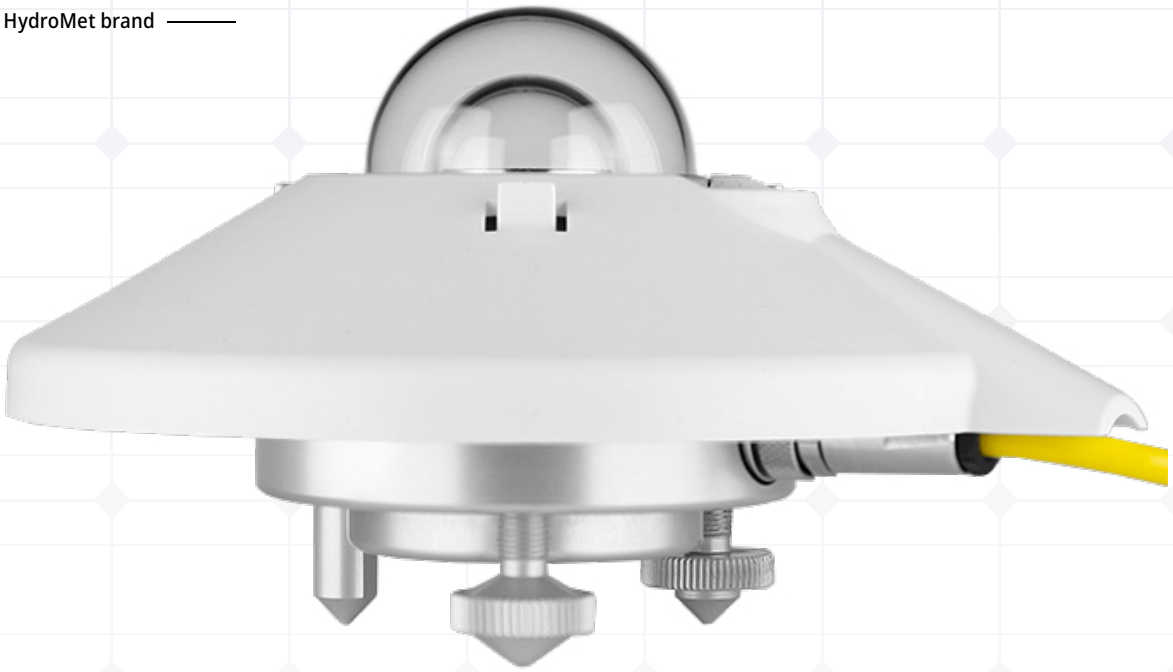
KIPP & ZONEN
an OTT HydroMet brand

SMP10x | SMP22x



# The SMP10x and SMP22x Pyranometers

## Irradiance accuracy and stability you can trust

- Spectrally flat ISO 9060:2018 Class A performance
- Internal desiccant and monitoring technology
- 5-year sensor stability rating
- Modbus output

### 1 ISO 9060 & IEC 61724 Compliance

The SMP10x and SMP22x have been enhanced to allow for a new build focused on optimized measurement precision and product durability. Both models remain ISO 9060:2018 and IEC 61724-1:2021Class A compliant, with the SMP10x delivering the stable irradiance measurements trusted globally and the SMP22x remaining the most accurate pyranometer available on the market.

### 2 5-Year Sensor Stability

The SMP10x and SMP22x pyranometers are built for long-term accuracy and reliability. Both combine internal desiccant lasting up to 10-year lifespan with integrated internal climate monitoring for desiccant status. This gives you confidence in your instrument's long-term stability and measurement accuracy.

### 3 Reliable Performance in Any Environment

All pyranometers experience gradual performance changes over time, typically due to prolonged UV exposure and the slow ingress of moisture due to thermal breathing. The SMP10x and SMP22x, featuring Kipp & Zonen's durable black coating and a 10-year desiccant system, are engineered for long-term stability. This ensures sustained accuracy and reliability, even in challenging environments.

### 4 Calibration and Service Warranty

Kipp & Zonen pyranometers automatically come with a 5-year performance warranty. When you purchase Kipp & Zonen pyranometers you also get access to custom support from our service technicians and can send your sensors to our accredited and global calibration labs that follow IEC and ISO standards.

# Technical Specifications

Instrument Accuracy

| | SMP10x | SMP22x |
|---|---|---|
| Classification to ISO 9060:2018 | Spectrally Flat Class A | Spectrally Flat Class A |
| Maximum operational irradiance | 4000 W/m² | 4000 W/m² |
| Serial output | RS-485 Modbus® | RS-485 Modbus® |
| Serial output range | -400 to 2000W/m | -400 to 2000W/m |
| Response time (63 %) | < 0.7 s | < 0.7 s |
| Response time (95 %) | < 2 s | < 2 s |
| Spectral range (20 % points) | 270 to 3000 nm | 210 to 3600 nm |
| Spectral range (50 % points) | 285 to 2800 nm | 250 to 3500 nm |
| Zero offsets (unventilated) | - | - |
| (a) thermal radiation (at 200 W/m²) | < ±7 W/m² | < ±5W/m² |
| (b) temperature change (5 K/h) | < ±2 W/m² | < ±1 W/m² |
| (c) total zero offset | < ±9 W/m² | < ±7 W/m² |
| Non-stability (change/5-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 | <± 5 W/m² |
| Clear sky GHI spectral error | <± 0.1 % | <± 0.05 % |
| Spectral selectivity (350 to 1500 nm) | <± 3 % | <± 3 % |
| Tilt response (0° to 180° at 1000 W/m²) | <± 0.2 % | <± 0.2 % |
| Temperature response: | | |
| a. -20 to +50 | < ±0.5 % | < ±0.3 % |
| b. -40 to +70 | < ±1.0 % | < ±0.3 % |
| Field of view | 180° | 180° |
| Accuracy of bubble level | < 0.1 | < 0.1 |
| Power consumption (at 12 VDC) | 60 mW | 60 mW |
| Supply voltage | 5 to 30 VDC | 5 to 30 VDC |
| Software, Windows™ | SmartExplorer Software for configuration, test, and data logging | SmartExplorer Software for configuration, test, and data logging |
| Detector type | Thermopile | Thermopile |
| Operating temperature range | -40 °C to +80 °C | -40 °C to +80 °C |
| Storage temperature range | -40 °C to +80 °C | -40 °C to +80 °C |
| Internal relative humidity range | 0 to 100% | 0 to 100% |
| Internal relative humidity accuracy | ± 5 % | ± 5 % |
| Internal temperature accuracy | ± 0.5 °C | ± 0.5 °C |
| Internal temperature stability (change/year) | ± 0.2 °C | ± 0.2 °C |
| Internal desiccant monitoring | yes | yes |
| Desiccant lifespan | > 10 years | > 10 years |
| MTBF (Mean Time Between Failures) | > 10 years | > 10 years |
| Ingress Protection (IP) rating | IP67 | IP67 |
| Recommended applications | High performance for PV plants, meteorological and climate networks, solar research and prospecting, PV panel and thermal collector testing, materials testing | |

| Dimensions | SMP10x | SMP22x |
|---|---|---|
| Diameter x height | 150 x 92.5 mm | 150 x 92.5 mm |
| Diffusor height | 68 mm | 68 mm |
| Cable length | 10, 25, 50, or 100 m | 10, 25, 50, or 100 m |

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