

# SR05 SERIES

Second class pyranometers with various outputs

*SR05 series is the most affordable range of pyranometers meeting ISO 9060 requirements. They are ideal for general solar radiation measurements in (agro-)meteorological networks and PV monitoring systems. SR05's are easy to mount and install. Various outputs are available, both digital and analogue, for ease of integration.*



**Figure 1** SR05 with ball levelling and tube mount



**Figure 2** Easy levelling of SR05 on its tube mount with ball levelling. SR05 series offers various industry standard digital and analogue outputs.

## Introduction

SR05 series is an economical range of ISO 9060 second class pyranometers for measurement of solar radiation received by a plane surface, in  $W/m^2$ , from a  $180^\circ$  field of view angle. Different configurations are available, depending on its mounting and the output needed. The combination of easy installation and its cost makes SR05 ideal for installation in (agro-) meteorology networks and PV power plant monitoring.

## Benefits

- Industry standard digital and analogue outputs: easy implementation and servicing
- Easy mounting and levelling
- Pricing: second class pyranometers finally affordable for large networks

## Suggested use

- general solar radiation measurements
- (agro-)meteorological networks
- PV power plant monitoring

### SR05 series design

SR05 pyranometers employ a thermopile sensor with black coated surface, one dome and an anodised aluminium body with visible bubble level. Optionally the sensor has a unique ball levelling mechanism and tube mount, for easy installation. SR05 has a variety of industry standard outputs, both digital and analogue: SR05-D1A3 offers Modbus over RS-485 and 0-1 V output, SR05-D2A2 offers Modbus over TTL and 4-20 mA current loop output. Version SR05-A1 offers a conventional analogue millivolt output.



**Figure 3** 'Exploded view' of SR05. The optional ball levelling and tube mount allow for easy installation. The cable (standard 3 m) has an M12-A connector.

### Standards

Applicable instrument classification standards are ISO 9060 and WMO-No. 8.



### SR05 series specifications

Measurand	hemispherical solar radiation
ISO classification	second class pyranometer
Calibration uncertainty	< 1.8 % (k = 2)
Calibration traceability	to WRR
Spectral range	285 to 3000 x 10 <sup>-9</sup> m
Rated operating temperature range	-40 to +80 °C
Standard cable length	3 m
Rated operating voltage range	5 to 30 VDC
-versions -D1A3 and -D2A2	
-version -A1	passive sensor
Levelling	ball levelling, optional with / without tube mount

### Output

#### Version SR05-D1A3

Communication protocol	Modbus over RS-485
Digital output	-irradiance in W/m <sup>2</sup> -instrument body temperature in °C
Analogue output	0-1 V

#### Version SR05-D2A2

Communication protocol	Modbus over TTL
Digital output	-irradiance in W/m <sup>2</sup> -instrument body temperature in °C
Analogue output	4-20 mA current loop

#### Version SR05-A1

Analogue output	millivolt
Sensitivity (nominal)	10 x 10 <sup>-6</sup> V/(W/m <sup>2</sup> )

### Versions

SR05 series offers various versions with industry standard outputs, both digital and analogue, each with several options:

- SR05-D1A3 digital second class pyranometer, with Modbus over RS-485 and 0-1 V output
- SR05-D2A2 digital second class pyranometer, with Modbus over TTL and 4-20 mA output
- SR05-A1 analogue second class pyranometer with millivolt output

In addition, version SR05-D1A3-PV is available as a perfect alternative for PV reference cells. Please see [SR05-D1A3-PV's separate brochure](#).

### Options

- cable lengths: 10, 20 m
- extension cable with connector pair: 10, 20 m
- with ball levelling
- with ball levelling and tube mount (for tube diameters 25 – 40 mm)
- OEM versions

**Table 1** Ordering codes for SR05

<b>VERSIONS OF SR05 (part numbers), without cable</b>	
SR05-D1A3	digital second class pyranometer, with Modbus over RS-485 and 0-1 V output
SR05-D2A2	digital second class pyranometer, with Modbus over TTL and 4-20 mA output
SR05-A1	analogue second class pyranometer, with millivolt output
SR05-D1A3-PV	digital second class pyranometer, alternative for PV reference cell (see <a href="#">seperate product brochure</a> )
<b>CABLE FOR SR05, with female M12-A connector at sensor end, non-stripped on other end</b>	
`-03' after SR05 part number	standard cable length: 3 m
`-10' after SR05 part number	cable length: 10 m
`-20' after SR05 part number	cable length: 20 m
<b>CABLE EXTENSION FOR SR05, with male and female M12-A connectors</b>	
C06E-10	cable length: 10 m
C06E-20	cable length: 20 m
<b>LEVELLING OPTIONS FOR SR05</b>	
BL01	ball levelling, for levelling of SR05
TMBL01	tube mount with ball levelling, for mounting SR05 on a tube



**See also**

- [PMF01](#) pyranometer mounting fixture, compatible with SR05 ball levelling
- view our complete [range of pyranometers](#)

**About Hukseflux**

Hukseflux Thermal Sensors offers measurement solutions for the most challenging applications. We design and supply sensors as well as test & measuring systems, and offer related services such as engineering and consultancy. Our main area of expertise is measurement of heat transfer and thermal quantities such as solar radiation, heat flux and thermal conductivity. Hukseflux is ISO 9001 certified. Hukseflux sensors, systems and services are offered worldwide via our office in Delft, the Netherlands and local distributors.

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