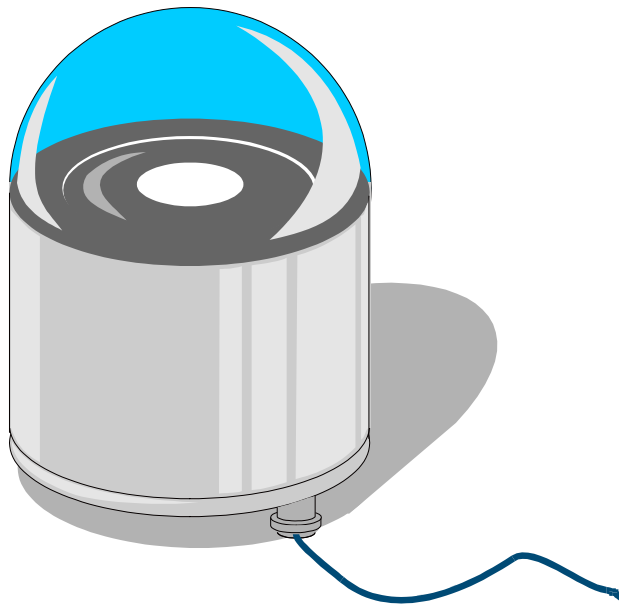


Pyranometer GSM 3.3

Operating Instructions 7.1415.09.xxx



1. Range of Application

The GSM 3.3 Pyranometer is designed to detect global radiation. Global radiation is the diffuse and direct solar radiation striking the surface of the earth from the upper hemisphere. The spectral range extends from the shortwave range (300 nm) to the longwave range (5000 nm).

2. Construction and Mode of Operation

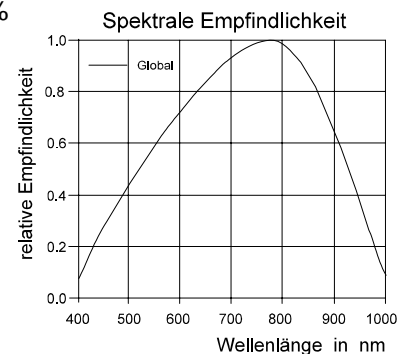
The dome is synthetic and serves as a spectral band filter which allows the entire solar spectrum to reach the sensor. Moreover the dome protects the sensor from the influence of weather and, through its geometric form, almost completely corrects the cosine error.

The measured value is emitted in accordance with the measuring range as a standard, analog signal.

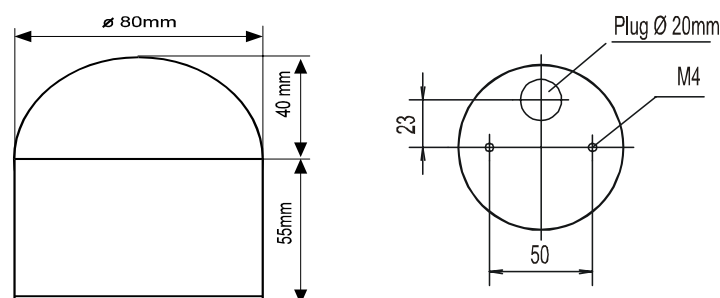
Each Pyranometer GSM 3.3 includes a test certificate.

3. Technical Data

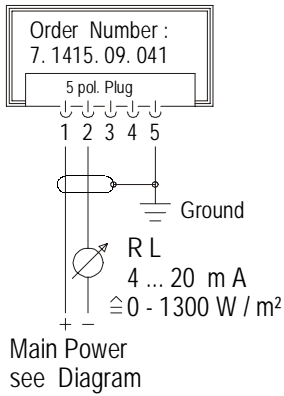
Measuring range	: 0 1300 W/m ²	Operating voltage ±10%
Order-No.	7.1415.09.040 : 0 ... 20 mA*	12 - 24 V DC
	7.1415.09.041 : 4 ... 20 mA	see diagram
	7.1415.09.051 : 0 ... 5 V	12 - 24 V DC
	7.1415.09.061 : 0 ... 10 V	14 - 24 V DC
	* max. load 100 Ω	
spectral sensitivity	: 0,4 ... 1,1 μm	
max. spectral sensitivity	: 0,78 μm	
Cos - correction	: error f2 < 3 %	
Linearity	: < 1 %	
Absolute error	: < 10 %	
Diffusor	: PTFE	
Dome	: PMMA	
Ambient temperature	: -30 ... +60 °C	
Connection	: 5 pole plug connection	
Weight	: 0,30 kg	



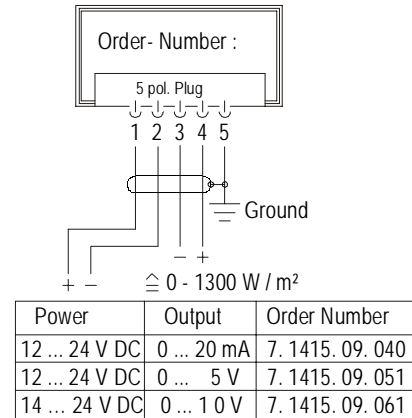
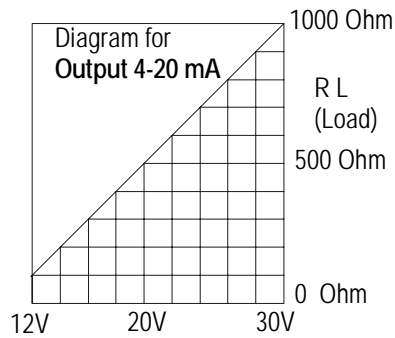
Scale Drawing



Connection Diagrams



RL- Function of the Main Power



4. Mounting

Use two screws to fasten the **GSM 3.3 Pyranometer** to a plane horizontal surface. Make sure that no obstacle or object ever casts a shadow onto the surface of the sensor. The preferable mounting site is 2 meters above a mown lawn. Furthermore make sure that the instrument is accessible for cleaning as pollution and dirt have a strongly negative influence on the measurement result. Connect electrically as shown in the connection diagram. Please note the operating voltage.

5. Maintenance

Once the **Pyranometer GSM 3.3** has been mounted, little maintenance is required. It is suggested to clean the window as part of a regular routine, using water or alcohol. On clear, calm nights, the temperature of the dome drops to the dew point temperature of the air, a result of the exchange of IR radiation with the cold sky. (The actual temperature of the sky can be up to 30° lower than that of the ground which leads to an infrared radiation of - 150 W/m²). In this case, dew, ice or hoarfrost can precipitate on the dome and remain there into the morning hours. An ice cap on the dome is a strong light scatterer and raises the pyranometer signal drastically by up to 50% in the first hours after dawn.

6. Calibration

We recommend calibration intervals of 6 - 12 months for pyranometers which are in constant use. Calibration is carried out by comparison with a primary or secondary standard. The instrument has to be returned to the supplier for calibration.

	ADOLF THIES GmbH & Co. KG			
	Hauptstraße 76 37083 Göttingen Germany P.O. Box 3536 + 3541 37025 Göttingen Phone ++551 79001-0 Fax ++551 79001-65 www.thiesclima.com info@thiesclima.com			

- Alterations reserved -