

CONTROS HydroC CO₂



KONGSBERG



HIGHLY ACCURATE UNDERWATER $p\text{CO}_2$ SENSOR

The CONTROS HydroC[®] CO₂ sensor is a unique and versatile underwater carbon dioxide sensor for in-situ and online measurements of dissolved CO₂. The CONTROS HydroC[®] CO₂ is designed to be used on different platforms following different deployment schemes. Examples are moving platform installations, such as ROV/ AUV, long term deployments on seabed observatories, buoys and moorings as well as profiling applications using water sampling rosettes.

Individual 'in-situ' calibration

All sensors are individually calibrated in a water tank which simulates the deployment temperature. A sophisticated reference detector is used to verify the $p\text{CO}_2$ concentrations in the calibration tank. The reference sensor is recalibrated with secondary standards on a daily basis. This process ensures that the CONTROS HydroC[®] CO₂ sensors achieve unmatched short and long term accuracy.

Operating principle

Dissolved CO₂ molecules diffuse through a custom made 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.

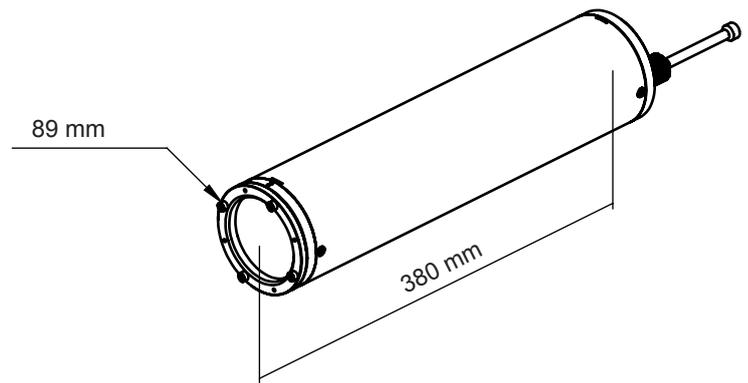
Accessories

A wide range of available accessories ensures that each of the CONTROS HydroC[®] CO₂ sensors can be adapted to meet customers' requirements. The optional pumps with the different flow heads are the most popular options that ensure very fast response times. An anti-fouling head is used under conditions with significant biofouling pressure. The internal data logger can be used in conjunction with the HydroCs flexible power management features and the CONTROS HydroB[®] battery packs to conduct unattended long-term deployments.



FEATURES

- High accuracy
- Very robust, depth rating up to 6,000 m (profiling)
- 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



TECHNICAL SPECIFICATIONS

CONTROS HydroC CO₂

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| • Detector | High-precision optical analyzing NDIR system |
| • Measuring range | Standard calibration is 200 - 1,000 µatm (other ranges on request) |
| • Weight | 2.2 kg in water, 4.5 kg in air |
| • Dimensions | 89 x 380 mm (without connector) |
| • Depth rating | 2,000 to 6,000 m (profiling) versions available |
| • Temperature range | Standard range is -2°C to +35°C (other ranges on request) |
| • Response time | $t_{63} \sim 60$ s (with SBE-5T) |
| • Resolution | < 1 µatm |
| • Initial accuracy | ±0.5 % of reading |
| • Connector | SubConn MCBH8-M titanium 8-pin (other connectors on request) |
| • Supply voltage | 11 V - 30 V |
| • Power consumption | Sensor approx. 300 mA @ 12 V + approx. 8 W with SBE-5T ext. pump (approx. values for standard configuration at 20°C ambient temperature) |
| • Data interface | RS-232C |
| • Data format | ASCII |

SOFTWARE

CONTROS 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

HARDWARE REQUIREMENTS

Win 7 32 Bit, 200 MB free disk space, Dual Core CPU with 2GB RAM

OPTIONS

- Available temperature ranges for reduced power consumption
 - 2°C to +30°C
 - 2°C to +20°C
 - 2°C to +8°C
- Measuring range up to 6,000 µatm
- Analog output: 0 V - 5 V
- RS-485 data interface
- Internal data logger
- External battery packs
- 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 CONTROS HydroFlash® O₂

Specifications subject to change without any further notice.