

Litemeter Current PAR

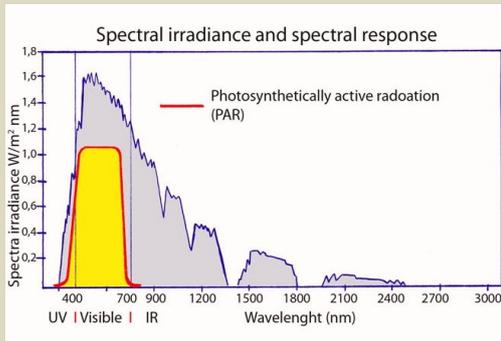


Parmeter is a silicon-cell sensor which measures solar radiation in the wavelengths used by plants in photosynthesis. The spectrum of interest belongs to the visible region corresponding to a wavelength range of 400 - 700 nanometers (nm).

Measurement features

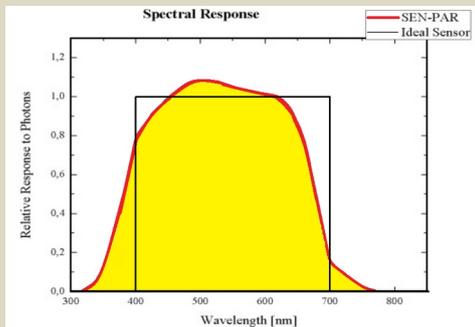
The sensor measures the number of photons that reach its surface in the spectral range from 400 nm to 700 nm. PAR stands for Photosynthetically Active Radiation. The measurement unit of solar energy used in this field is defined in terms of $\frac{\mu\text{mol}}{\text{m}^2 \cdot \text{s}}$ and expresses the flux density of light quantummoles (photons). It is equal to microeinsteins per second per square meter.

Spectrum of interest



The analyzed spectrum is the electromagnetic radiation between 400-700 nm.

Spectral Response



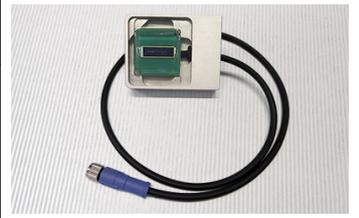
The sensor covers the desired wavelength range quite optimally thanks to a special filter

Conversion table in the "PAR Band"

The correlation between the energy [in W/m²] and the corresponding number of photons [in $\mu\text{mol} / \text{m}^2 \cdot \text{s}$] is shown in the conversion table below. (EGC.COM site)

Radiation Source	Photons To W/m ²	W/m ² To Photons	Photons To Lux	Lux To Photons	W/m ² To Lux	Lux To W/m ²
Sunlight	0.219	4.57	54	0.019	0.249	4.02
Cool white fluorescent	0.218	4.59	74	0.014	0.341	2.93
Plant Growth fluorescent (Gro-Lux)	0.208	4.80	33	0.030	0.158	6.34

PAR SENSOR		
Product	PARmeter	
Standard Reference	IEC 60904-2; 60904-4; 60904-10	
Output	Analog	
Input Range	Irradiance	0 ÷ 4600 $\mu\text{mol} / \text{m}^2 \cdot \text{s}$
	Spectrum	0,4 μm ÷ 0,8 μm
	Temperature	-30 ÷ 90 °C
Output	Current	4÷20mA
	Voltage	Optional kit for 0 ÷ 40mV output
Output Precision	Irradiance	± 4 % Temperature Compensated (1)
	Non Linearity	< 1 %
	Response Time	< 100ms
Sensor Type	Photovoltaic Silicon with Passband filter	
Supply	Ext.Current loop	9 ÷ 30 Vdc Protected against reverse polarity,short circ.
Encapsulant	UV-resistant transparent resin Can be submerged until 10m deep water	
Cable	50cm UV-resistant cable with Female connector	
Connector	Female M8 3 pin, IP67	
	Male M8 3 pin, IP67 for field installation	
Dimensions	48x62x15 mm without fixing bracket	
IP code	IP 67	
(1): Note: Recalibration advised after 12 months and then after 2 years.		



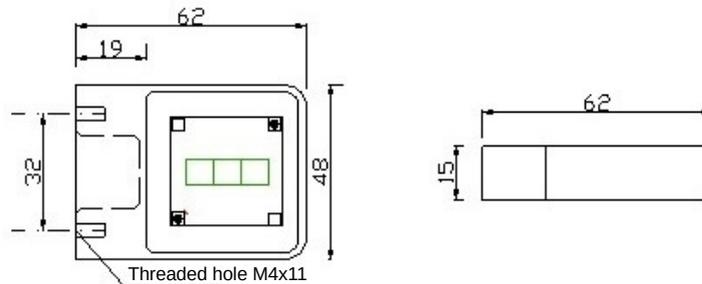
Calibration

The spectral response is determined according to IEC 60904-4 thanks to a filter that allows the passage of the portion of spectrum 360 ÷ 800 nm.

Parameter is calibrated in natural light conditions by comparison with a "working ref" which refers to a LICOR LI19OR which has an accuracy of around 1.5% and with the HP34401 A multimeter, with accuracy greater than 0.2% .

Physical features

Silicon sensor with optical bandpass filter. Laminated and anodized aluminum housing, high durability, practical screw fixing system, optional mounting bracket. UV-resistant transparent resin.



Most common uses

Detecting electromagnetic radiation in photosynthetic wavelengths (400-700nm) is useful for monitoring all those research and economic production activities where biological growth is an important factor:

- Intensive agriculture
- Floriculture
- Fruit growing
- Algal growth,
- Aquariums
- Marine biodiversity studies