

## SolarTech Power Solutions

# Dual frequency grid-connected inverter



**Efficient  
Higher Revenue**

- Max. Efficiency 97.5%
- Max. PV Input Voltage 600V
- 150% Peak Output Power
- 2 MPP Trackers, 150% DC Input Oversizing
- Max. PV Input Current 16A, Compatible with High Power Modules



**Intelligent  
Simple O&M**

- IP66 Protection Degree: support outdoor installation
- Smart I-V Curve Diagnosis Function: locate PV string faults accurately and automatically detect faults
- DC & AC Type II SPD: prevent lightning damage
- Battery Reverse Connection Protection



**Flexible  
Abundant Configuration**

- Plug & Play, EPS Switching Under 10ms
- Compatible with Lead-acid and Lithium Batteries
- Max. 6 units Inverters Parallel
- AFCI Function (Optional): when an arc-fault is detected the inverter immediately stops operation

## Overview

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What is a parallel dual-frequency single-phase grid-connected inverter?

A parallel dual-frequency single-phase grid-connected inverter is proposed in [26] to eliminate switching harmonics using a feed-forward compensation method instead of extracting current harmonics as current reference.

Does a dual-frequency grid-connected inverter improve efficiency?

The dual-frequency grid-connected inverter offers efficiency enhancements compared to an LCL-type inverter. The efficiency of the proposed inverter is about 1.5% higher when the grid current amplitude is 20 A. This improvement becomes more obvious as the grid current amplitude increases.

How does a dual-frequency inverter transmit power?

The dual-frequency inverter transmits active power from the low-frequency unit to the grid. The fundamental components of  $i_g$  and  $i_1$  are equal, as shown in the FFT results of the current  $i_g$  in Fig. 8d. The percentage of switching harmonics around 2 kHz to the fundamental component of the grid current  $i_g$  is decreased from 6 to 0.4%.

How to increase the efficiency of grid-connected inverter?

To increase the efficiency of the grid-connected inverter, this study proposes an L + LCL-filtered dual-frequency single-phase grid-connected inverter. The proposed inverter consists of the low-frequency unit and high-frequency unit, with the low-frequency unit transmitting power to the grid at a low switching frequency.

What is a dual-stage inverter for grid-connected applications?

Table 1. The dual-stage inverter for grid-connected applications includes a DC-DC converter to amplify the voltage and a DC-AC inverter to control the current injected into the grid. Figure 3. The DC-DC converter is depicted in Figure 3 together with the DC-AC converter and LCL filter.

What are the two units of the proposed inverter?

The proposed inverter consists of the low-frequency unit and high-frequency unit. The low-frequency unit transmits power to the grid at the low switching frequency.

## Dual frequency grid-connected inverter

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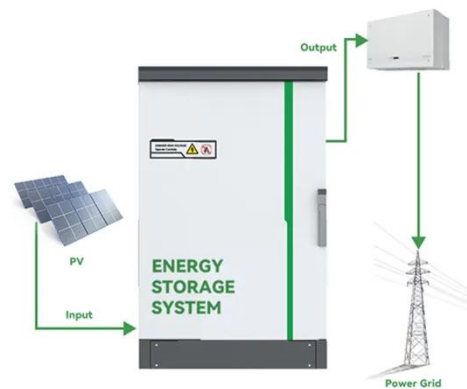


### Design and Implementation of Dual-Frequency Single-Phase Grid-connected

Sep 1, 2019 · In order to improve the efficiency and grid current quality, Yang et al. [35] proposed the dual-frequency single-phase grid-connected inverter under stiff grid, which consists of ...

### Research on Dual-Closed-Loop Control Strategy for LCL ...

Sep 24, 2024 · Reference [5] proposed an improved grid-connected inverter SVPWM hysteresis control strategy to lower the harmonic distortion rate of grid-connected current. Current ...



### Grid-connected photovoltaic inverters: Grid codes, ...

Jan 1, 2024 · With the development of modern and innovative inverter topologies, efficiency, size, weight, and

reliability have all increased dramatically. This paper provides a thorough ...



## A novel dual closed-loop control scheme based on repetitive control ...

Mar 1, 2018 · A novel repetitive dual-loop control scheme of a grid-connected inverter with an LCL filter is proposed in this paper to realize precise control of grid-connected inverters.



## Analysis and control of single-phase transformerless dual-frequency

Aug 31, 2023 · To simplify the inverter topology and suppress the leakage current more effectively, a novel transformerless dual-frequency grid-connected inverter with a common ...

## Analysis and Design of

## L+LCL filtered Dual-frequency Single-phase Grid

May 1, 2020 · Figures (15) Abstract and Figures To increase the efficiency of the grid-connected inverter, this study proposes an L + LCL-filtered dual-frequency single-phase grid-connected ...



## Study on Distributed Power Grid-Connected Dual

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Oct 31, 2016 · ??????????????,?????????????  
??,????????????????,?????  
?????????????,?????????????,??????????, ...

