The Specific Heat Measurement Option (CPU)

THT product code = ARCSYS-CPU

The Specific Heat Measurement Option comprises:

- Integrated DC power supply and support electronics
- Support frame and associated accessories
- Cables and associated connectors for interconnections
- Heater mats supplied, 1 off 50 x 50 mm and 1 off 65 mm x 20 mm
- Control software incorporating automatic sequential ramp tests
- Data analysis software with automated Cp calculation

The THT CPU option allows users to determine the specific heat capacity of individual cells or packs. This is accomplished from a rapid test over a wide range of temperatures.

The CPU option allows conversion of thermal data (temperature and temperature rate) to units typically used in thermal management, i.e. Watts and joules.

With specific heat capacity known THT data analysis software converts raw data to Enthalpy and Power - even when measuring the thermal distribution of heat released over the battery surface.
Example: Heat Capacity of an 18650 Pack

In this example the heater mat is sandwiched between rows of cells to ensure all heat emitted is absorbed (Figure 3).

Sample is then suspended in the calorimeter ensuring no contact with the sides of calorimeter (Figure 4).

Test is initialised with 0.23A to 8.5V. Test took two hours with sample reaching 60°C from 25°C start.

The average specific heat from the pack can be determined at any temperature from the test, or over any range (Figure 5).

Taking the value for the temperature rate, and with knowledge of the mass and the voltage/current supplied the heat capacity wizard software (Figure 6) calculates the Cp over the entire temperature range to be 0.83J/gK.

Note: The OSU must be purchased with this option