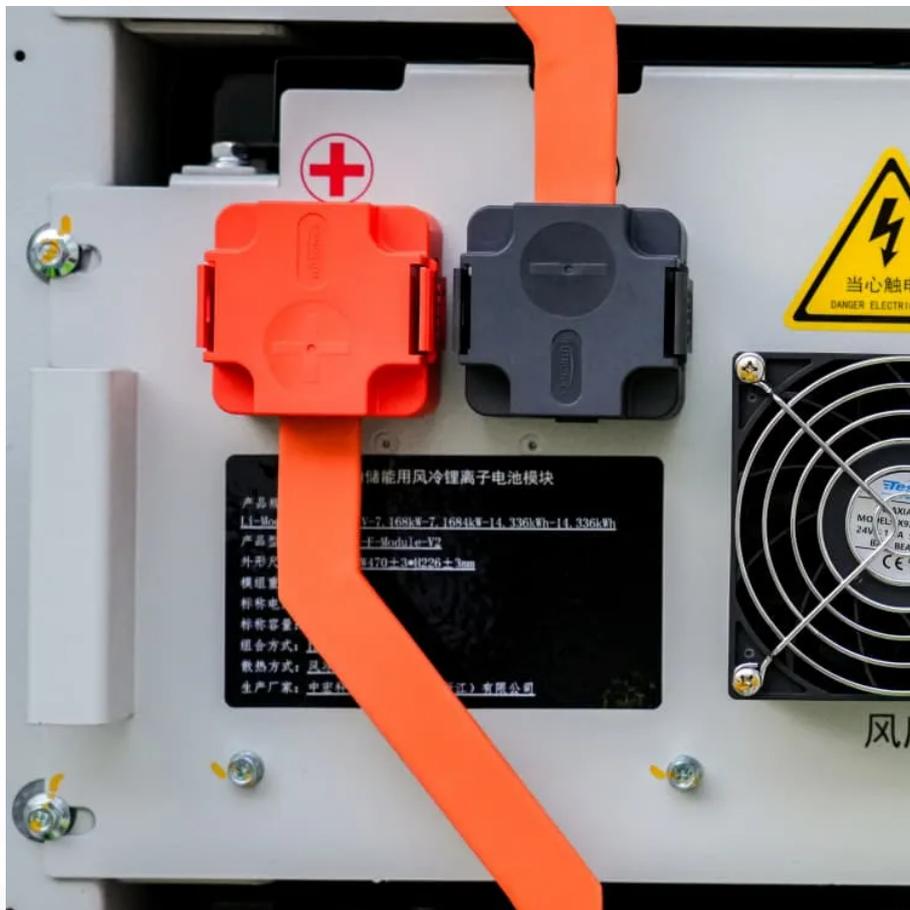


Power Control Grid-Connected Inverter





Overview

What are grid-connected inverters?

Grid-connected inverters as one group of power-electronic interfaces, transferring electric energy from the primary sources to the power grids, are the critical devices [1 - 3]. The steady performances and dynamic responses of these inverters have a significant influence on their power qualities [4, 5].

What is a grid-connected microgrid & a photovoltaic inverter?

Grid-connected microgrids, wind energy systems, and photovoltaic (PV) inverters employ various feedback, feedforward, and hybrid control techniques to optimize performance under fluctuating grid conditions.

How to model grid-connected inverters for PV systems?

When modeling grid-connected inverters for PV systems, the dynamic behavior of the systems is considered. To best understand the interaction of power in the system, the space state model (SSM) is used to represent these states. This model is mathematically represented in an expression that states the first order of the differential equation.

Which control objectives can be used in grid-connected inverters?

Two distinct control objectives - namely, model predictive current control [3, 11] and model predictive power control (MPPC) [12 - 14] - could be employed in the grid-connected inverters. The latter, while, dispensing with the phase-locked loop, win popularity with the practical applications.



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