Abstract

Maximum Power Point Tracker (MPPTs) play a major role in photovoltaic (PV) power systems because they maximize power output from a PV system for a given set of conditions, and thereby maximizing the array efficiency. The paper presents the comparison of solar maximum power tracking methods for a stand-alone solar PV system. The I-V & P-V characteristics are obtained for different values of solar insolation by maintaining the cell temperature constant. The solar MPPT methods are responsible for deriving maximum possible power from photovoltaic module to the load via a boost converter used for stepping up the voltage to required magnitude. The main aim will be to track the maximum power point of the photovoltaic module to extract maximum power. The Maximum Power Point Tracking (MPPT) algorithms, which are based on the incremental conductance method and Perturb and Observe method, are also described. Both these algorithms are applied to stand-alone system feeding to 1kw load. The simulation results were presented to validate that the Incremental conductance approach has better steady state performance than the traditional P and O under various conditions along with improved efficiency of the PV system. The algorithm structure was built using MATLAB.
Comparison of Solar Maximum Power Tracking Methods for Stand Alone Solar Photovoltaic System

Simulink software.

References

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**Index Terms**

Computer Science  
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**Keywords**

Perturb and Observe, Incremental conductance, MPPT, MATLAB/Simulink