

The Solar Radiation Sensor, or solar pyranometer, measures global radiation, the sum at the point of measurement of both the direct and diffuse components of solar irradiance. The sensor's transducer, which converts incident radiation to electrical current, is a silicon photodiode with wide spectral response. From the sensor's output voltage, the console calculates and displays solar irradiance. It also integrates the irradiance values and displays total incident energy over a period.

The outer shell shields the sensor body from thermal radiation and provides an airflow path for convection cooling of the body, minimizing heating of the sensor interior. It includes a cutoff ring for cosine response, a level indicator, and fins to aid in aligning the sensor with the sun's rays. The space between the shield and the body also provides a run-off path for water, greatly reducing the possibility of rain- or irrigation-water entrapment. The diffuser is welded to the body for a weather-tight seal; it provides excellent cosine response. The transducer is an hermetically-sealed silicon photodiode; the included amplifier converts the transducer current into a 0 to +3V DC voltage. Spring-loaded mounting screws, in conjunction with the level indicator, enable rapid and accurate levelling of the sensor. Each sensor is calibrated against a secondary standard which is calibrated periodically against an Eppley Precision Spectral Pyranometer in natural daylight.

To ensure maximum readings when used with the Energy or Health EnviroMonitor systems you may want to tilt the sensor towards the sun. The Sensor Tilting Bracket provides a simple method for mounting the sensor at an adjustable angle. All GroWeather systems perform evapotranspiration calculations assuming the sensor is mounted horizontally; do not tilt the sensor when using a GroWeather system.

## SPECIFICATIONS

### General

<b>Operating Temperature</b> .....	-40° to 150° F (-40° to 65° C)
<b>Sensor Type</b> .....	Silicon photodiode
<b>Spectral Range</b> (10% points) .....	400 to 1100 nanometers
<b>Cosine Response</b>	
Percent of Reading .....	±3% (0° to ±70° incident angle); ±10% (±70° to ±85° incident angle)
Percent of Full Scale .....	±2% (0° to ±90°)
<b>Attached Cable Length</b> .....	16' (5 m)
<b>Cable Type</b> .....	2-twisted pair, 24 AWG shielded cable with UV-resistant jacket, wires stripped and tinned
<b>Recommended Maximum Cable Length</b> .....	200' (61 m)
<b>Housing Material</b> .....	UV-resistant plastic
<b>Dimensions</b> .....	2" x 2.75" x 2.25" (51 mm x 70 mm x 57 mm)
<b>Weight</b> .....	9 oz. (255 g)

**Console Data** (These specifications apply to sensor output as converted by Davis Instruments weather station consoles.)

<b>Range</b>	
Solar Radiation Intensity .....	0 to 1500 W/m <sup>2</sup>
Solar Energy .....	0 to 1999.9 Langleys
<b>Accuracy</b>	
Solar Global Radiation Intensity .....	±5%
Solar Energy .....	±5%
<b>Resolution</b>	
Solar Radiation Intensity .....	1 W/m <sup>2</sup>
Solar Energy .....	0.1 Langleys
<b>Sample and Display Update Interval</b>	
Solar Radiation Intensity .....	12 seconds (6 seconds when selected for display)
Solar Energy .....	1 minute

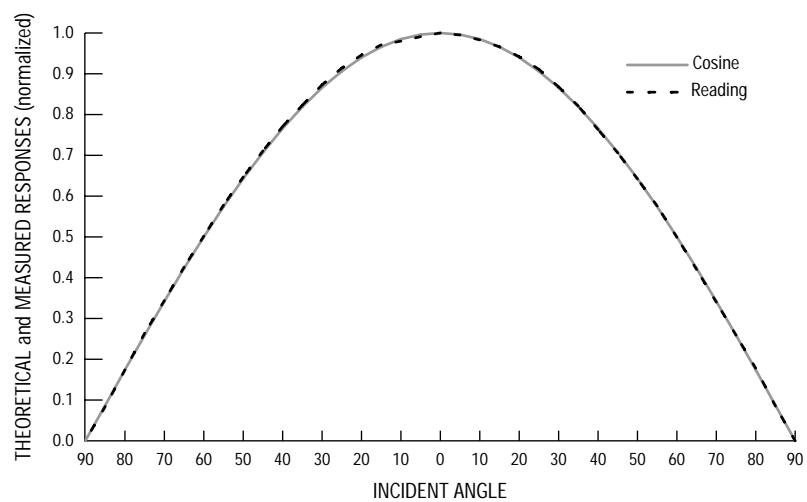
**WeatherLink® Data** (These specifications apply to sensor output as logged and displayed by the WeatherLink.)

<b>Solar Radiation Intensity</b> .....	Average over archive interval
<b>Solar Energy</b> .....	Sum over archive interval in Langleys; sum over archive interval in Joules/cm <sup>2</sup> (range: 0 to 1999.9; resolution: 0.1 J/cm <sup>2</sup> ) using Energy WeatherLink

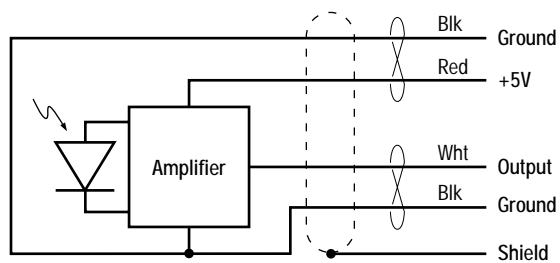
**Input/Output** (These specifications apply to the sensor as a separately-sold item.)

<b>Connections</b> (Diagram on reverse)	
White .....	Output (0 to +3VDC); 1.67 mV per W/m <sup>2</sup>
Black (2 wires) .....	Ground
Red .....	+5V DC ±10%; 3mA (typical)
Bare .....	Shield Ground
<b>Temperature Coefficient</b> .....	-0.034% per degree F (-0.063% per degree C); Reference temperature = 72°F (22°C)

## COSINE RESPONSE (TYPICAL)



## CONNECTIONS



## INSTALLATION OPTIONS

