

EmStat4R

Operator's Manual

PalmSens BV

Version 019, 2026-11-17

PalmSens

If you have problems

First make sure to check the “Troubleshooting” section in this document and the Knowledge Base on our website: www.palmsens.com/knowledgebase/. This page contains support information on installation, software updates, and training. Please make sure your software and firmware are up-to-date.



In case of persistent problems

- Use the contact form: www.palmsens.com/contact/
- Give us a call: +31 30 2459211
- Or send an email: info@palmsens.com

Please describe the problem in as much detail as possible. Sending us the relevant method files, data files and screenshots can be helpful. Please include your instrument model and serial numbers, as well as any applicable software and firmware version you are using.

Limited Warranty

Except as otherwise provided herein, PalmSens BV warrants to buyer three years from the date title to the product passes (transfer date of goods from seller to buyer), each product sold hereunder will be free of defects in materials or workmanship and will conform to specifications set forth in PalmSens BV’s published data sheets or, where applicable, operator’s manuals for PalmSens BV’s system products in effect at the time title passes.

PalmSens BV’s sole liability and responsibility for products under this warranty is for PalmSens BV to repair or replace any product that is returned to it by buyer or credit buyer’s account for such returned product, provided that PalmSens BV shall have the right to reject any such remedy where PalmSens BV determines that the warranty does not apply. Products returned to PalmSens BV for warranty service will be shipped to PalmSens BV at buyer’s expense and will be returned to buyer at PalmSens BV’s expense. PalmSens BV’s obligation to honor its warranty for a product is contingent upon receipt of payment in full for such product.

See our website for more detailed information:
www.palmsens.com/terms-and-conditions/

Disclaimers

PalmSens BV is not liable for any direct, indirect, incidental, or consequential damages resulting from the use or misuse of its instruments, including but not limited to:

- Damage to the instrument caused by improper handling, unauthorized modifications, or use outside the recommended specifications.
- Malfunction or incorrect results due to improper sample preparation, contamination, or incorrect experimental setup.
- Loss of data or research results caused by software crashes, hardware failures, or power interruptions.
- Personal injury or property damage resulting from incorrect wiring, exposure to hazardous chemicals, or misuse of electrical connections.

Results obtained using PalmSens instruments depend on experimental conditions, sample properties, and user expertise. Users are responsible for verifying the validity of their data. Changes in specifications and typing errors reserved. Every effort has been made to ensure the accuracy of this document. However, no rights can be claimed by the contents of this document.

By using PalmSens instruments, the user acknowledges and accepts these limitations and responsibilities.

See Appendix A for CE declaration of conformity.

Copyrights

EmStat4R – Operator's Manual.

Copyright © 2024-2026, PalmSens BV, all rights reserved.

PSTrace, MultiTrace, Nexus, PalmSens, EmStat, MultiEmStat, Sensit and Lablink are trademarks of PalmSens BV.

No part of this document may be copied or reproduced in any form without the prior written consent of PalmSens BV.



Table of Contents

1. Introduction. v
1.1. Scope of this manual v
1.2. About the EmStat4R 1
2. Operating the EmStat4R 2
2.1. USB and charging 2
2.2. Bluetooth. 2
2.3. Cell connections. 3
2.4. Replacing the Connection Module 4
2.5. Display and status LED indicator 7
2.6. Cell connector pin-out 8
3. Running measurements 10
3.1. Connecting a cell to the potentiostat 10
3.2. Using Screen-Printed Electrodes (SPEs) with the EmStat4R 13
4. Battery replacement 15
5. Specifications 18
6. Troubleshooting. 19
6.1. Verifying your potentiostat 19
6.2. Noise 20
7. Maintenance and compliance 22
7.1. Lithium-Polymer batteries 22
7.2. Temperature compliance 22
7.3. Humidity compliance 22
7.4. Temperature drift 23
7.5. Atmospheric pressure 23
7.6. Cleaning. 23
7.7. Periodic calibration and preventive maintenance 23
7.8. Service and repair 23
7.9. RoHS Compliance 24
Appendix A: CE Declaration 25
Appendix B: EU Waste Electrical and Electronic Equipment (WEEE) Directive 26

Chapter 1. Introduction

1.1. Scope of this manual

This manual covers the handling, characteristics, troubleshooting, and other practical information regarding the hardware specifics of the EmStat4R, as well as maintenance and compliance.

Please refer to the **Quick Installation Guide** that was supplied with the instrument for instructions on installing the instrument and the software. Additionally, the section **Getting Started** in the digital **PSTrace Manual**, that is installed with the software, provides detailed instructions for conducting first measurements with your instrument.



