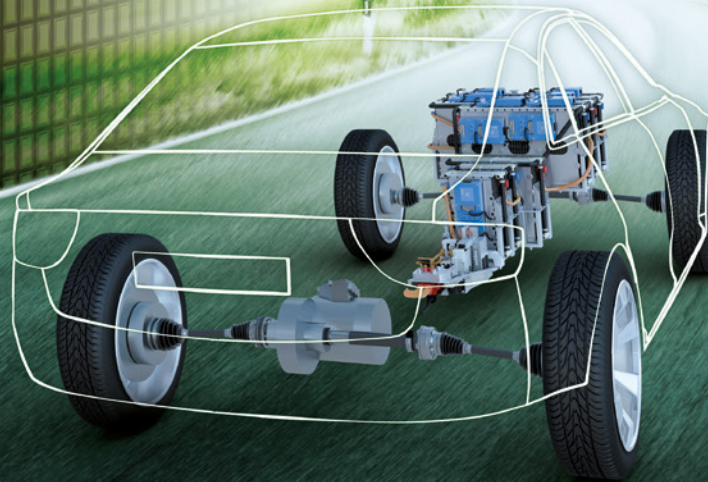# AVL LYNX 2™

Automate your charge

AVL

AVL Team SUITE

THE ADDED VALUE

- Execute fully independent battery tests on multiple test channels from a single automation system
- Scalable solution from a single installation to an entire testfield with AVL SANTORIN HOST™
- Unified test automation solution for battery cell, module, and pack testing
- Integrated support for AVL E-STORAGE BT™ and AVL E-STORAGE LV™ product line in addition to select 3rd party battery cyclers / power electronic cyclers

AVL LYNX 2™

BATTERY TEST AUTOMATION

THE CHALLENGE

In modern powertrain configurations such as hybrid vehicles, pure electric vehicles or fuel cell powered vehicles, batteries are used for electro-chemical energy storage and conversion. These energy storage systems have to meet the market requirements such as durability, high power density, and energy performance for high dynamic charge and discharge processes. The most important development tasks for energy storage systems are the optimization of life-time, safety, power, energy, and costs. AVL LYNX 2™ offers accurate and reliable as well as innovative and efficient approaches for testing these ever-increasing demands with a fully-configurable and easy to use interface.

THE AVL SOLUTION: AVL LYNX 2™ – BATTERY TEST AUTOMATION PLATFORM

AVL LYNX 2™ is designed for battery testing applications required by battery research and hybrid powertrain development labs. The battery test automation provides control of cell, module, or pack level power electronic cyclers, climatic chambers, and other ancillary devices used for testing applications. AVL LYNX 2™ also performs data acquisition and control of physical I/O channels, Battery Management System channels over CAN, and other intelligent devices. Tests are graphically configured making for quick setup and clarity in operation/function.

APPLICATION AREA

AVL LYNX 2™ is designed for battery research and development for vehicle applications such as Hybrid Electric Vehicles (HEV), Plug-in Hybrid Electric Vehicles (PHEV), and Battery Electric Vehicles (BEV). The modularity of the system allows the configuration for many different testing applications:
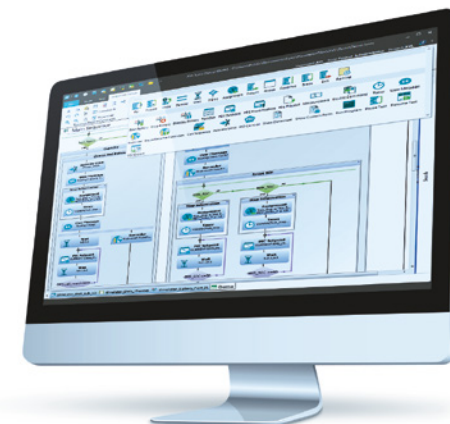
Test System Requirements

