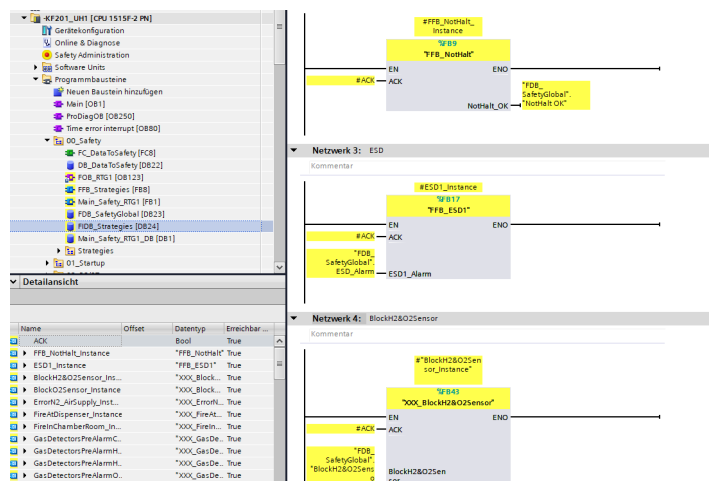


Programming Services for Hydrogen Applications

With over 15 years of experience in planning and delivery of test benches and pilot plants, PROREC is a guarantee for quality when delivering custom R&D and End of Line Systems for hydrogen applications. Development of fully and partially automated process control systems is carried out in close collaboration with our customers and end users in order to deliver optimised hardware & software solutions.

We offer following services:

- _ PLC based automation concepts, including advanced sequence control for simple and complex test benches and R&D rigs
- _ Sequence development for complex tasks and control strategies by combining our Process Engineering and Automation skills, e.g. complete gaseous hydrogen fueling according to SAE J-2601 & automated operation of electrolyzers and fuel cells
- _ Integration of Process Analysers with the Process Control System, via AK-Protocol & CAN-Bus
- _ Implementation of mathematical models and process engineering calculations in PLC code
- _ PLC & Safety PLC Programming of test benches including HMI interface (Siemens TIA Portal, WinCC Flex, others on request)
- _ Bespoke Turn-Key Systems and test benches, with flexible Process Control solutions, which can be modified by the customer to meet future requirements
- _ Simulation, Testing & Commissioning both onsite & remote, including emulation of the system during development using a digital twin (Siemens SIMIT)



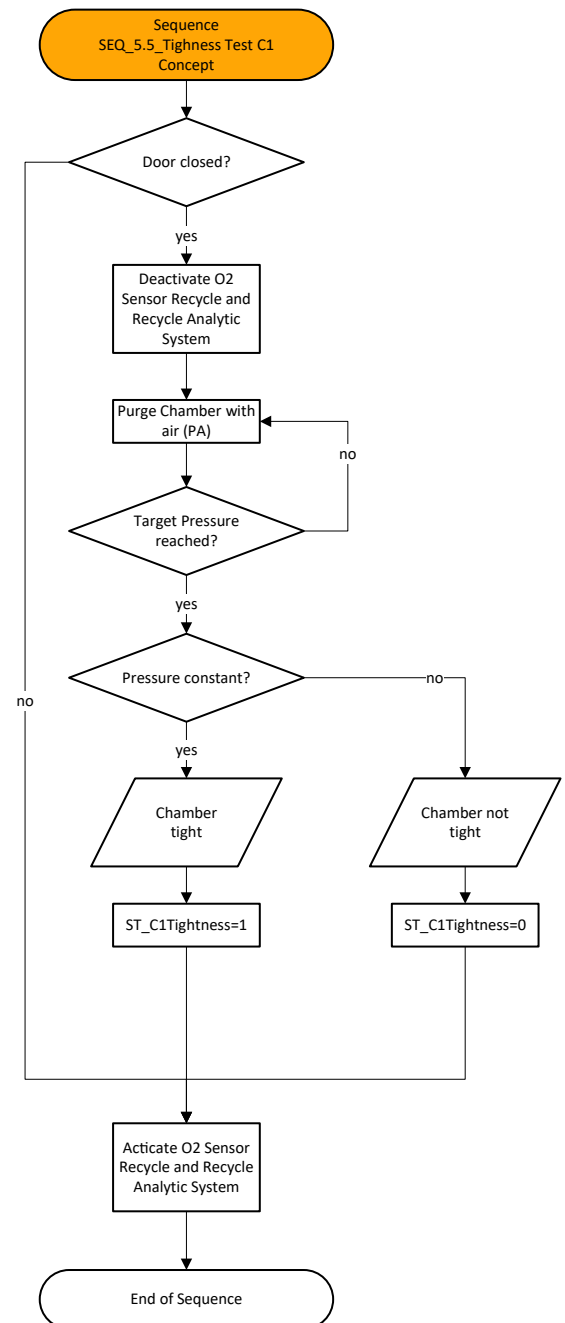
Recent Hydrogen projects include:

- _ Process Control System concept for a developmental light duty hydrogen gaseous fueling station
- _ Sequence control development & programming for a fully automated hydrogen test bench for Automated pressure cycling and permeation testing of Type IV tanks (R134, EC79/406-2010)
- _ Development and PLC programming of a flexible fueling control module (SAEJ-2601 cascaded filling, mass flow controlled, compressor controlled)
- _ Automation of a multistage medium and high pressure storage & hydrogen recycle system with intelligent integration of several compressors
- _ Programming & integration of a readout module for IR communication between a fueling station and light/heavy duty vehicles

As a trusted partner with extensive Process Engineering knowledge and years of practical experience we add value to our customers' projects by

- _ time and cost savings through external expertise and consulting
- _ a "right first time" approach to quality based on our extensive experience in high pressure hydrogen, pilot plant and E&I fields
- _ delivering projects on time, and supporting our customers throughout the project & over the equipment lifecycle
- _ custom solutions with robust and precise designs

We look forward to working with you.



Contact us
for additional
information

PROREC

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