Initial setup and basic operational instructions for conducting initial measurements are detailed in the "Quick Installation Guide" supplied with the instrument.

The PSTrace Manual is an in-depth document covering not only the PSTrace software but also the hardware limitations for each technique supported by the instrument. It is written to give you a full understanding of both the software and hardware aspects, making sure you are well equipped to use all the functionalities of the EmStat4R.

1.2. About the EmStat4R

The EmStat4R is a portable Battery or USB-powered Potentiostat, Galvanostat, and optional a Frequency Response Analyzer (FRA) for Electrochemical Impedance Spectroscopy (EIS).

The EmStat4R instrument incorporates the EmStat4 LR potentiostat module, extending its functionality with Bluetooth connectivity, a Li-Po battery and a Connection Module in a rugged enclosure. The EmStat4R is great for applications that require low currents, from 30 mA down to picoamps, such as sensor applications. The cell or sensor interface of the instrument (the Connection Module) can easily be exchanged to accommodate for specific form factors of Screen-Printed Electrodes (SPEs).



Figure 1. The Connection Module of the EmStat4R can easily be exchanged

The EmStat4R has been on the market since 2022 and is also available as a tailored instrument for OEM purposes. For more information, see the OEM section on our website.

Chapter 2. Operating the EmStat4R

The EmStat4R can be used either on battery using a wireless Bluetooth connection or by connecting it via its USB-C port to a PC or Android device. A single button on the top side of the instrument is used to switch the instrument on and off again. Push the button briefly to turn in the instrument on. Do the same for turning the instrument off again.

2.1. USB and charging

The EmStat4R has a USB Type-C (USB-C) port and uses the High-Speed USB 2.0 specification.

For optimal performance, PalmSens recommends using only the shielded USB-C to USB-A (standard rectangular plug) cable supplied as standard with the instrument. Use of other or longer cables may increase susceptibility to electromagnetic interference and may affect measurement performance. Similarly, if feasible, it is recommended to refrain from utilizing a USB hub or docking station.

When the EmStat4R is connected to a USB port which is either a USB power source or host it will charge the battery. Charging the battery from depleted to full takes about 5 hours. Charging up to 80% takes about 3.5 hours.

The white ring around the power button will show a spinning light pattern while the instrument is charging.

2.2. Bluetooth

Every EmStat4R has a unique Bluetooth identifier. The Bluetooth identifier always starts with the letters PS, followed by a dash and the last four characters of its MAC address. For example: PS-F93A. The Bluetooth MAC address of the EmStat4R instrument can be found on the bottom of the instrument, see Figure 2.



Figure 2. The last four characters of the MAC address.

2.3. Cell connections

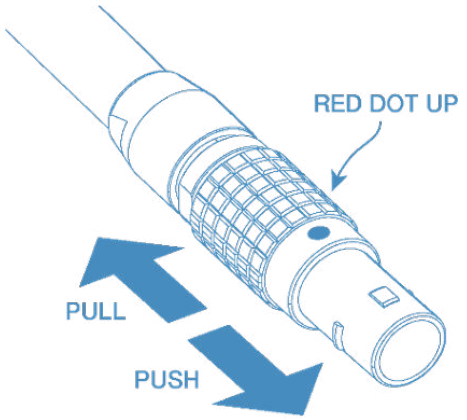
The EmStat4R comes in two versions: the SNS and SPE version. The difference between the two versions is in which Connection Module is installed, which is the interface to the sensor or cell. The table below describes the different versions of the EmStat4R.

Table 1. The differences between the SNS and SPE version.

	SNS version	SPE version
Connection module	Cell cable compatible	Screen-Printed Electrode compatible
Cell cable included	Yes	No
Electrode connections	WE, RE, CE and ground	WE, RE, CE
Connectors	2 mm	Max. 11 mm wide SPE with 2.54 mm pitch

Screen-Printed Electrodes with ceramic substrates can have very sharp edges that might damage the SPE connector.

The cell cable is connected to the EmStat4R by means of a LEMO push-pull connector. Make sure the red dot on the connector is facing upwards when plugging the connector into the EmStat4R.



The EmStat4X cell connector is a push-pull connector. Do not try to twist it!

For more information about making a connection to the cell, see also section: **"Connecting a cell to the potentiostat"** in the PSTrace Manual.

2.4. Replacing the Connection Module

Required tool: Small Pozidriv or Philips screwdriver



The Connection Module can be damaged by static electricity (electrostatic discharge or ESD). Please take adequate precautions against static discharge during handling.

