

Automated Electronic Loading and Electrical Testing for Thermal Characterization of Li-ion Batteries

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Efficient charging/discharging control circuitry for Li-ion batteries

Experimental testing for thermal characterization of battery packs



Methodology

- Battery pack testing of 2x2 cells and 3x3 cells at different SoC levels (20%-80%), under following scenarios.
 - (a) During no load discharge; (b) During linear discharge
 - (c) During nonlinear discharge; (d) During charging
 - (d) During variable charging rate; (e) During charging and discharging simultaneously.
- Measurement of SoC vs OCV under varying temperature.
- Design Control circuitry for battery pack testing.
- Experimental prototype of control process circuitry.

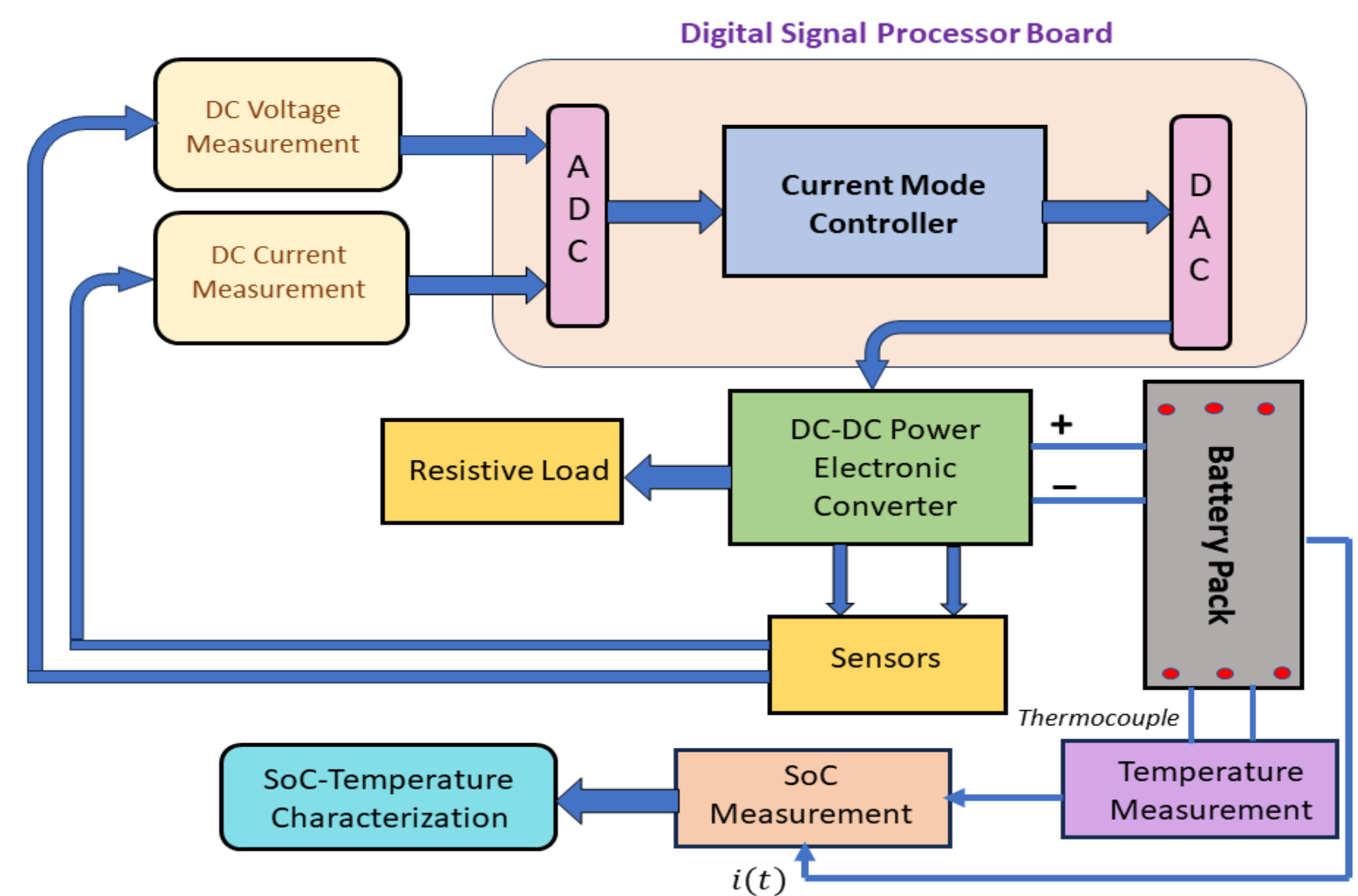
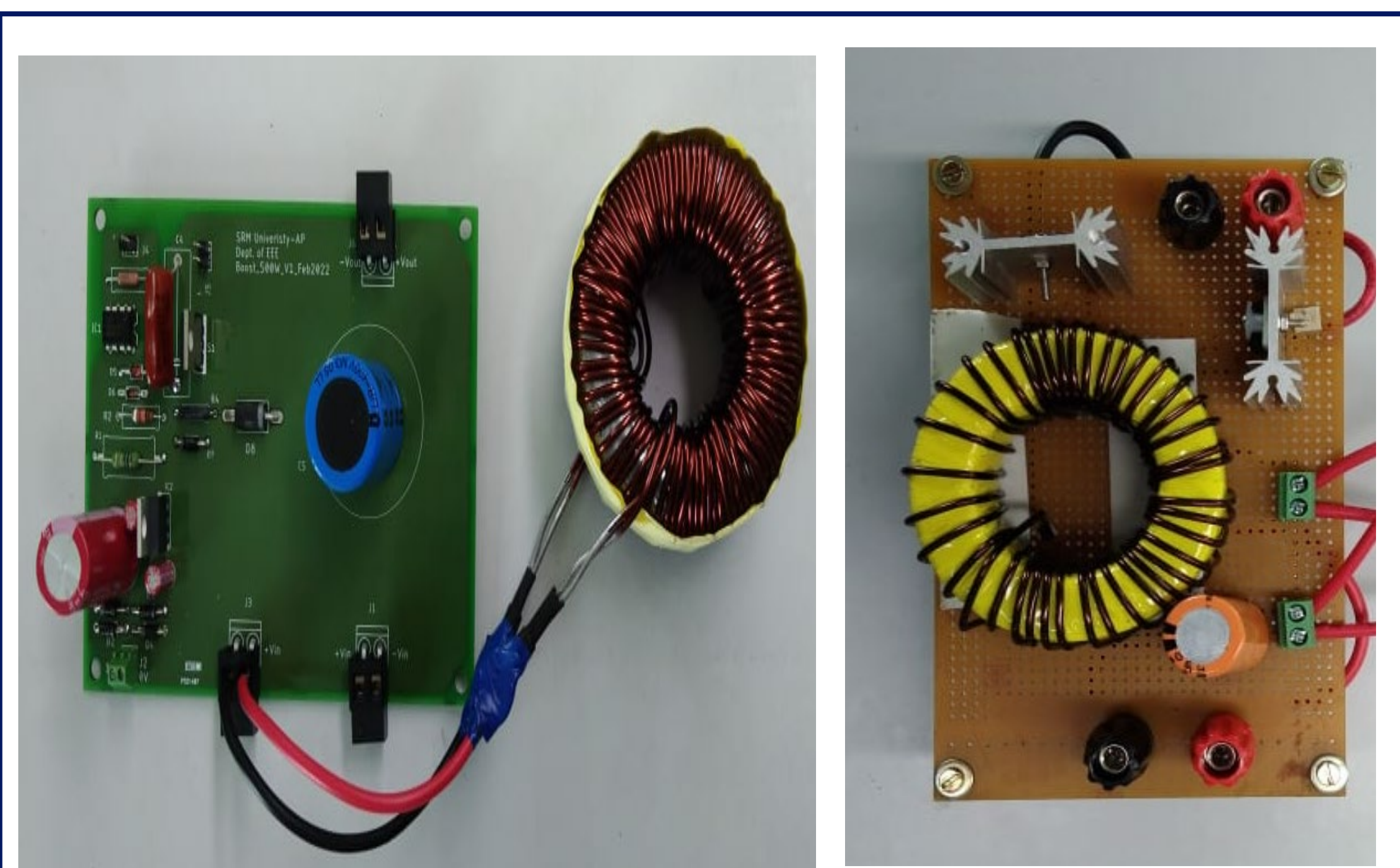


Figure 2. Schematic block diagrammatic representation of electrical testing methodology during charging and discharging modes for batteries.



