

## SolarTech Power Solutions

# Energy storage battery 48V bidirectional DC



## Overview

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Are bidirectional DC-DC converters suitable for hybrid energy storage system?

Aiming to obtain bidirectional DC-DC converters with wide voltage conversion range suitable for hybrid energy storage system, a review of the research status of non-isolated converters based on impedance networks and isolated converters based on transformer are presented.

Does a bidirectional DC-DC converter need a battery backup system?

Because it is bidirectional, it does not require another DC-DC converter or AC-DC converter to charge the battery. A battery backup system application is used in this paper for the control of this converter. Figure 2 shows the topology of this new isolated bidirectional DC-DC converter.

Can a bidirectional DC-DC converter convert 400V to 48V?

Research on bidirectional DC-DC converters for such applications holds significant value [11, 12]. Paper introduces a DC-DC converter with high voltage reduction, converting 400V to 48V, but faces challenges in efficiency, cost, and losses.

What is a bidirectional DC-DC converter?

In addition, to realize energy recovery, the bidirectional DC-DC converter is required between the power battery or SC and vehicle bus to realize the flow of feedback energy. Therefore, the bidirectional DC-DC converter is the key component of HESS. It determines the performance of HESS and further affects the performance of the powertrain of NEV.

Should a single bidirectional DC-DC converter be used for battery-charge and bus-interface functions?

It would be beneficial from a cost and size standpoint if the battery-charge and bus-interface functions could be accomplished in a single bidirectional DC-DC converter. Figure 1 is an existing isolated bidirectional DC-DC converter

topology which has been widely used.

What is the research status of bidirectional DC-DC converter?

Herein, the research status of bidirectional DC-DC converter topologies are summarized and compared, and the future research directions of bidirectional DC-DC for HESS are prospected, aiming to further promote the development of NEV and help the use of green energy and carbon reduction.

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