Step 1: Remove the rubber sleeve

Push the rubber sleeve down at the USB-port (back) side of the instrument. Then pull the aluminium housing out the front side.



Figure 3. Removing the rubber sleeve

Step 2: Remove the Connection Module screw at the bottom

The screw near the edge of the instrument keeps the Connection Module in place. Remove the screw.

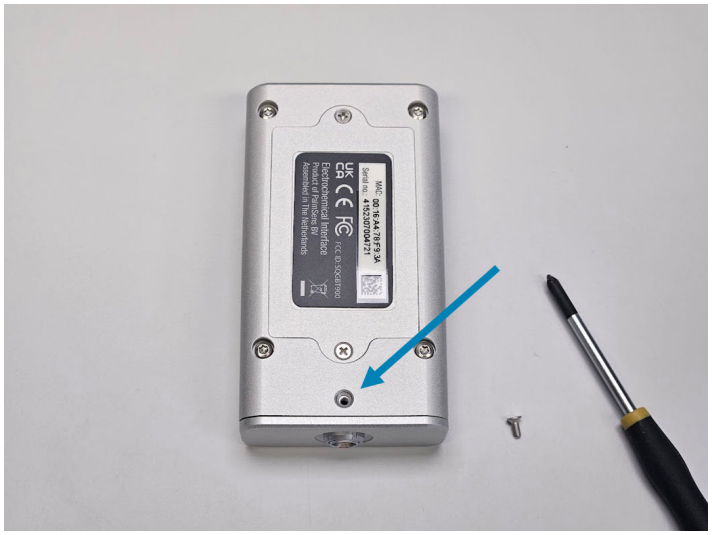


Figure 4. The Connection Module screw location

Step 3: Pull out the module

There are two indentations at the side of the instrument providing a grip for two fingers to pull out the Connection Module.



Figure 5. Pulling out the Connection Module

Step 4: Replace the module

Place the new module carefully in while making sure the module is aligned with the slide connector inside the instrument. Make sure that the gold-plated connection pads at the edge of the new module are facing upwards. Push the module all the way in and put the screw back in place to fixate it. Do not use excessive force while screwing.



Figure 6. Replacing the Connection Module

Step 5: Put the sleeve back in place

Push the front side of the aluminium housing back in the front (deep pocket) of the sleeve. Then pull the back side (USB-port side) over the back of the aluminium housing using your thumb. The rubber sleeve can handle enough stress to firmly pull it over.



Figure 7. Pulling the rubber sleeve over the back of the housing

2.5. Display and status LED indicator

The EmStat4R has three indicators in the black area on the top of the instrument.



The Bluetooth indicator (A) is solid blue when a Bluetooth connection is established. The indicator will turn off again when the Bluetooth connection is severed. The Power ring indicator (B) can be in one of the following states:

Table 2. EmStat4R power ring states

State	Meaning
Steady white	Not connected to USB: powered with sufficient battery charge Connected to USB power source: fully charged
Spinning	Charging
Blinking fast	Low battery

The cell indicator (C) turns red whenever the cell is on, which means the Counter Electrode is connected internally and current can flow. If the cell indicator is off, the cell is at open circuit (OCP) and only potentials can be measured.

2.6. Cell connector pin-out

The following schematics show the EmStat4R SNS cell connector pin-out and pin functions.

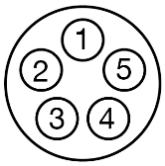


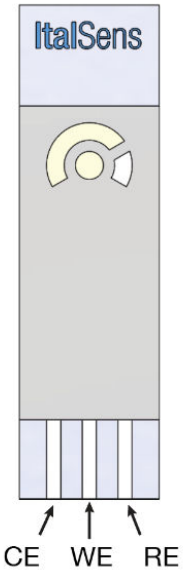
Figure 8. Front view of the female cell connector on the EmStat4R

Table 3. Cell connector pin functions of the EmStat4R

Pin	Function	Connector color
1	Reference Electrode (RE)	Blue
2	Reference Electrode Shield	N/A
3	Counter / Auxiliary Electrode (CE)	Black
4	NC	NA
5	Working Electrode (WE)	Red
Connector housing	Analog Ground (AGND)	Green

The following table shows the EmStat4R SPE connector specifications.

