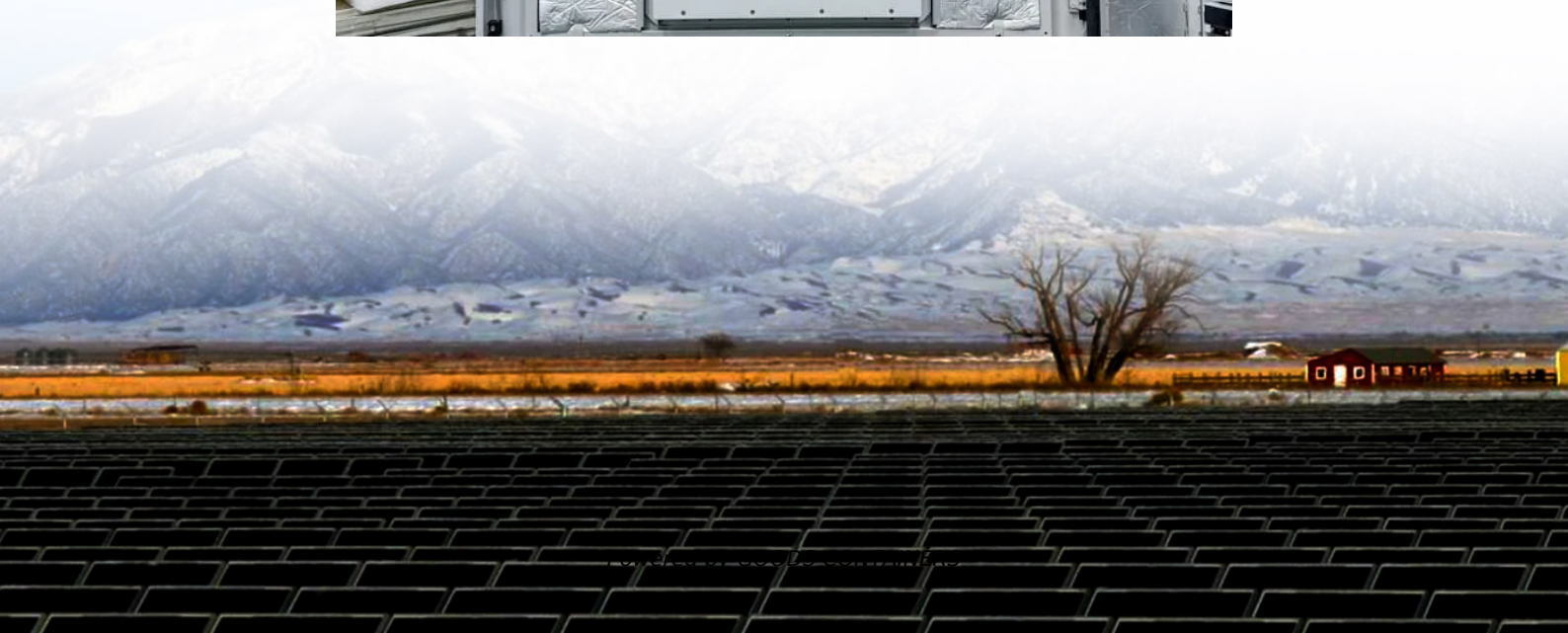


Single-phase inverter THD





Overview

Is a single-phase multilevel current source PWM inverter a closed-form analytical current THD solution?

This paper presents a generalization of this approach for a single-phase multilevel current source PWM inverter with an arbitrary number of current levels accounting for the CL-filter effect. The output of this research is a closed-form analytical current THD solution.

Does a unipolar SPWM inverter reduce total harmonic distortion?

An in-depth analysis of Total Harmonic Distortion (THD) levels at various modulation index reveals that while both SPWM methods significantly curtail harmonics, the unipolar SPWM inverter exhibits a more uniform THD reduction across the entire modulation range.

Why do inverters need a total harmonic distortion analysis?

The analysis of the current total harmonic distortion allows us to know the quality of the generated signal. Current regulations establish fixed values for this parameter that inverters have to satisfy to be used in grid-connected installations.

Can asymmetric multilevel inverters improve voltage and current total harmonic distortion?

Abstract—Asymmetric multilevel inverters (MLIs) with unequal voltage steps (UVSs) are often combined with the staircase modulation (SCM) technique to improve both voltage and current total harmonic distortion (THD) – an approach known as optimal minimization of THD (OMTHD).



Single-phase inverter THD

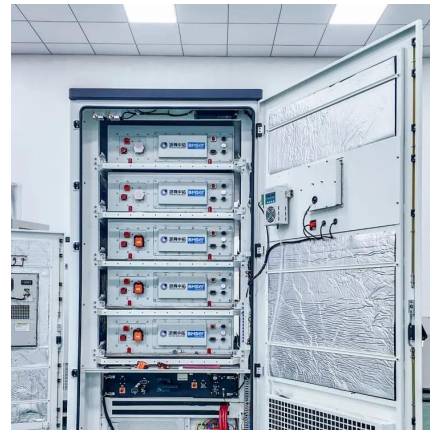


Determination of minimal total harmonic distortion for single-phase

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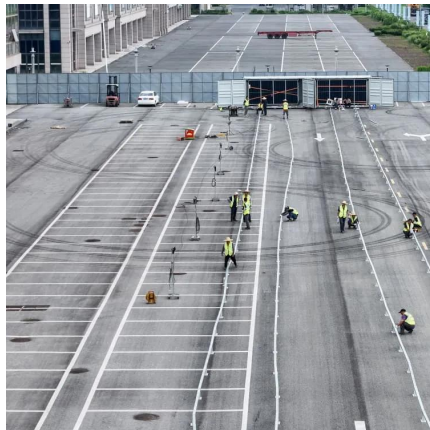
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