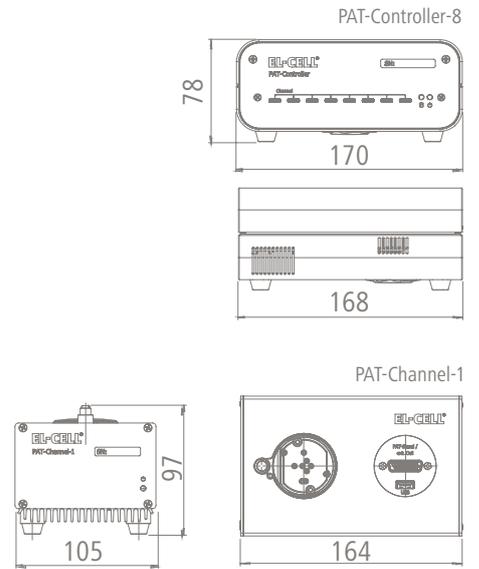


Dimensions in mm:



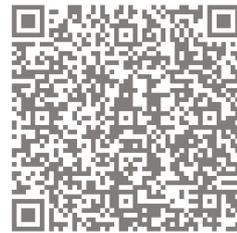
PAT-Tester-x-8

The individual test solution

The PAT-Tester-x-8 is the perfect choice for small scale and special purpose testing. It brings the same battery tester hardware and software as the PAT-Tester-i-16. However the fully featured channels (galvanostat/potentiostat/impedance analyzer) are separated into individual devices. Up to 8 of these PAT-Channels may connect to one single PAT-Controller-8 which serves as the control unit for storing all measurement data and enabling communication with the EL-Software server.

That way each channel of the PAT-Tester-x-8 can be controlled from any client PC in the same network via the EL-Software. The individual PAT-Channels can be placed where they are needed: on the bench, in a climate chamber, or inside the glove box.

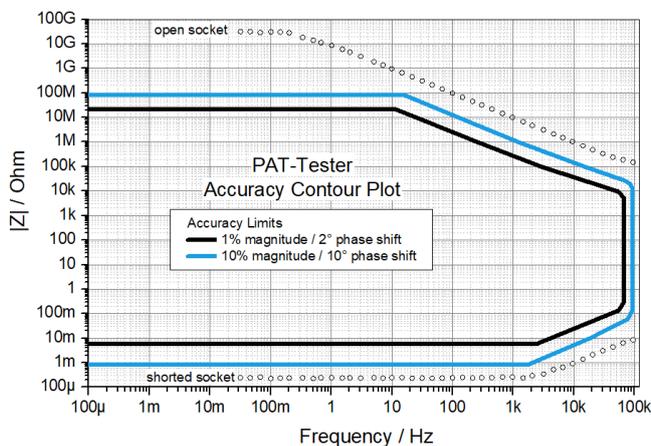
Product website:



Manual (PDF):



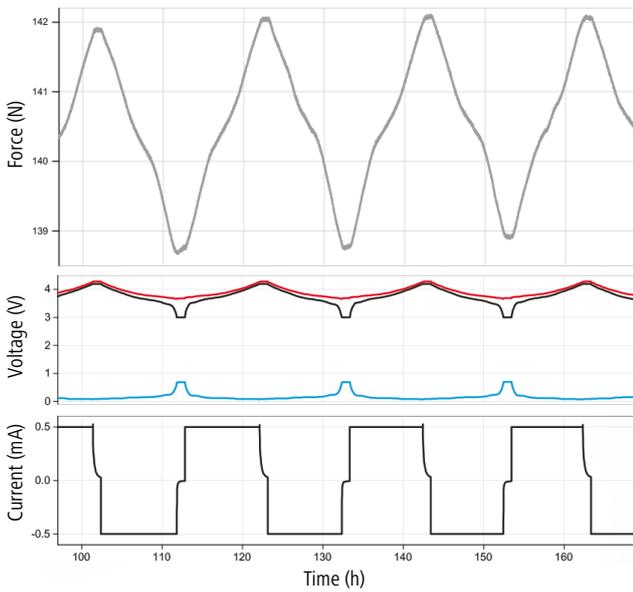
Accuracy contour plot



Specifications

General	Width / Depth / Height (in mm)	PAT-Controller-8: 168 / 170 / 78, PAT-Channel-1: 164 / 105 / 97
	Weight	PAT-Controller-8: 1.7 kg, PAT-Channel-1: 1.3 kg (without test cells)
	Channels per device	1 to 8
	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 / μ s
	Bandwidth ranges	500 kHz, 50 kHz, 5 kHz
	Sampling interval (rate)	1 ms (1000 samples per second) with intelligent data recording
	Input Impedance	>100 M Ω 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 μ V peak-peak typical
	Control Resolution	57 μ V (18 Bit)
Current	Current Ranges	±100 mA, ±10 mA, ±1 mA, ±100 μ A, Autorange
	Measurement Accuracy	±0.05% of FSR
	Measurement Noise floor	<1 μ A @ 100mA, <100 nA @ 10mA, <10 nA @ 1mA, <1 nA @ 100 μ A
	Control Resolution	1 nA min. (18 bit)
Impedance (each channel)	Frequency range	100 μ Hz to 100 kHz
	Impedance mode	PEIS and GEIS (simultaneous measurement of full- and half-cell impedances)
	Impedance range	1 m Ω to 100 M Ω
	EIS quality indicator	SFDR (Spurious Free Dynamic Range)
	EIS drift correction	yes
	EIS adaptive amplitude	yes
Other	Additional data input (each channel)	Multiple digital I ² C 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 results



Setup details:

Example: NCM 111 vs Graphite in LP30

Initial force on cell stack: 140 Newton (can be increased up to 1500 Newton)

Additionally gas pressure and temperature are monitored (not shown)

Devices in use:

- PAT-Cell-Force
- PAT-Tester-x-8
- PAT-Terminal-1 placed inside the glove box (to adjust initial stack force)
- PAT-Channel-1 placed inside a temperature chamber (for cycling)



PAT-Cell-Force connected to a PAT-Tester-x-8 potentiostat for cycling.



PAT-Cell-Force connected to a PAT-Terminal-1 to adjust initial stack force. The PAT-Terminal-1 can also be used for cycling, if connected to a PAT-Controller-8.

Sample setups

