

Snow Sensor

SEVEN Snow Sensor is designed to measure the loss in energy production caused by snowfall on photovoltaic modules. Suitable for both ground and rooftop projects, the snow sensor notifies the user of production losses due to snowfall. If the snow rate read from the sensor is 10%, it means that there is 10% energy loss in the facility.

Snow Rate = Energy Loss

The SEVEN Snow Sensor calculates the snow rate of the PV plant by comparing the irradiance data received from two reference cells, with and without snow. The snowy reference cell is exposed to snowfall in the same way as the panels, while the snow-free reference cell is heated by the heater inside the box, thus preventing snow accumulation on the cell. Monitoring systems give the user energy loss by using the snow rate received from the snow sensor.

$$\text{Snow Ratio} = \left[1 - \frac{\text{Normalized Irradiance}_{\text{Snowy Cell}}}{\text{Normalized Irradiance}_{\text{Snow Free Cell}}} \right] \times 100$$

SEVEN Snow Sensor is specially designed for Photovoltaic projects with Solar Tracker systems. In Solar Tracker systems, snow creates both a challenging and unwanted load for the system and a cover that reduces energy production. Snow Sensor communicates with the Tracker control center and ensures that the stand takes the appropriate position depending on the snow rate on the module. With SEVEN Snow Sensor, the snow rate is calculated and when it reaches the level determined by the user, it is decided to bring the modules to the appropriate position. Thus, savings can be achieved by preventing unnecessary operation of the solar tracking system when there is no or little snow.

Benefits and Features

- Increased Efficiency in Tracker Systems
- Fast & Simple to Install
- Free Software Update
- SunSpec Compliant
- Patent Pending
- The World's First and Only PV-Based Snow Sensor
- SEVEN Remote Setup Service
- SEVEN Customer Support
- 2 Years Warranty

Technical Specifications

Snow Ratio	%5 - %100
Resolution	%0.1
Uncertainty	≤ 2 %
Irradiance Range	0...1600 W/m ²
Data Output	RS485 up to 38400 Baud
Communication Protocol	Modbus RTU
Output Rate	1/s
Operating Temperature Range	-40°C to +85°C
Operating Humidity Range	0 to 100 %RH
Power Supply	22 to 30 V DC
Power Consumption	0.82 A max @ 24VDC (While heating off 0.02 A max @24 VDC)
Electrical Consumption	3m LIYYC11Y PUR Cable, UV and weather resistant
Galvanic Isolation	1000 V Between Power Supply and RS485 Bus
IP Rating	IP 65
Dimensions	200 x 412 x 44 mm

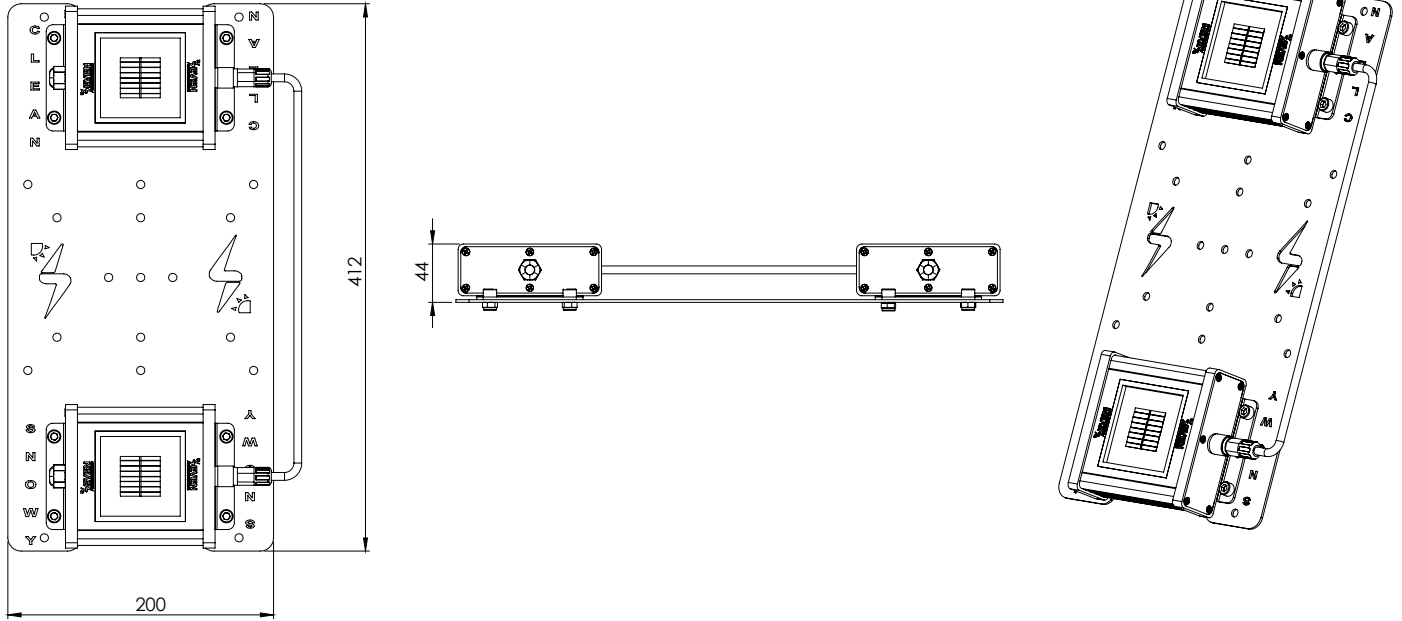
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Technical Specifications

Weight	1845 g
Calibration	Each sensor is calibrated and normalized under Class AAA Sun Simulator as per IEC 60904-2 by Using a reference cell calibrated by ISFH-Germany
Test	Each sensor is tested under natural sunlight by using a calibrated reference cell from Fraunhofer ISE, Germany.
Origin	TÜRKIYE

Technical Drawing



Note: All dimensions are in mm.