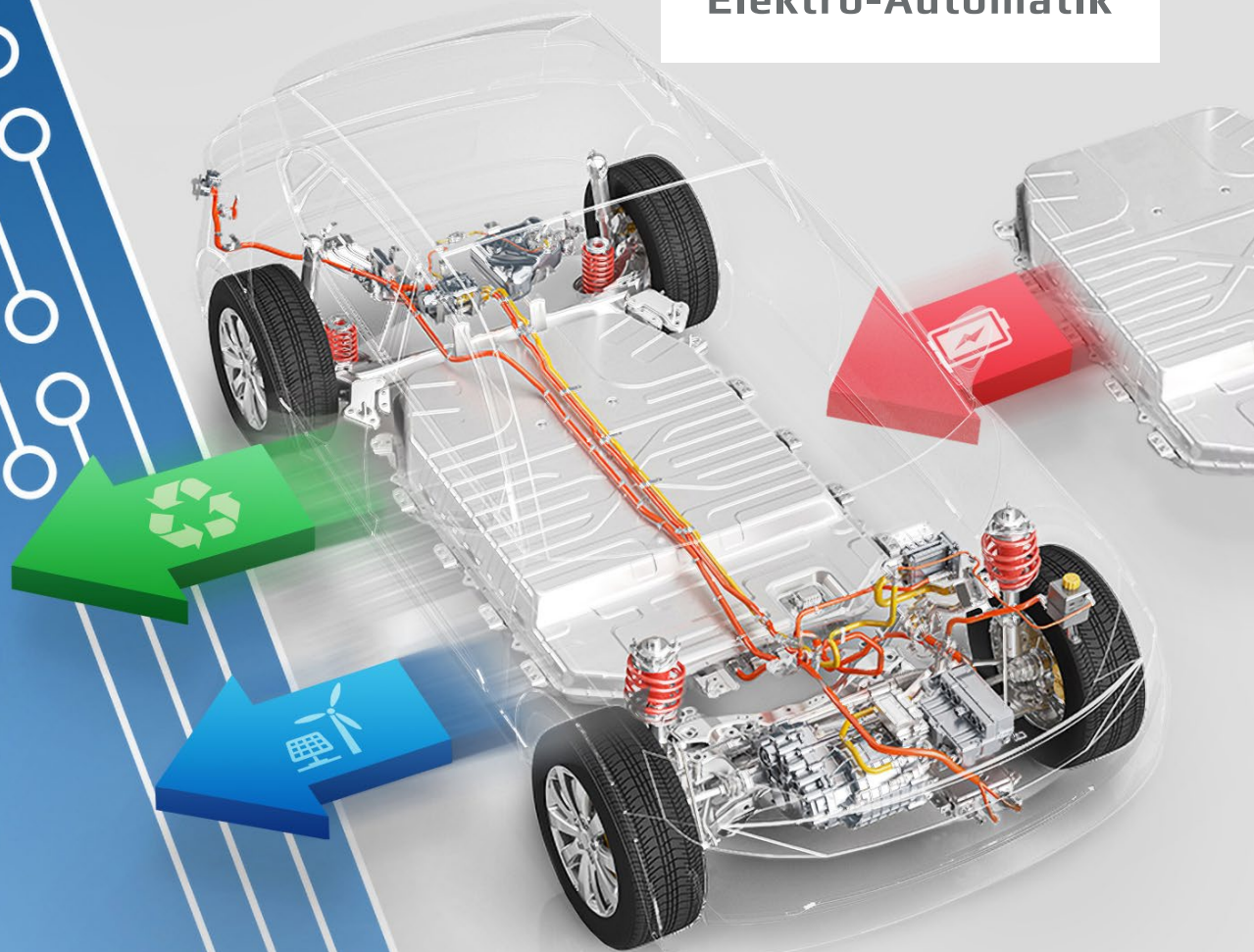




Elektro-Automatik



WE MAKE BATTERY RECYCLING EASY & EFFICIENT

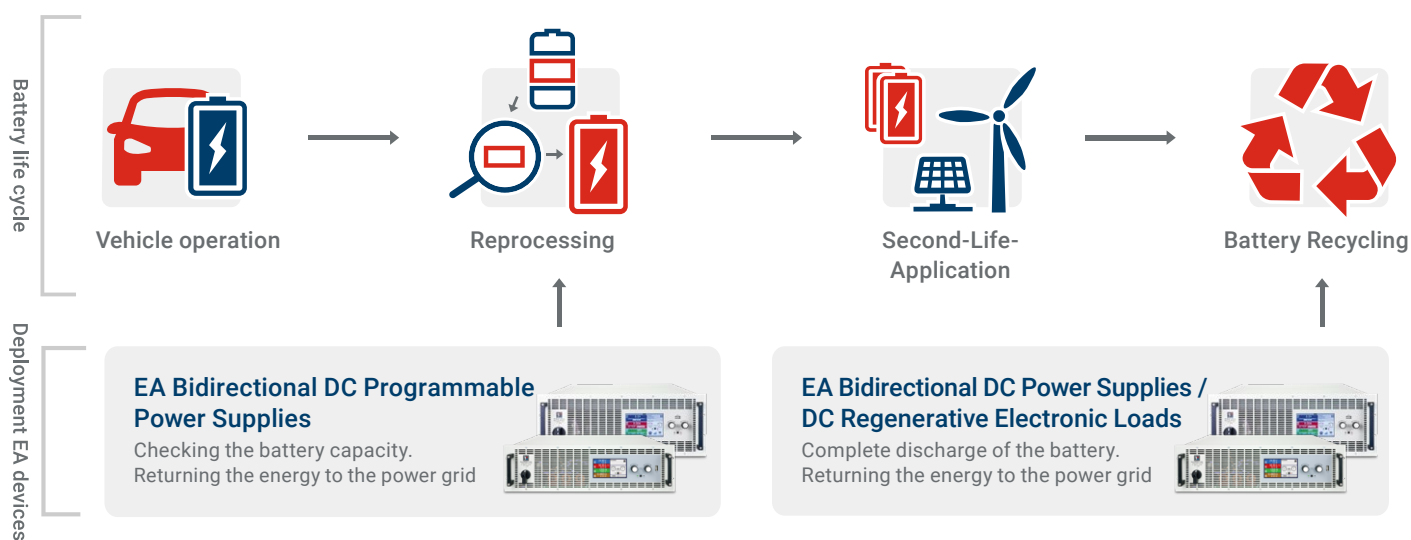
State-of-the-art capability with regenerative
electronic loads and bidirectional power supplies
from EA



Battery Recycling

SUSTAINABILITY IN ELECTROMOBILITY IS A MAJOR CHALLENGE

To make electromobility sustainable, second-life concepts and efficient recycling of lithium-ion batteries and lithium-ion polymer batteries will play a key role in the very near future. Completely new industries and companies are emerging to take on this task.



Optimize your battery recycling with EA

Regenerative loads and bidirectional programmable DC power supplies from EA Elektro-Automatik make your battery recycling:

- efficient
- flexible
- economical
- safe
- sustainable



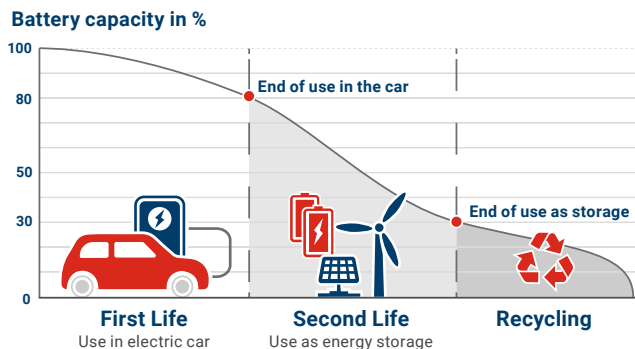
Second-Life use for batteries

Battery testing made easy with bidirectional programmable DC power supplies

Testing for Second-Life use

What is the residual capacity of the battery?

