

SolarTech Power Solutions

Zero-sequence voltage inverter



Overview

What is a zero-sequence voltage injection method?

This article proposes a simple zero-sequence voltage injection method for the carrier-based pulsewidth modulation (CBPWM) of the three-level neutral-point-clamped (NPC) inverter. The injected zero-sequence voltage signal is simply determined by comparing the three reference voltage signals and the dc-link capacitor voltages, respectively.

Can a zero-sequence voltage injection method control NP potential?

Zero-sequence voltage injection methods based on carrier-based pulse width modulation (PWM) have been proven to be effective in controlling the NP potential. This paper proposes a simple algorithm of calculating the zero-sequence voltage.

How do zero-vector inverters affect capacitor current?

By adjusting the zero-vectors in each set of inverters, the phase and magnitude of capacitor current change, leading to a decrease of the capacitor current under an appropriate combination of the zero-sequence voltages of the two sets of inverters. The remainder of this article is organized as follows.

How is a DC bus zero sequence voltage derived?

A DC bus zero sequence voltage is derived through instantaneous zero sequence power balancing theory. This derived DC bus ZSV is calculated to compensate for the DC bus controller and correct the reference for grid current control. II.

What is zero sequence power balancing?

Thus, the injected third harmonic part is controlled through zero sequence controller without introducing extra harmonics to the grid. Also, the zero sequence power balancing method is proposed to compensate for the DC bus oscillation caused by the THI in multi-stage grid connected system.

How can a zero-sequence voltage be injected into a normalized reference voltage?

If a zero-sequence voltage v_0 is injected into the normalized reference voltage, the expression of $\text{in}_{p\text{avg}}$ can be given by where v_A , v_B , v_C are the normalized positive-sequence reference voltages. Obviously, the desired value of the average neutral current can be achieved by the injection of proper amount of zero-sequence voltage.

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