

New Topology of Multiple-input Single- output PV System for DC Load Applications

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Abstract

Improving PV system structure and maximizing the output power of a PV system has drawn many researchers attention nowadays. A proposed multi-input single-output PV system is proposed in this paper. The system consists of multiple PV modules; each module feeds a DC–DC converter. The outputs of the converters are tied together to form a DC voltage source. In order to minimize the output ripples of the converters, the control signal of each converter is time shifted from each other by a certain time interval depending on the number of converters used in the topology. In this study a battery is used as the main load, the load current used as the control variable. A fuzzy logic controller designed to modulate the operating point of the system to get the maximum power. The results show that the proposed system has very good response for various operating conditions of the PV system. In addition the output filter is minimized with excellent quality of the DC output voltage.

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