



V/F control of Three Phase Induction Motor Drive with Different PWM Techniques

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Abstract:

This paper presents a v/f control of induction motor with different pulse width modulation (PWM) techniques as sine triangle pulse width modulation (SPWM), Third-harmonic pulse width modulation (THPWM) and Space vector pulse width modulation(SVPWM) using MATLAB SIMULINK. Induction motor modeled in the synchronous q-d reference frame. The performance of IM with full load torque is compared using these techniques for THD, harmonics spectra, utilization of dc supply voltage, fundamental peak of the output voltage and motor speed. The dynamic performance of IM using SVPWM under reference speed and load torque variations is studied also. The results show that the SVPWM is the efficient one because it's superior performance characteristics. The operation of IM with v/f method for closed loop system is enhancement when SVPWM technique is applied.

Keywords:

Space vector modulation, SPWM, V/f control, Harmonic injection.

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