



[Heim = Heimdall, a Nordic Guardian | Alytics = Analytics]

Horizon Europe - BEPA Matchmaking

High Accuracy Analytics

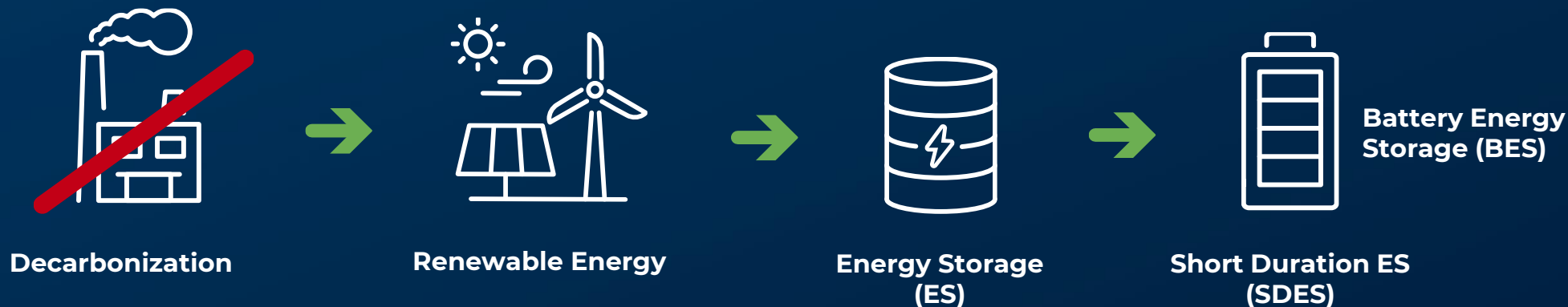
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Storage is Integral to Decarbonization

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Industry Challenges



Recertification of Used Batteries



Reliability and Safety



Environmental Stewardship



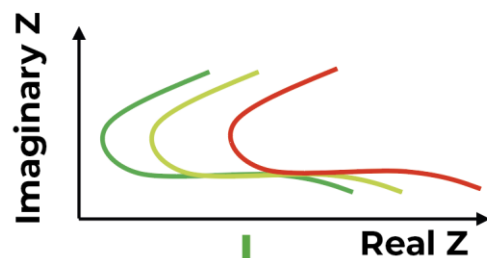
Costs

The Solution

Heimdalytics' "TruState" Estimation Technique

EIS Scan over a Spectrum of Frequencies with AI Analysis

Impedance Spectrometry



Cloud Analysis



AI

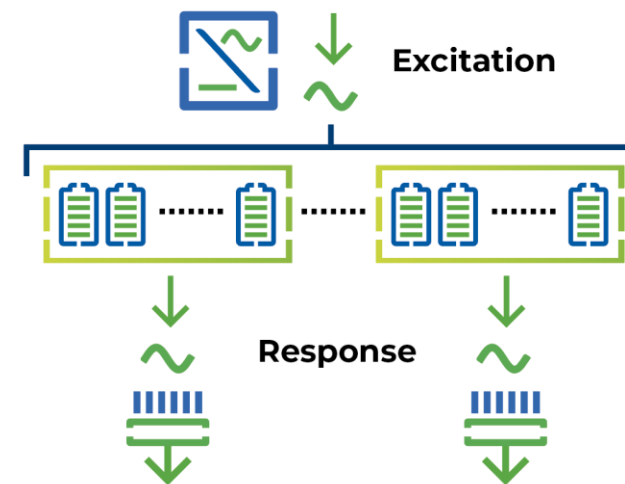
Instrument for Testing Batteries



- Identifies Healthy Batteries for Reuse and 2nd Use
- Matches Batteries for Refurbishment
- Recertifies Batteries in minutes vs hours

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Battery Management System (BMS) for Operating Batteries

