FTMRS SOLAR

Single-phase inverter repetitive control

Overview

Is there a dual closed-loop repetitive control strategy for single-phase grid-connected inverters?

In this paper, a novel dual closed-loop repetitive control strategy based on grid current feedback is proposed for single-phase grid-connected inverters with LCL filters. The proportional-integral inner loop is stabilized by using an inherent one-beat delay achieved by digital controller.

How to improve the performance of off-grid inverters?

Voltage control technologies is the key to improve the performance of off-grid inverters. The resonance control, repetitive control, deadbeat control, and model predictive control are widely used in the voltage waveform control of inverters , , .

Can high-order repetitive control reduce net current harmonics in a single-phase inverter?

The stability and performance analysis are all given for the proposed two control strategies. Finally, comparative simulations are conducted in a circuit-level inverter model to show that the high-order repetitive control can obtain better steady-state and dynamic features of the single-phase inverter system and reduce the net current harmonics.

Can PI control be combined with repetitive control in a grid-connected inverter?

Conclusion In this paper, a novel control method combining PI control and repetitive control is proposed for a single-phase grid-connected inverter. After introducing the single-phase inverter type and modelling, a first-order repetitive control and a high-order repetitive control are developed for the grid-connected inverter, respectively.

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