

Adjustable Potential High Frequency Inverter





Overview

What is a high frequency link inverter?

High Frequency-Link (HFL) Inverters have been employed to integrate renewable energy sources into utility grids and electric vehicles. The soft-switching range of High-Frequency Link Inverters (HFLI) is increased using auxiliary inductors and capacitors.

Can inverters operate at MHz switching frequencies?

Recent developments in semiconductor technology, especially in the domain of wideband gap power devices such as Gallium Nitride (GaN), have facilitated the operation of inverters at MHz switching frequencies, a realm that remains largely unexplored.

Can a high frequency link inverter be operated under unipolar modulation?

The steady state waveforms for the conventional high frequency link inverter when operated under Unipolar modulation are presented in Figures 10E, F. The transient behaviour of the proposed inverter is analysed from full-load to no-load and no-load to full-load conditions verified using the simulation results.

Why do we need a two-level inverter?

This approach effectively addresses the issues of voltage conversion by itself, excessive space occupation when separated from power frequency transformers (mobile substations), and the use of traditional two-level inverter output stages, which result in high harmonic content and poor waveform quality.



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