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Modeling and simulation of bidirectional DC-DC converter for energy storage systems

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Abstract:

As the use of renewable energy sources grows in grids, battery energy storage systems become increasingly important for grid stability and reliability. The bidirectional converter can provide battery devices charging and discharging of energy in both directions. This paper presents a bidirectional DC to DC converter for energy storage systems and a proportional and integral controller (PI) for charging and discharging applications. The simulation is carried out in MATLAB/Simulink environment.

Keywords:

Energy storage system, battery, constant voltage source