MODEL GEO-DR02
FAST RESPONSE FIRST CLASS PYRHELIOMETER WITH HEATED WINDOW

GEO-DR02 is a research grade direct normal incidence (DNI) solar irradiance sensor, also known as pyrheliometer. It complies with 'First Class' classification, as per the latest ISO 9060 and WMO standards. A unique product feature is the fast response and the heated window. DR02 is typically mounted on a (solar) tracker.

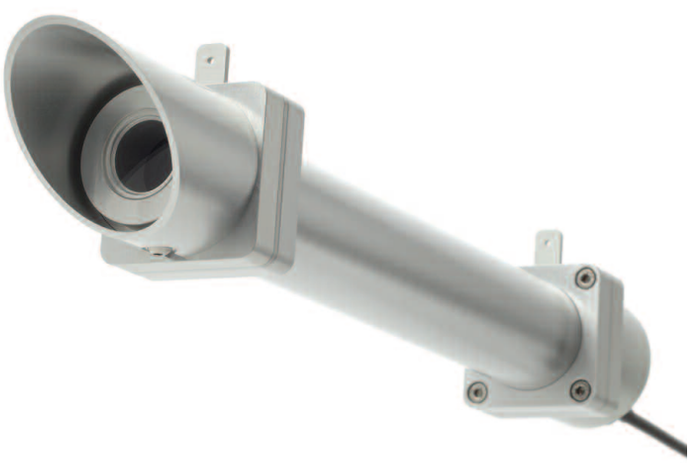

Figure 1: GEO-DR02 Pyrheliometer

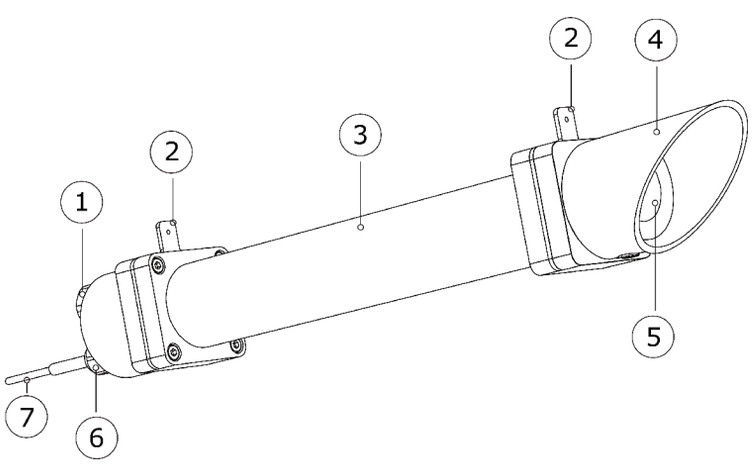

Figure 2: GEO-DR02 overview: (1) humidity indicator, (2) sights, (3) aperture tube, (4) protection cap, (5) window with heater, (6) cable gland, (7) cable.

INTRODUCTION

GEO-DR02 has been developed for use in monitoring of systems in solar energy applications. Because of its fast response, it is ideally suited for PV applications, where it will match the response time of the panels more closely than other types of pyrheliometers. This means improved accuracy in monitoring situations.

GEO-DR02 also features a thermally isolated low power window heater in the foreoptic. When cycled on/off prior to sunrise the heater effectively eliminates the formation of dew on the pyrheliometer window. This results in improved post sunrise measurement accuracy, as well as lower maintenance, as it requires less cleaning. Determining direct solar irradiance with DR02 requires connection to a data acquisition device and a two-axis solar tracker platform. Each DR02 is calibrated upon manufacture and delivered standard with a WRR (World Radiometric Reference) traceable certificate of calibration.

SUGGESTED USE

- solar renewable resource assessment
- concentrated PV electricity output validation
- solar collector and PV panel efficiency
- validation
- material testing research

MORE OPTIONS

Additional cable lengths (per 5m)
Temperature sensors (Pt100 or 10K thermistor)
AC100 / AC420 amplifiers

GEO-DR02 SPECIFICATIONS

ISO classification	First Class
Spectral range	200 to 4000 nm
Response time	2 s (95% response time)
Resolution	Analogue output, so the resolution depends on the data acquisition only. For **METEODATA**, the resolution is 0.1 W/m² or better.
Non-Linearity	< ±0.3% from 0 to 1000 W/m²
Full opening view angle	5 degrees
Slope angle	1 degree
Irradiance range	0 to 4000 W/m²
Sensitivity (nominal)	10 µV/ W/m²
Temperature range	-40 to +80° C
Temperature dependence	< ± 1% (-10º to +40ºC) < ± 0.4% (-30º to +50ºC) with automatic temperature correction carried out by the **METEODATA** DataLogger, and based on the signal provided by temperature sensor inside the pyrheliometer.
Window heating	0.5 W @ 12VDC
Relative Humidity range	0 - 100%
Non stability (drift)	< ±0.5% per year (full scale)
Output signal	Analogue voltage 0 to 30 mV
Calibration traceability	WRR
Impedance	150 to 250 Ohm
Cable length	5m standard (longer lengths optional)

Meteorological Station with SunTracker-3000

Model METEODATA

DataLogger with integrated comms (3G/GPRS, Line, Radio or Satellite)