



ALSTOM
• mobility by nature •

Keeping trains on track with innovative predictive maintenance

Saft's Li-MnO₂ primary lithium battery technology, a steadfast solution, even in challenging environments

Key benefits for Alstom Transport

- 3-years+ operating lifetime guaranteed
- Reliable solution for complete security of a mission-critical IoT railway application
- A ruggedized solution compatible with high vibration environment and extreme temperatures

Features of Saft's power solution

- A high quality lithium-manganese dioxide (Li-MnO₂) chemistry with a spiral construction providing high power, even in harsh environments
- A compact solution, offering stable pulse capability at low and high temperatures
- Up to five years of autonomous power for this application

The challenge: Finding a reliable autonomous power solution capable of withstanding high pulses, vibrations and multiple temperatures

Alstom is one of the world's leading integrated transport systems' company. The company is paving the way for predictive maintenance.

Among other projects, their R&D department has developed an IoT solution that offers real-time monitoring of crucial elements in high speed trains: rotating elements, such as axle-boxes, gear-boxes, blowers, motor bearings and wheels.

The device, Motes, is an inspection product based on a network of intelligent wireless sensors that capture the acceleration

“*Soft customized battery solution fitted perfectly with our technical requirement!*”

Jordi Lafuente, R&D Engineer at Alstom Transport

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of rotating machines and trigger specific analysis processes according to maintenance needs.

The embedded Motes accelerometer makes these devices an optimal solution monitoring vibrations and providing health indicators for all Rolling Stock rotating elements through Edge Computing. The Motes sends the Health Indicators to Health Hub using a LoRa gateway. Its objective is to ensure the passengers' safety and to optimize train maintenance operational costs.

The solution: Saft LM Li-MnO₂ primary lithium cells.

Operating conditions featuring high temperatures and constant vibration, were

two of the main reasons that led Alstom Transport to choose Saft's LM 17500 batteries for their device.

They tested different scenarios of battery combinations to make sure their chosen power supply could perform well under any weather conditions and in high vibrating environments as the monitoring solution is designed to be installed on trains anywhere in the world, above or below the ground. The device needed high peak current power supplies to enable frequent data communication and Alstom Transport was looking at a 3 years minimum battery lifetime. These factors, led us to recommend using the LM range that delivers on all fronts. We designed the battery and our Spanish partner, Amopack, assembled it, ensuring stock availability, rapidity and flexibility.



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