

User Manual

Release 1.62

PAT-Stand-1

Docking station for PAT series test cells



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The information provided in this documentation includes general descriptions and/or technical characteristics regarding the performance of the equipment described herein. This documentation cannot serve as a proper evaluation of the suitability or reliability of the equipment for any specific application by any user and should not be relied upon as a substitute for such evaluation. It is the responsibility of each such user or installer to conduct an appropriate and complete risk assessment, evaluation and testing of the equipment with respect to their specific application. EL-Cell GmbH cannot be held responsible or liable for any misuse of the information contained herein.

All relevant state, regional and local safety regulations must always be complied with when installing and using this device. For safety reasons and to ensure compliance with the documented system data, only the manufacturer is authorized to perform repairs on components.

Disregarding this information may result in injury or damage to the equipment.

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Please always quote the serial number on the nameplate when making customer service inquiries.

Shipping address for repairs

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Please be sure to contact our customer service department before making a return. We will not open or process shipments without a completed decontamination report or RMA.

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1 Preamble

1.1 Purpose and target audience

This manual covers the structure, function, operation and maintenance of the device described. It is intended for the end users of the device. An end user can be described as any person who interacts directly with the device. The term "end user" usually includes laboratory personnel who have been specifically trained to operate this instrument and are familiar with all the precautions required to work in the laboratory.

Only an authorized and properly qualified and experienced person 18 years of age or older may use the device described, who:

- has read and understood these installation and operating instructions
- is familiar with the installation and operation of this or a similar device
- is aware of all possible dangers and acts accordingly

1.2 Storage instructions

Make sure you have read and understood the complete instructions and all safety information before using this product. Failure to follow these instructions may result in minor or serious injury.

Follow all instructions. This will prevent accidents that could result in property damage or injury. Keep all safety information and instructions for future reference and pass them on to subsequent users of the product.

The manufacturer is not liable for property damage or injuries resulting from incorrect handling or failure to comply with the safety instructions. In such cases, the warranty becomes void.

1.3 Obtaining documents and information

A current version of the documentation is available on the following website:

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

Alternatively, you can scan this QR code,
to access the website:

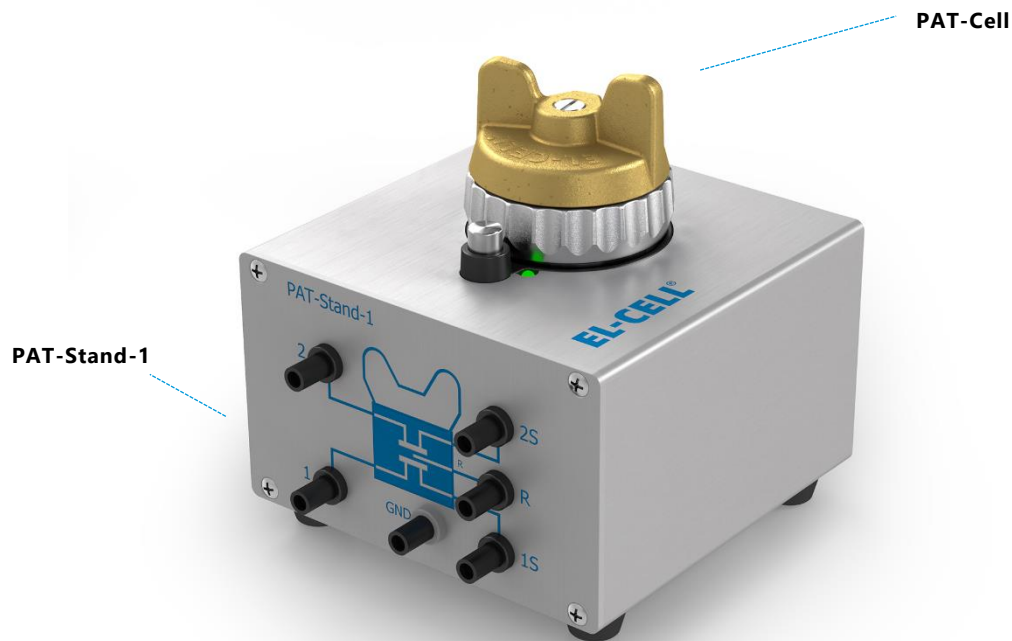


2 Product description

The PAT-Stand-1 is a docking station for a single PAT series test cell. When docked into the PAT-Stand-1, the test cell may be tested by any potentiostat or battery tester.

