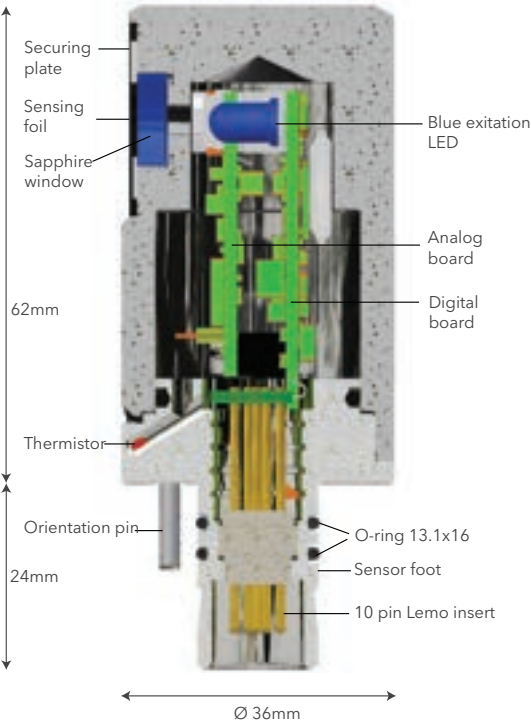# xylem

Let's Solve Water

Oxygen Optode 4835

The Oxygen Optode 4835 is a compact fully integrated sensor for measuring O_2 concentration and temperature in shallow water.

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 200 scientific papers have so far been published using Aanderaa Optodes.
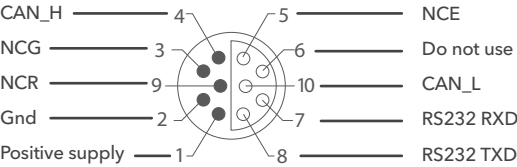
Advantages:

• Optical lifetime-based luminescence quenching measurement principle
• Multipoint calibrated in 40 points
• Long time stability with red reference LED
• Low maintenance needs
• Not stirring sensitive (it consumes no oxygen)
• User friendly
• Use with Aanderaa SeaGuard and SmartGuard Platform
• Use as stand-alone sensor
• Output format: CANbus AiCaP, RS232
• Operating depth range: 0-300 meters

AANDERAA

a xylem brand

Specifications OXYGEN OPTODE 4835

- Securing plate
- Sensing foil
- Sapphire window
- Blue exitation LED
- Analog board
- Digital board
- 62mm
- Thermistor
- Orientation pin
- 24mm
- O-ring 13.1x16
- Sensor foot
- 10 pin Lemo insert
- Ø 36mm

Pin configuration

Receptacle, exterior view; pin = ● bushing = o

CAN_H	4	5	NCE
NCG	3	6	Do not use
NCR	9	10	CAN_L
Gnd	2	7	RS232 RXD
Positive supply	1	8	RS232 TXD

Cable from sensor to:	Cable
PC with waterproof SP, RS-232	4865
Seaguard as sixth sensor on top-end plate	4999
Seaguard with waterproof top end plate connection	4793
SmartGuard single sensor with SP	5236
User furnished data logger, CSP to free end	4762
Set-up and config Cable	3855[6]/ 3855A[6]

Misleading specifications

When Aanderaa states an absolute accuracy of e.g (±3% 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 might refer to response time in air which is much faster. For more information read our Best Practice document on Oxygen Optodes.

Technical Details

Oxygen:	O₂ - Concentration	Air Saturation
Calibration method:	40 point automatic calibration, 20 point verification, 3 fully Winkler calibrated optodes for referencing	
Foil:	Stable and rugged FDO701 sensing foil	
Measurement Range:	0 – 1000 μM[1] or 0-32mg/L	0 - 300%
Calibration Range[2]:	0 - 500 μM or 0-16mg/L	0 - 120%
Resolution:	<0.1 μM or 0.0032mg/L	0.05 %
Accuracy:	<4 μM[3] or 0.128mg/L	<3 %[4]
Typical Field Drift Foil Lifetime:	<0.3 % per year +10 years, do not change foil unless mechanically damaged	
Response Time (63%):	<30 sec	
Temperature:		
Range:	-5 to +40°C (23 - 104°F)	
Resolution:	0.01°C (0.018°F)	
Accuracy:	±0.05°C (0.090°F) [5]	
Response Time (63%): Typical field drift:	<10 sec < 0.03 degC per year	
Output format:	AiCaP CANbus, RS-232	
Output parameters:	O₂ concentration in μM and mg/L, Air Saturation in %, Temperature in °C, Oxygen raw data and Temperature raw data	
Sampling interval:	1 sec – 255 min	
Supply voltage:	5 to 14Vdc	
Current drain:		
Average:	0.16 +48mA/S where S is sampling interval in seconds	
Maximum:	100mA	
Quiescent:	0.16mA	
Operating depth:	0 – 300m (0 – 984.3ft)	
Elec. connection:	10-pin receptacle mating plug SP	
Dimensions (WxDxH):	Ø36 x 86mm (Ø1.4"x 3.4")	
Weight:	118g (4.16oz)	
Materials:	Titanium, Polyacetal (POM)	
Accessories:	Foil Service Kit 5551	

[1] O₂ 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 variation > 1mS/cm,
[4] Within calibrated range 0 - 120% / 0 - 30°C
[5] Within calibrated range 0 - 36°C
[6] Only for laboratory use

Specifications subject to change without prior notice.
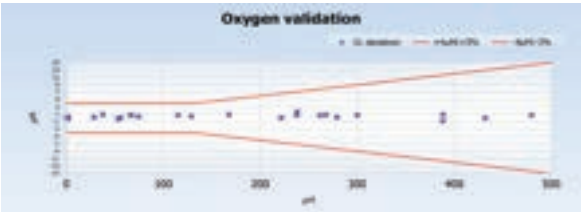
Typical validation at 20 points after calibration

Foil Service Kit 5551

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