As shown in the figure above, the duty cycle of the switches is about 50 %. In this situation, the waveform of the command signal to the switches will be as follows:

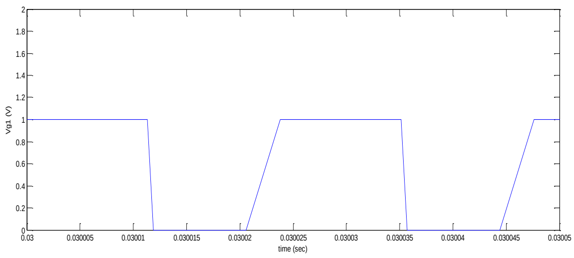

**Figure 25.** The command signal to switch 1

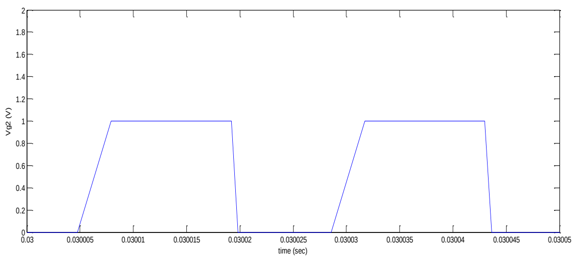

**Figure 26.** Command signal of switch 2

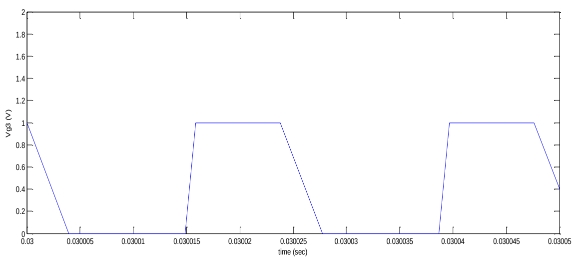

**Figure 27.** The command signal to switch 2

As you can see, switches are switched at 42 kHz and their duty cycle is about 50 %.

## 6. CONCLUSION

The main objective of this paper is to use fuzzy control of push-pull fly-back three-phase DC-DC convertor. To this end, we first introduced the fuzzy control, and its basic concepts and applications were discussed in detail. The important advantage of using the fuzzy control method is that in this method it is not necessary to know the exact mathematical model of the converter. In the following, the controller for controlling push-pull fly-back three-phase DC-DC convertor was investigated. This structure can operate in the entire range of D variations. The high impedance created by couplings prevents trans-saturation. Finally, the simulation results show the accuracy of the converter's performance in two different values for the reference voltage. For future studies, the optimization of fuzzy controller is recommended.

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