

# User Manual

Release 1.0

## PAT-Tray Docking Station



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# Content

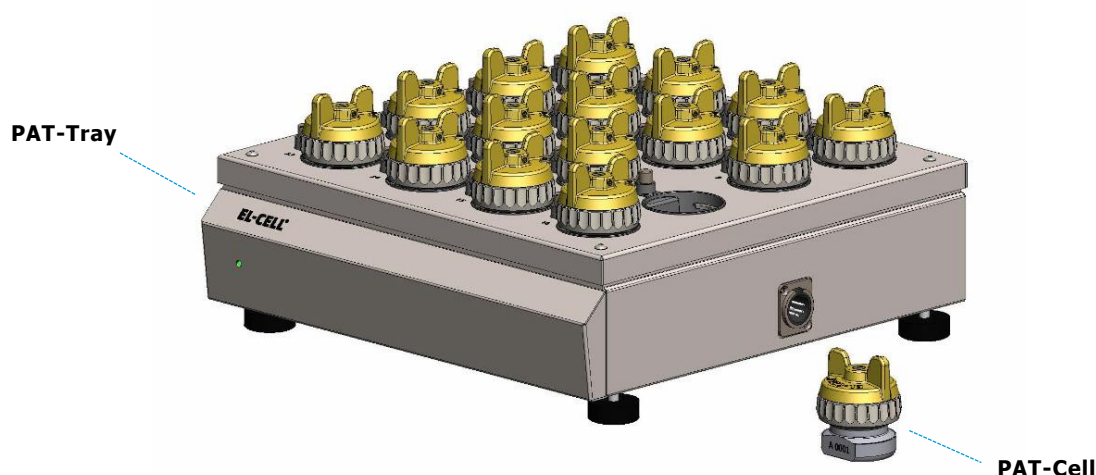
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# 1 Product Description

The PAT-Tray is the docking station for up to 16 PAT-Cells in a 4x4 matrix. The PAT-Tray is to be connected to a multi-channel potentiostat (like the Biologic MPG-2 or VMP300) or battery tester (like the Maccor 4000). Mixed connection of the 16 cell positions to different potentiostats / battery testers is possible as well.

The PAT-Tray features a built-in data logger for recording all cell signals – cell current, cell voltage and the two half cell voltages of each cell – together with the temperature of the tray. The utilization of the data logger is recommended when connecting the PAT-Tray to a battery tester without the capability to record half cell voltages.

Up to 16 PAT-Cells fit into one PAT-Tray. Its small footprint make this combination the ideal choice for high-throughput testing of Li-ion battery materials. The PAT-Cell and the PAT-Core concept are covered by separate manuals (<http://el-cell.com/downloads/downloads-manuals>).



## 2 Features

- 4x4 docking station for up to 16 PAT-Cells, ready for permanent connection to a multi-channel potentiostat or battery tester.
- Compatible with most of today's multi-channel potentiostats and battery testers. Mixed operation of the 16 cell positions with different potentiostats and/or battery testers possible.
- Integrated data logger for recording of half cell voltages and tray temperature
- Tray fits into many temperature chambers (e.g. Binder KB53).
- PAT-Cells are just plugged into the tray. No more wiring, less errors, increased testing productivity.