Typical Cell, Module, and Pack Testing Applications	Signals From BMS, External I/O	Functions Limits, PIDs, Filters, Formulas, Data Recorders	Power Electronics Cycler, Power Supply	Imaging Thermal, High Speed	Environmental Chamber, Shaker Table	Advanced Interfaces Simulation, Special Devices
BMS Validation	▆	▆				
Cell Balancing	▆	▆	▆			
Cell, Module, Pack Durability	▆	▆	▆			
Weld Verification	▆	▆	▆	▆		
BMS Development	▆	▆	▆	▆		
Physical Abuse Testing	▆	▆	▆	▆	▆	
Advanced R&D	▆	▆	▆	▆	▆	▆

Additional Functionality for All Applications
Host, Remote Monitoring, Factory Management, Data Analysis and Reporting, etc.

CONTROL ROOM

The AVL LYNX 2™ Workstation supplied with dual monitors provides the test cell operator with a complete view of the current operating conditions and full control over the test cell, including support for up to twenty-four independently running test stands for cell testing applications.

AVL F-FEM I/O™

Depending on the required I/O configuration, a variety of options exist supporting a range of needs, from low channel counts to more complex systems with a variety of input types including high voltages. Due to the modular nature of the AVL F-FEM™ modules, the I/O is fully expandable with low downtime between changes.
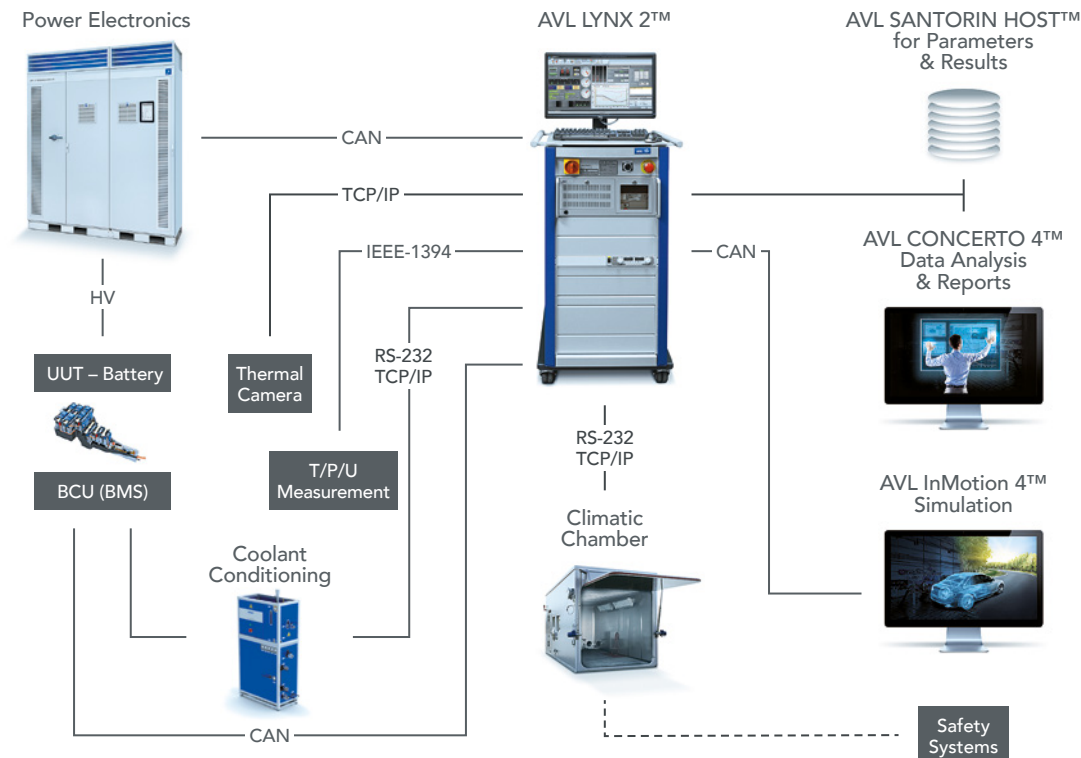
DEVICE INTEGRATION

AVL LYNX 2™ supports a range of standard devices used in the battery test cell requiring little software configuration:
- Power electronics / battery cyclers from AVL and other manufacturers
- Climatic chambers and thermal imaging cameras
- Additional devices can be added optionally

SIMULATION

AVL InMotion 4™ (optionally coupled with AVL CRUISE™ for powertrain models) allows for the realization of complete vehicle simulation and maneuver based testing during the battery development phase through the virtual proving ground approach.