Table 4. Specifications of compatible SPEs

Connection pads	
Connection pads pitch	2.54 mm (0.1")
Sensor thickness	0.1 to 0.8 mm
Max. sensor width	11 mm



When inserting a Screen-Printed Electrode (SPE), avoid touching the electrode areas. Finger contact can contaminate the surfaces and degrade measurement quality. The electrodes also connect directly to sensitive instrument inputs, and touching them may cause electrostatic discharge (ESD) that can damage the circuitry.

Handle the sensor only by its non-electrode edges and ensure you are discharged before insertion.

Chapter 3. Running measurements

The PSTrace software for Windows allows you to perform all electrochemical techniques supported by the connected EmStat4R instrument. This section outlines how to set up a typical measurement using this application. For detailed information on specific techniques, including their options and limitations, please refer to the **PSTrace Manual**.



The options and limitations for each technique are described in the PSTrace Manual.

More theoretical background information about electrochemical techniques can be found in:

- Christopher M.A. Brett and Ana Maria Oliveira Brett, Electroanalysis (Oxford Chemistry Printers, 64) Oxford Science Publications, ISBN-13: 978-0198548164
- Joseph Wang, Analytical Electrochemistry 4th ed, John Wiley & Sons, ISBN-13 978-1119787693

3.1. Connecting a cell to the potentiostat

This section describes how to connect the SNS version of the EmStat4R to an electrochemical cell using the 1-meter cell cable. The 1-meter cell cable is terminated with 2-mm plugs as the lead connectors for the cell/electrodes/sample. Each lead is accompanied by a crocodile (alligator) clip of the same color. See Table 3 for EmStat4R standard cable lead colors.



We advise keeping an unused lead connected with its crocodile clip. This practice prevents accidental electrical contacts with the exposed 2-mm plug, minimizing the risk of unintended electrical contacts.

Each electrode cable is individually shielded, and the entire cable features an external shielding mesh. The shielding extends up to the beginning of the 2-mm plug. When you are using a Faraday cage, it is advisable to keep the entire 2-mm plugs inside the Faraday cage housing to ensure the cage shields the 2-mm plug.

3.1.1. 2-electrode cell connection

For a 2-electrode setup, combine the counter and reference electrode leads. The counter electrode plug of the cell cable is stackable, allowing easy combination.

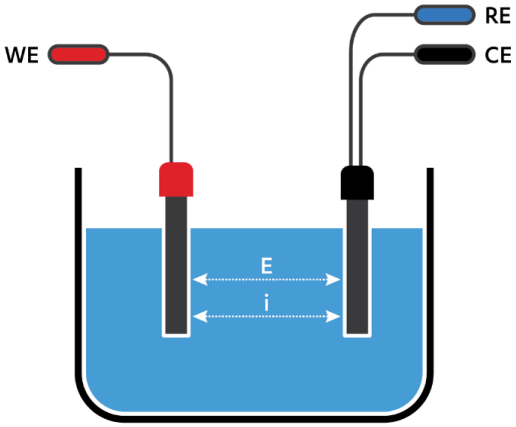


Figure 9. 2-electrode cell connection

During a measurement in a 2-electrode setup, the potential will be applied between the two electrodes, and the current will flow between the same two electrodes. This means the applied potential includes the potential drop across the working electrode's interface, the potential drop across the solution, and the potential drop across the counter electrode's interface. Any changes at the counter electrode will influence the result. If your counter electrode is expected to be stable during the measurement due to low currents or a short duration of the measurement, you can use this setup almost equivalent to a 3-electrode setup. Otherwise, this setup is only used for applications where the full cell potential is an interesting parameter, for example, fuel cells, batteries, capacitors, dummy cells or electronic components.

3.1.2. 3-electrode cell connection

The 3-electrode setup is the most common configuration for electrochemical measurements.

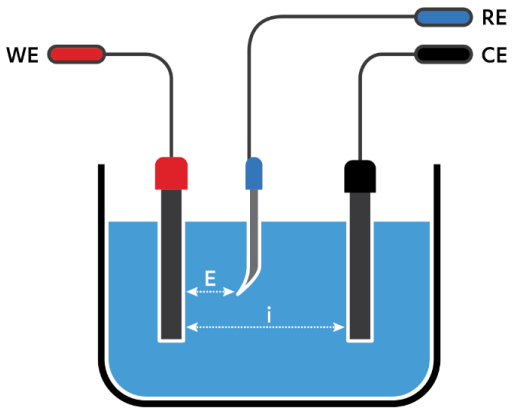


Figure 10. 3-electrode cell connection

Similar to the 2-electrode setup, the working electrode carries the current and potential. In this setup, the counter electrode also carries the current and polarizes versus the working electrode (WE). However, the potential is measured between the working and reference electrodes, denoted as WE vs. RE. This potential is the one set and read in the plot results.

