

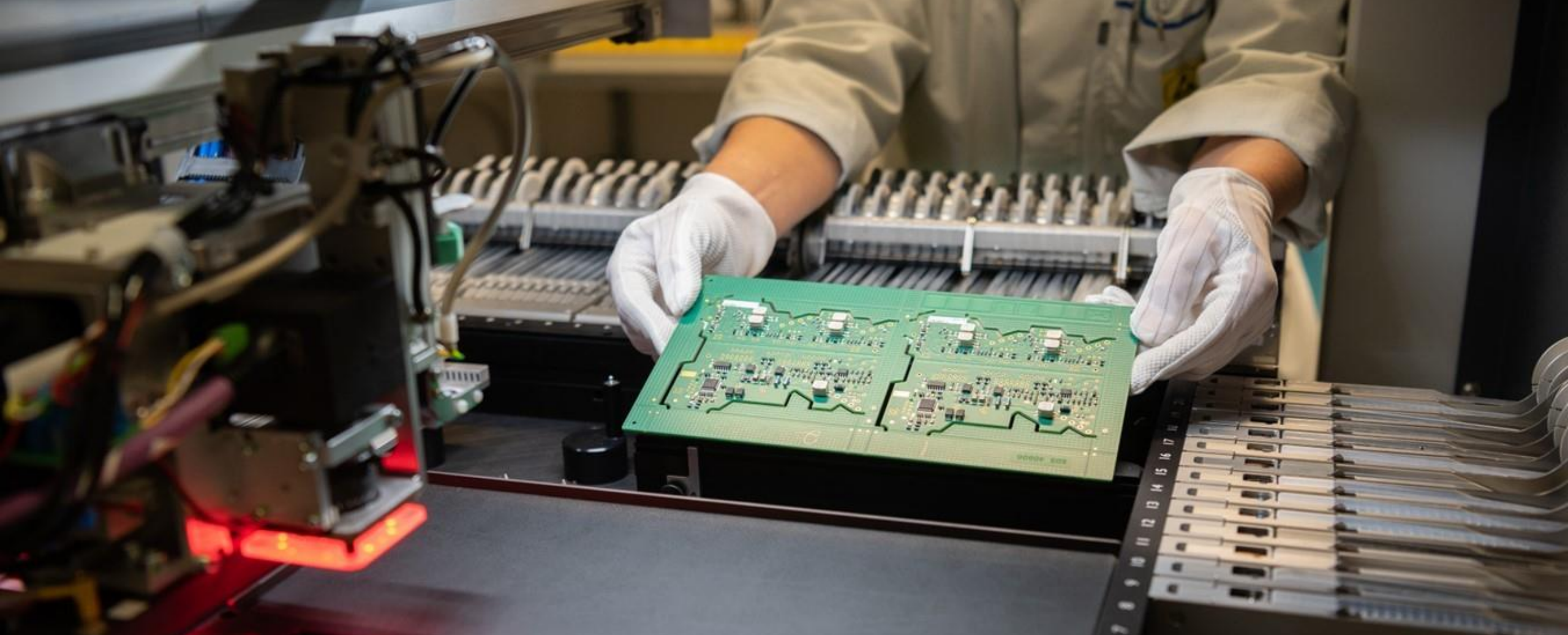


# Electrolyser Transparency & Functional Safety

11.06.2025 – Philip Becker, Müttec Instruments GmbH

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Your safe choice





Mütec at a glance

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Manufacturer of safety-relevant automation components for the hydrogen industry

~6 mio €  
sales

~40  
people

Located in Hamburg, northern Germany

Development, SMD production, Support

~36  
partners  
globally

10+ years  
hydrogen  
experience



# Covering Spain with strong local Partnership

Iberfluid is the mütec partner in Spain

Process Sensors (Flow, Gas, ...)

Hydrogen Valves

Process Automation



## Safety

*„Protects people, equipment and the environment from hazardous conditions“*



### SIL-Certification

Failsafe designs, high reliability for crucial process safety functions



### Alerts & Warnings

Implement warnings or safety events (analog and digital interface to PLC)



### Measurement Electronics

Voltage & Current Monitoring  
(Rectifier current, stack voltage, GND faults, Balance voltage,..)

