UNISENSE & SCIENTIFIC

Getting started guide & Unisense standard specifications for

Oxygen Optodes (OPTO-Series)

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

Replacement of Defective Sensors

Unisense will replace the sensor 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 optode sensor a minimum lifetime of 1 year or a 1 million datapoints, whichever comes first, on condition of correct storage and use according to the manual.

Individual Sensor Calibration is required

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

Signal Amplification

Unisense oxygen optodes should be connected to a Opto-series or UniAmp-series amplifier.

Standard Oxygen Otodes are functioning correctly if (at room temperature):

- The 90 % response time is within the specified range (see table below).
- The uncalibrated phase is within the specified range (see table below).

	Opto-430	Opto-430 FAST	Opto-MR	Opto-50	Opto-3000
90% response time (sec.)	<3 sec	<0.3 sec	<3 sec	<5 sec	<15 sec
100 % air saturation - phase	<22	<22	<22	<22	<22
0 % oxygen - phase	>46	>46	>46	>40	>46
Minimum datapoints (millions)	1.5	1	1.5	1	3

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Getting started with Oxygen Optodes (OPTO-Series)

1. Unpacking

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

2. Connect the optode to the Opto- or UniAmp-series amplifier

- Remove the cap from the MicroOptode connector and from the amplifier connector.
- Insert the optode plug into the connector on the amplifier and turn gently clockwise until the plug is locked firmly.
- Insert the E²PROM connector on the optode into the E²PROM connector on the amplifier (no E²PROM on OPTO-Field sensors).

3. Calibrate the sensor

- The signal will be very high right after the sensor is connected and will decrease over time.
- The period of decreasing signal will normally be at least 2 hours.
- Once the signal is stable, calibration can be performed.

4. Calibrate the sensor

- Use air saturated water as one calibration point. This is easily done using the CAL300 calibration chamber. The sensor may be dipped directly into the calibration chamber or the air saturated water may be injected into the protection tube using the calibration cap (see picture).
- Use the Unisense zero O_2 solution as the second calibration point. Inject the zero O_2 solution into the calibration cap and wait for the sensor to respond.
- For alternative calibration method, see the Oxygen MicroOptode - Opto Series User Manual.

5. Approve the sensor

- Compare the calibration values to the specifications given on the previous page. If necessary, see Troubleshooting in the optode manual or contact support.

6. Adjusting the measurement frequency

- The lifespan of the optodes is determined by the amount of measurements. In order to prolong the lifespan of the optode, adjust the measuring frequency as required for your application.
- The frequency can be adjusted in the uSense Solutions software.

7. Storage

- When not in use unplug the optode and store it with the protection tube mounted at room temperature (preferable in low light or darkness).

CAL300 with microsensors and bubbling with air.

Injecting calibration liquid into protection tube using the calibration cap.

Useful tools

O_2 Microoptode Manual

Calkit-O_2 Manual

uSense Solutions Manual

Contact information for support

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ISO 9001 Certified