ATMOSPHERIQ™ GAS ANALYZERS

FOR UNINTERRUPTED ATMOSPHERIC GAS MEASUREMENTS

Baseline atmospheric gas measurements provide data that advances the understanding of long-term global change and atmosphere-surface interactions. These measurements depend on rigorous protocols and dependable gas analyzers to ensure that data satisfy quality objectives.

AtmospherIQ Gas Analyzers are designed to provide high-quality, continuous, traceable atmospheric gas measurements. Built with the proven Optical Feedback – Cavity Enhanced Absorption Spectroscopy (OF-CEAS) platform, AtmospherIQ Gas Analyzers bring a cascade of benefits to atmospheric monitoring stations.

- Measure N_2O, CH_4, CO_2 in air with industry leading precision and stability.
- Measurement performance meets data quality objectives of the World Meteorological Organization (WMO) and satisfies requirements for the Integrated Carbon Observatory System (ICOS).
- Market-leading 5-year service agreement included with each analyzer. No questions asked.
- Patented technologies optimize the proven Optical Feedback – Cavity Enhanced Absorption Spectroscopy (OF-CEAS) platform for atmospheric monitoring.

WE LET THE DATA SPEAK

WMO AND ICOS COMPLIANCE VERIFICATION

Results show that the AtmospherIQ optical bench meets requirements for compatibility with WMO GAW and ICOS specifications.

LI-8810 ATMOSPHERIQ $CH_4/CO_2/H_2O$ GAS ANALYZER

The LI-8810 measures methane gas in air with accuracy and precision that exceeds requirements of ICOS and the WMO.

CH_4 Analysis Specifications		WMO Compatibilty Goal	ICOS Station Specifications	LI-8810 Performance
Precision, 1σ	Short Period	± 2 ppb	< 1 ppb (1 min)	< 0.25 ppb (5 sec)
	Long Period		< 0.50 ppb (1 hour)	< 0.05 ppb (1 hour)
Repeatability (1σ), 10 min avg			< 0.50 ppb	< 0.40 ppb (8 hours)

LI-8815 ATMOSPHERIQ CO_2/H_2O GAS ANALYZER

Atmospheric carbon dioxide measurements by the LI-8815 satisfy standards set by ICOS and the WMO, while overachieving on the stability and precision expectations.

CO_2 Analysis Specifications		WMO Compatibilty Goal	ICOS Station Specifications	LI-8815 Performance
Precision, 1σ	Short Period	± 100 ppb / ± 50 ppb*	< 50 ppb (1 min)	< 40 ppb (5 sec)
	Long Period		< 25 ppb (1 hour)	< 10 ppb (1 hour)
Repeatability (1σ), 10 min avg			< 50 ppb	< 45 ppb (8 hours)

LI-8820 ATMOSPHERIQ N_2O/H_2O GAS ANALYZER

Accurate quantification of atmospheric N_2O is challenging due to its low ambient concentrations and the subtle variations that demand high precision. Featuring cutting-edge technologies developed by LI-COR, the LI-8820 delivers sub-ppb precision N_2O measurements that meet requirements of leading atmospheric monitoring organizations.

N_2O Analysis Specifications		WMO Compatibilty Goal	ICOS Station Specifications	LI-8820 Performance
Precision, 1σ	Short Period	± 0.10 ppb	< 0.10 ppb (1 min)	< 0.10 ppb (5 sec)
	Long Period		< 0.05 ppb (1 hour)	< 0.05 ppb (1 hour)
Repeatability (1σ), 10 min avg			< 0.10 ppb	< 0.10 ppb (8 hours)

LEARN MORE
licor.com/products/atmospheriq

Independent tests show that the performance of the AtmospherIQ optical bench is well suited for modern atmospheric monitoring needs.

The technology underpinning AtmospherIQ Gas Analyzers has been independently verified by the ICOS Atmospheric Thematic Centre (ATC), Laboratoire des Sciences du Climat et de l'Environnement (LSCE), Paris to appraise precision, drift, pressure stability, water correction, and several other key specifications.