## Transparency

*„Make central process data easily available to operators to increase the process efficiency“*



### Data recording

Continuous read-out and storage of voltage and current values



### Data communication

Forward measurement values and events for data analysis / visualisation





Focus Innovation: „HydraSafe“

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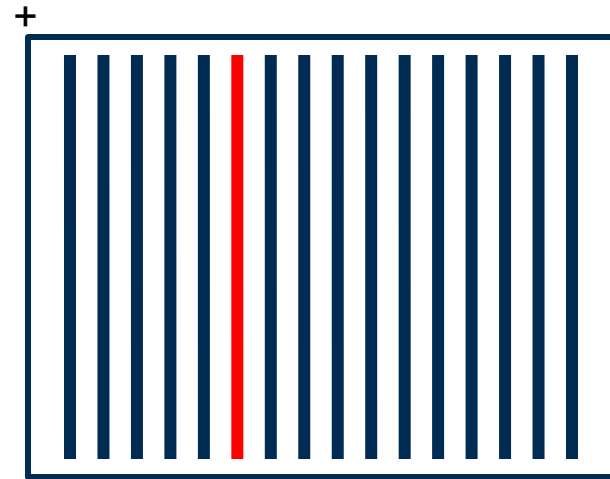


PLC

4-20mA



Total Stack voltage



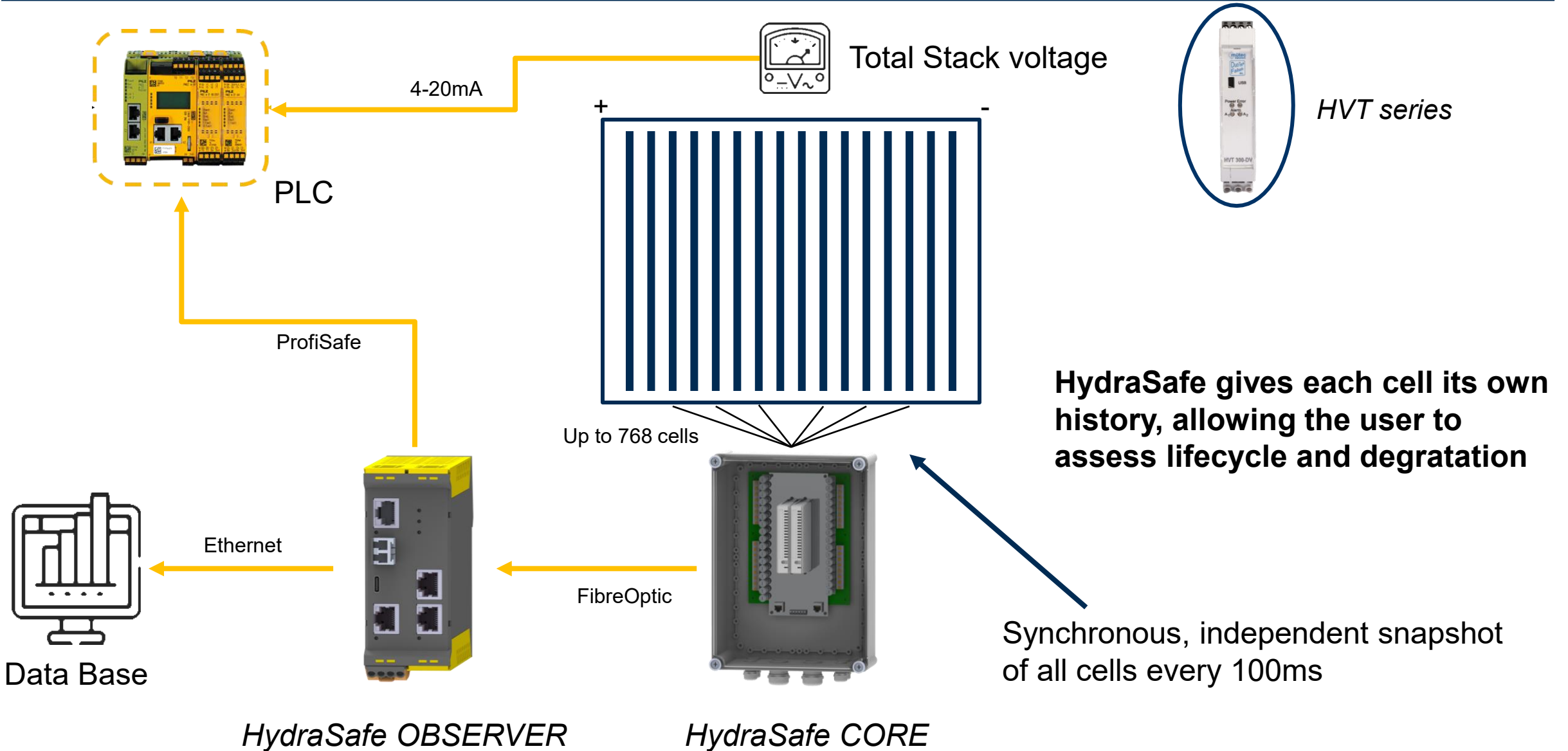
*HVT series*

Often: Stack control based on total stack voltage measurement

**Problem: No Information about degradation in individual cells / membranes**

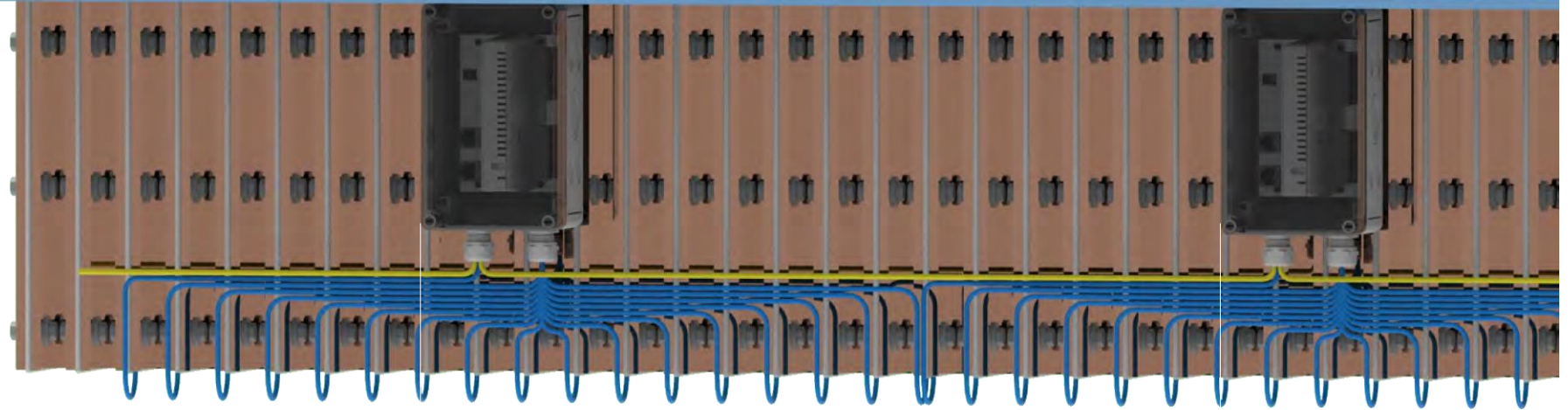
One bad cell affects the whole stack!

