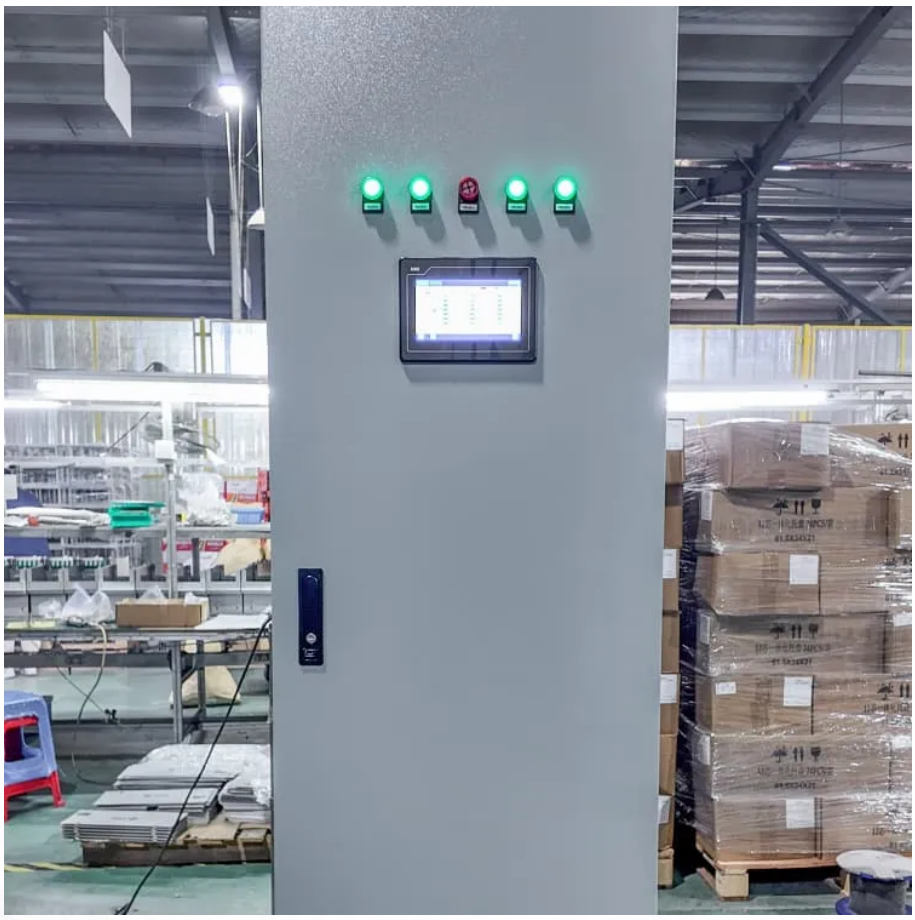
ŁOTWA SYSTEM

Grid-connected inverter voltage stabilization function



Overview

How to solve grid-connected inverter stability problem in a weak grid?

In this paper, the grid-connected inverter stability problem in a weak grid is inves-tigated. The output impedance model in dq frame with the DC link voltage control is generated. A novel system voltage feed-forward filter based stability control method is proposed, which improves the inverter’s operation stability under weak grid condition.

How does a grid-connected multi-inverter system change stability?

As the active power of inverter 2 increases, the system transitions from stability to instability. Decreasing the active power of inverter 1 restores stability to the system. These variations in system stability are consistent with Fig. 15, confirming the applicability of the proposed algorithm to the grid-connected multi-inverter system. Fig. 14.

Does grid impedance affect the stability of grid-connected inverters?

The stability analysis method based on impedance is used to analyse the influence of grid impedance on the stability of grid-connected inverters. Finally, the simulation finally proves the correctness of the analysis method.

How does voltage feedforward control affect the stability of grid-connected inverters?

In addition, when voltage feedforward control is introduced, the stability of grid-connected inverters using both time-domain PR control and dq -domain PI control is reduced, particularly at high PLL bandwidths, which may lead to instability.

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