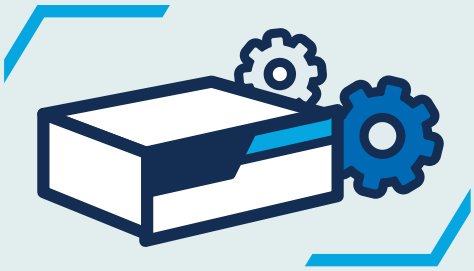
FOR ITSELF

A SIMPLE ADDITION TO ATMOSPHERIC MONITORING INFRASTRUCTURE

By design, it is simple to add an AtmospherIQ Gas Analyzer to existing monitoring infrastructure.

- Versatile data management and controls support communication with data management infrastructure to simplify data acquisition, instrument calibration, and system monitoring.
- Built-in data storage automatically records all measurements, events, and performance excursions for robust data quality analysis and redundancy.
- Low power operation dispels concerns about marginal main power supplies, with compatibility with global main power standards.
- Backup battery power ensures continuous logging and elegant shutdown if main power is lost.
- Simple tubing connections for easy addition to measurement infrastructure.
- Analyzers mount in a standard 19" instrument rack, occupying four rack units (4U) each.

A COMMITMENT TO YOUR SUCCESS



AtmospherIQ Gas Analyzers are designed for durability and low maintenance operation and are backed by technical support from dedicated application scientists.

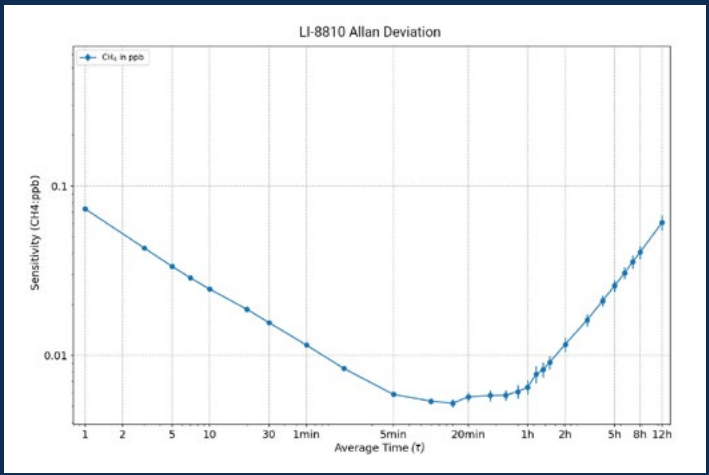
- Each AtmospherIQ Gas Analyzer includes a 5-year service agreement with loaner instruments included, if needed.
- Application scientists and engineers are available to help with installation, programming, and troubleshooting.

You can rest assured that your measurement needs are our priority.

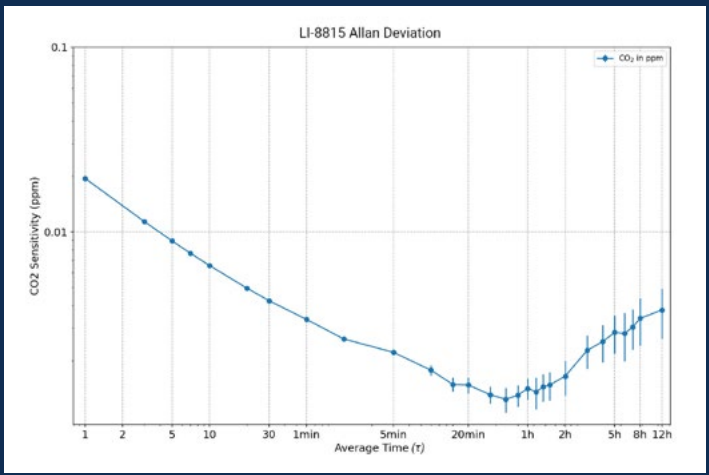
ALLAN DEVIATION CURVES

Allan deviation characterization show that AtmospherIQ Gas Analyzers meet or exceed the performance requirements of the WMO and ICOS (tested with external pump).

