

Simulation of Photovoltaic Array for Specified Ratings of Converter

Authors : Smita Pareek, Ratna Dahiya

Abstract : The power generated by solar photovoltaic (PV) module depends on surrounding irradiance, temperature, shading conditions, and shading pattern. This paper presents a simulation of photovoltaic module using Matlab/Simulink. PV Array is also simulated by series and parallel connections of modules and their characteristics curves are given. Further PV module topology/configuration are proposed for 5.5kW inverter available in the literature. Shading of a PV array either complete or partial can have a significant impact on its power output and energy yield; therefore, the simulated model characteristics curves (I-V and P-V) are drawn for uniform shading conditions (USC) and then output power, voltage and current are calculated for variation in insolation for shading conditions. Additionally the characteristics curves are also given for a predetermined shadowing condition.

Keywords : array, series, parallel, photovoltaic, partial shading

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