

New & Enhanced

CO₂/H₂O Gas Analyzers

For Eddy Covariance Systems



LI-7200
Closed Path
CO₂/H₂O
Analyzer



LI-7500A
Open Path
CO₂/H₂O
Analyzer

LI-7200 Closed Path CO₂/H₂O Analyzer

A low power closed path solution for eddy covariance measurements.

- Based on the Proven LI-7500 Platform
- Excellent Stability
- High Speed Output
- High Frequency In-Cell Temperature and Pressure Measurements

LI-COR introduces the LI-7200 Closed Path CO₂/H₂O Analyzer, a low power, high speed, non-dispersive infrared gas analyzer designed for eddy covariance measurements. The weather-proof analyzer easily mounts atop a flux tower, right next to the sonic anemometer. A short (1 m) insulated intake tube minimizes tubing attenuation of CO₂/H₂O, while attenuating temperature by 90-95%. This configuration virtually eliminates the complications that result from long tubing runs.

High Performance

The LI-7200 measures temperature and differential pressure in the optical path at a high frequency. This allows the LI-7200 to correct for small fluctuations in temperature and pressure in situations where these rapid fluctuations are significant (i.e. airborne measurements or measurements made in urban or mountainous areas).

Flow Module

The optional 7200-101 Flow Module generates a continuous flow of air through the analyzer optical path. At the nominal flow rate of 15 LPM, the flow module requires only 15 watts of power, while providing sufficient flow for excellent frequency response.

An Integrated System Solution

The LI-7200, in combination with the LI-7550 Analyzer Interface Unit (included) and flow module (optional), provides a fully integrated system solution. The LI-7200 Windows® interface software provides complete control over instrument settings - from air flow rate to data logging frequency. On-board data storage enables logging synchronized data from the LI-7200 CO₂/H₂O Analyzer and auxiliary sensors (such as a sonic anemometer) to a removable industrial grade USB flash drive.

Easy to Clean Optics

The LI-7200 has a simple user-cleanable optical bench. It can be cleaned on site without any special tools and without being removed from the tower. There is no need for factory recalibration after cleaning the optical path.

Common Applications:

- Eddy Covariance
- Ecosystem CO₂/H₂O Flux
- pCO₂ Measurements
- Dissolved Inorganic Carbonates (DIC)



LI-7500A Open Path CO₂/H₂O Analyzer



The lowest power solution for eddy covariance measurements.

- Proven Platform
- High Speed Output
- High Precision
- Excellent Stability

After its introduction in 1999, the LI-7500 quickly became a fixture on meteorological flux towers around the world. Building upon the expertise gained from over 10 years of experience with open path CO₂/H₂O measurements, LI-COR is introducing the LI-7500A. It provides the fast and accurate measurements that LI-7500 users are accustomed to, but with improvements based on years of customer feedback.

New Features

The LI-7500A features a new two-point user-settable chopper motor housing temperature, which allows the chopper motor housing temperature to be set at either 30° C to 5° C. In cold environments the 5° C setting lowers power consumption and reduces the dissipation of energy into the optical path.

Simplified System Integration

Integration with the new LI-7550 Analyzer Interface Unit (included) enables synchronized eddy covariance data sets that include CO₂/H₂O, sonic anemometer, and auxiliary data. Data can be output via Ethernet to a computer or network, or logged directly to a removable USB flash data storage device. In addition, high speed digital-to-analog converters, SDM (Campbell Scientific, Inc.), and RS-232 output enable integration with a variety of data storage devices.

Intuitive Graphical Interface

The new Windows® interface software provides an intuitive graphical interface for effortless setup and configuration. It provides full control over logging configuration options, auxiliary inputs, and data output.

The LI-7500A has full backward compatibility with LI-7500 components for integration into existing flux towers and custom software applications.

Common Applications:

- Eddy Covariance
- Atmospheric CO₂/H₂O Monitoring
- Ecosystem CO₂/H₂O Flux
- Aquatic CO₂/H₂O Flux

LI-7550 Analyzer Interface Unit

Integrates and synchronizes eddy covariance data with unprecedented simplicity.

- Easily integrates data from a sonic anemometer
- Included with both the LI-7200 and LI-7500A
- Log Data to a USB Storage Device
- Simplifies Eddy Covariance Set-up
- 4 Auxiliary Inputs
- Versatile Data Output Options, including:
 - 6 High Speed Digital to Analog Converters (300 Hz)
 - SDM (Synchronous Devices for Measurement) for Campbell Scientific Dataloggers (40 Hz)
 - Ethernet (20 Hz)
 - RS-232 (20 Samples/Sec.)



Which instrument is best for me?

