

# Principle of parallel resonance of photovoltaic inverter

What is the resonance mechanism of multi-inverter parallel systems?

The resonance mechanism of multi-inverter parallel systems is sorted out and summarized in , which conducts relevant research on resonance issues from different aspects, but no corresponding suppression strategy is proposed.

What is the resonance mechanism of photovoltaic grid-connected system?

The resonance mechanism of photovoltaic grid-connected system is analyzed based on frequency domain analysis method. The notch filter is added into the active damping control method, and the active damping of the system is enhanced by using the notch characteristics.

How many resonance peaks are there in a photovoltaic grid-connected system?

1. There are usually two resonance peaks in photovoltaic grid-connected system, one of which is the natural resonance peak produced by LCL filter. The other is the coupling resonance peak formed by the parallel connection of multiple inverters and the impedance coupling of the power grid.

Does grid impedance affect the stability of a multi-inverter parallel system?

Many studies on the stability analysis and suppression strategies of multi-inverter parallel systems have been conducted. In , the impact of grid impedance and changes in the number of inverters on the stability of inverter output current is analyzed without considering the interaction between inverters.

Can virtual branches be used for resonance analysis of control inverters?

Two typical control inverters were modelled under the transfer function model, and the defects of the traditional modal analysis method in traversing the series resonance were analyzed. Then, the authors propose to use an improved modal analysis method by adding virtual branches for resonance analysis.

Can multiple inverters traverse series and parallel resonance?

In order to prove the generality of the proposed method for traversing the series and parallel resonance of multiple grid-connected inverters, the inverter to suppress background harmonics of the grid voltage was incorporated into the multiple inverters net-work for case study.

significance to study the grid-connected resonant principle of multiple grid-connected inverters and its resonant suppression strategy. To solve the problem of resonance in parallel systems ...

Due to the traditional grid-connected current control method of single Proportional Integral (PI) and Repetitive Control (RC) strategies, the photovoltaic inverter output current will ...

Working Principle of The System In the parallel resonance inverters, resonance elements L-C are connected

parallel to each other. Fig.1 shows an induction heating system with a three-phase ...

To realize a soft-switching inverter with the advantages of simple structure, high efficiency, low voltage stress and easy to control, a novel parallel resonant DC link inverter ...

The principle of the photovoltaic inverter cluster system is shown in Figure 1. ... Multiple parallel inverters have multiple resonant frequencies that are influenced by many factors. This often ...

degradation and resonance caused by the interaction of net-work's different branches due to the background harmonics. Then, we put forward the idea of identifying the series and parallel ...

To realize a soft-switching inverter with the advantages of simple structure, high efficiency, low voltage stress, and easy to control, a novel parallel resonant dc link inverter with the function ...

1. The general structure of photovoltaic multi-inverter cluster grid-connected system is analyzed in this paper. Based on the system structure, the resonance characteristics of inverter system ...

Introduction of parallel resonant DC link inverter circuit. Figure 1 shows a three-phase PRDCLI circuit. The resonant link composed of  $L_r$  and  $C_r$  converts the input DC voltage into a series ...

High proportion of distributed photovoltaic integration into power system has led to power system presenting weak or extremely weak power grid state. Under weak power grid ...

In photovoltaic grid-connected systems, the interaction between grid-connected inverters and the grid may cause harmonic oscillation, which severely affects the normal operation of the system. To improve the quality of ...

long been recognised that this resonant frequency is not fixed, but changes depending on the time-varying characteristics of the grid impedance [3, 4]. The resonant frequency (typically in ...

Basic principles of modal analysis. Modal analysis is essentially a coordinate transformation that transforms vectors in a physical coordinate system into a modal coordinate ...

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