



Your application needs more power ...

... select your booster in our range!

- BATTERIES / ELECTRIC VEHICLE
- FUEL CELL TESTING
- SOLAR CELLS
- SUPERCAPACITORS
- PLATING



A full range of boosters and load boxes can be connected to each channel board of a Bio-Logic potentiostat/galvanostat. With their very modular technology, our boosters and loads can be either included in the potentiostat chassis or connected as external boosters.

An **external booster** chassis can receive up to 20 A separated in several boards (for example one 10 A board, one 5 A board and two 2 A boards). Our instrument chassis are designed to receive one or two internal booster kits. The VSP chassis can accommodate one 4 A kit and the VMP3 chassis can accommodate either two 4 A kits or one 8A kit.

Electronic loads have been designed for Fuel cell testing. The 500 W load offers 50 A / 10 V and can be either in a separate chassis or in a CLB-500 chassis used as a controlled load.

Additional booster options may be added every time via plug-in modules or in external chassis. When plugged with the channel board the booster or the load is automatically detected with EC-Lab or EC-Lab Express software.

Our external power boosters are plug-and-play. They can be connected and disconnected from the channel board and reconnected to another one without shut down of the instrument.

CONFIGURATIONS:

- Boosters :

- External: - ± 2 A, ± 5 A, ± 10 A, ± 20 A on ± 10 V adjustable from -20 to +20 V
- ± 80 A on ± 3 V
- Internal kit: ± 4 A, ± 8 A on 20 V

- Electronic loads:

- External and Internal: 500 W (50 A / 10 V)

GENERAL SPECIFICATIONS:

- Booster current range included in the auto-ranging
- 20 V Adjustable Reference Voltage (except 80 A and 100 A)
- EIS capability
- 500 W electronic load with two current ranges



FUEL CELLS and BATTERIES

With the growing interest in new energy sources for electrical and hybrid vehicles, current boosters are recommended to do aging tests on standard commercial batteries or fuel cells. The 80 A booster and load boxes are more dedicated to study fuel cell elements. The 100 A booster is especially focused on commercial Lithium battery testing for electric vehicles.

Our EC-Lab express software includes a very efficient "drift correction" tool and multisine EIS techniques allowing EIS measurements on batteries or fuel cell while running.

SUPERCAPACITORS

With very quick rise and fall time, the 80 A booster is well dedicated to supercapacitors testing. It can perform EIS measurements on energy devices to very low impedance levels (down to 250 μOhms).

INTERCALATION COMPOUNDS

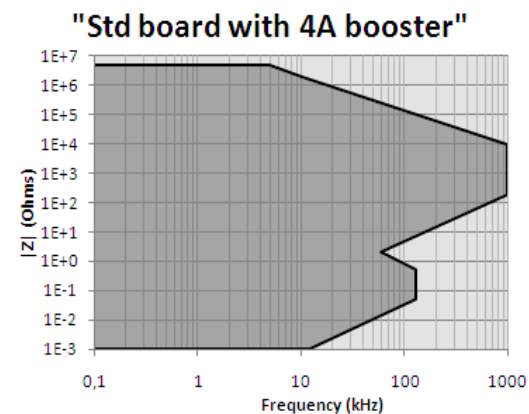
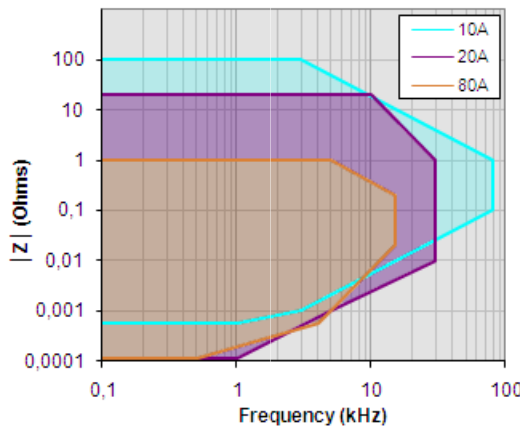
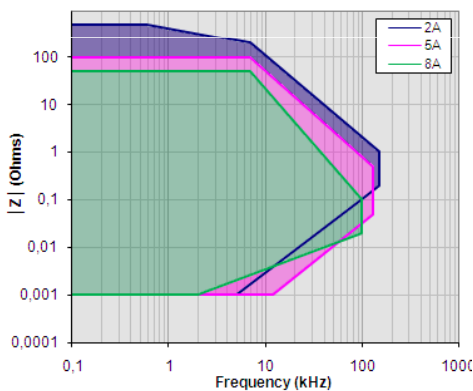
Eight 2A booster channels can be included in an external booster chassis to study intercalation compounds and small size battery cells. Included in our software, the user can do simultaneously EIS measurements on each electrode material according to a Reference electrode.

