

Performance comparison of pwm schemes of dual-inverter fed five-phase motor drives

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=9999920521601&lokasi=lokal>

Abstrak

The dual-inverter fed open-end winding configuration can be categorized as a new breed of multi-level converters. The structure is simple and offers a lot of advantages. However, the development of suitable PWM schemes is more complicated, due to the availability of a large number of switching states and existence of the multiple two-dimensional planes. An overview of attempts to develop suitable modulation techniques for the dual-inverter fed five-phase machine drives recognizes that progress has been made over the past few years. This paper presents a performance comparison of three PWM schemes of the dual-inverter fed five-phase, open-end winding motor drives. The quality of the phase output voltages are compared and the adequate analyses are provided. The simulation results show that the Carrier Based Phase Disposition (PD) PWM scheme enables generation of the most excellent output voltage among the three PWM schemes. The Total Harmonics Distortion (THD) of the output voltages generated by the carrier based PWM scheme reduces by 65% and 15% on average compared to the THD of the output voltages produced by the URS PWM scheme and the decomposition PWM scheme respectively.