

## CO<sub>2</sub> sensor | AMT

max. depth 1000 m.



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The sensor allows measurement of dissolved carbon dioxide excluding hydrogencarbonate ions  $\text{HCO}_3^-$  and carbonate ions  $\text{CO}_3^{2-}$  in water. The sensor is connected as external sensor to CTD probes.



CO <sub>2</sub> sensor / AMT	
Pressure resistance	1000 dbar
Measuring range	15 mg/l, 50 mg/l, 340 mg/l (others on request)
Accuracy	0...5 mg/l CO <sub>2</sub> : ± 0.06 mg/l 5...15 mg/l CO <sub>2</sub> : ± 2 % of the measuring value 15...50 mg/l CO <sub>2</sub> : ± 3.5 % of the measuring value 50...80 mg/l CO <sub>2</sub> : ± 1.5 mg/l CO <sub>2</sub> 80...340 mg/l CO <sub>2</sub> : ± 6 mg/l CO <sub>2</sub>
Warm up time	< 12 seconds, < 2 minutes for full accuracy
Temperature range	0...60°C storage and operation
Housing material	Titanium
Dimensions	225 mm length, 33 mm diameter
Used for	CTD75M, CTD90, CTD90M, CTD115M

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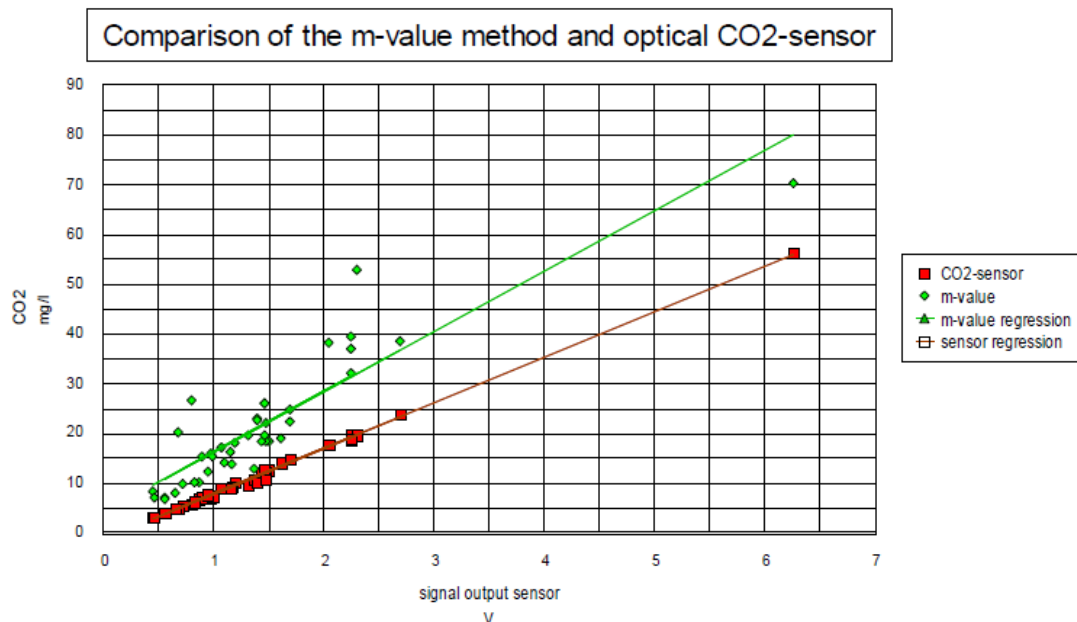
## The measuring principle:

The inner sensor volume is separated from the sample by means of a gaspermeable silicone membrane. Liquids and solids are not able to pass the membrane. If the sensor is immersed in a water sample, the CO<sub>2</sub> partial pressure equilibrium is reached between the inner sensor volume and the sample. The working principle of the internal optical unit is based on the Single-Beam Dual Wavelength NDIR. Therefore, the measurement of the CO<sub>2</sub> partial pressure has to be accompanied by the measurement of the temperature in the water and by the air pressure for calculating the carbon dioxide concentration.

## Main features of the CO<sub>2</sub> Sensor:

- submersible direct reading sensor for natural, industrial, and sea water
- no signal interferences to silicate, phosphate, HCO<sub>3</sub><sup>-</sup> and CO<sub>3</sub><sup>2-</sup>
- built-in reference measurement for superior stability
- calibration coefficients stored internally
- less than 0.5 W power consumption
- with analogue or digital output
- with internal temperature compensation
- compensation of humidity and other influences
- heated sensor head to avoid condensation

The optical carbon dioxide sensor has some advantages compared with the so called m-method, because there are no signal interferences to silicate, phosphate, HCO<sub>3</sub><sup>-</sup> and CO<sub>3</sub><sup>2-</sup> as shown in the graph below.



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