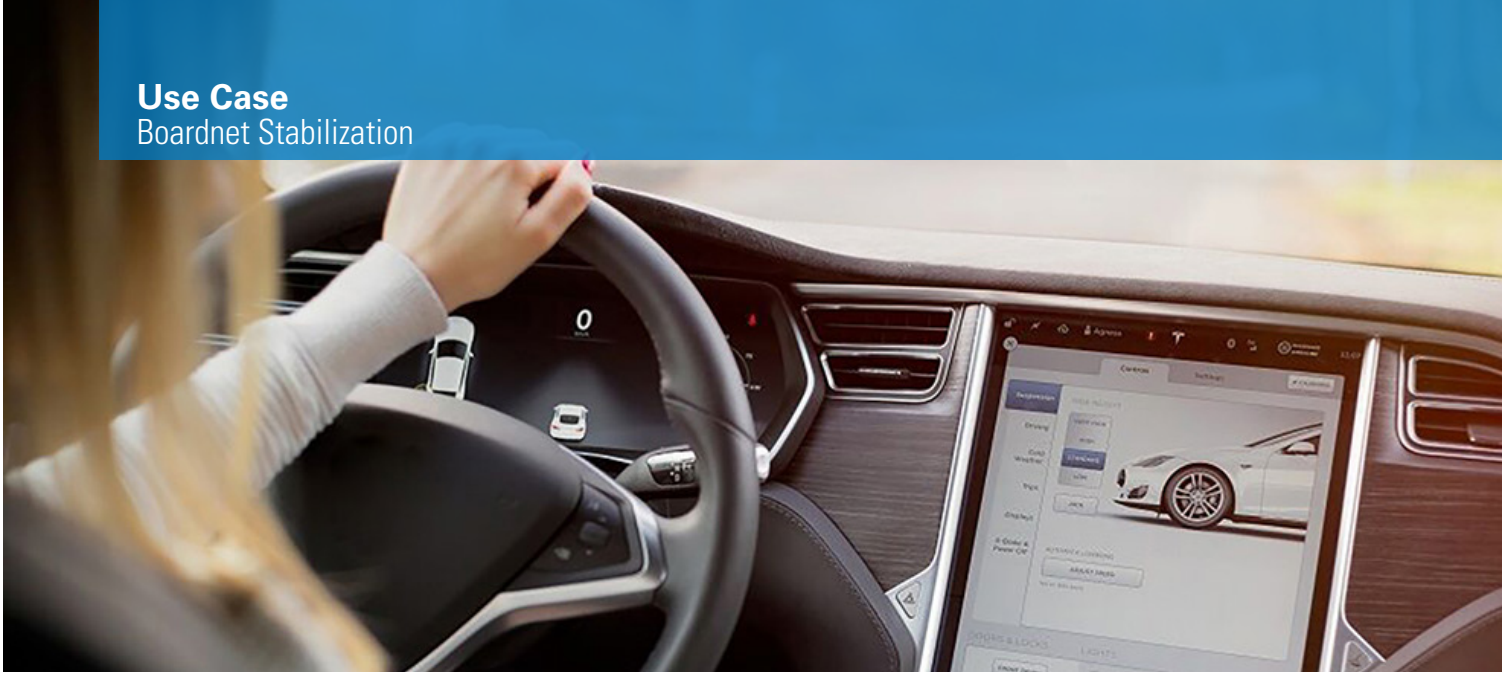
Use Case
Boardnet Stabilization



Eaton supercapacitors enable powerful automotive boardnet stabilization

Designing a car engine's high-power distribution technology is increasingly being adopted by automakers leading to instability in power. Boardnet stabilization provides critical balance in power utilization between interconnected static and dynamic loads in power distribution systems.

Eaton supercapacitors help stabilize automotive boardnet systems by supplying additional power in times of peak demand to smooth out voltage dropouts and spikes. These become more frequent and more significant impacts as carmakers electrify more components and add new electronics in an effort to improve fuel economy and reduce emissions.

Some important applications of boardnet systems in vehicles include electric power steering, water pumps, and air conditioning compressors (24 – 48 Vdc).

In the U.S, most of Europe, and Asia, regulatory requirements for CO2 emission cuts are anywhere from 22 to 36 percent. European authorities mandate automakers to design vehicles with improved fuel economy and lower CO2 emissions, applying strict penalties on automakers that fail to meet these regulations.

Experts suggest that automotive OEMs will continue to implement boardnet technology as higher energy demands in modern automobiles push conventional batteries beyond their supply limits. The more powerful the vehicle, the increased raw power it will require under the hood.

Leading automakers are shaping the future of transport by integrating enhanced power steering, air compression and water-cooling technology in their vehicles. The improved systems help drive the powerful engine systems with lower emissions and enhanced fuel economy.

These technologies require higher DC voltage levels that low-density power sources, like alternators and batteries, struggle to meet. Common problems associated with using secondary batteries include spontaneous voltage dropouts and short life spans.

Unlike typical batteries, which experience decreased capacity over extended use (2 to 3 years) and under varying temperature conditions, Eaton supercapacitors keep supplying automotive pulse power. They last for millions of charge/discharge cycles in any climate (-40 °C to +85 °C) with no significant decline in power delivery or capacity over a 10-year useful life.

Eaton supercapacitor cells utilize an Electric Double-Layer Capacitor construction (EDLC) which ensures ultra-high capacitance, low ESR, and high-power density.

The XT supercapacitors are rated at 3 V and 370 F per cell, while the XV cells are rated at 2.7 V and 400 F per cell. Combining 6 to 12 supercapacitor cells in series provides sufficient energy to power automotive boardnet systems.

All Eaton supercapacitors utilize high durability, eco-friendly materials and are RoHS-compliant. The average lifespan for both products is around 10 years.

These supercapacitors offer significant advantages over batteries. With regards to boardnet stabilization in automobiles, Eaton XT & XV cells offer greater power delivery, efficiency, and reliability to keep power steering, water pumps, compressors and other systems running for significantly longer times.

Eaton's eco-friendly products also take up less space than bulky secondary batteries, making them ideal for the compact designs of leading manufacturers.

Experience greater power efficiency and increased lifespans with Eaton supercapacitors for superior boardnet stabilization.

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