

Analysis of DC\DC Converter of Photovoltaic System with MPPT Algorithms Comparison

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Abstract : This paper presents the analysis of DC/DC converter including a comparative study of control methods to extract the maximum power and to track the maximum power point (MPP) from photovoltaic (PV) systems under changeable environmental conditions. This paper proposes two methods of maximum power point tracking algorithm for photovoltaic systems, based on the first hand on P&O control and the other hand on the first order IC. The MPPT system ensures that solar cells can deliver the maximum power possible to the load. Different algorithms are used to design it. Here we compare them and simulate the photovoltaic system with two algorithms. The algorithms are used to control the duty cycle of a DC-DC converter in order to boost the output voltage of the PV generator and guarantee the operation of the solar panels in the Maximum Power Point (MPP). Simulation and experimental results show that the proposed algorithms can effectively improve the efficiency of a photovoltaic array output.

Keywords : solar cell, DC/DC boost converter, MPPT, photovoltaic system

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