ABSTRACT

Battery is one of the power stores of a renewable energy producer, one of which is photovoltaic technology. The implementation of the battery pack is to include two battery cells with a parallel or series configuration. In this study, the parallel configuration used where this configuration has the same voltage, so that the two batteries arranged in parallel have the same voltage. But technically, the voltage of the two batteries is not always the same especially when loading, therefore a battery balancer has been designed.

The device for balancing two Li-ion (Lithium ion) batteries arranged in parallel designed using a passive balancing method can perform switching automatically. In this system tested in three tests of three trials each. The result of the energy expended is greater with first test than second and third tests, so the benefits as a parallel Li-ion battery voltage balancer in first test with an energy efficiency of 88.46%.

This balancing device has been used to balance the two Li-ion batteries in the SunPower Energy Kit. Where the initial voltage conditions of the two batteries in this kit are different so that there is an imbalance, it is necessary to adjust the voltage so that the two batteries do not have a large difference, which is less than the threshold of 10%.

Keywords: *Li-ion Battery Charging, Li-ion Battery Discharging, Parallel Configuration, SOC.*