



SPN1 Sunshine Pyranometer – New!

The new **Sunshine Pyranometer type SPN1** measures global (total) and diffuse radiation, and sunshine state – all in one instrument ! It is easy to use and needs no routine adjustment or polar alignment. The SPN1 is a meteorological class instrument designed for long-term outdoor exposure, and is an affordable alternative to traditional shade-ring pyranometers, the Campbell-Stokes and other sunshine recorders. It also provides some of the functionality of expensive pyrhemometers.

- **Global (total) and diffuse irradiance in $W.m^{-2}$**
- **Sunshine threshold to WMO definition: $>120 W.m^{-2}$ in the direct beam**
- **No moving parts, no shade rings, no motorised tracking needed**
- **No routine adjustment or polar alignment needed**
- **Works at any latitude**

Unique design

The Sunshine Pyranometer uses a patented array of thermopile sensors and a computer-generated shading pattern to measure the direct and diffuse components of incident solar radiation. The shading pattern and thermopiles

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are arranged so that at least one thermopile is always fully exposed to the solar beam, and at least one is fully shaded from it, regardless of the position of the sun in the sky. A microprocessor derives the global and diffuse radiation values, which allows an estimate of the direct beam, and hence sunshine hours, to be calculated.

The Sunshine Pyranometer is protected by patents EP 1012633 & US 6417500.

Outputs

The Sunshine Pyranometer provides 2 voltage outputs for global and diffuse energy, and a digital output of sunshine state for data logging. Delta-T's low cost logging solution for the SPN1 is the GP1 Data Logger.

The WMO defines the sunshine threshold as 120 W.m^{-2} in the direct beam. The SPN1 estimates sun hours to within a few percent of the WMO standard. Researchers working in countries that have adopted different sunshine threshold levels should contact Delta-T with details of their requirements.

High quality construction

The SPN1 has a precision ground glass dome and uses wideband thermopile sensors; it achieves a near ideal spectral and cosine response. The internal heater keeps the Sunshine Pyranometer clear of dew, ice and snow down to -20°C , ensuring reliable readings in difficult climatic conditions.

Overview

The Sunshine Pyranometer is a high performance instrument offering a unique combination of solar radiation measurements in a single, low maintenance device.



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