

# Technical Datasheet

## SOLAR RADIATION TRANSMITTER PLXSRT300



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## PLXSRT300

The Polwax PLXSRT300 Solar Radiation Transmitter is a precision-engineered pyranometer designed for continuous measurement of global solar radiation across a full 180° hemispherical field of view. Built using a high-accuracy photoelectric sensing element with wide spectral response, the PLXSRT300 delivers reliable and stable solar irradiance data even under varying environmental and climatic conditions.

To ensure long-term outdoor performance, the sensor is equipped with a high-transparency, anti-dust treated protective dome, which minimizes environmental interference while maintaining excellent light transmission. The rugged industrial-grade housing, combined with a built-in leveling bubble and adjustment mechanism, allows quick and accurate installation in outdoor and industrial environments.

### Features

- High-precision photosensitive element with full-spectrum absorption
- 180° hemispherical measurement for accurate global solar radiation
- High-transmittance dust cover with anti-dust surface treatment
- Built-in leveling bubble with mechanical adjustment for easy installation
- Multiple output options: RS485 / 4-20 mA / Voltage
- Rugged design suitable for outdoor and industrial environments



### Installation Guidelines

- Fix the transmitter firmly using mounting holes on a stable surface.
- Ensure the sensor surface is perfectly horizontal using the built-in bubble level.
- Adjust using the leveling screw if required.
- Remove the protective cover after installation.
- Avoid shading from nearby structures or objects.





## Technical Details

<b>Measurement Parameter</b>	Solar Radiation (Global Radiation)
Measurement Range	0 to 1800 W/m <sup>2</sup>
<b>Temperature</b>	–40 °C to +120 °C
Resolution	1 W/m <sup>2</sup>
<b>Accuracy / Non-linearity</b>	±3%
Response Time	≤ 10 seconds
<b>Annual Stability</b>	≤ ±2%
Spectral Response	Full spectrum (wide-band absorption)
<b>Field of View</b>	180°
<b>Power Supply</b>	DC 7–30 V (Analog) / DC 9–30 V (Rs485)
Power Consumption	≤ 0.6 W (RS485), ≤ 0.06 W (Analog)
<b>Output Signals</b>	Rs485 (Modbus RTU), 4-20 mA, 0-5 V, 0-10 V
Communication Protocol	Modbus RTU (Rs485)
<b>Operating Temperature</b>	–25 °C to +60 °C
Operating Humidity	0–95% RH (non-condensing)
<b>Protection</b>	Weather-resistant housing for outdoor use
<b>Mounting</b>	Pole / Flat surface mounting
<b>Level Adjustment</b>	Built-in leveling bubble with thumb screw
Housing Material	Industrial-grade aluminum alloy

### Case Study 1: Solar Power Plant Performance Monitoring

#### Client Background

A utility-scale solar PV power plant required accurate real-time solar irradiance data to evaluate panel efficiency, energy yield, and system losses.

#### Challenge:

- Inconsistent irradiance readings from low-grade sensors
- Difficulty correlating solar input with power output
- Need for reliable data integration with SCADA systems

#### Solution:

The Polwax PLXSRT300 Solar Radiation Transmitter was installed at multiple locations across the solar field. Using RS485 Modbus RTU output, the sensor was seamlessly integrated with the plant's SCADA system.

#### Result:

- ✓ Accurate real-time solar radiation data ( $\text{W/m}^2$ )
- ✓ Improved performance ratio (PR) analysis
- ✓ Better fault detection and predictive maintenance
- ✓ Increased confidence in energy yield calculations



### Case Study 2: Smart Agriculture & Greenhouse Automation

#### Client Background

A commercial greenhouse operator required solar radiation data to optimize plant growth, shading systems, and irrigation cycles.

#### Challenge:

- Manual estimation of sunlight exposure
- Crop stress due to overexposure and insufficient shading
- Lack of automation based on real irradiance values

#### Solution:

The Polwax PLXSRT300 was installed on the greenhouse roof and connected to the climate control system via 4–20 mA output.

#### Result:

- ✓ Automated shading control based on real solar intensity
- ✓ Improved crop health and uniform growth
- ✓ Reduced water and energy consumption
- ✓ Enhanced environmental control accuracy





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