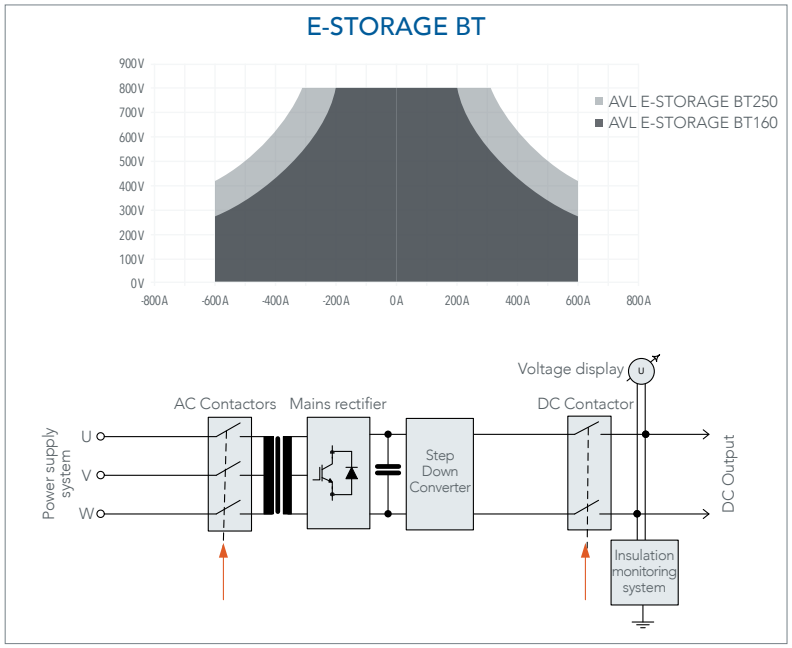
AVL E-STORAGE BT™
Join us in exploring new e-horizons

Supreme measurement & control accuracy with maximum dynamic performance - designed specifically for testing and validating batteries

In modern powertrain configurations, such as hybrid vehicles, pure electric vehicles, or fuel cell powered vehicles, batteries are used for electrochemical energy storage. 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. Therefore, the most important development tasks for energy storage systems are the optimization of lifetime, safety, power, energy and costs.

The AVL E-STORAGE BT™ is a battery tester to validate and test batteries prior to their deployment in the vehicle by enabling the accurate emulation of the energy demand from a real-world e-drive (e-motor and inverter). The new AVL E-STORAGE BT™ offers a class-leading combination of outstanding dynamic performance with highest measurement and control accuracy in a power-dense package with minimal footprint. Due to its high level of dynamic performance, enhanced accuracy, broad voltage range and low residual ripple, it can precisely follow a predefined load profile to expose the device under test to real-world operating conditions.

Fully integrated into the battery testing automation software AVL LYNX 2™, it makes battery testing comfortable and reliable at different development process phases. The integrated advanced safety concept enables a safe exploration of the battery's operation limits, protecting the equipment and the unit under test. Its modular power electronics components and flexible options as well as the ability to parallelize systems enable the AVL E-STORAGE BT™ to be optimally adapted to meet the testing requirements.



Graph of available power and basic system schematic

Example battery pack testing

BATTERY TESTING AT UNPRECEDENTED LEVELS

The user-friendly battery testing automation software AVL LYNX 2™ makes the AVL E-STORAGE BT™ compliant with latest test runs. AVL LYNX 2™ is based on ease of use and facilitates the recording of reproducible measurement data across the entire development process. AVL LYNX 2™ also provides the possibility to integrate any subsystems like BMS, climatic chamber, conditioning units, I/O systems as well as additional AVL products such as AVL SANTORIN HOST™, AVL CONCERTO 4™ or AVL InMotion 4™.

Technical Benefits

- Enhanced dynamic behavior enabled by the AVL patented Model Predictive Control (MPC) algorithm, high frequency control loop and high frequency IGBTs
- Highly reproducible dynamic charge and discharge load profile with synchronous recording of system-relevant variables
- Integrated WEB-GUI interface for remote system parametrization and smart service capability

The Added Value

- Outstanding measurement and control accuracy combined with maximum dynamic performance to expose the device under test to real operating conditions
- Increased battery operating range by minimalizing the uncertainty of test results
- Unique minimal footprint reduces required floor space by up to 25 % and supports an efficient integration into testbeds

Specification	
Power Rating	160, 250 kW
AC Input Voltage	3 x 380 … 480 VAC
AC Input Frequency	47 … 63 Hz
DC Output Voltage	8 … 800 V
DC Output Current	- 600 A … + 600 A
Current Rise Time (+ 10 % ... + 90 %)	< 0.4 ms*
Interface	1 kHz CAN Bus (others on request)
Measurement Accuracy	
Voltage	± 0.1 % FS** ± 0.01 % FS**, optional
Current	± 0.1 % FS** ± 0.01 % FS**, optional
Ambient Conditions	
Operating Temperature	5 … 40 °C
Installation Altitude	0 … 1,000 m ASL
Maximum Relative Air Humidity (Non-Condensing)	85 %
Protection Class	IP43
Dimensions and Weight	
Dimensions	2,007 x 610 x 2,478 (incl. 200 mm plinth)
Weight	< 1,770 kg
Conformity (CE)	
General Requirements	IEC / EN 61439-1 IEC / EN 60146-1
EMC Emission	EN 55011, A1 > 20 kVA
EMC Immunity	EN 61000-6-2
Electrical Equipment of Machines, Part 1: General Requirements	EN 60204-1
Safety Related Parts of the Control System	EN ISO 13849-1

* At nominal conditions of 400 VDC. Not valid in parallel operation.
** FS = full scale

FOR FURTHER INFORMATION PLEASE CONTACT:

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