

CASE STUDY

ETH Zurich can develop green hydrogen applications at industrially relevant conditions and scales using Kolibrík's high-current Potentiostat with EIS

ETH Zurich's Functional Material Laboratory needed a potentiostat capable of handling both low and high currents to support research on hydrogen production and utilization beyond typical lab-scale research. Kolibrík's high-current Potentiostat with EIS, PTC-05100EW, capable of currents up to 100 A, allowed them to develop and test electrochemical cells with large areas to improve materials and cell designs using a single device.

ETH Zurich's Functional Material Laboratory is developing new electrode materials and surfaces for water electrolysis to enhance electrolyzer efficiency and cut costs, thereby decreasing the overall price of green hydrogen. Simultaneously, new cell designs are being developed and tested at the kilowatt scale. For this purpose, they require a potentiostat that offers a wide range of measurement conditions and electrochemical methods to perform tests under industrially relevant conditions.



"We can cover all our needs with a single potentiostat. Unlike competitor products, our Kolibrík Potentiostat does not require additional current boosters or EIS cards, which add extra costs. The Kolibrík PTC-05100EW provides everything in one device at a better price. We were able to perform precise measurements such as LSV, CV, and EIS, while maintaining full flexibility to program the software to our needs. To further enhance the functionality, we successfully collaborated with Kolibrík's support and development team." comments Shimon Schweinfurth, Doctoral student at the Functional Material Laboratory, ETH Zürich.

Potentiostat/Galvanostat enable conducting electrochemical tests in a controlled environment. The single-channel PTC-05100EW potentiostat can handle currents up to 100 A and voltages of $\pm 5V$, and it can perform EIS analysis. It comes with two independent sensing probes and is designed to offer great flexibility in experimental setup and measurement method. The potentiostat makes it easy to assess the performance of new materials and to monitor the stability or health of an electrochemical system.



The Functional Materials Laboratory is located at ETH Zurich's Institute for Chemical and Bioengineering. Our research combines materials with specific functions for medical or industrial use. We are developing methods to improve treatment concepts, laboratory processes and materials for environmental applications.

About Kolibrík

Kolibrík provides high-power multichannel EIS analyzers with up to 1000 simultaneous channels, high-current potentiostats up to ± 100 A, and cell voltage monitoring for hydrogen fuel cell, electrolyzer, and battery testing. Our systems combine high power, high current, true parallel measurement, and high-frequency EIS. This modular platform can be configured to meet any lab's requirements, delivering in-depth analysis quickly, time-efficiently, and reliably.

www.kolibrík.net