ABSTRACT

In this research a direct current high voltage source has been created using the Flyback Converter method. Flyback converter is a method of DC-DC converter where the DC voltage will be converted to another DC voltage with a different voltage value. Flyback converters have high frequency transformers that function as inductors. The transformer used is the Flyback transformer type BSC25-T1010A. The transformer input is given a positive box signal with a peak voltage of 5 V. The output of the transformer shows a high DC voltage whose magnitude can change according to changes in frequency, input current and duty cycle. The output of the transformer is measured using a multimeter assisted with a voltage divider circuit so that its value falls within the measurement range of the measuring instrument. Current parameter values used include 0.5 A, 0.75 A, and 1 A, while the frequency values used are 1 kHz, 1.5 kHz, 2 kHz with duty cycle in the range of 20% - 95%. From the research results, the optimal value of frequency and current input is 1.5 kHz and 0.5 A with an output range of 0 - 5.19 KV. The high voltage output is then controlled using a microcontroller with a voltage accuracy of 19%.

Keywords: Flyback converter, PWM, duty cycle, frequency, high voltage.