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Bidirectional PWM Converter to Interface AC Part to DC Microgrid with Neutral Potential Balancing

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Abstract

This research presents a description of a bidirectional pulse width modulated converter that functions as a rectifier by using the direct power control strategy and space vector modulation technology. In contrast to the voltage-oriented control strategy, this method minimises the number of internal current loops and requires more tuning. While functioning as an inverter, it applies the space vector modulation technique as well. The approach, on the other hand, is not the same as rectifiers since it calculates the duty ratio of the neighbouring voltage vectors in each small triangle that is generated in each sector that has a period of 60 degrees. In both situations, the neutral point potential has been brought back into equilibrium.

Keywords: AC grid DC microgrid DPC method Neutral-point balancing PWM converter Space vector modulation

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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