



BALANCED CURRENT-SOURCE INVERTER

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The Invention

UW Madison researchers have developed a switching circuit for a balanced current source inverter (CSI). The balanced CSIs utilize wide-bandgap semiconductors to address electromagnetic interference (EMI) issues. Switches generate a second common-mode voltage (CMV) component that forces the total CMV of the inverter to be close to zero. This suppression of the total CMV produced by the balanced CSI significantly reduces the conducted common mode electromagnetic interference. A controller manages the switches between an on-state and an off-state for reverse-voltage-blocking (RB) switches. When in the on-state, a reverse voltage is blocked by a respective RB switch, and a current with a positive polarity is conducted through the respective RB switch. When in the off-state, a voltage and the current are blocked by the respective RB switch.

Applications

- Integrated motor drives for electric machines.
- Particularly suited for aerospace and megawatt uses

Key Benefits

- Increased fault tolerance and reliability
- Smaller, lighter motor drives

Additional Information

For More Information About the Inventors

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Tech Fields

- [Engineering : Electric machines](#)
- [Engineering : Power electronics & control systems](#)

For current licensing status, please contact Michael Carey at mcarey@warf.org or 608-960-9867