3S-ALBEDO & 3S-ALBEDO-T

Albedometer



Albedometer

The Albedometer is part of the SEVEN meteorological sensor range, which includes professional, smart measurement sensors for environmental and industrial applications such as PV plants.

The Albedometer consists of two irradiance sensors: the front cell measures the incoming plane-of-array irradiance, and the rear cell measures the reflected irradiance. It helps to calculate the performance ratio and to measure solar albedo, which is the ratio of the reflected irradiance to the incoming plane-of-array irradiance. The Albedometer is designed for professional use at photovoltaic plants with bifacial panels.

The measured values are transmitted to data loggers and receiving units via the Modbus RTU protocol over the serial RS485 interface. SEVEN products use reliable, high-quality components to provide accurate meteorological data. The Albedometer is specially designed for the requirements of PV plant monitoring systems.

Benefits and Features

- Class A Compliance
- Structure Similar to PV Modules
- Fast and Easy Installation
- Low Power Consumption
- Termination Resistor Configurable via GUI
- SEVEN Remote Installation Service
- SEVEN Customer Support
- 2 Year Warranty

Models

3S-ALBEDO

The 3S-ALBEDO Albedometer is designed for professional use at industrial, commercial and utility-scale photovoltaic plants. All measured data is transmitted to data loggers and receiving units via the Modbus RTU protocol over a 3-wire RS485 bus. For bifacial systems, the measured albedo value can be used as a reference when calculating the plant's performance ratio (PR) and in overall performance analyses.



3S-ALBEDO-T

The 3S-ALBEDO-T Albedometer is designed for professional use at industrial, commercial and utility-scale photovoltaic plants. It operates as a main box to which one PT1000 module temperature or ambient temperature sensor can be connected. All measured meteorological data is transmitted to data loggers and receiving units via the Modbus RTU protocol over a 3-wire RS485 bus. For bifacial systems, the measured albedo value can be used as a reference when calculating the plant's performance ratio (PR) and in overall performance analyses.



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3S-ALBEDO & 3S-ALBEDO-T

Albedometer

Technical Specifications

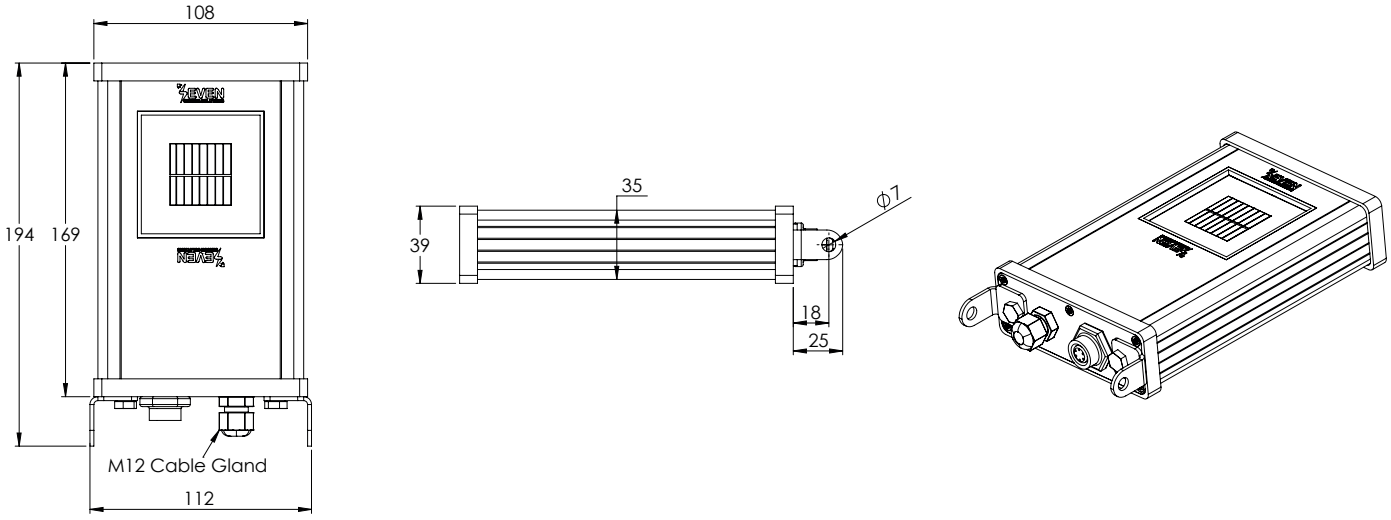
	3S-ALBEDO	3S-ALBEDO-T
Sensor Type	Silicon Reference Cell (31 × 31 mm)	
Measured Data	Plane-of-Array Irradiance, Reflected Irradiance, Solar Albedo and 2 Cell Temperatures	Plane-of-Array Irradiance, Reflected Irradiance, Solar Albedo, 2 Cell Temperatures and 1 PT1000 Module Temperature or Ambient Temperature
Connectable Sensor	-	1 x 3S-MT-PT1000 or 1 x 3S-AT-PT1000
Irradiance Range	0...1600 W/m²	
Albedo Range	POA (greater than 0) GHI (0...1)	
Uncertainty	≤ 1% (less than 2%; Class A according to IEC 61724-1)	
Resolution	0,1 W/m² (less than 1 W/m²; Class A according to IEC 61724-1)	
Response Time	1 s (less than 3 s; Class A according to IEC 61724-1)	
Field of View	170° (more than 160°; Class A according to IEC 61724-1)	
Tilt-Azimuth Angle	0° - 0° (less than 1°; Class A for GHI positioning according to IEC 61724-1)	
Output Rate	1/s	
Data Output	RS485 from 4800 to 38400 Baud	
Communication Protocol	Modbus RTU (Optional TCP/IP)	
Power Supply	12 ... 30 V DC	
Power Consumption	Typically 16 mA @ 24 V DC @ 25°C and maximum 30 mA @ 24 V DC @ 25°C	
Cable Length and Specifications	3 metres 3×2×0,22 mm, 24 AWG LI2YC11Y-TP PUR cable, UV and weather resistant, **cable bending radius 35 mm**	
Galvanic Isolation	1000 V between Power Supply and RS485 Bus	
Cell Temperature Sensor Type	Class A PT1000 according to EN 60751	
Operating Temperature Range	–40°C ... +85°C	
Box Dimensions	169 × 108 × 39 mm (L × W × H)	
Weight	0,52 kg	1,4 kg
IP Rating	IP65 (Optional IP68)	
Sensor Housing Material	Aluminium	
Standard	IEC 61724-1:2021 and IEC 60904	
Calibration	Each sensor is calibrated under a Class AAA sun simulator in accordance with the IEC 60904-2 and IEC 60904-4 standards, using a reference cell calibrated by the ISFH Institute in Germany.	
Origin	Türkiye	

