



HuksefluxUSA

SR05-LI19

Pyranometer with handheld read-out unit / datalogger

SR05 is a solar radiation sensor that is applied in most common solar radiation observations. SR05-A1, with analogue millivolt output, complies with the spectrally flat Class C specifications of the ISO 9060 standard and the WMO Guide. LI19 is a high-accuracy handheld read-out unit / datalogger. The SR05-LI19 combination is well suited for mobile measurements and short term datalogging.



Figure 1 *SR05-A1 pyranometer with LI19 handheld read-out unit / datalogger*



Figure 2 *SR05-LI19 as it is delivered, in a practical transport case*

Introduction

SR05 is a solar radiation sensor that is applied in general observations. It measures the solar radiation received by a plane surface from a 180° field of view angle. This quantity, expressed in W/m², is called "hemispherical" solar radiation. SR05 pyranometer can be employed outdoors under the sun, as well as indoors with lampbased solar simulators. Its orientation depends on the application and may be horizontal, tilted (for plane of array radiation) or inverted (for reflected radiation). Model version SR05-A1 offers analogue millivolt output.

LI19 displays the measured radiation and stores measured data. Once programmed with the sensitivity of SR05, the display will show the actual value of the solar radiation in W/m^2 . Programming LI19 is done through its PC user interface.

The system is supplied in a practical transport case, for easy transport and protection during field measurement campaigns. Also included are the necessary software, AA-type batteries and a USB cable. Fresh batteries allow for more than 50 days of operation. LI19 may also be used with other pyranometers and heat flux sensors.

Operation

Operation of SR05-LI19 is easy. As LI19 has already been programmed at the factory, measurements can start by switching on the LI19. The storage interval is set by connecting the LI19 to a PC and using the LI19 user interface software.

Suggested use

- short-term field measurement of solar radiation
- education in solar energy





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Figure 3 a graph generated using data stored on LI19

Figure 4 *LI19* used with a pyranometer in a field measurement campaign

Delivery

- SR05-A1 pyranometer
- programmed LI19 with batteries
- 2 spare batteries (type AA)
- LI19 software
- transport case with space for sensors
- SR05 and LI19 product certificate
- strip with measurement unit markers
- USB cable

Latest software

the latest software should be downloaded from https://www.hukseflux.com/downloads

SR05-A1 specifications Measurand hemispher radiation ISO classification spectrally

pyranometerCalibration uncertainty< 1.8 % (k =</td>Calibration traceabilityto WRRSpectral range285 to 3000 xSensitivity (nominal)10 x 10^{-6} V/(VRated operating temperature-40 to +80 °Crangerange

Temperature response Standard cable length

LI19 specifications

Output on display Stored measurement definition

A/D conversion Temperature dependence

Display refreshment rate Battery type Battery life hemispherical solar radiation spectrally flat Class C pyranometer < 1.8 % (k = 2)to WRR 285 to 3000 x 10⁻⁹ m 10 x 10⁻⁶ V/(W/m²) -40 to +80 °C

< ± 3 % (-10 to +40 °C) 3 m

solar radiation minimum maximum and average over storage interval with conversion to W/m² 16 bits < $0.5 \% + 3 \times 10^{-6}$ V over rated range 1 s⁻¹ 2 x AA > 50 days (on fresh batteries) 2 to 65535 s (selectable) 3518 measurements

Storage interval range2 to 65535 s (sStorage capacity3518 measureRated operating temperature-10 to +40 °C

See also

- SR05-A1 spectrally flat Class C pyranometer
- LI19 read-out unit / datalogger
- view our product range of solar sensors

About Hukseflux

Hukseflux Thermal Sensors makes sensors and measuring systems. Our aim is to let our customers work with the best possible data. Many of our products are used in support of energy transition and efficient use of energy. We also provide services: calibration and material characterisation. Our main area of expertise is measurement of heat transfer and thermal quantities such as solar radiation, heat flux and thermal conductivity. Hukseflux is ISO 9001 certified. Hukseflux products and services are offered worldwide via our office in Delft, the Netherlands and local distributors.

> Interested in this product? E-mail us at: <u>info@huksefluxusa.com</u>