The potential WE vs. CE is referred to as the 'cell potential', and it is recorded in special cases. In potential-controlled experiments, the potentiostat maintains a loop to ensure that the potential read (WE vs. RE) remains as programmed in the setup, consistently driving this potential towards the WE vs. CE polarization.

This has the advantage that the potential drop across the counter electrodes interface is compensated. Another advantage is that the reference electrode does not carry any current and will thus keep a stable potential during the measurement. This means the potential of the working electrode is more accurate and reproducible.

3.1.3. Using the EmStat4R as ZRA

The EmStat4R can also be used as a Zero-Resistance Ammeter (ZRA). A Zero-Resistance Ammeter is a specialized mode used in potentiostats, primarily for measuring current between two electrodes while maintaining zero voltage (potential) difference between them. The ZRA mode ensures that no significant potential is applied between two electrodes, while the current flow between them is accurately measured.

While keeping the potential difference near zero, the potentiostat measures the current flowing between two electrodes. This current is the main variable of interest in ZRA mode, providing valuable insights into processes such as corrosion, galvanic coupling, and other electrochemical phenomena where a potential difference is not deliberately applied but current is exchanged.

If a potentiostat is used as a ZRA, in most setups it needs to be floating (Galvanically Isolated). The reference electrode (blue) and counter electrode (black) connections of the potentiostat need to be stacked and left disconnected to anything else. See the following image for a schematic representation.

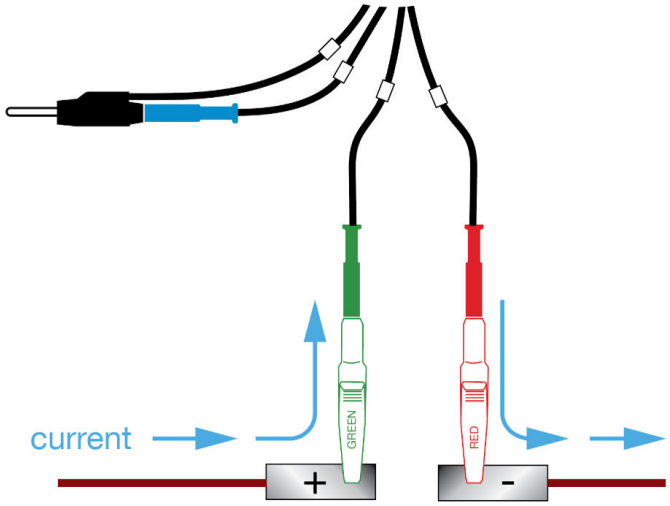


Figure 11. Connecting the EmStat4R cell cable for ZRA measurements

The current flows through the working electrode lead (red) and the ground lead (green). The working electrode is connected to the input of the current follower and the + input is connected to ground. The voltage difference between the working electrode and ground is zero and the current will be measured.

Use the technique Chronoamperometry in software to record the currents. The applied potential setting can be ignored.

3.2. Using Screen-Printed Electrodes (SPEs) with the EmStat4R

This section describes how to use the EmStat4R SPE version with Screen-Printed Electrodes.

The EmStat4R supports direct connection of screen-printed electrodes (SPEs) through the optional SPE Connection Module. This module enables convenient and reliable measurements using disposable or reusable SPEs with standard form factors.

Follow these guidelines while connecting a Screen-Printed Electrode:

1. Gently insert your SPE into the slot of the SPE Connection Module.
2. Ensure the electrode is inserted fully, with all contact pads properly aligned with the module's spring-loaded pins.
3. Avoid excessive force or misalignment to prevent damage to the electrode or the module.

For a list of compatible SPE manufacturers, visit our website:
www.palmsens.com/products/sensors/screen-printed-electrodes/

Maintenance and Tips

- Use SPEs only once if they are single-use; do not attempt to clean or reuse unless they are specifically designed for multiple uses.
- Store unused SPEs in a dry, dust-free environment.
- Periodically inspect the SPE Connection Module for debris or wear. Clean gently using a dry, soft brush if necessary.
- When not using SPEs, consider switching back to the SNS Module for conventional cell connections.

For best results, always use screen-printed electrodes that conform to the standard PalmSens-compatible layout. See also Section 2.6 entitled Cell connector pin-out.

Chapter 4. Battery replacement

Required tool: Small Pozidriv or Philips screwdriver

Step 1: Remove the rubber sleeve

Push the rubber sleeve down at the USB-port (back) side of the instrument. Then pull the aluminium housing out the front side.



