KIPP & ZONEN
an OTT HydroMet brand

SMP12

Solar Monitoring for PV
Weather Services and Research Climatology

Fast Response Spectrally Flat Class A Pyranometer

For accurate all-weather solar irradiance measurement

Reports solar irradiance, internal humidity and temperature, tilt angle
ISO 9060:2018 and IEC 61724-1:2021 Class A compliant
Dome heating to prevent dew and frost
Best-in-class surge protection conforms to EN 61000-6-2 Industrial standard
Maintenance-free operation – no moving parts that can wear out
Easy system integration – RS-485 and Modbus® RTU compatible

Fully Class A compliant

The SMP12 is fully ISO 9060:2018 and IEC 61724:2021 compliant with built-in dome heating to prevent dew and frost. Built on strong foundations of SMP10 to achieve reliable all-weather performance.

Very low Zero offset A

The new micro-thermopile, diffuser and filter combine to give a spectrally flat response with extremely low zero offsets; improving the accuracy of the measurements even further.

Remote tilt angle monitoring

Long-term correct POA tilt angle is crucial for reliable and accurate measurements. The SMP12 offers ±0.5° tilt angle measurement accuracy with long-term stability without recalibration.

Easy system integration

Industry standard RS-485 connectivity and the Modbus® RTU protocol make it easy to integrate the SMP12 with data loggers and SCADA systems.

Dome heating for untouchable precision

Integrated dome heating with no moving parts maintains a slightly higher temperature than the surrounding air, mitigating the effects of morning dew and frost on the accuracy of your measurements.

Best-in-class surge protection

To protect the instrument in installations with poor grounding, less reliable power sources, or more lightning the SMP12 offers surge protection that conforms to EN 61000-6-2 Industrial standard for Measurement, Control and Laboratory Use. This greatly reduces the risk of failure and the need for expensive onsite replacements.

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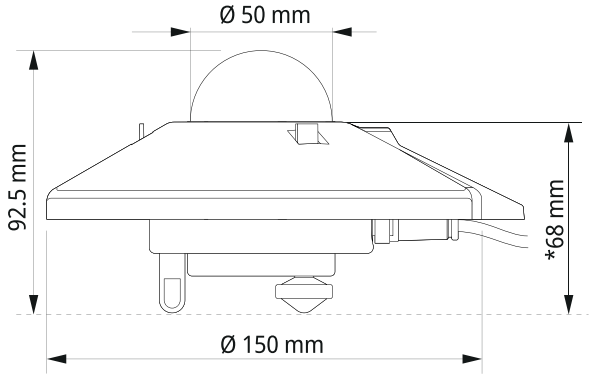
Technical Specifications

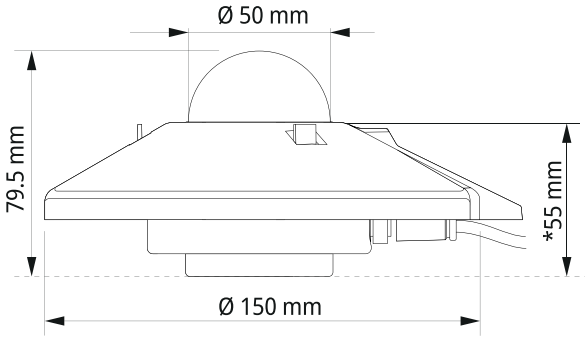
	SMP12
ISO 9060:2018	Fast Response Spectrally Flat Class A
IEC 61724-1:2021	Class A monitoring
Spectral range (20% points)	280 to 3000 nm
Spectral range (50% points)	285 to 2750 nm
Spectral error clear sky GHI	< ±0.1%
Spectral selectivity 350 to 1500 nm	< ±3%
Response time (63%)	< 0.15 s
Response time (95%)	< 0.5 s
Zero offset A	< ±1 W/m²
Zero offset B	< ±1.5 W/m²
Total zero off-set including A&B	< ±3 W/m²
Non-stability (change/ 5-years)	< ±0.5%
Non-linearity (100 to 1000 W/m²)	< ±0.2%
Directional response (up to 80° with 1000 W/m² beam)	< ±10 W/m²
Temperature response (-10 °C to +40 °C)	< ±1%
Temperature response (-40 °C to +70 °C)	< ±2%
Operating humidity range	0 to 100%
Accuracy of bubble level	< ±0.1°
Tilt response due to change in tilt from 0° to 180° at 1000 W/m² irradiance	< ±0.1%
Operating temperature range	-40 °C to +70 °C
Storage temperature range	-40 °C to +80 °C
Digital tilt measurement	
Tilt range	0° to 360°
Tilt accuracy	<±0.5°
Pitch range	-180° to 180°
Roll range	-180° to 180°
Internal humidity measurement	
Range	0 to 100% RH
Accuracy	<±3%
Resolution	1%
Communication	Modbus® RTU over 2-wire RS-485
Power supply	10 to 30 VDC
Power consumption	Maximum 3.5 W
Inrush current	1.5 A for 10 µs
Surge protection class	EN 61000-6-2 Industrial standard for measurement, control and laboratory use
Ingress Protection (IP) Rating	67
Calibration Interval	5-years*
Weight	500 g

** Recalibration should be performed at least once every 5-years after the installation date to ensure the instrument remains within its specified performance parameters. To comply with IEC61724-1 Class A system requirements, re-calibration is required every 2 years after the date of installation.*

Dimensions



With feet



Without feet

* = Sensor height

OTT HydroMet B.V. | solar-info@otthydromet.com | www.otthydromet.com | www.kippzonen.com

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