



What is Solar PV Testing?

The term photovoltaic (PV) refers to a system that uses semiconductor materials to convert light into electricity - resulting in a Photovoltaic Effect. PV systems come in varying sizes and formats, so an understanding of PV components and how they are used is needed before PV testing can be performed.

A basic PV system consists of the following:

PV module, could be one or many modules that are linked together to form a PV array. Modules connected in series are called strings. The role of a PV module is to convert the light energy from the Sun into DC electrical energy using semiconductor materials. Some systems can be optimized (DC optimizers) to compensate for shading of the PV modules, an effect that can greatly reduce system performance.

Inverter, converts the DC output from a module into AC electricity. The output of an inverter can be fed to a storage system, a load centre, or both.

AC Modules are a combination of both the PV module and inverter in one unit. These components use microinverters, which are small inverters attached to the back of the module, to produce AC electricity directly from the PV module.

In addition, more complex PV systems can incorporate combiner boxes (to take multiple strings), fused connectors, ground (Earth) fault protection, charge controllers (voltage regulators) and switchgear etc.

PV testing is carried out by qualified PV technicians / PV engineers, many of whom are qualified electricians. Testing can be carried out at various stages, for example, at the pre-installation stage (testing of individual modules), while commissioning (where the system is being installed) or during the ongoing operation and maintenance stage (to ensure the PV system integrity and performance is maintained).

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