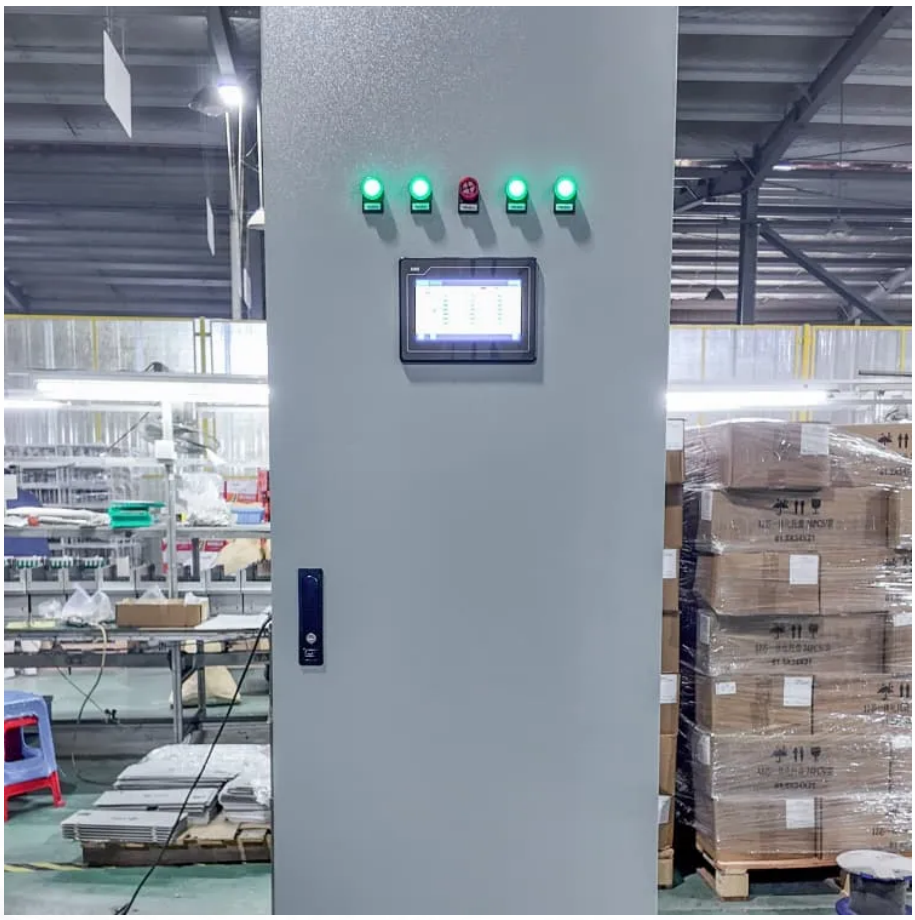
ŁOTWA SYSTEM

Solar inverter circulating current



Overview

How circulating current flows between inverters?

The circulating current flows between inverters due to DC-offset voltage and fluctuation of AC output voltages. This strategy uses the fundamental voltage and phase droop scheme to allow the inverters to share their load currents and uses a DC-offset droop scheme in order to eliminate DC 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 is the circulating current of a parallel inverter?

The circulating current reached rms value of IAC,CM = 92 A during the parallel operation of the inverters. The AC and DC side currents were almost identical as they should be in the circuit. The current follows the common-mode voltage uNP−NP as can be seen in Figure 31.

How do inverters work?

As can be seen in Figure 29, the circulating current is almost identical on the AC and DC sides of the inverters. After 3 seconds, the circuit breakers open the circuit due to the excess current and the circulating current drops. The inverters continue to modulate thus keeping the common-mode voltage up in the system.

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