

ABSTRACT

Nanosatellit is a type of satellite that weighs less than 10 kg. Main system nanosatellit can be divided into several subsystems, namely the payload, Attitude Determination and Control System (ADCS), on-board Data-Handling/on-Board Computer (OBDH/OBC), Ground Station and Electronic Power System (EPS). The main power system on nanosatellit is controlled entirely by the EPS. EPS is very important because other units dependent on Electrical Power System. If the Electrical Power System failure then all units will be disturbed.

In this research made a prototype of the Electrical Power System by using *Direct Energy Transfer* (DET). In DET method the electrical energy from multicrystalline solar cell will be transferred directly to the other subsystem by passing the distribution unit and the electrical energy will be storage in to lithium polymer battery. The prototype of EPS use microcontroller ATmega8535 to control the switch relay to choose power supply when the nanosatellit in light time condition or eclipse time condition.

From the testing system EPS can work, the system can process of charge and discharge battery with load or without load, the load range from 0.32 watt until 6.18 watts. By using multicrystalline solar cell is only able to charging up to a load of 0.8 watt with time 214 minutes. And to discharge battery with load, the battery is able to supply a load up to 6.1 watts for 6 minutes.

Keyword — EPS, nanosatellit, power control, battery, solar cell