Eliofanometro LPSD18...

SUNSHINE DURATION SENSOR

INTRODUCTION

Unlock unparalleled accuracy and reliability with the **Sunshine Duration Sensor LPSD18**, meticulously engineered to measure sunshine status and duration according to the World Meteorological Organization's (WMO) standards. This advanced sensor ensures precision by recording direct solar radiation exceeding 120 W/m².

The perfect choice for a wide variety of applications:

- Agriculture: Optimize crop growth by accurately monitoring sunlight exposure.
- Photovoltaic Systems: Enhance performance verification with precise sunlight measurement.
- Building Automation: Automate blinds and shutters for energy efficiency and comfort.
- General Sunlight Monitoring: Perfect for any application requiring reliable sunlight presence data.

FEATURES

Exceptional Accuracy

Utilizing an array of photodiodes arranged in a unique geometry, the LPSD18 guarantees accurate measurements in any weather condition, eliminating the need for mechanical moving parts and ensuring long-term reliability.

All-Weather Performance

Equipped with a separately powered, galvanically isolated heating element, the LPSD18 prevents condensation on the glass surface.

For colder climates, an optional second heating element (option R) is available to prevent ice formation and snow accumulation.

Hassle-Free Installation

Designed without moving parts and requiring no seasonal positioning adjustments, the LPSD18 can be easily installed on a mast or a dedicated fixing base (optional)

CONFIGURATION & MEASUREMENT

Flexible Output Options

Choose the version that best suits your needs:

- RS485 MODBUS-RTU output and volt-free contact output.
- RS485 MODBUS-RTU output, analog voltage output (0...1 Vdc), and digital voltage output.
- SDI-12 output and volt-free contact output.

Versatile Measurement Capabilities

In addition to indicating sunshine presence, the LPSD18 also measures direct radiation (SRD). This dual functionality offers a cost-effective alternative to a pyrheliometer, which typically requires a solar tracker.

HASSLE-FREE INSTALLATION
No moving parts.
No seasonal positioning adjustments required.

ACCURATE & RELIABLE
Array of photodiodes arranged in a unique geometry to guarantees accurate measurements in any weather condition

ACCORDING TO THE STANDARD
Engineered to measure sunshine status and duration according to the World Meteorological Organization's (WMO)

GREAT FLEXIBILITY
Wide variety of outputs choice.

Technical specifications

Sensitive elements	16 Silicon photodiodes
Spectral range	360...1100 nm
Direct radiation SRD measuring range	0...2000 W/m²
Accuracy of the measurement of direct radiation	Better than 90% on the monthly total
Accuracy of the measurement of the sunshine duration sensor	Better than 90% on the monthly total
Response time	<1 ms
Threshold value	120 W/m²
Sunshine duration resolution	1 s
Power supply Consumption	7...30 Vdc 5mA @ 12V
Heating system Anti-condensation device consumption Antifreeze device consumption	12...15 Vdc 1 W @ 12 V 5 W @ 12 V ON for internal Temp. < 6 °C, OFF for internal Temp. > 10 °C
Internal temperature Measuring range Accuracy	 -40...+80 °C ± 0.5 °C
Operating temperature	-40...+80 °C
Weight	0.9 kg
Protection degree	IP66
Outputs	
LPSD18.1	• RS485 MODBUS-RTU • Galvanically isolated contact closed = SRD ≥ 120 W/m² open = SRD < 120 W/m²
LPSD18.2	• RS485 MODBUS-RTU • Analog output 0...1 V (0...2000 W/m²) • Digital output 0...1 V 1 V = SRD ≥ 120 W/m2 0 V = SRD < 120 W/m²
LPSD18.3	• SDI-12 • Galvanically isolated contact closed = SRD ≥ 120 W/m² open = SRD < 120 W/m²

Ordering codes

LPSD18.	1	RS485 and contact outputs
	1R	RS485 and contact output, with heating
	2	RS485, analog and digital outputs
	2R	RS485, analog and digital outputs, with heating
	3	SDI-12 and contact outputs
	3R	SDI-12 and contact outputs, with heating

Installation

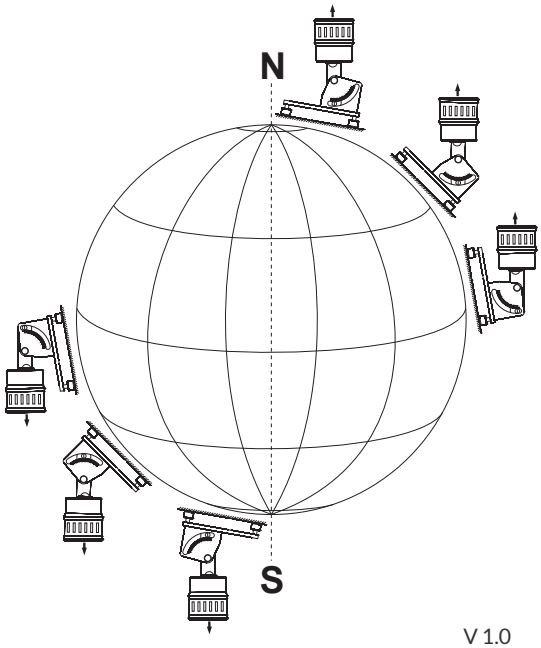
Various installation methods are possible, with adjustable supports so to fit the sensor to the position of the sun to the latitude of the place of installation:

- on the LPSD18.O base - the base allows the inclination of the sensor up to 80° (with graduated scale) respect to the vertical;
- on a vertical Ø 40 mm mast by using the LPSD18.VK support. The support allows the inclination of the sensor up to 80° (with graduated scale) respect to the vertical and the rotation of the sensor on the horizontal plane.

Before orienting the Sunshine Duration Sensor to its final position, place it vertically and adjust the base (for installation on a plane) or support (for installation on a Ø 40 mm mast) feet so that the level on the upper side of the instrument is perfectly levelled.

Orient the Sunshine Duration Sensor so that the index of the graduated scale of the support matches the value (90° - Latitude) and the top (where the spirit level is placed) is directed towards the north pole, if used in the northern hemisphere, or towards south, if used in the southern hemisphere.

The angle that instrument axis should make with respect to the ground is equal to the latitude of the installation site, this way the axis of the instrument will be parallel to the earth axis North-Sout.



V 1.0

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