

Alkaline Electrolyzer Test Bench

Stand-alone testing solution



The test bench is designed for small alkaline electrolyzers up to 9 kW, mainly for R&D, laboratory work and long-duration tests. It runs on 30 wt% KOH electrolyte in symmetric mode, with electrolyte recirculation and operating pressure up to 30 barg. Gas flow, cross-leak and the differential pressure between anode and cathode are measured and controlled.

THE SYSTEM

The test bench is designed for R&D and laboratory use, including long-duration tests on small alkaline electrolyzers up to 9 kW.

It runs on 30 wt% KOH electrolyte in symmetric mode, with electrolyte recirculation from 1 to 10 l/min and pressure up to 30 barg.

- > Designed for long-duration tests
- > Symmetric mode, 30 wt% KOH



1. Cross-Leak Analysis

MAIN FEATURES

The system performs a wide range of tests on small alkaline electrolyzers, both on single cells and on the full stack.

- > Stack leak test
- > Constant current / constant voltage
- > Polarization curves
- > EIS on single cells and full stack
- > Product gas flow measurement
- > Cross-leak measurement

TECHNICAL SPECIFICATIONS

- > Electrolyte flow 0 – 10 l/min
- > Operating pressure 0 – 30 barg
- > Adjustable anode/cathode ΔP
- > Temperature from ambient to 70 °C
- > KOH concentration 0 – 32 wt%
- > Voltage 0 – 60 V
- > Current 0 – 338 A
- > Gas flow O₂ 0 – 11, H₂ 0 – 22 NL/min
- > Cross-leak up to LEL, safety at 50% LEL



2. Test Bench

THE SOFTWARE

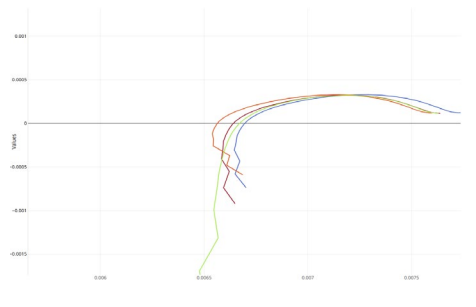
The software runs on Loccioni's Aulos platform and is split into two subsystems. Aulos Automation is a desktop monitoring application with the HMI for controlling the hardware and running routines. Aulos Supervisor is a server accessed through a web browser, where users build test plans by dragging and dropping instructions, access the data generated by the system, and compare tests by overlaying their results.



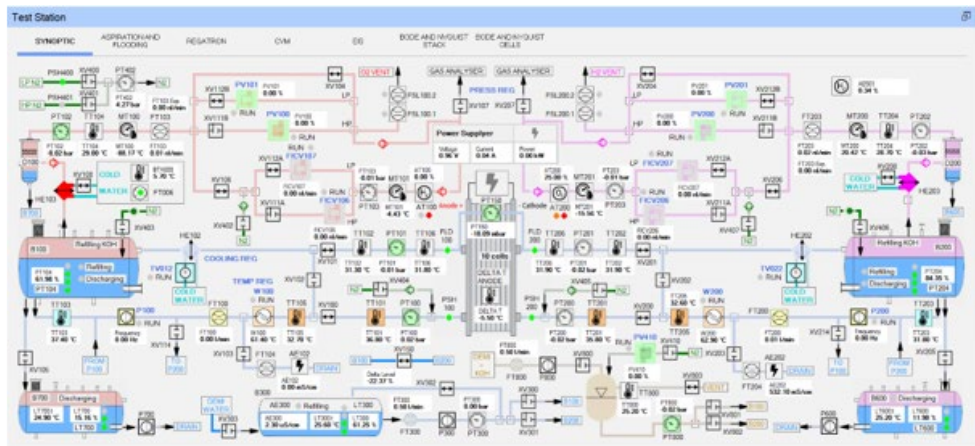
3. Automation panel

Application features:

- > User Access Configuration
- > Hardware Monitoring and Calibration
- > Manual Debugging
- > Dashboard
- > Program Editor
- > Program Execution
- > Automatic Cycling
- > Result Analysis
- > Health Analysis
- > Data Maintenance Tool



4. EIS analysis



5. Synoptic view

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