AANDERAA
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Oxygen Optode 5730/5730O

is a compact fully integrated sensor for measuring the O_2 concentration and temperature.

Advantages:

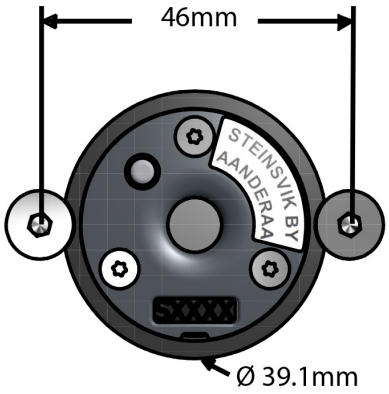
- Optical lifetime-based luminescence quenching measurement principle
- Multipoint calibration in 40 points
- Long time stability with red reference LED
- Low maintenance needs
- Not stirring sensitive (it consumes no oxygen)
- Small size and weight
- Stand-alone sensor
- Output format: RS232

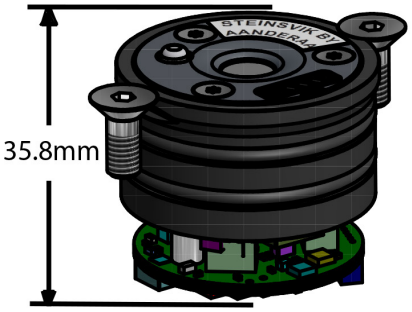
Since oxygen is involved in most of the biological and chemical processes in aquatic environments, it is a crucial parameter to measure. Oxygen can also be used as a tracer in oceanographic studies. Aanderaa revolutionized oceanographic oxygen monitoring/research with the introduction of oxygen optodes in 2002. Applications range from shallow creeks to the deepest trenches, from tropical to in-ice/in-sediment measurements. More than 150 scientific papers have so far been published using these optodes.

These sensors are based on the ability of selected substances to act as dynamic fluorescence quenchers. The fluorescent indicator is a special platinumporphyrin complex embedded in a gas permeable foil that is exposed to the surrounding water. This sensing foil is attached to a glass window providing optical access to the measuring system from inside a watertight housing. The sensing foil is excited by modulated blue light; the sensor measures the phase of the returned red light. For improved stability the optode also performes a reference phase reading by use of a red LED that do not produce fluorescence in the foil. The sensor has an incorporated temperature thermistor which enables linearization and temperature compensation of the phase measurements to provide the absolute O_2-concentration The lifetime-based luminescence quenching principle offers the following advantages over electro-chemical sensors:

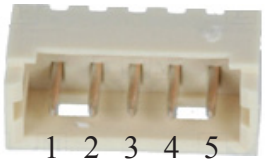
- Less affected by fouling
- Measures absolute oxygen concentration without repeated calibrations
- Excellent long-term stability
- Not affected by pressure

The oxygen optode outputs data in RS-232. The sensor can present the O_2 concentration in µM, Air Saturation in % and Temperature in °C.





Pin Configuration Molex



1: VPWR
2: GND
3: TXD
4:RXD
5:Boot Enable

Foil Service Kit 5551

Misleading specifications

When Aanderaa states an absolute accuracy of e.g (±2% or ±4 µM) we mean the accuracy of the sensor in the field over the entire range of oxygen concentrations and temperatures, others might refer to accuracy in the laboratory just after the sensor was calibrated. When Aanderaa give response time in water others refer to response time in air which is much faster. For more information read our Best Practice document on Oxygen Optodes.

Oxygen:	O_2 Concentration	Air Saturation
Measurement Range:	0 – 1000 µM[1]	0 - 300%
Calibration method:	40-point automatic calibration, 20-point verification, 3 fully Winkler calibrated optodes for referencing	
Foils:	Stable and rugged WTW foil	
Calibration Range[2]:	0 - 500 µM	0 - 150%
Resolution:	<0.1 µM	0.05 %
Accuracy:	<4 µM or 2%[3]	<2 %[4]
Response Time (63%):	<30 sec	
Typical field drift::	<0.5% per year	
Temperature:		
Range:	-5 to +40°C (23 - 104˚F)	
Resolution:	0.01°C (0.018°F)	
Accuracy:	±0.03°C (0.18°F)[5]	
Response Time (63%):	<2 sec	
Output format:	RS-232	
Output Parameters:		
RS-232:	O_2 Concentration in µM, Air Saturation in %, Temperature in °C, Oxygen raw data and Temperature raw data	
Sampling interval:	2 sec – 255 min	
Supply voltage:	5 to 14 Vdc	
Current drain[6]:		
Average:		
Model 5730:	0.16 +48 mA/S	
Model 5730O:	15 +48 mA/S where S is sampling interval in seconds	
Maximum:	100 mA	
Quiescent:		
Model 5730:	0.16mA	
Model 5730O:	15mA	
Operating depth:	0-100m (0 - 328ft)	
Elec. connection:	Molex 5pin 1.25mm Pitch PicoBlade Header	
Dimensions (WxDxH):	Ø39.1 x 35.8mm (Ø1.54"x 1.41")	
Weight:	217g (7.65oz)	
Materials:	Titanium, PA	
Accessories:	Foil Service Kit 5731	

(1) O_2 concentration in µM = µmol/l. To obtain mg/l, divide by 31.25
(2) other ranges available on request
(3) requires salinity compensation for salinity variations > 1mS/cm, and pressure compensation for pressure > 100meter
(4) within calibrated range 0 - 120% / 0 - 30°C
(5) within calibrated range 0 - 30°C
(6) *at 5V power*

Specifications subject to change without prior notice.

OEM version

This sensor is an OEM version of our standard oxygen optode. Please contact factory for more options and restrictions.

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Let's Solve Water

Visit our Web site for the latest version of this document and more information
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