

D7.2 Technical I/O interface documentation

by HORIBA



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About DELYCIOUS

As Europe accelerates its transition to clean energy, the Net Zero Industry Act identifies low-carbon hydrogen production as a strategic priority. DELYCIOUS tackles key challenges in water electrolysis technology, focusing on extending electrolyser lifespans and reducing operational costs under variable renewable energy sources. In DELYCIOUS, the development of cost-efficient, innovative, open, universal, and safe diagnostic tools to investigate the chemical and electrochemical properties of electrolysis systems is foreseen. This project combines Raman Spectroscopy (Raman) and Electrochemical Impedance Spectroscopy (EIS), to explore the chemical and electrochemical properties of electrolysis systems. By using both physical and data-driven modeling, it will be possible to identify important degradation parameters. To ensure that the diagnostic tools work effectively in various temperature ranges and across various electrolysis technologies, three technologies namely Alkaline Electrolysis (AEL), Proton Exchange Membrane Electrolysis (PEMEL), and Solid Oxide Electrolysis (SOEL) are addressed in this project, with a demonstration on alkaline electrolysers beyond 100 KW.

Consortium



Coordinator



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etaflorenc 

 stargate
hydrogen



Publishable Summary

Based on the requirements of the Electrolyzer Management System (EMS) application for ease of integration, compatibility, bandwidth and latency, the hardware and software interfaces for the EMS system have been defined.

Data will be transferred to the EMS system using shared network file storage. The data format for the transferred JSON files has been specified and will be implemented by the HORIBA TestWork® Supervisory Control and Data Acquisition (SCADA) system used for DELYCIOUS.

Files generated during DELYCIOUS will consist of:

- Process data snapshots at regular intervals or when requested by the test run script
- Averaged process data snapshots on completion of a Raman spectrum
- Averaged process data and gas composition snapshots on completion of an EIS measurement

The suggested implementation will facilitate easy access to the EMS data interface supporting interested researchers and companies in evaluating the final EMS system developed during DELYCIOUS.