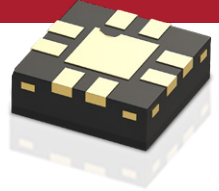


## Current Sensing, Battery & EV Applications

Paragraf is the world's first company to use graphene to mass produce electronic devices using standard semiconductor processes.

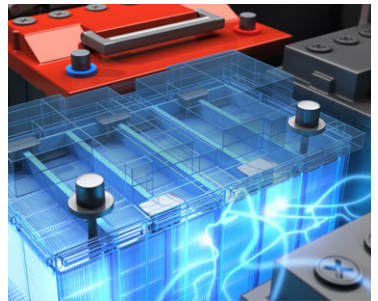


The latest regulatory requirements in battery safety are driving the need for newer, more advanced current sensors.

With its two-dimensional nature, graphene based magnetic sensors only respond to magnetic fields perpendicular to the sensing layer. This provides much more accurate field and current mapping for battery applications.

### Applications

- Leakage detection in the  $\mu\text{A}$  with high resolution for battery manufacturer's safety testing and compliance
- Cell aging processes, failure mode analysis and recycling of batteries
- In service health monitoring and performance optimisation, prolonging battery life



Features	Benefits
<ul style="list-style-type: none"> <li>• Unrivalled measurement range capability from <math>\mu\text{A}</math> to <math>\text{kA}</math></li> </ul>	<ul style="list-style-type: none"> <li>• Use one sensor; reduce bill of materials</li> </ul>
<ul style="list-style-type: none"> <li>• Isolated from current flow</li> </ul>	<ul style="list-style-type: none"> <li>• Measurements can be made without disruption to existing set-ups</li> </ul>
<ul style="list-style-type: none"> <li>• Capture current flow direction, as well as magnitude</li> </ul>	<ul style="list-style-type: none"> <li>• True mapping of current and temperature density</li> </ul>
<ul style="list-style-type: none"> <li>• Zero cross talk</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce shielding requirements and densely pack sensors for high spatial resolution</li> </ul>
<ul style="list-style-type: none"> <li>• Capture instantaneous increases in current density with high resolution and no lag</li> </ul>	<ul style="list-style-type: none"> <li>• Critical for regulatory and safety requirements</li> </ul>
<ul style="list-style-type: none"> <li>• Two-dimensional graphene sensor, immune to stray fields</li> </ul>	<ul style="list-style-type: none"> <li>• Improves quality of data for simpler analysis</li> </ul>



Battery cells, modules, packs and their operating environments are magnetically complex – better immunity to stray fields improves quality of data collected and makes analysis simpler.

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