



# OceanPack SUB / CO<sub>2</sub>

## Precise SUBSEA pCO<sub>2</sub> Analyzer

- ➔ ROV or AUV integration
- ➔ Monitoring Stations
- ➔ Buoys
- ➔ Profiling
- ➔ Deep-Sea



- ➔ Monitoring
- ➔ Shallow water quality control

- ⊖ Premium LI-COR® analyzer
- ⊖ No calibration gases required
- ⊖ Corrosion-free titanium / POM housing
- ⊖ Low maintenance
- ⊖ For rough 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<sub>2</sub>O compensation
- Robust, versatile and compact submergible housing for buoy and subsea applications
- Complete, hands 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
- Optionally expandable by easy integration of instrumentation through the integrated SmartDI® Datalogger, e.g. Oxygen Optode, TriOS, Turner or Wetlabs Fluorometer and Turbidity sensors, Seabird or Sea&Sun CTD's and Thermosalinographs, SYSTEANutrient Analysers
- For shallow water deployments expandable through external modules via RS-485 MBUS bus, e.g. to connect a Meteorology or GPS geo references with position event control
- Optional real-time online telemetry data transfer and alarm services
- Optional external Li-Ion PowerPack
- Adaption set for Inspection ROV





Specification	
<b>Sensor Principle</b>	High performance <b>LI-COR®</b> LI-840x analyzer – exclusively produced by LI-COR Biosciences for SubCtech Contains dual-wavelength NDIR detector for CO <sub>2</sub> and H <sub>2</sub> O. • Silicone flat membrane equilibrator
<b>Range</b>	Standard 0...3000 ppm CO <sub>2</sub> • 0...80 ppt H <sub>2</sub> O • up to 20.000 ppm CO <sub>2</sub> • Units selectable
<b>Resolution</b>	0.01 ppm CO <sub>2</sub> • 0.001 ppt H <sub>2</sub> O
<b>Accuracy</b>	Correction for water vapour, pressure and temperature effects • Overall accuracy < 1.5%
<b>Sample Rate</b>	Output rate typ. 1 Hz with optionally average • <b>User configurable</b> • Storage rate configurable
<b>Air CO<sub>2</sub></b>	Optionally • Automatic analysis on programmed intervals • Air CO <sub>2</sub> port and external gas inlet
<b>Calibration</b>	Calibration stored internally • Factory calibration with 15 traceable gases to WMO standards for CO <sub>2</sub> . NIST traceable LI-610 portable dew point generator for H <sub>2</sub> O • User correction supported
<b>Auto Calibration</b>	<b>Auto offset zeroing</b> on programmed intervals • Zeroing reference included for >1 year operation time Manual <b>Span gas calibration</b> supported <b>Optionally external gas calibration</b> (extra gas port s)
<b>Temperature</b>	Operating temperature range 0 to +40°C
<b>Analogue Out</b>	0...5V / 0...2,5V or 4...20mA • CO <sub>2</sub> and H <sub>2</sub> O in parallel • Range can be adjusted
<b>Data Interface</b>	RS-232 / RS-485 interfaces provided • Data output ASCII NMEA-0183 • Easy integration into existing systems • Optionally usage of radio links, Ethernet, WLAN etc.
<b>Memory</b>	Data and Backup on 2GB CF card • Storage capacity approx. 5 years (depending sample rate)
<b>External Sensors</b>	Nutrient analyzer • Water sampler • GPS • CTD or Thermosalinographs • Meteorological instrumentation via RS-485 bus supported • Standard sensor installed into the debubbler
<b>Controller Unit</b>	<b>SmartDI®</b> industrial embedded PC • 2GB CompactFlash for system and data storage • Programmable Controller for Auto-calibration • 180 calibration formulas • Optionally alarms
<b>Analogue Input</b>	Optionally 16 Bit data acquisition 0/4-20 mA, ±10V etc.
<b>Software</b>	NEW Windows® PC Software <b>OceanView™ 4</b> for logging and online real-time data • Diagnostic screen
<b>Anti-fouling</b>	Anti-fouling design for the equilibrator sensor head • Automatic quality flagging of the data
<b>Housing</b>	<b>Titanium:</b> Φ168mm x 350 mm length (subsea) • Φ200mm x 500 mm length (shallow water with Air-CO <sub>2</sub> ) 12 kg without optionally sensors or battery pack • Positive buoyancy +1kg at sea-water
<b>Water depth</b>	Buoy / Shallow water 50m • Estuary 300m • Subsea up to 3000m • 6000m on request
<b>Power</b>	12...28 VDC • typ. 8W • Warming up max. 15W • Optional Li-Ion PowerPack e.g. 14.8V 45Ah / 117Ah
<b>Service</b>	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)

