



HydroC™ CO₂

Carbon Dioxide Sensor

The CONTROS HydroC™ CO₂ sensor is a unique underwater carbon dioxide sensor for in-situ and online measurements of dissolved CO₂.

The versatile HydroC™ CO₂ is suitable for platform installations (e.g. ROVs or AUVs), long-term deployments (e.g. buoys and moorings) as well as for profiling applications (e.g. water sampling rosettes).

Fields of application include: ocean acidification research, climate studies, air-sea gas exchange, limnology, fresh water control, aquaculture/fish farming, carbon capture and storage – monitoring, measurement and verification (CCS-MMV).

ADVANTAGES

- High accuracy
- Very robust, can be used in water depths up to 6,000 meters
- Very fast response time
- User-friendly
- Versatile – easy integration into almost every oceanographic measurement system and platform
- Long-term deployment capability
- 'Plug & Play' principle; all required cables, connectors and software are included

HOW IT WORKS

Dissolved CO₂ molecules diffuse through a specialized thin film composite membrane into the internal gas circuit leading to a detector chamber, where the partial pressure of CO₂ is determined by means of IR absorption spectrometry. Concentration dependent IR light intensities are converted into the output signal from calibration coefficients stored in firmware and data from additional sensors within the gas circuit.



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CONTROS
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ACCESSORIES

CONTROS provides all kinds of cables for laboratory and field work, along with subsea power options and a variety of turn-key solutions for underwater sensing. Furthermore CONTROS has broad experience in building customer-specific winches, mountings, and cages for every type of application.



FAST FACTS

DETECTOR	High-precision optical analyzing NDIR system
MEASURING RANGE	Standard calibration is 200 – 1000 µatm (other ranges on request)
WEIGHT	2.2 kg in water, 4.5 kg in air
DIMENSIONS	90 x 376 mm
OPERATIONAL DEPTH	2,000; 4,000; 6,000 m
TEMPERATURE RANGE	+3°C to +30°C (Arctic version: -2°C to +15°C)
RESPONSE TIME	T ₆₃ ~ 60 s (with SBE-5T)
RESOLUTION	< 1 µatm
ACCURACY	±1% of reading
CONNECTOR	Connector SUBCONN® MCBH8-M Titanium 8-pin (other connectors on request)
POWER SUPPLY	Sensor approx. 300 mA @ 12 V (+ approx. 8 W with SBE-5T)
DATA INTERFACE	RS-232C and RS-485; Data format ASCII NMEA-0183
SOFTWARE	Windows® Software DETECT™ incl. real time data visualization, setting of sensor parameters (e.g. measuring intervals, internal data logger settings, sleep mode function) supported by a mission planning tool; data download from internal logger

OPTIONS

- Internal data logger
- External battery packs
- Analog output: 0 – 5 V
- ROV and AUV installation packages
- Profiling and mooring frames
- CO₂ flow through sensor for underway (FerryBox) and lab applications
- External pump (SBE-5T or SBE-5M)
- Easy deployment together with a HydroFlash™ O₂

All values above were determined at 20 °C water temperature under standard calibration conditions. Specifications subject to change without notice. © 2014 CONTROS Systems & Solutions GmbH, Inc. All rights reserved. Rev. February 2014.

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