



Tektronix® +



Elektro-Automatik



Next level testing for green energy

Power electronics for electrolysis systems
and fuel cells



Electrolyzer stack testing

Precise testing of degradation behavior and efficiency

The degradation behavior and efficiency of electrolyser stacks are increasingly coming into focus as an innovative energy source. With EA's power electronics, these properties of the electrolyser stacks can be optimally tested with high accuracy of determined values through fully controllable devices. You benefit from maximum flexibility and accuracy when setting the parameters!

EA-Highlight: DC ripple in the integrated function generator

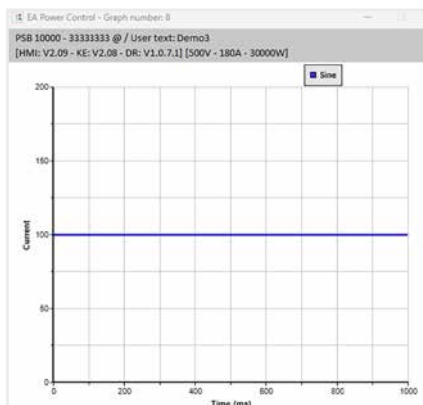
Investigate the effects of DC current ripple on your electrolyser stacks. Your EA-exclusive advantage: The superposition of a direct current with an alternating current can be set using the function generator. This gives you valuable information regarding the performance of the stack with different power supply properties.

Test degradation behavior and efficiency

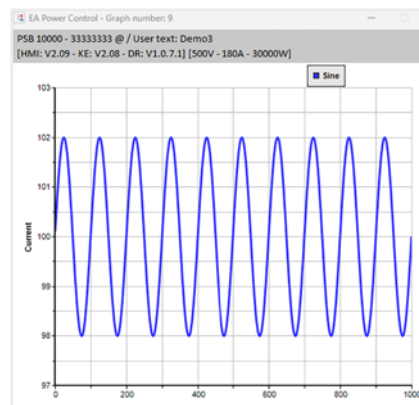
- ✓ Fully controllable and adjustable EA power electronics (0V - nominal voltage, 0A - nominal current, 0W - nominal power)
- ✓ Precise regulation of the required voltage, current and power values
- ✓ Function generator: investigation of the effects of DC current ripple on electrolyser stacks

Conclusion:

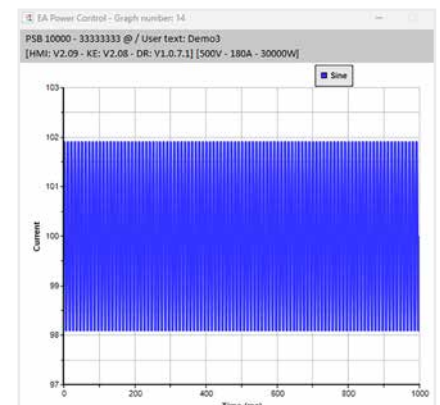
Wear, efficiency caused by a DC current ripple can be tested precisely and flexibly.



Ideal DC current



AC Amplitude adjustable



Frequency adjustable



Electrolysis

Market ramp-up with up to 3.84 MW

The demand for electrolysis plants is growing rapidly and putting pressure on manufacturers to produce electrolysis stacks. The new **EA-10000 Industrial Series** is helping the industry accelerate the market ramp-up with electrolysis stack testing. Key benefits at a glance:

Powerful performance

- 6U Power with 60 kW, including 21 models
- 4U Power with 30 kW, including 29 models
- Large selection of 50 models for special applications

Powerful rack performance

- A 19" rack with 42U for a system with 300 kW
- Up to 64 devices with 60kW each as master aux parallel operation possible
- For high power applications up to 3.84 MW

Powerful efficiency

- Fewer units for a high-power system
- Less floor space required
- Less operating costs

Conclusion:

Highest power density for cost effective factory production testing.





Fuel cells

Further development with smart features

Fuel cells have long been challenged from an economic point of view because of their high production costs. Now, as an energy source, they can become a game changer for energy transition. The only prerequisite is that production and operation work efficiently. The expanded **EA-10000 Series** supports engineers in this task.

Selection

More than 180 devices: programmable DC power supplies, bidirectional DC power supplies and regenerative electronic loads. All devices are available in 2U, 3U and 4U height units.

Performance

600 W to 30 kW, output currents from 6 A to 1000 A and output voltage from 10 V to 2000 V.

Energy recovery

Efficient up to 96%, saves electricity and reduces costs, as heat generation is significantly reduced and no additional cooling is required.

Function generator

Generates complex signals as a function of a DC bias voltage and simulates properties of solar cells, batteries and fuel cells.

Autoranging

Autoranging allows the device to deliver higher voltage at lower currents and higher current at lower voltages at maximum power.



Conclusion:

Lots of power and smart features for testing and simulating fuel cells.



EA Rack System

Modular design for flexibility & efficiency

EA Elektro-Automatik rack systems are ideal to meet the challenges of developing and producing electrolysis stacks and fuel cells. The programmable power supplies, bidirectional power supplies or regenerative loads of the EA-10000 and EA-10000 Industrial Series can be combined in a customized format to meet specific requirements. This results in a wide range of performance:

Powerful performance

- Modular rack systems with 42U, 38U, 24U and 15U
- Integrable devices in height units 3U, 4U and 6U
- Increased system performance due to parallel connection:
 - 300 kW in only one 42U rack with 5 devices of 60 kW/6U each
 - 3.84 MW with up to 64 devices in master-aux mode

All rack systems are configured customer-specific by EA Elektro-Automatik and arrive turnkey and ready to use. Users additionally benefit from the following advantages:

- Autoranging
- Energy recovery
- Optional water cooling
- Optional mains and system protection
- Optional insulation monitor
- Optional DC protection devices

Conclusion:

Performance in one convenient package. Thanks to modular design, EA rack systems can be configured to meet all necessary requirements.

Leading-edge power electronics made by EA

Wide application spectrum. Technological excellence.
Global customer reach.

The EA Elektro-Automatik Group is Europe's leading supplier in the area of power electronics for R & D and industrial applications. At the headquarters in Germany in the industrial center of North Rhine-Westphalia, 450 qualified associates, in a facility of 19000 m², research, develop and manufacture high-tech devices such as programmable power supplies, high-power supplies and electronic loads with and without mains feedback.

Development partner in forward looking sectors

With high performance criteria and a broad application spectrum, EA has established itself as the development partner in forward looking industries. Thus, EA equipment is being used in battery and fuel cell technology. It is used in wind and solar energy, electrochemicals, process technology, telecommunications, automobile industry and many more future orientated sectors.

Automated quality assurance

Results and experience from decades of R & D flow continually into new solutions. Automatic test systems with specially developed soft- and hardware assure consistently high product quality. Flexible production processes support fast reaction to changing customer requirements.

Global customer reach, value sharing

As a globally active company, EA maintains close contact with national and international customers and partners. The sales network includes branches in China, USA and Singapore, a sales office in Spain and an extensive service and partner network. EA continues to expand and, as a mid-size employer, takes full responsibility for development and production in Germany. Value based joint working is characterised by mutual respect and open communication.

Technological excellence is driving innovation of tomorrow

The foundation of the company in 1974 was based on innovation, a tradition which is maintained today. What started with the development of simple mains adaptors is continued today in the overall concept of technology leadership. With highly specialised power supply systems for a multitude of applications, EA is driving the future of power electronics – technologically excellent for high performance and designed for resource protection and energy saving.

