

Comparative Study of IC and Perturb and Observe Method of MPPT Algorithm for Grid Connected PV Module

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Abstract : The purpose of this paper is to study and compare two maximum power point tracking (MPPT) algorithms in a photovoltaic simulation system and also show a simulation study of maximum power point tracking (MPPT) for photovoltaic systems using perturb and observe algorithm and Incremental conductance algorithm. Maximum power point tracking (MPPT) plays an important role in photovoltaic systems because it maximize the power output from a PV system for a given set of conditions, and therefore maximize the array efficiency and minimize the overall system cost. Since the maximum power point (MPP) varies, based on the irradiation and cell temperature, appropriate algorithms must be utilized to track the (MPP) and maintain the operation of the system in it. MATLAB/Simulink is used to establish a model of photovoltaic system with (MPPT) function. This system is developed by combining the models established of solar PV module and DC-DC Boost converter. The system is simulated under different climate conditions. Simulation results show that the photovoltaic simulation system can track the maximum power point accurately.

Keywords : incremental conductance algorithm, perturb and observe algorithm, photovoltaic system, simulation results

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