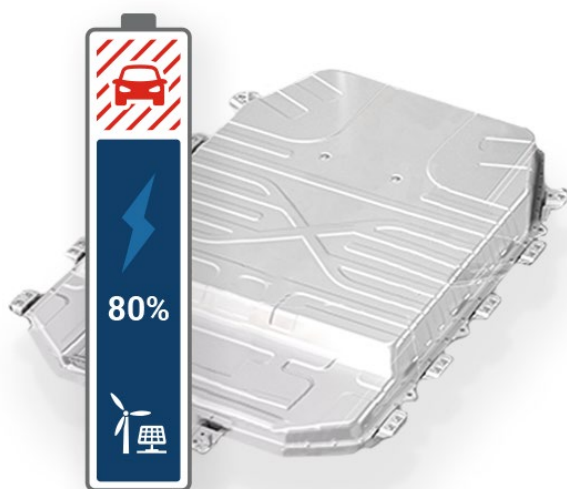
The potential uses of second-life batteries from electric vehicles are many and varied. The applications range from home storage, emergency power supplies and power buffers energy storage for solar power or wind energy.



Bidirectional programmable DC laboratory power supplies

For this application, it makes sense to use bidirectional laboratory power supplies for further investigation. With only one device, it is possible to test whether older batteries from electrically powered vehicles can still be used in other applications. If these applications are predominantly static and if the residual capacity is sufficient, these batteries will find their second-life use e.g. in stationary energy storage systems.

In this test, the battery is first fully charged with the bidirectional power supply and then discharged in a controlled manner with the same device. The capacity (SOC) and state of aging (SOH) are measured and the energy is fed back into the power grid with an efficiency of over 96%.



Bidirectional programmable DC power supplies

As a single unit or scalable cabinet system

Available Features

- TFT color display with touchscreen
- Bidirectional (Charge & Discharge)
- Autoranging for DC In- and Output
- Integrated Interfaces: Ethernet, USB, Analog
- Plug'n play interface-slot for: CAN, CANopen, Ethercat, Profibus, Profinet, Modbus, RS232
- Intuitive operation on full color HMI
- Battery & fuel cell simulation
- Integrated function generator
- Parallel switchable for systems with Master-Slave function
- EA Power Control user software
- EA-BS Battery Simulator software
- Air- and water-cooled variants



Technical Specifications

- 19" inch case 3U with up to 1500V and 15kW
- 19" inch case 4U with up to 2000V and 30kW
- Cabinet systems with up to 1.92MW

Your advantages when using bidirectional programmable DC power supplies from EA Elektro-Automatik

1 High efficiency and higher safety when testing the battery capacity

Bidirectional programmable DC power supplies from EA Elektro-Automatik ensure you the maximum possible charge and discharge of the batteries. With precise tests, detailed data about the remaining capacity is provided for the DUT.

2 Amortization by power regeneration

The bidirectional programmable DC power supply from EA Elektro-Automatik takes its energy from the connected battery during the discharge process and converts it into AC voltage with an efficiency of up to 96%. This is then fed back into the local power grid and reused, thus amortizing the purchase price by reducing electricity costs.

3 Economic efficiency due to time saving

The time saved during charging and discharging of the lithium-ion batteries using the high input powers of up to 15kW in 3U enclosures or 30kW in 4U enclosures increases cost-effectiveness. In addition, the devices can be combined to form high-performance switchgear cabinet systems with a total output of up to 1.92MW.

4 High flexibility in use

Versatile and flexible: Due to true autoranging capability of the device series from EA Elektro-Automatik, battery storage units with different system voltages can be charged and discharged with only one bidirectional programmable DC power supply. For example, full power is available with one device for both a 400V and 800V system.



