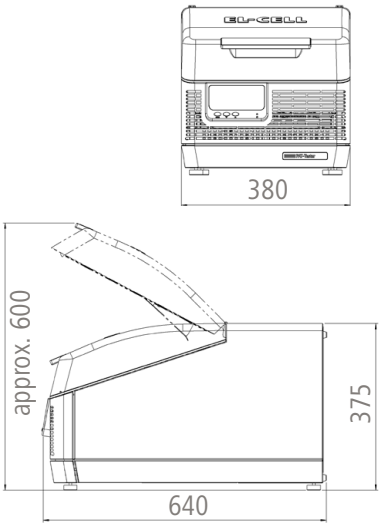
Dimensions in mm:



PAT-Tester-i-16

Our all-in-one solution for multi-channel testing.

The PAT-Tester-i-16 is a highly integrated, multi-channel battery tester with up to 16 independent test channels and a temperature-controlled cell chamber (+10 °C to +80 °C). Due to its patented wireless connection between test cell and potentiostat, it saves space in the laboratory and eliminates the need for cabling.
Each test channel has full PStat / GStat / and EIS capabilities (without multiplexing) and unique features such as the connection matrix, which allows software-controlled switching between half and full-cell measurements without reconnecting cables.
The internal impedance analyzer can simultaneously record the impedances of both half cells while performing constant current cycles or voltammetric experiments. This way, it can record the DC and AC characteristics of an inserted test cells at virtually the same time!
The PAT-Tester-i-16 is optimized for operation with PAT series test cells. Other cell types, like T-cells and pouch cells, can be connected via adapters. Thanks to its LAN connection, it can be monitored and controlled from any PC in the network.

Product website:

Manual (PDF):

Key Features

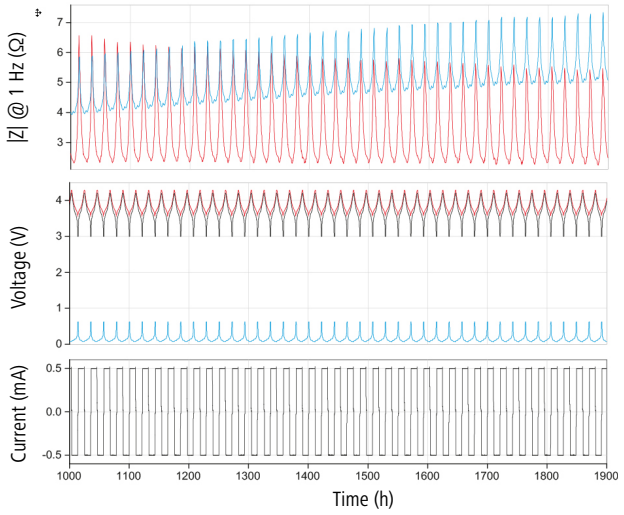
- Up to 16 independent test channels with fully featured potentiostat / galvanostat / impedance analyzer
- Integrated Peltier temperature control (+10 ° C to +80 ° C) with anti-condensing system
- Simultaneous recording of both half-cell voltages and sensor signals (e.g. gas pressure, stack force and electrode expansion)
- Software controlled switching between control modes: full cell, cathode half cell, anode half cell

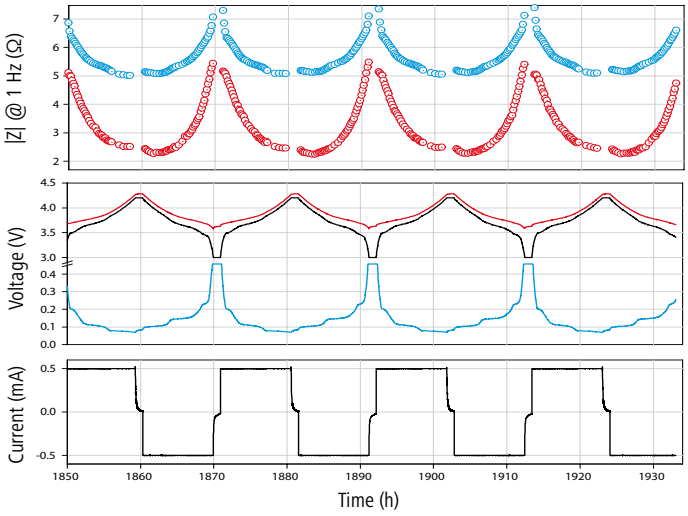
EL-Cell GmbH Tempowerkring 8 21079 Hamburg, Germany +49 40 79012-734 sales@el-cell.com el-cell.com

