Oxygen Optode 4835

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is a compact fully integrated sensor for measuring the O_2-concentration in shallow water.

Oxygen Optode 4835 advantages:

- Optical measurement principle
- Long time stability
- More than one year without recalibration
- Low maintenance
- Userfriendly
- Use with AADI SEAGUARD® Platform
- Use as stand-alone sensor
- Output format: CANbus AiCaP, RS-232
- Operating range: 0 - 300m

Since oxygen is involved in most of the biological and chemical processes in aquatic environments, it is the single most important parameter needed to be measured. Oxygen can also be used as a tracer in oceanographic studies.
For environmental reasons it is critical to monitor oxygen in areas where the supply of oxygen is limited compared to demand e.g.

- In shallow coastal areas with significant algae blooms.
- In fjords or other areas with limited exchange of water.
- Around fish farms.
- In areas interesting for dumping of mine or dredging waste.

The AADI Aanderaa Oxygen Optodes are based on the ability of selected substances to act as dynamic fluorescence quenchers. The fluorescent indicator is a special platinum porphyrin complex embedded in a gas permeable foil that is exposed to the surrounding water. A black optical isolation coating protects the complex from sunlight and fluorescent particles in the water.

This sensing foil is attached to a sapphire window providing optical access for the measuring system from inside a watertight housing.

The lifetime-based luminescence quenching principle offers the following advantages over electro-chemical sensors:

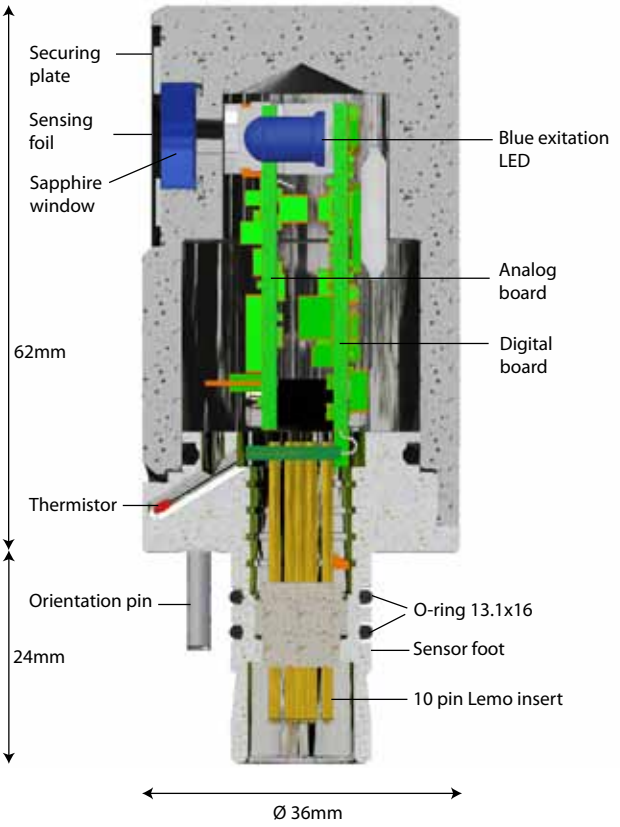
- Not stirring sensitive (it consumes no oxygen).
- Less affected by fouling.
- Measures absolute oxygen concentrations without repeated calibrations.
- Better long-term stability.
- Less affected by pressure.
- Pressure behaviour is predictable.
- Faster response time.

The Oxygen Optode outputs data in AiCaP CANbus and RS-232. The sensor can present the O_2 concentration in µM, the Air Saturation in % and the Temperatur in °C.

The SEAGUARD® datalogger and the smart sensor are interfaced by means of a reliable CANbus interface (AiCaP), using XML for plug and play capabilities.

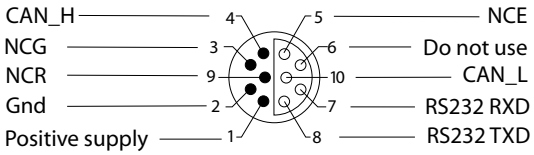
The smart sensors can be mounted directly on the top end plate of the AADI SEAGUARD® and are automatically detected and recognized.

Specifications 4835



PIN CONFIGURATION

Receptacle, exterior view; pin = • bushing = ◦



OXYGEN:	**O2-Concentration**	**Air Saturation**
Measurement Range:	0 – 500 µM[1)]	0 - 150%
Resolution:	< 1 µM	0.4 %
Accuracy:	<8 µM or 5%[2)] whichever is greater	<5 %[3)]
Response Time (63%):	<25 sec	
TEMPERATURE:		
Range:	-5 to +40°C (23 - 104˚F)	
Resolution:	0.01°C (0.018°F)	
Accuracy:	±0.1°C (0.18°F) [4)]	
Response Time (63%):	<10 sec	
OUTPUT FORMAT:	AiCaP CANbus, RS-232	
SAMPLING INTERVAL:	2s – 255 minutes	
SUPPLY VOLTAGE:	5 to 14 Vdc	
CURRENT DRAIN:		
Average:	0.16 +48 mA/S where S is sampling interval in seconds	
Maximum:	100 mA	
Quiescent:	0.16 mA	
OPERATING DEPTH:	0 – 300 meters (0 – 984.3ft)	
ELEC. CONNECTION:	10-pin receptacle mating plug CSP	
DIMENSIONS (WxDxH):	Ø36 x 86 mm (Ø1.4”x 3.4”)	
WEIGHT:	153g (5.40oz)	
MATERIALS:	Stainless steal, Hostaform (POM)	
ACCESSORIES (not included):	Set-up and config Cable 3855[5)]/3855A[5)] Standard Foil Service Kit 4733 PSt AiCap extension cable with CSP 4793 CSP to free end cable 4762 CSP to PC cable 4865 Patch Cable 3969492	

(1) O_2 concentration in µM = µmol/l. To obtain mg/l, divide by 31.25
(2) requires salinity compensation for salinity < 1mS/cm
(3) within calibrated range 0 - 120%
(4) within calibrated range 0 - 36%
(5) for laboratory use

Specifications subject to change without prior notice.

Operating Principle

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 flourecence 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.

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