



AVL



Integrated AVL Fuel Cell System Testbed

Minimize integration effort. Maximize testing capabilities.

THE CHALLENGE

Many industries are facing with the challenge of cutting down emissions, as global legislation in getting more stringent by the day. Besides that, there is an unprecedented momentum around the world in hydrogen and fuel cell technology. Tackling this challenge requires a cutting-edge test environment for the continuous optimization of Fuel Cell Systems (FCS). A lean FCS testbed with strong interplay of virtual and real hardware is essential to shorten development time while reaching the development targets and mitigating investment risk.

THE AVL SOLUTION

AVL designed the integrated FCS TS™ to provide highly efficient and accurate testing while minimizing integration efforts. Reusing our reliable and proven modules and transferring our R&D expertise and maturity into a compact solution was crucial. This solution is also suited to maximize future proven testing capabilities. Most of the relevant FCS TS™ modules have been integrated into one frame; the Combined Conditioning Supply and Measurement (CCSM) Unit.

This includes:

- ConsysCool™, Coolant conditioning modules
- HyTron™, Hydrogen supply module
- F-FEM™ and FEM4™, I/O modules



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APPLICATION

Our integrated solution can range from light duty (nominal FCS power from 30 kW up to 160 kW) to heavy duty (nominal FCS power up to 400 kW) applications. It fulfils all required control and measurement accuracies. The integrated solution supports a full range of testing needs including:

- Fuel consumption (e.g., EU2017/1151)
- Emission (e.g., SAE J2578)
- Performance (e.g., GB/T24554-2019)
- Fuel Cell Control Unit calibration
- Benchmarking

THE ADDED VALUE

- Designed to cover tests ranging from research to series development and validation
- Many interfaces moved within the CCSM unit minimizing the remaining integration and allowing self installation by the customer
- The compact design of the testbed enables easier relocation, if needed
- Future-proven solution thanks to high degree of upgradability, for a seamless adaption to evolving R&D demands
- Operates on AVL PUMA 2™ Fuel Cell, a robust and proven high-end real-time automation system
- Full interface to the powerful AVL software toolchain (e.g. AVL CONCERTO™, AVL CAMEO™)



Combined Conditioning Supply and Measurement Unit (CCSM)

FIND OUT MORE

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