35W SOILING MEASUREMENT KIT
TECHNICAL PRODUCT SHEET

Overview

NRG's Soiling Measurement Kit provides users with the information needed to quantify the site-specific impacts of soiling caused by dust, snow, and other particles on prospective as well as operating PV projects.

Specifications

Sensor Type	Soiling Measurement Kit	35 W, consisting of: • Matched pair of 35 W monocrystalline PV modules • (2) NRG PVT1 PV Temperature Sensors
Measurement Range	• Soiling interface module Isc: 0 A to 15 A • PV temperature: -40 C to +105 C
Output Signal Type	· Isc: Analog voltage · PV temperature: 10 kΩ NTC thermistor
Accuracy	• Isc: ± 0.05 A from -40 °C to +85 °C • PV temperature: ± 0.2 °C from 0 °C to 70 °C
Supply Voltage	Soiling interface module: 5 VDC to 28 VDC
Supply Current	Soiling interface module: 2.5 mA maximum
Operating Temp Range	• Soiling Interface Module: -40 °C to +85 °C • PV temperature sensor: -40 °C to +105 °C

Tools Required

- Ratchet with 7/16", 1/2", and 9/16" Sockets
- 1/2" Crow's Foot
- Torque Wrench with min. range of 5-30 ft-lbs
- Tape Measure, Angle Finder, and Torpedo Level
- 3mm Slotted Screwdriver

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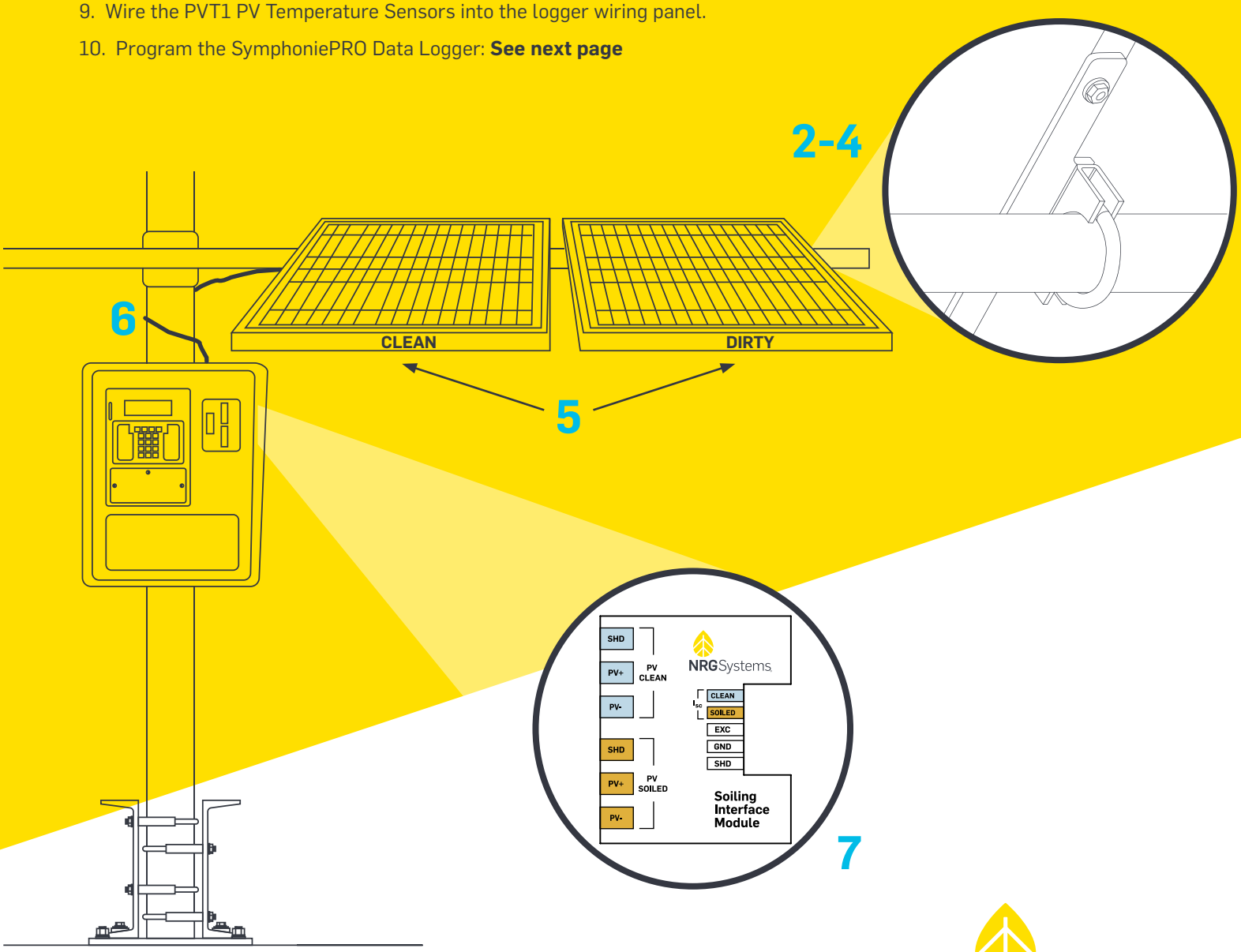
35W Soiling Measurement Kit Installation Process

1. Install the Solar Pipe Boom by following the Solar_PipeBoom_Instructions.pdf.
2. Determine the orientation of the two 35W panels and install the PV Mounting Brackets to the panel frames using 1/4-20 carriage bolts & serrated flange locknuts. Torque to 8 ft-lbs.

