

// Battery Test Center



The mission of the battery test center is to conduct performance, lifetime, endurance, and safety tests on cells, modules, and batteries designed for portable, mobile, and stationary energy storage systems. A great deal of effort is devoted to characterizing batteries under various operating conditions and studying their behavior in response to abuse and crash.

“In the eLaB we investigate, test, and analyze batteries and systems according to standards or by new innovative methods.”

Dr. Harry Döring, Head of Department



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// Battery Systems Engineering: Electrical & Thermal

System Technique - Electrical

- Characterization of
 - Series- and Prototype cells
 - Novel battery technologies
 - Cells, modules and packs
- Test, modeling and simulation of
 - Voltage profiles
 - Impedances
 - Degradation processes
- Method development for controlling, state estimation and the operation of cells, modules and packs
- Battery and energy management

System Technique – Thermal

- Modeling of single cells and battery systems
- Investigation and simulation of thermal response time
- Development of concepts for temperature control and regulation
- Development of cooling concepts
(air convection, water/oil, air condition)



EQUIPMENT SYSTEM TECHNIQUE

- 7 test rooms
- Work stations for modeling and simulation
- Cell test units
 - 48 x 5V/5A
 - 24 x 10V/50A
 - 31 x 7-10V/240A, some with linked impedance spectroscopy (EIS)
- Pack test unit
 - 600V/300A/100kW with option battery simulator with data logger system with ca. 256 channels
- Multiple cell battery simulator
- Tester for battery- and energy management
- Temperature chambers
 - 7 Temperature chambers in Temperature range -40°C up to 180°C
 - 1 Temperature chambers with the possibility of thermograph measurement
 - Cooling systems
- High frequency Measuring area (oscilloscope, Impedance spectroscopy, spectrum analyzer)
- Thermal camera
- Measuring Area for heat conductivity

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