KIPP & ZONEN
SINCE 1830



CM 4 · High Temperature Pyranometer

FOR IRRADIANCE MEASUREMENTS AT HIGH TEMPERATURES

Heat resistant instrument design
Extended operating temperature range
Excellent temperature dependency
Built-in Pt-100 temperature sensor
High irradiance measurement capacity

Introduction

Environmental exposure affects products and materials. Testing these effects is done at outdoor weathering facilities or in special climate chambers. In these facilities solar radiation and environment are simulated to create the most extreme conditions and for accelerated ageing and heat load tests. These industrial tests require measuring devices to check or verify the light intensity (irradiance) at various positions within the test environment. The CM 4 high temperature pyranometer is specially designed for measuring solar or artificial light irradiance under the most extreme temperature conditions.

Kipp & Zonen has been manufacturing pyranometers for over 75 years. We produce models at all price and performance points, up to the very best available. All comply with the requirements of ISO 9060:1990 and are fully traceable to the World Radiometric Reference (WRR) in Davos, Switzerland, where Kipp & Zonen instruments form part of the World Standard Group.

CM 4 High Temperature Pyranometer

With an operating temperature range from -40 °C to +150 °C and measurement up to 4000 W/m² the CM 4 is a unique instrument. All the radiometer components are specially selected for their ability to withstand these extremely high temperature and irradiance levels.

CM 4 has internal first-order temperature compensation, but it is also supplied with a built in Pt-100 temperature sensor to provide additional information on the measurement conditions.

CM 4 is supplied with a calibration table that gives the instrument sensitivity for a number of measurement temperature ranges and the maximum error in the measured irradiance values within each range. Monitoring the temperature sensor during operations allows easy data correction afterwards for improved measurement.

Specifications

ISO 9060:1990 CLASSIFICATION	Second Class
Spectral range (50 % points)	300 - 2800 nm
Sensitivity (nominal)	4 - 10 µV/W/m²
Response time (95%)	< 8 s
Non-stability (change/year)	< 1 %
Non-linearity (0 to 2500 W/m²)	< 3 %
Temperature dependence of sensitivity (over any 50 °C interval in the range from -20 °C to +150 °C)	< 3 %
Directional error (up to 80 ° with 1000 W/m² beam)	< 20 W/m²
Impedance	200 - 2000 Ω
Field of view	180 °
Operating temperature	-40 °C to +150 °C
Relative humidity	0 - 100 % RH
Zero offsets (a) thermal radiation (200 W/m²) (b) temperature change (5 K/h)	 < 15 W/m² < 4 W/m²
Tilt error	< 1 %
Maximum irradiance	4000 W/m²
Weight	250 g
Shock / vibration	ICE721-3-2-2m2
Cable length	10 m (captive)

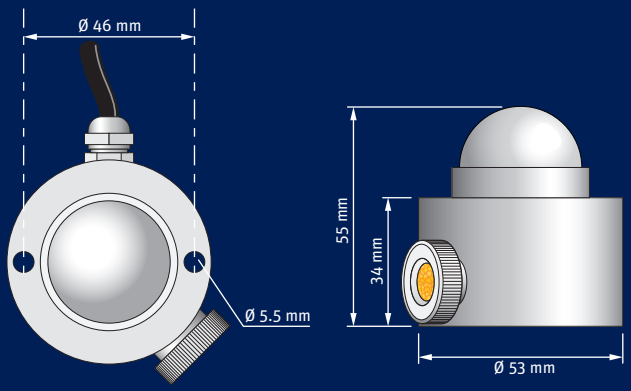
Note: The performance specifications quoted are worst-case and/or maximum values

Applications

Climate chambers and other technical facilities with extreme conditions are typical environments for the CM 4. For example, vehicles are tested in artificial climates for thermal stress and degradation of materials and systems.

The CM 4 High Temperature Pyranometer is a radiometer specially designed for measuring solar or artificial light irradiance under the most extreme temperature conditions.

The CM 4 is supplied fitted with a captive 10 m long special high temperature signal cable.



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Go to www.kippzonen.com for your local distributor

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Kipp & Zonen B.V. reserve the right to alter specifications of the equipment described in this documentation without prior notice