STACK POWER SOURCES

Several channels can be used to study simultaneously the different elements of a fuel cell stack.

A 20 A booster can be coupled with a master channel in a VMP3 and used together with VMP3 slaves channels. This feature has been implemented with our systems to study each element of a fuel cell stacks or of battery cells in series.

ACCURACY CONTOUR MAP (1% - 1%)



BOOSTER BOARDS

Cell control	2 / 4 / 5 A	8 / 10 A	20 A	80 A
Connection	2, 3, 4, 5 terminal leads			
Compliance	10 V range adjustable			-3; +3 V
Maximum current	±2 / ±4 / ±5 A	±8 / ±10 A	±20 A	±80 A
Maximum potential	±20 V	±20 V	±20 V	±20 V
Rise time and fall time	Potential	15 µs	25 µs	60 µs
	galvano	40 µs	50 µs	120 µs
Measurement	2 / 4 / 5 A	8 / 10 A	20 A	80 A
Potential accuracy	< 0,1 % FSR*	< 0,1 % FSR*	< 0,1 % FSR*	< 0,1 % FSR*
Current accuracy	< 0,1 % FSR*	< 0,1 % FSR*	< 0,1 % FSR*	< 0,1 % FSR*
Potential noise (peak to peak 0-100 kHz)	0.6 mV	0.6 mV	0.6 mV	0.6 mV
Current noise (peak to peak 0-100 kHz)	1 mA at 2/4/5 A	3 mA at 8/10 A	6 mA at 20 A	20 mA at 80 A
Electrometer	2 / 4 / 5 A	8 / 10 A	20 A	80 A
Inputs	3 potential measurements			
Impedance	10 ¹⁰ Ohms	10 ¹⁰ Ohms	10 ¹⁰ Ohms	10 ¹⁰ Ohms
Bandwidth	1 MHz	1 MHz	1 MHz	1 MHz
Impedance	2 / 4 / 5 A	8 / 10 A	20 A	80 A
Frequency range (accuracy 1%, 1°)	10 µHz to 150/130/125 kHz	10 µHz to 100/80 kHz	10 µHz to 30 kHz	10 µHz to 15 kHz
Amplitude	1 mV peak to peak to 1 Vpp 0,1 % to 50 % of the current range			
Auxiliary Inputs/Outputs	2 / 4 / 5 A	8 / 10 A	20 A	80 A
1 External input	Security to open circuit (TTL level)			Security to open circuit (TTL level) Emergency push button
General	2 / 4 / 5 A	8 / 10 A	20 A	80 A
Power	±15 V DC 150 W			
Dimensions (W:290xH:130xL)	105 / 40 / 105 mm	80 / 210	430	320
Weight	1 kg / 850 g / 1 kg	1.4 kg / 2 kg	4.2 kg	4.8 kg

ELECTRONIC LOAD

Cell control	
Connection	2, 3, 4, 5 terminal leads
Voltage	0.1 V to 10 V
Maximum current	5 A, 50 A
Maximum current resolution	0.008% of the range
Maximum potential resolution	300 µV on 10 V dynamic range adjustable
Maximum power	50 W (5 A), 500 W (50 A) @ 40°C
Rise Time	< 3 ms
Acquisition time	200 µs
Acquisition speed	200000 samples/s
Measurement	
Potential accuracy	<0.1 % FSR*
Current accuracy	<0.5 % FSR*
Current noise (peak to peak 0-100 kHz)	<0.05 % FSR*

Specifications subject to change

Note: the 2 A booster channels are sold by pieces of 2*2A double boards

Electrometer	
Inputs	3 potential measurements
Impedance	10 ¹⁰ Ohms
Bandwidth	1 MHz
Impedance	
Frequency range	10 µHz to 10 kHz
Amplitude	1 mVpp to 1 Vpp 0.1% to 50% of the current range
Accuracy	1%, 1°
General	
1 security Input	TTL level to open circuit
1 emergency stop push button	
Power	85-264 V, 47-440 Hz
Dimensions	260x495x465 mm (HxWxL)
Weight	
Cell cable length	Power: 50cm, senses: 50 cm

*FSR: Full Scale Range

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