

The power of high voltage inverter





Overview

How can a high voltage inverter improve EV performance?

A better approach is to increase efficiency and decrease weight which extends the range of the EV and potentially reduces vehicle cost and running expenses. A significant contributor to achieving this is the inclusion of enhanced control, high voltage inverter modules in the vehicle. *
Corresponding author.

Who develops high voltage inverter systems for electric vehicles?

The vehicle manufactures and automotive tier 1 suppliers develop inverter systems for electric vehicles. Discussions were held with their design and research teams during direct meetings to understand future developments. Through these discussions, along with our own research, there are some clear high voltage inverter trends in the EV market. 3.

What is a traction inverter?

These inverters, called traction inverters, usually transfer power in the tens-of-kilowatts range (+50kW). The power switches used in these full-bridge topologies are insulated gate bipolar transistors (IGBTs). Typical voltage levels for the power switches are 600V to 1200V.

How many gate drivers does a 3 phase inverter use?

Considering the high power levels and voltage levels, a three-phase inverter uses six isolated gate drivers, as shown in Figure 2. Each phase uses a high- and low-side IGBT switch, usually operating in the 5kHz to 20kHz range, to apply positive and negative high-voltage DC pulses to the motor windings in an alternating mode.



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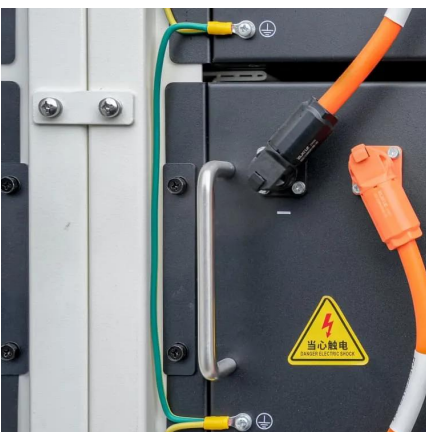


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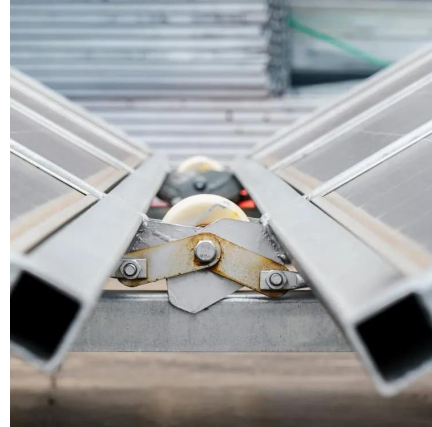
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