Abstract

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A grid-connected PV interface system based on the DAB-converter

This paper presents an interface system for the grid-connected Photovoltaic (PV) arrays. The proposed interface system is based on the Dual Active Bridge (DAB) converter which is connected to the DC-link of the grid-connected inverter. The Perturb and Observe (P&O) scheme is utilized to obtain the terminal voltage of the PV array that results in Maximum Power Point Tracking (MPPT). The PV terminal voltage is regulated using a PI controller that adjusts the phase shift angle of the DAB converter. Moreover, the inverter is controlled to regulate the DC-link voltage which results in delivery of the harvested maximum power to the grid. The proposed PV interface system is modeled and simulated using the EMTDC/PSCAD software package. The simulation results reveal accurate and fast response of the proposed system.