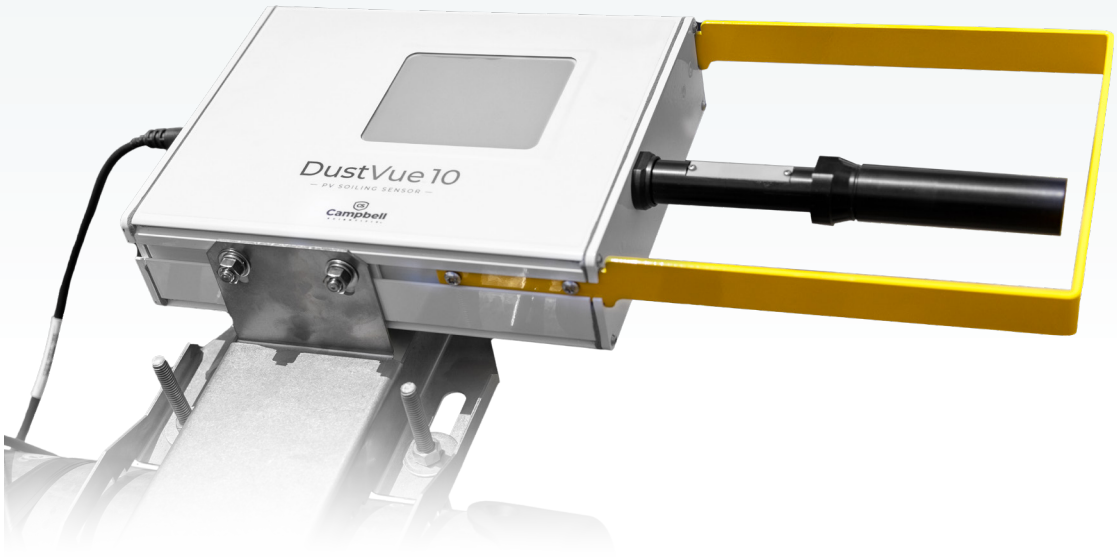
DustVue™10

The PV Soiling Solution the Industry Has Been Waiting for



Overview

The DustVue™10 compares clean to soiled solar panels accurately with virtually no maintenance, no special calibrations, no water tanks, and no costly weekly cleanings, solving all the pain points of previous soiling sensors.

Benefits and Features

- Bankable accuracy – real, best-practice, dual-solar-panel measurement (clean vs. soiled) with 1% uncertainty; IEC 61724-1 compliant
- Bifacial ready – first single sensor that measures both front and rear soiling simultaneously
- Nearly maintenance free – shutter-protected, stay-clean, self-calibrating reference panel that requires no water and only needs cleaning once or twice a year
- Drop-in simple – Uses Modbus, is vendor-neutral, and plays nicely with any SCADA, DAS, or logger, allowing you to integrate into any system
- Built for scale – rugged, cost-effective, utility-grade; perfect for new or existing sites looking to upgrade their maintenance-intensive or unreliable sensors

Detailed Description

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 10:

- 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 10 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 10 uses collocated PV cells to measure irradiance, minimizing spectral response differences with actual operational PV panels. Irradiance calculations follow IEC 60904 using short-circuit current and cell temperature.

Advanced Technology for Comprehensive Insights

Integrated sensors measure ground-reflected light, allowing precise calculation of rear-side soiling losses. The DustVue 10 uniquely measures front-side, rear-side, and cumulative soiling losses. This makes it an inexpensive choice for bifacial PV module installations.

Designed for Simplicity and Accuracy

The DustVue 10 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 10 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