A Multilevel Inverter System for an Induction Motor with Open-Ended Windings

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Abstract

The objective of this paper is to present a multilevel inverter topology for induction motor with open-end winding. Multi level inversion is achieved by feeding an open-end winding induction motor with a two-level inverter in cascade with three auxiliary circuits from one end and a single two-level inverter from the other end of the motor. The combined inverter and auxiliary system with open-end winding induction motor produces voltage space-vector location identical to five-level inverter. The proposed inverter drive scheme was simulated for different type of loads and also with sudden changes in the load. It is also capable of producing a multilevel pulse width modulation (PWM) waveform to a five level depending on the modulation range. The proposed topology has been simulated using MATLAB/SIMULINK with satisfactory results.

References

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Index Terms

Computer Science

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Keywords

Auxiliary circuit, Induction motor, multilevel inverters, open-end winding, pulse width-modulation strategy.