



WF Bifrost for Research and Development

A WireFlow Battery Solution

Testing during battery development is critical to ensure performance, safety, and reliability. WireFlow's battery testing systems support capacity assessments, dynamic charge/discharge cycles, C-rate performance, and voltage profiles. This enables researchers and developers to optimize battery designs for peak performance.

Cycle life testing simulates real-world use, giving insights into endurance and identifying potential areas for improvement. Flexible, customizable test scenarios make it possible to conduct "what if" testing, empowering engineers to develop more robust and dependable designs.

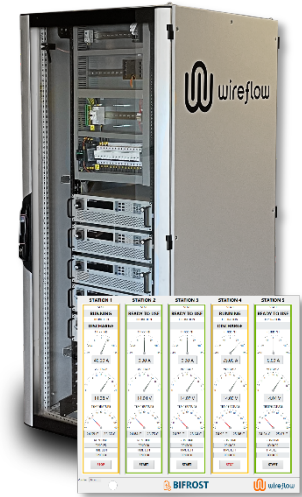


Figure 1 - WF Bifrost Battery Tester

The WF Bifrost for Research and Development is user-programmable and can be adapted to voltage levels, capacity ranges, and CAN communication standards used by your battery packs.

All monitoring and oversight are centralized using our Single Point of Control concept, providing full control, high safety and operational efficiency.

Developed for industry needs

The WireFlow R&D test platforms have been developed in collaboration with industry partners and are already used in:

- Automotive battery development
- Utility vehicle energy systems
- Mobile energy storage research

Whether in long-term qualification programs or exploratory lab environments, our solutions provide the flexibility, safety, and data management required by modern research teams.

Powered by the Valand Platform

At the heart of every Bifrost system lies Valand, WireFlow's adaptive and scalable software platform for test automation. It's plug-in framework makes it simple to integrate new instruments, I/O modules, or measurement devices as research evolves. Hardware is automatically detected and ready to use. Importing CAN-databases allows full customization of battery-pack and BMS testing.



Scripting

Engineers can create their own tests using Valand's scripting language. The built-in editor validates syntax and includes comprehensive help documentation. All system variables are exposed within the scripting environment, allowing both simple and complex tests, from SOC or voltage cycling with coulomb counting to advanced fault-injection sequences for validating BMS logic.

Safety

A background alarm system continuously monitors user-defined variables (for example voltage, current, temperature). If a limit is exceeded, Valand automatically places the DUT in a safe state.

Logging

All accessible data variables are logged during each test. Results are stored in uniquely named folders, easily exported or analyzed with external systems which ensures full traceability for both development and compliance reporting.

Valand transforms the Bifrost platform into a fully scriptable, modular, and future-proof R&D environment — empowering engineers to innovate faster.

Examples of Bifrost applications

- Long-term unattended cycle testing with automated logging
- Capacity and dynamic performance verification
- Simulation of daily use conditions for endurance insights
- Automated “what if” scenarios to identify performance thresholds
- Safety-layer monitoring with redundancy in case of BMS failure
- Remote monitoring, reporting, and analysis

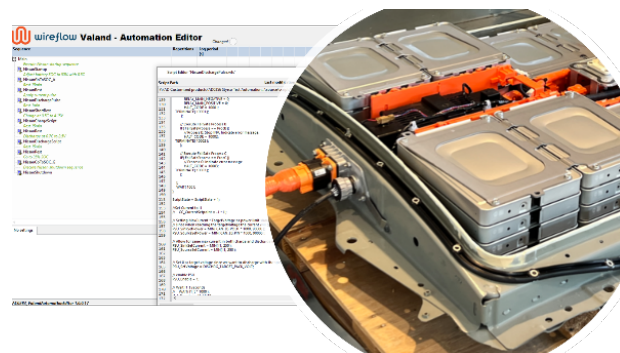


Figure 2 - EV battery prepared for test