PYRANOMETER SPECIFICATION SHEET

MS-80SH Pyranometer

Class A, Spectrally Flat & Fast Response

5 Years Standard Warranty | ISO.17025 Calibration | Class A ISO.9060:2018 Compliant

Overview

The MS-80SH with integrated solid-state dome heating for efficient dew and frost resistance adds to the already industryleading features and characteristics of the ISO 9060:2018 fastresponse and spectrally flat Class A MS-80S, making it the standout choice for IEC 61724-1:2021 Class A monitoring.

With our state-of-the-art thermopile detector and quartz diffusor technology, S-Series internal diagnostics, superior low zero-offset behaviour, surge protection, digital Modbus 485 and SDI-12 interfaces, a 5-year warranty, and industryfirst 5-year calibration interval, the MS-80SH is ideal for any application relying on value, accuracy, speed and reliability.

Features

- <0.5s Super-Fast Response Time
- <1W/m² Record Lowest Zero Offset A, and <0.5% Lowest Non-Stability over 5-Years
- Level A EMI/EMC Electronics Surge Filter & Protection
- 5 Year Warranty & Recommended Recalibration Interval
- Smart 4-channel Analogue & Digital Interface
- Internal Diagnostics for temperature, tilt, roll, and relative humidity

Development

The MS-80 set new industry standards on launch in 2016 and remains a class-leader for ISO 9060:2018 Class A solar sensors today, one of the few Class A pyranometers, before the MS-80S, in the top tier 'fast-response' and 'spectrally flat' sub-categories, with unprecedented low zero-offset behaviour, and a 5-year recalibration interval.

The MS-80S builds on this achievement with the addition of a new 4-channel smart interface that allows the MS-80S to easily connect to any analogue or digital measuring system, giving users a choice with Modbus 485 RTU and SDI-12 for digital outputs; alongside 4-20mA and 0-10mA (0-1V) analogue options; while the new internal diagnostic system offers visibility over internal temperature, humidity, tilt and roll angle; helping to ensure optimum performance without the need for regular physical checks.

These new features, along with EKO's unique 5-year recalibration interval, make the MS-80S is the best value Class A sensor available; an ideal solution for complex networks, hard to reach locations, and monitoring stations with restricted access.

Software

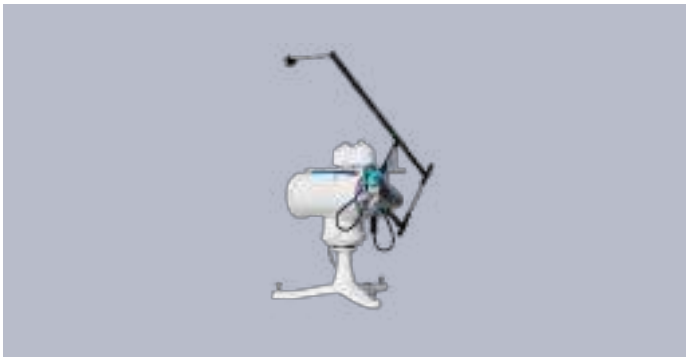
With 'Hibi', a new, custom-built programme developed by EKO, users can connect their pyranometer with a standard laptop for real-time access to the internal diagnostics, custom settings, and irradiance data, helping to make the MS-80SH the most accessible Class C pyranometer available. Easy to use, deploy, and maintain.

The simple ON/OFF toggle gives users complete control over the dome heating function.

Related Products

MS-Albedo Kit

The MS-Albedo kit can be used with any MS or S-Series EKO sensor, allowing two pyranometers to be deployed for albedo or reflected irradiance measurements for Bi-facial PV applications. The robust aluminium and stainless-steel parts provide a reliable solution for easy, on-site assembly.