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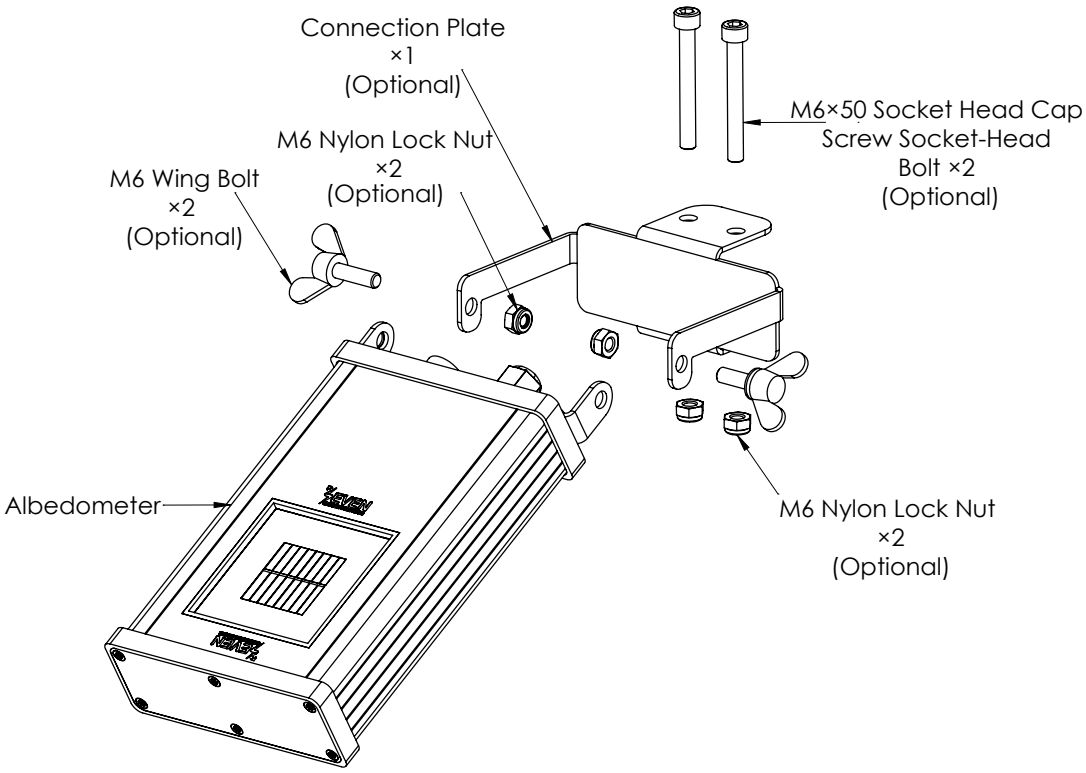
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Technical Drawings

3S-ALBEDO Technical Drawing



Optional Parts for Albedometer Mounting



Note: All dimensions are in mm.

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

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