

Inverter DC current ripple





Overview

Why is DC-link current ripple important in a five-phase inverter?

Therefore, a thorough analysis of the dc-link current and voltage ripples on the capacitor in a five-phase inverter is essential for both optimal capacitor design and accurate performance evaluation. For the capacitor, high-frequency dc-link current ripple is introduced due to the PWM of the inverter .

Why do inverter switching actions reduce DC-link voltage ripple?

Consequently, the pulsating current flowing from the inverter to the dc source can be effectively reduced . This, in turn, mitigates the dc-link voltage ripple, ensuring a relatively stable dc-link voltage under inverter switching actions .

Does low-frequency inverter input current affect DC-link voltage ripple?

Under unbalanced input conditions, the effect mechanism of low-frequency inverter input current on dc-link voltage ripple is theoretically revealed. The rest of this paper is organized as follows. First, Sect. 2 establishes the inverter modulation model under input unbalance.

How to minimize ripple in DC-link current in a multi-inverter system?

This pattern with an arbitrary phase and switching time is valid for every inverter in a multi-inverter system. Therefore, control handles on the phase, switching time, and switching sequence for individual inverters relative to the others can be explored to minimize the overall ripple in the DC-link current.



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