Diagram labels

Power Electronics

AVL LYNX 2™

AVL SANTORIN HOST™ for Parameters & Results

CAN

TCP/IP

IEEE-1394

CAN

AVL CONCERTO 4™ Data Analysis & Reports

HV

RS-232 TCP/IP

UUT – Battery

Thermal Camera

T/P/U Measurement

RS-232 TCP/IP

AVL InMotion 4™ Simulation

BCU (BMS)

Coolant Conditioning

Climatic Chamber

CAN

Safety Systems

POWERTRAIN DEVELOPMENT IS A TEAM SPORT

Today´s requirements in powertrain development move forward every second. Complex systems, shorter times to market and a global world of opportunities challenge you to be better, more flexible and faster than your competitors.

Development tasks aren't stand-alone. And it's not (just) about how good single individuals or tools are…

… it's about how well they work together.

AVL Team SUITE™

SUCCESS BASED ON INTERPLAY

www.avl.com/meet-the-team

AVL Team SUITE™

COMBINE YOUR STRONG TEAM FLEXIBLY OUT OF COMPATIBLE, COMPLEMENTARY PLAYERS TO MEET YOUR NEEDS.

- AVL PUMA Open 2™
- AVL EMCON 6™
- AVL LYNX 2™
- AVL SANTORIN MX 2™
- AVL TESTLIFE 1™
- AVL CAMEO 3™
- AVL CRETA 4™
- AVL CONCERTO 4™
- AVL-DRIVE 4™
- AVL VSM 4™
- AVL ARTE.Lab 4™
- AVL InMotion 4™
- AVL IndiCom 2™
- AVL iGEM 2™
- AVL TESTGATE 1™
- AVL ISAC 6™
- … and more joining soon

SUCCESS BASED ON INTERPLAY

CONFIGURE AVL LYNX 2™ TO MEET YOUR NEEDS.

The flexible nature of the AVL LYNX 2™ automation system allows you to create a system to your exact specifications. The list below shows the features of the base system plus optional add-on elements.

AVL LYNX 2™ Workstation
Includes pre-installed software, four line high performance CAN Card (pack/module), two monitors, keyboard and mouse.

AVL LYNX 2™ Cabinet for Roll Around Solution (optional)
19" rackmount trolley (20 HU) with open front supporting workstation, monitors, and I/O modules.

Additional CAN Interface Board (optional)
2nd high performance CAN card for adding up to four additional CAN lines to base system.

E-Stop Circuit and Software Watchdog (optional)
The E-Stop Circuit and Software Watchdog integration package offers flexible capability for the control and interruption of safety circuits as well as the monitoring of system health and emergency stop conditions.

AVL F-FEM I/O Cube™
- 24 thermocouple inputs
- 16 analog inputs (voltage, current, resistance, RTD)
- 8 low voltage inputs: ± 2.4 V, ± 75 mV, T/C, RTD
- 8 analog outputs: ± 10 V, ± 25 mA
- 16 digital inputs (8 shared as counters)
- 16 digital outputs (8 shared as frequency out)

AVL F-FEM-AIF HV™ & AVL F-FEM-AIS HV™ FRONT END MODULES (optional)
High voltage isolated I/O Modules with 16 channels for the measurement of voltages on energy storage and electric motor/inverter systems.

Training: AVL LYNX 2™ Battery Testing Setup and Operation
A variety of training options blending theory and hands-on practice whereby the participant is able to operate, execute measurements, run tests, and modify basic parameters of the system.