

# HiZ-Probe

## High Impedance Probe Set

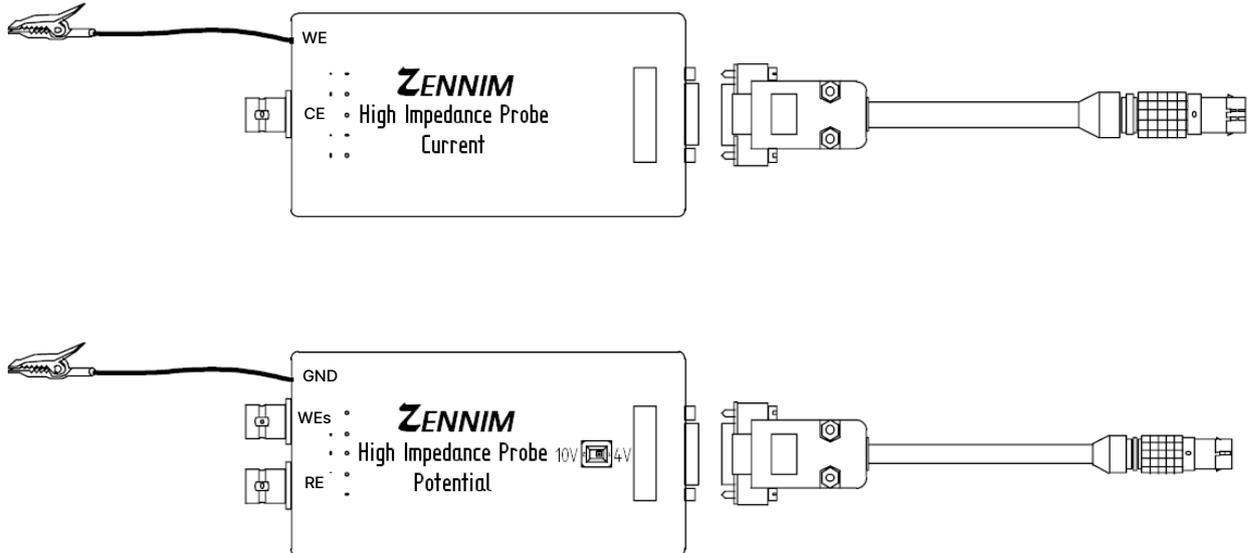




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# 1. General

The HiZ-Probe set consists of two probes:  
 'High Impedance Probe Current' and 'High Impedance Probe Potential'



These probes extend the dynamic range of the Zennium impedance measurement systems down to a current sensitivity in the fA-range and will offer an input impedance in the TOhm-Range. The HiZ-Probes will be operated in parallel with the Zennium and thus offer a dynamic range of 12 decades in current sensitivity.

**NOTE:** The HiZ-Probe set has been optimized to measure objects of high impedances. The best accuracy for objects of lower and low impedances will be obtained by use of the IM6 main potentiostat without HiZ-Probe.

The probes' connectors have been named in the same way as the front connectors of the Zennium workstation:

CE	counter electrode
RE	reference electrode
TE (WE)	test electrode power (working electrode power)
TEs (WEs)	test electrode sense (working electrode sense)

To reduce stray capacitances the shields of the BNC-plugs are "actively driven". To avoid damages of the electronics do not connect any shield to ground or to the cell and do not connect any pair of shields.

## 2. Installation of HiZ-Probe set

### 2.1 Installation of calibration data

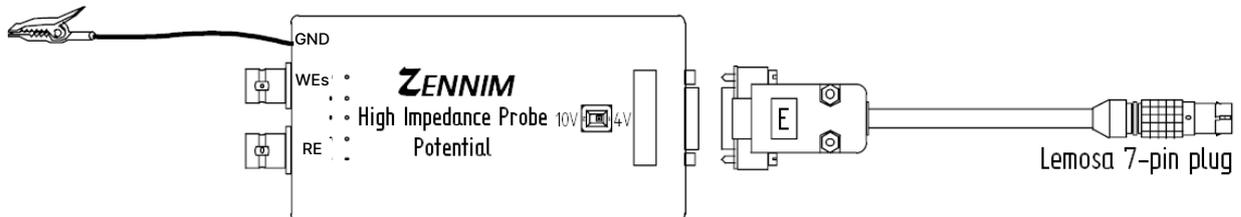
The calibration data of the high impedance probe set is individual for each electrochemical workstation. The calibration file is stored in the Zennium calibration file folder **C:\Thales\Hardware\IM6\#####** (##### = serial number of Zennium workstation). When shipped with a electrochemical workstation the calibration data is installed automatically from the usb pendrive.

