

## Multi-Orientation Irradiance Sensor



SEVEN Multi-Orientation Irradiance Sensor is part of the SEVEN meteorological sensor range, which includes professional and intelligent measurement sensors with a digital interface for environmental and industrial applications such as three or four orientation PV plants.

It is specially designed according to the requirements of PV plant monitoring systems based on standards such as IEC 61724 and IEC 60904 to calculate accurate Performance Ratio (PR) in three or four orientation PV plants.

The number of PV modules in each orientation can be entered via the SEVEN 3S-4IS Configuration Tool. The irradiance values in different orientations are proportioned with the number of modules to obtain the **Total Effective Irradiance** value required for the performance ratio calculation of the plant.

Temperature, wind speed and wind direction data can also be measured with external sensors that can be connected. All measured meteorological data are transmitted to data loggers and receiving units via serial RS485 interface with Modbus RTU protocol.

### Benefits and Features

- Total Effective Irradiance Calculation for PR
- Compact Flexible Design
- Class A Compliance
- Fast & Simple to Install
- Low Power Consumption
- Free Software Update
- SunSpec Compliant
- SEVEN Remote Setup Service
- SEVEN Customer Support
- 5 Years Warranty

### Technical Specifications

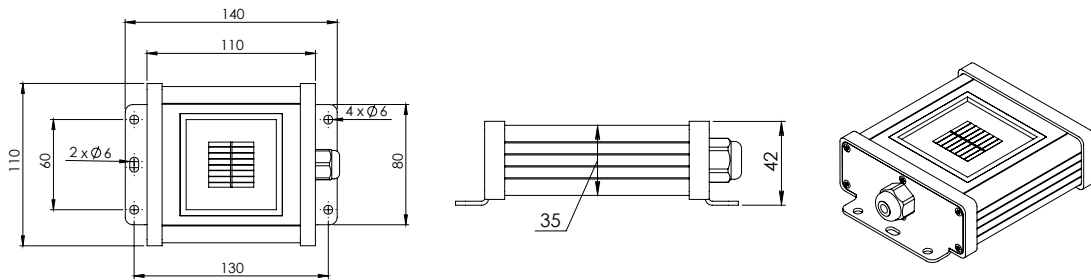
<b>Measured Data</b>	Total Effective Irradiance, Total Effective Module Temperature, 4 nos. POA Irradiance, 4 nos. Cell Temperature, 4 nos. Module Temperature, Ambient Temperature, Wind Speed and Wind Direction
<b>Output Rate</b>	1/s
<b>Data Output</b>	RS485 up to 38400 Baud
<b>Communication Protocol</b>	Modbus RTU
<b>Power Supply</b>	12 to 30 V DC
<b>Power Consumption</b>	40 mA max @ 24 V DC
<b>Electrical Connection</b>	3 m LIYYC11Y PUR Cable, UV and Weather Resistant
<b>Galvanic Isolation</b>	1000 V between power supply and RS485 bus
<b>Operating Temperature Range</b>	-40°C to +85°C
<b>Operating Humidity Range</b>	0 to 100 %RH
<b>Dimensions (Connection Box / Sensor)</b>	211 mm x 123 mm x 60 mm / 140 mm x 110 mm x 42 mm (W x L x H)
<b>Weight (Connection Box / Sensor)</b>	0.5 kg / 0.3 kg
<b>IP Rating (Connection Box / Sensor)</b>	IP 67 / IP 54 (Optional IP 65, IP 68)
<b>Material (Connection Box / Sensor)</b>	ABS / Aluminum
<b>Standard</b>	IEC 61724-1:2021 and IEC 60904
<b>Calibration</b>	Each sensor is calibrated under a Class AAA Sun Simulator according to IEC 60904-2 and IEC 60904-4 standards using a reference cell calibrated by the ISFH Institute in Germany.Germany.
<b>Test</b>	Each sensor is tested in natural sunlight using a reference cell calibrated by the Fraunhofer ISE Institute in Germany.
<b>Origin</b>	TÜRKİYE

## Technical Data

<b>Sensor Type</b>	Monocrystalline Silicon (31 mm x 31 mm)
<b>Irradiance Range</b>	0 to 1600 W/m <sup>2</sup>
<b>Uncertainty</b>	≤2% (less than 2%; as per IEC 61724-1 standard Class A)
<b>Resolution</b>	0.1 W/m <sup>2</sup> (less than 1W/m <sup>2</sup> ; as per IEC 61724-1 standard Class A)
<b>Response Time</b>	1 SEC. (less than 3 sec; as per IEC 61724-1 standard Class A)
<b>Drift</b>	<0.3% / year
<b>Field of View</b>	170° (larger than 160°; as per IEC 61724-1 standard Class A)
<b>Tilt-Azimuthal Angle</b>	0°- 0° (≤ 1°; as per IEC61724-1 standard Class A)

## Technical Drawings

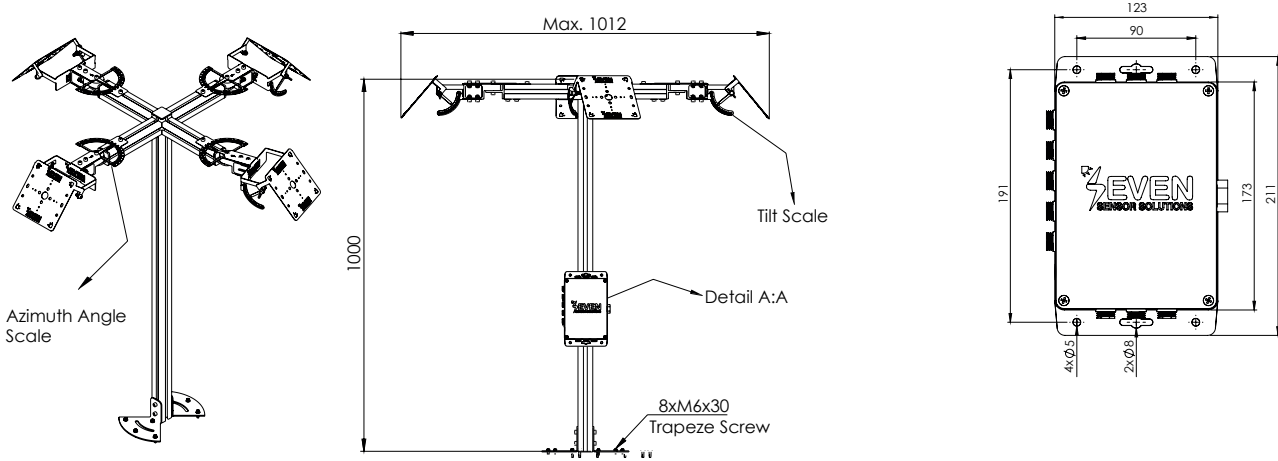
### Technical Drawing of Irradiance Sensor



### Technical Drawing of Mounting Structure

The Multi Orientation Irradiance Sensor is optionally available with a Mounting Structure. The Mounting Structure is designed for mounting four Irradiance Sensors and the connection box.

### Detail A:A Connection Box



**Note:** All dimensions are in mm.