



Getting Started with OGS100

ElectroChem
OrigaLys

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1. Welcome

The OGS100 is ideal for application for surface treatment, studying corrosion, testing batteries and fuel cells and developing new materials.

Its weak current range of 1 nA (30 fA resolution) is well suited for investigation of materials such as insulators, dielectrics, ceramics, nano materials (nanotubes from carbon) and semiconductors.

OGS100 is compact and easily transportable thanks to its handle and protective cover, it can thus be installed near the subject under study or the bath to be checked. With its 24 V battery power supply (12 V if using a converter), OGS100 is the ideal tool to carry out field analyses.

Your OGS100 system is computer-controlled so you will find most of the information you need in the Help file of OrigaMaster 5 Software. Consult the Help index whenever you have a question.

2. Setting up the cell

2.1 SETTING UP THE FOLD OUT FEET

Your OGS100 Electrochemical system is fitted with 2 lateral fold out foots providing a safe stability of the whole instrument. Put these 2 fold out foots in place before installing the electrochemical cell.



Figure 1: Foot legs

2.2 CONNECTING THE ELECTRODES

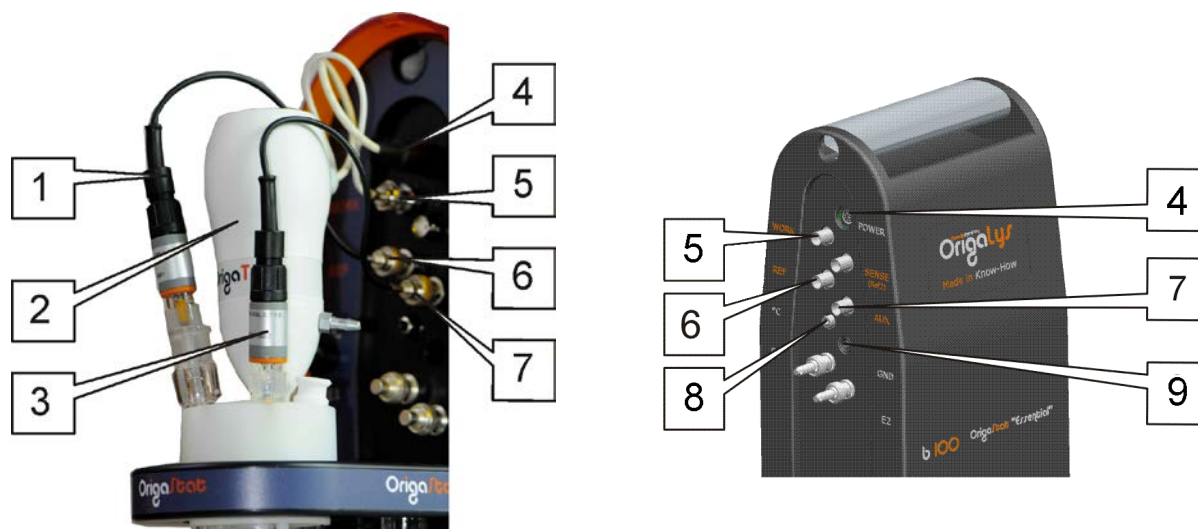


Figure 2: Connecting the electrodes

Generally, the electrochemical cell is connected to your OGS100 Electrochemical system using a 3-electrode setting as follows:

- The working electrode (ref. 2) to the WORK BNC socket (ref. 5),
- The auxiliary electrode (ref. 3) to the AUX BNC socket (ref. 7),
- The reference electrode (ref. 1) to the REF BNC socket (ref. 6).

On high resistive electrolytes are used, you can ground the cell by placing it inside a metal casing connected to the GND socket (ref. 9).

If you want to measure temperatures using a temperature measuring probe (CTN or Pt-1000), connect it to RCA socket (ref. 8).

2.2.1 The OrigaTrod Rotating electrode



Figure 3: OrigaTrod

As working electrode, you can also use the OrigaTrod Rotating electrode. The OrigaTrod electrode is fitted with 2 connecting plugs:

- a mini DIN 6 plug to be connected to the "Power" socket (ref. 1) of the OGS100. With this connection, the rotating speed of the OrigaTrod is controlled by the OGS100 unit and OrigaMaster 5,
- a BNC shielded plug to be connected to the BNC WORK socket (ref. 2) of the OGS100. This connection is used for the contact signal of the working electrode.



