SGR3

The SGR3 is a pyrgeometer, designed for meteorological measurements of downward atmospheric long wave radiation. The SGR3 uses a specially designed silicon window. On the inside a solar-blind filter blocks solar radiation. The SGR3 data represents the radiation exchange within the whole hemisphere. This is because the reference SGR3 is calibrated outdoors with respect to a reference CGR4, which has a 180 degrees field of view.

The SGR3 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 SGR3 is extremely robust and comes with 5 years warranty (*).

The base of the instruments contains the mounting holes, a spirit level and levelling feet for exact levelling. For ease of mounting, exchange and recalibration the instruments have a waterproof connector. The improved temperature dependency and directional response make these instruments the ideal choice for meteorological and agricultural applications.

Thanks to standardised output and connections of every SGR3, 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 1 V
Analogue output range (1)	0 to 1000 W/m²
Analogue output • A-version	4 to 20 mA
Analogue output range (1)	0 to 1000 W/m²
Serial output	RS-485 Modbus®
Serial output range (1)	0 to 1000 W/m²
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)	 < 5 W/m²
Non-stability (change/year)	< 1 %
Non-linearity (-250 to 250 W/m²)	< 1 %
Window heating offset (with 1000 W/m² direct solar radiation)	< 15 W/m²
Temperature response	< 5 % (-20 °C to +50 °C) < 5 % (-40 °C to +70 °C)
Spectral selectivity (8 to 14 µm)	< 5 %
Tilt response (0° to 90° at 1000 W/m²)	< 3 %
Field of view	150 °
Accuracy of bubble level	< 0.2 °
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

(1) Longwave down radiation

Part number	Instrument
0376910-102	SGR3-V Smart Pyrgeometer • 0 to 1 V version • 10 m cable
0376910-100	SGR3-V Smart Pyrgeometer • 0 to 1 V version • no plug, no cable
0376910-202	SGR3-A Smart Pyrgeometer • 4 to 20 mA version • 10 m cable
0376910-100	SGR3-A Smart Pyrgeometer • 4 to 20 mA version • no plug, no cable

SGR3 Smart Net Pyrgeometer
A Smart Net Pyrgeometer can be self-assembled by ordering: 2x SGR3 Smart Pyrgeometer + 1x Mounting Rod

Part number	Accessories
0999915-1	Outdoor Calibration under clear skies For increased accuracy, instead of standard laboratory calibration
0338720	Mounting Rod Screw-in 300 mm long x 12 mm ⌀
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 ⌀
0369701	CMB1 Mounting Bracket In combination with mounting rod for easy attachment to a pole or a wall
0346900	CM121B Shadow Ring for unventilated radiometers Manually adjusted device minimises window heating by the direct sun Correction factors for latitude of location supplied
Note: CGR3 cannot be used with the Glare Screen Kit	