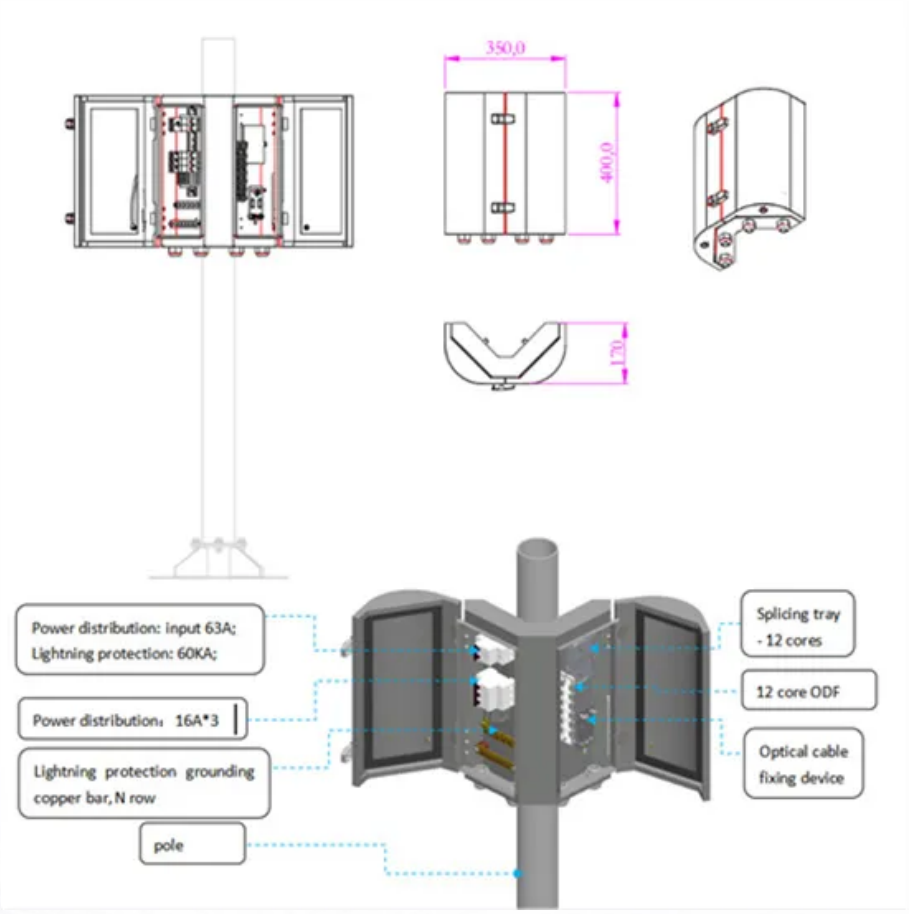
SolarInnovate Energy Solutions

High frequency modular parallel inverter



Overview

What are parallel connected modular inverters?

Parallel-connected modular inverters are widely used in high-power applications to increase the power capacity of the system. These modular inverters ofer convenient maintenance and an adjustable power rating.

How to reduce high-frequency circulating current of modular inverters?

Various modulation methods, such as double reference PWM (DRPWM) and interleaved discontinuous PWM (IDPWM), have been proposed to reduce the high-frequency circulating current of various modular inverters .

Why do we need a parallel three-level inverter for integrated modulation?

For integrated modulation, it is necessary to decompose each switching state into parallel three-level inverters, thus requiring a special design to ensure that the distribution of the parallel bridge states contributes to an increase in the output current quality and a reduction in the circulating current.

What is integrated paralleling in a three-level inverter?

Compared with traditional interleaved paralleling, the integrated paralleling of three-level inverters can further reduce the output harmonics. Moreover, a well-designed switching sequence ensures that the average circulating current is zero, which provides a superior and feasible solution to satisfy the demands of high-power operations.

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].

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