

Inverter SCR grid connection capability





Overview

Why is SCR important in a grid-connected inverter?

Since the total rated power of the inverter is constant, the more the output reactive power, the less the output active power, which will limit the power transfer capability of the grid-connected inverter. Therefore, the SCR is an important factor that influences the maximum power transfer capability of the grid-connected inverter.

Why do we need grid-connected inverters?

The new power system has motivated the evolution of grid-connected inverters (GCIs) to provide grid-support services [3, 4], which has put forward further requirements for the small-signal stability, power-response performance, and grid-support capability of GCIs.

Can grid-forming inverters improve power system stability?

The high penetration of renewable generation has posed new challenges to the stability of power grids, and grid-forming (GFM) inverters have been introduced as an effective solution to improve power system stability under these conditions.

How to increase the maximum power transfer capability of a grid?

The maximum power curves in the inductive grid and resistive grid cases, with different SCRs and PCC voltages, are illustrated and benchmarked. It is revealed that increasing the SCR or reducing the R/X ratio of grid impedance can increase the maximum power transfer capability of the system.



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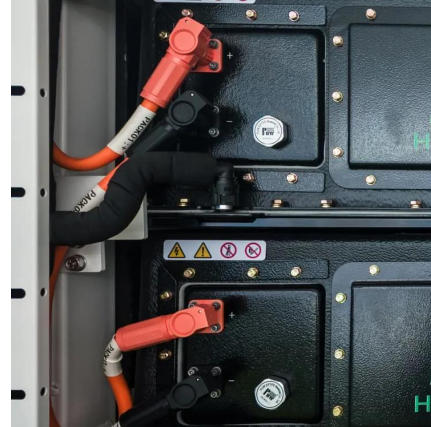
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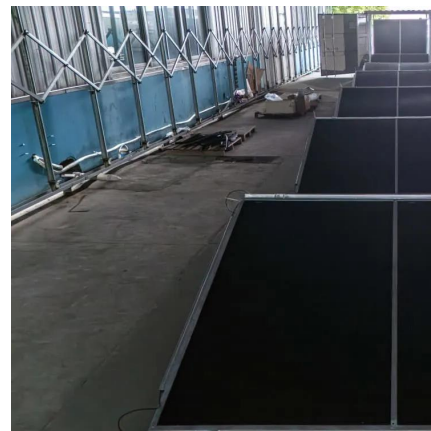


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