SolarMax Energy Systems

Voltage-source inverter current control

Overview

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.

How do I set up a voltage source inverter?

To get started: Confirm that no power source is connected to the design. Confirm that the output filter is correct for the mode that the device will run in. For example, voltage source inverter uses an LC filter. The L2 and L2N slot must be jumper wired as shown in Figure 11.

What is a voltage source inverter (VSI)?

An IMPORTANT NOTICE at the end of this TI reference design addresses authorized use, intellectual property matters and other important disclaimers and information. Voltage source inverters (VSIs) are commonly used in uninterruptible power supplies (UPS) to generate a regulated AC voltage at the output.

How to control the power flow of an inverter?

The first method is through the control of switching instance of inverter so as to produce a fundamental 50 Hz voltage in the output of inverter (Schauder, 1995; Mori, 1999). In this method, the power flow is controlled by adjusting the amplitude and phase of inverter output voltage relative to the line voltage.

How do you control an inverter?

Simple strategies focus on the direct control of a single variable, such as the output or inverter current (respectively at grid- or inverter-side of the filter) . A common approach comprises an outer control loop for capacitor voltage

control and an inner control loop for the inverter current.

What is the difference between voltage and current controlled inverters?

Since in current controlled inverter, output current is directly controlled, there is inherent over current protection; but in voltage controlled inverters external hardware is needed for over current protection. According to Eq. 1, in voltage controlled inverters P is directly related to δ.

Voltage-source inverter current control

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What is Current Source Inverter? Working, Diagram & Waveforms

Fig. 2: CSI using transistor The variable dc voltage source is converted into a variable current source by using inductance L. The current I L supplied to the single phase ...

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