

DR01 FIRST CLASS PYRHELIOMETER

The DR01 is a research grade normal incidence direct solar irradiance sensor (also known as a pyr heliometer). 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 pyr heliometer, as per the latest ISO and WMO standards.

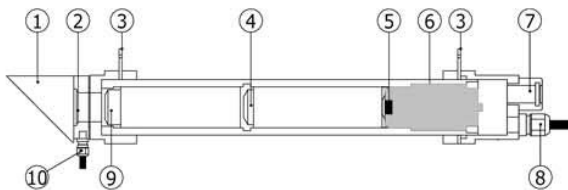


Figure 1: DR01 pyr heliometer: (1) protection cap, (2) window with heater, (3) sight, (5) sensor, (7) humidity indicator, (10) cable for heater

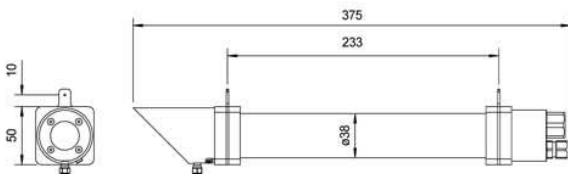


Figure 2: DR01 dimensions

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 pyr heliometer 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 pyr heliometer 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

note: subject to change without any notice, JDA pay no responsibility