



*“LiTHIUM BALANCE A/S is a small technology company that is competing with established automotive suppliers to develop battery management system (BMS) solutions for electric and hybrid electric vehicles. Because the BMS manages and controls all battery functions – safeguarding against such problems as overheating – it is critical that our solutions meet the highest functional safety standards, including ISO 26262. Unless we meet these standards, we will not be able to supply products to the global automotive market. We rely on ANSYS medini analyze to manage and automate the process of certifying our battery management systems. By taking significant time and costs out of the development cycle, medini analyze positions LiTHIUM BALANCE to compete in the global automotive battery market. It is absolutely been critical for the analysis and quantification of our safety goals.”*

**Claus Friis Pedersen**  
*R&D Director  
LiTHIUM BALANCE A/S*

## medini analyze helps LiTHIUM BALANCE meet the extremely demanding functional safety standards of the global automotive market – while also reducing development time and costs.

### Context

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At the heart of today's electric and hybrid vehicles is a sophisticated battery management system (BMS) that ensures effective and safe charging, energy storage and daily operation. Based in Denmark, **LiTHIUM BALANCE** is a start-up company that has established a track record of innovation in delivering more than 800 customer BMS projects. BMS solutions from LiTHIUM BALANCE are known for their high performance and affordable cost – as well as their uncompromising compliance with the demanding safety standards of the worldwide automotive industry. In order to compete in the global automotive market, LiTHIUM BALANCE leverages the most advanced engineering technologies and best practices, including engineering simulation via **ANSYS**.



### The Challenge

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All companies supplying BMS solutions to the world's automakers must meet stringent functional safety standards, including ISO 26262. By leveraging the power of ANSYS medini analyze, engineers at LiTHIUM BALANCE are able to quickly and affordably manage the functional safety verification of their BMS designs. Because medini analyze manages and automates the process of compliance, industry certification is engineered into the company's BMS solutions from the very earliest stages of design – saving significant development time and costs.

### Engineering Solutions

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- Engineers at LiTHIUM BALANCE have used medini analyze for functional safety analysis for about five years.
- In today's automotive industry environment, there is a growing emphasis on compliance with functional safety standards such as ISO 26262. medini analyze has helped LiTHIUM BALANCE manage this challenge and achieve the required certifications.
- By relying on medini analyze, the company has been able to reduce significant time and manual work. This specialized, model-based tool enables the automation of many processes.
- LiTHIUM BALANCE has found medini analyze very intuitive and user-friendly. The business expects to train more users in using simulation to increase speed and productivity to an even greater degree.
- medini analyze will make it much easier for LiTHIUM BALANCE to compete in the global automotive market, as well as enter new markets such as drones and industrial equipment.





## Benefits

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- medini analyze has saved significant time and costs for functional safety analysis and certification at LiTHIUM BALANCE. Because the tool is designed specifically for these tasks, it increases staff productivity and amplifies human resources — especially important for a start-up company.
- There are approximately 80 functional safety documents required for automotive industry certification. For the 20 most mission-critical documents, involving deep analysis, medini analyze has cut delivery time by 50%.
- Because medini analyze offers visibility and traceability of the functional safety analysis process at LiTHIUM BALANCE, the company often uses the tool to demonstrate its rigorous compliance activities to potential customers. The breadth and depth of medini's analysis is a key selling point.
- By identifying functional safety issues — such as failure rates and mechanisms — at a very early stage, LiTHIUM BALANCE can accelerate the entire product development cycle, while also reducing the time and financial investments required for physical testing.



## Company Description

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In developing battery management system (BMS) solutions for electric cars, buses, scooters, motorcycles, trucks, industrial machines and wheelchairs, the team from LiTHIUM BALANCE A/S is devoted to meeting the most stringent safety, performance and reliability standards. In addition, the company focuses on delivering high performance at an affordable cost. Headquartered in Smørum,

Denmark, LiTHIUM BALANCE has more than 10 years' experience in BMS development and has completed more than 400 customer projects.

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