

Optimal MPPT Charging Battery System for Photovoltaic Standalone Applications

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Abstract : The photovoltaic panel produces green power, and because of its availability across the globe, it can supply isolated loads (site away of the electrical network or difficult of access). Unfortunately this energy remains very expensive. The most application of these types of power needs storage devices, the Lithium batteries are commonly used because of its powerful storage capability. Using a solar panel or an array of panels without a controller that can perform MPPT will often result in wasted power, which results in the need to install more panels for the same power requirement. For devices that have the battery connected directly to the panel, this will also result in premature battery failure or capacity loss. In this paper it is proposed a modified P&O algorithm for the MPPT which takes in account the battery's internal resistance vs temperature and stage of charging. Of course the temperature variation and irradiation of the PV panel are also introduced.

Keywords : modeling, battery, MPPT, charging, PV Panel

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