AANDERAA
State-of-the-Art Scientific Products

OXYGEN OPTODE 3830

uses the latest technology for measuring dissolved oxygen in fresh and salt water The principle of measurement is based on the effect of dynamic luminescence quenching (lifetime based) by molecular oxygen.

Since oxygen is involved in most of the biological and chemical processes in aquatic environments, it is the single most important parameter needing 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 Oxygen Optode 3830 is 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 titanium housing.

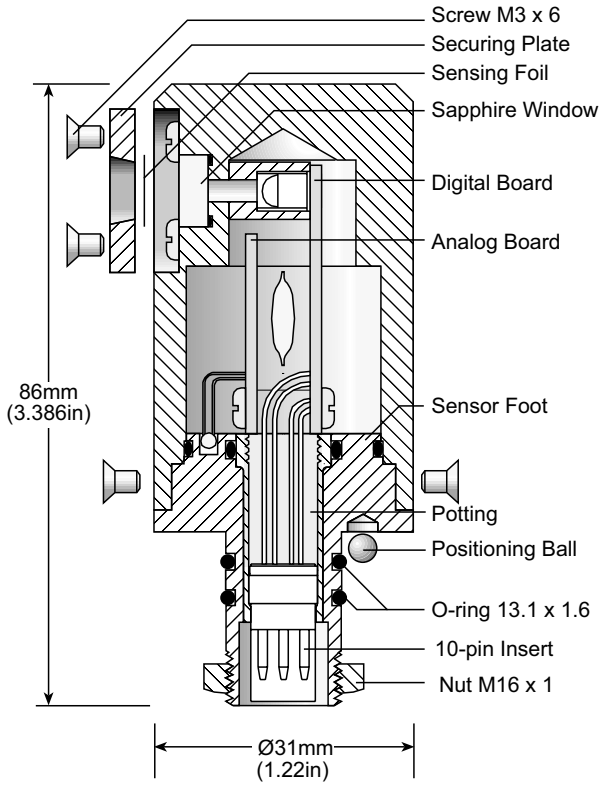
The foil is excited by modulated blue light, and the phase of a returned red light is measured (see illustration overleaf). By linearizing and temperature compensating, with an incorporated temperature sensor, the absolute O2 concentration can be determined.

The Oxygen Optode outputs data in either absolute oxygen concentration in µM or air saturation in %. By connecting the sensor to a PC the units of measurements can be selected.

The lifetime-based luminescence quenching principle offers the following advantages over electrochemical sensors:
· Not stirring sensitive (it consumes no oxygen)
· Almost insensitive to fouling
· Measures absolute oxygen concentrations without repeated calibrations
· Better long-term stability
· Less affected by pressure
· Pressure behavior is predictable
· Faster response time.

The sensor is designed to operate down to 6000 meters. It fits directly on to the top-end plate of Recording Current Meters RCM 9, RCM 11 and other Aanderaa instruments.

SPECIFICATIONS FOR OXYGEN OPTODE 3830



	Output Settings	
	Ab.Ox.Con.	***Air Sat.***
Measuring Range:	0-500 µM [1])	0 - 120%
Resolution:	< 1 µM	< 0.4%
Accuracy:	< 5 µM [2])	< 2%
Settling Time (63%):	< 20 seconds	
Operating Temperature:	0 - 40°C (32 - 104°F)	
Operating Depth:	0 - 6000m (19,690ft)	
Output Format:	Aanderaa SR10	
Electrical Connection:	10-pin receptace mating plug 3216A	
Current Consumption:	13 mA/T where T is recording interval in minutes	
Supply Voltage:	-6 to -14 Vdc	
Dimentions:	Ø31 x 86 mm (Ø1.22 x 3.386in)	
Weight:	0.230kg (8.113oz)	
Materials:	Titanium, Hostaform(POM)	
Warranty:	Two years against faulty material and workmanship	
Accessories included:	Sensor Cable 3854	
(not included):	Sensor Cable 3855 to PC Foil Service Kit 3853 MPST1	

[1]) *O_2 concentration in micro Molar = µ molar/l ,*
To obtain mg/l divide by 31.25.

[2]) *Valid for 0 to 2000m (6562ft) depth, salinity 33-37ppt*

PIN CONFIGURATION

Receptacle, exterior view; pin = ●; bushing = ○

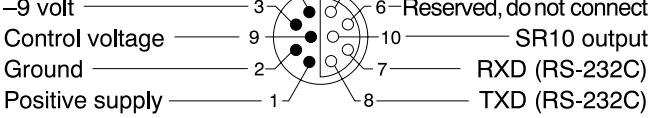
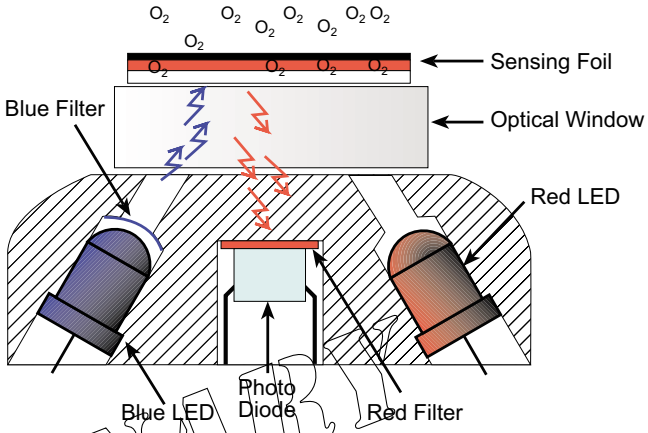


Illustration of the Optical System



The sensor can be mounted directly on the top-end plate of the Aanderaa RCM 9 or RCM 11 and connected to the Main Control Board (Electronic Board) with a short cable, Sensor Cable 3854.

The Oxygen Optode can also be incorporated into other Aanderaa assemblages such as buoys, handheld profiling systems or hydrological monitoring. For such use a submersible sensor version model 3930 is available. This ensures straightforward mounting on the Aanderaa Sensor Disks 3822 and 3829 or Fastening Fixture 3823.

For access to the RS232 capability of the sensor we offer Cable 3855 (1.5m). It has a watertight 10-pin plug on one end (sensor), and a 9-pin D-Sub plug on the other. The 10-pin receptacle in the sensor foot mates with Aanderaa Plug 3216A. An additional USB plug is used for providing power to the sensor. Power may also be connected to an included extension to the USB plug.

Representative's Stamp