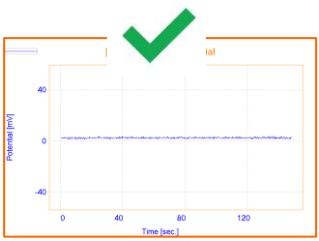
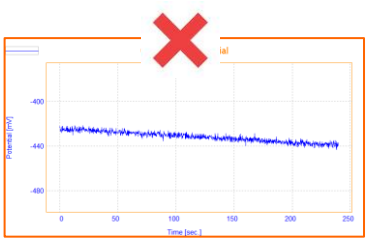
Application Note

Basics
AP-ORI02

How to check a cord without multimeter?



OCP = 0 mV



OCP = -440 mV

This Application Note describes how you can check the electrode cables, thanks to the potentiostat itself.

Introduction

Did you see noise or parasites in your results? The first item that needs to be verified is the cords. Indeed, it could be damaged.
The common way to check the cords is using a multimeter (or electrometer), but in many cases it is not available, or the user does not know how it works.

In this application Note, we will explain you how to check the cables with only the potentiostat and the PC Software. The process is very user friendly and no time consuming.

Figure 1: A multimeter

Which cables can be tested?

The test is based on OCP determination in 2 electrodes or 3 electrodes. All the cables that can be integrally connected to the Potentiostat (both side) can be checked.

Figure 2: Different Cords

By using an appropriate adaptor, you can test everything, such as:

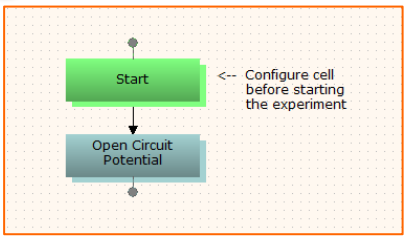
- ✓ BNC/Banana
- ✓ BNC/UHF
- ✓ UHF/Banana
- ✓ Banana/Banana

No matter the length

TIPS: Home made cables can also be tested by this method, not only the cables from OrigaLys.

HOW TO TEST ONE CABLE?

1 Parameters



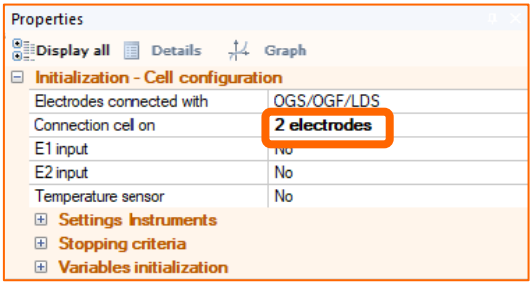


Figure 3: The parameters of the Start, select « 2 electrodes »

2 Connection : 2 electrode configuration

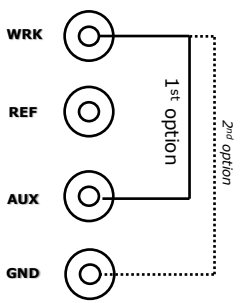


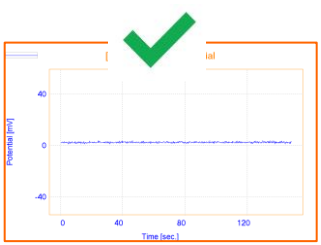
Figure 4: Electrode Connections

In 2 electrode configuration test, only one cord can be checked, and it will be connected between working connector and auxiliary connector.

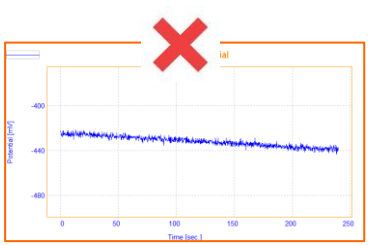
Then the OCP is run for 2 minutes and the value of OCP must be 0 (±10 mV), if so, the cord works well. In case of any other value, the cord has a mistake and needs to be repaired.

TIPS: During the test, please move a little the cable, without putting it out.

3 Results : if the OCP = 0 V, it means the cable is fine



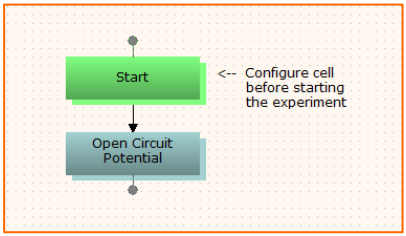
OCP = 0 mV



OCP = -440 mV

HOW TO TEST TWO CABLES?

1 Parameters



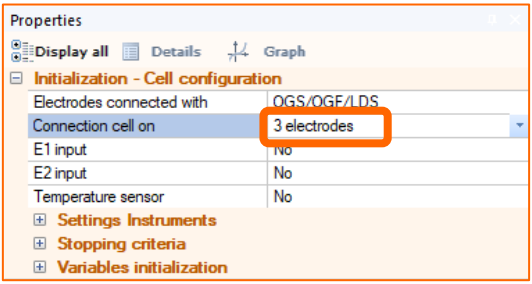


Figure 5: The parameters of the Start, select « 3 electrodes »

2 Connection : 3 electrode configuration

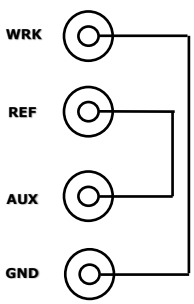


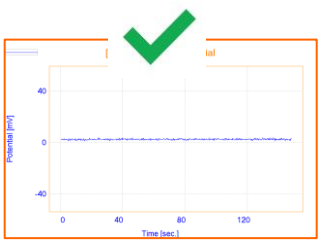
Figure 6: Electrode Connections

In 3 electrode configuration test, two cords can be checked. One cable is connected between working connector and ground. The other one is connected between reference to auxiliary.

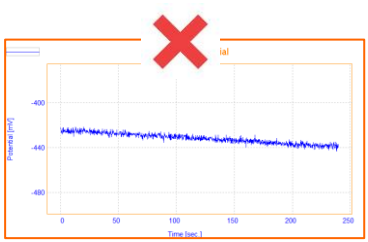
Then the OCP is run for 2 minutes and the value of OCP must be 0 (±10 mV), if so, the cords work well. In case of any other value, it means one or the two cables must be repaired. To be sure, repeat the test for one cable (see page 2) for each cable.

TIPS: During the test, please move a little the cables, without putting it out.

3 Results : if the OCP = 0 V, it means the cables are fine



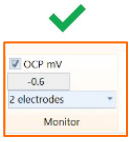
OCP = 0 mV



OCP = -440 mV

TIPS: A quicker process is available with OrigaMaster PC Software. Thanks to a small tool, you can display the OCP value before running an experiment.
Go to Settings -> OCP mV Monitor.

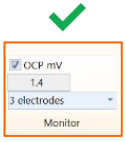
Repeat the connections described in the page 2 for two electrode configuration. Then, in the OCP Monitor tool, select 2 electrodes and enable the tool.



OCP = - 0.6 mV

OCP = -148.9 mV

Repeat the connections described in the page 3 for three electrode configuration. Then, in the OCP Monitor tool, select 3 electrodes and enable the tool.



OCP = 1.4 mV

OCP = 448.5 mV

Instrument and Cords

Figure 7: Potentiostat OGS100

Instrument setup	
Cords	2 x BNC-Banana CAD035RV2
Adaptors	2 x male BNC – female Banana X13OGL030
Instrument	OrigaStat OGS100
Software	OrigaMaster

Cord:
Male BNC
Male Banana
Ø 4 mm
0.25 m

Adaptor:
Male BNC
Female Banana
Ø 4mm

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