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DustVue 20

Solar-Module Soiling Sensor with a Full-Size PV Module

Accurately Measure PV Module Soiling Losses

with a full-size PV module

Overview

The DustVue™20 takes the innovative design of the DustVue 10 one step further by combining with the soiling loss measurement on an isolated, full-production-size PV panel using the maximum power method. While this is a powerful sensor solution, the DustVue 20 is compact and virtually maintenance free with no water needed for cleaning.

Benefits and Features

- Highly accurate soiling measurement (±1% uncertainty)
- Bifacial, separate soiling ratios for front and rear
- Maintenance-free design (patent pending)
- Pmax option for soiling measurement according to IEC 61724-1
- Easy-to-install design to reduce deployment complexity
- Best spectral match with production modules
- Rugged reliability with industrial-grade surge protection
- Industry-standard Modbus RTU over RS-485

Detailed Description

Understand your losses due to soiling.

Accurate PV Module Soiling Loss Measurement

Accumulated dust, snow, and contaminants significantly reduce photovoltaic (PV) power output, ranking as the second most critical factor after irradiance in solar plant performance losses. The DustVue 20:

- Provides the most accurate measurement of PV module soiling.
- Requires minimal maintenance.
- Incorporates a revolutionary and convenient design.

Precision and Reliability in Soiling Measurement

The DustVue 20 accurately calculates soiling loss by comparing irradiance between the clean reference sensor and soiled detector. The clean reference sensor is kept clean within a dust-free housing that briefly opens at a cadence you select, and only when conditions are ideal to minimize reference sensor soiling. This reduces the need for reference sensor cleaning to semiannually, and the soiling reference sensor cleaning can coincide with the periodic cleaning of all your plant panels.

The DustVue 20 employs a full-size PV module as the test device, calculating soiling loss via comprehensive IV curve measurements per IEC 61724-1 standards. This approach ensures accurate determination of maximum power and precise quantification of losses.

Advanced Technology for Comprehensive Insights

Integrated sensors measure ground-reflected light, allowing precise calculation of rear-side soiling losses. The DustVue 20 uniquely measures front-side, rear-side, and cumulative soiling losses. This makes it the most inexpensive choice for bifacial PV module installations.

Designed for Simplicity and Accuracy

The DustVue 20 is delivered field-ready, requiring no programming:

- Simple installation within minutes on the same racking as operational modules
- Intuitive configuration via web-based user interface accessible through USB-C
- Scheduled daily calculations of soiling-loss indices with built-in data filtering for accuracy and reliability
- Automated infield calibration between the clean and soiled cells.

Exceptional Low-Maintenance Operation

- Anticipated semiannual, or less, maintenance schedule significantly reduces operational costs.
- No water or frequent intervention is needed.

Seamless SCADA Integration and Superior Support

The DustVue 20 supports direct SCADA integration with Modbus RTU over RS-485 and offers robust industrial Class 4 surge protection. Campbell Scientific's unmatched global customer support and trusted engineering legacy assure consistent performance and reliability.

Specifications

Input Power	12 to 32 V
Typical Power	2 W steady state

For comprehensive details, visit: www.campbellsci.co.za/dustvue20

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