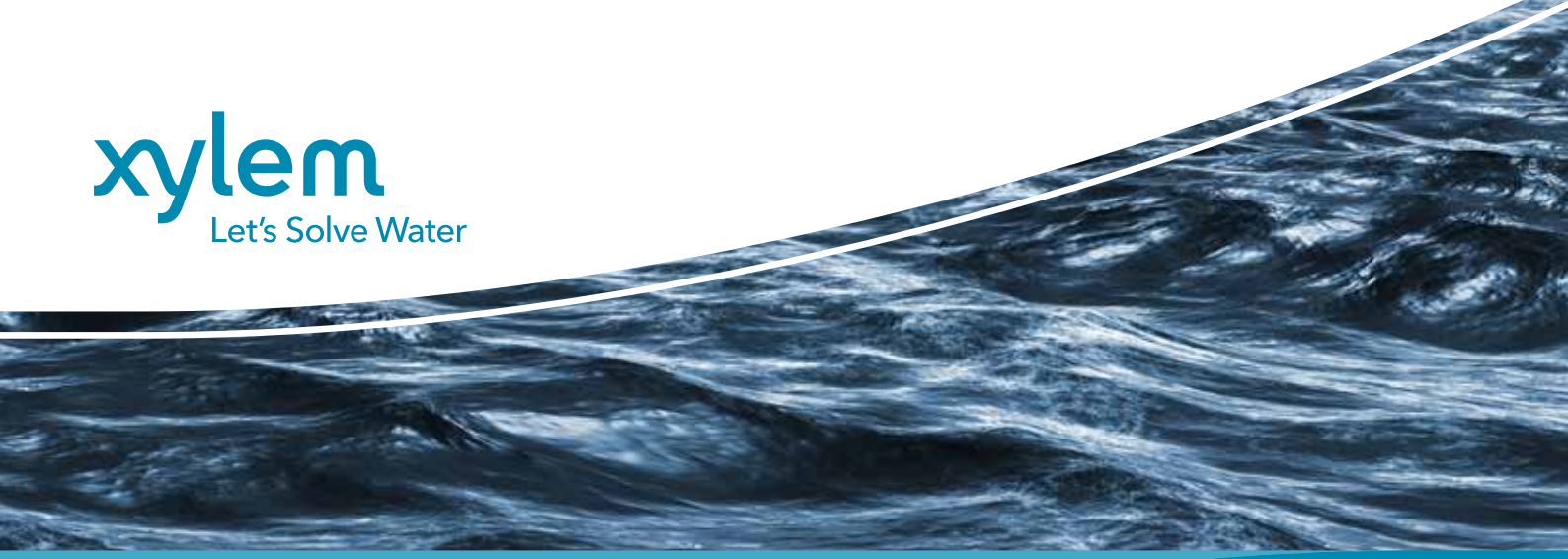
xylem
Let's Solve Water



Oxygen Optode 4531

The Oxygen Optode 4531 is a compact fully integrated sensor for measuring O_2 concentration and temperature.

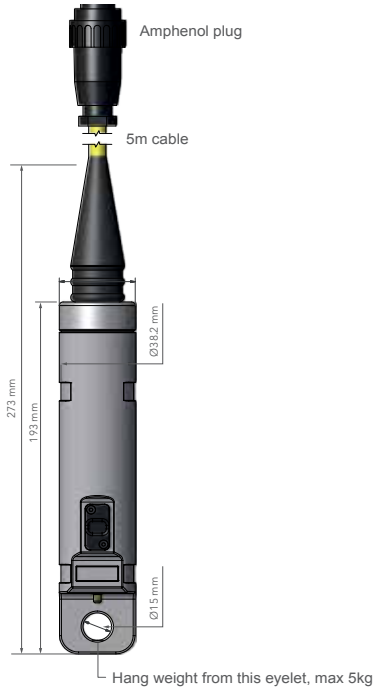
Advantages

- Optical lifetime-based luminescence quenching meassurement principle
- Long time stability with red reference LED
- Stable and rugged foil
- Low maintenance needs
- Not stirring sensitive (it consumes no oxygen)
- Smart Sensor technology:
  presenting calibrated data directly
- Stand-alone sensor
- Output format: 4-20mA/0-5V/0-10V and RS-232
- Customized cable lengths

Since oxygen is involved in most of the biological and chemical processes in aquatic environments and in the process industry, it is one of the most important parameters to be measured. 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.

AANDERAA
a xylem brand

Specifications OXYGEN SENSOR 4531



Available cables	Cable
Cable from sensor to Amphenol plug	5440
8-pin male Subconn plug directly on sensor	5441
Cable from sensor to free end	5442
Cable from sensor to 8-pin male Subconn plug	5443
Cable from sensor to 9-pin Dsub, RS-232	5972

Foil Service Kit 5551. FDO701

Misleading specifications

When Aanderaa states an absolute accuracy of e.g (±5% or ±8 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.

Technical Details

Oxygen:	**O_2- Concentration**	**Air Saturation**
Sensing Foils:	Stable and rugged FDO701 foil	
Operation Range:	0 – 1000 µM	0 - 300%
Calibration Method:	40-point automatic calibration, 20-point verification, 3 fully Winkler calibrated optodes for referencing	
Calibration Range:	0 – 500 µM [1]	0 - 120%
Resolution:	<0.1 µM	0.05% [3]
Accuracy:	<8 µM [2]	<5%
Response Time (63%):	<30 sec	
Typical field drift:	<0.5% per year	
Foil Lifetime:	+10 years, do not change foil unless mechanically damaged.	
Temperature:		
Range:	-5 to +30°C (23-86F)	
Resolution:	0.01°C (0.054°F) [4]	
Accuracy:	±0.03°C (0.054°F)	
Response Time (63%):	2 sec	
Typical field drift:	< 0.03 degC per year	
Output format:	4531A: 0 - 5V, RS-232 4531B: 0 - 10V, RS-232 4531C: 4 -20mA, RS-232 4531D: RS-232	
Output Parameters:		
RS-232	O_2 Concentration in µM, Air Saturation in %, Temperature in °C, Oxygen raw data and Temperature raw data	
Analog channel 1:	O_2 Concentration in µM, or Air Saturation in %	
Analog channel 2:	Temperature in °C	
Sampling interval:	2 sec – 255 min	
Supply voltage:		
RS-232:	5 to 30Vdc	
Analog:	7 to 30Vdc, 12 to 30Vdc for 0-10V	
Current drain:		
RS-232		
Average:	0.16 +48mA/S where S is sampling interval in seconds	
Maximum:	100mA	
Quiescent:	0.16mA	
Analog:	20mA + RS-232 drain	
Operating depth:	0-100 meters (0 - 328ft)	
Electrical connection:	Amphenol 16C or Subconn 8M	
Dimension (WxDxH):	Ø38.2 x 193/273mm/ (Ø1.50 x 7.60/10.75in)	
Weight:		
Sensor:	160g (5.6oz)	
5 m cable:	500g (17.6oz)	
Materials:	Titanium, PA	
Cable:		
Outer diameter:	9.9 +/- 0.4mm (0.39 +/-0.016in)	
Min. bending radius:	155mm (6.10in)	
Accessories:	Foil Service Kit 5551	

[1] O_2 concentration in µM = µmol/l. To obtain mg/l, divide by 31.25
[2] Requires salinity compensation for salinity variations > 1mS/cm
[3] Within calibrated range 0 - 120% / 0 - 30°C
[4] Within calibrated range 0 - 36°C

Specifications subject to change without prior notice.

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