SolarTech Power Solutions

Process before the communication base station inverter is connected to the grid

Overview

How is a grid-connected inverter system simulated?

The test system is described shown in Fig. 13.6, the grid-connected inverter system is simulated using Matlab/Simulink. The simulation model mainly includes the main circuit module and the control module of a three-phase two-level inverter. The grid-connected inverter can distribute the active and reactive power according to the control.

What are the parameters of a grid-connected inverter system?

Parameters of the grid-connected inverter system. The simulations of the steady-state operations are carried out when the MPC method is used. The given active power is 1000 W, and the given reactive power is 0 Var. The grid-connected currents are shown in Fig. 13.7A, and the spectrogram of the currents is shown in Fig. 13.7B.

How can a grid-connected inverter ensure system consistency?

In order to confirm system consistency, inverter should ensure that the desirable characteristics of both PV and grid are satisfied. This section outlines the standards and requirements for a grid-connected inverter system to ensure it meets the desirable characteristics of both the PV and grid.

How does DBN-MPC work in a grid-connected inverter system?

By minimizing the cost function g, the optimal switching state combination is evaluated and applied to the grid-connected inverter system. Therefore, the inverter can operate in the condition that the output active power and reactive power are optimal. Figure 13.6. The schematic of the DBN-MPC method applied in a grid-connected inverter system.

What is the control design of a grid connected inverter?

The control design of this type of inverter may be challenging as several algorithms are required to run the inverter. This reference design uses the

C2000 microcontroller (MCU) family of devices to implement control of a grid connected inverter with output current control.

How do grid-following inverters work?

Traditional “grid-following” inverters require an outside signal from the electrical grid to determine when the switching will occur in order to produce a sine wave that can be injected into the power grid. In these systems, the power from the grid provides a signal that the inverter tries to match.

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