Shallow Water Hydrogen Sulphide Micro-sensor

This amperometric H_2S micro-sensor for shallow water has been developed for the *insitu* determination of dissolved H_2S/Sulphide in natural waters. Because of the partial pressure of the gaseous H_2S, the analyte is separated by permeation through the membrane. Inside the sensor the hydrogen sulphide reacts with a redox mediator. The reoxidation at the working electrode causes a current corresponding to the concentration of the dissolved molecular H_2S amount. The sensor has a very short response time of down to 200 milliseconds and streaming is not necessary, so that profiling with high resolution is possible. The sensor works highly selective and there are no interferences to analytes like CO, CO_2, H_2O-vapour, CH_4 or NH_3. Both salt concentrations of up to 40 g/l and turbid or coloured solutions do not interfere with the signal. For measuring the total sulphide concentration within a the pH-range between 5 and 8,5, the sensor has to be combined with a pH-sensor and always with a temperature measurement. Except the shallow water version for depths of up to 100 m, a laboratory version is available too. All sensors are delivered with slope, temperature compensation data and mathematical formulas for calculating the total sulphide amount. The exchange of sensor heads is very easy and could be done by the customer itself. The alternative exchange tip for dissolved oxygen extends the sensors flexibility.

Technical data of the micro-sensor:

measuring principle:	amperometry
power supply:	9 ... 30 VDC
output:	0 ... + 3 VDC
dimensions:	diameter: 24 mm, length: 235 mm
connector:	SUBCONN BH-4-MP (others on request)
housing:	titanium
concentration range:	type I: 50 µg/l ... 10 mg/l H_2S type II: 500 µg/l ... 50 mg/l H_2S type III: 10 µg/l ... 3 mg/l H_2S or dissolved oxygen sensor or H_2O_2 sensor tip
accuracy:	2% (measuring value) ± 1 digit
pressure ranges:	10 bar or laboratory version
temperature range:	0...30°C (for measuring and storage !)
pH-range:	0 ... 8,5 pH
response time:	$t_{90\%}$: approx. 1 second
average life time:	5-9 months (depends on H_2S stress and on sample)

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