

OceanPack™ BUOY MK2

Precise sea-surface $p\text{CO}_2$ analyzer

- ➔ Shallow water quality control
- ➔ Suitable for small buoys
- ➔ Long-term Monitoring
- ➔ Remote Locations
- ➔ Profiling

LI-COR
Biosciences **inside**



- ➔ Premium LI-COR® analyzer
- ➔ $p\text{CO}_2$ Sea and Air analysis
- ➔ No calibration gases required
- ➔ Low maintenance
- ➔ Roughest environmental
- ➔ Highest precision
- ➔ Low investment – low follow up costs
- ➔ Low power
- ➔ Expandable

Features & Benefits:

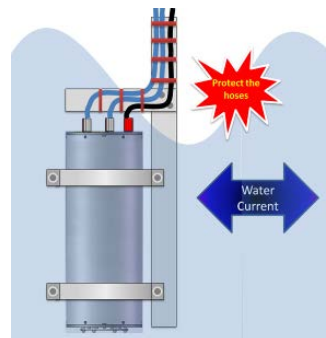
- It's a LI-COR®: highest accuracy due to automatic temperature, pressure and H_2O compensation
- Robust, versatile and compact submersible housing for buoy and marine applications
- Complete, hand carry able and easy to maintain. Easy handling and intuitive overall design (e.g. red / green LED signals)
- High stability with auto calibration features including standard offset zeroing, auto- or manually span gas calibration supported – low maintenance costs
- Long-time deployment anti-fouling protection for the flat membrane equilibrator conductor
- Easy handling and intuitive overall design
- Expandable by easy integration of instrumentation through the integrated data logger, e.g. Oxygen Optode, TriOS, Turner or Wetlabs Fluorometer and Turbidity sensors, Seabird or Sea&Sun CTD and Thermosalinograph, Nutrient Analysers
- Expandable through external modules via RS-485 MBUS bus, e.g. to connect a Meteorology
- Optional GPS geo references for all data and position event control
- Optional online telemetry data transfer and alarm services
- Optional external or internal Li-Ion PowerPack



Specification	
Sensor Principle	High performance LI-COR® LI-840x analyzer – exclusively produced by LI-COR Biosciences for SubCtech Contains dual-wavelength NDIR detector for CO ₂ and H ₂ O. • Silicone flat membrane equilibrator
Range	Standard 0...3000 ppm CO ₂ • 0...80 ppt H ₂ O • up to 20.000 ppm CO ₂ • Units selectable
Resolution	0.01 ppm CO ₂ • 0.001 ppt H ₂ O
Accuracy	Correction for water vapour, pressure and temperature effects • Overall accuracy < 1.5%
Sample Rate	Output rate typ. 1 Hz with optionally average • User configurable • Storage rate configurable
Air CO₂	Optionally • Automatic analysis on programmed intervals • Air CO ₂ port and external gas inlet
Calibration	Calibration stored internally • Factory calibration with 15 traceable gases to WMO standards for CO ₂ . NIST traceable LI-610 portable dew point generator for H ₂ O • User correction supported
Auto Calibration	Auto offset zeroing on programmed intervals • Zeroing reference included for >1 year operation time Manual Span gas calibration supported
Analogue Out	0...5V / 0...2,5V or 4...20mA • CO ₂ and H ₂ O in parallel • Range can be adjusted
Data Interface	RS-232/RS-485 interfaces • simple ASCII NMEA-0183 • Easy integration into existing systems
Memory	Data and Backup on 2GB CF card • Storage capacity approx. 5 years (depending sample rate)
External Sensors	Nutrient analyzer • Water sampler • GPS • CTD or Thermosalinographs • Meteorological instrumentation via RS-485 bus supported • Standard sensor installed into the debubbler
Controller Unit	Industrial embedded controller • 2GB CompactFlash for system and data storage • Programmable Controller for Auto-calibration • 180 calibration formulas • Optionally alarms
Analogue Input	Optionally 16 Bit data acquisition 0/4-20 mA, ±10V etc.
Anti-fouling	Anti-fouling design for the equilibrator sensor head • Automatic quality flagging of the data
Housing	Robust housing of POM and titanium • 15 kg • Φ200mm x 520 mm length
Power	12...28 VDC • typ. 15W • Warming up max. 05W • Optional Li-Ion PowerPack
Service	Recalibration & Service recommended every 12 months • Membrane lifetime up to 10years • Operating time for 24/7 usage typ. 1 year before service (internal micro pump, zero filter)
Accessories	Li-Ion Batteries • Datalogger • Water supplies • External sensors or analyzers • Subsea Housings



Sensor installed below a buoy © PLOCAN



Protection against waves

