

# User Manual

Release 1.1

## PAT-Clamp-1

Docking station for a single PAT series test cell



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

EL-Cell GmbH maintains the right to make changes without further notice to products described in this manual to improve reliability, function, or design. EL-Cell GmbH does not assume any liability arising from the use or application of this product.

**EL-Cell GmbH**

Tempowerkring 8

21079 Hamburg - Germany

**phone:** +49 40 79012-737

**fax:** +49 40 79012-736

**e-mail:** [info@el-cell.com](mailto:info@el-cell.com)

**web:** [www.el-cell.com](http://www.el-cell.com)

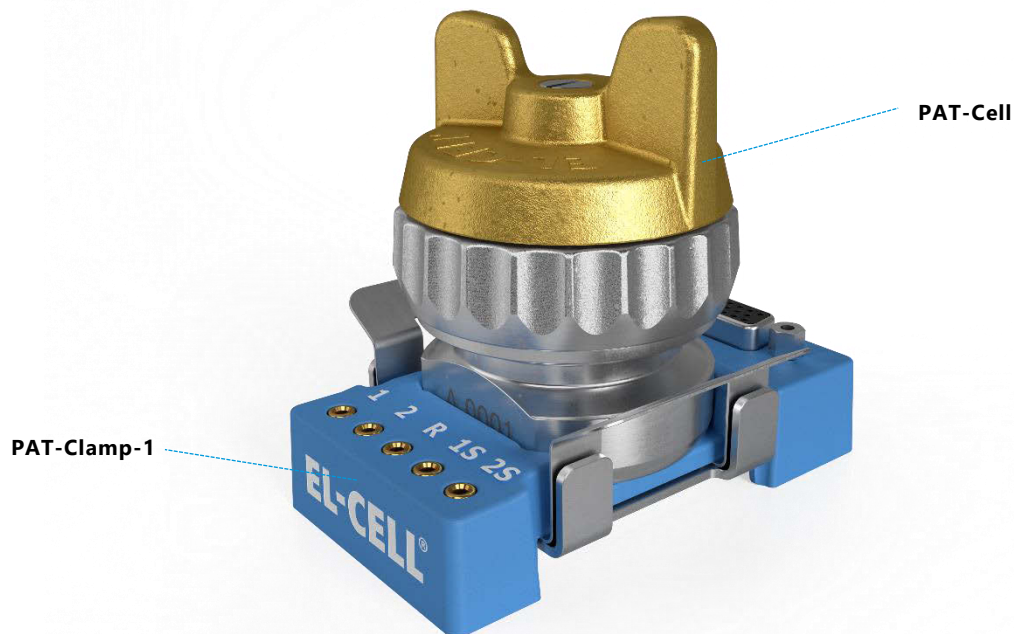
## Content

1 Product description .....	4
2 Technical data .....	5
3 Variants .....	6
4 Installation.....	7
5 Cleaning .....	7
6 Operation modes.....	8
7 Cable colors and naming conventions .....	9
8 Unpacking.....	10
9 Technical support.....	10
10 Warranty .....	11

## 1 Product description

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

The compatible test cells and the PAT-Core concept are covered in detail by other manuals: (<https://el-cell.com/support/manuals>).

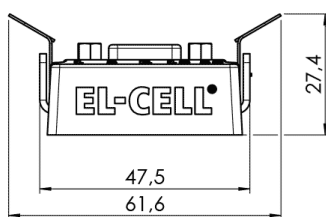


### Features

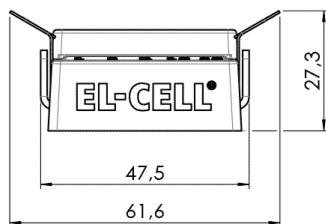
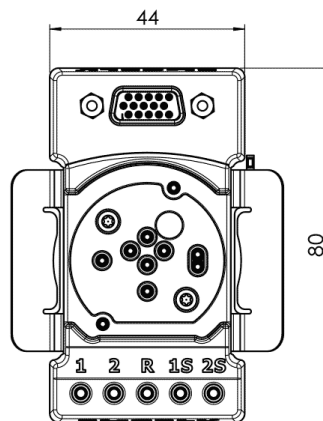
- Socket for one PAT series test cell (charge / discharge / EIS compatible)
- Compatible with all of today's potentiostats and battery testers.
- Can be used inside a glovebox environment
- Flexible wiring via 2 mm banana sockets or Sub-D connector

