

PV Site Solar monitoring

PV performance measurements under real outdoor conditions are done in many different ways. However, the concept of all performance investigations is to relate the input energy, which is the solar radiative flux, to the output energy, which is the electrical power produced by the PV module. EKO's Solar Monitoring Stations, referred to as SMS, is the dedicated facility for this type of evaluation.

EKO Instruments unique Solar Monitoring Station (SMS) is the primary reference to collect high quality solar irradiance data on-site. The innovative turn-key system provides all fundamental solar radiation and meteorological parameters for PV site evaluation, performance monitoring and cell optimizing.

- * The global, diffuse and plane of array
- * The solar spectral characteristics
- * The direct normal irradiance
- * Temperature, humidity, wind and precipitation
- * Data logger or electronic interface

New to the EKO range are the PVmet unique weather stations which is a modular platform to configure the most comprehensive weather station. Multiple high end pyranometers and weather sensors can be combined as a turnkey solution for PV monitoring applications. Standard measurement parameters (POA Irradiance, Horizontal Irradiance, PV back-panel temperature, Relative humidity, Barometric pressure, Ambient temperature, Wind speed and direction, Rain Gauge). PVmet is an innovative sensor platform for PV monitoring, which is developed by Rainwise Inc. and provided by EKO.

This low cost station is compact and simple to install and to connect to any inverter or SCADA system. As with all PVmet stations it includes a RS-485 Modbus interface (Sunspec® certified).

HOW-TO Application Guide

1

The SMS is configured according to the specific requirements of the customer's application. EKO provides all possible sensors, such as the broad-band and spectral radiometers, but also compact weather sensors, sky-cameras and battery power supplies.

2

The SMS's includes a high-quality data logger system which is programmed according to the customer's specific needs. The Solar Monitoring Station is a plug and play system. All systems are set-up and pre-programmed according to clients needs and wishes. The diagram below summarizes the possible options for composition of the solar monitoring station, based on application and desired parameters.

3

Monitoring a PV system by providing reliable data is a valuable asset with respect to quality assurance. Solar cell and module manufacturers also use the SMS as a reference for life time performance testing on site. Whereas Engineering Procurement Construction (EPC) contractor that build solar power plants use efficiency data provided by the SMS to check if existing and/or implemented solar power plants work according to the manufacturer specifications.