

GLOBAL SOLAR RADIATION Sensor

t055 TPIR-EV



High accuracy and data reliability, according to ISO 9060

Robust and easy to install

Long-term stability

Description

TPIR measures the global solar radiation, calculated as sum of the direct sun radiation, and the radiation diffused by the sky and scattered clouds. Thanks to its standards of accuracy the sensor is a very suitable device for various applications in the field of meteorology.

TPIR is equipped with a thermopile element, specifically designed and developed for SIAP + MICROS. The sensing element generates a tension proportional to the captured radiation, which is acquired by a signal conditioning electronics that normalizes the output in a standard tension, current, Modbus or SDI-12 signal. Performance features are significantly improved thanks to a double dome made of special optical glass (Schott K5), which allows a wide range of solar radiation frequency measurement ($0.3 \div 3 \mu\text{m}$). The production process is fulfilled by a calibration in a climatic chamber with an artificial light source, in order to obtain high accuracy even when the temperature varies.

The sensor is supplied with power and signal cable (4m).



Main features

- **High accuracy and data reliability**
- **Robust and easy to install**
- **Protection against overvoltages**
- **Low power consumption**

Technical Specifications*

Measurement performance

Piranometer First Class per ISO 9060

Transducer	Thermopile Class B (<14W/m ²)
Measurement range	0 ÷ 2000 W/m ²
Accuracy	± 10 W/m ²
Resolution	1 W/m ²
Sensitivity	< 100 $\mu\text{V/W/m}^2$
T.C. of sensitivity	+/- 0.15% /°C
Non linearity	< ± 1 %
Spectral range	0.3 ÷ 3 μm
Inclination response	± 2 %

Operating conditions

Temperature	-30°C ÷ +70°C
Humidity	0% ÷ 100%

Outputs

RS485 - Modbus	Solar radiation [W/m ²]
SDI - 12	Solar radiation [W/m ²]
Tension	0 ÷ 2 V ↔ 0 ÷ 2000 W/m ²
Current	4 ÷ 20 mA ↔ 0 ÷ 2000 W/m ²

Power supply and Consumptions

Voltage supply	7 ÷ 30 Vdc		
Power consumption (mA)	Min	Typical	Max
RS485-Modbus / SDI - 12 / 0 ÷ 2 V	-	1	3
4 ÷ 20 mA	5	-	25

Mechanical specifications

Protective body	Plastic material, aluminium alloy, brass, stainless steel screws
Weight	1.1 kg
Dimensions	Ø = 210 mm; Height: = 250 mm
Electrical connections	IP67 / 7 pole male connector

*Changes on technical performances can be applied upon request of specific calibration