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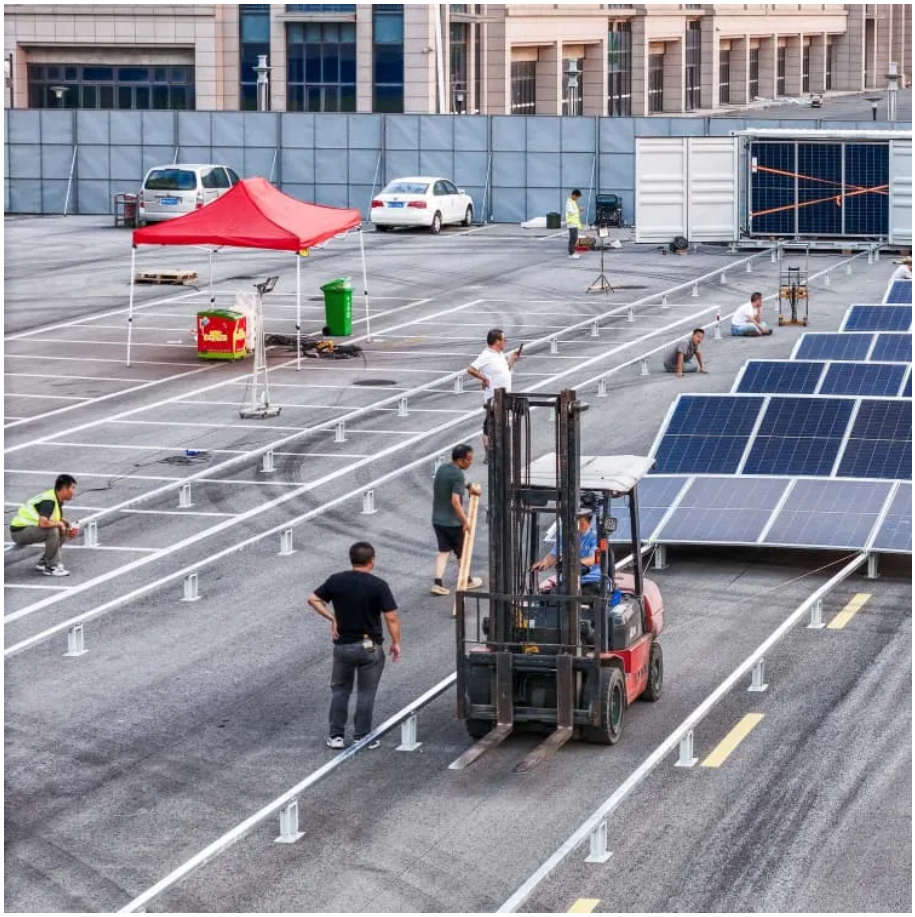
DC intermediate-stage inverter



Overview

What are the components of an inverter output stage?

The output stage consisted of DC bus capacitors C2 and C3 and three-phase bridge arms (each phase bridge arm comprising four IGBT power devices and two clamping diodes), with an LC filter installed between the inverter output and the load for filtering.

Why does a two-stage single-phase inverter have a second harmonic current?

1. Introduction In the two-stage single-phase inverter, the second harmonic current with twice output voltage frequency exists in the former DC converter because the instantaneous output power of the latter inverter contains the pulsating power of twice the output voltage frequency.

What is the output stage of a three-phase inverter?

The output stage of the three-phase inverter primarily comprised a dual closed-loop control system utilizing the SVPWM modulation algorithm, an NPC three-level inverter circuit, an LC filter circuit, and a three-phase load module. Based on the SVPWM algorithm, the maximum amplitude of the three-phase voltage output was Udc2 /3 ½.

How a three-phase industrial AC input is converted into a DC power source?

The three-phase industrial AC input is converted into a DC power source via a three-phase diode rectifier. The DC voltage Udc1 is transmitted to the intermediate stage, where it is converted into a stable DC voltage Udc2 by the high-frequency isolated DC-DC stage, and then sent to the output stage with the NPC three-level inverter.

What is the output voltage of a single-phase inverter?

The output voltage of the single-phase inverter is (8) u ab = u dc M cos (ω t) = U dc + u pp sin (2 ω t) M cos (ω t) = U dc M cos (ω t) + 1 2 u pp M sin (ω t) + sin (3 ω t) Expression (8) shows that the second ripple voltage of DC link will

make the AC output voltage contain abundant third harmonic voltage. 3.

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.

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