## 3 Technical Data

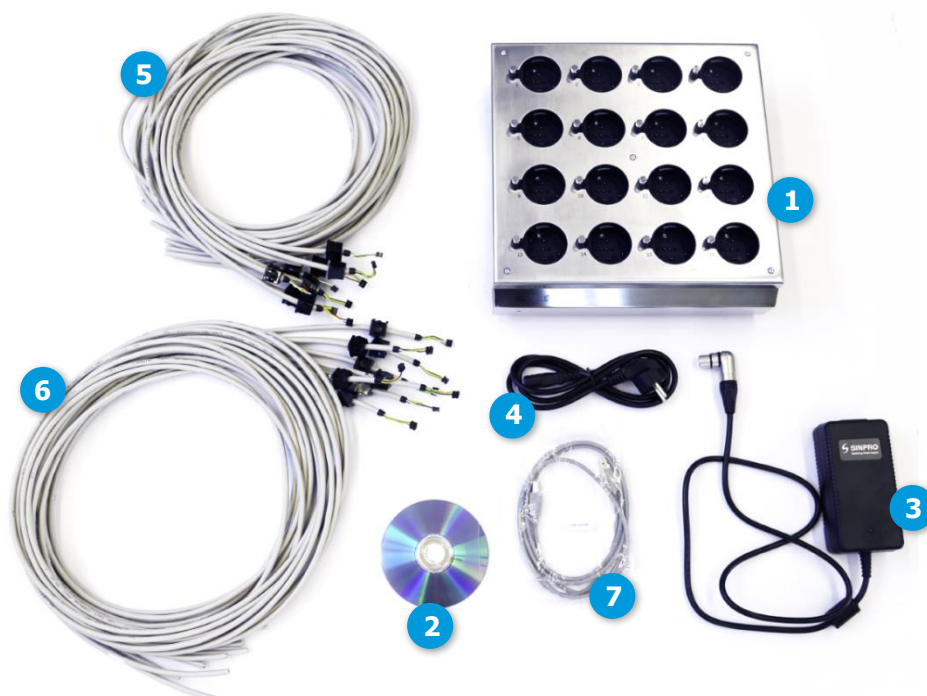
- Operating temperature: -20 to +70°C
- Humidity: non condensing
- Size: 315 mm x 315 mm (width x depth)
- Height: 120/148 mm (without/with PAT-Cells)
- Weight: 6.9 kg/13.3 kg (without/with 16 PAT-Cells)

## 4 Unpacking

Check the contents of the packages against the list given below to verify that you have received all of the required components. Contact EL-CELL, if anything is missing or damaged. **NOTE:** Damaged shipments must remain within the original packaging for freight company inspection.

### List of Components

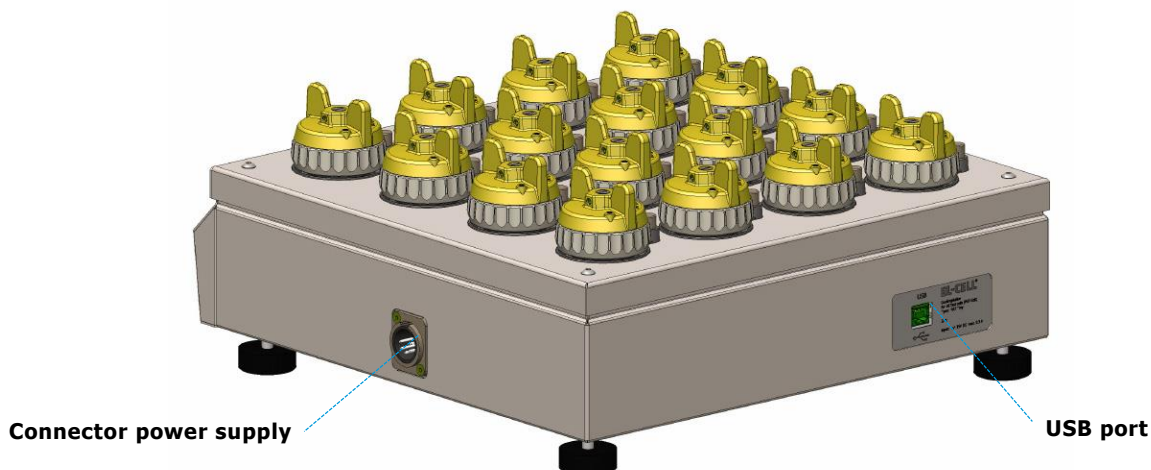
- PAT-Tray [ECC1-00-0400-A](#) (1)
- CD containing EC-Link data logger software [ECE1-00-0052-A](#) (2)
- Power supply [ELT9207](#) (3) + power cord [ELT9222](#) (4)
- 8 x cell cable open ended (channel 1, 3, 5, 7, 9, 11, 13, 15) [ECE1-00-0056-A](#) (5)
- 8 x cell cable open ended (channel 2, 4, 6, 8, 10, 12, 14, 16) [ECE1-00-0056-B](#) (6)
- USB cable [ELT9168](#) (7)



## 5 Installation

The PAT-Tray should be placed on a flat, dry and clean surface, for example on a bench top or in a temperature chamber.

