

Solar Measurement

Solar Measurement Systems

MEA can provide a range of custom designed solar measurement systems for the measurement of global solar radiation, direct-beam measurement, and solar prospecting. When measuring solar radiation for power generation, the appropriate instrument to select will depend on the type of generation system.

- Simple measurement systems for solar prospecting
- Solar trackers with full complement of sensors
- Complete systems from design to commissioning

The energy generated by photovoltaic arrays is a direct function of Global Solar radiation. This can be readily measured using a high quality instrument such as the SR12 First Class Pyranometer. The SR12 is the first commercial off-the-shelf pyranometer of its kind meeting the ISO-9060 First Class performance mandate for solar energy test applications. It has a built-in temperature sensor, enabling the calculation of temperature compensated irradiance values.

For a photovoltaic concentrator system, it is essential to measure Direct Normal Incident radiation (DNI). The most accurate way to do this is with a solar tracker fitted with a DR01 First Class Pyrheliometer for measuring DNI, and two pyranometers and shading disk to measure global and diffuse radiation

If your project is to undertake initial evaluation of sites, the SPN1 Good Quality Pyranometer is the most appropriate instrument. It uses an array of seven thermopile sensors and a computer-generated shadow mask to measure the Global and Diffuse components of incident solar radiation. The Direct Beam component of solar radiation can be calculated from the global minus the diffuse component. In addition, the SPN1 features a Sunshine Status output which triggers at the WMO standard threshold value of 120W.m^{-2} .



Specifications for SR12

Measurement Range	Irradiance: 0 to 2000W.m^{-2} 0.35 to $1.5\mu\text{m}$ Temp: -200°C to 320°C
Accuracy	Irradiance: $\pm 5\%$ Temperature: $\pm 1\%$

Specifications for DR01

Measurement Range	0 to 2000W.m^{-2} 0.2 to $0.4\mu\text{m}$
Accuracy	< 1%

Specifications for SPN1

Measurement Range	0 to 2000W.m^{-2} , 0.4 to $2.7\mu\text{m}$
Accuracy	$\pm 5\%$

