

Solarimeter

Solar irradiation sensor with PT100 Temperature probe, digital and analogic outputs (4-20 mA) and RTU GSL-IT-DA Modbus



The composite sensor of this solarimeter can detect solar irradiation and temperature and send the data to a data logger through its outputs that can be either set as digital pulsed or analogic (4-20mA). The sensor allows precise detection of two fundamental parameters to evaluate the performance of photovoltaic plants: irradiation and panels' operating temperature.

It is only taking panels' operating temperature into account that it is possible to define the plant's real performance and detect the causes for actual data varying from theoretical values.

The sensor, in a waterproof IP65 module with optical glass protection acquires solar irradiation data. Within the module the sensor's temperature is also detected, for accurate compensation.

Temperature data are acquired by a PT100 probe connected outside the module. All connections can be implemented: 2, 3 or 4 wires (4 wires, 2mt PT100 probe OPTIONAL).

The instrument's pulse digital outputs allow direct connection to X-Meter's or X-RWU's. The outputs can also be set as analogic 4-20mA to connect the device to any process controller or data logger.

Standard insulated RS-485 serial ports are also available and can be used to read the measured values using Modbus RTU protocol (NOT INCLUDED for the basic model).

General	
Dimensions	120x80x45 mm
Weight	265 grams
Case material	Polycarbonate for the case, polyamide for the accessories
Protection rating	IP65
Power supply	12 to 24 Vdc, absorption 1W without current loop
Operating temperature	-20°C ÷ +70°C
Relative humidity	90%
Other features	Equipped with anti-condensation device
Irradiation	
Sensor	Photodiode
Measurement range	0-1200 Watt/m ²
Precision	2.5% in sunny conditions with irradiation of 100 W/m ²
Temperature	
Sensors used	2, 3 or 4 wire interface for PT100 (Optional PT100 probe)
Connection	Waterproof cable gland with terminal internal board
Measurement range	-40°C to +180°C
Precision	±2°C in the entire measurement
Digital outputs	
Type	Open drain circuit, voltage-free and protected against voltage surges
Frequency	from 0 to 5 Hz
Pulse duration	100ms
Maximum voltage	30Vdc
Maximum current	50mA
Irradiation output features	240 W/m ² /Hz (0 W/m ² a 0 Hz)
Temperature output feature	44°C/Hz (-40°C a 0 Hz)
Current outputs	
Type	Active current source 4-20 mA with common negative and limiter
Irradiation output features	75W/m ² /mA (0W/m ² a 4 mA)
Temperature output feature	13,75°C/mA (-40°C a 4 mA)
Serial port	
Interface	RS-485 Half-duplex, 2 wires plus shielding
Devices that can be connected	128
Speed	2400 o 115200 bps selectable
Parity	Even, odd, none, none +2 stop bits
Protocol	Modbus RTU (OPTIONAL not available in basic model)
Insulation	2500 Volt