



LI200RX and LI200R

Solar Radiation Sensors



Accurate, Versatile

Compatible with most Campbell Scientific dataloggers

Overview

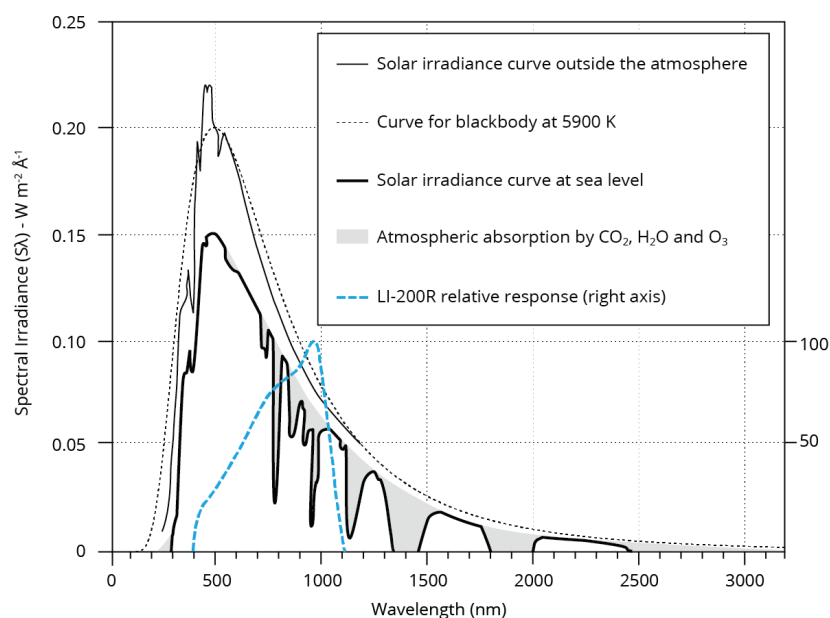
The LI200RX¹ and LI200R¹ silicon pyranometers accurately monitor sun plus sky radiation for solar, agricultural, meteorological, and hydrological applications. They use a silicon photovoltaic detector mounted in a cosine-corrected head to measure solar radiation. A shunt resistor in the sensor's cable converts the signal from microamps to millivolts, allowing these sensors to be measured directly by a Campbell Scientific datalogger².

The LI200RX includes a completion circuit in its cable that standardizes calibration, allowing the LI200RX to be interchanged with other LI200RX pyranometers without altering the multiplier and offset. The LI200R does not have a completion circuit in its cable, and therefore a unique calibration entry is required for each LI200R probe. However, it is compatible with the CWS900-series interfaces so that it can be used in a wireless sensor network.

Benefits and Features

- › Calibrated against an Eppley precision spectral pyranometer (PSP) for the daylight spectrum (400 to 1100 nm)³
- › Uniform sensitivity up to 82° incident angle

LI200R Spectral Response



¹The LI200RX and LI200R are manufactured by LI-COR®.

²The LI200RX, and LI200R are not compatible with the CR200(X)-series dataloggers.

³The LI200RX and LI200R should not be used under vegetation or artificial lights because they are calibrated for the daylight spectrum.



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 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 Sensors

For the following sensors, enter cable length, in ft, after the -L; recommended length is 11 ft. Must also choose a cable termination option.

LI200RX-L LI-COR® Silicon Pyranometer with fixed calibration.

LI200R-L LI-COR® Silicon Pyranometer

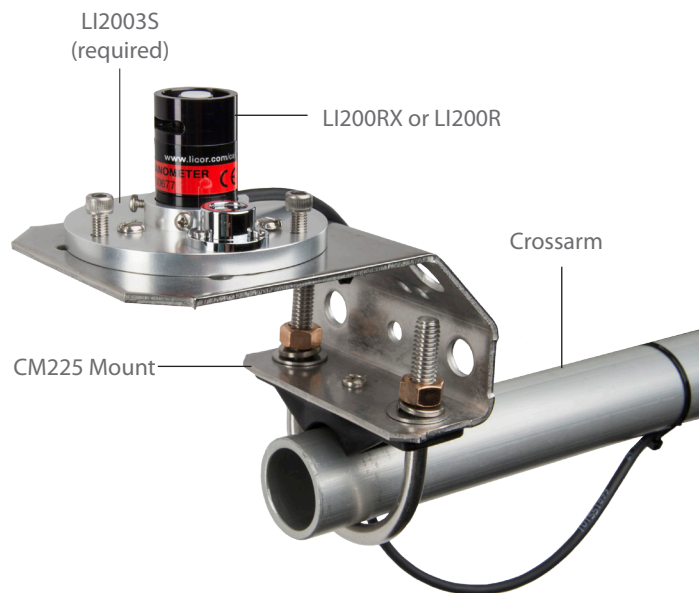
Cable Termination Options (choose one)

- 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. Option not offered for the LI200R.
- CWS** Cable terminates in a connector for attachment to a CWS900 interface. Connection to a CWS900 interface allows the LI200R to be used in a wireless sensor network. Option not offered for the LI200RX.

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.



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: $< 1 \mu\text{s}$
- › Cosine Correction: Cosine corrected up to 82° angle of incidence
- › Operating Temperature Range: -40° to $+65^\circ\text{C}$; the overmolding that protects the completion circuit in the cable of the LI200RX may crack if the temperature drops below -40°C
- › Temperature Dependence: $\pm 0.15\%$ per $^\circ\text{C}$ maximum
- › Relative Humidity Range: 0 to 100%
- › 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)
- › Accuracy: Absolute error in natural daylight is $\pm 5\%$ maximum; $\pm 3\%$ typical
- › Sensitivity: $0.2 \text{ kW m}^{-2} \text{ mV}^{-1}$
- › Linearity: Maximum deviation of 1% up to 3000 W m^{-2}
- › Shunt Resistor
 - LI200RX: Adjustable, 40.2 to 90.2 Ω , factory set to the above sensitivity
 - LI200R: 100 Ω , 1%, 50 ppm
- › Light Spectrum Waveband: 400 to 1100 nm



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