

# Educational Platform for Closed-Loop Simulation of Power Converters

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## Abstract

*This paper presents a study of the Buck converter with closed-loop control and a Matlab simulation of this converter model. The closed-loop allows to regulated the output voltage for input voltage and load variation. The Matlab model is composed of the differential equations that define the implemented system.*

*In order to implement the simulation platform, the converter operation was described by the differential equations for each operating regime, at a fixed switching frequency. In order to solve these equations, the Matlab software package is used. That offers the possibility of visualization of the corresponding waveforms for converter operation. Also, the Matlab program offers the possibility to change the circuit parameters, during the same time easy to use by the user.*