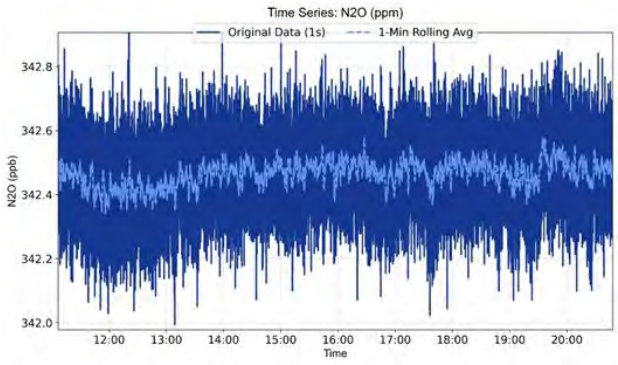
LI-G3006 Portable N_2O/CO_2 Analyzer

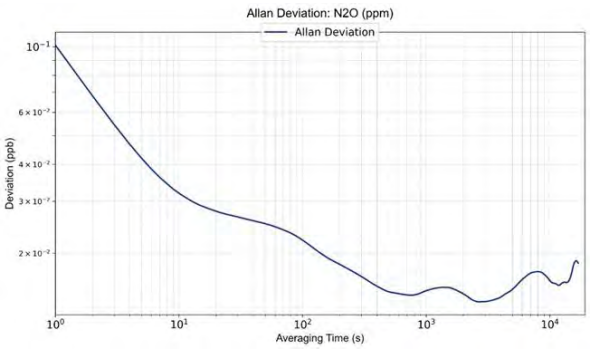
Real-time Continuous Environmental and Source Monitoring:

The LI-G3006 N_2O/CO_2 Analyzer provides a powerful new monitoring tool for these two critical greenhouse gases (GHGs) in laboratory or field studies, offering sensitivity and accuracy previously only achievable with larger, more power-hungry instruments. Thanks to its extremely low power consumption, compact design, and lightweight construction, the LI-G3006 N_2O/CO_2 system supports field monitoring applications that were previously difficult to implement due to limitations of traditional analyzers. Furthermore, the system supports solar power, making it ideal for monitoring remote and unattended areas. Using absorption spectroscopy, the system exhibits excellent linearity over concentration ranges spanning several orders of magnitude, achieving ppt-level accuracy for N_2O and ppb-level accuracy for CO_2.

Key Features

- High Sensitivity: N_2O < 95 ppt/s, CO_2 < 200 ppb/s
- High Stability and Accuracy
- Supports sampling frequencies up to 5 Hz
- GPS Support: Generates spatial maps of N_2O and CO_2
- Supports the GPS fixed timestamp function
- Built-in Wi-Fi and RS232, with optional analog output
- Low Power Consumption: 27 W
- Maintenance-free sensor design
- The user can replace the filter element





Typical time series from the LI-G3006 N_2O/CO_2 analyzer demonstrates stability of N_2O at 1s and 60s averages over several hours. The Allan deviation plot of N_2O shows the precision of 100 ppt and an average of 1 second.

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Specification

Item	Specification
Measurement Principle	Mid-infrared direct laser absorption spectroscopy
Sensitivity (1σ) @1 Hz	N_2O: <200 ppt/s; CO_2: <440 ppb/s;
Sensitivity (1σ) @5 Hz	N_2O: <95 ppt/s; CO_2: <200 ppb/s;
Temperature / Humidity	10~40°C; 10~90% RH（No condensation）;
Measurement Range*	N_2O: 2 ppb – 500 ppm; CO_2: 10 ppm – 100,000 ppm;
Gas Flow Rate	0.2 ~ 0.3 L/min;
Size	21.0 cm W × 21.0 cm D × 8.9 cm H (8.25" × 8.25" × 3.50");
Weight	2.01 kg（4.42 lbs.）;
Power Requirement	Steady State 19 W, At Startup 23 W;
Voltage / Current	12–15 VDC 2 A; 100–240 VAC 0.23 A（50~60 Hz）;
Interface / Output	Wi-Fi、USB-A、DB9 RS232 （Optional： Ethernet or analog output）;
Memory	32 GB
Data Logging	1 Hz（Selectable up to 5 Hz）

*Linear measurement range. The operating range can be configured according to the specific application.

Accessories and Options

Standard Configuration

1. Reinforced shipping case;
2. User-friendly software interface;
3. Tablet PC;
4. GPS module;
5. Power adapter;

Optional Configurations

1. Advanced GPS module upgrade;
2. High-flow module;
3. Nafion dryer;
4. Gas purifier;
5. Anemometer;

The system is available in both airborne and portable configurations.

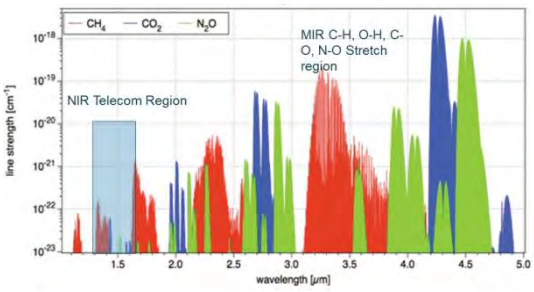
Thanks to its temperature and pressure-controlled sensor core, it ensures long-term stable, low-drift operation, providing superior gas measurement accuracy and repeatability. This stability significantly extends calibration intervals, and in some applications, eliminates the need for calibration. The system also features two programmable sampling ports, supporting calibration, re-zeroing, or differential measurements, offering flexibility to adapt to various application needs.

Core Sensor Technology

The analyzers combine patented multi-pass cell technology with mid-infrared solid-state lasers and a customized electronic system to deliver exceptional sensitivity and accuracy in a compact footprint. Its unique sensing core achieves a long absorption path of 13 meters within a volume of only 60 cc, resulting in rapid response and significantly reduced pumping and power consumption requirements.

Advantages of mid-infrared technology

Covering the 2.5-5 μm wavelength range, its short-term sensitivity is comparable to, or even surpasses, that of traditional near-infrared cavity techniques. The robust design of the mid-infrared core makes it ideal for a variety of applications, including airborne analysis and environmental monitoring.



Mid-infrared and near-infrared absorption line intensities

The absorption spectra of greenhouse gases are in the infrared region of the spectrum. The absorption line intensity in the mid-infrared (Mid-IR) region is several orders of magnitude stronger than in the near-infrared (NIR) region.