# STRAIGHT FORWARD CONTROL OF INDUCTION MOTOR USING MATRIX CONVERTER

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## Abstract

The purpose of this study is to present the most wanted know-how about the straight forward control of Induction Motor using Matrix Converter (MC). The concept out lines in details the single stage AC-AC direct power conversion using Matrix Converter. It will illustrate the design of the system which can be used as power converter having applicability in variable frequency power supply applications like VFD's used in cement factories, ball mills, and for maintenance of air-crafts when they are parked in their bays. The device proposed in this study is used to control the speed of squirrel cage induction motor by changing the frequency through modeled Matrix Converter. Speed variation results were obtained by simulating the proposed Matrix Converter model through MATLAB simulink software. The model proposed has been designed for 100 HZ and 25 HZ power frequencies, and the squirrel cage induction motor speed has been controlled by varying the frequency through Matrix Converter. The straight forward Matrix Converter design is likely to find the intensive application in other areas as well like Wind Power and Pico/Micro Hydro Generation so as to improve the efficiency of these power generation systems due to single stage of conversion. The model in this study uses nine simple bidirectional switches arranged in the form of matrix such that any input line can be connected to any output line at any time. The switch duty cycles are modulated to generate the desired output frequency such that the speed variation of the induction motor is obtained. The results have been confirmed by means of generated waveforms for changed frequency and at the same time speed variations also have been confirmed through its wave forms generated by simulink.

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