

DustIQ Soiling Sensor

Measurement of soiling ratio from 100% to 50%



Description

- Optical Soiling Measurement (OSM) technology
- Measurement of soiling ratio from 100% to 50%
- Maintenance-free

Soiling of the PV module glass is one of the major problems in solar power plants with the attendant loss of efficiency and reduction in performance ratios. The DustIQ sensor is a simple and cost-effective method for soiling measurement. Based on the Optical Soiling Measurement (OSM) technology, the sensor can be easily integrated in solar power plant monitoring systems.

The unit is mounted to the frame of a PV module and does not need sunlight to operate. It continuously measures the transmission loss through glass caused by soiling, so that the reduction in light reaching the solar cells can be calculated.

Knowing exactly when and where to clean

DustIQ measures the soiling ratio, which can be translated to power loss in real time. This enables the plant operation and maintenance staff to know when a critical level of soiling is reached and it has become necessary to start cleaning procedures.

DustIQ is maintenance-free. It is cleaned in the same way, and at the same time, as the PV modules around it. Large solar power plants have different soiling rates across the site, which is why IEC 61724-1 requires multiple measurement points.

Specifications

Characteristic	Description
Soiling ratio's	2 sensor values 50 ... 100%

Characteristic	Description
Soiling ratio measurement accuracy	
90 ... 100%	± 1%
80 ... 90%	± 2%
50 ... 80%	± 5%
	After post processing
Stability	Auto calibrating, better than ± 1% of full scale per year
Connections	1 - RS485 Modbus 2 - Daisy chain to next device or PV module temperature sensor
Voltage range	10 ... 30 VDC
Current range	70 ... 200 mA
Power consumption max.	< 2 W
Ambient operating temperature range	-20 ... 60 °C
Glass type	Standard PV module glass with all coatings and laminates
Dimension	990 x 160 x 40 mm
Weight	4 kg
Manufacturer	Kipp & Zonen

Sensor connection diagram

DustIQ Sensor, PV Soiling Monitoring (via RS485 Half Duplex)

Meteo-42 Data Logger

