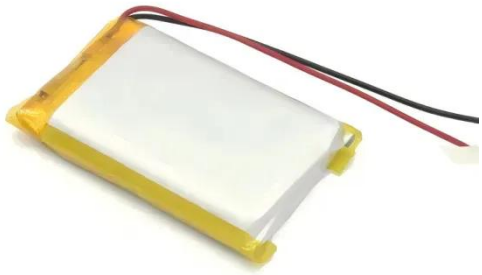
PEES Power Systems

DC Microgrid Bus Voltage Control

Overview

This paper proposed a strategy for controlling the DC bus voltage using a sliding mode controller. The proposed controller is tested on a DC microgrid incorporating a PV system, Battery storage system, and load. The proposed. Aiming at the DC bus voltage instability problem resulting from the stochastic nature of distributed energy output and load fluctuation, an Integral Sliding Mode Linear Active Disturbance Rejection Control (ISMLADRC) combined with Model Predictive Control (MPC) strategy for energy storage. To enhance the inertia and response speed of the DC bus interface converter, this paper proposes a power allocation parameter adaptive virtual DC motor control strategy based on a hybrid energy storage unit.

DC Microgrid Bus Voltage Control

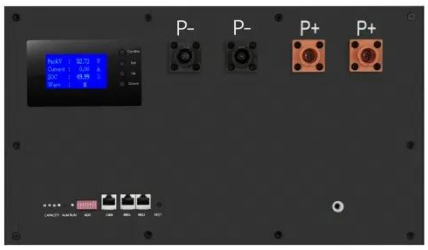


Voltage stability control strategy for DC microgrid based on adaptive

This paper examines the control strategy of DC microgrids in islanding mode, applying the parameter adaptive VDCM control strategy to a bidirectional DC/DC converter linking a hybrid ES ...

A Critical Review on DC Microgrids Voltage Control and ...

The challenges and opportunities for voltage control and power management in DC microgrids are discussed.



Control Strategy for Bus Voltage in a Wind-Solar DC Microgrid

To achieve power balance and suppress bus voltage oscillations in a DC microgrid, it is generally necessary to integrate energy storage units as buffer devices. Among them, the ...

Hierarchical structure and bus voltage control of DC microgrid

This paper provides an extensive review on hierarchical control structures of the DC microgrid and DC bus voltage control. By reviewing the existing literatures, the primary, secondary, ...

Control of DC Bus Voltage in a 10 kV Off-Grid Wind-Solar

We propose a coordinated control strategy for off-grid 10 kV wind-solar-hydrogen energy storage DC microgrid systems based on hybrid energy storage and controllable loads to improve ...

A Critical Review on DC Microgrids Voltage Control and Power ...

It is imperative to properly control the DC bus voltage and manage power among the sources and loads in order to maintain the stability and reliability of DC microgrids. DC microgrids ...

Distributed Control of Multi-bus DC Microgrids for

Abstract: In multi-bus DC microgrids,

where each bus connects a cluster of distributed generators (DGs), the control objective is to ensure voltage regulation and current sharing among ...

Integrated bus voltage control method for DC microgrids based on

This study investigates the DC microgrid system and pro-poses an integrated bus voltage control method, which includes an IAVIC, a oscillation suppressor, and a voltage compensator, to address ...

DC microgrid bus voltage control using sliding mode control

This paper proposed a strategy for controlling the DC bus voltage using a sliding mode controller. The proposed controller is tested on a DC microgrid incorporating a PV system, Battery ...

Bus voltage stability control of DC microgrid considering voltage

It can achieve high-precision control of bus voltage and load distribution when the state is limited. The simulation results verify that this control strategy can reduce voltage drop and achieve ...

Contact Us

For catalog requests, pricing, or partnerships, please visit: https://www.peregrine-energy.co.za