The LI-7200 Closed Path CO₂/H₂O Analyzer is designed for use in environments in which rain, snow, and fog can interrupt measurements made with open path analyzers. In combination with the 7200-101 Flow Module, the LI-7200 can be used in eddy covariance towers that have limited power (~30 W) available for a CO₂/H₂O analyzer.



The LI-7500A is LI-COR's second generation open path CO₂/H₂O analyzer. Building upon the expertise gained from the LI-7500, it is the lowest power open path CO₂/H₂O analyzer available. If your field sites have very limited power (~12 W) available for a CO₂/H₂O analyzer, the LI-7500A is the analyzer for you.



LI-COR continues to offer the LI-7000 high performance differential CO₂/H₂O gas analyzer for eddy covariance measurements. The LI-7000 provides accurate high speed measurements for eddy covariance systems. It delivers exceptional performance in systems that do not have strict power requirements.



Specifications

	CO ₂	H ₂ O
Calibration range	0-3000 ppm	0-60 ppt
Accuracy	Within 1% of reading nominal	
Zero drift (per °C)	±0.01 ppm typical ±0.03 ppm max.	±0.03 ppt typical ±0.05 ppt max.
RMS noise:	0.08 ppm	0.0034 ppt
@ 370 ppm CO ₂ , 10 Hz	0.11 ppm	0.0047 ppt
and 10 mmol m ⁻³ H ₂ O, 20 Hz	0.16 ppm	0.0067 ppt
Gain drift (% of reading per °C)	±0.02% typical ±0.1% max @ 370 ppmv	±0.15% typical ±0.30% max. @ 20 ppt
Direct sensitivity to H ₂ O (mol CO ₂ /mol H ₂ O)	±2.00E-05 typical ±4.00E-05 max.	-
Direct sensitivity to CO ₂ (mol H ₂ O/mol CO ₂)	-	±0.02 typical ±0.05 max.

Data Storage: Removable industrial grade USB flash storage device

Data Communication: Ethernet, Synchronous Devices for Measurement (SDM; >40 Hz), RS-232 (38,400 baud;

20 Samples/Sec. max), 6 DACs (single ended; 0-5V)

Inputs: Ethernet, 4 analog input channels

Operating Temperature Range: -25 to 50° C (-40 ° C available)

Power Requirements: 10.5 to 30 VDC

Power Consumption: 12 W nominal (including LI-7550 Analyzer Interface Unit)

Type: Absolute, non-dispersive infrared gas analyzer

Detector: Thermoelectrically cooled lead selenide

Bandwidth: 5, 10, or 20 Hz, user-selectable

User Interface: Windows based

LI-7550 Analyzer Interface Unit Dimensions:

Size: 35 cm x 30 cm x 15 cm (13.8" x 12" x 6") external dimensions.

Weight: 4.4 kg (10 lbs).

LI-7500A CO₂/H₂O Analyzer Dimensions:

Size: 6.5 cm (2.6") diameter, 30 cm (12") length.

Weight: 0.75 kg (1.65 lbs).

Cable Length: 5 m (16.4 ft).

LI-7200 CO₂/H₂O Analyzer Dimensions:

Size: 7.5 cm (3") diameter, 31 cm (12.2") length.

Weight: 1.8 kg (3.95 lbs).

Cable and Tubing Length: 5 m (16.4 ft).

7200-101 Flow Module (optional):

Operating Temperature Range: -25 to 50° C.

Power Requirements: 10.5 to 30 VDC.

Power Consumption: 15 W nominal @ 15 LPM.

Flow Rate: 15 LPM nominal (2 to 18 LPM, user settable).

Dimensions: 35 cm x 30 cm x 15 cm (13.8" x 12" x 6").

Weight: 6.15 kg (13.55 lbs).

Specifications subject to change without notice.

LI-COR®

Biosciences

4647 Superior Street • P.O. Box 4425 • Lincoln, Nebraska 68504 USA
 North America: 800-447-3576 • International: 402-467-3576 • FAX: 402-467-2819
 envsales@licor.com • envsupport@licor.com • www.licor.com

In Germany and Norway – LI-COR Biosciences GmbH: +49 (0) 6172 17 17 771
 envsales-gmbh@licor.com • envsupport-gmbh@licor.com

In UK and Ireland – LI-COR Biosciences UK Ltd.: +44 (0) 1223 422102
 envsales-UK@licor.com • envsupport-UK@licor.com

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The LI-COR board of directors would like to take this opportunity to return thanks to God for His merciful providence in allowing LI-COR to develop and commercialize products, through the collective effort of dedicated employees, that enable the examination of the wonders of His works.

"Trust in the LORD with all your heart and do not lean on your own understanding. In all your ways acknowledge Him, and He will make your paths straight."

— Proverbs 3:5,6