ABSTRACT

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This work presents the development of AC-AC, single-phase to three-phase, power electronic systems based on "*boost"* rectifiers with power factor correction (PFC) and three-level Neutral-Point Clamped (NPC) inverters. Control strategies of Hysteresis and One-Cycle (OCC) type are studied for achieving high power factor and low harmonic distortion (THD%). A comparative analysis of several AC-AC systems, with those referred control techniques, driving a low power three-phase induction motor, is performed, with the purpose of power quality improvement and reduced component specifications and part count. The analysis is carried out through simulation results obtained from commercial software (PSIM).

Keywords: Single-phase to Three-phase; Multilevel; Hysteresis Control; One-Cycle Control.