Figure 12. Removing the rubber sleeve

Step 2: Remove the screws of the battery lid

The battery lid is held in place by two screws



Figure 13. The two screws of the battery lid

Step 3: Remove the battery lid

The battery lid has a tight fit in the enclosure and it can require some mild shaking of the instrument to get the lid out. If this is not enough, a pointy tool can be used to pull mildly at the screw holes of the battery lid. Be careful not to scratch the aluminium enclosure.

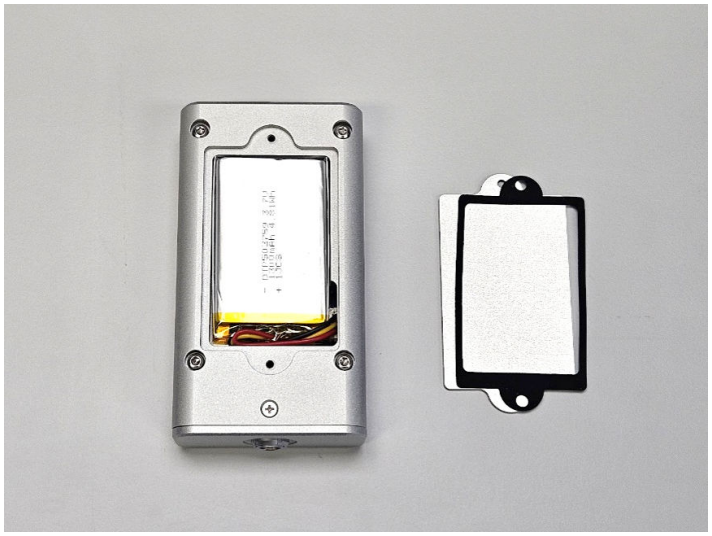


Figure 14. The battery lid removed

Step 4: Replacing the battery

Pull gently on the three wires close to the battery connector and wiggle it a little while pulling to unplug. Put the new battery in place that was acquired from PalmSens BV.



Figure 15. Unplugging the Li-Po battery

Step 5: Closing the battery compartment

Put the rubber gasket back in place, making sure the holes in the gasket are aligned with the screw holes in the aluminium housing. Then put the battery lid back in place and put the screws back in without using excessive force.



Figure 16. Putting the rubber gasket in place

Step 6: Put the sleeve back in place

Push the front side of the aluminium housing back in the front (deep pocket) of the sleeve. Then pull the back side (USB-port side) over the back of the aluminium housing using your thumb. The rubber sleeve can handle enough stress to firmly pull it over.



Figure 17. Pulling the rubber sleeve over the back of the housing

Chapter 5. Specifications

The EmStat4R has the exact same specifications as the regular EmStat4S LR, but the instrument is extended with, Bluetooth connectivity, a battery and connection module. The table below shows the EmStat4R key specifications.

Table 5. EmStat4R specifications

EmStat4R key specifications	
housing	▪ aluminum body: 11.1 x 6.0 x 2.7 cm ▪ with rubber sleeve: 11.8 x 6.8 x 3.3 cm
weight	+/- 310 g
power source	USB-C or internal Li-Po battery
battery	Connected via Bluetooth: ~3 hours with cell on at 10 mA current ~5 hours with cell off
communications	Wireless Bluetooth (4.0 - Dual-Mode) or USB Type-C port (recommended USB cable: supplied shielded USB-C cable with the provided USB-C to USB-A converter if needed)
internal storage space	500 MB, equivalent to >15M datapoints

Specifications are subject to change, due to regular firmware updates. See the EmStat4R product page on our website for accurate and detailed specifications.

Chapter 6. Troubleshooting

6.1. Verifying your potentiostat

Your instrument can be tested by using the test sensor or dummy cell supplied with the instrument.

