



Dissolved Hydrogen Probe System

In situ measurements and profiling in shallow water



Accurate - Reliable - Small Dimensions - Easy Handling



The determination of the **total dissolved hydrogen** is one of the most important parameters for the analysis in **power plants, waste water** and in **industry**.

On the other hand, the total dissolved hydrogen concentration is an interesting parameter for scientists of several scientific departments. They use this parameter to understand chemical reactions and to optimise the process of the industrial production of chemicals.

But due to a lot of the hydrogen's inconvenient chemical properties, like high chemical reactivity, possible storage in metals and the fast concentration exchange between the liquid sample and the gaseous phase above (mostly air), the determination is difficult. Even though the sampling and the determination have been done very carefully, the results are uncertain and mostly disappointing.

All these disadvantages could be avoided, if the new **Submersible Hydrogen Probe System** is used for the accurate and reliable *in-situ* determination in depths of up to 100 m or in case of pressures of up to 10 bar.

The "heart" of this new probe is the hydrogen micro-sensor, which allows a very fast measurement with a very high local concentration resolution. For details please read the "general information for the hydrogen micro-sensor".

Special Features:

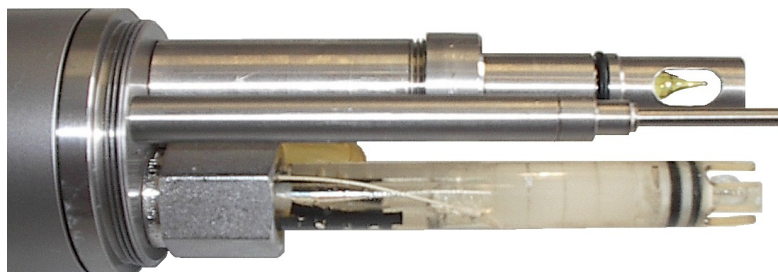
- Sensors for H₂ (amperometric micro-sensor), temperature and depth/pressure
- Very easy sensor exchange
- Windows based software for display of chemical/physical units and diagrams
- Free selection of displayed parameters (H₂, T, pressure)
- Titanium made housing and protection cage
- Subconn titanium connector
- Very small dimensions (48 mm diameter, 440 mm total length)
- Low weight of 1 kg
- Small and low-weight cable (< 6 mm diameter)
- Low running costs for chemical sensor replacement

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The **Submersible Hydrogen Probe system** is equipped with a precision microprocessor-controlled 4-channel 16 bit analogue to digital converter. The data are available as RS-232 signal (multi-conductor polyurethane covered cable) and optional as FSK signal modulated on constant current (single-conductor cable).

The probe can be powered by battery or DC power supply (9 to 30 V DC) when using the RS-232 output or by constant current with FSK telemetry output (coaxial connection) for longer distances. An interface for constant current supply is available.



Probe with removed protection cage. Sensors for H₂, pH, temperature and depth.

Possible Sensor Equipment (on customers request)

Sensors	Principle	Range	Accuracy	Resolution	Response time
Pressure	piezo-resistive full bridge	10 bar	± 0,1 % FS	0,002 % FS.	150 ms
Temperature	Pt 100	- 2 ... + 36 °C	± 0,05 °C	0,0006 °C	1 s
pH	single rod electrode	0 ... 14 pH	± 0,02 pH	0,0002 pH	1 s
H ₂	Amperometric micro-sensor	0,2 µg/l...0,5 mg/l 2 µg/l...1 mg/l	2% of reading	0,1 µg/l H ₂ 0,4 µg/l H ₂	< 1s

Technical data of the probe system

Feature	Online Probe	Memory Probe
Dimensions:	Ø 48, length: 400 mm	Ø 48, length: 440 mm
Weight on air:	1,1 kg	1,3 kg
Material:	Titanium	Titanium
Connector:	Subconn MCBH4M	Subconn MCBH5M
Power Supply:	External 9...30 Volt DC	External: 7...16 V DC Internal Battery: 1...5 V DC
Current consumption:	12 mA at 12 V DC	External power supply: 15 mA Li-battery (3,6 V): approx. 20...35 mA Alk.-battery (1,5 V): approx. 50...90 mA
Data output	Serial port RS232, option: FSK-telemetry	Serial port RS232
Memory capacity:	none	8 MB (approx. 350.000 data sets)

In view of our policy of continual improvement, the design and specifications of our products may vary from those illustrated in this brochure.

Your distributor: **AMT Analysenmesstechnik GmbH**

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