Figure 4: OrigaTrod connections

2.2.2 Tips For OrigaTrod and StaTrod

Supplied with no tips in standard version, the OrigaTrod Rotating electrode is available with a wide range of OrigaLys active tips in various materials and diameters (see table below). It can also be equipped with M6 compatible tips.






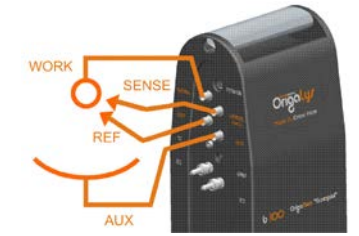




Figure 5: Electrode tips

OrigaLys Ref. no.	Description	OrigaLys Ref. no.	Description
EM-EDT-Pt-D2	ø2 mm Platinum tip	EM-EDT-Sn-D5	ø5 mm Tin tip
EM-EDT-Pt-D5	ø5 mm Platinum tip	EM-EDT-Fe-D5	ø5 mm Iron tip
EM-EDT-Au-D2	ø2 mm Gold tip	EM-EDT-Cd-D5	ø5 mm Cadmium tip
EM-EDT-Au-D5	ø5 mm Gold tip	EM-EDT-Pb-D5	ø5 mm Lead tip
EM-EDT-CVJ-D3	ø3 mm Glassy carbon tip	EM-EDT-Sb-D5	ø5 mm Antimony tip
EM-EDT-CVJ-D5	ø5 mm Glassy carbon tip	EM-EDT-Pd-D2	ø2 mm Palladium tip
EM-EDT-Gr-D4	ø4 mm Graphite tip	EM-EDT-Rd-D2	ø2 mm Rhodium tip
EM-EDT-Ag-D5	ø5 mm Silver tip	EM-EDT-W-D1	ø1 mm Tungsten tip
EM-EDT-Cu-D5	ø5 mm Copper tip	EM-EDT-W-D4	ø4 mm Tungsten tip
EM-EDT-Ni-D5	ø5 mm Nickel tip		

2.2.3 Other electrode settings

Various 2, 3 or 4 electrode settings are possible. The following table sums up the different possibilities when working in potentiostatic mode.

<p>2 electrodes « Normal 2 »</p> 	<p>2 electrodes « Inverted 2 »</p> 
<p>2 electrodes – Aux electrode to electrical zero</p>	<p>3 electrodes « Normal 3 »</p>
	
<p>3 electrodes « Inverted 3 » Reference electrode to SENSE (REF2)</p>	<p>4 electrodes « Normal 4 » 2 reference electrodes (REF (REF1) and SENSE (REF 2))</p>
	
<p>4 electrodes with SENSE (*)</p>	<p>4 electrodes – 4-point measurements (**)</p>
	

SENSE (*): system allowing to compensate automatically the Working electrode both cable and contact resistances.

4-point measurements (**): system allowing to compensate automatically the electrode cables and/or contact resistances.

3. Cover the cell

After having connected the electrodes, put the protective cover in place as shown below.



Figure 6: Cover the cell

4. Connecting OGS100 to the PC

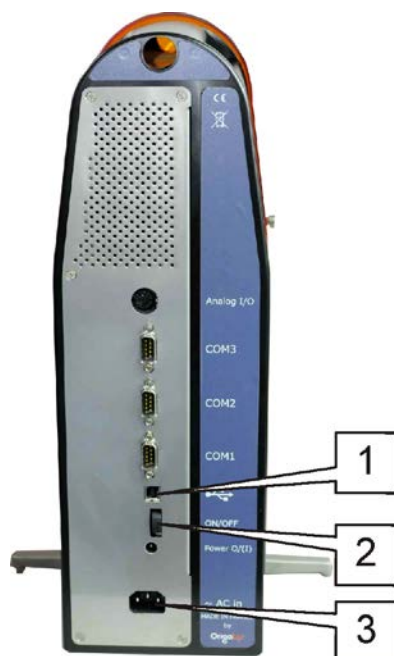


Figure 7: Connecting the OGS 100 to the PC

Connect the USB socket (ref. 1) on the OGS100 to an USB port on the PC using a standard USB 2.0 cable.



Printer connection : connect the printer to a parallel or USB port on the PC.

5. Powering up the OGS100

- Connect the OGS100 mains socket (ref. 3) to the mains using the line cord provided.
- Switch on the OGS100 (ON/OFF switch (ref. 2)).