

EV Battery Test System

CAPABILITY SHEET - CELL TO PACK - REGENERATIVE - ENGINEERED TO ORDER

THE SYSTEM

WHAT	A battery's whole life run in fast-forward: regenerative cyclers from cell to pack, asking the same precise question a million times - millivolt measurement, millisecond control, absolute repeatability.
THE CORE IDEA	Energy in a loop, truth in four wires. Discharge energy returns to the bus ($\geq 90\%$); sense wires carry no current, so the millivolts measured belong to the cell, not the cable.
STATUS	Engineered to order. Reference configuration, not yet built - engineered against India's current EV-laboratory build-out; no order followed, so no delivered system is claimed.

ENVELOPE

CELL CYCLERS	Reference classes 48 ch x 0-6 V / 0-300 A and 16 ch x 0-6 V / 0-50 A; rise < 3 ms (10-90 %); DAQ 1 ms; voltage ± 1 mV; current $\pm 0.05\%$; channel paralleling to raise current.
EIS BUILT IN	Impedance spectroscopy on the cycling channels - galvanostatic and potentiostatic, 10 mHz-10 kHz, to 1 microhm - scheduled inside life tests: ageing watched as it happens.
MODULE & PACK	0-1,000 V, parallelable stages to the hundreds-of-kW class; CC/CV/CP/CR; drive-cycle replay; capacity, DCIR, HPPC, cycle life and calendar ageing; BMS validation with fault injection over CAN.

HOW IT IS BUILT

REGENERATION	$\geq 90\%$ of discharge energy returns via the active front end - the grid pays only losses. Across hundreds of channels this decides the supply installation and the cooling plant, not just the bill.
FOUR-WIRE FIXTURES	Force and sense separated to every tab: at 300 A a milliohm of lead would swamp the millivolts that matter. Fixture quality is measurement quality, so fixtures are engineered, not improvised.
AT TEMPERATURE	Cyclers pair with climatic chambers - reach-in for cells, walk-in for packs - from the Neometrix chamber line; capacity at -20 degC and ageing at $+45$ degC are native tests, not improvisations.

SAFETY, STANDARDS & ENGAGEMENT

SAFETY CHAIN	Per-channel hardware V/I/T limits, contactor and fuse isolation, smoke and vent interlocks, fire-panel interface and a defined emergency shutdown philosophy - a battery lab must fail safe.
STANDARDS	Executes IS 17855 / ISO 12405-4, IEC 62660, AIS-156 Amd 3, AIS-038 Rev 2, UN 38.3, IEC 62619; ISO/IEC 17025-traceable calibration in the scope of supply.
ENGAGEMENT	Send the cells or packs, the channel counts and the standards to sales@neometrixgroup.com - compliance matrix within two working days.

PROJECTS DESK

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