



## LI200RX and LI200R

Solar Radiation Sensors



# Accurate, Versatile

## Compatible with most Campbell Scientific dataloggers

### Overview

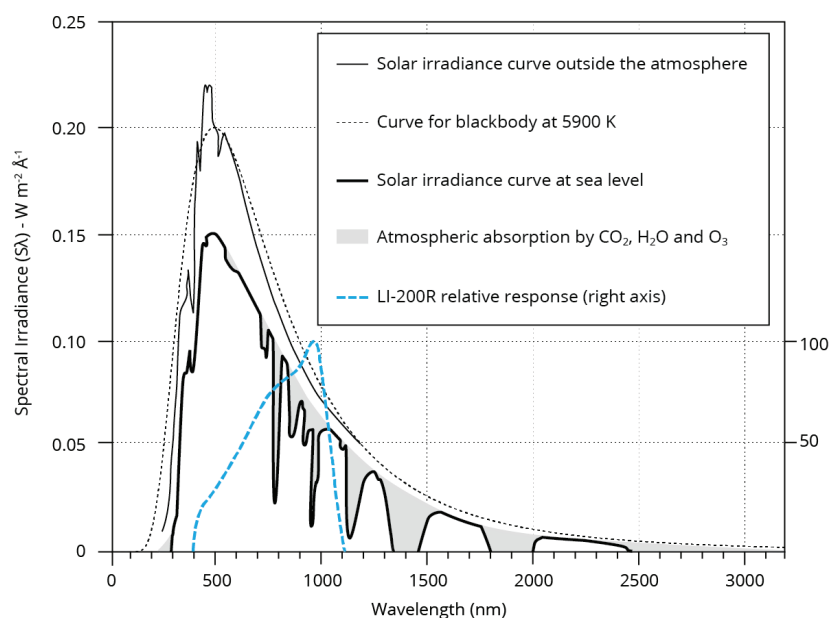
The LI200RX<sup>1</sup> and LI200R<sup>1</sup> silicon pyranometers accurately monitor sun plus sky radiation for solar, agricultural, meteorological, and hydrological applications. They use a silicon photovoltaic detector mounted in a cosine-corrected head to measure solar radiation. A shunt resistor in the sensor's cable converts the signal from microamps to millivolts, allowing these sensors to be measured directly by a Campbell Scientific datalogger<sup>2</sup>.

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)<sup>3</sup>
- Uniform sensitivity up to 82° incident angle

LI200R Spectral Response



<sup>1</sup>The LI200RX and LI200R are manufactured by LI-COR®.

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

<sup>3</sup>The 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

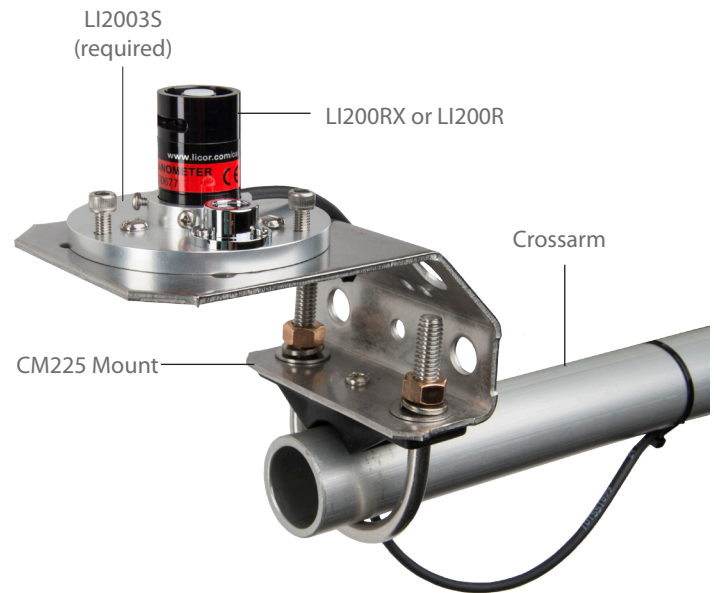
### Cable Termination Options (choose one)

- 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:  $\leq \pm 2\%$  change over a 1 year period
- › Response Time:  $< 1 \mu\text{s}$
- › Cosine Correction: Cosine corrected up to  $82^\circ$  angle of incidence
- › Operating Temperature Range:  $-40^\circ$  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  $-40^\circ\text{C}$
- › 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  $3000 \text{ W m}^{-2}$
- › Shunt Resistor
  - LI200RX: Adjustable, 40.2 to  $90.2 \Omega$ , factory set to the above sensitivity
  - LI200R:  $100 \Omega$ , 1%, 50 ppm
- › Light Spectrum Waveband: 400 to 1100 nm



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