

Accurate, Versatile

Compatible with most Campbell Scientific dataloggers

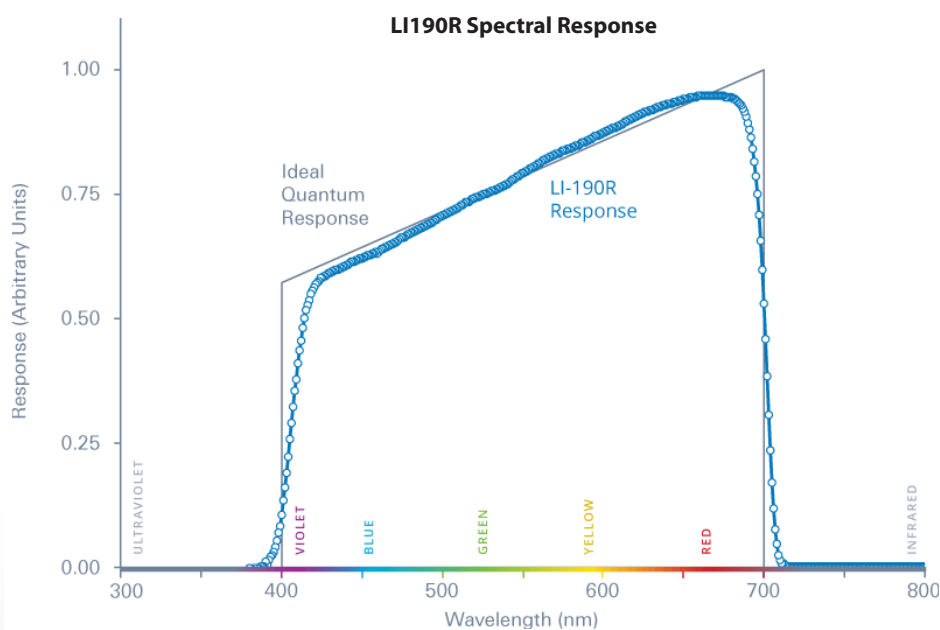
Overview

The LI190R Quantum Sensor¹ 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 datalogger².

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



¹The LI190R is manufactured by LI-COR®.

²The LI190R is not compatible with the CR200(X)-series dataloggers.



Mounting

To ensure accurate measurements, the sensor should be leveled using a LI2003S leveling fixture, which incorporates a bubble level and three adjusting screws. The LI2003S leveling fixture mounts to a

tripod using the 015ARM or to a crossarm using the CM225 mount. These sensors should be mounted away from all obstructions and reflective surfaces that might adversely effect the measurement.

Ordering Information

Solar Radiation Sensor

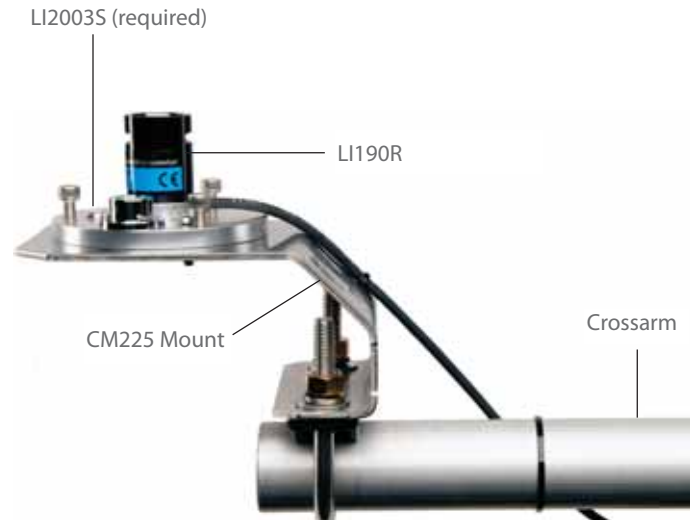
LI190R-L LI-COR® Quantum Sensor with user-specified cable length. Enter length, in feet, after the -L. Recommended length is 11 ft. Must choose a cable termination option.

Cable Termination Options (choose one)

- PT** Cable terminates in stripped and tinned leads for direct connection to a datalogger's terminals.
- PW** Cable terminates in a connector for attachment to a prewired enclosure.
- CWS** Cable terminates in a connector for attachment to a CWS900 interface. Connection to a CWS900 interface allows the LI190R to be used in a wireless sensor network.

Accessories

- LI2003S** Base and leveling fixture used to level the sensor.
- CM225** Solar Sensor Mounting Stand that's used to attach the LI2003S and sensor to a crossarm.
- 015ARM** Solar Sensor Mounting Arm that's used to attach the LI2003S and sensor to a tripod.



The CM225 attaches to a crossarm by placing the U-bolt in the holes on the bottom of the bracket.

Specifications

- › Stability: $\pm 2\%$ change over a 1 year period
- › Response Time: $< 1 \mu\text{s}$
- › Temperature Dependence: $\pm 0.15\%$ per $^{\circ}\text{C}$ maximum
- › Cosine Correction: Cosine corrected up to 82° angle of incidence
- › Operating Temperature Range: -40° to $+65^{\circ}\text{C}$
- › Relative Humidity Range: 0 to 100%, non-condensing
- › Detector: High stability silicon photovoltaic detector (blue enhanced)
- › Sensor Housing: 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)
- › Calibration: $\pm 5\%$ traceable to the U.S. National Institute of Standards Technology (NIST)
- › Sensitivity: Typically 5 to $10 \mu\text{A}$ per $1000 \mu\text{mole s}^{-1} \text{m}^{-2}$
- › Linearity: Maximum deviation of 1% up to $10,000 \mu\text{mole s}^{-1} \text{m}^{-2}$
- › Shunt Resistor: 604Ω , 0.1%, 25 ppm
- › Light Spectrum Waveband: 400 to 700 nm

