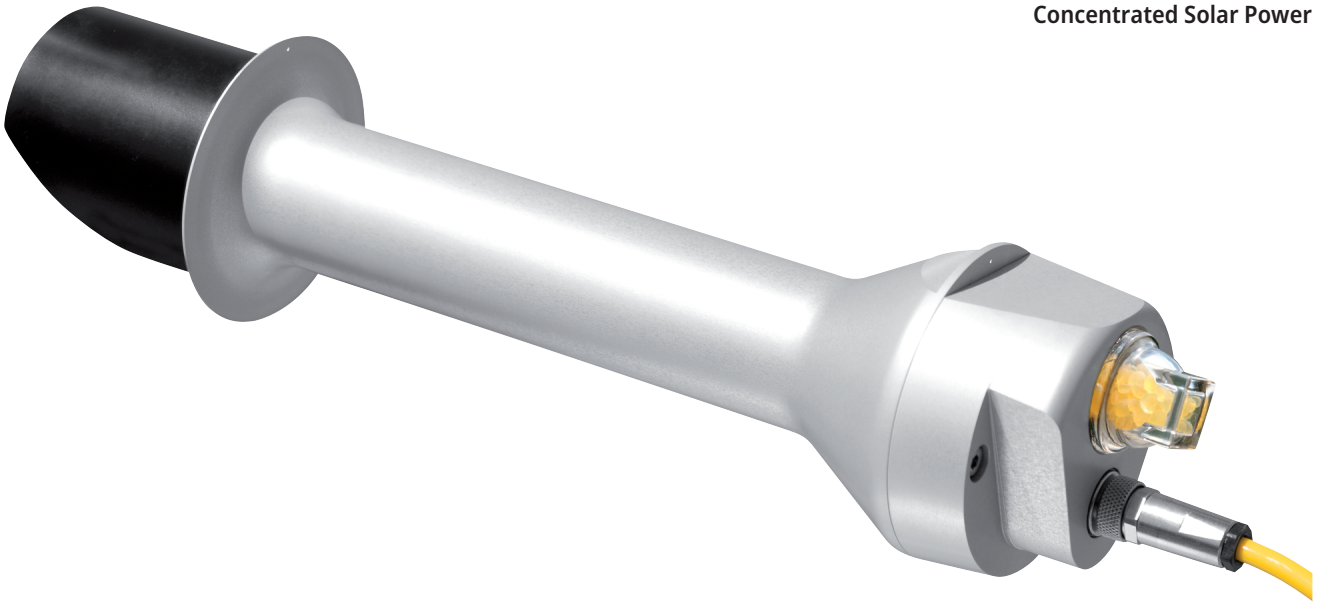
KIPP & ZONEN

CHP1 | SHP1

Applications

Weather Services and Research
Meteorology
Concentrated Solar Power



Pyrheliometer

For direct normal incidence solar radiation measurement

Most accurate DNI measurement for CSP
Used in the global BSRN network
ISO 9060 Class A
Analog and digital outputs
5 year warranty

Field of view of 5°

A pyrheliometer is an instrument designed specifically to measure DNI (Direct Normal Incidence) with a field of view of 5°. This is achieved by the shape of the collimation tube, with precision apertures, and the detector design.

Analog or digital outputs

CHP1 Pyrheliometer is a pyrheliometer that offers reliability and durability without requiring any power. The analog outputs allow easy connection to virtually any data logger. SHP1 has a Modbus® interface plus amplified analog output, improved response time and temperature corrected measurement data

Pyrheliometers mounted on sun trackers

A pyrheliometer needs to be pointed accurately at the sun at all times. Kipp & Zonen sun trackers provide a stable mounting to keep the pyrheliometer pointing at the sun to accurately measure DNI.

Meteorology Division of OTT HydroMet

Technical Specifications

	CHP1	SHP1
Classification to ISO 9060:2018	Spectrally Flat Class A	Spectrally Flat Class A
Sensitivity	7 to 14 µV/W/m²	-
Expected output range (0 to 1400 W/m²)	10 to 20 mV	-
Maximum operational irradiance	4000 W/m²	-
Analog output • V-version	-	0 to 1 V
Analog output range*	-	-200 to 2000W/m²
Analog output • A-version	-	4 to 20 mA
Analog output range*	-	0 to 1600 W/m²
Serial output	-	RS-485 Modbus® RTU
Serial output range	-	-400 to 4000 W/m²
Response time (63 %)	< 1.7 s	< 0.7 s
Response time (95 %)	< 5 s	< 2 s
Spectral range (50 % points)	200 to 4000 nm	200 to 4000 nm
Zero offsets (unventilated) (b) temperature change (5 K/h)	< 1 W/m²	< 1 W/m²
Non-stability (change/year)	< 0.5 %	< 0.5 %
Non-linearity (0 to 1000 W/m²)	< 0.2 %	< 0.2 %
Spectral selectivity (350 to 1500 nm)	< 1 %	< 1 %
Required sun tracker accuracy	< 0.5 ° from ideal	< 0.5 ° from ideal
Weight (excluding cable)	0.9 kg	0.9 kg
Slope angle	1 ° ±0.2 °	1 ° ±0.2 °
Temperature response	< 0.5 % (-20 °C to +50 °C)	< 0.5 % (-30 °C to +60 °C) < 1 % (-40 °C to +70 °C)
Field of view	5 ° ±0.2 °	5 ° ±0.2 °
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
Operating and 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	67	67
Recommended applications	High performance direct radiation monitoring for meteorological stations or concentrated solar energy applications	High performance direct radiation monitoring for meteorological stations or concentrated solar energy applications

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

Dimensions