日煬科技有限公司
JD Auspice Co., Ltd

DR01
FIRST CLASS PYRHELIOMETER

The DR01 is a research grade normal incidence direct solar irradiance sensor (also known as a pyrheliometer). Suitable for tracker mounted operation, the DR01 is intended for short-wave direct solar irradiance measurement of the sun. The DR01 is a 'First Class' compliant pyrheliometer, as per the latest ISO and WMO standards.

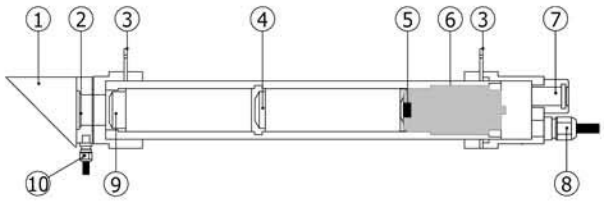

Figure 1: *DR01 pyrheliometer: (1) protection cap, (2) window with heater, (3) sight, (5) sensor, (7) humidity indicator, (10) cable for heater*

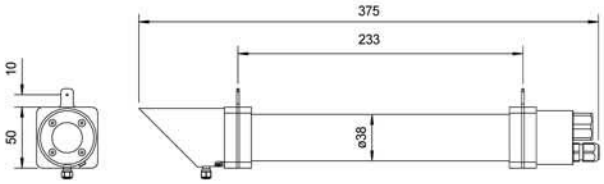

Figure 2: *DR01 dimensions*

INTRODUCTION

The DR01 foreoptic assembly features a precision ground and polished quartz window/lens, for true spectral solar transmission ranging from 0.2 - 4.0 µm. As per the latest ISO-9060 and WMO standards, the full opening view angle of the DR01 is collimated precisely to 5.0° degrees, making the sensor ideally suited for normal incidence direct solar irradiance measurement. Capable of measuring up to two suns, 2000 W/m^2, the DR01 pyrheliometer can be deployed anywhere on earth. The instrument employs a passive thermopile-based sensing technology that generates a low level DC millivolt output signal proportional to the normal incident direct solar flux received at the detector surface. The DR01 also features a thermally isolated low power window/lens heater in the foreoptic; when cycled on/off prior to sunrise the heater effectively eliminates the formation of dew on the pyrheliometer window/lens, thus resulting in improved post sunrise early morning measurement accuracy.
Determining direct solar irradiance with the DR01 requires connection to a data acquisition device with a measurement resolution of ten micro-volts or better, and an autonomous two-axis solar tracker platform. Typical DR01 measurement applications include scientific meteorological/climate observations, material testing research, solar collector/PV panel efficiency and solar renewable resource assessment. The signal cable of the DR01 can be easily replaced by the user onsite, thus minimizing down-time and expense otherwise associated with instrument re-cabling and/or cable connector replacement by the manufacturer. Each DR01 is calibrated upon manufacture and delivered standard with a WRR (World Radiometric Reference) traceable certificate of calibration.

SUGGESTED USE

- climatology / meteorology
- material testing research
- solar collector and PV panel efficiency validation
- solar renewable resource assessment

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MORE INFORMATION / OPTIONS
Optional: extended cable, AC100 / AC420 amplifiers.

DR01 SPECIFICATIONS

ISO classification:	First Class
Spectral range:	200 to 4000 nm
Response time (95%):	18 s
Full opening view angle:	5 degrees
Slope angle:	1 degree
Irradiance range :	0 to 2000 W/m^2
Sensitivity (nominal):	10 µV/ W/m^2
Temperature range:	-40 to +80° C
Temperature dependence:	< 0.1%/°C
Non stability (drift):	< 1% per year
Calibration traceability:	WRR
Cable length:	5 standard (longer lengths optional)