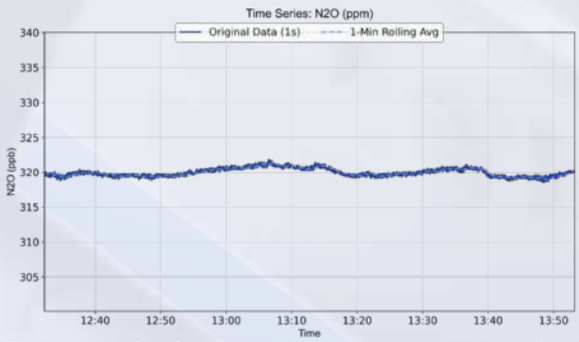
MIRA Pico N_2O/CO_2

WORLD'S MOST PORTABLE NITROUS OXIDE AND CARBON DIOXIDE GAS ANALYZER

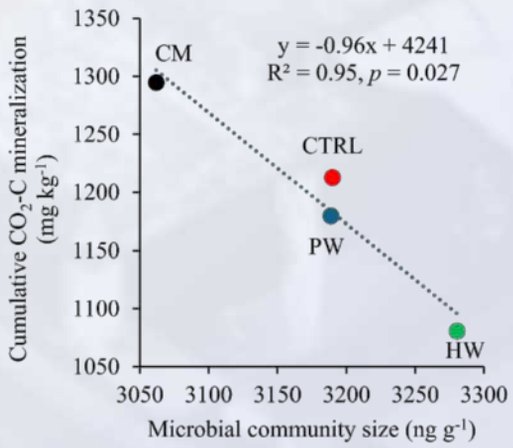
Real-Time Continuous Ambient and Source Monitoring

The **MIRA Pico N_2O/CO_2** analyzer is a versatile tool designed for laboratory and field studies of these critical greenhouse gases. Its fast time response, lightweight design, compact size, and low power consumption make it ideal for challenging environments, such as soil and vegetation flux measurements, or agricultural and industrial emissions monitoring. The MIRA Pico provides reliable and consistent results within seconds, offering a robust solution for demanding field conditions, including remote areas like wetlands, mountain ranges, and deserts. Employing an absorption-based method, it ensures excellent linearity across a wide concentration range, typically spanning several orders of magnitude.

- *GPS-enabled for generating spatial maps*
- *Built-in Wi-Fi, RS232, and optional analog output*
- *Low 18 W power consumption*
- *Maintenance-free sensor design*
- *User-serviceable filters*
- *Portable, 2.8 Kg handheld operation*
- *6-hour battery life*
- *1 Hz standard, up to 5 Hz capability*



Time series of N_2O concentration showing the stability of the MIRA Pico analyzer. The combination of stability and precision make it ideal for soil flux, agricultural or industrial applications.



MIRA Pico N_2O/CO_2 analyzer was used to measure the cumulative CO_2-C mineralization over 91 days in biochar amended soils. Regression analysis shows the relationship with microbial community size for several soil treatments including CTRL (no biochar control), CM (cattle manure biochar), HW (hemp woody residue biochar, and PW (pecan wood biochar). Sapkota et al. 2025

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Industry-leading
sub ppb accuracy and sensitivity

Metric	Specification
Measurement Method	Mid-Infrared Direct Laser Absorption Spectroscopy
Sensitivity (1σ) at 1 Hz	N_2O: <200 ppt/s / CO_2: <440 ppb/s
Sensitivity (1σ) at 5 Hz	N_2O: <95 ppt/s / CO_2: <200 ppb/s
Temperature / Humidity*	10 - 40°C, 10 - 95% RH (non-condensing)
Measurement Range**	N_2O: 2 ppb to 500 ppm / CO_2: 10 ppm to 100,000 ppm
Flow Rate	0.17 to 0.28 L/min
Size (Nominal)	30 cm (11.8") W x 20.3 cm (8") D x 9.9 cm (3.9") H
Weight	2.8 Kg (6.1 lbs.)
Power Consumption	18 W steady state, 23 W at startup
Voltage / Current	12-15 VDC 1.9 A, 100-240 VAC 0.23 A (50-60 Hz)
Interface / Outputs	Wi-Fi, USB-A, USB to DB9 RS232 Adapter (optional Ethernet or analog output)
Memory	32 GB (expandable)
Data Update Rate	1 Hz (selectable options up to 5 Hz)

***RH Sampling range can be higher with an appropriate dryer.**

****Linear measurement range; optional ranges, etc. can be configured for specific applications**

Included:	GPS
Rugged Shipping Case	Tablet
User-Friendly Software	12V and 110/240V Power Plug

Optional:	Advanced GPS Upgrade
Scrubber	Nafion Dryer
Sampling Wand	Anemometer

MIRA Pico is the world's first truly portable, battery-powered, laser-based gas analysis platform. Weighing only 6.1 lbs (2.8 Kg) with a 6-hour battery life, the Pico is uniquely designed for a wide range of handheld and mobile applications without sacrificing performance or reliability. The compact size, light weight, and low power consumption enable new field applications previously impractical with competing analyzers.

Core Sensor Technology

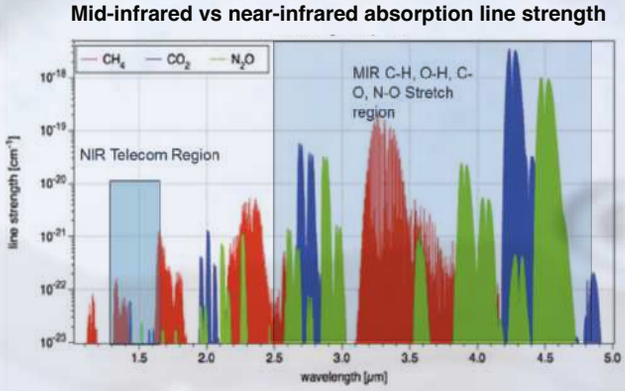
MIRA series analyzers combine Aeris' patented multipass cell technology with mid-IR solid-state lasers and custom electronics to achieve superior sensitivity and accuracy in an extremely robust and compact platform. The proprietary sensor engine used in every MIRA analyzer uniquely achieves a long absorption path length in an extremely small volume resulting in a fast response time with reduced pumping and power requirements.

MIRA's compact optical core achieves a 13 meter path length in a 60 cc volume.

The Power of Mid-Infrared

Spanning wavelengths from 2.5 to 5 micrometers (μm), the Aeris mid-IR technology achieves the same or superior short-term sensitivity as fragile NIR cavity-based techniques. The robust design of the mid-IR core is well suited for a wide range of applications including airborne analysis and environmental monitoring.

Mid-infrared vs near-infrared absorption line strength



Absorption spectrum of greenhouse gases across the IR. Absorption line strength is orders of magnitude stronger in the Mid-IR than NIR.

Aeris Technologies, Inc. provides ultrasensitive gas analyzers for trace gas monitoring applications. Aeris is redefining the state of the art in laser-based gas analysis systems, reaching unparalleled size, weight, power, and cost milestones.

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