

BaSyTec

Battery - System - Technology

- ✓ Research
- ✓ Development
- ✓ Production
- ✓ Quality control

CTS

Cell Test System



Optimized for high throughput of cells

BaSyTec is one of the leading manufacturers of battery test systems. Several hundred systems are operated today all over the world. Our customers are battery manufacturers, universities, test laboratories, car makers, power tool manufacturers and producers of electronic equipment. The ongoing development is strongly related to our customer needs. BaSyTec offers today the most powerful battery test software and a wide product range. The cell test system (CTS) is made for high test throughput of single cells as it is needed from manufacturers and for quality control.

Main Features

The CTS system is optimized for testing large amounts of single cells. The maximum charge and discharge current is 5A. The automatic and dynamic current range selection allows testing of small button cell up to Laptop cells with this system. The key features are:

- 32 independent test channels
- Four current ranges: 5 A, 300 mA, 15 mA and 1 mA
- Automatic and dynamic current range selection
- continuous current range switching without current interruption, also in CV mode
- Voltage range of 5V is optimized for single cells
- Cells are connected in four wire method
- Each channel has a temperature input for cell temperature monitoring
- Native (analog) CC operating mode
- Allows precise, high speed control through zero
- Other modes operate under digital control
- Small size, low cost
- Software compatible with all other BaSyTec battery test systems



Two Cell Test Systems with together 64 independent test channels, each with 5V/5A.



The Cell Test System is optimized for a high test throughput of single cells.

Typical Applications

The BaSyTec CTS test system is optimized for single cells (Li-Ion, NiMH, NiCd, Lead-Acid, DLC). It is also possible to test all other batteries that have a charging voltage below 5 V. Typical applications are:

- Quality control in production lines
- Quality control in assembly
- Life cycle tests of cells
- Parameter tests of cells
- Application oriented tests
- Simulation of current profiles with high current dynamic
- Double layer capacitor testing

The Innovative Concept

Compact Size

The Cell Test System is based on newest electronic circuits, resulting in low size, high accuracy, and low cost. A total volume of 70 liter for 32 test channels is the result of the compact design. A modular concept simplifies maintenance and maximizes reliability of the test system. All components for two test channels are mounted on one pcb and one heat sink designed as a plug in device. One central power supply and one central processor unit makes the system complete. The CTS system is delivered in a 19" enclosure. Several systems can be connected together if more channels are needed. The Cell test System is software compatible with all other BaSyTec battery test systems. This allows the use and control of climate chambers, additional analogue input scanners and the open software interface to interact with customized interfaces. The approved BaSyTest Battery test software is used for programming, controlling and monitoring of battery tests.



Current ranges

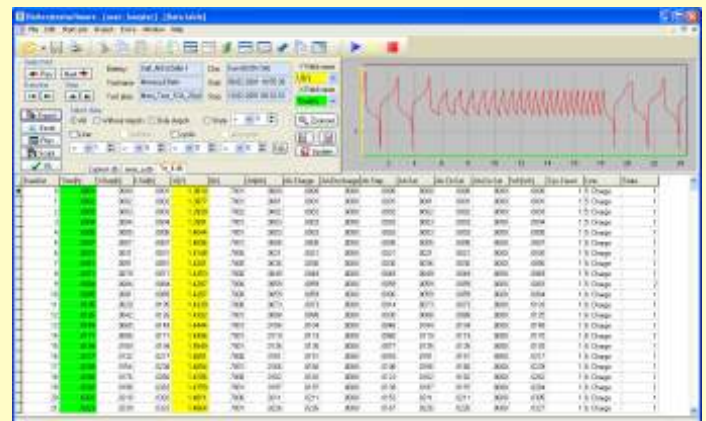
The cell test system has four current ranges, 5A, 300mA, 15mA and 1mA. The CTS system selects automatically the current range. The user must not take care to select the right range. The dynamic current range selection even operates within a single program step. As an example a constant voltage charge where the current is going down with charging time will always select the best current range during the charge process. The non-interrupted current flow while current range switching is one of the key features of the CTS system. While switching there is no current gap or a current spike. The four current ranges allow a dynamic in current of up to 1:10.000.000.

The wide current dynamic allows testing of a large range of cell sizes and of testes where a high current dynamic is required, for example running/idle applications.



Software

The BaSyTest software is used to define test procedures, to control the cell test system, to monitor running tests and to analyze test results. Test are defined by test plan written in the integrated test plan editor. Constant current, constant voltage and constant power control modes are possible. For discharging also constant resistance. The test procedures are downloaded to the test system where they are running independent from the pc.



Technical Specification

Channels per unit	32
Voltage range	0-5V
Voltage precision	2.5mV
Voltage resolution	0.25mV
4-wire measurement	yes
Min. discharge voltage	200mV or 0.2*current (whichever is greater)
Current ranges (charge + discharge)	5A/300mA/15mA/1mA (Automatic and dynamic range switching)
Current precision	2.5mA/150 μ A/7.5 μ A/2 μ A
Current resolution	250 μ A/15 μ A/0.75 μ A/0.05 μ A
Add. inputs per channel	NTC temperature
Time resolution	1 μ s
Minimum pulse length	40ms
Current rise time	< 50 μ s
analogue controlled galvanostatic mode	yes
analogue controlled potentiostatic mode(charge)	no
Digital potentiostatic mode	yes
Digital constant power mode	yes
Digital constant resistance discharge mode	yes
Software	BaSyTest
Interface	Ethernet, RS232
Battery connectors	D-SUB 9-pin Adapter for AAA, AA, C, D size and button cells available
Size per unit	19" system 6HE units, 450*280*550mm
Weight per unit	25kg
Max. input power per Unit	< 1700W
Input voltage range	110-264VAC / 47-63Hz
Max. input current per unit	< 16A @ 110V, < 8A @ 220V

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