

AN ABSTRACT OF A THESIS

PWM STRATEGIES IN POWER CONVERTERS

Parag. M. Kshirsagar

Master of Science in Electrical Engineering

An analytical technique is developed for the determination of the expressions for the modulation signals used in the carrier-based non-sinusoidal and generalized discontinuous PWM modulation (GDPWM) schemes for two-level, three-phase voltage source inverters. The resulting modulation schemes are applicable to inverters generating balanced or unbalanced phase voltages. The results obtained analytically generalize the several expressions for the modulation signals already reported in past literatures. Confirmatory experimental results are provided to illustrate some of the feasible modulation signals.

A novel carrier-based discontinuous pulse-width modulation (PWM) scheme based on a novel Space Vector modulation methodology is developed for four-leg converters. Using the zero sequence voltage component and partitioning the feasible