

Shallow Water Hydrogen Sulphide Micro-sensor

This amperometric H₂S micro-sensor for shallow water has been developed for the *insitu* determination of dissolved H₂S/Sulphide in natural waters. Because of the partial pressure of the gaseous H₂S, 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 H₂S 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, CO₂, H₂O-vapour, CH₄ or NH₃. 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 ₂ S type II: 500 µg/l ... 50 mg/l H ₂ S type III: 10 µg/l ... 3 mg/l H ₂ S or dissolved oxygen sensor or H ₂ O ₂ sensor tip
accuracy:	2% (measuring value) ± 1 digit
pressure ranges:	10 bar or laboratory version
pH-range:	0 ... 8,5 pH
response time:	t _{90%} : approx. 1 second
average life time:	5-9 months (depends on H ₂ S stress and on sample)