

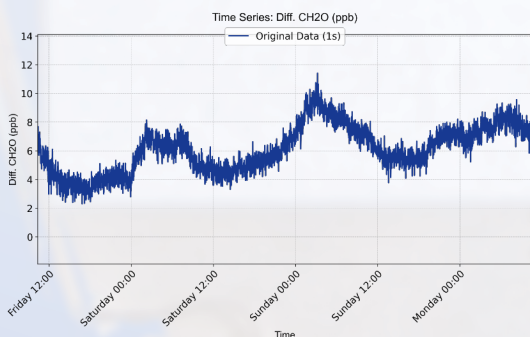
## MEASURE FORMALDEHYDE SOURCES WITH UNMATCHED SENSITIVITY AND ACCURACY



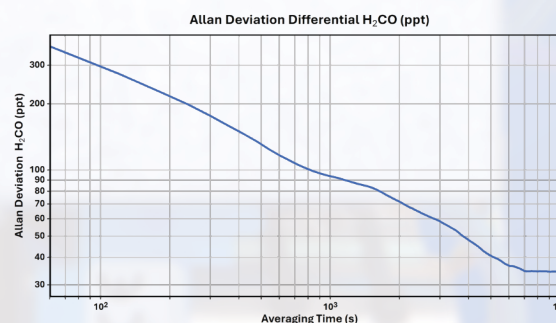
- Superior sensitivity: <1 ppb CH<sub>2</sub>O
- Real-time analytics, statistics
- Up to 5 Hz operation, 1 Hz standard
- Ultra-high sensitivity and accuracy
- Low drift via thermally stabilized optical core
- Data in .kml format for viewing in Google Earth™
- Maintenance-free sensor, user-serviceable filters

The **MIRA Ultra CH<sub>2</sub>O** harnesses mid-infrared (mid-IR) technology to deliver exceptional formaldehyde quantification at an industry-leading 1 ppb/30s sensitivity. This innovative analyzer is designed for both laboratory research and field investigations of this critical gas. Its remarkably low power consumption, paired with a lightweight and compact form factor, unlocks new field applications that were once impractical with traditional analyzers. Available in portable or fixed rackmount configurations, it offers continuous monitoring without supervision.

Formaldehyde, a potent volatile organic compound (VOC), demands vigilant monitoring due to its classification as a human carcinogen and its presence in industrial, indoor, and environmental settings. Exposure can cause respiratory irritation, and long-term health risks like cancer, while its environmental release contributes to air pollution. The MIRA Ultra CH<sub>2</sub>O provides the precision and adaptability needed to address these hazards, ensuring compliance with stringent regulations and protecting human health and ecosystems.



A typical time series from MIRA Ultra HC<sub>2</sub>O analyzer showing HC<sub>2</sub>O averaged over 1 second, demonstrating stability over several days.



Allan deviation plot for the MIRA Ultra Formaldehyde analyzer, showing sub-ppb sensitivity.

INDUSTRY-LEADING  
SUB PPB ACCURACY AND SENSITIVITY

Metric	Specification
Measurement Method	Mid-Infrared Direct Laser Absorption Spectroscopy
Sensitivity (1σ) at 1 Hz	CH <sub>2</sub> O: <1 ppb/30s
Sensitivity (1σ) at 5 Hz	CH <sub>2</sub> O: <450 ppt/30s
Temperature / Humidity	10-35° C, 10 to 95% RH (non-condensing)
Measurement Range*	CH <sub>2</sub> O: 1 ppb to 250 ppm
Flow Rate	0.37 to 0.73 L/min
Size	37.3 cm W (14.7") x 30.2 cm H (11.9") x 18.6 cm D (7.3")
Weight	6.4 kg (14.1 lbs.), 6.8 kg (15 lbs.) with battery
Power Consumption	27 W steady state, 50 W at startup
Voltage / Current	12-15 VDC 4.2 A, 100-240 VAC 0.50 A (50-60 Hz)
Interface / Outputs	Wi-Fi, USB-A, USB to DB9 RS232 adapter (optional Ethernet, analog out)
Memory	32 GB (expandable)
Data Update Rate	1 Hz (selectable options up to 5 Hz)
Metric	Ultra Rackmount Specification
Size / Weight	48.3 cm W (19.0") x 17.7 cm H (7.0") x 27.9 cm D (11.0") / 8.8 kg (19.4 lbs.)
Power Consumption	26 W steady state, 50W at startup
Voltage / Current	100-240 VAC 0.50 A (50-60 Hz)
Interface / Outputs	Wi-Fi, USB-A, DB9 RS232, Ethernet (optional analog out)

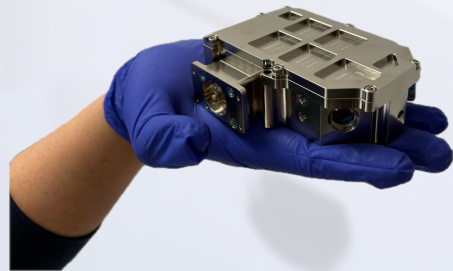
\*Linear measurement range. Operational range configurable for specific applications.

Included:	Scrubber	Optional:	Internal Battery
Rugged Shipping Case	Tablet	Ethernet	Nafion Dryer
Stainless Steel Sampling	12 V and 110/240 V Power Plug	Advanced GPS	Anemometer

Offered in both Rackmount and Portable configurations, MIRA Ultra systems ensure stable, low-drift performance with a temperature- and pressure-controlled sensor core, delivering exceptional accuracy and reproducibility for simultaneous gas measurements. This stability extends calibration intervals and, in some cases, eliminates the need for calibration. The system features two programmable sampling ports for calibration, re-zeroing, or differential measurements, supporting a wide variety of applications.

Core Sensor Technology

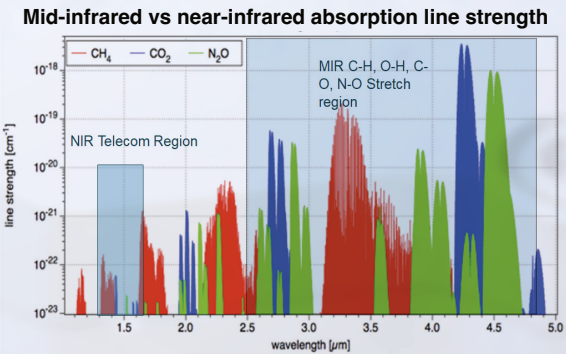
MIRA series analyzers combine Aeris' patented multipass cell technology with mid-IR solid-state lasers and custom electronics to achieve superior sensitivity and accuracy in an extremely robust and compact platform. The proprietary sensor engine used in every MIRA analyzer uniquely achieves a long absorption 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.



The Mid-infrared absorption spectrum of common greenhouse gases showing an increase of several orders of magnitude over their absorption in the 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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