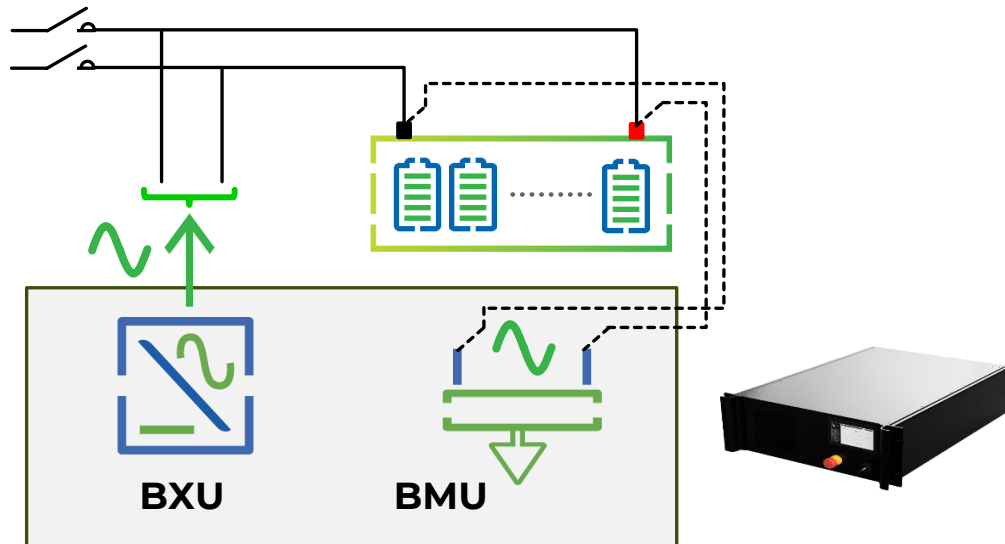


- Identifies Faulty Batteries mitigating Billion € Recalls
- Accurately flags End-of-Life
- Signals Stressed Batteries
- Accurately Reads Stored Energy eliminating excess capacity

TruState Instrument

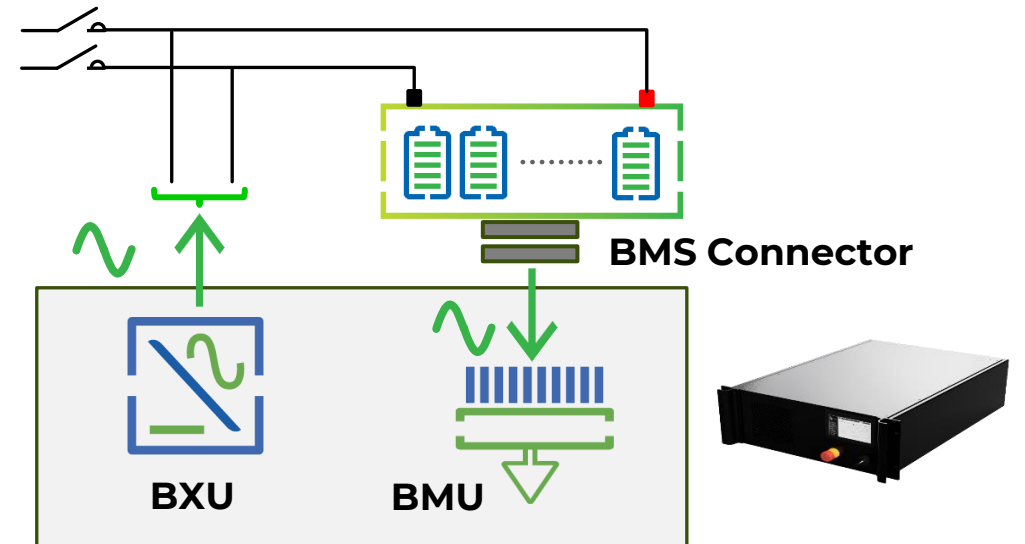
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Module Scan



