



SolarTech Power Solutions

Flow Voltage Inverter



Overview

What is a flexible voltage source inverter control strategy?

Abstract: This article discusses a flexible voltage source inverter control strategy for a small grid-connected PV system. The control scheme employs both a power angle regulation and a voltage regulation approach. The power angle can be adjusted between 0 and 90 degrees by rotating a potentiometer.

How does a voltage source inverter work?

Under various conditions, the system exhibits both a steady state and a dynamic response. The voltage source inverter (VSC) functions as an active power filter and reactive power compensator. The control technique is validated by means of the test results. It evaluates existing controllers in terms of their advantages and limitations.

How do grid-forming inverters achieve power support and voltage optimization?

This paper proposes a robust voltage control strategy for grid-forming (GFM) inverters in distribution networks to achieve power support and voltage optimization. Specifically, the GFM control approach primarily consists of a power synchronization loop, a voltage feedforward loop, and a current control loop.

How to charge an inverter if power consumption is in a valley?

When the power consumption of users is in the valley, it is necessary to charge the battery system that supplies power to the inverter with excess electricity. In the first 4s, we simulated to charge one inverter. At $t = 4$ s, the load power remains unchanged, and the power grid supplements the power for two inverters at the same time.

How to adjust the power angle of an inverter?

The power angle can be adjusted between 0 and 90 degrees by rotating a potentiometer. The voltage control strategy is implemented by adjusting the modulation index of the SPWM. Several experiments have been carried out to test the performance of the inverter.

How a GFM inverter is controlled?

The GFM inverter is controlled as a voltage source, which achieves control objectives by generating the output voltage amplitude and phase reference. The structure of the control module primarily consists of power control and voltage control.

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