Figures 1: DC-DC Power Semiconductor Converters of 500W, for impacting step change in C rates during charging and discharging modes.

Results

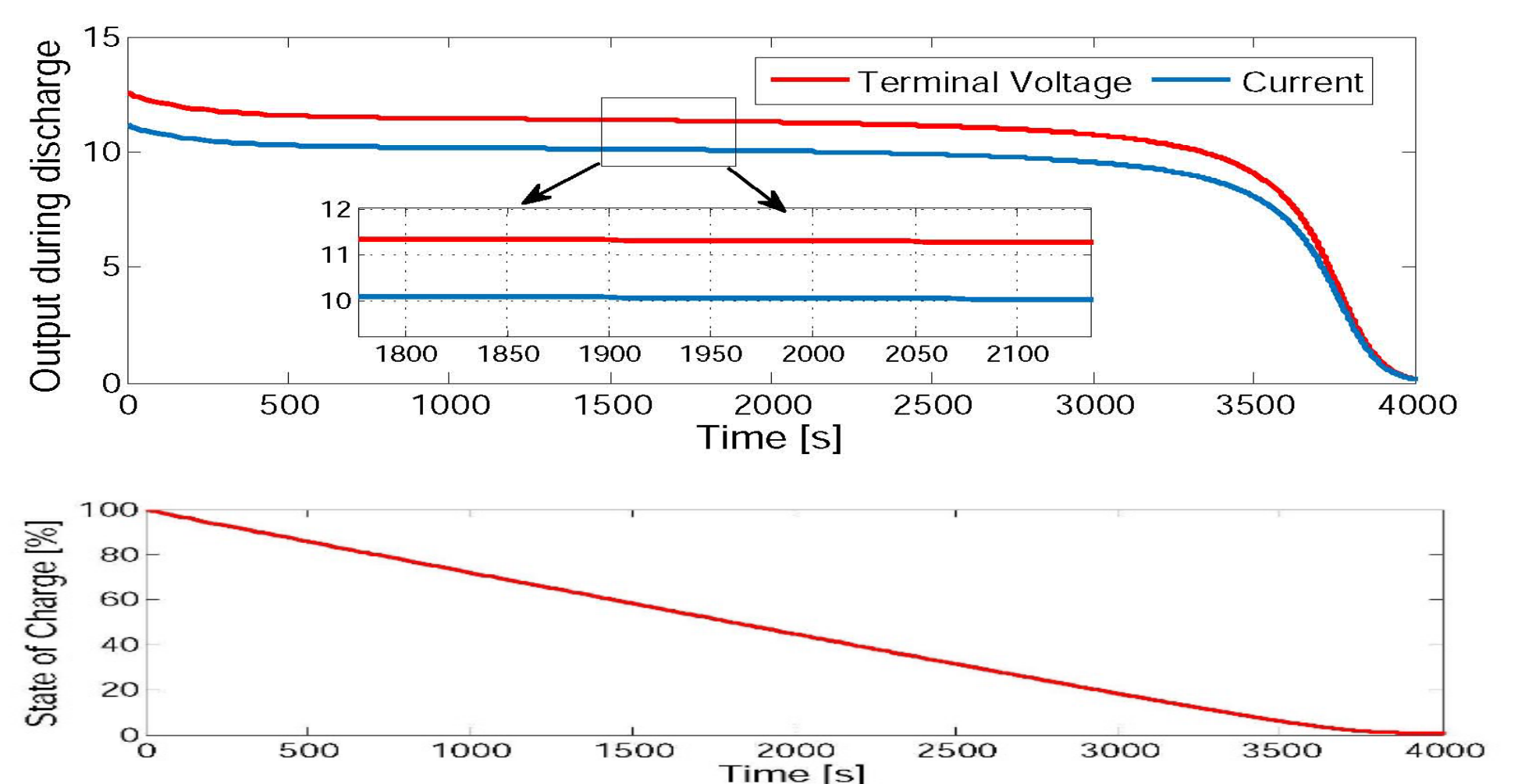


Figure 3. Output discharge of a 3*3 -NCR18650B battery pack with capacity of 9.6Ah and OCV of 10.8V at 1C rate.