Measurement of Module Terminals

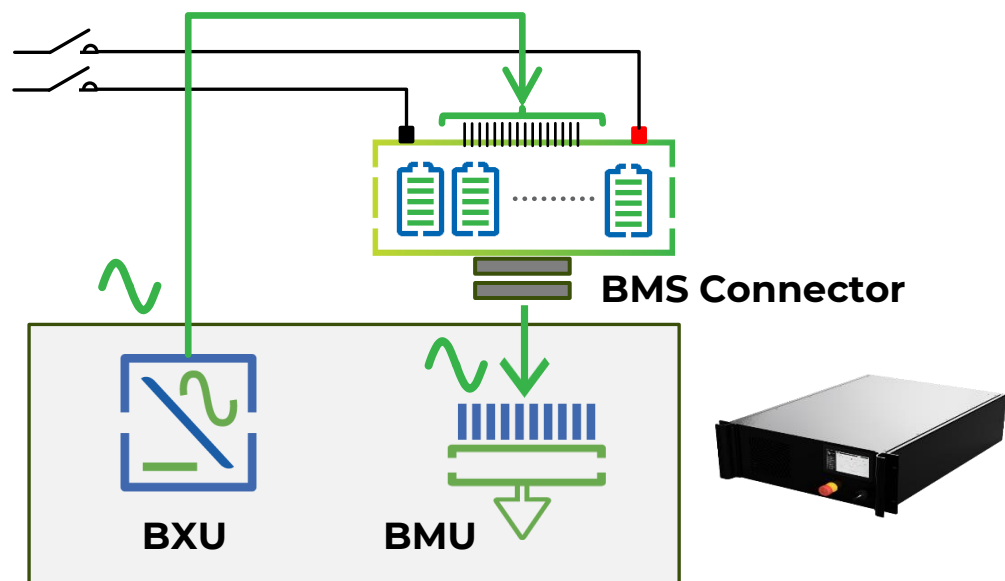
Full Scan



Measurement of Cell Groups

TruState Instrument

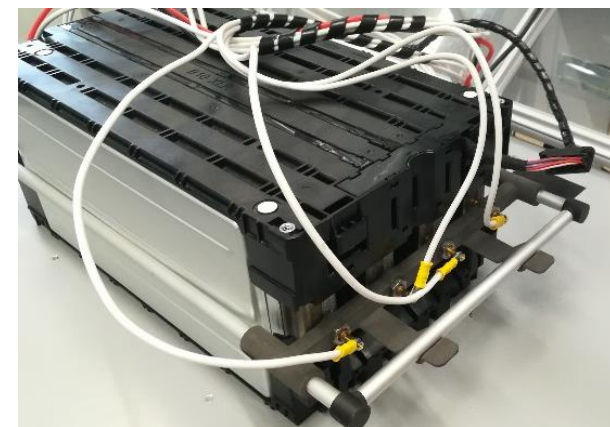
Deep Scan of Pouch Cells



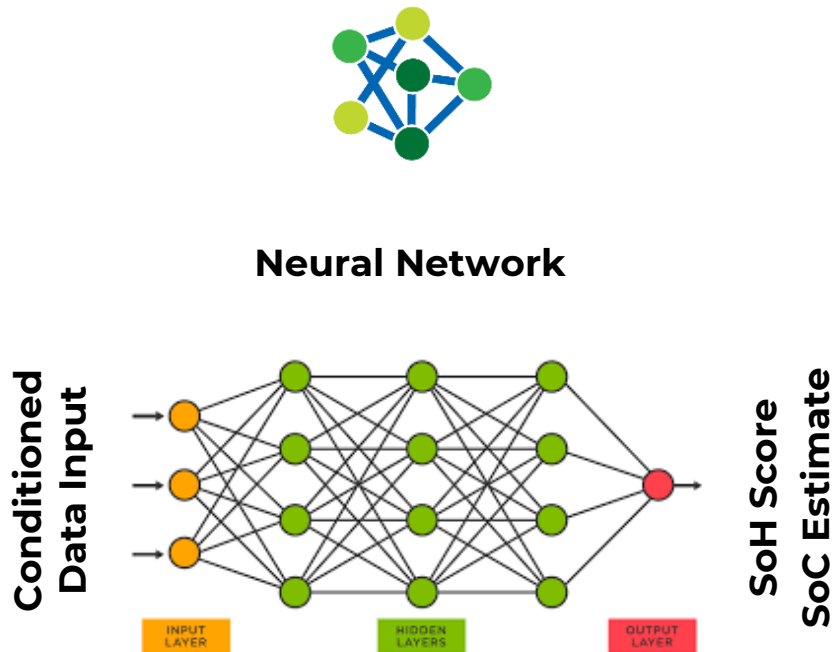
Excitation and Measurement
of Cell Groups

What is a Deep Scan?

- Offered specifically for Pouch Cell Modules
- Each group of pouch cells is individually excited and measured.
- Cell tab Interconnection Frame



Artificial Intelligence (AI)



Artificial Intelligence (AI) using Proprietary Algorithms using neural networks to accurately estimate:

- **State of Energy Capacity – 1% accuracy obtained on an Automotive Pilot Project**
- **State of Anomalies - Detection of Anomalies**
- **State of Charge –Battery Management**
- **State of Stress for signaling of recommended use to Extend Life**



Thank you!

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