The compatible test cells are covered in detail by other manuals:

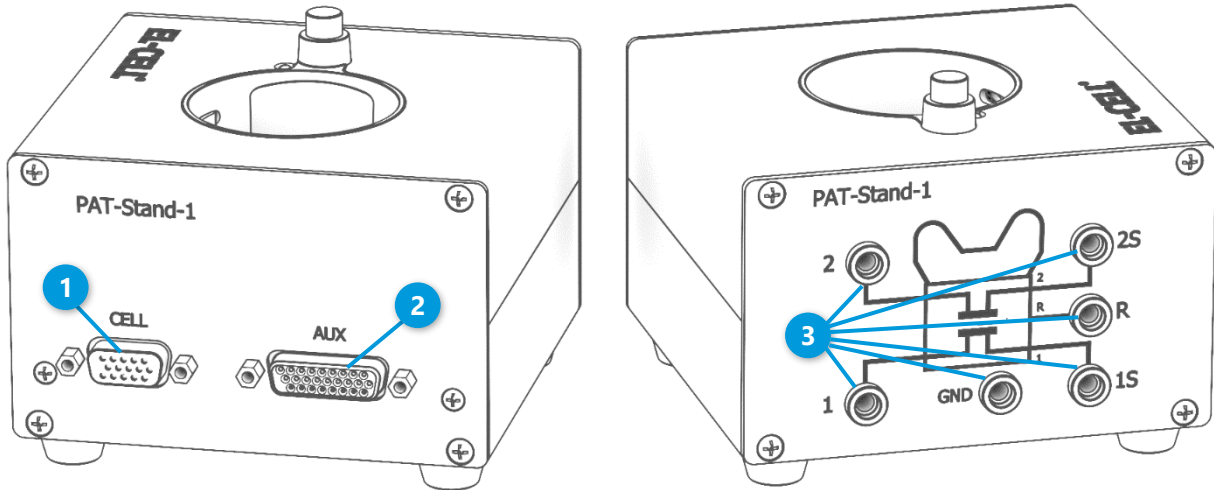
(<https://el-cell.com/support/manuals>).



3 Technical data

- Operating temperature: -20 to +70°C
- Humidity: non condensing
- Dimensions: 105 mm (width) x 113 mm (depth) x 80/110 mm (height without/ with PAT-Cell)
- Weight: 0.56/0.96 kg (without/with test cell)
- Protection Class: IP20 according to EN 60529

4 Connections



1	Sub-D Connector „Cell“: Used for transmitting cell signals from the PAT-Stand-1 to a potentiostat (instead of connecting to the banana sockets at the front).
2	Sub-D Connector „Aux“: Used for incoming external signal sources, like dilatometry signal data.
3	4 mm banana sockets : Used for transmitting cell signals from the PAT-Stand-1 to a potentiostat. Adapters for connection of 2 mm banana plugs are included.

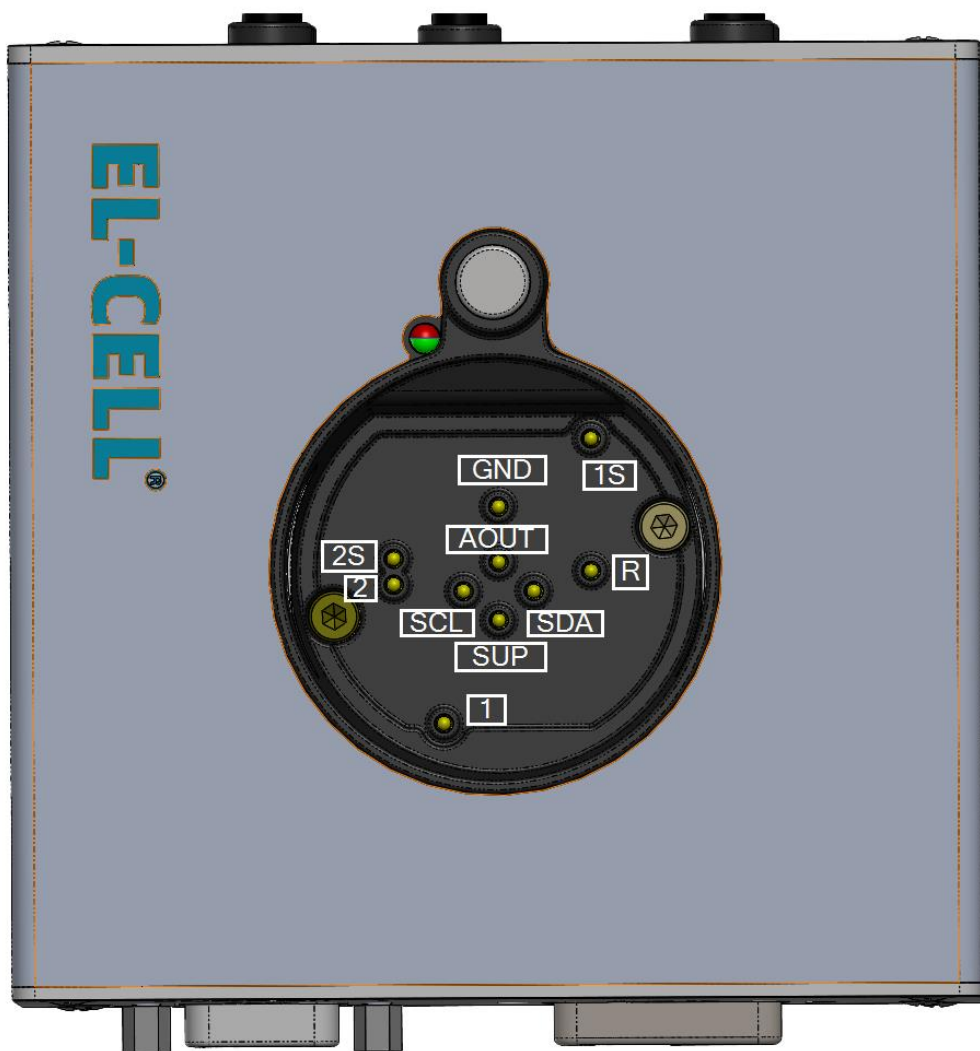
4.1 Pin-Out of Sub-D “Cell” at PAT-Stand-1

