3S-TP-ALBEDO-A

Thermopile Albedometer

Representative Image

Thermopile Albedometer

The SEVEN Thermopile Albedometer is a product of the SEVEN meteorological sensor series, which consists of professional and intelligent measurement sensors with digital interfaces for environmental and photovoltaic system.

The SEVEN Thermopile Albedometer is equipped with two thermopile pyranometers; one upward-facing and one downward-facing. This allows it to simultaneously measure both global solar irradiance and reflected irradiance from the surface, enabling precise albedo calculations. It delivers outstanding performance particularly in PV plant applications, where monitoring panel and ground reflections and analyzing energy losses are critical.

The SEVEN pyranometers (3S-TP-MB-A) used in the Thermopile Albedometer are designed to meet the “ISO 9060:2018, Fast Response, Spectrally Flat, Class A” and “IEC 61724-1:2021 Class A” standards. State-of-the-art thermopile detector and diffuser technology delivers low zero offset behavior, high stability, and reliable long-term performance, maximizing measurement accuracy. This advanced instrument is ideal for meeting the highest standards in solar energy system performance monitoring.

Measured global and reflected irradiance data are transmitted to data loggers and other receiving units via the RS485 serial interface using the Modbus RTU protocol, enabling fast and seamless SCADA/AWS integration.

Benefits and Features

- ISO 9060:2018 Class A (Secondary Standard)
- IEC 61724-1:2021 Class A Monitoring
- Advanced Detection
- Fast Response
- Spectrally Flat
- Low Zero Offset Behavior
- Exceptional Stability
- Multi - Parameter Monitoring
- Fast & Simple Installation
- Free Software Updates
- SunSpec Compliant
- SEVEN Remote Setup Service
- SEVEN Customer Support
- 5 Year Warranty

Technical Features

	3S-TP-ALBEDO-A
Measured Parameters	Global Horizontal (GHI) or POA Irradiance, Reflected Irradiance, Internal and Housing Temperature and Internal Humidity
Sensor Type	Thermopile
Spectral Range (50% points)	280 to 3000 nm
Irradiance Range	0 - 4000 W/m²
Nominal Sensitivity	8 - 14 µV/(W.m^{-2})
Response Time (95%)	0,5s (less than 10s; Class A as per ISO9060:2018 standard)
Zero offset A - Thermal Radiation (200W/m²)	± 1W/m² (± 7W/m²; Class A as per ISO9060:2018 standard)
Zero offset B - Temperature change (5K/hr)	± 1,5 W/m² (± 2W/m²; Class A as per ISO9060:2018 standard)
Total zero offset C - Total zero off-set	± 3W/m² (± 10W/m²; Class A as per ISO9060:2018 standard)
Non-stability (change/year)	< 0,5% (± 0,8%; Class A as per ISO9060:2018 standard)
Non- linearity (100 to 1000 W/m²)	± 0,2% (± 0,5%; Class A as per ISO9060:2018 standard)
Directional Response (1000W/m² | 0 ... 80°)	± 10W/m² (± 10W/m²; Class A as per ISO9060:2018 standard)

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Spectral Error	± 0,2% (± 0,5%; Class A as per ISO9060:2018 standard)
Temperature Response (-20°C to 50°C)	± 0,4% (± 1%; Class A as per ISO9060:2018 standard)
Irradiance Resolution	0,1 W/m²
Internal Humidity Range Accuracy Resolution	 0% to 100% ± 1% RH (20...70%) @ 25°C 1%
Internal Temperature Range Accuracy Resolution	 -40°C to +85°C ± 0,1°C (5...60°C) @ 20...80% RH 0,1°C
Housing Temperature Range Accuracy Resolution	 -40°C to +85°C ± 0,2°C 0,1°C
Spirit Level Accuracy	±0,1°
Viewing Angle	2π sr
Data Output	RS485 up to 38400 Baud
Communication Protocol	Modbus RTU (Optional Modbus TCP/IP)
Output Rate	1/s
Operating Temperature Range	-40 to 85°C
Power Supply	12 to 30 V DC
Power Consumption	20 mA @ 24 V DC
Cable Features	3x2x0,14 mm², 26 AWG LI2Y(st)CTP PUR Cable, UV and weather resistant
Cable Length	3 meter standard length (Custom length available)
Galvanic Isolation	1000 V between power supply and RS485 Bus
IP Rating	IP 68
Dimensions	Ø 140 mm x 209 mm
Sensor Housing Material	Anodized Aluminum
Mounting Bracket Material	Alloy Aluminum
Shade Disk Material	ABS
Weight	2,6 kg
Standards	ISO 9060:2018, Fast Response Spectrally Flat Class A (Secondary Standard), IEC 61724-1:2021, Class A, ISO/TR 9901:1990 ISO 9847
Origin	TÜRKİYE

** Optionally, the Thermopile Albedometer can also be configured with SEVEN 3S-TP-MB-B or SEVEN 3S-TP-MB-C **Thermopile Pyranometers.**

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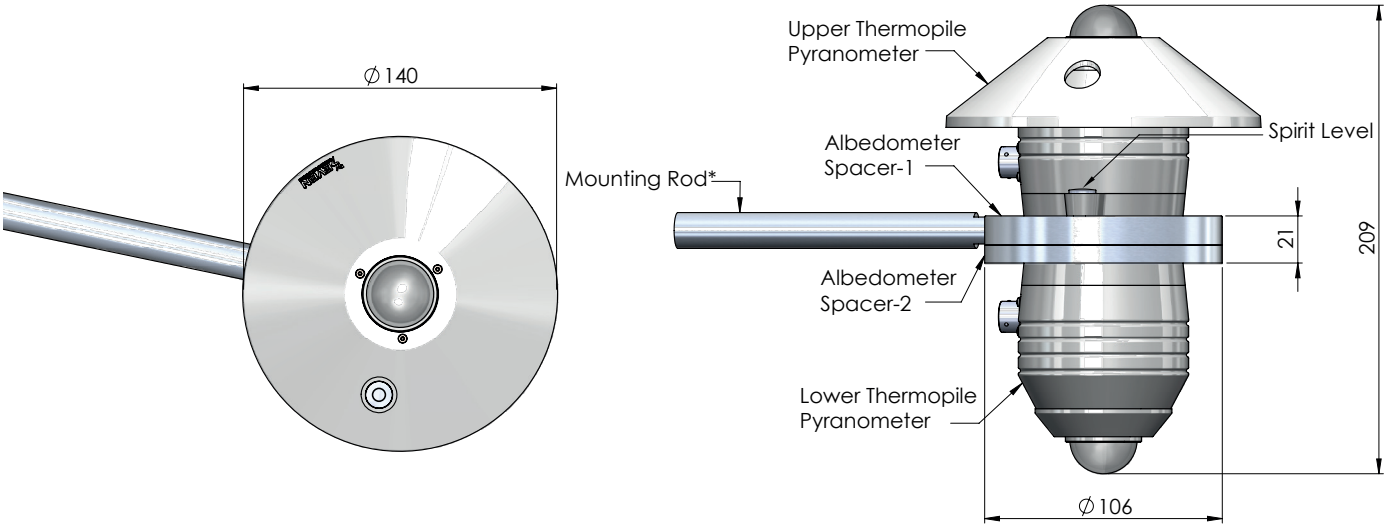
Technical Drawings

Thermopile Albedometer Technical Drawings



Note: All dimensions are in mm.

* The standard length of the mounting rod is 20 cm. Custom lengths are available upon request.

*** SEVEN reserves the right to make changes in this document without prior notice.

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