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Rapid Battery Scanner (BATTSCAN-xxxX)

Product Specification Sheet

Last updated: Feb 2024

Grade batteries **in minutes, not hours**

The BATTSCAN-xxxX is able to predict battery capacity within 98% estimation accuracy in a 10 minute test, and within 96.5% estimation accuracy in a 30 second test. These results were benchmarked against a 6 hour cycling test.

A sample of 100 batteries could be capacity tested in 1 week with just one device for SOH and quality assurance testing. See our case study with used e-truck battery modules.

Perform advanced battery diagnostics on high voltage battery modules and battery packs like never before. ReJoule's Battery Scanner (BATTSCAN) is our patented technology that enables advanced battery diagnostics using electrochemical impedance spectroscopy (EIS) on high voltage battery systems and subsystems. BATTSCAN can help automotive OEMs, battery manufacturers, and battery re-manufacturers save time and money on battery grading.

The BATTSCAN-xxxX performs a standard EIS test across three decades of frequency ranging from 0.1Hz to 1kHz, to enable rapid insights into materials degradation such as SEI layer growth, increased charge transfer resistance, and increased diffusion resistance. Understanding how these degradation mechanisms change over time enables a more accurate assessment of capacity and power fade of battery modules and packs. The BATTSCAN-xxxX comes in three voltage ranges: 2-20V (low), 10-100V (medium), and 200-450V (high). Testing in-vehicle through the charging port is also available.

Benefits of BATTSCAN

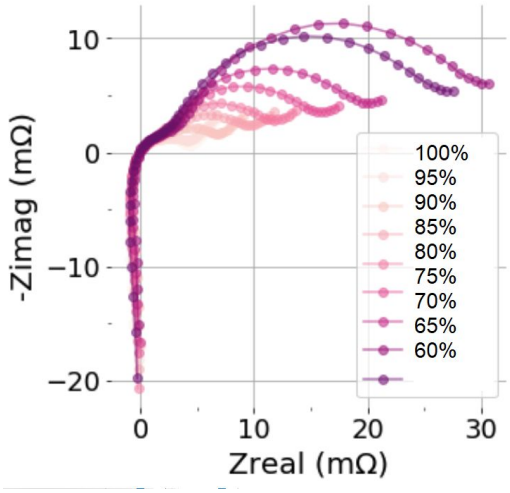
- Fast, non-invasive, and reliable diagnostic to grade battery modules
- For battery repurposing, speed up UL1974 test time from 6 hours to < 10 minutes
- Easily embed into your battery testing process with a standard 19" rack mountable design
- Modern cloud-based software toolset BatteryDB to keep track of tests, batteries, and devices.

How to get started

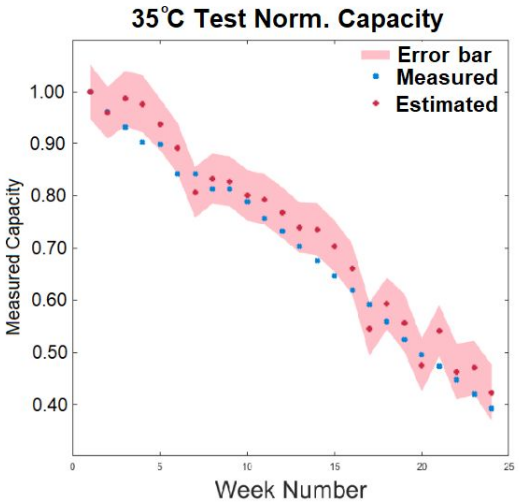
Contact us and tell us about your needs. We'll work with you to build a custom test program that involves:

- Acquiring sample batteries for initial characterization (~30-50 samples typical)
- Characterization testing (cycling + EIS)
- Data analysis, model development, and test reports available after initial period
- Capacity prediction EIS-based (on cloud)

Applications: Quality Control, Remanufacturing, Service, Second-life Repurposing, and more.



AC Impedance of cells over weeks of accelerated aging



Predicted SOH from EIS results
vs. measured capacity on NMC cells at 35C

ReJoule

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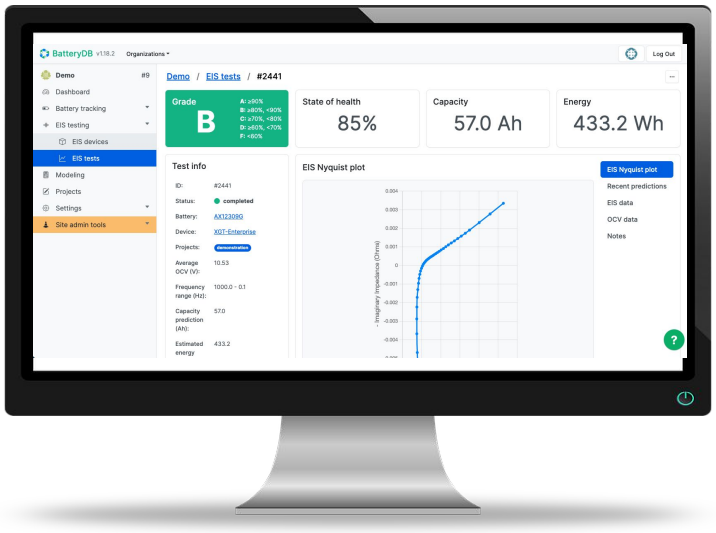


Rendering of BattScan-050M hardware (above) and BatteryDB software (right)

