Second Class Pyranometer - SLP02

SLP02 Specifications

ISO classification: Second Class

Spectral range: 305 to 2800 nm

Sensitivity (nominal): 15 µV/W/m²

Response time (95%): 18 sec.

Directional error (1000 W/m² beam): ± 25 W/m²

Range : 0 to 2000 W/m²

Non-linearity (to 1000 W/m²): ± 2.5%

Temperature range: -40 to +80° C

Temperature dependence: < ± 0.1 %/°C

Calibration traceability: WRR

Non stability (drift): < ± 1% per year

Cable length: 5 meter standard (longer lengths optional)

Applications

- **Agrometeorology**
- **Climatology / Meteorology**
- **Industrial Light Measurement & Process Control**
- **Material Testing Research**
- **Solar Collector and PV Panel Efficiency Validation**

Note: Above applications are inclusive of, but not limited to the entire SLP02 application range.

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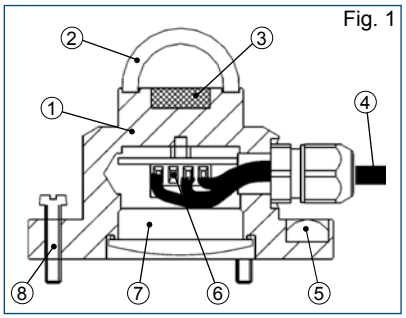
The SLP02 is general purpose solar radiation sensor (otherwise known as a pyranometer), intended for routine global and surface reflected short-wave (SW) solar irradiance measurement. The SLP02 is a 'Second Class' compliant instrument, as per the latest ISO and WMO pyranometer standards.

The SLP02 pyranometer is suitable for measuring global short-wave solar irradiance incidenting a plane surface, offering a full 180° field of view (FOV). Suitable for both indoor and outdoor applications, the SLP02 has a maximum measurement range of two suns, 2000 W/m². Employingentirely passive thermopile-based sensing technology, the SLP02 generates a low level DC millivolt output signal proportional to the solar short-wave flux received at the detector surface. Contrary to competing low cost photodiode type and 'black & white' model pyranometers that suffer from long-term stability and spectral selectivity related error effects, the SLP02 offers a spectrally flat/ nonselective response across the entire solar spectrum for improved measurement accuracy and long-term stability. Determining short-wave solar irradiance requires connection to either a data logger or digital voltmeter with a measurement resolution of ten micro-volts or better; simply divide the SLP02 millivolt output signal by the factory supplied calibration factor to arrive at irradiance in W/m² units. Typical SLP02 measurement applications include meteorological observations, building physics, climate and solar collector/PV panel efficiency testing. For conventional horizontal plane mounting applications requiring accurate leveling, the SLP02 is equipped standard with adjustable leveling screws and a bulls-eye bubble level; see leveling screw (8) and bubble level (5) illustration in Figure 1. The SLP02 signal cable can be easily installed and replaced by the user, thus minimizing down-time and expense otherwise associated with instrument re-cabling by the manufacturer.

Applicable Standards

ISO 9060 and 9847, WMO (World Meteorological Organization) and ASTM E824-94. The SLP02 can also be used for stability estimations according to EPA (EPA-454/R-99-005); also see SSR11 Pyranometer model where ISO First Class compliance may be required.



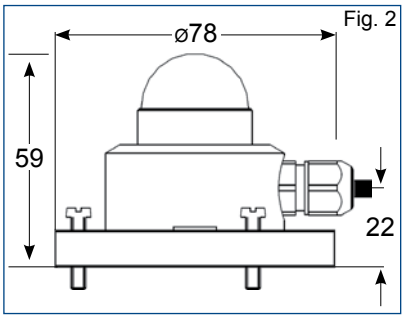


Figure 1: SLP02 solar radiation sensor:
(1) SLP02 housing, (2) glass dome, (3) sensor, (4) cable, standard length 5 m, (6) screwed cable connection, (7) access for cable connection/ replacement.

Figure 2: SLP02 dimensions. Standard cable length is 5 m. All dimensions are in mm. Cable can be installed / replaced by the user.