Sub-D F15 Pin #	1	2	4	5	10
Signal	1S	2S	R	2	1

4.2 Pin-Out of Sub-D “Aux In” at PAT-Stand-1

Sub-D HD15F Pin #	3	4	13	21	22
Signal	SDA	SUP	AOUT	SCL	GND

4.3 Pin-Out of PAT-Socket



I²C Signals:

SCL = Serial clock line

SDA = Serial data line

4.4 Contacting of electrodes in different cell types

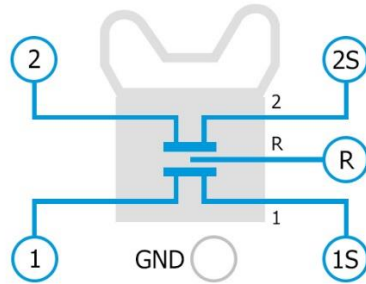
PAT-Stand-1	1	2	R
PAT-Cells	Lower electrode	Upper electrode	Reference electrode
ECD-4-nano	Upper electrode	Lower electrode	Reference electrode

5 Installation

1. Place the PAT-Stand-1 on a flat, dry, clean surface. This can be, for example, on a bench top, inside a temperature chamber or glove box.
2. Then connect the cell cable of your potentiostat or battery tester channel to the banana sockets or Sub-D connector of the PAT-Stand-1.

6 Operation modes

Connect the cell cable of your potentiostat or battery tester channel to the banana sockets at the front of the PAT-Stand-1. For the different operation modes, see the table below.



Operation mode 1: Cell voltage control (1 vs 2)

PAT-Stand-1	1	1S	2	2S	R
Potentiostat	WE	WE-Sense	CE	RE	(CE-Sense)
Battery tester	Plus	Plus-Sense	Minus	Minus-Sense	-

Operation mode 2: Half cell voltage control (1 vs R)

PAT-Stand-1	1	1S	2	2S	R
Potentiostat	WE	WE-Sense	CE	(CE-Sense)	RE
Battery tester	Plus	Plus-Sense	Minus	-	Minus-Sense

Operation mode 3: Half cell voltage control (2 vs R)

PAT-Stand-1	1	1S	2	2S	R
Potentiostat	CE	(CE-Sense)	WE	WE-Sense	RE
Battery tester	Minus	-	Plus	Plus-Sense	Minus-Sense

7 Cable colors and naming conventions

The naming convention and color codes of the potentiostat's cell cable leads are not standardized between manufacturers. The table below is an incomplete list of some popular instruments.

Important note: The application of our test cells is not limited to the potentiostats listed below. Our test cells can be used with all other potentiostats as well.

Exemplary potentiostat	WE	WE-Sense	CE	CE-Sense	RE
BioLogic SP, VMP, VSP, MPG	WE Red cable	Ref1 Red cable	CE Blue cable	Ref3 Blue cable	Ref2 White cable
Gamry Instruments Reference 600™ and 3000™, Interface 5000	Green cable	Blue cable	Red cable	Orange cable	White cable
Ivium Technologies IviumStat, Ivium-n-Stat, CompactStat, Vertex	W Red cable	S White cable	C Black cable	Not available	R Blue cable
Metrohm Autolab PGSTAT Series	WE Red cable	S Red cable	CE Black cable	Not available	RE Blue cable
Princeton Applied Research PARSTAT 2273	WKNG Green cable	SENSE Grey cable	CNTR Red cable	Not available	REF White cable
WonATech ZIVE SERIES	WE Green cable	WS Blue cable	CE Red cable	Not available	RE White cable

8 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-Stand-1



- 6 x adapter male 4 mm to female 2 mm [ELT9081](#)

9 Spare parts

Adapter male 4 mm to female 2 mm [ELT9081](#)

10 Storage and disposal

10.1 Storage

The device may only be stored under the following conditions:

- dry and in a closed, dust-free room
- frost-free

10.2 Disposal

The device must not be disposed of in normal household waste. Observe the applicable legal regulations. Please contact your dealer or the manufacturer for disposal.

11 Warranty

For a period of one year from the date of shipment, EL-Cell GmbH (hereinafter Seller) warrants the goods to be free from defects 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. The buyer's exclusive remedy is repair or replacement of defective and nonconforming goods or, at the Seller's option, the refund 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 the 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, the 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 instead 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.