Hardware Specifications

Note: Specs can be customized for other desired battery voltage ranges

BATTSCAN-050M	Available today!
# channels per unit	1 channel per tester
EIS testing per channel	10A EIS, up to 50V, 500 msps rate, 0.08Hz to 1kHz
DCIR testing per channel	+10A pulse, higher current options avail. upon request
# cells in series per module	Up to 16S cells
Battery capacity (single/parallel cells)	3 Ah to 300 Ah
Voltage range per channel	5V to 60V
Input power	120 Vac, 1ph, 500W max
Data interface	Ethernet / Wifi
Physical Dimensions WxDxH	471 mm x 483 mm x 133 mm
Product weight	24 lbs (10.9 kg)
Operating temperature range (storage)	0°C to 45°C (-20°C to 60 °C)

BATTSCAN-450P	Prototype available
# channels per unit	1 tester channel per 12U
EIS testing per channel	5A EIS, up to 500V, 500 msps rate, 0.5Hz to 1kHz
DCIR testing per channel	+10A pulse, higher current options avail. upon request
# cells in series	Up to 140 series cells
Battery capacity (single/parallel cells)	3 Ah to 300 Ah
Voltage range per channel	200 V to 500V
Input power	240Vac single phase
Data interface	Ethernet / Wifi
Physical Dimensions WxDxH	471 mm x 483 mm x 665 mm
Product weight	150 lbs (68 kg)
Operating temperature range (storage)	0°C to 40 °C (-20°C to 60 °C)

BatteryDB Cloud-based Data Platform Features

Control devices, access data, and keep track of battery testing in one cloud-based data platform designed specifically for used battery testing.

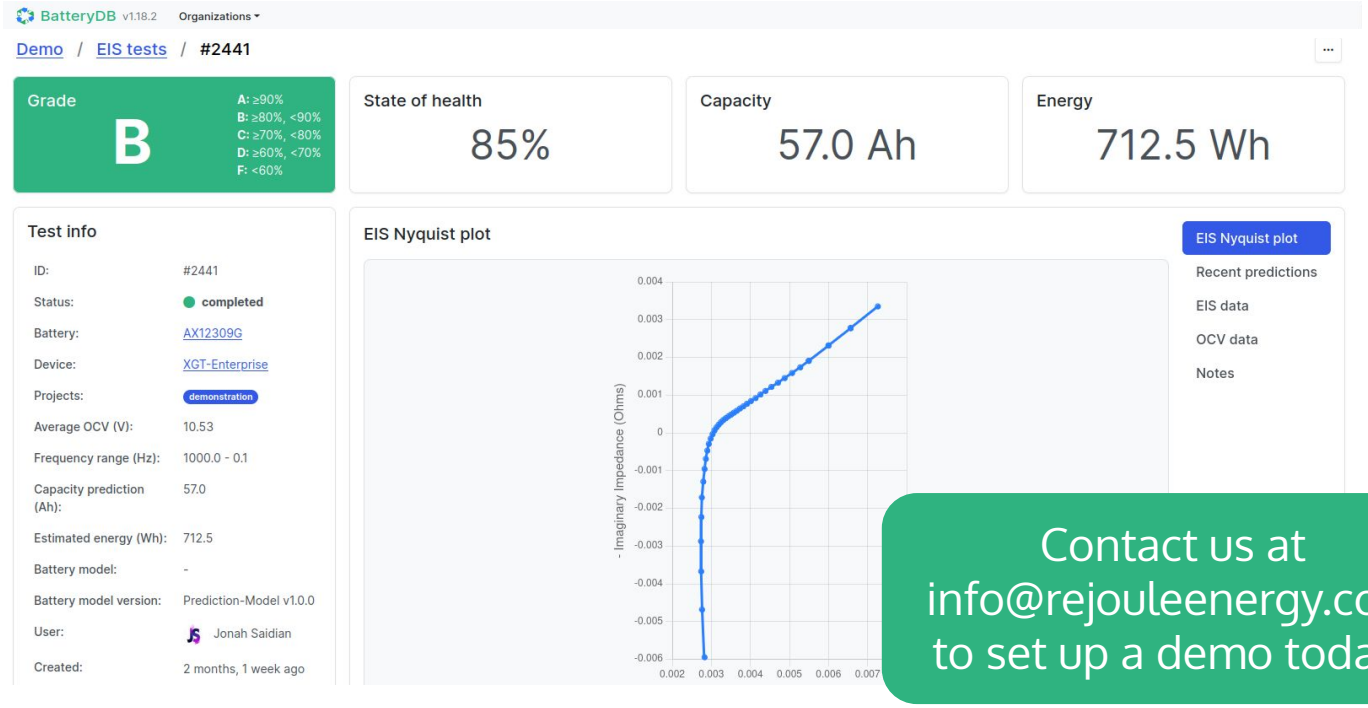
Features

- Create Battery IDs for easy battery tracking on the cloud
- Instant test results viewable as a plot or table, exportable as a CSV
- See all historical test results, also by device or battery
- Capacity Predictions: View predictions made by the model for any test*
- Estimated Energy: View Estimated Energy for a battery based on test results and nominal capacity
- Project Tagging: Categorize batteries, devices, and tests by project
- Operator tracking: associate test runs with the user that performed them
- Markdown Notes: Record Markdown-formatted notes about resources or test
- Auto-Timestamp Changes: Auto-record timestamps of changes to BatteryDB resources
- Support multiple predictive SOH models per organization for testing different battery types

Access & Management

- EIS (Electrochemical Impedance Spectroscopy) Device Tracking: View status of ReJoule devices
- Device Test List: View historical data of all tests performed by the device
- Searchable Filtered List Views: All list views support searching fields and filtering for categorical fields
- Three levels of users access: owner, member, and viewer
- One company can have separate "organizations" for different business units or legal entities.
- Number of software licenses tied to the number of hardware devices by organization, with each license having up to 10 users per subscription
- Email Verification: Verify all new user accounts by sending a verification email

**Available after characterization phase only*



Contact us at info@rejouleenergy.com to set up a demo today!