

An Unsymmetrical Two-Phase Induction Motor Drive With Slip-Frequency Control

Naser Mohammed Bayoumy AbdelRahim , A. Shaltout

Abstract

This paper proposes a closed-loop control strategy to operate an off-the-shelf single-phase induction motor (IM) as a symmetrical two-phase IM. The proposed control strategy employs the SFC technique to independently control the stator currents of both the main and auxiliary windings, and make them follow a predefined sinusoidal waveform. Simulation and experimental results show that the proposed scheme is successful in operating the conventional single-phase IM as a symmetrical two-phase IM with fast dynamic and transient responses. In addition, the proposed control system achieves cost-effectiveness in both initial and running costs.

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