

## SolarMax Energy Systems

# High frequency pulse DC link inverter



## Overview

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What is a high frequency inverter?

In many applications, it is important for an inverter to be lightweight and of a relatively small size. This can be achieved by using a High-Frequency Inverter that involves an isolated DC-DC stage (Voltage Fed Push-Pull/Full Bridge) and the DC-AC section, which provides the AC output.

Is a DC-AC inverter based on a dual-active-bridge converter?

Based on the commonly used two-stage isolated inverter, this study proposed a novel DC-AC inverter that combines dual-active-bridge (DAB) converter, switched capacitor and full-bridge inverter. Utilising the strategy of phase-shift shoot-through control, DAB will generate a high-frequency pulse DC link cooperated with switched capacitor.

Which power supply topologies are suitable for a high frequency inverter?

The power supply topologies suitable for the High-Frequency Inverter includes push-pull, half-bridge and the full-bridge converter as the core operation occurs in both the quadrants, thereby, increasing the power handling capability to twice of that of the converters operating in single quadrant (forward and flyback converter).

Is resonant DC link converter a new concept in static power conversion?

'The resonant DC link converter—a new concept in static power conversion', IEEE Trans. Ind. Appl., 1989, 25, (2), pp. 317–325 12. Chen Y.: 'A new quasi-parallel resonant DC link for soft-switching PWM inverters', IEEE Trans. Power Electron., 1998, 13, (3), pp. 427–435 13. 14. Li R. and Xu D.:

Can soft switching improve conversion efficiency of DC-AC inverters?

In order to improve the conversion efficiency, realising soft switching will become the essential technology in the research of DC-AC inverters. Based on the commonly used two-stage isolated inverter, this study proposed a novel

DC-AC inverter that combines dual-active-bridge (DAB) converter, switched capacitor and full-bridge inverter.

How can a full-bridge inverter achieve zero-voltage switching (ZVS)?

Utilising the strategy of phase-shift shoot-through control, DAB will generate a high-frequency pulse DC link cooperated with switched capacitor. As a result, during the shoot-through period, when the DC link is in zero-voltage-stage, the full-bridge inverter could realise zero-voltage switching (ZVS) through discrete pulse modulation.

## High frequency pulse DC link inverter

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### **A Soft Switching Scheme for Multiphase DC/Pulsating-DC ...**

Moreover, on the back-end pulsating-dc/ac converter, the proposed soft-switching scheme reduces the switching frequency requirements for the associated switchers, which ...

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### **Novel DC-AC inverter based on phase-shift shoot ...**

Based on the commonly used two-stage isolated inverter, this study proposed a novel DC-AC inverter that combines dual-active-bridge ...

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### **Novel static inverters with high frequency pulse DC link , IEEE**

A novel combined soft switching technique and a novel topological family of the static inverter with high frequency pulse dc link are proposed in this paper. The topological structure is constituted ...

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## Analysis, design and performance of a soft-switching ...

This proposed voltage clamp soft-switching step up/down DC-link circuit is generated from modified buck-boost DC/DC converter and uses new ...

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## Frontiers , Soft switching modulation strategy based ...

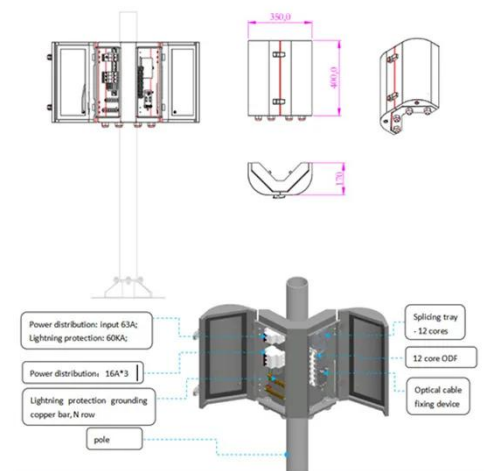
High Frequency-Link (HFL) Inverters have been employed to integrate renewable energy sources into utility grids and electric vehicles. The ...

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## High-frequency soft-switching inverter with comprehensive ...

In the single-tube active-clamp forward high-frequency pulsed DC link circuit, the input voltage 18~32VDC after passing through the LC input filter is converted into a high-frequency pulse ...