Battery recycling

Precision battery discharge through programmable DC electronic loads with mains recovery

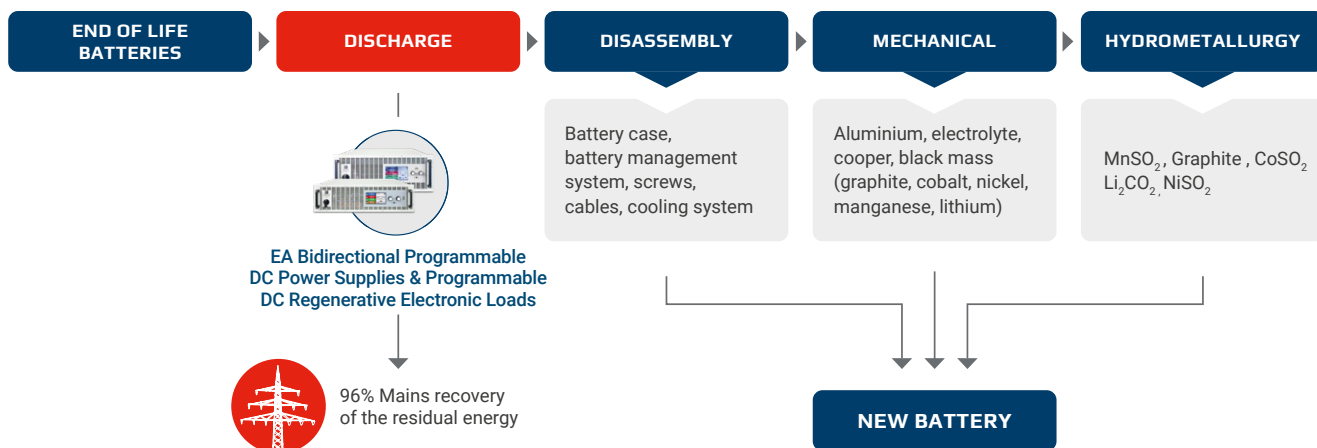
We get everything out of your batteries

Efficient, safe and sustainable

In order to make the recycling or reusability of lithium-ion batteries economical, all processes must run with maximum efficiency. Since lithium-ion batteries and lithium-ion polymer batteries should never be fully discharged during their service life, it can be assumed that most batteries end up for disposal with residual capacity. Before the batteries are subjected to the actual recycling process, they must be fully discharged.

Disadvantages of conventional battery discharging

- The batteries or accumulators are not completely discharged in the process
- Batteries that are not fully discharged are dangerous (high voltage, fire hazard)
- The residual energy is consumed needlessly, instead of being returned to the power circuit
- The discharging process takes longer and is inefficient



Electronic loads with mains regeneration

As a single rack or scalable cabinet system

Available Features

- TFT color display with touchscreen
- Autoranging for DC Input
- Integrated Interfaces: Ethernet, USB, Analog
- Plug'n play interface-slot for: CAN, CANopen, Ethercat, Profibus, Profinet, Modbus, RS232
- Intuitive operation on full color HMI
- Battery discharge function
- Integrated function generator
- Parallel switchable for systems with Master-Slave function
- EA Power Control user software
- Air- and water-cooled variants



Technical Specifications

- 19" inch case 3U with up to 1500V and 15kW
- 19" inch case 4U with up to 2000V and 30kW
- Cabinet systems with up to 1.92MW

Your advantages when using programmable DC regenerative electronic loads from EA Elektro-Automatik

1 High efficiency and higher safety during discharge

The complete discharge of battery storage means higher safety in the recycling process. EA Elektro-Automatik's electronic loads guarantee the complete discharge of batteries with a high discharge capacity.

