 W/m²
Analogue output • A-version	-	4 to 20 mA
Analogue output range • A-version*	-	0 to 1600 W/m²
Serial output	-	RS-485 Modbus® RTU
Serial output range	-	-400 to 4000 W/m²
Response time (63 %)	< 1.66 s	< 0.7 s
Response time (95 %)	< 5 s	< 2 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 W/m²)	< ±7 W/m²	< ±7 W/m²
(b) temperature change (5 K/h)	< ±2 W/m²	< ±2 W/m²
(c) total zero offset	< ±9 W/m²	< ±9 W/m²
Non-stability (change/year)	< ±0.5%	< ±0,5%
Non-linearity (100 to 1000 W/m²)	< ±0.2%	< ±0.2%
Directional response (up to 80° with 1000 W/m² beam)	< ±10 W/m²	< ±10 W/m²
Spectral selectivity (350 to 1500 nm)	< ±3%	< ±3%
Tilt response (0° to 180° at 1000 W/m²)	< ±0.2%	< ±0.2%
Temperature response	< ±1% (-10 to +40°C)	< ±1% (-10 to +40°C) < ±2% (-40 to +70°C)
Field of view	180°	180°
Accuracy of bubble level	±0.1°	±0.1°
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	PV plants, meteorological networks, PV panel and thermal collector testing, materials testing	High performance for PV plants, PV panel and thermal collector testing, solar energy research, solar prospecting, advanced meteorology and climate networks

Dimensions	CMP10	SMP10
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*

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