## Grid Harmonics Suppression for Three Phase Dual-Frequency Grid

Aug 1, 2023 · However, due to variations in grid impedance, it is a challenging task to achieve stable operation of an LCL-type grid-connected inverter (GCI) using the active damping ...



## Grid Connected Inverter

## Reference Design (Rev. D)



May 11, 2022 · Description This reference design implements single-phase inverter (DC/AC) control using a C2000™ microcontroller (MCU). The design supports two modes of operation ...

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## Analysis and design of L + LCL-filtered dual-frequency single ...

Jan 31, 2020 · To increase the efficiency of the grid-connected inverter, this study proposes an L + LCL-filtered dual-frequency single-phase grid-connected inverter. The proposed inverter ...



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## Stability analysis of Three-phase Grid-Connected inverter ...

Nov 1, 2022 · The Grid-connected inverter (GCI) often operates in the weak grid with asymmetrical grid impedance due to the unbalanced and single-phase loads. Howev...

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## Kalman filter-based smooth switching strategy

## between grid-connected

Mar 7, 2025 · Grid-connected inverters (GCI) in distributed generation systems typically provide support to the grid through grid-connected operation. If the grid requires maintenance or a grid ...



## Analysis and design of L + LCL-filtered dual-frequency single ...

To increase the efficiency of the grid-connected inverter, this study proposes an L + LCL-filtered dual-frequency single-phase grid-connected inverter. The proposed inverter consists of the ...

## Grid Harmonics Suppression for Three Phase Dual ...

Aug 1, 2023 · The proposed inverter topology in this article is composed of two inverters in parallel, which are, respectively, a power inverter unit (PIU) and an auxiliary harmonic ...



## Two-stage grid-connected inverter topology with high



## frequency ...

Nov 1, 2023 · The proposed topology, the Two-Stage Grid-Connected Inverter Topology with High-Frequency Link Transformer for Solar PV Systems, may have certain limitations that ...



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## Harmonic Suppression Strategy of LCL Grid-Connected ...

Dec 4, 2023 · 5. the Conclusions grid-connected inverter, a control strategy based on adaptive QPR\_PC was proposed in a static coordinate system to solve the problem of multi-frequency ...



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## A Novel Parallel Dual-frequency Grid-connected Inverter ...

A novel parallel dual-frequency single-phase grid-connected inverter (PDF inverter) is proposed to improve the quality of the output current and reduce the loss of the grid-connected inverter. In ...

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## Analysis and control of

## single-phase transformerless dual-frequency

Aug 31, 2023 · To simplify the inverter topology and suppress the leakage current more effectively, a novel transformerless dual-frequency grid-connected inverter with a common ...



## Analysis and design of L + LCL-filtered dual-frequency

...

Dec 23, 2020 · Abstract: To increase the efficiency of the grid-connected inverter, this study proposes an L + LCL-filtered dual-frequency single-phase grid-connected inverter. The ...

## Research on Topology and Control Method of Transformer-Free Dual

May 10, 2021 · In order to suppress leakage current and improve the efficiency of the transformer-free grid-connected inverter, a novel topology and control method is proposed. The proposed ...



**STEVAL-ISV002V1, STEVAL-**

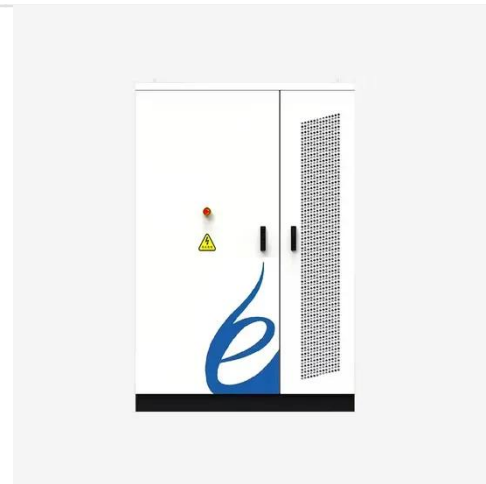
## ISV002V2 3 kW grid ...



It consists of a high frequency isolated input power section performing DC-DC conversion and an inverter section capable of delivering sinusoidal current of 50 Hz to the grid. The system ...

## Analysis and design of L + LCL-filtered dual-frequency single ...

May 1, 2020 · A parallel dual-frequency single-phase grid-connected inverter is proposed in [26], which uses a feed-forward compensation method to eliminate switching harmonics instead of ...



## Analysis of circulating current elimination Based on Three Phase Dual

Oct 27, 2024 · Integrating filters into inverters to improve the power quality is essential. This study examines a three-phase dual-frequency grid-connected inverter designed to minimize ...

## Study on Distributed

## Power Grid-Connected Dual

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Oct 31, 2016 · Abstract A new type topology of dual-frequency photovoltaic grid-connected inverters researched to improve the efficiency of distributed power grid-connected and ...



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<https://posecard.eu>