High-Voltage Test Bench

Alma Automotive Test Benches are addressed to all Verify and Validation engineers, with the need of a tailor-made architecture with the capability to stimulate and emulate the full-functionality of complex architectures, building-up automated test to minimize errors and validation time.
We have more than 10 years of experience in design specific apparatus for testing of automotive ECU and power controllers for Electric Vehicles (EV), e-Mobility, and power converters.
The typical hardware solution is based on an NI Real Time platform (such as RT PC, PXI, cRIO) with the addition of other I/O modules from National Instruments, third party manufacturers and Alma Automotive's custom electronics.

Application Challenges

- Integrated system for testing high voltage (800V) DC equipment with regenerative capability
- Integrated safety systems with DUT cooling system
- Integration capability with OEM climatic chamber maintaining the safety systems active

The NI + Alma Automotive Solution

- A Real-time environment, to run the simulation models using NI Veristand platform installed on custom-spec PC
- A complete set of physical I/O, to interface properly with the DUT by using NI I/O Multiplatform (such as C-series, PXI, SLSC, etc)
- Fault Insertion Capabilities, needed to inquire the diagnosis responses using Custom FIUs

Test Bench for High Voltage Advantage

- Modularity: Signal Conditioning Chassis, Breakout Boxes, FIU blocks and Load Racks
- Cooling system capability: adjustable coolant flow and coolant temperature with multi-point temperature monitoring system
- Safety: HV bus insulation monitoring systems, DUT overvoltage / overcurrent thresholds, temperature monitoring systems with alarms, area intrusion detection systems, test bench emergency safety systems

"Alma Automotive experience can help you to test, design, verify and validate (V&V) industrial and automotive devices. Alma Automotive will select the building blocks to fit exactly your application."

- Enrico Mosconi
Business Development Manager, Alma Automotive

Key Specifications

Electrical Characteristic	
Battery Voltage	800 V (920 V MAX)
Total Electric Power	3000 W
48V Electric Power	2100 W
12V Electric Power	1000 W
Slew-rate	250V/ms
Hydraulic characteristics	
Cooling Fluid Flow	100 l/h (200l/h MAX)
Cooling Fluid Ratio	<10% (water-glycol)
DUT pressure loss	0.3 bar
DUT in pressure	3 bar MAX

For more information on the solution, click the contact partner link below.

CONTACT PARTNER