

ABSTRACT

This work presents the comparative performance of three topologies of single-phase to three-phase converters with reduced number of components while driving an induction motor of type squirrel-cage. The operation of each topology is described by means of simulation results. The performance of these converters is evaluated in different modes of operation, according to the positive or negative sequence, with an emphasis on power quality in terms of reduced total harmonic distortion and improved power factor at the input source. With a viewpoint for achieving reduced costs, an experimental prototype has been developed, based on the use of integrated module of power semiconductor switches and a cheap microcontroller. Experimental results comparable to those obtained by simulations are obtained.

Keywords: Phase converters. Motor drive. Reduced topologies. Converter analysis.