

GEO-SRA20 **Secondary standard albedometer**

SRA20 albedometer is an instrument that can be used for measurement of the solar albedo. It is composed of two SR20 secondary standard pyranometers, the upper one measuring global solar radiation, the lower one measuring reflected radiation. It complies with the latest ISO and WMO standards.



Figure 1 SRA20 'secondary standard' albedometer

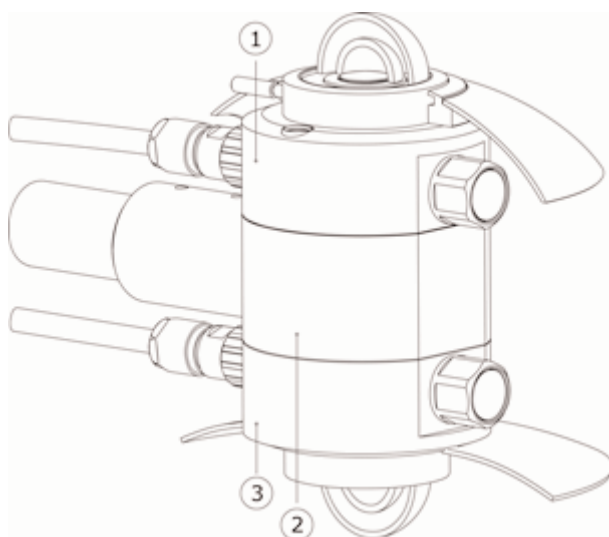


Figure 2 Overview of SRA20 albedometer: (1) SR20 facing upwards, (2) mounting element, (3) SR20 facing downwards

Introduction

Albedo is defined as the ratio of diffusely reflected to incident solar radiation.

In general, the albedo depends on the directional distribution of incoming radiation and surface properties. Albedos of typical surfaces range from about 4% for fresh asphalt, 15% for green grass and up to 90% for fresh snow.

SRA20 is composed of two SR20 secondary standard pyranometers, which measure the solar radiation received by a plane surface, in W/m², from a solid angle of 2π sr.

For the working principle and specifications of the pyranometer, manual of SR20 pyranometer should be consulted.

We recommend to use SRA20 in particular in applications where highest accuracy is necessary.

Specifications of this sensor are very good:

Temperature dependence specifications of SR20 pyranometer are outstanding, and may even be improved during data processing. The temperature dependence of every individual instrument is tested and results are presented as a second degree polynomial.

Directional response is also tested individually for each sensor and reported as well.

Heating reduces sensitivity to fouling and reduces measurement errors caused by early-morning dew deposition.

Mounting of the SRA20 albedometer by the user is done using a 3/4 inch NPS rod, tightened by a screw. This mounting rod is not part of the delivery.

SRA20 design



Suggested use

- Meteorological observations
- Building physics
- Roof reflectance studies

Standards

Applicable standards are ISO 9060 and 9847, WMO and ASTM E824-05 and E1918-06.

Options

- Additional cable length in multiples of 5 m (add to the standard 5 m)

See also

- Alternative instrument: SRA01 for lower accuracy measurements.
- View our complete product range of solar sensors.

MORE INFORMATION

Data Logger Model **METEODATA-2000C/3000C**

SRA20 SPECIFICATIONS

ISO classification	secondary standard albedometer
Spectral range	305 to 2800 nm
Sensitivity (range)	15 - 25 x 10 ⁻⁶ V/(W/m ²)
Sensitivity (nominal)	15 x 10 ⁻⁶ V/(W/m ²)
Temperature range	-40 to +80 °C
Irradiance range	0 to 4000 W/m ²
Temperature dependence	1 % (-10 to +40 °C) 1 % (-30 to +50 °C) with correction in data-processing
Response time	3 s (95% response)
Zero offset (response to 200 W/m² net thermal radiation)	<5 W/m ² unventilated
Zero offset (response 5° C/hr change in ambient temperature)	<±2 W/m ²
Field of view	0-360° azimuth 0-180° zenith
Albedo range	0 to 100%
Mounting rod diameter	¾ inch NPS (max. wall thickness SCH 80)
Calibration traceability	to WRR
Expanded calibration uncertainty	1.7% (k= 2)
Temperature sensor	10 kΩ thermistor or Pt100
Heater	12 VDC, 1 W
Cable	Standard length 5m



Model METEODATA-2000C/3000C
(Optional Data Logger)