The calibration file is named **calfakk.bin** (for Zennium/E/E4) or **calfakkk.bin** (for Zennium pro/X).

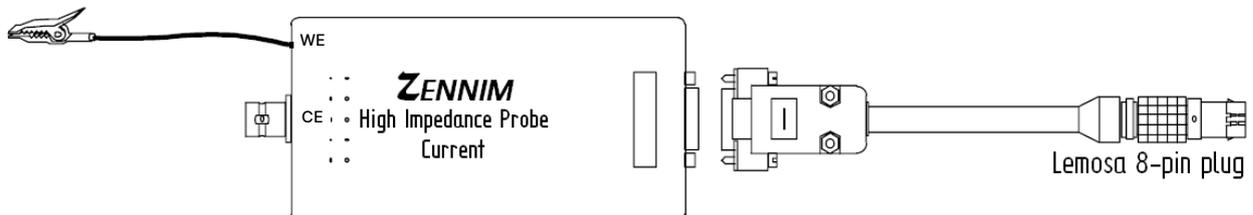
When using the high impedance probe set with another electrochemical workstation please request new calibration files for this new HiZ - Zennium combination. To create this data we need to know the serial numbers of the HiZ-Probe, the original workstation and the new (destination) workstation.

### 2.2 Installation of HiZ-Probes (Zennium /E/E4)

Use the cable with the 7-pin LEMOSA plug to connect the 'HiZ-Probe Potential' to the Probe-E terminal of the Zennium.



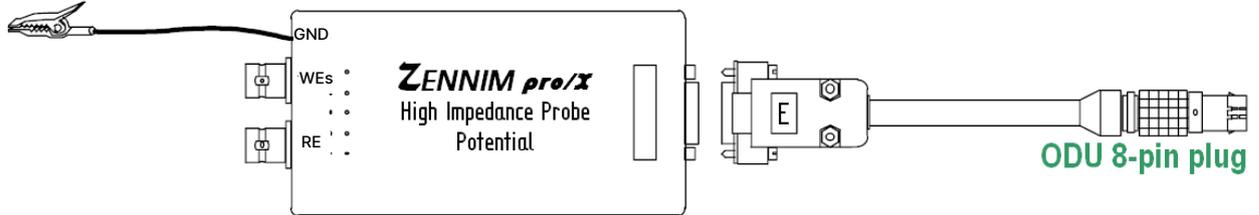
Use the cable with the 8-pin LEMOSA plug to connect the 'HiZ-Probe Current' to the Probe-I terminal of the Zennium.



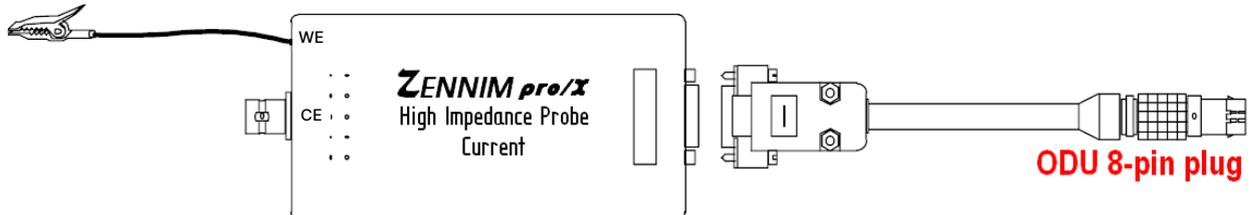
Make sure that all cables have been connected and locked properly.

### 2.3 Installation of HiZ-Probes (Zennium pro/X)

Use the cable with the green 8-pin ODU plug to connect the 'HiZ-Probe Potential' to the Probe-E terminal of the Zennium pro/X.



Use the cable with the red 8-pin ODU plug to connect the 'HiZ-Probe Current' to the Probe-I terminal of the Zennium pro(X).



Make sure that all cables have been connected and locked properly.

