

Title: DC inverter discharge

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Why do EV inverters need to be discharged?

Abstract: when an Electrical Vehicle (EV) encounters an accident or the vehicle is taken to a service station, the DC-link capacitor in the inverter must be discharged to ensure safety of both the passengers and the operator.

How does a DC link discharge a resistor?

When discharging the DC link using constant power, intelligent control electronics apply a sequence of constant power pulses to the resistor at a high frequency, typically referred to as PWM. As a result, the discharge energy is distributed evenly over the entire discharge process of the DC link.

When should a DC-link capacitor be discharged?

To provide operational safety, the DC-Link capacitor must be discharged in two distinct operational scenarios: normal operation, such as after turning off the vehicle, and emergency situations, like post-vehicle collision or dangerous fault scenarios during maintenance.

What is a discharge resistor?

Discharge resistors are used to discharge DC links. They discharge the electricity after an electric vehicle has been switched off and convert the energy into heat. This allows the DC link to be discharged reliably. The requirements and various methods for how best to carry out the discharging process are explained below.

This paper examines the limitations of traditional discharge techniques and proposes a novel hybrid discharge solution that combines the existing winding-based discharge method with a ...

This article proposes a noninvasive dc-link capacitance estimation method based on the capacitor discharge profile during the turning-off transition of a traction inverter.

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However, as the total C DC LINK capacitance and V BATT increase, the required power dissipation grows exponentially. In this article, we'll present a straightforward approach ...

The attached drawing details DC bus connections (B+/B-) of an inverter drive. When the B- line fuse blows (red arrow), the drive discharges the DC bus (+650Vdc) very ...

The present invention relates to a safe active discharge circuit to be arranged in parallel with a DC link capacitor connected between the positive and negative lines of a DC power link.

Discharge resistors from Miba ensure that the DC link is discharged reliably and quickly. This 5-second rule applies to all electrically powered vehicles that are allowed to operate on public ...

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