

# SGR4



SGR4 pyrgeometer is an instrument for the highest quality scientific measurements. The specially designed meniscus dome provides a 180° field of view with negligible directional response error. A hard-carbon coating on the outside of the dome smoothes the spectral response and provides extra protection to the silicon surface. The excellent thermal stability of the dome construction and coupling to the instrument body eliminates the need for dome temperature measurements or dome shading. SGR4 can be fitted with the CVF4 ventilation unit to further improve its performance.

The SGR4 has an internal desiccant that will last for at least 10 years. This minimizes maintenance significantly.

The interval for dome cleaning can be extended, and the quality of measurements maximized, by fitting SGR4 with the CVF4 ventilation unit.

The SGR4 has Modbus® interface, amplified analogue output, improved response time and temperature corrected measurement data. The long-wave net- and downward radiation are directly available over Modbus®. The wide and low power supply range from 5 to 30 VDC makes integration in meteorological and solar energy stations easy. The SGR4 is extremely robust and comes with 5 years warranty (\*).

Thanks to standardised output and connections of every SGR4, exchanging instruments for recalibration is easy.

SmartExplorer Windows™ software for data logging, display of data and Modbus® address setting is provided as standard.

Specifications	
Analogue output • V-version	0 to 1V
Analogue output range <sup>(1)</sup>	0 to 1000 W/m <sup>2</sup>
Analogue output • A-version	4 to 20 mA
Analogue output range <sup>(1)</sup>	0 to 1000 W/m <sup>2</sup>
Serial output	RS-485 Modbus®
Serial output range <sup>(1)</sup>	0 to 1000 W/m <sup>2</sup>
Response time (63%)	< 6 s
Response time (95%)	< 18 s
Spectral range (50 % points)	4500 to 42000 nm
Zero offsets (unventilated)	
(b) temperature change (5 K/h)	< 2 W/m <sup>2</sup>
Non-stability (change/year)	< 1 %
Non-linearity (-250 to 250 W/m <sup>2</sup> )	< 1 %
Window heating offset (with 1000 W/m <sup>2</sup> direct solar radiation)	< 4 W/m <sup>2</sup>
Temperature response	< 1 % (-20 °C to +50 °C) < 1 % (-40 °C to +70 °C)
Spectral selectivity (8 to 14 µm)	< 5 %
Tilt response (0° to 90° at ±250 W/m <sup>2</sup> )	< 1 %
Field of view	180°
Accuracy of bubble level	< 0.1°
Power consumption (at 12 VDC)	V-version: 55 mW A-version: 100 mW
Software, Windows™	Smart Sensor Explorer Software, for configuration, test and data logging
Supply voltage	5 to 30 VDC
Detector type	Thermopile
Operating temperature range	-40 °C to +80 °C
Storage temperature range	-40 °C to +80 °C
Humidity range	0 to 100 %
Ingress Protection (IP) rating	67
<sup>(1)</sup> Longwave down radiation	

Part number	Instrument
0376900-102	SGR4-V Smart Pyrgeometer • 0 to 1 V version • 10 m cable
0376900-100	SGR4-V Smart Pyrgeometer • 0 to 1 V version • no plug, no cable
0376900-202	SGR4-A Smart Pyrgeometer • 4 to 20 mA version • 10 m cable
0376900-200	SGR4-A Smart Pyrgeometer • 4 to 20 mA version • no plug, no cable

SGR4 Smart Net Pyrgeometer	
A ventilated Smart Net Pyrgeometer can be self-assembled by ordering: 2x SGR4 Smart Pyrgeometer + 1x CMF4 Mountinf Fixture + 2x CVF4 Ventilation Unit	
An unventilated Smart Net Pyrgeometer can be self-assembled by ordering: 2x SGR4 Smart Pyrgeometer + 1x CMF1 Mountinf Fixture + 1x GlareScreen Kit	

Part number	Accessories
See accessories	CVF4 Ventilation Unit Recommended to reduce offsets and frequency of dome cleaning
0362700	CMF1 Mounting Fixture For 1 or 2 unventilated radiometers (1 upper / 1 lower) Diameter 88 mm. Mounting rod 350 mm long x 16 mm ø
0362703	CMF4 Mounting Fixture For 1 or 2 ventilated or unventilated radiometers (1 upper / 1 lower) Length 375 mm, width 280 mm. Mounting rod 350 mm long x 20 mm ø
0369701	CMB1 Mounting Bracket In combination with mounting rod for easy attachment to a pole or a wall
0305722	Glare Screen Kit Sun protection screen for downward facing radiometers, with fixings
Note: It is not necessary to use shading with the SGR4. The effect of direct solar heating is very small and insignificant when the CVF4 is used	