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Getting Started Guide & Unisense standard specifications for

Redox Electrodes

This electrode has been successfully tested prior to shipping, however some electrodes suffer from rough transportation. Therefore, it is important that you test the electrode upon arrival!

Replacement of Defective Electrodes

Unisense will replace the electrode if it does not meet the specifications below, provided that:

1. A test is performed upon receipt without breaking the seal. (Note! No seal on MR-sensors for testing purposes)
2. The complaint is given to Unisense ***within two weeks*** from receipt of the equipment.

Guaranteed Lifetime

Unisense guarantees the redox electrode a minimum lifetime of 3 months on condition of correct storage and use according to the manual.

Individual Sensor Calibration is required

Our electrodes are handmade and as the sensor signal relies on the exact geometry of the sensor tip (micrometer scale), some variation must be expected.

Signal Amplification

Unisense redox electrodes should be connected to a Unisense amplifier such as a UniAmp series instrument or the Field Microsensor Multimeter.

Standard Redox Electrodes are functioning correctly if (at room temperature):

- The 90 % response time to changes in redox potential is less than 10 s in the redox buffer.
- If using the Redox Calibration Kit: The electrode signal for the Redox Test Solution is at least 200 mV lower than the signal for the Redox Buffer solution.
- If using the alternative calibration method: The difference between the potential obtained in quinhydrone redox buffer 4 and quinhydrone redox buffer 7, using any type of reference electrode, should be between 160 and 200 mV.

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Getting started with Redox Electrodes

1. Unpacking

- Remove the grey shock-absorbing plastic net and inspect the microelectrode visually. Leave the microelectrode in the protection tube for testing, and do not break the seal.

  NOTE: A reference microelectrode must be stored wet. Do not allow it to be exposed to air for more than 10 min.

2. Connect the redox electrode to the amplifier

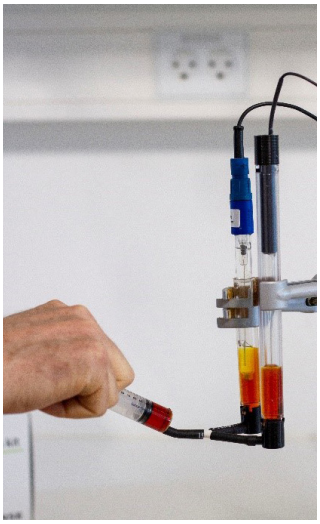
- Connect the reference electrode to the connector on the redox electrode cable.
- If using a micro reference electrode, remove the plastic net, the 2 pieces of tape and the stopper. Storage liquid is 2 M KCl and it may be reused.

3. Calibrate the redox electrode

- Mount the calibration caps from the Calibration Kit on the protection tubes of the redox and reference electrode. Connect the two caps using the Y-piece and the tubing.
- If using a Robust Reference electrode, mount the calibration cap on the 10 cm plastic tube and place the reference electrode in that.
- Inject the redox calibration solution and allow the electrode to stabilize.
- Record the calibration point (select 1-point calibration in uSense Solutions).
- Rinse the calibration caps and the syringe with pure water.
- Inject the redox test solution and allow the electrode to stabilize.
- The signal should now be at least 200 mV below the signal for the redox calibration solution
- For alternative calibration method, see the Redox Microelectrode manual.

  NOTE: For redox microelectrodes with built in reference electrode: Do not connect an external reference electrode, only connect a Calibration Cap to the protection tube. Otherwise perform the calibration as described above.

  IMPORTANT: For any calibration method and measurements, there must always be liquid continuity between the tips of the redox and reference electrodes.



Injecting calibration liquid into the protection tubes using the calibration caps from the calibration kit.

4. Approve the electrode

- Compare the electrode response to the specifications given on the previous page. If necessary, see Troubleshooting in the Redox Microelectrode manual or contact support.

5. Storage

- When not in use, store the microelectrode in the protection tube at 10 - 30°C. Redox microelectrodes with built in reference electrode must be stored in a 2 M KCl solution.

Useful tools

Redox Microelectrode Manual

uSense Solutions Manual

Calkit-Redox Manual

Contact information for support

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