

# PalmSens4™

## BiPot Module

For using an additional Working Electrode with your PalmSens4



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## Description

BiPot stands for BiPotentiostat, which is a potentiostat with two working electrodes. A bipotentiostat can use two working electrodes, one reference and one counter in the same cell. The two working electrodes can be operated and monitored exactly at the same time. Working electrode 1 performs any of the supported techniques (see below), while working electrode 2 can either have its own constant potential or follow the working electrode 1's potential. In the latter case a potential offset can be added. The PalmSens4 BiPot module is available for all PalmSens4 configurations.



*BiPot module for PalmSens4*

The BiPot module can be controlled with PStace for Windows and PStouch for Android.

## Application Examples

- Second electrode as a blank or similar in the same cell for comparison
- Detecting the product of the disc electrode's reaction at the ring of a RRDE (Rotating Ring Disc Electrode)
- Polarize the surface during scanning electrochemical microscopy (SECM)
- Controlling gate voltage and source-drain voltage of an ion selective field effect transistors (ISFET)

## BiPot specifications

<b>dc-potential range</b>	±5 V
<b>dc-potential resolution</b>	153 µV
<b>dc-offset error</b>	≤ 0.1% ±1 mV offset
<b>accuracy</b>	≤ 0.1%
<b>current ranges</b>	100 pA to 10 mA (9 ranges)
<b>maximum measured current</b>	$i(\text{WE1}) + i(\text{WE2}) < 30 \text{ mA}$
<b>current resolution</b>	0.005% of current range (5 fA on 100 pA range) 0.0025% of 10mA range
<b>current accuracy</b>	≤ 0.1% at Full Scale Range all with additional 0.2% offset error
<b>connection</b>	Comes with a sensor cable with an additional (yellow) connector for WE2
<b>power</b>	Comes with additional USB Y-cable for extra power

## Supported techniques for use with BiPot

- Linear Sweep Voltammetry
- Cyclic Voltammetry
- Chronoamperometry
- Multistep Amperometry

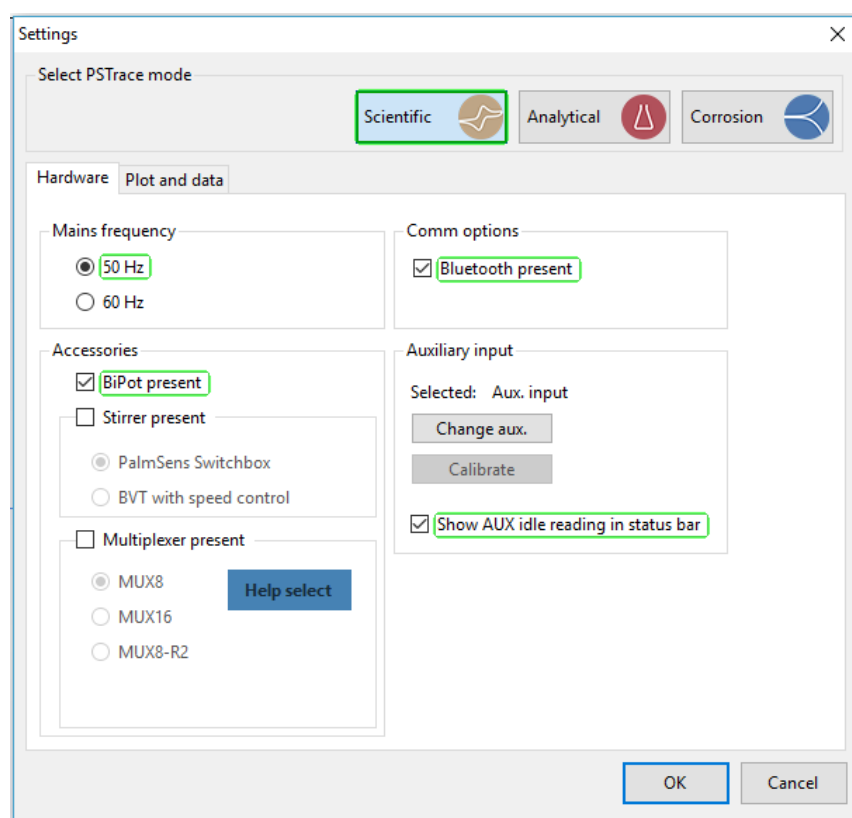
### Note

The BiPot module decreases the battery life of the PalmSens4 in idle mode (cell off) down to > 5 hours.

## Enabling the BiPot module in PSTrace

The PalmSens4 BiPot module is installed in-factory. To use the BiPot in PSTrace it must be enabled first. Please follow the steps as described below.

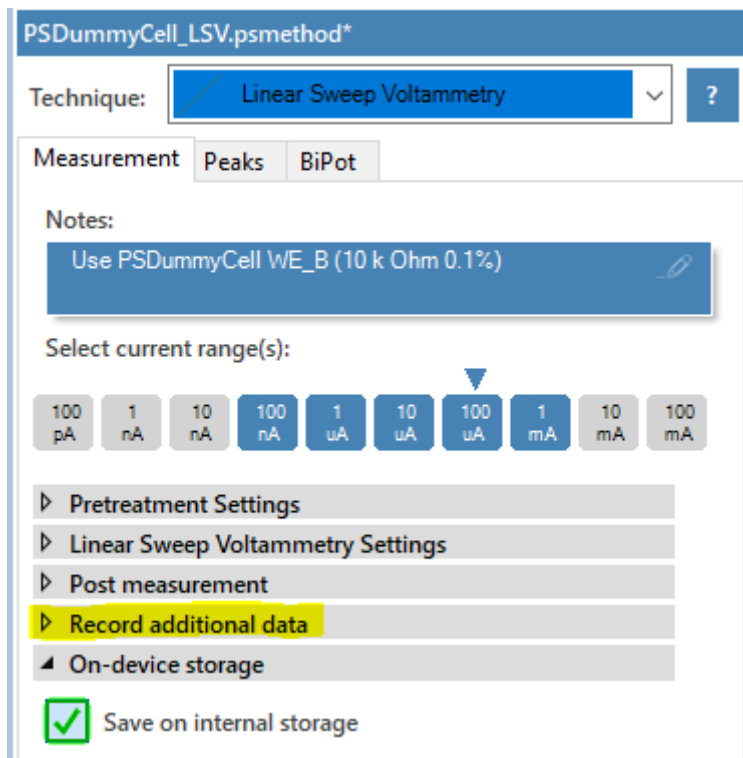
**Step 1)** In the menu click: “Tools” → “General Settings” and check “BiPot present”  
An extra "BiPot" tab will appear in the method editor where the BiPot can be configured.



To record BiPot data, the “Record BiPot (WE2)” option needs to be enabled.

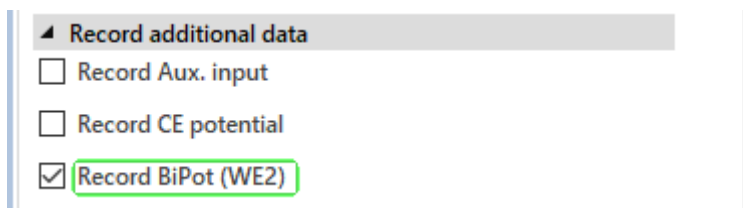
**Step 2)** Go to the “Measurement” tab (underneath the selected technique, on the left in the screen)

**Step 3)** Unfold “Record additional data”



Method Editor

**Step 4)** Check ‘Record BiPot (WE2)’



The BiPot is now enabled and ready for use.

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