PYRAsense10
LPS10...

SPECTRALLY FLAT CLASS A PYRANOMETER SERIES

INTRODUCTION

PYRAsense is our new family of pyranometers that **brings solar global radiation measurement to a higher level**!
We produce a full range of pyranometers, all based on the thermopile principle, **very precise**.
Depending on the model and according to ISO 9060:2018 and WMO (World Meteorological Organization) recommendations, our PYRAsense are all classified as Spectrally Flat Class A, Class B and Class C.
The **LPS10...** is the top level of the series. It has been designed especially for those applications where the best performance is a must such as:

- **Environemntal studies**
- **Research**
- **Meteorology**
- **PV monitoring**

FEATURES

Internal diagnostic sensors for digital models

To measure temperature, relative humidity, and pressure. You can keep an eye on the operating condition of your pyranometer and predict any maintenance work in advance, thus always ensuring reliable measurements.

Integrated bubble level

To ease horizontal positioning during installation.
Moreover, the pyranometer can be equipped with an optional tilt sensor which allows continuous monitoring of the correct installation.

Protection screen

To resist UV solar radiation.

CONFIGURATION & MEASUREMENT

The sensors

Using the PC application software DATAsense, it is possible to configure the sensor (e.g., Modbus parameters, measuring range for the analog output, etc.), monitor the measurements in real time and save the values detected during the connection in a file.

Passive, analog or RS485 Modbus-RTU isolated output + optional additional analog output

Configurable 0...10 V, 0...5 V, 0...1 V, 4...20 mA or 0...20 mA.

The irradiance range

It is configurable for the analog output.

Calibration report

The pyranometers are supplied factory calibrated according to ISO 9847:2023 (Type A1) standard and with an individual Calibration Report.

SMART TECHNOLOGY
Digital models with Internal diagnostic sensors to keep operating conditions always under control.

EASY TO SET UP & QUICK TO INSTALL
Integrated bubble level and optional tilt sensor to ensure accurate installation in any position.
Configuration and real time data monitoring via software.

ACCURATE & RELIABLE
Supplied factory calibrated with individual Calibration Report.
ISO 17025 Calibration Certificate available upon request.

ACCORDING TO THE STANDARD
Spectrally Flat Class A according to ISO 9060.
WMO recommendations & IEC 61724-1 requirements fully compliant.

GREAT FLEXIBILITY
Wide variety of outputs choice.

InstruFiber
INSTRUMENTAÇÃO E FIBRA ÓPTICA
11 4172-0606
11 4386-0362

Technical specifications according to ISO 9060:2018

Classification		Spectrally Flat Class
Response time (95%)		A < 2 s
Zero offset	a) response to a 200 W/m2 thermal radiation	< | ±7| W/m2
	b) response to a 5 K/h change in ambient temperature	<| ±2| W/m2
	a) total zero offset including the effects a), b) and other sources	<| ±10| W/m2
Long-term instability (1 year)		<| ±0.5| %
Non-linearity		<| ±0.2| %
Directional response (up to 80° with 1000 W/m2 beam)		<| ±10| W/m2
Spectral error		<| ±0.2|
Temperature response (-10...+40°C)		% <|
Tilt response		±0.5| %
		<| ±0.2|
		%

Additional measurements in digital models

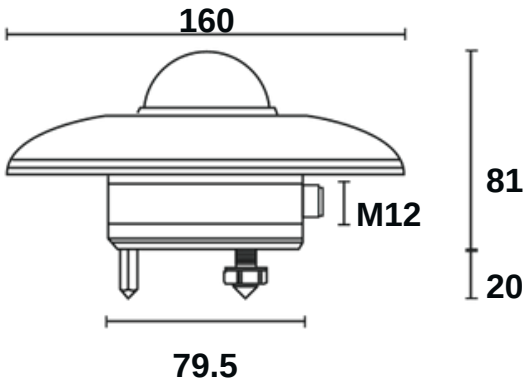
Internal temperature	range	-40...+80 °C
	resolution	0.1 °C
	accuracy	± 0.5 °C (0...60 °C)
Internal relative humidity	range	0...100 %RH
	resolution	0.1 %RH
	accuracy	± 3 %RH @25 °C (20...80
Internal pressure	range	%RH) 300...1100 hPa
	resolution	0.1 hPa
	accuracy	± 1 hPa (0...60 °C)
Tilt sensor	range	0°...+180°
	resolution	0.1°
	accuracy	< 0.5°

General specifications

Sensor	Thermopile
Typical sensitivity	6...12 µV/Wm-2
Measuring range	-200...4000 W/m2 The irradiance range for the analog output is 0...2000 W/m2 by default, and is configurable in LPS10Mxx
Resolution	0.1 W/m2
Viewing angle	2π sr
Spectral range (50%)	283...2800 nm
Output	Dipending on the model: • RS485 Modbus-RTU • RS485 Modbus-RTU + analog configurable 4...20 mA (default), 0...20 mA, 0...1 V, 0...5 V or 0...10 V • 2-wire (current loop) 4...20 mA • passive in mV
Power supply	7...30 Vdc for RS485 output 10...30 Vdc for analog output 15...30 Vdc for 0...10 V output
Consumption (digital models)	*Modbus output models:* 15 mA @ 24 Vdc 21 mA @ 12 Vdc *Modbus + analog output models:* 37 mA @ 24 Vdc & Iout=22 mA 43 mA @ 12 Vdc & Iout=22 mA
Connection	5-pole M12 8-pole M12 (for LPS10**MA**x)
Weight	620 g approx.
Operating conditions	-40...+80 °C 0...100 %RH Max. altitude 6000 m
Bubble level accuracy	< 0.2°
Protection degree	IP 67
Materials	Housing: anodized aluminium Screen: ASA Dome: optical glass
MTBF	> 10 years

Ordering codes LPS10Mxx

M00	Modbus output, without tilt
M0T	Modbus output, with tilt
MA0	Modbus + configurable analog output, without tilt
MAT	Modbus + configurable analog output, with tilt
0C0	2-wire (current loop) 4...20 mA output
0P0	mV output



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