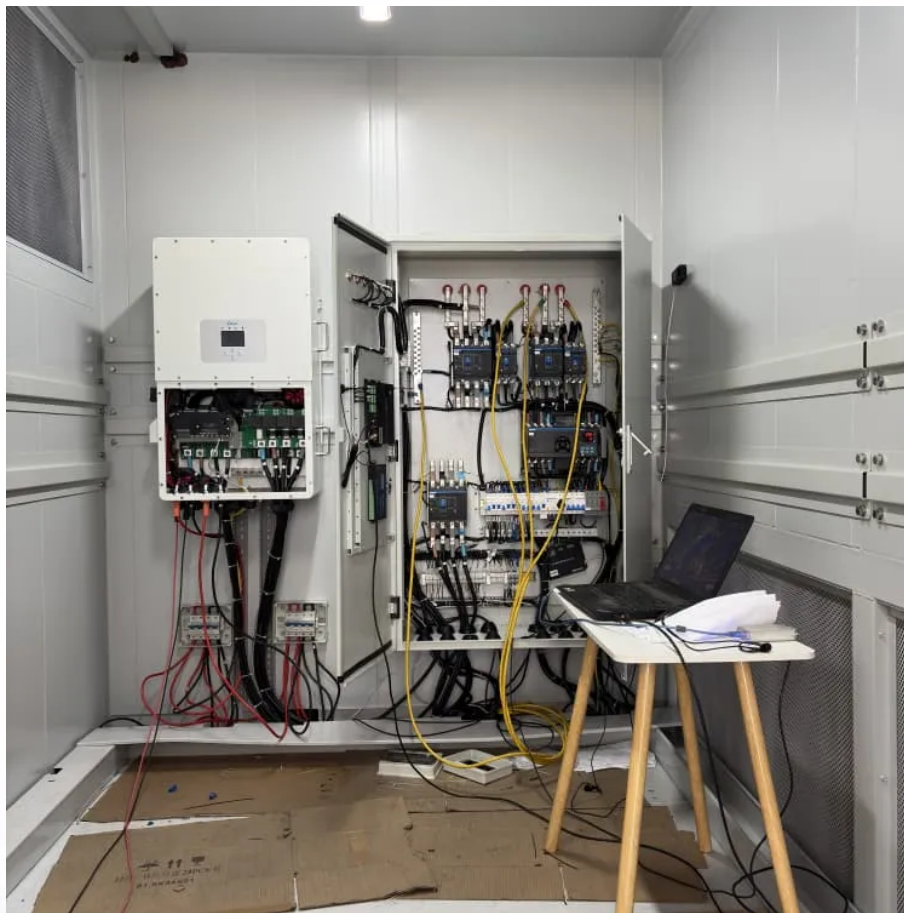


Rabat Off-Grid Solar Container Bidirectional Charging





Overview

Can a bi-directional battery charging and discharging converter interact with the grid?

This paper presents the design and simulation of a bi-directional battery charging and discharging converter capable of interacting with the grid.

What is off-board EV battery charging system?

The off-board EV battery charging system in uses a bidirectional DC-DC converter to charge the EV battery from PV array electricity when the vehicle is stationary and discharges the EV battery to power the dc load when the vehicle is moving. Its limitation to solar-only charging of EV batteries is a negative.

Are bidirectional power converters the future of EV batteries?

In recent times, there has been a notable surge in interest towards bidirectional power flow between the grid and EV batteries. Bidirectional converters stand as the fundamental technology, empowering vehicles to transform into dynamic mobile energy storage systems.

What MATLAB battery model is used for a bi-directional charger?

The system simulation employs a generic MATLAB battery model with a Lithium-ion battery type. The simulation parameters for the proposed bi-directional charger are detailed in Table 3. For testing purposes, a battery nominal voltage of 160 V and a DC link voltage of 400 V are selected in this study.



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Solar-powered bidirectional charging allows EVs to charge from and discharge energy back to the grid, resulting in a dynamic energy exchange system [3]. This bidirectional property is ...

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