2 Amortization by power regeneration

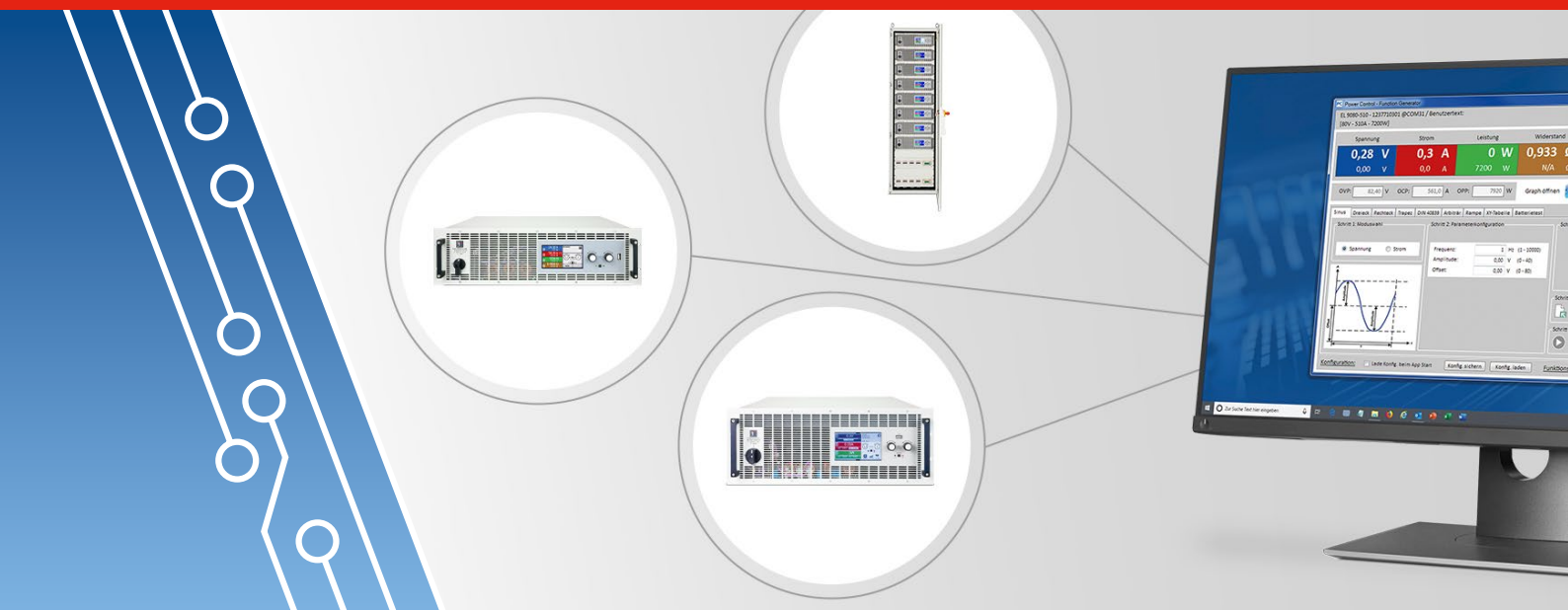
EA Elektro-Automatik's regenerative electronic loads take the complete charge from the connected battery and convert it into AC voltage with an efficiency of up to 96% voltage. This is then fed back into the local power grid and reused, thus amortizing the purchase price via reduction of electricity costs.

3 Economy due to time saving

The time saved in discharging the energy storage units using high input power of up to 15kW in 3U enclosures or 30kW in 4U enclosures increases the cost-effectiveness. In addition, the devices can be combined to form high-performance switchgear cabinet systems with a total output of up to 1.92MW.

4 High flexibility in use

Versatile and flexible: Due to true autoranging capability of the EA Elektro-Automatik device series, battery storage systems with different system voltages can be discharged with only one electronic load. For example, full power is available with one device for both a 400V and 800V system.



Everything under control

With the EA Power Control Software

Our efficiency continues with the control of our products. The EA Power Control operating software allows convenient and precise control of EA products via Windows PC.

This allows you to remotely control and monitor our DC power supplies and electronic loads from the comfort of your PC.

