

# Pyrheliometer

## LPPYRHE16...

### SPECTRALLY FLAT CLASS B PYRHELIOMETER

#### INTRODUCTION

Accurately measuring direct solar irradiance is critical for solar energy research, climate studies, and performance analysis of photovoltaic systems. The LPPYRHE16 pyrheliometer is the ideal solution for these applications, delivering highly reliable, standards-compliant measurements of direct solar radiation.

Designed according to ISO 9060:2018 (Spectrally Flat Class B) and in full alignment with WMO guidelines, LPPYRHE16 ensures consistent, traceable data with minimal maintenance requirements. Whether integrated into a larger solar monitoring network or used as a stand-alone device, LPPYRHE16 is engineered to meet the most demanding field conditions while providing laboratory-level accuracy.

#### FEATURES

##### ISO 9060:2018 Class B Compliance

Spectrally Flat Class B classification, with 5° field of view and 1° slope angle, ensures data accuracy and consistency.

##### High-Precision Thermopile Sensor

Utilizes a passive thermopile coated with non-selective matte black paint for a broad spectral response (200–4000 nm).

##### Quartz Window Protection

The special quartz window protects the sensor from dust and moisture while maintaining a flat spectral response.

##### Temperature Compensation

A built-in passive compensation circuit minimizes sensitivity variation across temperature fluctuations.

#### CONFIGURATION & MEASUREMENT

##### Mounting & Alignment

Must be installed parallel to the sun's rays. Use with a solar tracker is recommended for optimal alignment and performance.

##### Operating Principle

Based on the Seebeck effect, the thermopile generates a voltage in proportion to the absorbed solar radiation, enabling precise irradiance measurements in  $W/m^2$ .

##### Output Compatibility

Multiple signal outputs are available to ensure seamless integration into existing measurement systems, whether for stand-alone deployment or as part of a full solar monitoring station.

##### Supplied Calibrated

Each device is factory-calibrated and comes with an individual Calibration Report for complete traceability.



ACCORDING TO THE STANDARD  
ISO 9060:2018 Class B & WMO-  
compliant for reliable solar irradiance  
measurement.



BUILT-IN TEMPERATURE  
COMPENSATION  
Passive circuit minimizes sensitivity drift  
across varying temperatures, ensuring  
measurement consistency.



FAST & STABLE RESPONSE  
High-performance thermopile delivers  
quick, stable readings - even beyond  
Class B response time requirements.



GREAT FLEXIBILITY  
Wide range of output options to suit  
diverse system requirements.

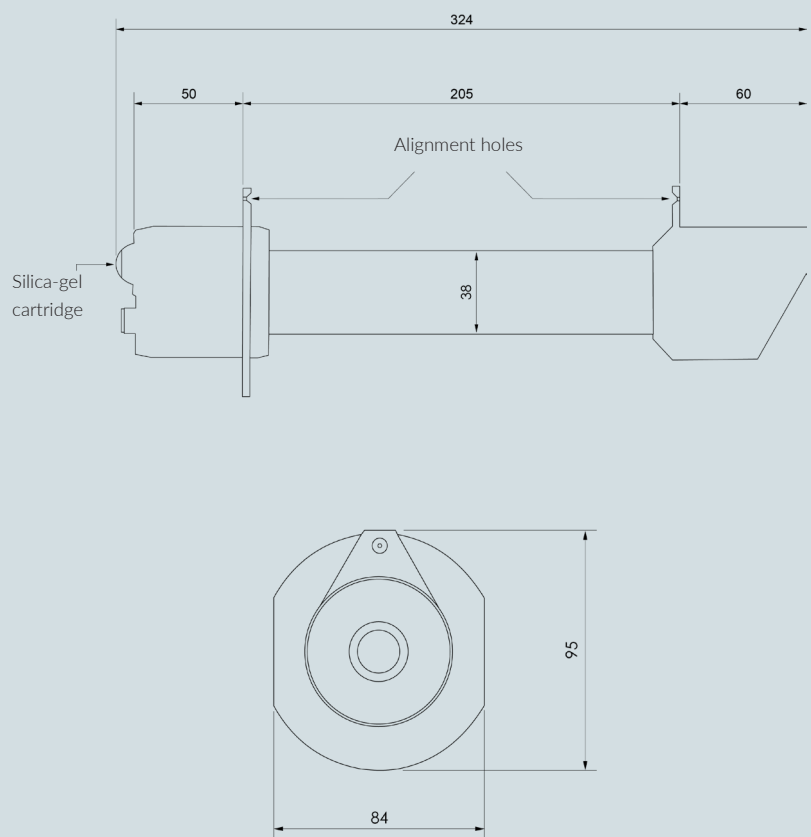


FACTORY CALIBRATED WITH  
TRACEABILITY  
Each unit is individually calibrated and  
delivered with a Calibration Report.

Technical specifications according to ISO9060:2018

Classification	Spectrally Flat Class B
Response time (95%)	< 9 s
Zero offset in response to a 5 K/h change in ambient temperature	<   ± 3   W/m²
Long-term instability (1 year)	<   ± 1   %
Non-linearity	<   ± 0.5   %
Spectral error	<   ± 0.8   %
Temperature response	<   ± 2   %
Tilt response	<   ± 0.5   %

Dimensions



Ordering codes

LPPYRHE16	blank	mV output
	AC	2-wire (current loop) 4...20 mA output
	ACS	RS485 MODBUS RTU + analog 4...20 mA outputs
	AV	0...10 V output
	AV1	0...1 V output
	AV5	0...5 V output
	S	RS485 MODBUS-RTU serial output

Technical specifications

Sensor	Thermopile
Typical sensitivity	5 µV/Wm²
Measuring range	0...2000 W/m²
Viewing angle	5° (slope 1°)
Spectral range (50%)	200...4000 nm
Output	
LPPYRHE16	Passive in mV
LPPYRHE16AC	2-wire (current loop) 4...20 mA
LPPYRHE16ACS	RS485 Modbus-RTU + analog 4...20 mA
LPPYRHE16AV	0...10 V
LPPYRHE16AV1	0...1 V
LPPYRHE16AV5	0...5 V
LPPYRHE16S	RS485 Modbus-RTU
Power supply	5...30 Vdc for RS485 output 10...30 Vdc for analog output (except 0...10 V) 15...30 Vdc for 0...10 V output
Connection	4 or 8-pole M12 depending on model
Operating temperature/humidity	-40...+80 °C / 0...100 %RH
Weight	1.5 kg approx.
Material	Aluminium

Installation

To point the pyrheliometer, the two holes in the front and back flange are used. To properly align the instrument, just make sure that the sun's beams that pass through the first hole (on the front flange of the pyrheliometer) reach the second hole (on the back flange).



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