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Multi-sensor measuring system for H₂S/O₂/O₃/H₂O₂/H₂/pH/temperature

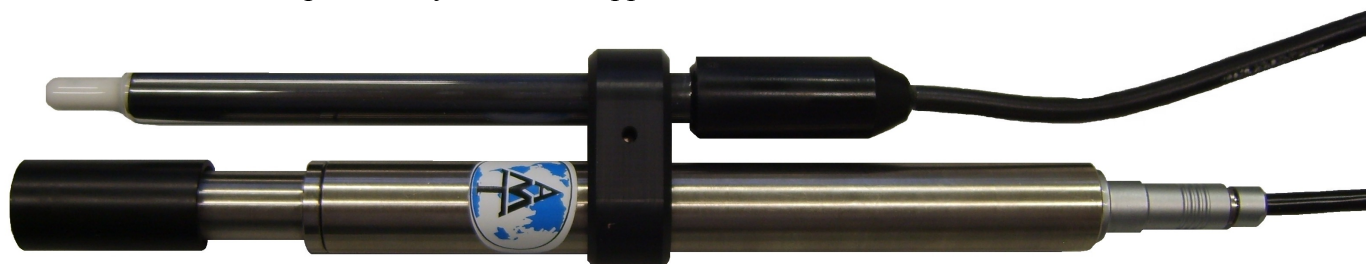
A microprocessor-operated measuring instrument with innovative electrochemical micro-sensors for the *in-situ* determination in water



The Multi-Sensor Measuring Instrument MS 08 has been developed for the *in-situ* determination of dissolved H₂S, oxygen, ozone, hydrogen, hydrogen peroxide, pH and temperature in laboratories and for the simple field use. It is equipped with innovative electrochemical micro-sensors for H₂S/Sulphide, dissolved oxygen, ozone, dissolved hydrogen, hydrogen peroxide and with additional sensors for pH and temperature. The display shows all the calculated chemical and physical data with their units or the raw data if requested. The instrument is equipped with a power supply unit as standard and can also be operated with batteries. A serial interface RS232 is included as well as a case for the storage and for the transport of the instrument.

Measuring Instrument MS 08 with micro-sensor, temperature sensor, RS 232 interface, power supply unit

The instrument is suitable for all the AMT Laboratory micro-sensors. So the customer needs only one measuring instrument for up to 7 parameters. The possible several analyte combinations allow to save some more money, because only one sensor electronic is necessary. For the possible combinations please have a look on to the next page (sensor combinations). The measuring device is able to store calibration data (slopes of the sensors, temperature correction coefficients) of up to 10 different chemical sensors. The stored data are used for the calculation of the chemical and physical units by means of the measured raw data. In case of the pH sensor a re-calibration is possible by the menu supported software of the device.



Parts of the Multi-Sensor Measuring Instrument MS 08

The *basic equipment* of the measuring system consists of the *multi-sensor measuring instrument*, the *power supply unit*, the *sensor package* mounted in a *un-screwable clamp*, the *cables* and a *case* for the transport and storage.

Additionally, in the field the instrument can be operated with 6 re-chargeable batteries (mignon/LR6, AA). Therefore, on request a power pack with two complete sets of re-chargeable batteries including a microprocessor-operated charger is available.

Furthermore there is an option to link the instrument with a PC or notebook via the serial RS 232 interface. The RS232 interface delivers the displayed data as ASCII string code. For instance, if the Windows Hyperterminal program is used, you can store here the data followed by the data transmission to any other programs like Excel.

The cable length between the instrument and the sensors is 90 cm. If you should need longer cables, or if you want to measure in depths of up to 100 m, we recommend to use the AMT shallow water sensors or an complete underwater probe system.

Sensor combinations

The following sensor combinations are possible:

1. H₂S sensor with combined pH/temperature sensor (for measurements between pH = 0...8,5),
2. Dissolved oxygen sensor with temperature sensor
3. Ozone sensor with temperature sensor
4. Dissolved hydrogen sensor with temperature sensor
6. Hydrogen peroxide sensor with temperature sensor

If you select the combinations H₂S/H₂O₂/DO, H₂O₂/DO, H₂S/DO, H₂/DO or O₃/DO, you need only one sensor electronic housing. For all the other combinations additionally electronic housings are necessary.

Technical data of the sensors

Feature	H ₂ S -sensor	O ₂ -sensor	O ₃ -sensor	H ₂ -sensor	pH-sensor	H ₂ O ₂ -sensor	temperature sensor
Measuring principle	amperometry	galvanic	amperometry	amperometry	potentiometry	amperometry	Pt 1000
Measuring range	0,01...3 mg/l H ₂ S 0,05...10 mg/l H ₂ S 0,5...50 mg/l H ₂ S others on request	0,01...20 mg/l 0,1...150 mg/l	0,02...10 mg/l	0,0002...1 mg/l others on request	0...14 pH	0,02...10%	-2...38°C
Accuracy	2%	2%	2%	2%	0,02 pH	2,00%	0,2°C
Resolution	0,0075 mg/l 0,025 mg/l 0,125 mg/l	0,01 mg/l 0,1 mg/l	0,0025 mg/l	0,0075 mg/l	0,01 pH	0,02% 0,07%	0,1°C
Response time (t _{90%})	< 3 s	< 0,5 s	< 2 s	< 2 s	< 20 s	< 2 s	< 30°C