

# The Ultimate Technology for Small-scale PV Monitoring

**Delta OHM**

Member of GHM GROUP

## LPPYRA-Lite

### SMALL, SIMPLE AND COST-EFFECTIVE

All the features of a silicon pyranometer combined with the accuracy of a thermopile one

### ACCORDING TO THE STANDARD

Spectrally Flat Class C according to ISO 9060:2018  
WMO recommendations fully compliant

### COMPACT & STREAMLINED DESIGN

Specifically designed for **direct tilted installation** on PV panel plane

### EASY TO SET UP AND QUICK TO INSTALL

Fixing adapter to **ease installation**.  
In case of horizontal mounting, available adapter with levelling device

### OUTPUT ACCORDING TO YOUR NEEDS

Available in different versions: passive, active 2-wire (current loop) 4...20 mA, RS485 Modbus-RTU or SDI-12

## The most compact and light solution for ordinary solar efficiency monitoring of PV system

With the **LPPYRA-Lite**, Delta OHM is expanding its pyranometer range with a product that perfectly represents **the entry level of solar radiation monitoring**.

LPPYRA-Lite is a very **small and light** pyranometer based on an accurate **thermopile sensor** for ordinary monitoring of small PV systems. Its exceptionally compact dimensions ease the installation and the integration into any application.

At the same time, being classified as a **Class C Spectrally Flat** according to ISO 9060:2018, it guarantees the accuracy, reliability and precision of the measurements, in compliance with the reference standards. Each sensor is characterised by its own calibration factor, indicated on the body of the pyranometer.

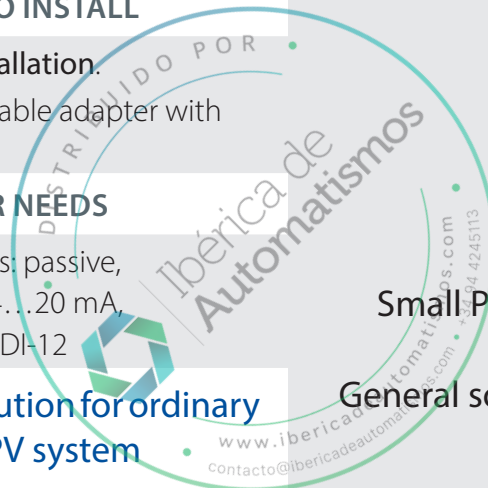
Specifically designed for **direct tilted installation** on PV panel plane, it does not require any levelling device, but for installations where horizontal positioning is needed, an optional fixing base with integrated levelling device is also available.



