SOILING MEASUREMENT KIT

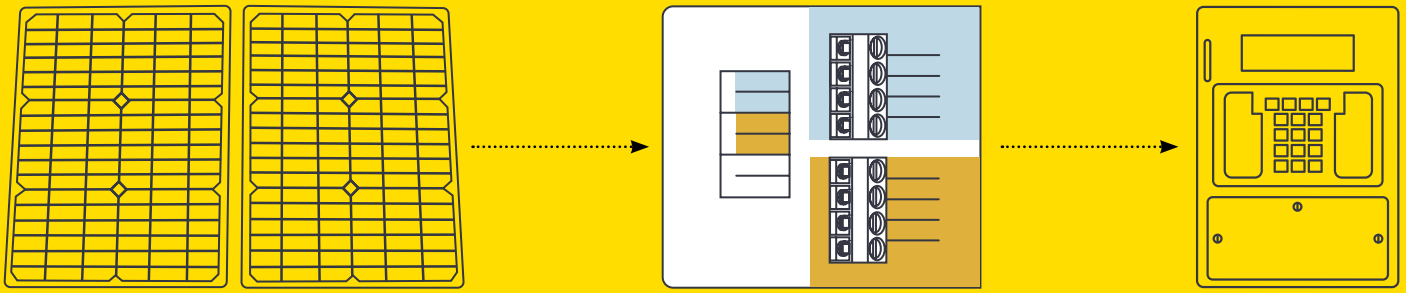
NRG Systems' Soiling Measurement Kit provides users with the information needed to quantify the site-specific impacts of soiling caused by snow, dust, and other particles on prospective and current PV projects. These data are used to improve pre-construction annual energy production (AEP) estimates as well as maintenance schedules (i.e., panel washing) and forecast models in the post-construction setting.

Key Benefits

- Determine site-specific soiling loss characteristics with this turnkey soiling measurement solution.
- Install easily as an accessory to NRG's SRA System—complete with PV modules, pre-installed back-of-module temperature sensors, flexible mounting hardware, and integrated soiling interface module.
- Measure short circuit current and back-of-module temperature with user's choice of statistical interval as well as optional 1 Hz sample data collection for flexible analysis options to meet data demands.

NRG Systems®

COMPONENT OVERVIEW:



Current + Temperature | Interface Module | SymphoniePRO

SPECIFICATIONS:

Description	**Soiling Ratio(*)** • Measurement of short circuit current (Isc) of both a clean reference solar panel and uncleaned test solar panel, including back of panel temperature compensation **Application** • Soiling loss measurement with 15W or full-sized solar panel	**Instrument Compatibility** • NRG Solar Resource Assessment System using SymphoniePRO Data Logger **Signal Type** • Analog voltage outputs
Specification	**Soiling Ratio Accuracy** • < 1% accuracy* *for Isc values > 0.50 Amp including back of panel temperature error	**Recommended Panel Isc Measurement Range for Soiling Ratio Calculation** • 0.50 Amp to 1.5 Amp
Power Requirements	**Supply Voltage** • Soiling station interface module: 5-15 Vdc	**Supply Maximum Current** • Soiling station interface module and the amplifier power for the Isc measurement: 2.5mA
Installation	**Mounting** • Panels: Rail mounting with angle adjustment • Interface Module: DIN rail mount	**Wiring/Interconnection** • Solar panel current measurement and back of panel temperature are connected via a 5 terminal screw connector on the interface module • The connections to the logger from the interface module are via a 6 terminal screw connector
Environmental	**Operating Temperature and Humidity Range** • PCB Temperature: -40C to +65C • Temp Probe and adhesion Temperature: -40C to +85C • Humidity: 0 to 100%, Corrosion resistant, UV resistant	**IP Rating** • Interface module: IP55 when installed in a standard Symphonie Shelter Box | FRP **Electrical** • EN 61000-4-2 ESD **Compliance** • CE **Other** • Packaging meets ISTA-1A 2014 Shock Drop Test

(*)Michael G., Tim D., and Christopher T., "Accurately measuring PV soiling losses with soiling station employing module power measurements", Proceedings of the 42nd IEEE Photovoltaic Specialists Conference, June 14-19, 2015, New Orleans, LA.

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