

# $p\text{CO}_2$ Analyzer MK-2 / Lab

Mobile flow-through analyzer for precise  $p\text{CO}_2$  measurements



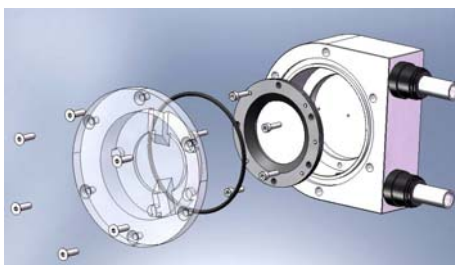
**LI-COR®**  
Biosciences **inside**

- **Superb LI-COR® analyser LI-840x**
- **High precision**
- **Auto calibration**
- **Simple Touch-screen operation**
- **Lowest maintenance**
- **Robust against sediments, fouling, shock & vibration**
- **Operates on small vessels or underway systems**
- **Optionally Top-Box contains GPS, Air-CO<sub>2</sub> analyzer or meteo sensors**

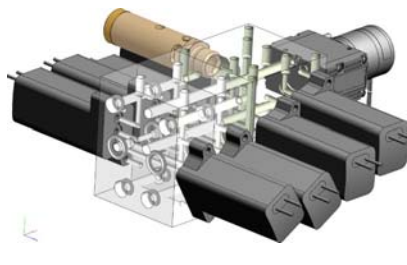


## Features & Benefits:

- It's a LI-COR® Biosciences LI-840x CO<sub>2</sub>/H<sub>2</sub>O sensor: highest accuracy due to automatic temperature, pressure and H<sub>2</sub>O compensation - dual-wavelength NDIR detector
- Patented robust flat-membrane-equilibrator cassette – lifetime 10+ years, easy to handle
- Robust, versatile and compact 19" housing for Lab and Ship applications
- Hand-held, easy to operate and maintain system with intuitive overall design. Low maintenance costs! No special setup required. Just plug'n'play
- Best performance with only one external span gas: reduce size, weight and effort for operation and maintenance
- Robust, versatile and compact housing for offshore and laboratory applications. No need for special filters. Just provide water 3 to 20 l/min – max. 3 Bar
- High time series stability due to obligatory standard offset zeroing. Optional auto- or manual span gas calibration or reference gas measurements supported.
- Incl. data logger, optional instrument integration for e.g. D.O. optodes, fluorometer Thermosalinographs, pH probes etc.
- Graphic quick look, calibration support and configuration touch-screen
- Optionally connection of external devices, e.g. meteorology sensors, sea-water pumps etc.
- Real-time data interface NMEA-0183: simple ASCII protocol, configurable to your needs.
- 12...28V dc or 100...240V ac power supply
- Self-recording on SD card, standard ASCII NMEA-0183 data format (can be processed e.g. with standard office software)
- Analogous output or serial interface (optical isolated) for simple integration into existing systems.
- Optional GPS geo reference for all data and position event control



Flat-silicone-membrane equilibrator with cassette system (patent pending).



Highly optimized auto-calibration unit with special developed micro gas valves and micro gas pump.



Internal Zero-filter, simple to exchange with quick-lock tube fittings



| Specification           |   |
|-------------------------|---|
| <b>Sensor Principle</b> | High performance LI-COR® LI-840x analyzer – exclusive produced by LI-COR® Biosciences for SubCtech<br>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>         | Overall accuracy < 1.5% • Automatic compensation of water vapour (H <sub>2</sub> O), pressure and temperature   |
| <b>Calibration</b>      | Calibration coefficients stored internally • Factory calibration with 15 traceable gases to WMO standards for CO <sub>2</sub> . NIST traceable dew point generator for H <sub>2</sub> O • User correction supported   |
| <b>Auto Calibration</b> | Auto offset zeroing on programmed intervals • Zeroing reference included for >1 year operation time • Manual Span gas calibration always included • Optionally full auto-calibration with up to 6 gases – best performance with only one external span gas reduce size, weight and effort for operation and service |
| <b>Datalogger</b>       | NetDI® industrial embedded controller • 7" touch-screen • 4GB up to 32GB SD card for system and data storage • Sample rate configurable • Standard ASCII NMEA-0183 data • Configurable PLC Controller to operate the automatic calibration  |
| <b>Interface</b>        | RS-232 or RS-485 • Optical isolated • Standard ASCII NMEA-0183 data protocol • Easy integration into existing systems • Output rate typ. 1 Hz configurable • Optionally usage of radio links, Ethernet, WLAN etc.   |
| <b>Analogue Out</b>     | 0...5V / 0...2,5V or 4...20mA • Range can be configured   |
| <b>External Sensors</b> | Optional 24 Bit data acquisition 0/4-20 mA, ±10V Analogous • Optional RS-232/485, optical isolated • GPS NMEA-0183 • CTD or Thermosalinographs • Meteorological instrumentation • Oceanographic sensors e.g. installed into the optional debubbler  |
| <b>Water Support</b>    | Quick-lock connectors 1/2" • Ideal for ship applications • Optional mBubbler® CO <sub>2</sub> tolerant Debubbler • Optional inlet- and outlet tanks • Flow rate typ. 3-15 l/min • Max. water pressure 3 Bar   |
| <b>Cleaning</b>         | Optionally self-cleaning option • Automatic flagging of data for maintenance and error states   |
| <b>Housing</b>          | 19" Industrial rack housing • Front splash protected • All tubes can be handled from the front.<br>Weight 8 kg • Size 445 x 180 x 400 mm W x H x D  |
| <b>Power</b>            | 12...28 VDC or 100...240 VAC, 50/60Hz • Typ. 20W operating • Max. 50W warming up  |
| <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)   |
| <b>Software</b>         | Windows® Software OceanView™ 4 for external PC logging and online real-time data  |
| <b>Accessories</b>      | Li-Ion Batteries • Datalogger • Water Supplies • External Sensors or Analyzers • Subsea Housings  |





## Accessories



Optional Extender to connect up to 6 external gases. Each input consists of SWAGELOK connector, manual flow regulator and stainless steel tube to the analyser.

## Examples



Large pCO<sub>2</sub> "Underway" System with additional sensors, Debubbler and automatic cleaning on a moving drawer



Additional "Top-Box" with independent Air-CO<sub>2</sub> Analyzer LI-7200, GPS and interfaces to meteo. Sensors. Simple data interface to the OceanPack™ system.



Special mobile version OceanPack™ MOBILE for small or sailing vessels, incl. optional automatic cleaning.

