

User Manual

Release 1.1

PAT-Press-Box

Box with data logger for gas pressure measurements with PAT series test cells



The information in this manual has been carefully checked and believed to be accurate; however, no responsibility is assumed for inaccuracies.

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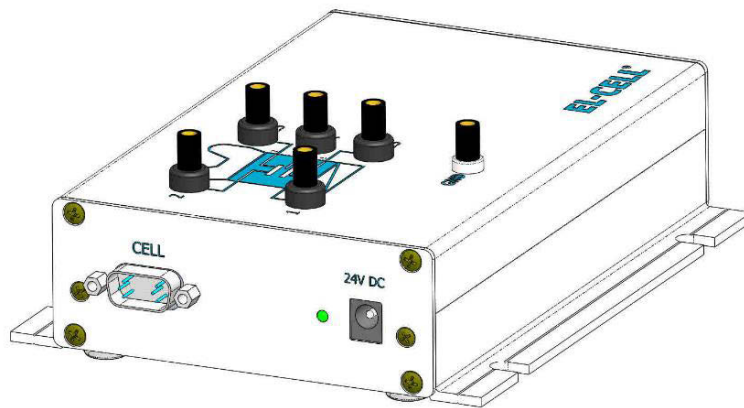
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1 Product Description

The PAT-Press-Box is required to read and record the analog pressure signal of a PAT series test cell when the cell is used in a docking station that does not provide this functionality itself.

The box is placed between the docking station and the used potentiostat. The integrated data logger records the pressure signal and transmits it to the connected PC. The pressure data can then be displayed with the supplied EC-Link software.

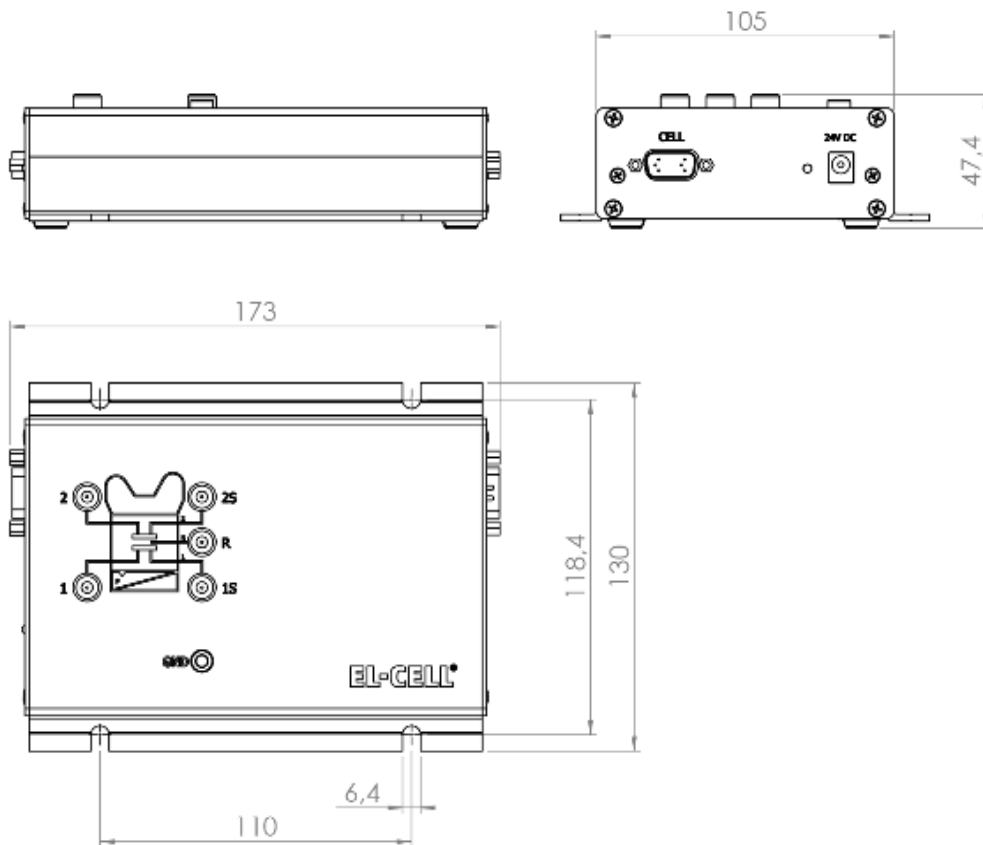


Functions

- Conditioning electronics for the raw signal of the pressure transducer in the PAT-Cell-Press test cell.
- RTD linearization circuit for the Pt100 temperature sensor located in the PAT-Stand-1.
- Instrumentation amplifiers for the test cell signals: cell voltage V12, positive half cell voltage V1R, negative half cell voltage V2R, and cell current I.
- Built-in USB data logger for pressure, temperature, V12, V1R, V2R, and I. The provided EC-Link software can record and display the signals on a PC.
- The pressure and temperature signals are also available at the Analog Out connector of the PAT-Press Box. **Suppose the used battery tester or potentiostat features auxiliary analog inputs. In that case,** it is possible to directly record and display the pressure and temperature with the software application of the battery tester or potentiostat.

