Three-phase inverter circulating current

Why do modular inverters have a closed circuit?
Modular inverters have a closed circuit when each inverter shares the common DC source and AC bus. The cir-culating current is generated by diferences in each inverter,such as hardware parameters and control process. The circulating current deteriorates the output current quality and degrades the reliability of the parallel system [12-15].

What are the types of circulating current in parallel inverters?
There are two types of circulating current in parallel inverters: low-frequency and high-frequency circulating current. The low-frequency cir-culating current is parameter related,such as imperfect sym-metry in hardware and dependent control of parallel inverter dead time [18,19].

How circulating current flows between inverters?
The circulating current flows between the inverters when the reference voltages diferaccording to the dead time,imperfect symmetry in hardware,and dependent control of parallel inverters. Diferent zero-sequence voltages Vzsv1 and Vzsv2 are injected into each module based on the discrepancy of the reference voltages from Eq. (10).

How do inverter modules calculate circulating current?
The individual inverter module can calculate the circulating current using the three-phase output currentof each inverter module,and the amplitude is proportional to the phase diference of the carriers. Therefore,the instant phase diference of the carriers can be estimated using the circulating current.

How are three-phase currents controlled in a three-level T-type inverter?
Three-phase currents of each inverter are controlled independently,which is easy to be realised by a microcontroller. In order to verify the effectiveness of the current control strategy,the grid-connected experiment of a single three-level T-type inverter is carried out at first.

What is a three phase integrated inductor?
An integrated three-phase inductor, which combines the functionalities of the circulating current filter inductor and the three-phase line filter inductor, is proposed. The magnetic structure of the proposed inductor is shown in Fig. 3a. The flux components corresponding to each of the phases can be made Figure 3: Three phase integrated inductor.

The paralleled configuration of three-phase two-level (3P2L) inverters has been put forward to increase the output power rating, operating efficiency, and system reliability. Nevertheless, this ...

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The stability analysis of multi-paralleled inverters on the basis of the single-phase equivalent circuit is carried out considering the influence of circulating current. Experimental results prove ...

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