

Compact Sensor for Solar Radiation

Meteorology | Agrimeteorology

General Description

Precise longterm measurements of the hemispherical radiation budget at earth surface provide fundamental insights to understand the changing climate system of the earth.

KISTERS' innovative WeatherSens MPS100 sensor provides **precise and maintenance-free measurement of solar radiation** by photoelectric technology. The compact sensor is designed without any moving parts and with embedded electronic for high-speed signal processing and calculation in order to provide **real-time radiation data**.

The dome structure design maximizes the measurement of solar radiation intensity and protects the sensor. The radiant thermal energy fluxes in the wavelength from 300 to 2100 nm is defined and measured as total (global) irradiance on a plane surface.

The instrument is temperature compensated over the entire operating range and achieves an **accuracy of better than +/-5%** to comply to a second class pyranometer with a calibrated linear characteristic in the measuring range of up to 2000 W/m².

The sensor has been tested and approved against following environmental conditions:

- High and low temperature ranges
- Humid weather (humidity and ingress protection)
- Windy and coastal environments (vibration and salt spray sustainability)

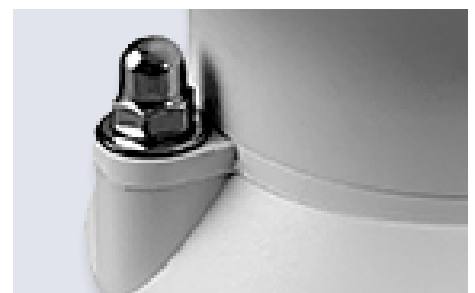
Applications

Scientists, researchers, climatology, renewable solar industry, agriculture, water resources including evapotranspiration require accurate measurements of solar radiation for climate change analysis and modelling processes. MPS100 is especially designed for:

- Weather stations
- Solar Power Industry
- Environmental monitoring
- Agrimeteorology
- Infrastructure monitoring: Roads, airports, bridges, tunnels, photovoltaic farms
- Urban environment monitoring, smart cities, municipalities
- Building automation

Features

- Measures solar radiation using photoelectricity
- Maintenance-free, no moving parts
- Fast response: less than 5 seconds
- Easy to install, no on-site calibration required
- Durable materials: aluminum alloy with teflon coating
- Low power consumption
- Low costs of installation and total costs of ownership
- Universal and selectable interfaces and protocols such as SDI-12 or RS 485
- Metric and imperial units



Related Product: WeatherSens

KISTERS' WeatherSens compact weather sensors measure up to seven parameters out of the following: wind speed, wind direction, temperature, humidity, air-pressure, rainfall (by photoelectric or piezoelectric technique) and radiation.

[Please ask for details.](#)

Technical Specifications

Technology	Photoelectricity
Spectral Range	300 to 2100 nm
Measurement Range	0 to 2000 W/m ²
Non-linear Error	≤3 %
Accuracy	±5 %
Resolution	0.1 W/m ²
Material	Aluminum alloy with teflon coating
Dimensions and weight	H 160 x Ø100 mm (H 6.3" x Ø 3.9"), weight 1.0 kg (2.2 lbs)
Power Consumption	17 mA @ 12 VDC
IP Class	IP66
Interfaces	SDI-12 (default) / RS 485 (selectable)
Protocols	SDI-12 V1.3 (default) / RS 485 - MODBUS-RTU/ASCII, NMEA 0183
Operating Voltage	10 to 30 VDC
Environmental Conditions	- Operating temperature range: -40 to +70 °C (-40 to +158 °F) (without snow capping or ice accretion) - Humidity: 5 to 100 % RH
Connector and Cable	M12 connector 8-pin, Cable PUR 10 m

Accessories

M12 cable: 10 m / 8-pol (sensor)

Poles: with 2" or 50 mm outer diameter for 2 m or 3.5 m measuring height



iRIS dataloggers and data modems:

- robust housing
- IP over one or two channels of your choice: xG / GPRS, satellite, IoT
- I/O: analog, digital, SDI-12, Modbus
- iLink software
- Telemetry or cloud app

[Please ask for details.](#)

Reseller

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