

User Manual

Release 1.4

PAT-Clamp-1

Docking station for a single PAT series test cell



Disclaimer

EL-Cell GmbH makes no assurances or warranties with respect to this manual and, to the extent permitted by law, limits its liability for violation of any implied warranty to the substitution of this manual for another. In addition, EL-Cell GmbH reserves the right to revise this publication at any time without notice to anyone.

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.

All rights reserved. No part of this publication may be reproduced, processed, or transmitted in any form, including photocopying, recording, or any other electronic or mechanical process, without the written permission of the publisher. Requests for permission must be made in writing to the publisher at the address written below.

Manufacturer and Customer Service

EL-Cell GmbH
Tempowerkring 8
21079 Hamburg – Germany

Telephone: +49 40 79012-734
Telefax: +49 40 79012-736
Email: info@el-cell.com
Website: el-cell.com

Technical Support

Telephone: +49 40 79012-734
Email: support@el-cell.com
Website: el-cell.com/support/technical-support/

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

Shipping Address for Repairs

EL-Cell GmbH
Tempowerkring 8
21079 Hamburg - Germany

Please contact our customer service department before making a return. Without a completed decontamination report or RMA, we will not open or process shipments.

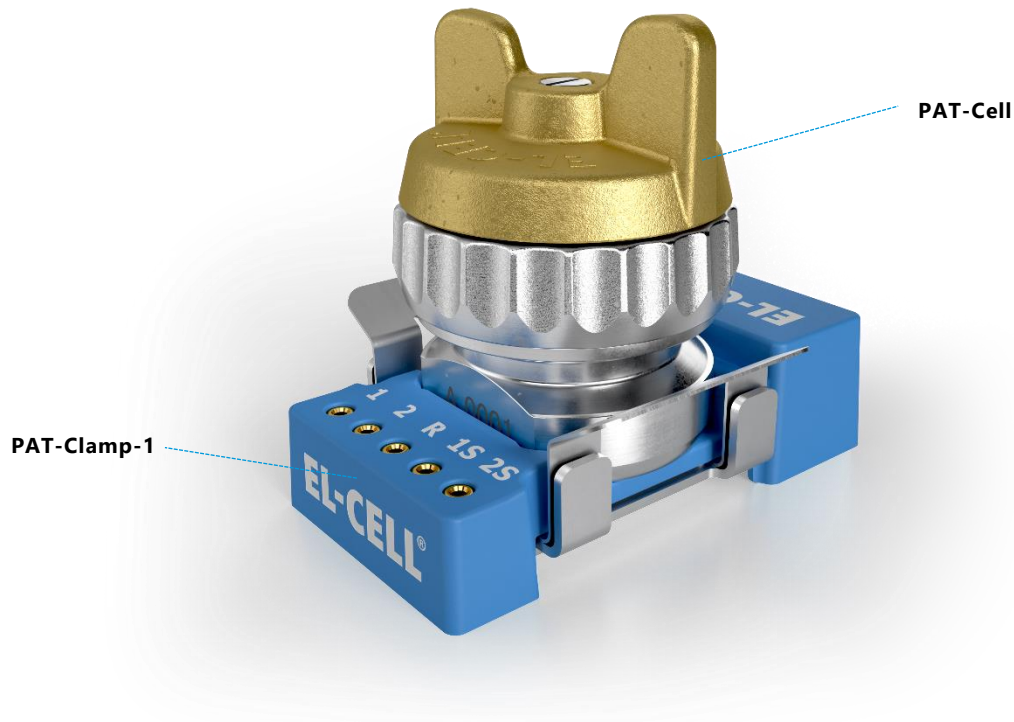
Content

1 Product Description.....	5
2 Technical Data.....	6
4 Installation.....	7
5 Cleaning.....	8
6 Operation Modes.....	9
7 Cable Colors and Naming Conventions	10
8 Unpacking.....	11
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.

Other manuals cover the compatible test cells and the PAT-Core concept in detail: (<https://el-cell.com/support/manuals>).

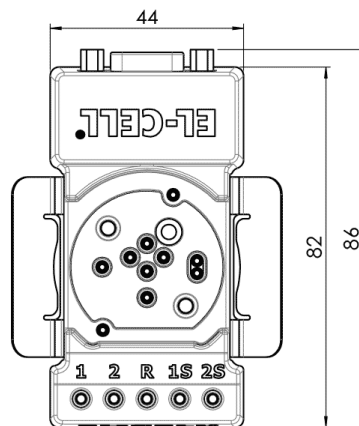
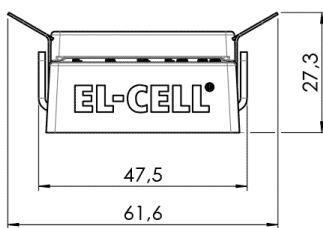


Features

- 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 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 H
All dimensions in mm

4 Installation

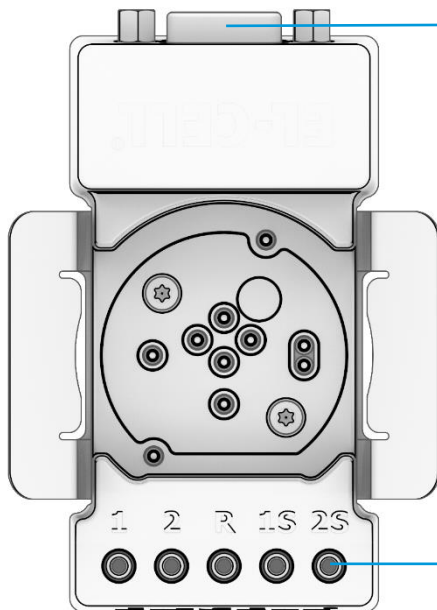
Place the PAT-Clamp-1 on a flat, dry, and clean surface. This surface can be a benchtop, inside a temperature chamber, or in a glove box.

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.

IMPORTANT NOTE

Please place the PAT-Clamp on a flat surface only. **Only the blue plastic frame must touch the surface.** The metal parts of the PAT-Clamp and the inserted PAT-Cell are not meant to be electrically connected to their environment. This is most important when the PAT-Clamp is used with non-floating battery testers.

If the PAT-Clamp-1 is to be placed on a metal grid inside a climate chamber, please use cable zip ties to fix it firmly in an orientation that provides electrical isolation to the metal grid, to other cells, and to the chamber walls.



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

Sub-D F15 Pin #	1	2	4	5	10
Signal	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. The table below lists the different operation modes.

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

PAT-Clamp-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-Clamp-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-Clamp-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 potentiostat's cell cable leads' naming convention and color codes 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-Clamp-1 (without PAT-Cell)

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.