

Underwater CO₂ Sensor MK5

Robust and precise underwater $p\text{CO}_2$ sensor for industrial condition monitoring such as water quality for Fish-Farms and Mariculture



- ➔ Aquaculture – lake or sea-water
- ➔ ROV and AUV integration
- ➔ Water quality monitoring
- ➔ Buoy equipment
- ➔ Profiling
- ➔ Long-time deployments

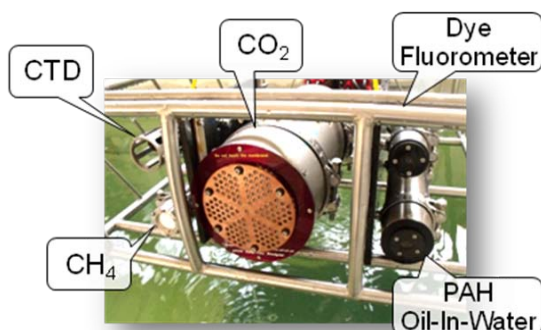
- ➔ Cost-effective sensor
- ➔ Precise NDIR dual-wavelength sensor
- ➔ Low maintenance – low follow up costs
- ➔ Rough environmental
- ➔ Corrosion-free
- ➔ Low power
- ➔ Snaps into industrial PLC
- ➔ Optional auto-calibration unit
- ➔ Optional data logger 32GB SD-Card
- ➔ Optional Li-Ion rechargeable battery

Features & Benefits:

- Robust, versatile and compact submergible housing
- Complete, hands carry able and easy to maintain.
- Highest accuracy due to automatic temperature and pressure compensation. High stability with optionally auto zero (offset) calibration features
- Long-time deployment anti-fouling protection for the flat membrane equilibrator
- Mechanical protection against e.g. fish bites
- Optionally supervisor function with alarm settings and optionally alarm outputs
- Optionally expandable by easy integration of instrumentation with the optional integrated data logger, e.g. for Oxygen Optode, Fluorometer, Turbidity sensors, CTD's etc.
- Optional rechargeable Li-Ion PowerPacks, different capacities
- Complete solution "Ready to Run" with cables, clamps, Datalogger etc.



Specification	
Sensor Principle	High performance NDIR dual-wavelength optical sensor • Silicone flat membrane equilibrator (patent pending) • Robust against sediments, particles, fouling • Auto-correction for pressure and temperature effects
Range	Standard 0...3000 ppm CO ₂ • Other on request: 1000ppm, 5000ppm, 1%, 3%, 5%, 10%
Resolution	15 bit / 0.1 ppm CO ₂ (3000ppm range sensor)
Accuracy	±2% Full-scale • ±2% of full-scale over 12 months (3000ppm range sensor)
Sample Rate	Output rate typ. 1 Hz with optionally average • User configurable • Storage rate configurable
Calibration	Calibration stored internally • User correction supported for Zero & Span
Temperature	Operating temperature range 0 to +45°C
Analogue Out	0...5V / 0/4...20mA • Range can be adjusted • Snaps into standard PLC systems
Data Interface	RS-232 / RS-485 interface • Data output ASCII • Easy integration into existing systems
Water depth	300m • Other available on request
Housing	Φ130mm x 350 mm length (300m operating depth) • approx. 4.3 kg at air, +0.5kg in sea-water
Anti-fouling	Anti-fouling design for the equilibrator sensor head included
Power	7...30 VDC • typ. 5W • Warming up max. 10W
Software	NEW Windows® PC Software OceanView™ 4 for logging and online real-time data • Diagnostic screen
Auto-calibration	Option: auto offset zeroing on programmed intervals • Zeroing reference included for >1 year operation time
Datalogger	Option: MicroDI® Data-logger • Up to 32GB µSD Flash for system and data storage Optional external sensor inputs • Data interface with logger is standard ASCII NMEA-0183
Battery	Option: rechargeable Li-Ion PowerPack™ 14.8V • Charging without opening the housing
Service	Recalibration & service recommended every 12 months • Membrane lifetime up to 10years • Operating time for 24/7 usage typ. 2 year before service



Underwater ROV Inspection Sensor System, application example with industrial high-grade sensors for Oil+Gas offshore surveys



OceanPack Aquaculture IMTA system water quality monitoring for 20 tanks with water supply control, e.g. CO₂, nutrients, oxygen; incl. auto-cleaning



Buoy analyzing system consists of CO₂ sensor MK5 and SmartDI® data logger

