

# HCV-3048 current & voltage booster

The unmatched combination of power and speed

## Unique features

- Max current  $\pm 30$  A
- Voltage range 0-48 V
- EIS up to 500 kHz
- Stackable  $\pm 120$  A



Energy storage and conversion research presents new and challenging technical demands each and every day. Developments in **Batteries, Electrolyzer or Fuel Cells** require leading edge and laboratory proven diagnostic tools for meaningful real world test results.

The **HCV-3048** is designed for battery stack/pack characterizations. The continuous maximum current of  $\pm 30$  A for a single unit can be extended up to  $\pm 120$  A by connecting four units in parallel. The control voltage range is 0-48 V.

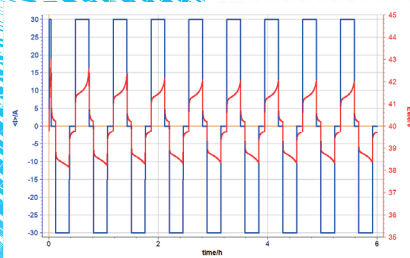
**Impedance spectroscopy (EIS)** provides valuable information on energy storage and conversion products, helping to identify the kinetic properties of multiple processes within the device under test. The **HCV-3048** brings unmatched insight to **high power** systems that has been unattainable until now.



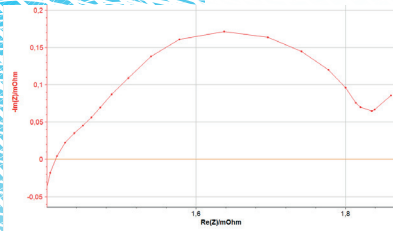
## APPLICATIONS

- Batteries
- Supercapacitors
- Fundamental electrochemistry
- Electroplating





±30 A cycling on battery stack



Galvano-EIS on battery cell with an amplitude of 70 A (3 units connected together)

## EC-Lab® software - The ultimate electrochemical interface

The **HCV-3048** is a **plug and play** module of the VMP-300 based instruments\*.

As such, the **HCV-3048** is extended all the benefits available in the EC-Lab® software including:

- Sequence builder for quick and easy assembly of complex experiments such as Urban Profiles
- Real time data display of advanced graphs such as Coulombic Efficiency vs cycle number
- Advanced data processing and analysis such as EIS equivalent circuit modeling with **Z Fit**

## Tuned for EIS high performance

EIS is now a common tool for battery testing and battery characterization. Internal resistance, electron transfer and ionic diffusion can be explored using this ever more common and informative technique..

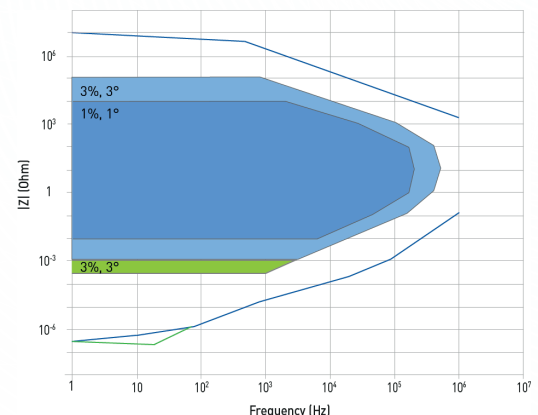
Thanks to its unique design, the **HCV-3048** offers unmatched EIS measurements. Its speed allows the user to investigate battery stack and other devices up to 500 kHz. (see EIS contour plot)

### SPECIFICATIONS

Voltage	
Ranges	0 - 48 V
Accuracy	0.03 % + 0.03 % (range + reading)
Current	
Max	±30 A per unit (±120 with 4 units in parallel)
Ranges	0.3 A / 3 A / 30 A
Accuracy	0.1 % + 0.3 % (range + reading)
Parallel	yes (up to 4 units)
General	
Rise/Fall	<3 µs (between 0 and 48 V)
Slew rate	>20 V/µs
Floating	yes (isolation resistance: 350 kΩ)
Input impedance	100 GΩ // 140 pF
Bandwidth	800 kHz
Mechanical & electrical	
Power consumption	2000 W, 200-264 V, 47-440 Hz
Dimension	400 x 430 x 135 mm (L x W x H)
Weight	26 kg

### EIS

Frequency range	500 kHz - 10 µHz
Max amplitude	12.5 V (potentio) 100% of current range (galvano)
Accuracy	See contour plot



EIS contour plot for channel board equipped with **one** or **four** HCV-3048 (2.5 m cell cable)

\*VMP-300 based instruments: SP-200, SP-240, SP-300, VSP-300, VMP-300



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