NOTE: The two panels should be installed in the same orientation. Landscape is preferred but may not be possible depending on the configuration of the tower. When installing panels in portrait orientation, the U-bolt mounting holes should be located outside the panel frame.

3. Loosely install U-bolts onto the PV Mounting Plates.
4. Slide the panels onto the Solar Pipe Boom and arrange them side by side. Tighten the U-bolts loosely so the panels stay in place but can be moved.
5. Use an angle finder to set the panels at the desired angle and tighten the U-bolts securely (13 ft-lbs/17.6 Nm)
6. Install the “Clean” and “Dirty” labels to the edge of the 35W PV panels.
7. Run the PV wires and PVT1 PV Temperature Sensor wires to the logger shelter box.
8. Install the Soiling Interface Module into the shelter box and wire the PV wires into the Clean and Soiled (dirty) terminals. Wire the 4C cable from the interface module to the logger wiring panel.
9. Wire the PVT1 PV Temperature Sensors into the logger wiring panel.
10. Program the SymphoniePRO Data Logger: **See next page**



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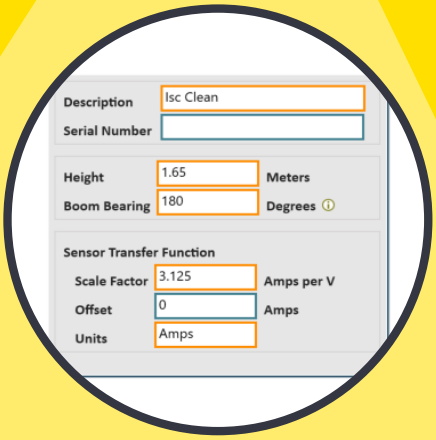
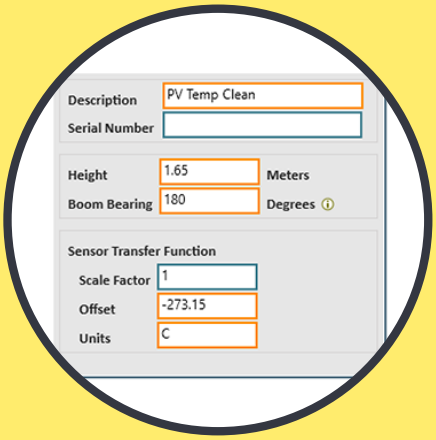
9 SymphoniePRO Logger Programming

Use the SymphoniePRO Desktop Application to program the sensor settings into the data logger:



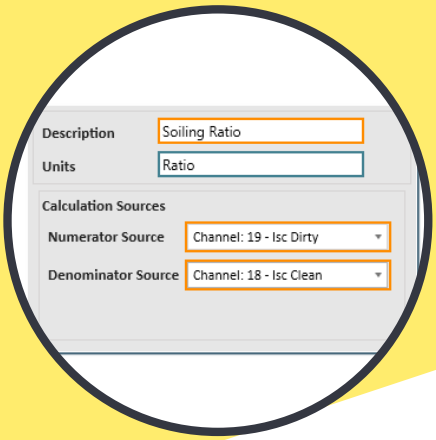
ISC MEASUREMENT
(example on channel 18)

1. Enable Channel
2. Enter “Isc Clean” in the Description
3. Enter the height of the module
4. Enter Scale Factor: 3.125
5. Offset: 0
6. Units: Amps
7. If installed on Ch. 16-19, set Excitation settings:
   - Mode: Constant On
   - Voltage: 12 V
8. If installed on Ch. 20-26, use P-SCM #9132
9. Repeat this process on channel 19, but with a description of “Isc Dirty”



BACK OF MODULE TEMPERATURE
(example on channel 20)

1. Choose “NRG PVT1 PV Temperature Sensor” from the Defaults drop down menu
2. Edit the Description to “PV Temp Clean”
3. Enter the PVT1 sensor serial number
4. Enter the height of the sensor
5. Repeat this process on channel 21, but with a description of “BoM PV Temp Dirty”



SOILING RATIO
(example on channel 100)

1. Choose Calculation Type “Ratio”
2. Edit the Description to “Soiling Ratio”
3. Enter the Units as “Ratio”
4. Numerator Source: choose the “Isc Dirty” channel
5. Denominator Source: choose the “Isc Clean” channel

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ISO 9001: 2015 Certified
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