# Focus Innovation: „HydraSafe“ – Safety-Rated Condition Monitoring



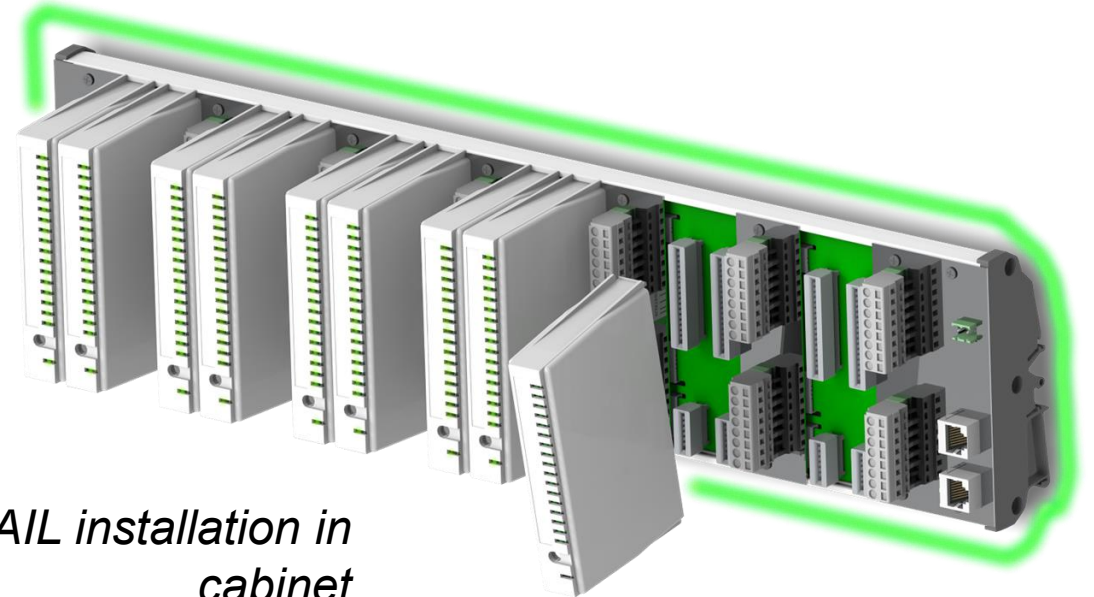


*BOXED installation  
close to stack*

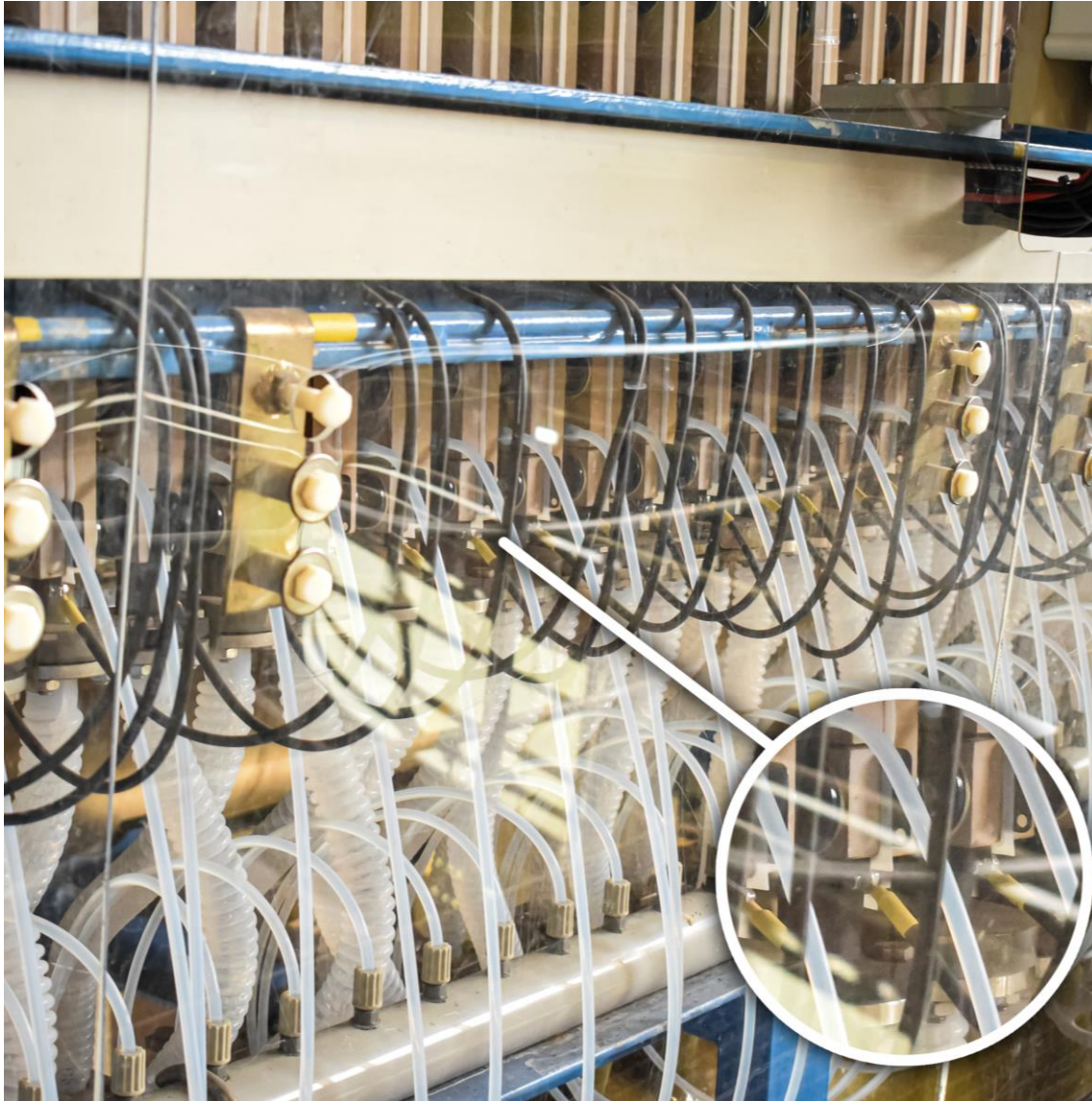


**The HydraSafe system works for any way of connection, wiring or process topology – with minimal commissioning effort**

*RAIL installation in cabinet*









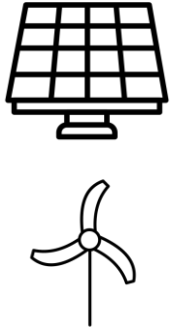


## Overview of supplied safety functions

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# Overview of supplied safety functions for the hydrogen industry

Energy Source



Transformer



AC phase voltage

Rectifier



Rectifier Current

Electrolyser



Stack Voltage

Cell Voltage

Leakage current

Hydrogen



Gas Detection

Temperature

See IEC 61511-3 for guidance regarding required safety integrity levels



HVT 400-DX



HVT 300-DV



HVT 300-DX/DP



MSK 200  
MTP 300





Thank you!

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