

ABSTRACT

Electrical energy is needed in several sectors such as households, industry, business, social, buildings, government offices and lighting, the need for electricity continues to increase along with technological developments and human civilization. The purpose of this research is to design an inverter using the Sinusoidal Pulse Width Modulation Method. Analyzing the implementation of inverters to the power load of lighting electrical equipment. Analyze the efficiency of the inverter for electrical equipment in the form of lighting? This study discusses the use of an inverter with a MOSFET H-bridge circuit which adopts the working principle of 4 switches that work in a crosswise manner. The output of the H-bridge circuit is then increased in voltage by a step up transformer from 12 VDC to 220 VAC. However, when the step-up transformer is equipped with a 220 VAC 3.3 μ F filter capacitor to supply the lighting load, the step-up transformer experiences a significant voltage drop causing the lamp not to light up. However, when the step-up transformer does not use a filter, the voltage drop is not too significant and the load lights up properly. In addition, the use of the SPWM method in the H-bridge circuit has proven effective in controlling the output voltage of a step up transformer. The efficiency of the inverter affects the load used, when the inverter uses a voltage filter the efficiency is only 6% and when the inverter does not use a voltage filter the efficiency is 51.33% at a load of 5 watts and the maximum power of this inverter can turn on a load of 10 watts of LED lights.

Keyword : Accu, Inverter, SPWM, Lighting.