



ZAHNER[®]

SCIENTIFIC INSTRUMENTS

Battery Cycling Multiplexer



BC-Mux

Integrate EIS into your Battery Cycler

With the BC-Mux, you can implement Electrical Impedance Spectroscopy (EIS) into your high-power DC test system. The BC-Mux can address up to 16 channels to sequentially perform EIS measurements on the connected samples. Switchboxes which serve as port between the BC-Mux and the cycler are available as 16 A, 60 A or custom made options (see figure below). Communication to the third party cycler is established via MODBUS protocol to a host computer. Data acquisitions and processing are performed by the included superior software tools ThalesXT and Zahner Analysis. With the BC-Mux you combine high DC power with the accuracy of Zahner workstations.

APPLICATIONS



Batteries
& Super Caps

METHODS



Electrochemical
Impedance
Spectroscopy



Simulation

Specifications

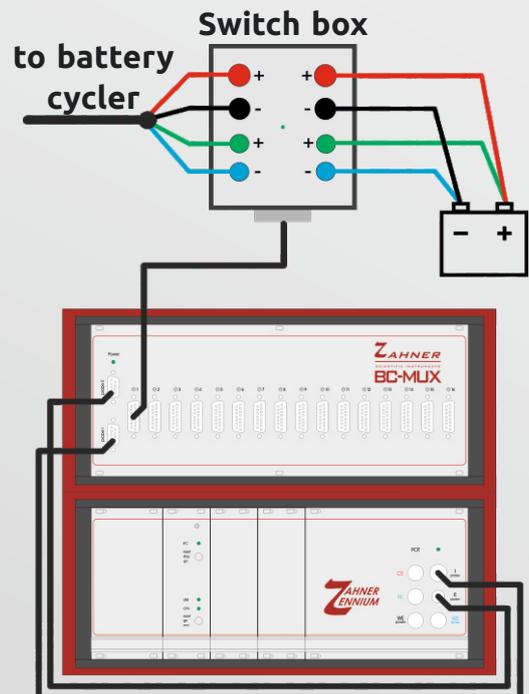
- Up to 16 channels
- EIS up to 100 kHz
- 16 A and 60 A switch boxes (up to 48 V)

Features

- Software based online drift correction
- Integration in battery/ supercap test setups via MODBUS protocol

Applications

- EIS characterization during test cycling
- Quality assurance
- State-of-health (SOH) determination
- State-of-charge (SOC) determination





High-End Electrochemical Workstations of the Zennium Series

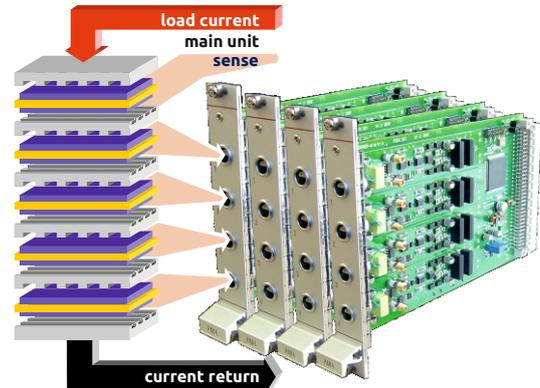
The high precision of the electrochemical workstations of the **Zennium** Series is based on more than **40 years** of experience. Our **dedication to science** created not only **highly advanced measurement equipment** but moreover a software package, which is a **unique tool** to support your work from the measurement to the evaluation of the results.

- **EIS up to 12 MHz**
- **Modular concept**
- **32 bit converter resolution for exceptional DC accuracy**
- **High dynamic precision (HDP) with 24 bit AC resolution**
- **Analog/Digital Functiongenerator (ADF) with sweep rates up to 10 kV/s**



True Parallel EIS on Stacks with the PAD4

The PAD 4 add-on card introduces **four additional channels**, where each channel measures cell voltage and impedance in parallel. With the Zennium X **up to 17 channels** can be measured **simultaneously** with a frequency range of **10 μ Hz – 250 kHz**. In combination with electronic loads, stack setups with up to **100 V/ 600 A/ 50 kW** can be investigated in great detail. The PAD4 add-on is often used to determine the contribution of **single cells to the overall impedance in a stack**.



Expand your Current und Potential range with the EL and PP Series

The modular concept of our Zennium Series allows you to perform experiments in a **uniquely broad measurement range**. The **Power Potentiostat (PP)** series expands the output voltage and current to high power applications. Plug-in cards can control up to 16 PP with a total power dissipation of each PP with **200 W**. Our **Electronic Loads (EL)** were designed to investigate systems with up to **1000 W** (max. 100 V and 200 A). Adding an external load, can raise the power range up to 50 kW..

