

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

max. depth 1000 m.



Sea & Sun  
Technology

The measurement of dissolved carbon dioxide (excluding HCO<sub>3</sub><sup>-</sup> and CO<sub>3</sub><sup>2-</sup>) in water is one of the most important parameters for water monitoring.

The sensor is designed to be interfaced externally to CTD probe systems, to own measuring systems or as stand alone sensor.



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
Housing material	Titanium
Dimensions	225 mm length, 33 mm diameter
Used for	CTD probes

### 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 dived into a sample, the CO<sub>2</sub> partial pressure equalisation is achieved between the inner sensor volume and the sample. Inside the sensor there is an optical sensor mounted. It's working principle is based on the Single-Beam Dual Wavelength NDIR.

This 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 and industrial waters and sea water
- detects CO<sub>2</sub> and total inorganic carbon when measuring additionally pH
- 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
- for depths of up to 1000 m
- less than 0.5 W power consumption
- with analogue or digital output (please select)
- 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 found in a comparison.

