

**PROMINENT SOLUTION PROVIDER IN
SOLAR SEGMENT FOR MONITORING AND
CONTROL NEEDS**

PYRA300- Irradiance Sensor Datasheet & Installation Guide



ESENZ INNOVATIONS PVT LTD

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PYRA300 Introduction

PYRA300 sensor typically consists of a Silicon photodiode diffuser that is strategically positioned to detect solar radiation from all angles. It can measure different components of solar radiation, including direct and diffuse solar radiation. Outer body casing is sturdy material and well designed streamlined body to deflect the rainwater and also provide the cooling of sensor due to thermal radiation. The outer body has a level indicator and 2 wing like extrusions to help in alignment and providing enough space with help of mounting screws with tension springs to avoid water accumulation at the time of rain.



Features

- ✓ LOW COST with good accuracy.
- ✓ Linear range 0...1800 W/m²
- ✓ ±5 % under standard conditions.
- ✓ Comes with "L" Shaped mounting clamps with screws

Specifications

| | |
|-------------------------|---|
| Operating Temperature | : -40° to +65° C |
| Storage Temperature | : -45° to +70°C |
| Transducer | : Silicon photodiode |
| Spectral Response | : 400 to 1100 nanometers |
| Percent of Reading | : ±3% (0° to ±70°), ±10% (±70° to ±85°) |
| Percent of Full Scale | : ±2% (0° to ±90°) |
| Temperature Coefficient | : + 0.12% per °C |
| Reference temperature | : 25°C |
| Housing Material | : UV-resistant PVC plastic |
| Weight | : 250 g |
| Range | : 0 to 1800 W/m ² |
| Drift | : up to ±3% per year |

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Accuracy : $\pm 5\%$ of full scale under standard conditions Calibration interval period recommended- 1 Year

Output

Analog Output - Current output 4-20 mA

Analog Output - Voltage Output 0-5 V

MODBUS OUTPUT (Optional)- RS485 Output in D+ & D- (Need an Additional converter to be purchased)

INSTALLATION

Location for sensors installation

The sensor should be placed at a distance from the PV panels in the same level that allows it to accurately measure the intensity of sunlight that is absorbed by the PV cells. It is to be mounted in an area where there is no obstruction in the path of the sunlight from sunrise to sunset or shadow cast on device by any things as obstructions may affect the measurement of irradiance . sensor should be mounted such that its surface can be cleaned on regular basis and mainly it should be avoided from dusty locations.

Tools Required

- Adjustable Wrench or pliers
- Wire cutters or stripper
- Multi meter and laptop for rs485 based sensors
- Cable ties and Electrical tape

Mounting

- Once the basic Installation at the locations chosen is completed, final leveling of the sensor(s) should be done in its operating location. Please note Small errors in alignment can produce significant errors
- Try to limit obstructions to below 5 degrees, where for better results.
- After installation, check for the readings by shading or cover the sensor few times so that reading changes accordingly.
- You can also adjust the position of the sensor adjusting the leveling screws very gently .
- The shadow of the Wing like extrusions on the body should be slightly visible when the sensor is pointed directly at the sun.

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Maintenance

Sensor top shield has to be periodically wiped with a soft damp cloth to remove dirt and dust. Also check for any crimps in wire or any misalignment in the tilt angle.

Calibration and Reading

In case of MODBUS Output – sensors are pre calibrated and Gives default output.

In case of Analog Output -

- IF **Output is voltage based** : 0 - 5 VDC (0- 1800 W/m²)

- IF **Output current based**: 4-20mA (0-1800 W/m²)

$$W/m^2 = 112.5 (\text{Output in mA} - 4)$$

NOTE

These sensors are not manufactured or owned by esenz and are only resold. Warranty of this sensor is as per the terms and conditions of original manufacturer. There may be slight deviation in actual v/c expected value. All the accuracies and technical specs are as per the manufacturer, as this sensor do not come under any class and is of low accuracy compared to class 1 and class 2 sensors. For better accuracy and minimum errors, it's advised to use standard class 1 or 2 sensors