SolarHybrid Solutions

Unidirectional voltage source high frequency link inverter

Overview

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.

Unidirectional voltage source high frequency link inverter

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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An Unidirectional Single Stage Single Phase Soft-Switched ...

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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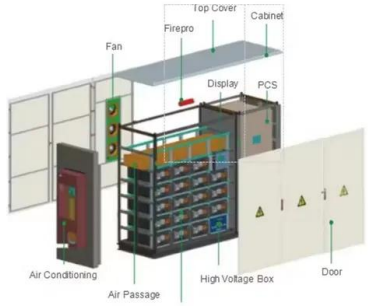

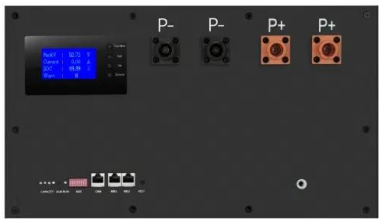

ROHM and Schaeffler Launch Mass Production of SiC-Based High-Voltage

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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[Resonant Inverters , SpringerLink]

A slightly damped resonant circuit shows a pseudo-cyclical free response, i.e. it tends to oscillate. If it is supplied at a frequency close to its pseudo-oscillating frequency, stable forced ...

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[A unidirectional snubber less partially soft-switched high frequency]

In this paper, a novel zero-voltage-switching (ZVS) push-pull high-frequency-link (PPHFL) single-phase inverter is proposed, which consists of a primary-side converter with ...

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[Unidirectional isolated high-frequency link DC/AC converter ...]

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 ...

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[An Unidirectional Single Stage Single Phase Soft-Switched ...]

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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[A Unidirectional Single-Phase LLC Based High Frequency ...]

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[An Uni-directional Single-Phase Soft-switched Resonant ...]

This paper presents a novel Parallel Resonant Converter (PRC) based control strategy that results in high quality adjustable frequency and amplitude AC and soft switching of all devices ...

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[Unidirectional isolated high-frequency link DC/AC converter for ...]

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[ROHM and Schaeffler Launch Mass Production of SiC-Based ...]

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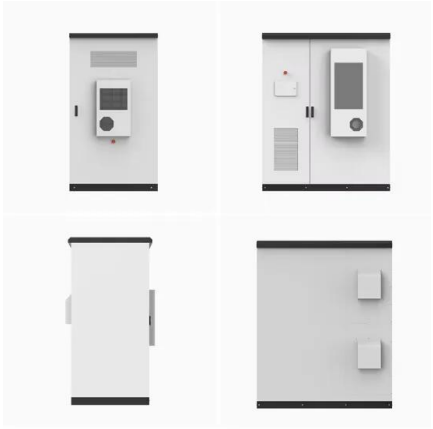

[A Bidirectional AC/AC Series Resonant Converter ...]

--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 ...]

Abstract--In this article, a pulsewidth modulated single-stage high frequency link three-phase dc-ac converter is proposed for grid integration of solar and fuel cell-based energy sources. ...

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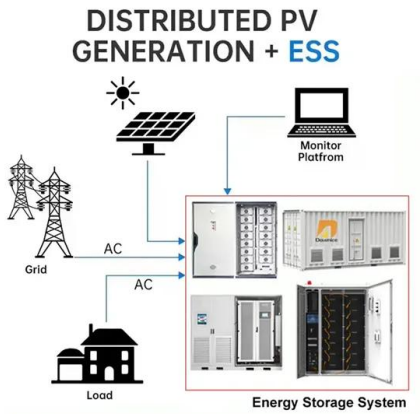

[A Unidirectional Single-Phase LLC Based High Frequency Link ...]

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[VOLTAGE-TYPE SINGLE-STAGE MULTI-INPUT HIGH ...]

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

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[Unidirectional isolated high-frequency link DC/AC ...]

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.

[Email Contact]

A Unidirectional Single-Phase LLC Based High Frequency Link Inverter

This paper presents a resonant LLC based isolated single-phase DC-AC converter for grid connected photovoltaic systems. The converter employs a LLC DC-rectified.

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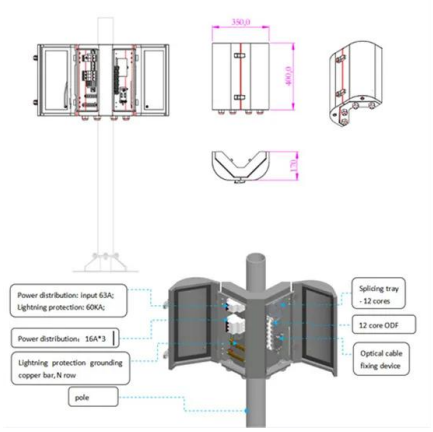

Advanced Modulation Techniques and Topological Innovations in High

High-Frequency Link inverters (HFLIs) have attracted significant research attention owing to their compact design, high power density, and high efficiency. HFLI systems achieve power ...

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

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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Single Stage Transformer Isolated High Frequency AC Link ...

Despite several advantages, transformer isolated single stage power conversion re-quires the use of a voltage clamping circuit across the AC link for its operation due to the presence of ...

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[(PDF) Design and Implementation of a High-Efficiency 15-Level]

The proposed inverter topology demonstrates significant advantages for renewable energy systems (RES) applications, offering a cost-effective, high-efficiency ...

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[Average Modeling of High Frequency AC Link Three ...]

A new topology of unidirectional multistring PV inverter with high frequency AC-Link. In Proceedings of the 2016 24th Iranian Conference on Electrical ...

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