

Пиранометры DELTA OHM LPPYRA03

Технические характеристики

Архангельск (8182)63-90-72
Астана (7172)727-132
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
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Оренбург (3532)37-68-04
Пенза (8412)22-31-16
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Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
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Сургут (3462)77-98-35
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Тула (4872)74-02-29
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Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Единый адрес для всех регионов: dmh@nt-rt.ru || www.deltaohm.nt-rt.ru

Spectrally Flat Class C Pyranometer

LPPYRA03

○ ACCORDING TO THE STANDARD

Follows recommendations of the WMO
fully compliant with ISO 9060:2018

○ GREAT FLEXIBILITY

Wide availability of standard output signals
for **easy integration** in any installation

○ EASY TO SET UP AND QUICK TO INSTALL

Rugged housing with low temperature response
Integrated **levelling device** for perfect positioning

○ ACCURATE AND RELIABLE SYSTEM

High reliability
Individual Calibration Reports for each instrument

○ HIGH IMMUNITY AGAINST INTERFERENCE

Protected against overpower and **fully electrically isolated** from any mounting surface



Main Applications

PV monitoring
Solar energy
Meteorology
Agriculture

Measuring solar efficiency

The LPPYRA03 series has been designed to provide the **best economical solution** for measuring **solar efficiency**.

The pyranometers in this series are all based on the thermopile principle, **very accurate**. This principle provides a μV signal without the need of an external power supply. To be able to transfer the signal over a longer distance and to prevent interference, mostly types are equipped with an integrated transmitter. When using a 4-20 mA, 0-10 VDC or RS485 Modbus-RTU output, an external active power supply is necessary. The output of these series is always related to W/m^2 , making it possible to have a relation to the total solar panel surface.

All our pyranometers are made in a way that the electrical system is totally isolated from the housing, making it possible to mount the pyranometer on any surface, including metal ones, without the need of isolation.

Delta OHM is one of the main pyranometer producers worldwide. We produce a full range of pyranometers according to the **ISO 9060: 2018 - Spectrally Flat Class A, B and C**.

Each of our pyranometers is **calibrated separately** during production; all are supplied standard with a Report of Calibration in accordance with the ISO 9847:1992. Next to this, we are the only pyranometer producer that has invested in a full range of 6 accredited ISO 17025 Calibration Laboratories.

Pyranometers can be used **as stand-alone or in combination with our weather stations**. Delta OHM provides a full range of data loggers with integrated GSM/3G/4G modem to read and transfer measured data to any database or Cloud solution.

Technical Specifications

Sensor	Thermopile
Typical Sensitivity	$5 \div 15 \mu\text{V}/\text{Wm}^{-2}$
Impedance	$33 \div 45 \Omega$
Measuring range	$0 \div 2000 \text{ W/m}^2$
Viewing angle	$2\pi \text{ sr}$
Spectral range (50%)	$300 \div 2800 \text{ nm}$
Operating temperature/ humidity	$-40 \div 80 \text{ }^\circ\text{C}$ $0 \div 100 \text{ \% RH}$
Output	Depending on the model: - Analog in $\mu\text{V}/\text{Wm}^{-2}$ - Analog $4 \div 20 \text{ mA}$ - Analog $0 \div 1 \text{ V}$, $0 \div 5 \text{ V}$ or $0 \div 10 \text{ V}$ - Double output: Analog $4 \div 20 \text{ mA}$ + Digital RS485 Modbus-RTU - Digital RS485 Modbus-RTU - Digital SDI-12
Power supply	$10 \div 30 \text{ Vdc}$ ($4 \div 20 \text{ mA}$ - $0 \div 1 \text{ V}$ - $0 \div 5 \text{ V}$ outputs) $15 \div 30 \text{ Vdc}$ ($0 \div 10 \text{ V}$ output) $5 \div 30 \text{ Vdc}$ (RS485 Modbus-RTU) $7 \div 30 \text{ Vdc}$ (SDI-12)
Consumption	$< 200 \mu\text{A}$ for SDI-12 version
Connection	- 4-pole M12 connector for analog output models - 8-pole M12 connector for digital and double output models
Accuracy of levelling device	$< 0.2^\circ$
Protection Degree	IP 67
MTBF	$> 10 \text{ years}$

Dimensions



ISO 9060:2018 Technical Specifications

Classification	Spectrally Flat Class C	
Response time (95%)	$< 20 \text{ s}$	
Zero offset	a) response to a 200 W/m^2 thermal radiation	$< \pm 15 \text{ W/m}^2$
	b) response to a 5 K/h change in ambiente temperature	$< \pm 4 \text{ W/m}^2$
	c) total zero off-set including the effects a), b) and other sources	$< \pm 20 \text{ W/m}^2$
Long-term instability (1 year)	$< \pm 1 \text{ \%}$	
Non-linearity	$< \pm 1.5 \text{ \%}$	
Response according to the cosine law	$< \pm 20 \text{ W/m}^2$	
Spectral error	$< \pm 2 \text{ \%}$	
Temperature response ($-10 \dots +40 \text{ }^\circ\text{C}$)	$< 3 \text{ \%}$	
Tilt response	$< \pm 2 \text{ \%}$	

Ordering Codes

LPPYRA03	Blank = Analog in $\mu\text{V}/\text{Wm}^{-2}$ AC= Analog $4 \div 20 \text{ mA}$ AV = Analog $0 \div 1 \text{ V}$, $0 \div 5 \text{ V}$ or $0 \div 10 \text{ V}$ (to be defined when ordering) ACS = Analog $4 \div 20 \text{ mA}$ + digital Modbus-RTU S = Digital RS485 Modbus-RTU S12 = Digital SDI-12
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All pyranometers are supplied with levelling device and Calibration Report.

Accessories

LPS2	Kit including fixing and $\varnothing 16 \times 500 \text{ mm}$ rod.
LPS3	Fixing bracket suitable for $\varnothing 40 \div 50 \text{ mm}$ mast. Installation on horizontal or vertical mast.
LPRING04	Adjustable holder for mounting the pyranometer in an inclined position on $\varnothing 40 \text{ mm}$ mast with internal thread.
HD2003.77/40	Clamping for mast $\varnothing 40 \text{ mm}$ for installation on a transverse mast.
LPS6	Installation kit including: 750 mm mast, base fitting, graduated support plate, bracket for pyranometers.
CPM12AA4.xx	Cable for LPPYRA03 / 03AC / 03AV models. M12 connector on one end, open wires on the other end (2, 5 or 10 m).
CPM12-8D.xx	Cable for LPPYRA03S / 03S12. M12 connector on one end, open wires on the other end (2, 5 or 10 m).
CPM12-8DA.xx	Cable for LPPYRA03ACS. M12 connector on one end, open wires on the other end (2, 5 or 10 m).
CP24	PC connecting cable for the RS485 MODBUS parameters configuration (only for models with RS485 output).
LPRING13	Ring base for measuring the diffused radiation.

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