Shallow Water H_2 Probe

Amperometry

Submarine connector and analog output

Applications

- Monitoring and protection of wastewater networks
- Control at start-up of power plants
- Industrial process management
- Monitoring of the natural environment
- Closed circuit H_2 dosage

Advantages

- Measurement without sampling directly in the field
- No interference with turbidity or colors
- Maximum immersion depth. 100 meters
- Analog output signal without external controller
- Submarine connector

Support probe and micro sensor H_2

The H_2 probe was developed for in situ measurement of changes in dissolved hydrogen concentrations in natural and industrial waters.

Mounted on multi-parameter systems such as CTD probes, this sensor is composed of a waterproof connector, a probe body incorporating an electronic signal transformation card and a micro H_2 sensor installed at the tip.

The amperometric measurement allows fine and fast measurements, approximately 2 seconds for 90% of the measurement even for concentrations of the order of a few micrograms, moreover the turbidity and the color of the water have no influence. on measure.

For the determination of dissolved H_2 concentrations, the data from the probe must be combined with a temperature measurement of the sample or medium.

Add the sensor to your installations

This equipment is delivered with telectrode calibration slope and temperature compensation data with calculation formulas to obtain the hydrogen concentration in mg / l. The exchange of the micro sensor installed at the tip could be done easily by users.

The shallow water H_2 probe also allows the integration of a micro O_2 sensor for dissolved oxygen measurements, replacing the micro H_2 sensor.

The dissolved hydrogen passes through the gas permeable membrane. It diffuses to the working electrode where an electrochemical oxidation reaction takes place. The current generated, proportional to the partial pressure of dissolved hydrogen, is measured by the probe.

This current of 0 to 400 pico-amperes is then converted by the electronic card in the probe body into an analog signal of 0 to 3 VDC.

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Technical specifications

Measuring principle		Amperometric measurement
Technology		Micro membrane sensor with redox catalyst - interchangeable
Temperature compensation		Required - not included
Electrical polarization time		Automatic approx. 45-60 min wait for first use, lower for short stops
Measurement ranges	Type I	0,0002 ... 0,5 mg/l H_2
	Type II	0,0004 ... 1 mg/l H_2
	Type III	0,0008 ... 2 mg/l H_2
	Type IV	0,001 ... 3 mg/l H_2
Measurement resolution	Type I	0,1 µg/l H_2
	Type IV	0,4 µg/l H_2
Response time		T 90% 2 seconds
Measurement accuracy		2% of the measured value
H_2 consumption		Negligible
Materials		Titanium (housing), silicone (membrane), glass (electrode), epoxy resin
Dimensions (d x L)		24 mm x 235 mm
Power supply		9 ... 30 VDC
Consumption		approx. 0,5 mA with 12 VDC, approx. 0,25 mA with 24 VDC
Output signal		analog 0 ... 3 VDC
Connector		SubConn BH-4-MP
Micro H_2 sensor lifetime		6 months in portable use, 10 months continuously (depends on stress by pH variations)
Interferences on measurement		No interference in salt water up to 40 g / l salt
Sensitivity to H_2S		May lead to measurement errors and / or reduction of the life of the micro sensor
Maintenance		Cleaning the measuring membrane with distilled water after each use
Temperature of the medium / sample		0 ... + 30 °C (40 °C possible with a specific calibration on request)
Ambient temperature		0 ... + 40 °C
Storage temperature		0 ... + 40 °C