Basic Pack Assembly Using an EVM or User-Made PCB

Battery Management

1. It is assumed that the PCBs have been preprogrammed with the correct data-flash values, and calibrated as described in this document.
2. Connect the lowest (-) of the serially connected 4-cell battery stack to 1N PIN of TB3 – TB2 connector.
3. Connect the second lowest cell (+) to 1P.
4. Connect the third lowest cell (+) to 2P.
5. Connect the forth lowest cell (+) to 3P.
6. Connect the highest (+) of the battery stack to 4P.
7. Connect the external power (from 6 V to 16.8 V) to the Pack+ and Pack- terminals on TB1 and TB4 connector to wake up the EVM from shut-down mode
8. Connect the SMBus connector (J1) to the EV2300 adapter, start the EV Software.
9. Fuel-gauging. Go to the "Pro screen" in the EV Software. Make sure that the "Write SMB Word" section reads: SMB Command: 00 Word (hex): 0021, and push the "Write" button
10. Go to the SMB Screen and check that the IT is enabled. Look inthe "Flags/Status bits" of the "Operation Status". The QEN bit should be set (red). Also, the "Relative State of Charge" value is now updated to the correct value that corresponds to the state of charge of the cells.
11. Pack is ready. Emulate insertion into system by shorting the "Sys. pres" (System Present) and "VSS" pins on the TB1 – TB4 connector. Discharge and charge FETs that are ON (as indicated by value of 0006 in the "FET Status" field in SMB Screen of EV Software), and start the charge/discharge tests.
12. Step 11 not required if the "non-removable" configuration is chosen by setting NR=1 in the Op.Config B. In this example, the system is always considered present.
13. In production, the data-flash constants used should be optimized (Update Status = 6), so no learning is needed.
14. For evaluation that uses the default data-flash constants, correct self-learning of all model parameters is recommended for the first cycle as follows: Charge to full, let it rest for 2 hours, discharge to empty, let rest for 5 hours. During this first cycle, the model of your cells is created by the gas-gauge and is self-updated during normal operation. Two cycles are recommended for full accuracy. See more details on acquiring optimized parameters in (SLUA334).

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