AC/DC INTERNAL RESISTANCE MEASUREMENT ON HIGH-POWER POUCH CELLS WITH

BATTERY MEASURING MODULE 2511

Quality assurance through identified vulnerabilities

Task

The assembly of battery modules with 100% functional pouch cells is to be carried out during assembly/completion by means of a linear feeding unit. To ensure that only cells in accordance with the specifications are installed, each individual cell should be tested and evaluated with regard to the relevant battery parameters. Costly failures due to premature aging, overheating or capacity losses are thus to be prevented.

Special features

The measured values and results are 100% subject to documentation and are to be transferred to the higher-level control system. Statements on the electrode condition, open circuit voltage and electrolyte are required. A safe and correct contacting of the DUT is necessary to achieve reproducible measurement results.

Solution

For qualitative observation of the high-performance pouch cell, the 2511 battery measuring module is used to determine the AC/DC internal resistance at a frequency of 1 kHz and 10 Hz as well as the open-circuit voltage and to evaluate them by means of tolerance thresholds. The contacting is carried out in four-wire technique with exact distances between sense and force leads, twisted connecting leads just before the DUT and constant contact pressure in order to achieve reproducible results. The result data and measured values are transferred to a higher-level control system via EtherCAT within a few milliseconds.

Contacting problems, qualitative impairments of the electrolyte or the electrodes lead to significant deviations in the measured values. With the aid of real impedance measurement at two significant frequencies, the new battery measuring module 2511 can be used to achieve zero-defect assembly and thus significantly prevent the further processing of defective pouch cells.

4296-APPNPZEN-5999-091531