Connect the external power supply and USB cable to the tray. The power supply has to be placed outside of the temperature chamber. **NOTE:** The power supply is always required, even if the data logger is not in use.



## 6 EC-Link Software

How to install and operate with the EC-Link software is described in a separate manual (<http://el-cell.com/downloads/downloads-manuals>).

Please note that the EC-Link software is only required for the standard configuration of the PAT-Tray, which contains a data logger. A passive version of the PAT-Tray without a data logger is available on request.

## 7 Cleaning

Wipe the PAT-Tray with a moist tissue. Do not use aggressive chemicals (acetone etc.) for cleaning. Protect the PAT-Tray from dust and moisture.

**IP-Code of the PAT-Tray:** DIN 40 050 Teil 9/ DIN EN 60529 IP20

## 8 Spare Parts

- CD containing EC-Link data logger software [ECE1-00-0052-A](#)
- Power supply [ELT9207](#)
- Power cord [ELT9222](#)
- Cell cable set [ECE1-00-0066-A](#), containing:
  - 8 x cell cable open ended (channel 1, 3, 5, 7, 9, 11, 13, 15) [ECE1-00-0056-A](#)
  - 8 x cell cable open ended (channel 2, 4, 6, 8, 10, 12, 14, 16) [ECE1-00-0056-B](#)
- Cell cable open ended (channel 1, 3, 7, 9, 11, 13, 15) [ECE1-00-0056-A](#)
- Cell cable open ended (channel 2, 4, 6, 8, 10, 12) [ECE1-00-0056-B](#)
- USB cable [ELT9168](#)

**NOTE:** The PAT-Tray is usually equipped with open ended cell cables. The user has to assure a proper connection to the battery tester. Cell cables with customized connectors for a specific battery tester are available for surcharge on request.



## 9 Technical Support

Technical support for this product is exclusively provided by EL-CELL GmbH.

## 10 Warranty

For a period of one year from the date of shipment, EL-CELL GmbH (hereinafter Seller) warrants the goods to be free from defect in material and workmanship to the original purchaser. During the warranty period, Seller agrees to repair or replace defective and/or nonconforming goods or parts without charge for material or labor, or, at the Seller's option, demand return of the goods and tender repayment of the price. Buyer's exclusive remedy is repair or replacement of defective and nonconforming goods, or, at Seller's option, the repayment of the price.

Seller excludes and disclaims any liability for lost profits, personal injury, interruption of service, or for consequential incidental or special damages arising out of, resulting from, or relating in any manner to these goods.

This Limited Warranty does not cover defects, damage, or nonconformity resulting from abuse, misuse, neglect, lack of reasonable care, modification, or the attachment of improper devices to the goods. This Limited Warranty does not cover expendable items. This warranty is void when repairs are performed by a non-authorized person or service center. At Seller's option, repairs or replacements will be made on site or at the factory. If repairs or replacements are to be made at the factory, Buyer shall return the goods prepaid and bear all the risks of loss until delivered to the factory. If Seller returns the goods, they will be delivered prepaid and Seller will bear all risks of loss until delivery to Buyer. Buyer and Seller agree that this Limited Warranty shall be governed by and construed in accordance with the laws of Germany.

The warranties contained in this agreement are in lieu of all other warranties expressed or implied, including the warranties of merchantability and fitness for a particular purpose.

This Limited Warranty supersedes all prior proposals or representations oral or written and constitutes the entire understanding regarding the warranties made by Seller to Buyer. This Limited Warranty may not be expanded or modified except in writing signed by the parties hereto.