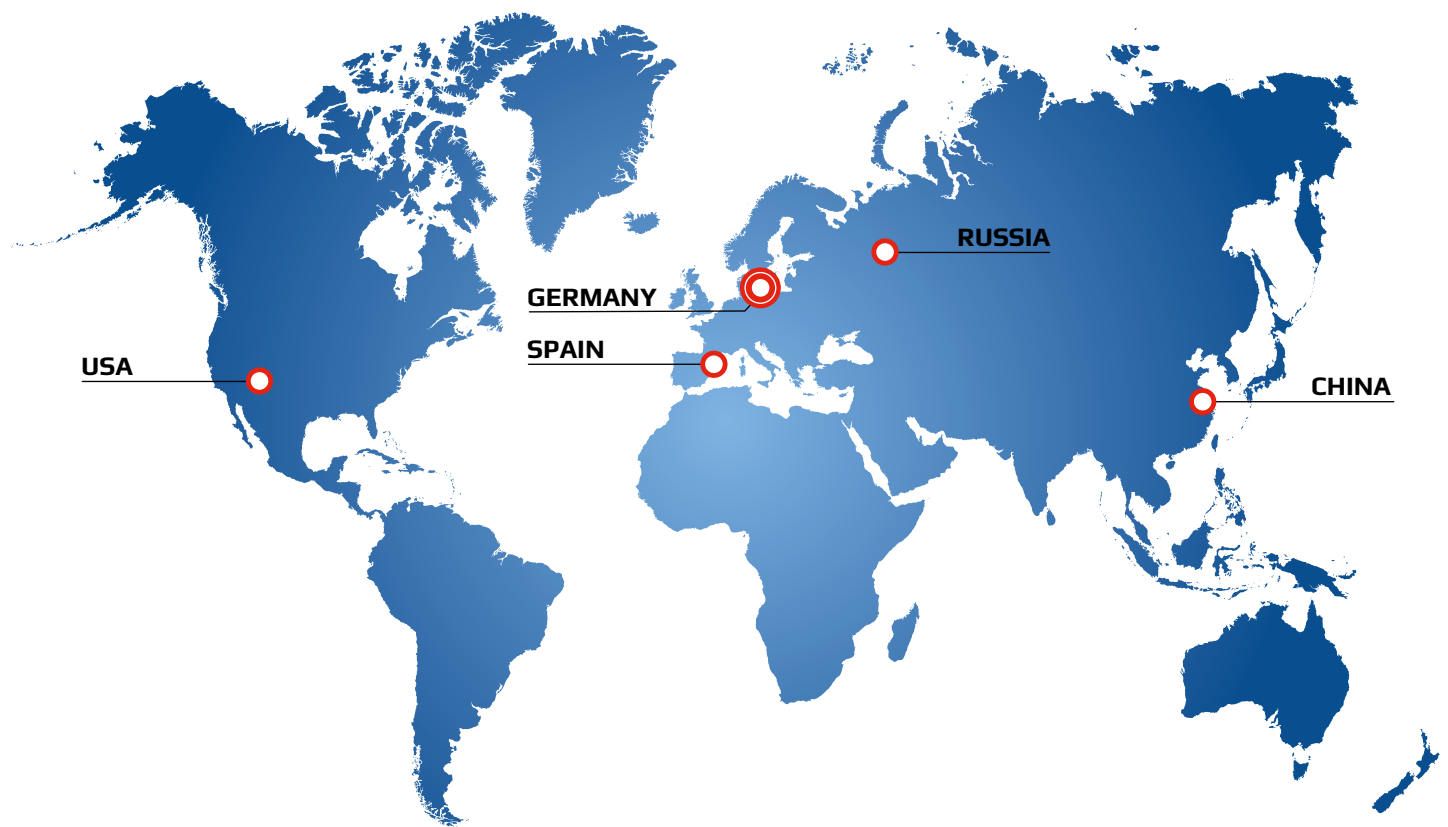
With the optional Multi Control you can manage the settings of up to 20 EA devices simultaneously.

[More info on our website](#)

Advantages

- Remote control of up to 20 devices
- Additional functions such as "Sequencing/Logging"
- Function generator
- Automated remote maintenance + updates
- Simulations of photovoltaic arrays and fuel cells





SERVICE FOR YOU WORLDWIDE.

At the headquarter in Germany in the industrial centre of North Rhine Westphalia more than 200 qualified associates, in a facility of 18000 m², research, develop and manufacture high-tech equipment for laboratory power supply, high power mains adaptors and electronic loads with or without power feedback. The sales network includes branches in China and USA, sales offices in Russia and Spain and an extensive partner network.