

## Experimental Thermal Profiling of Power Tool Battery Packs

In real applications, power tools face varying ambient temperatures and internal heat generation, leading to temperature gradients within the battery pack and cell-to-cell non-uniformities in resistance. We aim to **characterize these gradients** and reproduce them on a testbench with a virtual cell connection to study their effects on current distribution and ageing.

The **aim of this research module** is to compare high-precision temperature measurement methods, select the most suitable approach, and implement it in practice.

You will learn to:

- Operate a **battery pack cyler**, apply realistic load profiles
- Take **strategic educated decisions** for your methodology
- Deepen your **understanding** of thermal **measuring techniques**
- Enhance your proficiency in **MATLAB or Python** for data analysis and processing
- Gain **hands-on experience** with specialized software tools used in battery testing

Qualifications:

- Basic programming knowledge, in either MATLAB or Python
- Basic knowledge of thermal system identification
- Independent and careful way of working

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