

Kongres Container

Inverter DC voltage matching



Overview

In the two-stage converter such as PV renewable energy system, the second harmonic fluctuation exists in the DC voltage due to the power coupling between the DC-link and AC system. The second harmoni.

When does a DC inverter start?

The inverter starts as soon as the DC bus voltage is present at a greater level than 10% of the AC maximum. Observe the controlled AC voltage waveform on the output. The frequency and the amplitude of the AC voltage is determined by the values on the powerSUITE page of the solution. If any changes are required, stop the inverter.

How do we match the dynamics of a SM inverter?

Based on the idea of matching the dynamics of a SM, we enable by feedback the crucial coupling between the inverter's DC-side voltage and its AC-side frequency. As a result, the AC grid frequency measurement is replaced by that of the DC-link voltage, further obviating the conventional time scale-separation approach.

What is a voltage source inverter?

Voltage source inverters (VSIs) are commonly used in uninterruptible power supplies (UPS) to generate a regulated AC voltage at the output. Control design of such inverter is challenging because of the unknown nature of load that can be connected to the output of the inverter.

What does U_{DC} mean on a DC inverter?

When the DC link voltage of the inverter is u_{dc} , the modulation waves u_{s1} and u_{s2} can be taken as (1), (2) (1) $u_{s1} = \frac{1}{2} U_{dc} M \cos(\omega t)$ (2) $u_{s2} = \frac{1}{2} U_{dc} M \cos(\omega t + \pi)$ where M is the modulation index ($0 < M < 1$); ω is the angular frequency of AC side output voltage. u_{dc} is the DC link voltage. Fig. 1.

How do I set a voltage for an inverter?

Enter 60 Hz for frequency for the AC waveform. This will be the frequency of the inverter output. Under Inverter Power Stage Parameters, enter 110 VRMS for the output voltage. This will be the value that the AC output will regulate to. Type Ctrl+S to save the page. Right-click on the project name. Select Rebuild Project.

How much crossover should a voltage source inverter have?

For the voltage source inverter, TI recommends to keep the crossover of the inner current loop at greater than ten times the AC frequency, which is met by this compensator, and no changes are needed in the design. If an adapted solution is not met, the compensator must be changed to ensure the crossover of the current loop meets this requirement.

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