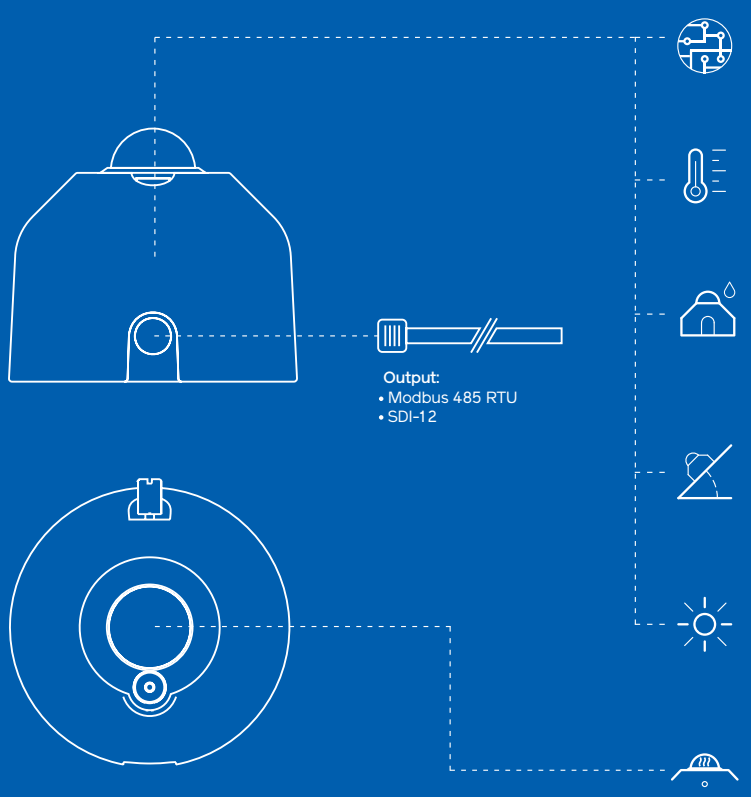
Solar Monitoring Station

Combine the class-leading MS-80SH, STR-Series Sun Tracker & MS-57 Pyrheliometer with integrated low-power heating for ultra-accurate GHI, DHI & DNI measurements for PV site evaluation, performance monitoring, and cell optimisation.

MV-01 Ventilator & Heater for Extreme Weather

Compatible with the MS-80SH, the MV-01 ventilator and heater is designed for more severe weather conditions and can help ensure IEC 61724-1 compliance even in heavy snow. The MV-01 is proven to work with EKO sensors in challenging environments worldwide, ensuring reliable operation and data availability.

Feature Diagram



Smart electronics: signal transducer with x2 different digital outputs.

Temperature sensor: for temperature measurement inside pyranometer and correction of the data.

Humidity sensor: for humidity measurement inside pyranometer and monitor the desiccant degradation.

Tilt angle sensor: for measuring the pyranometer angle of inclination, and to monitor the installation East-West alignment and the installation angle.

Thermopile detector: Flat spectral response to measure irradiance from 285 to 3000nm.

Integrated Solid State Dome Heating: for mitigation against dew and frost build-up.

ISO Specifications

ISO 9060:2018 Parameters	CLASS A	MS-80SH
Response time 95%	< 10s	< 0.5s
Zero offset A - Thermal Radiation (200W/m²)	± 7W/m²	± 1W/m²
Zero offset B - Temperature change (5K/hr)	± 2W/m²	± 1W/m²
Zero offset C - Total zero off-set	± 10W/m²	± 2W/m²
Non-stability (change/year)	± 0.8%	< 0.5% / 5 years
Non-linearity (100 to 1000W/m²)	± 0.5%	± 0.2%
Directional Response (at 1000W/m² | 0 to 80°)	± 10W/m²	± 10W/m²
Spectral Error	± 0.5%	± 0.2%
Temperature Response (-20°C to 50°C)	± 1%	± 0.5%
Temperature response (-10° to 40°)	±0.5%	±0.5%
Tilt Response (0-90° | 1000W/m²)	± 0.5%	± 0.2%
Additional Signal Processing error	± 2W/m²	< 1 W/m²

Applications

Designed for scientific research, industrial applications, and photovoltaic system performance monitoring, the patented design of the MS-80SH assures best in class accuracy, speed, and reliability whatever your application.

Built to last, with a 5-year warranty, 5-year recalibration interval, low-zero offset, and incredible stability, the MS-80SH is ideal for utility-scale applications and other large-scale projects.

Learn More

Visit our website, contact our team, to find out more about the **MS-80SH** Pyranometer, related products, and the full range of Class and industry-leading products from EKO.

Technical Features

Wavelength Range (nm)	285 to 3000
Maximum Operational Irradiance (W/m²)	4000
Digital Output Irradiance (W/m²)	-200 to 2000
Signal Output	Modbus 485 RTU / SDI-12
Sensor Diagnostic	Relative Humidity ± 2% Temp. ± 0.1% / Tilt Angle ± 1°
Dome Heating Control	Toggle on/off via Hibi software or Commands via Modbus/SDI-12
Operating temperature	-40 to 80°C
Supply voltage	8 to 30 VDC
EMC / Surge Protection Standard	IEC61326-1 (Industrial Electromagnetic Environment test level) / IEC61000-4-5 (Level 2, Test Criterion B)
Power Consumption	< 1.5 W
Ingress Protection	IP 67
Calibration traceability / uncertainty	ISO 17025 / WRR / < 0.7% (k = 1.96)
Standard Cable Length	10m (Optional lengths 20m, 30m, 50m)

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