

- Measurement of solar irradiance
- Specifications to ISO 9060 and IEC 60904 standards
- Widely used within World Meteorological Organisation scientific programmes



Description

The Kipp & Zonen range of thermopile-based pyranometers is respected around the world for the measurement of solar irradiance to World Meteorological Organisation and ISO 9060:1990 standards. The instruments are used in meteorological research, solar energy research, material testing, climate control in greenhouses, building physics, science and many other applications.

The CMP series of pyranometers have ergonomic features to facilitate installation, maintenance, and exchange for recalibration.

A waterproof socket is fitted for the signature yellow signal cable, which is available in a range of lengths. The integral bubble level is raised to the top of the housing and can be viewed without removing the sun shield. The screw-in drying cartridge can be reactivated with convenient refill packets.

Calculation of Irradiance

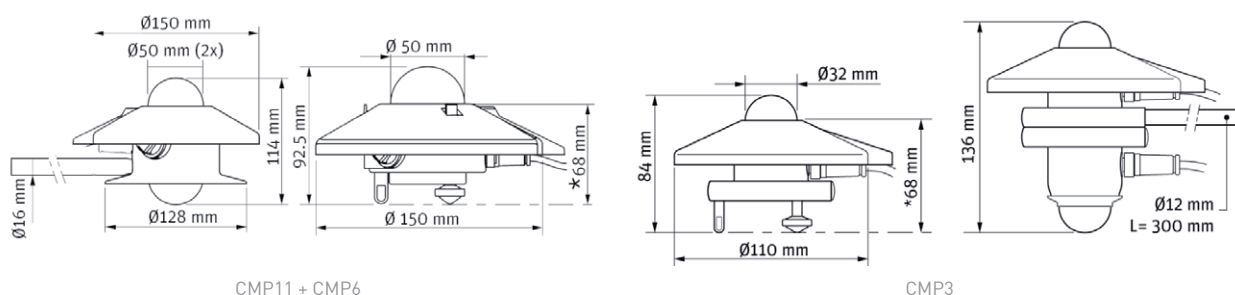
$$E = U / S$$

E [W/m²] = Irradiance

U [μV] = Output Voltage

S [μV/W/m²] = Sensitivity

Schematic




Specifications

	Pyranometer CMP11	Pyranometer CMP6	Pyranometer CMP3
Order No.	S61120	S61110	S61100
Classification	Secondary Standard, ISO 9060 & WMO	First Class, ISO 9060 & WMO	Second Class, ISO 9060 & WMO
Sensitivity	7 ... 14 $\mu\text{V}/\text{W}/\text{m}^2$ (see calibration protocol)	5 ... 20 $\mu\text{V}/\text{W}/\text{m}^2$ (see calibration protocol)	5 ... 20 $\mu\text{V}/\text{W}/\text{m}^2$ (see calibration protocol)
Spectral range (50% points)	285 ... 2800 nm	285 ... 2800 nm	300 ... 2800 nm
Max. irradiance	4000 W/m^2	2000 W/m^2	2000 W/m^2
Typical signal output for atmospheric applications	0 ... 15 mV	0 ... 20 mV	0 ... 20 mV
Response time (95%)	5s	18s	18s
Zero offset			
(a) thermal radiation (200 W/m^2)	<7 W/m^2	<12 W/m^2	<15 W/m^2
(b) temperature change (5k/hr)	<2 W/m^2	<4 W/m^2	<5 W/m^2
Non-linearity (0 ... 1000 W/m^2)	<0.2%	<1%	<1%
Temperature dependence of sensitivity	<1% (-10 ... +40 °C)	<4% (-10 ... +40 °C)	<5% (-10 ... +40 °C)
Level accuracy	0.1°	0.1°	1°
Operating temperature	-40 ... +80 °C	-40 ... +80 °C	-40 ... +80 °C
Cable length	10m	10m	10m

Delivery includes calibration certificate.

Sensor Connection

Sensor	Plug PIN No.	Wire Colour (Kipp & Zonen)	Meteo-40 Analog Voltage	Supply Sensor
Solar irradiance Output voltage	1	red	Ax	
	2	blue	Bx	
Shield (Housing)				Main Ground (GND)

Last Modification: 28 March 2013