

# CTD48 Probe H<sub>2</sub>

## Amperometry

Multiparameter probe with protective cage



### Applications

- Oceanographic, limnological and hydrological studies
- Industrial process management
- Monitoring of the natural environment
- Closed circuit H<sub>2</sub> 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

### All-in-one system H<sub>2</sub>, pH, T °, pressure

The determination of dissolved hydrogen concentrations is one of the most important parameters for the analysis and control of power plant water, waste water and process water.

Due to its high chemical reactivity and the rapid transfer of concentrations between liquid samples and the gas phase, its measurement is difficult despite careful sampling.

The precise and reliable in situ measurement of this parameter is possible with the CTD48 H<sub>2</sub> probe for water up to 100 meters deep or with 10 bars of pressure. The integrated micro H<sub>2</sub> sensor is the biggest innovation of this system, it allows a fast measurement with a very high resolution. The multiparameter probe continuously measures the dissolved hydrogen concentration of the medium, taking into account the variations in temperature and pressure of the field.

### Online / portable measurement

The CTD48 H<sub>2</sub> probe can be connected to a power supply and a computer for on-line measurements, or be equipped with a battery module and memory for hard-to-reach environments or without power supply.



The dissolved H<sub>2</sub> passes through the gas permeable membrane. It diffuses to the working electrode where an electrochemical oxidation reaction takes place with the electrolyte adapted. The current generated, proportional to the H<sub>2</sub> concentration, is measured by the probe.

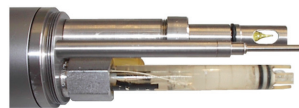
This current from 0 to 400 pico-amperes is then converted and used by the electronics of the probe to be compensated according to the temperature and pressure measured.

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### Technical specifications

Measurement technology	ORP Redox electrode		
Measuring principle	Potentiometry		
Temperature	Pt 100		
pH	Combined pH electrode		
Ranges, accuracy, resolution, T-response (H <sub>2</sub> )	0,2 µg/l...0,5 mg/l 1 µg/l...3 mg/l	2% of the value	0,1 µg/l H <sub>2</sub> 0,4 µg/l H <sub>2</sub> < 1 s
Ranges, accuracy, resolution, T-response (PRESSURE)	0 ... 10 bar	+/- 0,1 %	0,002 % 150 ms
Ranges, accuracy, resolution, T-response (TEMPERATURE)	- 2 ... + 35°C	+/- 0,05 °C	0,0006 °C 1 s
Ranges, accuracy, resolution, T-response (pH)	0 ... 14 pH	+/- 0,02 pH	0,0002 pH 1 s
Probe housing materials	Titanium		Titanium
Dimensions (L x d)	Diameter 48 mm, length 400 mm		Diameter 48 mm, length 400 mm
Weight	1,1 kg		1,3 kg
Interface	Digital	RS232 serial	RS232 Serial (Battery version)
Data acquisition		FSK-telemetry option	x
Power supply		SST-SDA software supplied (PC-Windows)	SST-SDA software supplied (PC-Windows)
Consumption		9 ... 30 VDC	7 ... 16 VDC or internal battery 1 ... 5 VDC
Memory capacity		12 mA at 12 VDC	External source: 15 mA, Li-battery: 20-35 mA
		x	8 MB (approx.350,000 measurement data)
Micro H <sub>2</sub> sensor lifespan	6 months in portable use, 10 months continuously (depends on variations in pH)		
Calibration interval	24 months		
Warranty	24 months in the European Union		
Medium / sample temperature	0.1 ... + 30 ° C (40 ° C possible with specific calibration)		
Ambient temperature	0 ... + 40 °C		
Storage temperature	0 ... + 40 °C		



The H<sub>2</sub>S, pH, temperature and pressure sensors are installed under the protection cage.