Specifications

General	Width / Depth / Height	380 / 640 / 375 mm
	Weight	26 kg (without test cells)
	Channels per device	1 to 16
	Control Voltage / Compliance Voltage	-7 V to +7 V / -8 V to 8 V (no load)
	Current	±100 mA
	Cell connection / Electrode connection	3 electrodes plus sense wires, connection matrix
	ADC	2 x 24 bit
	DAC	1 x 18 bit
	Slew rate	2.5 V / µs
	Bandwidth ranges	500 kHz, 50 kHz, 5 kHz
	Sampling interval (rate)	1 ms (1000 samples per second) with intelligent data recording
	Input Impedance	>100 MΩ || 20 pF
	Computer Interface	1 GBit Ethernet, Multiuser, Runs standalone (immune to network interruptions)
Voltage	Acquisition voltages	Full cell voltage, both half cell voltages, auxiliary voltage
	Measurement Accuracy	±0.02% of FSR (Full Scale Range)
	Measurement Noise floor	30 µV peak-peak typical
	Control Resolution	57 µV (18 Bit)
Current	Current Ranges	±100 mA, ±10 mA, ±1 mA, ±100 µA, Autorange
	Measurement Accuracy	±0.05% of FSR
	Measurement Noise floor	<1 µA @ 100mA, <100 nA @ 10mA, <10 nA @ 1mA, <1 nA @ 100µA
	Control Resolution	1 nA min. (18 bit)
Impedance (each channel)	Frequency range	100 µHz to 100 kHz
	Impedance mode	PEIS and GEIS (simultaneous measurement of full- and half-cell impedances)
	Impedance range	1 mΩ to 100 MΩ
	EIS quality indicator	SFDR (Spurious Free Dynamic Range)
	EIS drift correction	yes
	EIS adaptive amplitude	yes
Other	Temperature Chamber	+10°C to +80°C, setpoint control in EL-Software
	Additional data input (each channel)	Multiple digital I²C bus sensors, e.g. for cell temperature and gas pressure, 1x analog voltage input, e.g. for dilatometer signal
	Calibration	Fully automatic self-test and self-calibration with internal voltage references and internal calibration cells (maintenance-free)
	Cell Identification	Supports PAT-Button for reading the unique test cell serial number
	Software features	Experiment designer, Cell and material management with database, Script editor with syntax check, Live data monitoring, Analysing and reporting capabilities

Sample test result



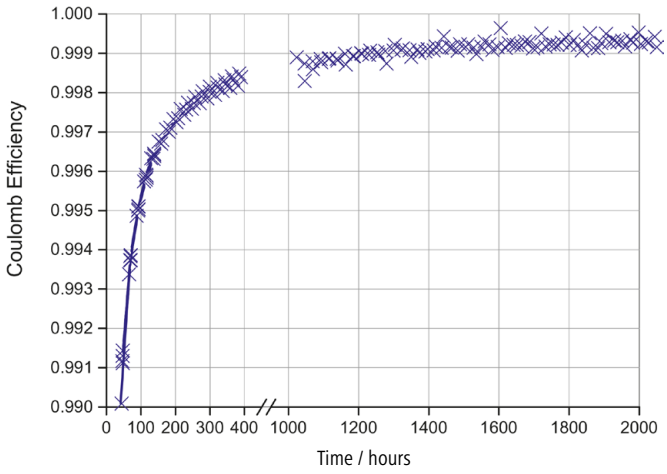


Setup details:

- NCM 111 vs Graphite
- Li metal reference ring
- CC-CV cycles at 0.1 C rate, 25°C

- 2000 hours experiment time
- Coulomb efficiency > 99.9 %
- Capacity retention 96 %

- Test cell: PAT-Cell
- Potentiostat: PAT-Tester-i-16



Accuracy contour plot