## 2 Technical data

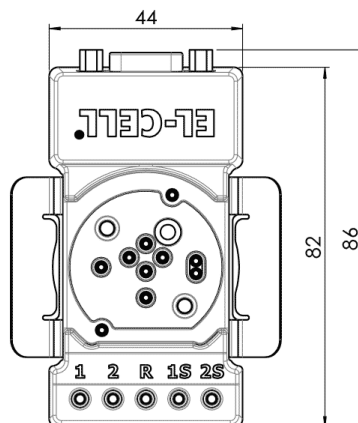
- Operating temperature: -20 to +70°C
- Humidity: non condensing
- Dimensions PAT-Clamp-1 V: 80 mm (width) x 62 mm (depth) x 27/83 mm (height without/with PAT-Cell)
- Dimensions PAT-Clamp-1 H: 86 mm (width) x 62 mm (depth) x 27/83 mm (height without/with PAT-Cell)
- Weight: 0.12 kg (without/with PAT-Cell)
- Protection Class: IP20 according to EN 60529



PAT-Clamp-1 V  
All dimensions in mm



PAT-Clamp-1 H  
All dimensions in mm



### 3 Variants



**PAT-Clamp-1 V**

Vertical alignment of Sub-D connector



**PAT-Clamp-1 H**

Horizontal alignment of Sub-D connector

## 4 Installation

Place the PAT-Clamp-1 on a flat, dry and clean surface, for example on a benchtop, inside a temperature chamber, or a glove box. Then connect the cell cable of your potentiostat or battery tester channel to either the banana sockets at the front of the PAT-Clamp-1 or the Sub-D connector on the opposite side.



The "Sub-D connector can be used for connecting the PAT-Clamp-1 to a potentiostat (instead of connecting to the banana sockets at the other side).

2 mm banana sockets for connection to the cell cable of a potentiostat or battery tester

### Pin-Out of Sub-D F15 HD Connector "Cell" at PAT-Clamp-1

<b>Sub-D F15 Pin #</b>	1	2	4	5	10
<b>Signal</b>	1S	2S	R	2	1

## 5 Cleaning

Wipe the PAT-Clamp-1 with a moist tissue. Do not use aggressive chemicals for cleaning. Protect the PAT-Clamp-1 from dust and moisture.

## 6 Operation modes

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

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

<b>PAT-Clamp-1</b>	1	1S	2	2S	R
<b>Potentiostat</b>	WE	WE-Sense	CE	RE	(CE-Sense)
<b>Battery tester</b>	Plus	Plus-Sense	Minus	Minus-Sense	-

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

<b>PAT-Clamp-1</b>	1	1S	2	2S	R
<b>Potentiostat</b>	WE	WE-Sense	CE	(CE-Sense)	RE
<b>Battery tester</b>	Plus	Plus-Sense	Minus	-	Minus-Sense

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

<b>PAT-Clamp-1</b>	1	1S	2	2S	R
<b>Potentiostat</b>	CE	(CE-Sense)	WE	WE-Sense	RE
<b>Battery tester</b>	Minus	-	Plus	Plus-Sense	Minus-Sense



## 7 Cable colors and naming conventions

The potentiostat's cell cable leads' naming convention and color codes are not standardized between different 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
<b>BioLogic</b> SP, VMP, VSP, MPG	WE Red cable	Ref1 Red cable	CE Blue cable	Ref3 Blue cable	Ref2 White cable
<b>Gamry Instruments</b> Reference 600™ and 3000™, Interface 5000	Green cable	Blue cable	Red cable	Orange cable	White cable
<b>Ivium Technologies</b> IviumStat, Ivium-n-Stat, CompactStat, Vertex	W Red cable	S White cable	C Black cable	Not available	R Blue cable
<b>Metrohm Autolab</b> PGSTAT Series	WE Red cable	S Red cable	CE Black cable	Not available	RE Blue cable
<b>Princeton Applied Research</b> PARSTAT 2273	WKNG Green cable	SENSE Grey cable	CNTR Red cable	Not available	REF White cable
<b>WonATech</b> 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-Clamp-1 (without PAT-Cell)

## 9 Technical support

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

### EL-Cell GmbH

Tempowerkring 8

21079 Hamburg - Germany

**phone:** +49 40 79012-737

**fax:** +49 40 79012-736

**e-mail:** [support@el-cell.com](mailto:support@el-cell.com)

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



## 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 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 repayment of the price.

Seller excludes and disclaims any liability for lost profits, personal injury, interruption of service, or 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 by 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.