

Flywheel energy storage operation mode





Overview

What is the core technology of Flywheel energy storage system?

The core technology is the rotor material, support bearing, and electromechanical control system. This chapter mainly introduces the main structure of the flywheel energy storage system, the electromechanical control system, and the charging and discharging control process .

What is the difference between SMO and Flywheel energy storage systems?

Most current research on SMO algorithms primarily focuses on motor control 30, whereas flywheel energy storage systems exhibit a more complex back-to-back structure, high operational speeds of the flywheel and motor, large system inertia, fast charging and discharging rates, and frequent switching of control strategies 31, 32.

What is the grid-side control strategy of the flywheel energy storage system?

Block diagram of the machine-side charge and discharge control of the flywheel energy storage system. The grid-side control strategy of the flywheel energy storage system combines grid voltage-oriented vector control and SVPWM (Space Vector Pulse Width Modulation) technology.

Why is Sensorless control technology preferred in flywheel energy storage system?

Therefore, sensorless control technology is preferred. Furthermore, the PMSM is the core of energy exchange in the flywheel energy storage system, and the accuracy and speed of the motor control strategy determine the overall charging and discharging control performance of the system.



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