## Main Applications

Small PV power plant monitoring

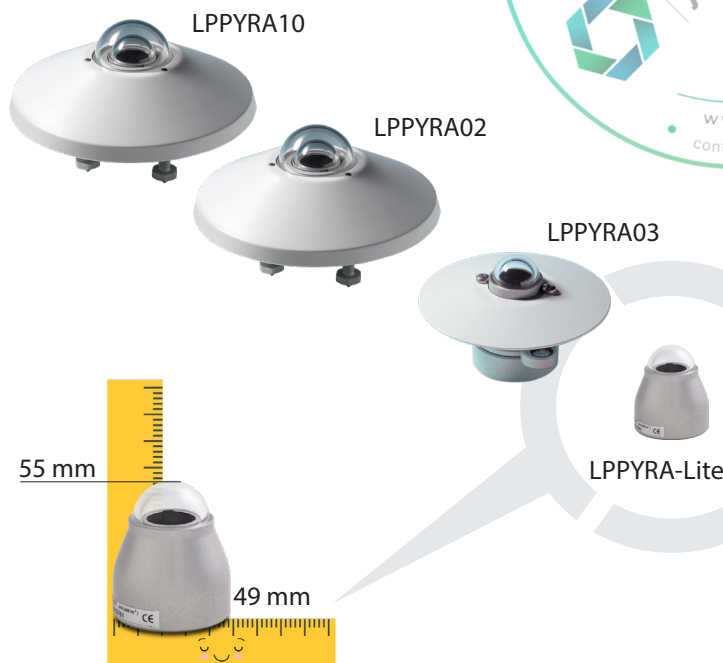
General solar radiation measurements



## Technical Specifications

Sensor	Thermopile
Typical Sensitivity	5...15 $\mu\text{V}/\text{Wm}^{-2}$ or normalized 7 $\mu\text{V}/\text{Wm}^{-2}$
Measuring range	0...2000 $\text{W}/\text{m}^2$
Viewing angle	2 $\pi$ sr
Spectral range (50%)	300...2800 nm
Output	<i>LPPYRA-Lite</i> : $\mu\text{V}/\text{Wm}^{-2}$ (impedance 33...45 $\Omega$ ) <i>LPPYRA-LiteAC</i> : 2-wire (current loop) 4...20 mA ( $R_L \leq 500 \Omega$ ) <i>LPPYRA-LiteS</i> : RS485 Modbus-RTU <i>LPPYRA-LiteS12</i> : SDI-12
Power supply	<i>LPPYRA-Lite</i> : no power required <i>LPPYRA-LiteAC</i> : 10...28 Vdc <i>LPPYRA-LiteS</i> : 5...30 Vdc <i>LPPYRA-LiteS12</i> : 7...30 Vdc
Consumption	<i>LPPYRA-Lite</i> : no power required <i>LPPYRA-LiteAC</i> : equal to output signal (4...20 mA) <i>LPPYRA-LiteS</i> : 8mA <i>LPPYRA-LiteS12</i> : <200 $\mu\text{A}$ normal operation < 5 mA during measure
Connection	<i>LPPYRA-Lite</i> / <i>LPPYRA-LiteAC</i> : 4-pole M12 <i>LPPYRA-LiteS</i> / <i>LPPYRA-LiteS12</i> : 8-pole M12
Weight	150 g approx.
Operating conditions	-40...80 $^{\circ}\text{C}$ / 0...100 %RH
Protection Degree	IP 67
MTBF	> 10 years

## Dimensions



## ISO 9060:2018 Technical Specifications

Classification	Spectrally Flat Class C	
Response time (95%)	< 25 s	
Zero offset	a) response to a 200 $\text{W}/\text{m}^2$ thermal radiation	< $ \pm 20  \text{ W}/\text{m}^2$
	b) response to a 5 K/h change in ambiente temperature	< $ \pm 6  \text{ W}/\text{m}^2$
	c) total zero off-set including the effects a), b) and other sources	< $ \pm 30  \text{ W}/\text{m}^2$
Long-term instability (1 year)	< $ \pm 2  \%$	
Non-linearity	< $ \pm 2  \%$	
Response according to the cosine law	< $ \pm 25  \text{ W}/\text{m}^2$	
Spectral error	< $ \pm 2  \%$	
Temperature response (-10...+40 $^{\circ}\text{C}$ )	< 3 %	
Tilt response	< $ \pm 3  \%$	

## Ordering Codes

LPPYRA-Lite	<input type="checkbox"/>	<b>OUTPUT</b> Blank = analog in $\mu\text{V}/\text{Wm}^{-2}$ AC = 2-wire (current loop) 4...20 mA S = RS485 Modbus-RTU S12 = SDI-12
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Pyranometers are supplied with female M12 free connector.

Cable, fixing accessories/adapters and Calibration Report have to be ordered separately.

### Accessories

LPS40/32	Fixing adapter from 40 to 32 mm holes centre distance.
LPS40/32BL	Fixing adapter from 40 to 32 mm holes centre distance. With integrated levelling device. Accuracy of levelling device < 0.2°.
LPS3	Fixing bracket for the pyranometer, suitable for $\varnothing 40$ ...50 mm mast. Installation on horizontal or vertical mast. LPS40/32... adapter is required.
LPRING04	Adjustable holder for mounting the pyranometer in an inclined position on $\varnothing 40$ mm mast with internal thread. LPS40/32... adapter is required.
HD2003.77/40	Clamping for mast $\varnothing 40$ mm to install the pyranometer on a transverse mast. LPS40/32... adapter is required.
CPM12AA4...	Cable with 4-pole M12 connector on one end, open wires on the other end. Available length: 2, 5 or 10 m). For <i>LPPYRA-Lite</i> and <i>LPPYRA-LiteAC</i> .
CPM12-8D...	Cable with 4-pole M12 connector on one end, open wires on the other end. Available length: 2, 5 or 10 m). For <i>LPPYRA-LiteS</i> and <i>LPPYRA-LiteS12</i> .
CP24	PC connecting cable for the configuration of <i>LPPYRA-LiteS</i> RS485 Modbus parameters.

# Delta OHM

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In order to ensure the quality of our instruments, we are constantly re-evaluating our products. Improvements can imply changes in specification; we advise you to always check our website for the newest version of our documentation.

We look forward to your enquiry:

Phone +39 049 89 77 150

Email: sales@deltaohm.com

Delta OHM S.r.l.

Single Member Company subject to direction and coordination of

GHM MESSTECHNIK GmbH

Via Marconi 5 | 35030 Caselle di Selvazzano (PD) | ITALY

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