

# **Unidirectional voltage source high frequency link inverter**





## Overview

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The unidirectional high-frequency-link DC-AC converters are becoming popular for applications like grid integration of photovoltaic systems and fuel cells [1], [2]. The high frequency galvanic isolation provides high power density, light weight converter solution. Is a DC/AC converter suitable for grid integration of DC DGs?

In this paper, a new isolated unidirectional high-frequency link DC/AC converter is proposed for the grid integration of DC DGs without any intermediate energy storage component and with a reduced number of active switches.

Which isolated converter is used for grid integration of DC resources?

One of the isolated converters used for the grid integration of DC resources is presented in Fig. 2a. This multi-stage converter is a cascade connection of an isolated full-bridge DC/DC buck converter and a DC/AC voltage source converter through a common capacitor on the intermediate DC link [5 - 7].

Can unidirectional DC/AC converter supply active and reactive power?

Simulation results show that the proposed unidirectional DC/AC converter can supply active and reactive power in its allowable operating range. In the next step, to test the converter power factor boundaries, the converter is simulated in the islanded mode of operation and without any controller.

Do HFAC link converters have a DC-link energy storage component?

For this purpose, high-frequency AC (HFAC) link converters are proposed in the literature without any huge DC-link energy storage component which their general structure is presented in Fig. 1b. However, the main drawback of the HFAC converters is their large number of active switches.

Why does DC-link voltage increase in high-frequency AC (HFAC) Link Converters?



Therefore, the DC-link voltage increases due to the inequality of its input-output power. For this purpose, high-frequency AC (HFAC) link converters are proposed in the literature without any huge DC-link energy storage component which their general structure is presented in Fig. 1b.

What is HFAC link converter?

This bulky DC-link capacitor increases the converter volume and cost, reduces its lifetime and reliability and, causes converters fault ride-through problems. For this purpose, DC/AC converters without any intermediate energy storage components are proposed in the literature named high-frequency AC (HFAC) link converters.



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### [High-Frequency Link: A Solution for Using Only One DC Source ...](#)

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

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### [Design and Simulation of High Frequency Inverter for PV ...](#)

Abstract-- In this paper, a high frequency a link photovoltaic (PV) inverter. The proposed inverter most of the problem associated with currently available photovoltaic (PV) inverter, A single ...

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Abstract--In this article, a single stage high frequency link unidirectional single phase inverter topology is reported for the application of grid integration of solar and fuel cells. The inverter ...

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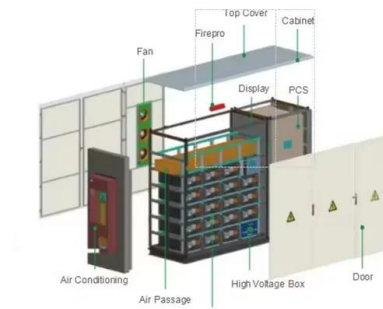


### **An Unidirectional Single Stage Single Phase Soft-Switched Resonant High**

In this article, a single stage high frequency link unidirectional single phase inverter topology is reported for the application of grid integration of solar and fuel cells.



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The Schaeffler inverter subassembly functions as the fundamental power electronics brick that governs the electric drivetrain through logic-based control signals. ROHM ...

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## 3 RESONANT INVERTERS

3.2.1 Voltage source supply The RL load can be directly supplied with voltage by means of a voltage source inverter (Fig. 3.1) composed of four switches which are bidirectional for current ...

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### **A double single-ended resonant inverter for low harmonic line frequency**

This three-phase topology can reduce the stress on the DC link. The existing inverter topologies can provide sinusoidal voltage waveforms with the required THD or boost ...

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### [A Unidirectional Single-Phase LLC Based High Frequency Link Inverter](#)

In this paper, a single stage High Frequency Link (HFL) uni-directional single phase inverter topology is reported for the application of grid integration of solar and fuel cells. The

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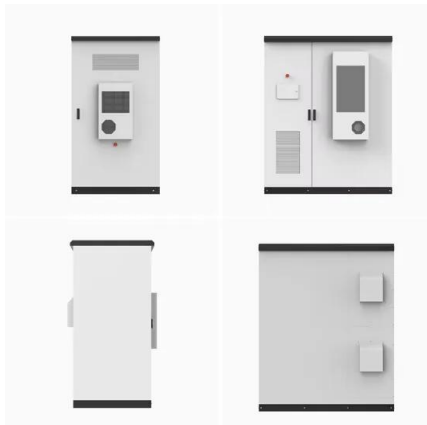




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## [A Bidirectional AC/AC Series Resonant Converter ...](#)

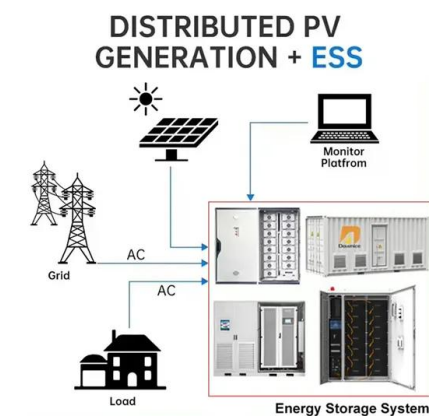
--The focus of this study is on the design of a full-bridge unidirectional resonant LLC Solid State Transformer. The proposed topology uses a high-frequency ...

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## [A PWM ZVS High-Frequency-Link Three-Phase Inverter ...](#)

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## VOLTAGE-TYPE SINGLE-STAGE MULTI-INPUT HIGH

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The inverter circuit is formed by connecting a plurality of input filters connected to a common output high-frequency isolation voltage-transformation cycloconverter filter circuit through a

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## Unidirectional isolated high-frequency link DC/AC

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In this paper, a new isolated unidirectional high-frequency link DC/AC converter is proposed for the grid integration of DC DGs without any ...

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## Analysis of Three-Phase Voltage-Source Inverters

The power flow is reversible in the DC side; the voltage source in the VSI is unidirectional voltage bidirectional current, while the current source in the CSI is unidirectional current bidirectional ...

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## A New Topology of Unidirectional Multistring PV Inverter With High

Abstract and Figures a new topology of multi-string single-stage unidirectional Inverter with high frequency AC-Link and soft switching ability has been introduced in this paper.

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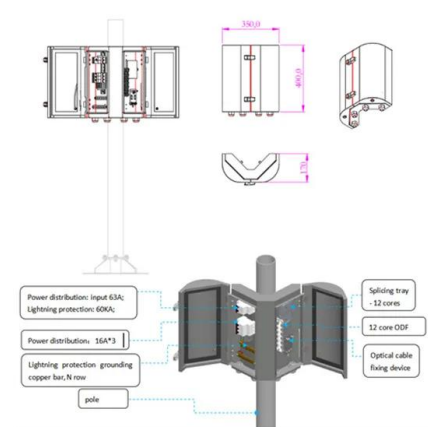




## [A Unidirectional Single-Phase LLC Based High Frequency Link Inverter](#)

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