

ABSTRACT

Disinfectant liquid is a solution of chemical compounds used to kill, destroy, and eradicate germs or viruses. Disinfectants are generally toxic compounds. This liquid is useful for spraying on inanimate objects only, it is not allowed to be sprayed directly on the human body area because the chemicals from the disinfectant liquid can cause itching, redness, and allergies.

The water ionizer system is a system where a solution can increase the acidity level using the electrode method. This method works in the presence of a cathode and anode which is powered by a direct current (DC) so that the solution can be ionized. In this study, the author made a water ionizer system for disinfectant liquid. This study uses the main voltage source from solar panels stored in 18650 batteries which are arranged in 3 series and 4 parallel, with the addition of a 3S40A BMS module with balance as protection.

The manufacture of Li-Ion 18650 batteries in 3 series and 4 parallel with the addition of the BMS3S40A module produces a battery capacity of 6936mAh. During charging using a 50wp polycrystalline solar cell module, the maximum voltage is 21.8V, the maximum current is 2.51A and the maximum power is 55.59W. Charging to the Li-Ion 18650 battery pack from a voltage of 9.91V (depleted) to 12.45V (full charged) with a battery capacity of 95.83% takes 5 full hours. When the process of making a disinfectant solution (discharging) with a condition (full charged) 12.45V takes 3 full hours with an acidity of 5.6pH, an output current of 0.22A and a flowing power of 2.739W, discharging the battery from 12.45V to 12, 03V, with a decrease in the capacity of the Li-Ion 18650 battery pack by 9.44%, from 95.83% to 86.39%.

Keywords: Disinfectant liquid, 50wp polycrystalline solar cell module, Li-Ion 18650 battery, BMS 3S40A, charging, discharging.