

## Batch 03 : Lithium-ion battery

### System Features

The Lithium-ion battery technology must be NMC: Lithium Nickel Manganese Cobalt with the following technical characteristics:

No.	Items	Value	Unit	Remark
1	Cell Type	NMC	-	-
2	Cell Capacity	75.0...250	Ah	-
3	Installed Capacity	$\geq 11.65$	kWh	-
4	Rated Capacity	$\geq 10.95$	kWh	@ RT, 0.5P rate, BOL
5	Minimum Voltage	$\geq 30$	Vdc	-
6	Nominal Voltage	48....52	Vdc	-
7	Maximum Voltage	$\leq 60$	Vdc	-
8	Max Continuous Charge Power	$\geq 6.0$	kW	60 min.
9	Peak Charge Power	$\geq 9.0$	kW	<10 min.
10	Max Continuous Discharge Power	$\geq 6.0$	kW	60 min.
11	Peak Discharge Power	$\geq 9.0$	kW	<10 min.
12	Communication Protocol	CAN 2.0B	-	-

The Figure. I shows the synoptic of the laboratory test bench that will be set up.

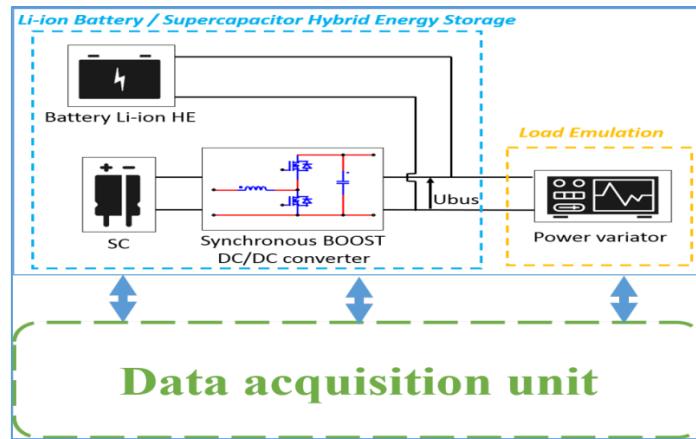


Figure. I: Test bench with a bidirectional high power DC power supply

**Required variants**

Applicants will be required to make a proposal for each of the following required variants:

N°	Wording	Description
RV1	Different capacities for the DC48V lithium ion battery (Lot 03)	NMC 48V lithium-ion batteries of different capacities (75Ah, 100Ah, 150Ah, 200Ah, 205Ah)
RV2	Technical support and additional logistics (Lot 03)	Given the particular use of the test bench in the laboratory's research activity, any additional technical and logistical support is very important for the laboratory
RV3	Extended warranty (Lot 03)	Warranty extension to a period longer than 12 months.

**Optional variants**

Applicants must submit a bid that fully complies with the specifications (basic solution). They may also submit a tender with variants which must comply with the following minimum detailed requirements:

N°	Wording	Description
RV1	Lithium-ion batteries <250V NMC with different capacities >50Ah (Lot 03)	250VDC NMC lithium-ion batteries of different capacities
RV2	2 supercapacitor modules (Lot 03)	MAX037 BMOD0165 P048 Module 48.6V 165F MAXWELL