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Voltage-source inverter modulation method



Overview

Which modulation techniques are used in current source inverters?

Scientific Reports 15, Article number: 8744 (2025) Cite this article Modulation techniques for current source inverters (CSIs) have traditionally been derived from those used for voltage source inverters (VSIs), with space vector modulation (SVM) and pulse width modulation (PWM) being the most popular.

Can pulse width modulation be used for current source inverters?

In this paper, a pulse width modulation (PWM) technique for current source inverters (CSIs) with an arbitrary number of phases n is proposed. Existing PWM methods for CSIs in the literature typically rely on space vector modulation (SVM) requirements, such as sector detection.

What is voltage source inverter?

conditioners and distributed generations systems (DGS). Voltage source inverters are inherently efficient, compact and economical device used to control power flow and provide quality supply. Keywords— Voltage source inverter, Sine Pulse Width Modulation, Pulse Width Modulation, Weighted Total Harmonic Distortion, Distor.

What are voltage source inverters (VSIs)?

Since the invention of the MOSFET, Voltage Source Inverters (VSIs) have been far more widely used in various applications compared to Current Source Inverters (CSIs). As a result, advancements in modulation and control techniques in power electronics have primarily focused on VSIs.

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The core of most power electronic systems involving DC/AC conversion is a voltage source inverter (VSI) that runs on some ...

In this method, the conventional space vector modulator with equal division of zero voltage vector time is modified to generate different discontinuous modulating waves. A simple ...

ABSTRACT Sinusoidal pulse width modulation (SPWM) remains well accepted switching strategy for voltage source inverters (VSIs) in almost all applications viz. drive, ...

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REVIEW OF INVERTER VOLTAGE MODULATION TECHNIQUES Two-level voltage-source-converter modulation techniques have been intensively researched. In ...

This paper provides an overview of existing theories on various modulation strategies for current-source inverters (CSI), particularly focusing on space vector modulation ...

Olorunfemi Ojo, Senior Member, IEEE Abstract--This paper presents analytical techniques for the determination of the expressions for the modulation signals used in the ...

Abstract In this research work, the modulation and control of energy feedback voltage source inverters and matrix converters are investigated. This paper analyzes the basic principle of the ...

Abstract: Pulse width modulation in voltage source inverters with an arbitrary number of phases is analyzed in this paper. The problem is treated as purely algebraic, ...

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