



Hydrogen

Stack Condition Monitoring

Condition monitoring for electrolysis and fuel cell stacks

Bipolar plates are the heart of electrolyzers used to produce hydrogen. Depending on the manufacturing process, stacks can consist of hundreds of such bipolar plates, whereby a single defective plate can negatively impact the performance of the entire stack. Because of this, it makes sense to monitor the voltage of each plate separately.

1

Stack Connectivity – Cell Voltage Pickup (CVP)

In addition to single connections, multiport connections are also possible. The contacts are applied to the printed circuit boards in such a way that several boards can be contacted in a single plug-in operation. The temperature-related expansion and the manufacturing tolerances of the stack must be taken into account. Compared to individual contacting, the interface solution offers considerable time savings and error reduction in stack production.

2

Data Acquisition

Data acquisition is handled by the Weidmüller u-remote station with Ex approval for Zone 2. The data is passed to a gateway or a router. For connection to the control system, we provides variants for all common fieldbus protocols like PROFINET, Modbus TCP and of course Ethernet.

3

IloT Data Communication

In addition to the LAN connection, a connection via IoT-boxes to the customer's cloud or the Weidmüller cloud is also possible. This also makes it possible to monitor the depositing of stationary equipment externally. In addition to the system operator, the stack manufacturer can also access the system remotely for diagnostics, service and support. This is used for preventive maintenance and to maximise the system's operating time.

4

Data Visualisation and Analysis

With our visualisation hardware and software solutions, we enable real-time data acquisition from stacks, empowering manufacturers and operators to monitor crucial parameters and identify potential failures like cell degradation, gas crossover, leaks, sealing issues, and stack contamination. Our integrated approach ensures seamless data flow from the stack to ProconWeb, where it can be fed into our on-premise or cloud-based Automated Machine Learning (AML) tool.

More information on our website:
www.weidmueller.com/stack-monitoring



NEW



Cell Voltage Measurement Box

Cell voltage measurement for stacks: electrolyser, fuel cells & BESS

The Cell Voltage Measurement Box (CVM) enables the differential voltage measurement of individual cells for electrolysis stacks, fuel and battery cells for data collection and analysis in hydrogen systems.

It is compatible with manufacturer and fulfils all customer requirements in the hydrogen industry, including the necessary certifications. What makes it special: The box is plug-and-play ready, modular and ideally suited for industrialisation and a rapid ramp-up of the H2 industry.

More information on our website:
www.weidmueller.com/cvm-box



Activate the power of new energies with us. Take the opportunity to talk to us about your individual project.

We look forward to a dialogue with you!



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