Pulsation at the low voltage end of the DC inverter

Overview

Abstract—A model predictive control-based second harmonic injection (MPC-SHI) method is proposed in this paper to attenu- ate the DC side second pulsation for the single-phaseAbstract—A model predictive control-based second harmonic injection (MPC-SHI) method is proposed in this paper to attenu- ate the DC side second pulsation for the single-phaseThe modulation of a voltage source inverter output causes losses and harmonic distortions on the load side and the DC-link capacitor due to the discrete switching of the semiconductors. High-frequent voltage pulses are digitally programmed to control the inverter output and determine the harmonic. The proposed system allows independent control of active and reactive power for each phase of the power converter without current pulsation on the DC link connected to an energy store. The proposed control method facilitates output power pulsation control of main inverter, which is a constant frequency regardless of load fluctuations.

Article Content

(PDF) DC-link low-frequency current and voltage ripple ...

The authors propose a current fluctuation reduction strategy based on optimal three-space-vector pulse-width modulation (TSVPWM), which is used ...

Power control and pulsation decoupling in a single-phase grid ...

The single-phase grid-connected inverter has inherently twice frequency power pulsation that causes the output current distortion and reduces the utility of photovoltaic module.

DC-link low-frequency current and voltage ripple ...

This reflects in current and voltage low-frequency ripple on the dc-link inverter side (i.e. at the double-fundamental frequency). A possible method to ...

Power Decoupling Control of Electrolytic Capacitor-Less Dual ...

The proposed control method facilitates output power pulsation control of main inverter, which is a constant frequency regardless of load fluctuations. The experimental results exhibit a reduction in the ...

Zero-voltage and frequency pattern selection for DC-link loss ...

Obtained results indicate that operation with deep unbalances and powers of opposite signs in individual phases leads to current oscillations in the DC link. This phenomenon significantly ...

DC-link low-frequency current and voltage ripple analysis in ...

This reflects in current and voltage low-frequency ripple on the dc-link inverter side (i.e. at the double-fundamental frequency). A possible method to analyse this matter is through the ...

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This paper proposes an adaptive dc-link voltage control method for the two-stage photovoltaic inverter during the low voltage ride-through (LVRT) operation period.

Pulsating power mitigation in poly-source DC microgrids with single ...

Usually, each single-phase inverter has a random voltage phase angle reference and a different load power factor that strongly influences the DC bus power quality. To solve this problem, a ...

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The second harmonic voltage in the DC link could increase the system loss and decrease the stability of the converter system, and its generation process and transmission mechanism are analyzed in this ...

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