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## A Digitally Controlled Three-Phase Cycloconverter Type High ...

Abstract In this paper, a three phase cycloconverter type high frequency AC



link inverter is discussed. The configuration consists of high frequency full-bridge inverter and a high ...

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## High-Frequency Link Matrix Converters and Inverters

High-frequency link matrix converters and inverters represent a transformative development in power electronics, combining direct AC-AC conversion with high-frequency pulse width



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## High-frequency soft-switching inverter with ...

The high-frequency pulse DC link circuit adopts the input voltage feedforward pulse width modulation, and the DC/AC inverter bridge adopts the output ...

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## High-frequency soft-switching inverter with comprehensive ...

The high-frequency pulse DC link circuit adopts the input voltage feedforward pulse width modulation, and the DC/AC

inverter bridge adopts the output voltage and filter inductor current ...

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## Novel DC-AC inverter based on phase-shift shoot-through ...

Based on the commonly used two-stage isolated inverter, this study proposed a novel DC-AC inverter that combines dual-active-bridge (DAB) converter, switched capacitor ...

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## Novel DC-AC inverter based on phase-shift shoot-through ...

In this paper, a novel bidirectional inverter based on HFPDCL is proposed. The topological structure consists of a dual-active-bridge (DAB) converter, a SC circuit and a full-bridge inverter.

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## Novel DC-AC inverter based on phase-shift shoot-through ...

Utilising the strategy of phase-shift shoot-through control, DAB will generate a high-frequency pulse DC link cooperated with





switched capacitor. As a result, during the shoot-through period, ...

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## A High-Frequency Pulsating DC-Link for Electric Vehicle Drives

...

**Abstract** This paper proposes a motor drive suitable for electric vehicles (EVs) with notably reduced losses as compared to conventional drives. The proposed drive feeds the dc-link with ...



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## High Gain DC-AC High-Frequency Link Inverter With Improved ...

This article presents a high gain pure sine-wave inverter based on the full-bridge dc-ac high-frequency link cycloconverter topology for telecom or general-purpose ...

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## Novel Static Inverters With High Frequency Pulse DC Link



A combined three-phase inverter based on the duty cycle extended active clamp forward mode inverter with high frequency pulse dc link is proposed in this paper.

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48V or 51.2V



## Analysis, design and performance of a soft-switching single ...

This proposed voltage clamp soft-switching step up/down DC-link circuit is generated from modified buck-boost DC/DC converter and uses new control strategy to obtain high frequency ...

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## A bidirectional, sinusoidal, high-frequency inverter design

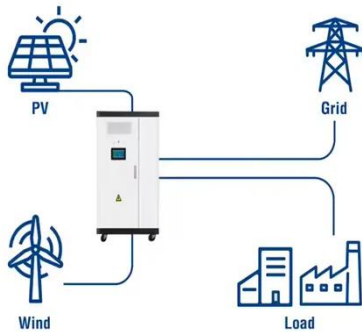
A new method for the design of a bidirectional inverter based on the sinusoidal pulse-width modulation principle and the use of a low-cost and lightweight ferrite-core transformer is ...

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## High-Frequency Link: A Solution for Using Only One ...

## Utility-Scale ESS solutions



This paper presents a solution to improve the already mentioned drawbacks of ACHB inverters by using a high-frequency link using only one dc ...

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## Parallel inverters with high frequency pulse dc link

A parallel inverter based on the duty cycle extended active clamp forward mode inverter with high frequency pulse dc link is proposed. The circuit topology, steady principle, control strategy of ...



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## High frequency link DC/AC converter with PWM cycloconverter

A high-frequency link DC/AC converter developed for flexible, compact, and high-efficiency uninterruptible power supply (UPS) systems is discussed. The DC/AC converter consists of a ...

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## A New Family of High-Frequency DC Link Two

Traditional multilevel inverters (MLIs),

such as neutral-point clamped (NPC) and active neutral-point clamped (ANPC) configurations, often rely on bulky capacitors, increasing system size ...

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## Voltage Fed Full Bridge DC-DC & DC-AC Converter High ...

This application report documents the implementation of the Voltage Fed Full Bridge isolated DC-DC converter followed by the Full-Bridge DC-AC converter using TMS320F28069 (C2000TM) ...

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