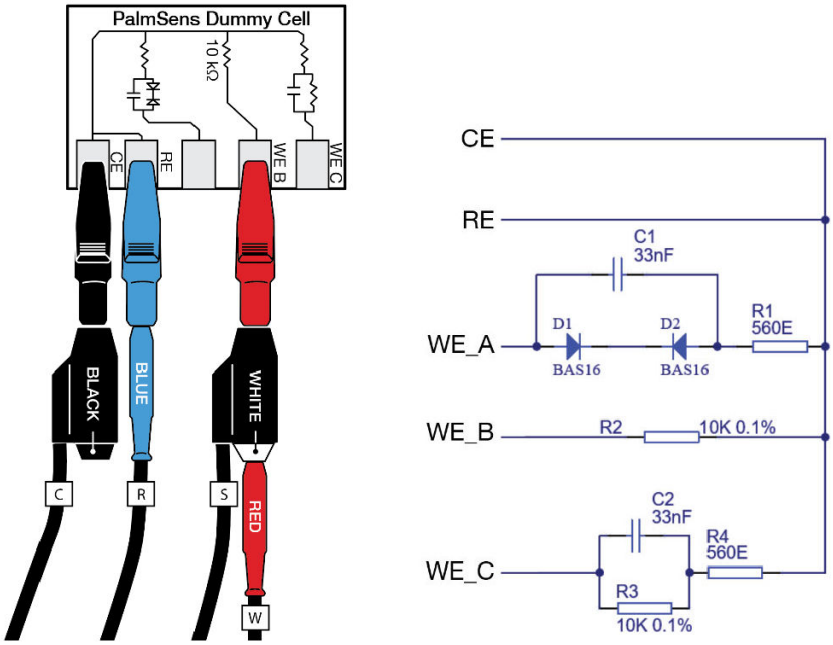


Figure 18. PalmSens Dummy Cell supplied with the EmStat4R SNS version

The easiest way to verify the functioning of your instrument is to use the "WE B" circuit, which consists of a resistor with a value of 10 kΩ with a max deviation of 0.1%. The WE lead is connected to one side and both RE and CE to the other side of the resistor.

In case you are using the EmStat4R SPE version, connect the SPE dummy cell. Keep in mind that this SPE has a simplified Randles Circuit with an extra 560 Ω resistor in series with the 10 kΩ resistor.



Figure 19. The SPE dummy cell supplied with the EmStat4R SPE version

Any of the electrochemical techniques can be applied. The current response obtained with a resistor with value R is equal to the applied potential or potential pulse divided by the value of R. So, if a potential of 0.5 V is applied on a resistor of 10 kΩ, the obtained current should be 0.5 V / 10 kΩ = 50 µA.

Contact PalmSens BV if the problems are found: **info@palmsens.com** and report the problems in as much detail as possible.

6.2. Noise

Our instruments are designed with hardware noise suppression filters to reject noise from internal and external sources. If a higher level of noise is your issue, the solving strategies are rather numerous, but the sources for noise are also numerous. Here we describe the most successful and common methods for noise reduction. To determine the noise levels for your instrument, please refer to section **"Measuring the noise level of the instrument"** in the PSTrace Manual.

6.2.1. Power grid

Your power grid is usually using an alternating current. This undulating current influences the measured currents. PSTrace and PStouch have a filter for this mains frequency. In PSTrace, check in the 'Tools' menu under 'General Settings' if the mains frequency is set correctly (50 Hz or 60 Hz).

6.2.2. Electrical fields

Our environment is filled with electrical fields. Some of them are created by devices around us as side effects or in case of wireless communication on purpose. Although it is a bad idea to measure directly next to an electric arc furnace, it is usually not possible to have a workspace free of electrical fields, especially not during point-of-care measurements. Nearby RF transmitters (Wi-Fi routers, mobile phones, industrial radios) may be interpreted by the instrument as valid electrochemical signals. Measurements performed near such sources may therefore deviate from stated specifications. A Faraday cage is usually sufficient to create a field-free environment. A metal box or cage out of metal mesh is a good Faraday cage. Even a shield out of aluminum foil can help. Place your electrochemical cell inside the Faraday cage and connect the cage to the ground lead (green) of the potentiostat. The cable delivered with your instrument has an inbuilt shield and should protect your signal outside the Faraday cage. This is one of the most effective methods to reduce noise.

6.2.3. Cables

Cables should not be unnecessarily long, since they act as antennas for noise, but the cable delivered with your instrument has an inbuilt shield and as long as you use the original cable, there is little reason to worry about cable induced noise.

6.2.4. Contacts

Check if the contacts are corroded. If so, remove the stains, for example with sandpaper.

Chapter 7. Maintenance and compliance

7.1. Lithium-Polymer batteries

The typical estimated life of a Lithium-Polymer battery is about two to three years or 300 to 500 charge cycles, whichever occurs first. One charge cycle is a period of use from fully charged, to fully discharged, and fully recharged again. Consider a two- to three-year life expectancy for batteries that do not run through complete charge cycles.

Rechargeable Lithium-Polymer batteries have a limited life and will gradually lose their capacity to hold a charge. This loss of capacity (aging) is irreversible. As the battery loses capacity, the length of time it will power the product (run time) decreases. Lithium-Ion batteries continue to slowly discharge (self-discharge) when not in use or while in storage.

