CAMPBELL SCIENTIFIC
WHEN MEASUREMENTS MATTER

LI190R-L

Quantum (PAR) Sensor

Accurate, Versatile

Compatible with most Campbell Scientific data loggers

Overview

The LI190R Quantum Sensor, manufactured by LI-COR, accurately measures photosynthetic photon flux density (PPFD), which is the number of photons in the 400 to 700 nm waveband incident per unit time on a unit surface. It uses a silicon photovoltaic detector mounted in a cosine-corrected head. A shunt resistor in the sensor's cable converts the signal from microamps to millivolts, allowing these sensors to be measured directly by a Campbell Scientific data logger.
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Benefits and Features

- Ideal for growth chambers and greenhouses
- Measures photosynthetic photon flux density (PPFD) in both natural and artificial light
- Compatible with the CWS900-series interfaces, allowing it to be used in a wireless sensor network

Detailed Description

The LI190R measures solar radiation with a silicon photovoltaic detector mounted in a cosine-corrected head. A shunt resistor in the sensor's cable converts the signal from microamps to millivolts, allowing the LI190R to be measured directly by a Campbell Scientific data logger. The LI190R accurately measures Photosynthetic Photon Flux Density (PPFD), which is the number of photons in the 400 to 700 nm waveband incident per unit time on a unit surface. Because PPFD describes photosynthetic activity, the LI190R is ideal for growth chambers and greenhouses.

Specifications

Sensor	Silicon photovoltaic detector mounted in a cosine-corrected head
Measurement Description	Measures photosynthetic photon flux density (PPFD) in both natural and artificial light
Spectral Range	400 to 700 nm

Calibration	±5% traceable to the U.S. National Institute of Standards Technology (NIST)
Sensitivity	Typically 5 to 10 µA per 1000 µmoles s^{-1} m^{-2}
Linearity	Maximum deviation of 1% (up to 10,000 µmole s^{-1} m^{-2})
Shunt Resistor	604 Ω, 0.1%, 25 ppm
Long-Term Stability	< ±2% change over a 1 year period
Response Time	< 1 µs
Temperature Dependence	0.15% per °C (maximum)
Cosine Correction	Cosine corrected up to 82° angle of incidence

Operating Temperature Range	-40° to +65°C
Relative Humidity Range	0 to 100% (non-condensing)
Detector Description	High-stability silicon photovoltaic (blue enhanced)
Sensor Housing Description	Weatherproof anodized aluminum case with acrylic diffuser and stainless-steel hardware; O-ring seal on the removable base and cable assembly
Diameter	2.36 cm (0.93 in.)
Height	3.63 cm (1.43 in.)
Weight	84 g (2.96 oz)

For comprehensive details, visit: www.campbellsci.com/li190r-l

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