#### Potential options in HiZ probe for:

Zennium / IM6	: 4 V / 10 V
Zennium E / E4	: 4 V / 12 V
Zennium Pro / X	: 5 V / 15 V*

*\*HiZ probe for Zennium Pro and Zennium X, does not have a switch at the HiZ probe and the potential range is selected only in the software.*

### 3. Using the HiZ-Probe set

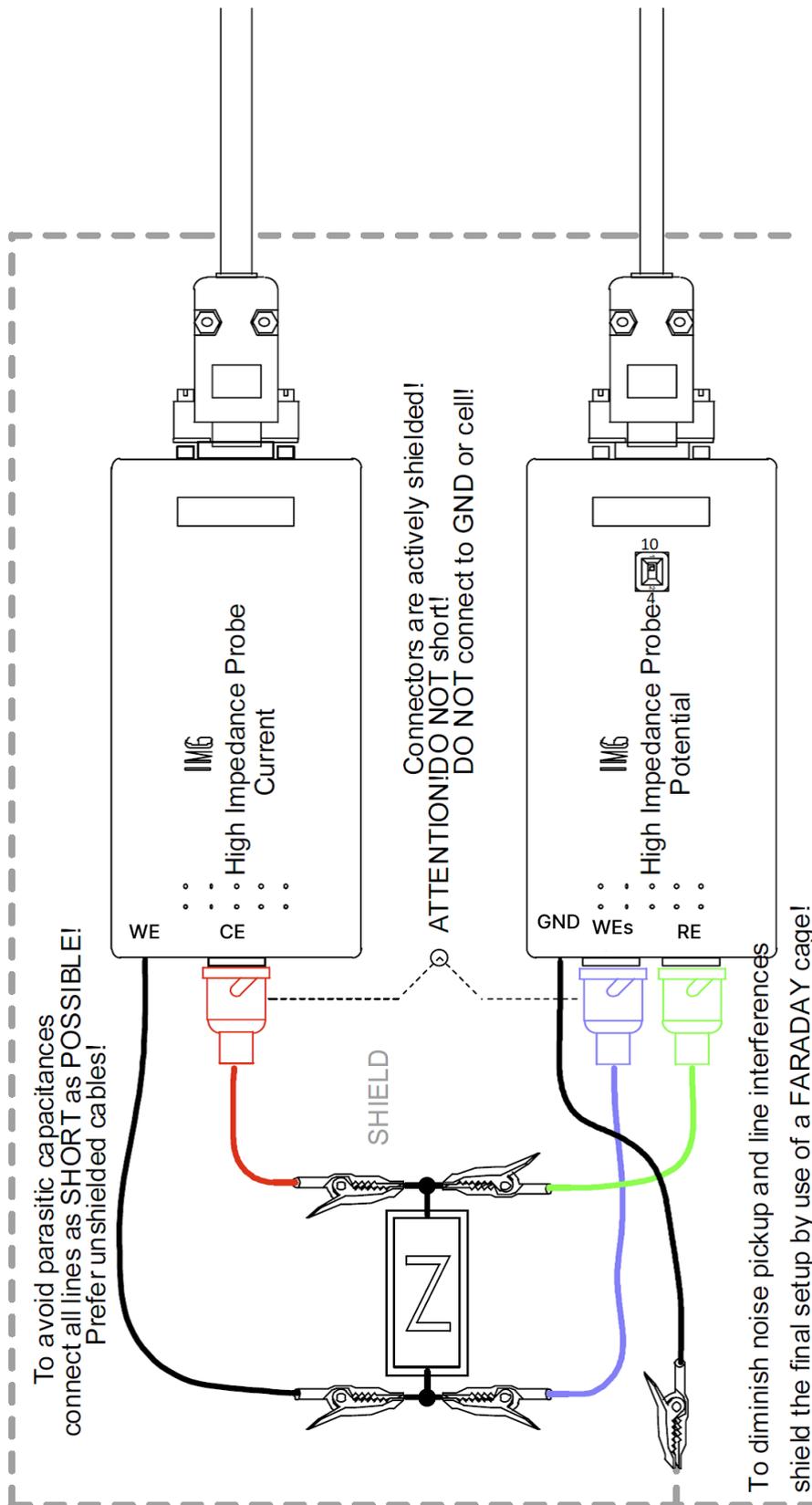
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To select measurements with the HiZ-Probe set activate menu 'check cell connections' of the impedance program EIS. Choose HiZ-Probe and set the potential input range.

**NOTE:** The HiZ-Probe potential for Zennium and Zennium E/E4 has a sliding switch for the input voltage range. This switch must match to the range settings.

The GND clip of the potential probe should be connected to a shielding box for measurements of high ohmic objects.

3.1 Best connection to use HiZ-Probes



3.2 2<sup>nd</sup> choice connection to use HiZ-Probes