Detailed instructions for battery replacement can be found in this document.

The new battery or battery pack must be obtained from PalmSens BV. Lithium-ion batteries have specific voltage operation and temperature control requirements, so using the wrong model may lead to overheating and fire.



The use of an unauthorized battery may compromise safety, pose a risk of fire, and result in irreversible damage to the device.

7.2. Temperature compliance

Our instruments are designed for indoor use at ambient temperatures between 0 °C and 45 °C. The battery of the EmStat4R is rated from -20 °C to +60 °C when discharging and from 0 °C to +45 °C when charging.

7.3. Humidity compliance

PalmSens instruments have not been tested in high humidity environments. Elevated humidity however may cause measurement errors if condensation forms on the electronics. This affects measurements in the nA ranges or lower. Prolonged exposure to a condensing environment may severely decrease the life expectancy of the instrument and void its warranty.

7.4. Temperature drift

PalmSens instruments are calibrated at 21 °C. The most sensitive components of the instrument have temperature drift of 50 ppm. For instance at 1 °C or 41 °C, measurement drift of up to 0.1% may be experienced.

7.5. Atmospheric pressure

PalmSens instruments are not intended for use in safety-critical applications. Consequently, the power supplies utilized are not selected based on a specific pressure rating.

7.6. Cleaning

Make sure to disconnect your instrument from any cell or power source prior to cleaning. Use a cloth lightly dampened with either clean water or water containing a mild detergent to clean the outside of the instrument. Alternatively, you can use isopropyl alcohol. Avoid using a wet rag and prevent any fluids from entering the instrument. It is crucial not to immerse the instrument in any cleaning solution.

7.7. Periodic calibration and preventive maintenance

PalmSens instruments are designed in a way that eliminates the need for periodic calibration. While not mandatory, PalmSens does provide a calibration service for users with specific demands such as QC/ISO purposes. This service includes a new calibration certificate.

It's important to note that PalmSens instruments do not require preventive maintenance, further simplifying their use and reducing the overall maintenance demands on users.

7.8. Service and repair

Except for the battery in some models, your PalmSens instrument contains no userserviceable parts internally. Any service or maintenance needs should be directed to a qualified service technician employed by PalmSens BV. Attempting to access or modify internal components without proper expertise may result in additional damage to the instrument and void warranties. It is recommended to rely on authorized service personnel for any required maintenance or repair

7.9. RoHS Compliance

All instruments from PalmSens have been built using lead-free components and lead-free solder. They are in compliance with the European RoHS (Restriction of Hazardous Substances) initiative.

Appendix A: CE Declaration

PalmSens

EU DECLARATION OF CONFORMITY

CE

Certificate number: PSDOC-ES4R-C

Manufacturer: PalmSens BV
Address: Vleugelboot 22,
3991 CL Houten,
The Netherlands

This declaration is valid for the following product:

EmStat4R: (V1.0 and higher) Portable electrochemical analyser.

- USB power and communications
- Battery power
- Bluetooth communication

The object of the declaration described above is in conformity with the Radio Emissions Directive 2014/53/EU (RED) and applicable standards listed below:

Health & Safety

- EN 62479 (2010)
- EN 61010-1 (2010)

EMC

- EN 61326-1 (2013)
- EN 301 489 parts 1 (2019) & 17 (2024)

Efficient Usage of Radio Spectrum

- EN 300 328 (v2.2.2 2019)

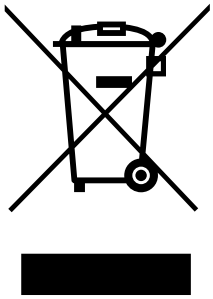
This declaration is issued under the sole responsibility of PalmSens BV.

Date: 29th of November 2023



C.J. van Velzen, CTO

Appendix B: EU Waste Electrical and Electronic Equipment (WEEE) Directive



The pictogram shown above, located on the product and/or accompanying documents means that used electrical and electronic equipment (WEEE) should not be mixed with general household waste. For proper treatment, recovery and recycling, please take this product to designated collection points where it will be accepted free of charge.

Alternatively, in some countries, you may be able to return your product to your local retailer upon purchase of an equivalent new product. Disposing of this product correctly will help save valuable resources and prevent any potential negative effects on human health and the environment, which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point. Penalties may be applicable for incorrect disposal of this waste, in accordance with your national legislation.

Published by

PalmSens BV
Vleugelboot 22
3991 CL Houten
The Netherlands

© 2026 PalmSens BV
All rights reserved

