Microgrid sliding mode control

In this article, an event-triggered distributed sliding mode control (SMC) scheme is developed for dc microgrids composed of multiple boost converters in parallel under limited ...

Sliding-mode control (SMC) is a popular nonlinear control due to its stability, flexibility, quick and strong dynamic response, and finite-time convergence. In [17], [18], sliding ...

A variation in load on a microgrid (MG) system has a significant impact on the MG"s frequency. In addition, wind and photovoltaic power sources are significantly affected by ...

The direct current (DC) microgrid is one of the key research areas for our advancement toward carbon-free energy production. In this paper, a two-step controller is designed for the DC microgrid using a combination of ...

Sliding mode control defines a sliding surface to guide the system"s state onto it and applies a control law to achieve stable control of the system, exhibiting strong robustness ...

SOSMC retains the advantages of the conventional sliding-mode control (SMC), such as reduced order dynamics, robustness, and stability. However, the main control objective in the multiple stages of an MG is to ...

The sliding mode control is used to estimate the reference real power of the system to maintain the energy balance among wind, micro-hydro, solar PV power, and BESS, which controls the ...

Aiming at the false data injection attacks occurring in the microgrid actuators, a fixed-time sliding mode observer is designed, which can quickly and accurately estimate the ...

A second order sliding mode control is used to constrain the state of the microgrid to this manifold by generating continuous control inputs that can be used as duty cycles of the ...

A four-leg inverter is the best choice for a three-phase transformerless inverter employed in a stand-alone microgrid. To control the inverter, sliding mode control (SMC) is a well-known nonlinear control system ...

Regulating voltage and current signals in microgrids (MG) is essential to ensure stability, optimize power quality, support grid integration, enhance operational efficiency, and promote safety ...

In this paper, an enhanced sliding mode control was presented to provide the required voltage for a three-phase four-leg inverter in a stand-alone microgrid. Using this ...

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1 Introduction. A growing power system network is always accompanied with the higher cost in further expansion and maintaining the desired efficiency limits [].A microgrid ...

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