

SOLAR RADIATION MONITORING / DATA SHEET

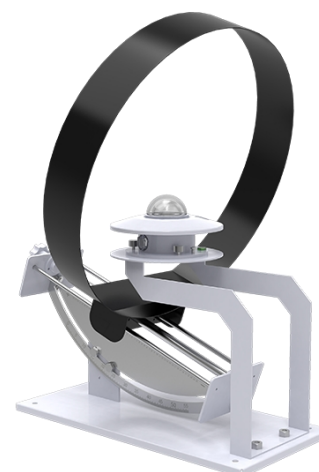
SS207-06

Scattered Solar Radiation Transmitter

A thermopile-based transmitter for measuring sky-scattered solar radiation across the 0.3-3 μm spectral range. A continuously adjustable shade ring blocks direct sunlight from sunrise to sunset, while temperature compensation and RS485 Modbus-RTU communication support long-term outdoor monitoring.

Overview

- 0-2000 W/m^2 measurement range with 1 W/m^2 resolution.
- 0.3-3 μm spectral response with $\pm 3\%$ accuracy.
- Adjustable latitude and solar-declination scales keep direct sunlight blocked.
- Double glass dome, 95% transmittance and temperature compensation.



Measured Scattered solar radiation	Range 0-2000 W/m^2	Resolution 1 W/m^2	Output RS485
Key Functions • Thermopile sensing element for accurate solar radiation measurement. • Shade ring tracks latitude and solar declination for all-day direct-light blocking. • 0.3-3 μm optical response with high-transmittance double glass dome. • Robust aluminum structure for continuous outdoor operation.		Applications • Solar-energy resource and system performance assessment. • Meteorological and agricultural radiation monitoring. • Atmospheric pollution and environmental studies. • Building-material aging and outdoor exposure research.	

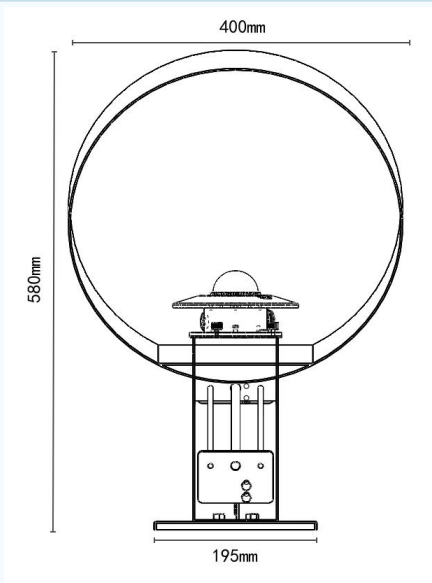
SYSTEM DATA

Technical Specifications

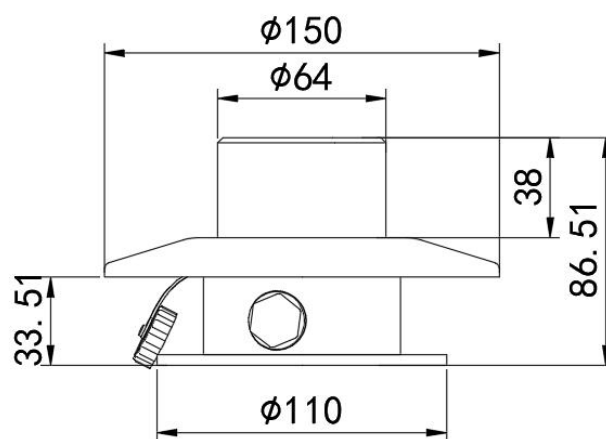
Item	Specification
Supply / Power	DC 10-30 V; 0.2 W
Measurement / Resolution	0-2000 W/m^2 ; 1 W/m^2
Spectral Range / Sensitivity	0.3-3 μm ; 7-14 $\mu\text{V}\cdot\text{W}^{-1}\cdot\text{m}^2$
Accuracy / Nonlinearity	$\pm 3\%$; $\pm 3\%$
Response Time (95%)	$\leq 30\text{ s}$
Operating Conditions	-40 to +80 $^{\circ}\text{C}$; 0-95% RH, non-condensing
Internal Resistance	200-400 Ω
Directional / Cosine / Tilt Response	$\leq \pm 30\text{ W/m}^2$; $\leq \pm 5\%$; $\leq 2\%$
Temperature Response / Annual Stability	$\leq \pm 3\%$ (-30 to +50 $^{\circ}\text{C}$); $\leq \pm 3\%$
Zero Drift / Interface	$\leq 6\text{ W/m}^2$; RS485 Modbus-RTU
Communication Defaults	2400 / 4800 / 9600 bit/s configurable; 4800 default
Latitude / Declination	0-55 $^{\circ}$ latitude scale; $\pm 25^{\circ}$ declination
Shade Ring Diameter	$\varnothing 400\text{ mm}$

HARDWARE

Transmitter Dimensions



Scattering shade ring | Ø400 mm ring diameter | 580 mm overall height



Thermopile head | Ø150 mm top plate | 86.51 mm height

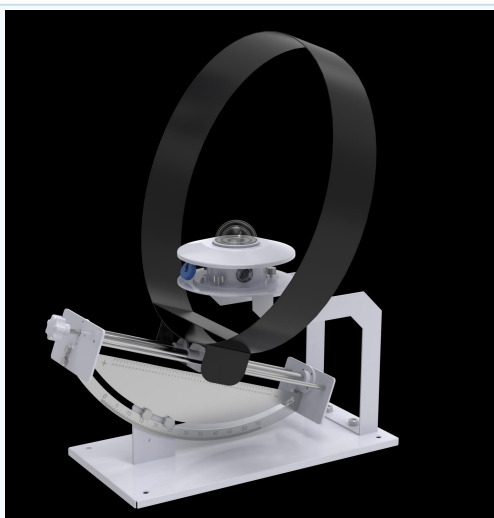
INTERFACE

RS485 Wiring

Wire colour	Function
Brown	Power positive, DC 10-30 V
Black	Power negative
Yellow	RS485-A
Blue	RS485-B

INSTALLATION

Scattering-Ring Installation



Scattering shade ring and thermopile assembly

Installation Requirements

- Install the base on a stable, level and load-bearing surface; orient the support-rod side toward true south.
- Fix the thermopile transmitter to the support-rod platform and remove the protective cover after installation.
- Set the latitude scale to the local geographic latitude.
- Set the shade ring to the day's solar declination so the sensing surface remains fully shaded.
- Connect the output to the data logger and allow approximately 30 minutes of warm-up.

SELECTION

Product Configuration

Item	Available configuration
Product code	SS207-06 scattered solar radiation transmitter
Measurement	Sky-scattered solar radiation; 0-2000 W/m ²
Output / communication	RS485 / Modbus-RTU; 2400 / 4800 / 9600 bit/s
Mechanical design	Thermopile transmitter, continuously adjustable shade ring, latitude/declination scales
Included accessories	Shade ring, latitude plate, base, support rod, mounting screws, cable and documentation

Service note: keep the shade ring and adjustment screw clean, inspect the shadow coverage in the morning and afternoon, and cover or remove the ring during long-term storage.

CONTACT / SUPPORT

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