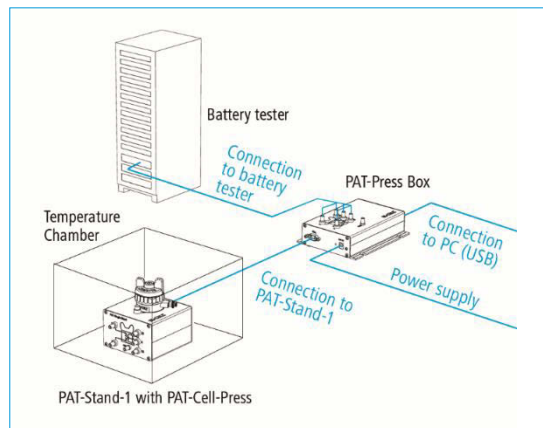
2 Technical Data

- Dimensions (width x depth x height): 160 mm x 130 mm x 40 mm
- Weight: approx. 0.6 kg
- Operation temperature range: 0 to 40°C
- Humidity: non-condensing
- Power supply: 24 V, 0.6 A supplied by PSA15R-240P mains adapter
- Analog output voltages: -10 to 10 V for pressure and temperature
- USB data logger powered by host PC with galvanic isolation
- Resolution of pressure signal < 0.2 mbar; linearity < 0.5% FS
- Resolution of temperature signal < 0.01 °C; linearity < 0.5% FS



3 Assembly and Installation

- Install the EC-Link datalogger software from the provided CD; for details, see the manual of the EC-Link Software.
- With the provided cable, connect the docking station inside the temperature chamber to the PAT-Press Box outside the chamber.
- Connect the PAT-Press Box to the provided 24 V power supply (wall adapter) and a USB port on your Windows PC.
- Launch the EC-Link software
- Connect your potentiostat to the PAT-Press Box using the cell cable of the potentiostat.



- Before starting the electrochemical cycle, we recommend waiting for stabilization of the recorded pressure, typically for at least 24 hours. Initial pressure change may be due to temperature stabilization (typically within the first hour only), equilibration between liquid and gaseous phases, and creeping of the polymer seal placed between the cell base and lid.

4 Connectors

1. Banana sockets (2 or 4 mm) at the box cover

(Table shows a standard connection to potentiostat or battery tester for full cell control)

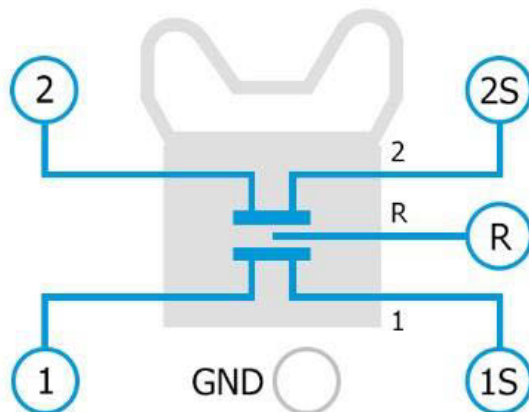
PAT-Press Box, banana sockets at the box cover	Potentiostat	Battery tester	PAT-Core connection
1	WE Current	Plus Current (B+)	Lower electrode
1S	WE Sense	Plus Sense (S+)	
R	CE Sense (if available)	Not connected	Reference ring
2S	RE	Minus Sense (S-)	Upper electrode
2	CE	Minus Current (B-)	
GND	GND (if available) of WE	GND (if available) or B+	

2. Analog Out connector (Sub-D M9) at the rear of the box

Pin #	Signal	Comment
2	Temperature	8 °C/V, (0V = 0 °C, 10V = 80 °C)
5	Pressure	0.3 bar/V, (0V = 0 bar min., 10V = 3 bar max.)
9	GND	Signal ground (COM), galvanically isolated from earth (PE)

3. Cell connector (Sub-D M15) at the front of the box

Pin #	Signal	Comments
1	1S	Sense lead to the lower electrode of PAT-Core
2	2S	Sense lead to the upper electrode
4	R	Sense lead to reference ring
5	2	Current lead to the upper electrode
7	VP	Raw signal from pressure transducer inside PAT-Cell-Press test cell
8	+5 V	The power supply of the pressure transducer
10	1	Current lead to the lower electrode
11	Pt100 (A)	Contact A of Pt100 sensor located inside PAT-Stand-1
12	Pt100 (B)	Contact B of Pt100 sensor located inside PAT-Stand-1
15	GND	Signal ground (COM) of the conditioning electronics, galvanically isolated from earth (PE)



5 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-Press-Box [ECE1-00-0008-D](#)
- PAT-Stand-1 to PAT-Press-Box Cable [ECE1-00-0045-B](#)
- EC-Link Installation –USB [ECE1-00-0052-B](#)
- Power supply 15 W / 24 V DC [ELT9045](#)
- Power supply adapter [ELT9078](#)
- USB cable type A / B (2.0 m) [ELT9167](#)

6 Accessories

Sub-D M9 to Biologic AUX input		
Pin #	Signal	Comment
6	Analog IN 2	8 °C/V, (0V = 0 °C, 10V= 80 °C)
1	Analog IN 1	0.3 bar/V, (0V = 0 bar min., 10V = 3 bar max.)
7	GND	

- Press-Box to Biologic Auxiliary Cable, approx. 2 m, [ECE1-00-0040-B](#)

7 Technical Support

EL-Cell GmbH exclusively provides technical support for this product. For more information about the detailed process, please visit our website:

<https://el-cell.com/support/technical-support>



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_8 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.