

Battery Module HW Integration

D4.2



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Project	INCOBAT	Project Number	608988
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1 Publishable Executive Summary

Energy storage units comprise of many components, majority of which contribute to its ultimate efficiency. If not directly within bus duct, the system's components cooperate mechanically, chemically, and thermally. Each contact point is a potential variable in the estimation of remaining energy. The optimal construction of battery pack and BMS embraces the cooperation of all constituents. For INCOBAT project purposes special effort must be taken to provide Battery Pack construction robustness because the main aim of the project is electronic and software optimization. Easiness of access to modal elements of the Battery Pack, important from INCOBAT tests' point of view was one of the main aspects during design process.

In the analyzed case the battery is to cooperate with the car in road conditions and, what follows, it will be exposed to vibrations and the considerable fluctuations of temperature. The assumed control algorithms measure these factors and properly manage the rest of the system.

Bearing in mind the chosen battery cells' technology and prototype character of the project the battery thermal management circuits have been prepared, however they will not be installed within the scope of these works. This way the commercial targets have been met. After a little modification the battery can be introduced into production.

By completing the task included in Deliverable 4.2 INCOBAT following objectives were achieved. Modular concept of Battery Pack has been reached. Modularity is used for easiness of battery stack division due to a number of channels in voltage monitoring chip BALI. Also the modularity was partly an idea for reaching the goal of virtual capacity changeability which is mandatory for important experiments that are planned in scope of the project. The way the BatteryPack is designed makes it also easy to reproduce. For industrial implementation including both small and medium series production only few elements have to be changed.

Test of intercell connection quality that has been done falls also within the scope of the Deliverable and the whole project as well. Optimizing automotive traction Battery Pack efficiency on levels of miliohms is critical for achieving the goals expected in the project.

BatteryPack body was planned according to best design and assembly techniques used in SME, of which Impact Clean Power Technology (Imotive) is a representative.