

ABSTRACT

A defibrillator is an electronic device that transmits electrical shock signals (pulses) to the heart muscle to maintain myocardial depolarization that is undergoing cardiac fibrillation (ventricular fibrillation or atrial fibrillation). This defibrillator is made so that it can be used as a student learning material in studying the working principles and functions of the defibrillator device. This defibrillator is also equipped with two modes, namely synchronous and asynchronous. In this defibrillator the energy given ranges from 10-50 Joules with the use of 10, 20, 30, 50 Joules. The energy is channeled to the exhaust by pressing the discharge button on the paddle whose equivalent is adjusted to human resistance. The energy dissipation is controlled by the Driver which then the Relay will work alternately from the first capacitor to the second capacitor and is discharged through the paddle. This study uses a ventricular tachycardia signal as a synchronous mode trigger. Synchronous mode of the tapped ecg signal on lead 2 due to better reading than the other leads. The research method used is After only design, based on monophasic energy value measurement data (joules) by comparison with a defibrillator analyzer, the largest error is 0.023% and the smallest error is 0.0024%. The results of measuring the accuracy of synchronization at the 10J, 20J, 30J and 50J settings obtained accurate discharge results at the peak of the R wave. The results of this study can be developed in the future to improve synchronization so that the heart signal can return to normal when given a shock.

Keywords: *Defibrillator, Synchronous, Asynchronous, Discharge.*