

Remote solar radiation sensor check



Keep your PV plant performances always under control

Appropriate monitoring of a photovoltaic plant is necessary to evaluate its performance.

Many KPIs assessing the plant performance exploit as a key parameter the incoming solar irradiance (e.g. PR – defined as the ratio between energy produced and the incoming irradiation). Thus, during the plant operation keeping appropriate and accurate solar radiation measurements is crucial.

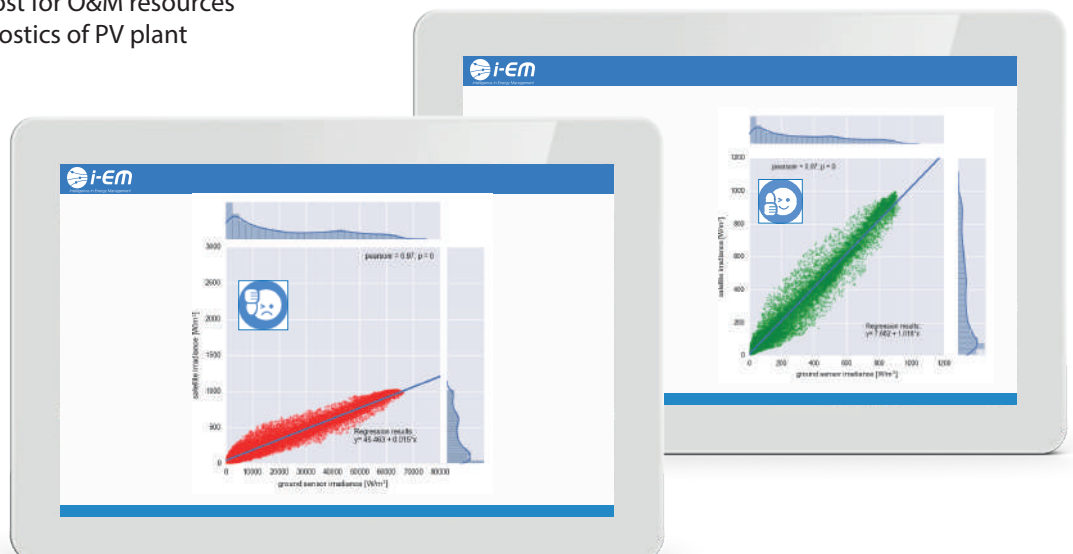
A typical approach to ensure the accuracy of the sensor is scheduling fixed time intervals of recalibration procedures. In contrast to this conventional maintenance strategy, condition based maintenance consists in real-time monitoring of the sensor measurements, allowing for early detection of sensor malfunctions and for a more efficient and targeted recalibration planning.

Key Features

- >> Automatic remote sensor condition based check-up
- >> Sensor statistical remote recalibration
- >> PV plant time-dependent drifting deviation assessment from nominal behaviour

Benefits

- >> Increases PV plant performance assessment reliability
- >> Save time and cost for O&M resources
- >> Advanced diagnostics of PV plant



Sensor Check

Service description

>> Sensor condition-based check-up: irradiance data derived from satellite imagery are used to detect sensor failures and possible configuration issues and to generate warnings if discrepancies are found:

- configuration problems: tilt/azimuth configuration, shadows presence, data acquisition timing offsets;
- electrical problems: frozen data, systematic scaling errors or offset measurements;
- pointwise-incorrect measurements early detection: spikes, missing data, out-of-thresholds;
- time-dependent effects assessment: soiling, ageing, temperature-related effects;

>> Sensor statistical recalibration service: if the irradiance sensor shows a systematic anomaly behaviour and a nominal on-site recalibration and/or sensor replacement procedure is not immediately possible, a new corrected irradiance sensor measurements dataset is generated exploiting satellite data. The new data set refers to both past data set and to the new sensor measurements obtained until the next on-field sensor maintenance intervention.

>> PV plant time-dependent drifting deviation assessment from nominal behaviour: reliable and accurate long-term PV DC effects can be assessed correlating the sensor measurements and the satellite irradiance data (e.g. understanding the soiling effects and its time dependent features).



From scheduled maintenance to condition-based maintenance