

ABSTRACT

IMPLEMENTATION AND ANALYSIS FILTER TO REDUCED HARMONICS IN BUCK TYPE CONVERTER DC TO DC

DC Chopper is one of the most extensive power electronics devices. One of them, to control the speed of DC motor rotation. Because of its definition, DC Chopper is a converter that converts a direct current voltage into a variable current voltage. DC Chopper has an invisible disadvantage, producing a high enough harmonic current. And if the harmonics generated over the allowed thresholds can cause the power factor to be degraded, the electronic equipment is damaged early, minus the efficiency of the device and. To avoid the above DC Chopper buck type must follow the standard set out in IEC 61000-3-2.

The purpose of this research is to reduce harmonics caused by DC Chopper by applying passive filter. Among them are passive filters 3rd harmonic and low pass filter. And in this study, DC Chopper will be given a DC motor shunt type. Prior to filter implementation, harmonic identification was performed. There was a great harmonic value of 3 = 28.3 mA and Total Harmonic Distorsion Current (THDi) = 70.4%.

After DC Chopper implemented the 3rd harmonic filter, the harmonics proved reduced to 14.5mA and THDi was reduced to 59%. And after implemented low pass filter, the harmonics proved to be reduced. It is harmonic to 3, 5, 7, 9, 11, 13 to 18.3 mA, 2.5 mA, 2,4mA, 1,2mA, 0,4mA, 0mA. Adjustment of the 3rd harmonic filter and the low pass filter have shown a great harmonic, the sine wave is distorted into more sinus, and also improves the power factor. Reduction of harmonics on DC Chopper by using filters that are compliant with IEC-61000-3-2 class D standard.

Keywords: *DC Chopper, Harmonic, IEC 61000-3-2 Class D, Passive Filter.*