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Shallow Water Micro-sensor for Dissolved Oxygen

For very fast vertical and horizontal profiling

The galvanic dissolved oxygen micro-sensor for shallow water and laboratory applications has been developed above all for the very fast *in-situ* measurements of approx. 200 milliseconds. Because of the partial pressure of the gaseous O_2, the analyte permeates through the membrane. Inside of the sensor the oxygen reacts electrochemically at the working electrode. This causes a current corresponding to the partial pressure of the dissolved oxygen. The sensor has a very short response time of down to some hundred milliseconds for $t_{90\%}$. Streaming, as it is well-known from all the other Clark-type membrane covered oxygen sensors, is not necessary. Therefore profiling with very high local resolution is possible. Both turbid, muddy and coloured solutions do not affect the sensor signal. For measuring the oxygen saturation, the sensor has to be combined with a temperature measurement. If the oxygen concentration has to be determined, the additional measurement or knowledge of the conductivity/salinity is required. The maximum deployment depth is 100 m. All sensors are delivered with temperature compensation data.

Technical data of the micro-sensor:

measuring principle:	galvanic, membrane covered sensor
power supply:	9 ... 30 VDC (others on request)
output:	0 ... + 3 VDC (others on request)
dimensions:	diameter: 24 mm, length: approx. 235 mm
connector:	SUBCONN BH-4-MP (others on request)
housing:	titanium, with integrated pre-amplifier
measuring range:	0...150% saturation (others on request)
resolution:	e.g. 100% saturation/Volt
	depends on sensor and requested signal resolution
accuracy:	2% (measuring value)
pressure range:	10 bar
response time:	down to 200 milliseconds for $t_{90\%}$
average life time:	6...24 months (depends strongly on application)