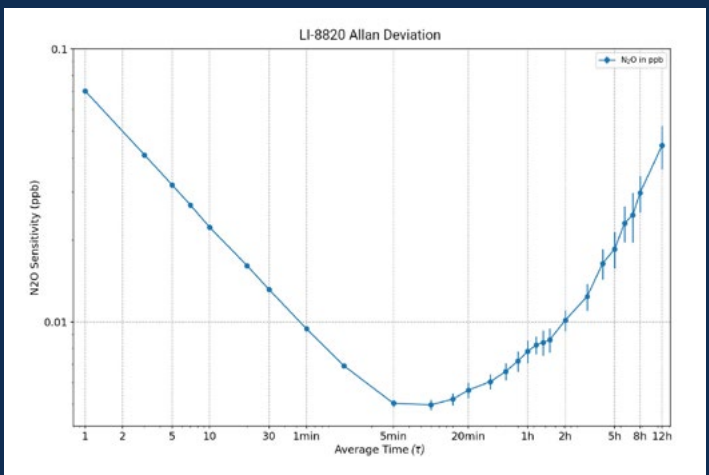
METHANE LI-8810



CARBON DIOXIDE LI-8815



NITROUS OXIDE LI-8820



LI-8810

CH_4 MEASUREMENTS

Precision (1σ):

0.25 ppb with 5-second averaging

0.10 ppb with 5-minute averaging

0.05 ppb with 1-hour averaging

Drift (1σ), 10 min avg, 8-hr: < 0.4 ppb

Response Time (T_{10} - T_{90}) from 0 to 2 ppm:

≤2 seconds in standard configuration

≤3 seconds in high altitude configuration

Range: 0 to 100 ppm

LI-8820

N_2O MEASUREMENTS

Precision (1σ):

0.10 ppb with 5-second averaging

0.08 ppb with 5-minute averaging

0.05 ppb with 1-hour averaging

Drift (1σ), 10 min avg, 8-hr: < 0.1 ppb

Response Time (T_{10} - T_{90}) from 0 to 330 ppm:

≤2 seconds in standard configuration

≤3 seconds in high altitude configuration

Range: 0 to 100 ppm

LI-8815

CO_2 MEASUREMENTS

Precision (1σ):

40 ppb with 5-second averaging

15 ppb with 5-minute averaging

10 ppb with 1-hour averaging

Drift (1σ), 10 min avg, 8-hr: < 45 ppb

Response Time (T_{10} - T_{90}) from 0 to 400 ppm:

≤2 seconds in standard configuration

≤3 seconds in high altitude configuration

Range: 0 to 10,000 ppm

H_2O MEASUREMENTS

Range: 0 to 60,000 ppm

Precision (1σ):

20 ppm at 10,000 ppm with 5-second averaging

5 ppm at 10,000 ppm with 5-minute averaging

GENERAL SPECIFICATIONS

Measurement Technique: OF-CEAS (Optical Feedback – Cavity Enhanced Absorption Spectroscopy) direct molecule measurements

Measurement Rate: 1 sample per second (1 Hz)

Optical Cavity Volume: 6.4 cm^3

Flow Rate:

250 sccm nominal in standard configuration

150 sccm nominal in high altitude configuration

Total Weight: 18.2 kg (including batteries)

Case Dimensions: 56 × 48.25 × 18 cm (D × W × H)

Operating Temperature Range: -25 °C to 45 °C

Operating Humidity Range: 0 to 85% RH (non-condensing, without solar load, under normal operating conditions)

Sample Line Humidity Range: 0 to 99% non-condensing

Operating Pressure Range:
70 to 110 kPa in standard and reduced flow rate configuration

50 to 110 kPa in high altitude configuration

Connectivity: Ethernet TCP/IP; RJ45 connector

Power Consumption:
Steady State Operation: 22 Watts at 25 °C without batteries charging

Warmup: up to 100 W with batteries charging

Power Supply Adapter (included):
Universal Power Adapter
(Input: 100 to 240 VAC, 50-60 Hz; Output: 24 VDC)

Battery Life: 8 hours typical with 2 batteries

8800-100 External Pump (optional):

Dimensions: 27 × 18 × 17 cm (W × H x D)

Weight: 4.1 kg

**Specifications subject to change without notice.*

ISO 9001:2015 certified 980-22109 Rev. 1 10/25

LI-COR

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