Höcherl & Hackl
The electronic load

Customer Application #8

Investigating LiPo Accumulators

Since LiPo accumulators are introduced in a wide range of applications the declaration of the maximum possible discharging rates is one of the most important selling points.

The ZS3006 from Hoecherl & Hackl already found its place in the author's workshop. However, a proper operation without a PC does not make much sense because the PC is required to create the load profiles as well as to analyze the measured data and the graphical preparation of the measurement records.

Professional Equipment for FMT Accumulator Tests

30, 40, 50C. The manufacturers outbid each other in the race about winning customers' favour and set a high pace in the development process. But does the accumulator accomplish what the data sheet states? In order to keep pace with the development of the accumulator technology we had to upgrade our test equipment as well. To be able to compare accumulators the testing conditions used for the accumulator tests must always be identical.

This requirement can only be achieved with the aid of an electronic load. The company Hoecherl & Hackl knows how important the accumulator issue is in these days and provides the publisher "Technik und Handwerk" a very powerful electronic load. Therefore the readers of the FMT magazines can now benefit from the optimal testing conditions for accumulators.

60 V, 300 A, up to 8,000 W

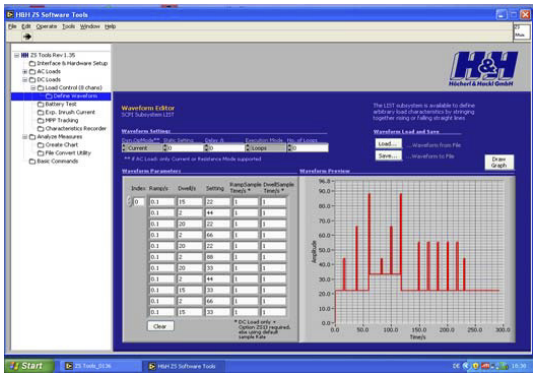
The electronic load ZS3006 from Hoecherl & Hackl allows to test accumulators with up to 60V under a high load of up to 300A, respectively maximal 8kW peak power and 3 kW continuous power. The distinguishing feature is that the electronic load is able to simulate a realistic mix operation. Moderate continuous currents and high short-term loads can vary corresponding to a programmed profile. Thus, loading accumulators can be emulated in a realistic manner. Especially for high power consuming drive trains accumulator packs can be tested and compared together. Further on the declaration of the high discharging rates advertised by the manufacturer can be verified with the aid of an electronic load. The ZS3006 for example is able to discharge a 6s LiPo with a continuous current of 300 A without getting to its limits.

Electronic load ZS3006

Load Profiles Simulate Contact with Reality

The special feature of this nearly 40kg weighing measurement instrument is the ability to control the load with the aid of so-called load profiles. Therefore the electronic load has to be connected to a defined PC interface (RS232, GPIB, Ethernet, USB). A corresponding software tool allows arbitrary definition of a load flow diagram (load profile) which is transmitted to the electronic load.

The electronic load performs the generation of the load profile automatically. To prevent the accumulator from overload its voltage can be monitored via separate sense cables. Several free selectable criteria like reaching the discharging end voltage or the maximum discharging capacity can be used to stop the load test of the accumulator automatically.



Generating load profiles

In the example diagram can be seen that such a load profile mostly consists of a basic load paired with impulse loads. Therefore the duration as well as the load in "C" (multiple of accumulator capacity) are always the same to guarantee identical test conditions independent of the accumulators capacity. Thus it is irrelevant if the accumulator consists of 3 or 12 cells – the electronic load of Hoecherl & Hackl sets an identical load at any input voltage.