MIRA *Strato LDS: UAV/Drone*

Natural Gas Leak Detection System w/GPS

Strato is the highest sensitivity gas analysis tool for UAV/Drone-based environmental monitoring and leak detection applications.

Introducing the new MIRA *Strato LDS*, the miniature, lightweight, high sensitivity/high accuracy natural gas leak detection system from Aeris Technologies, Inc. Strato series analyzers combine a breakthrough, real-time laser absorption spectrometer with built-in GPS capability to produce the Worlds most compact, sensitive and powerful leak detection tool.

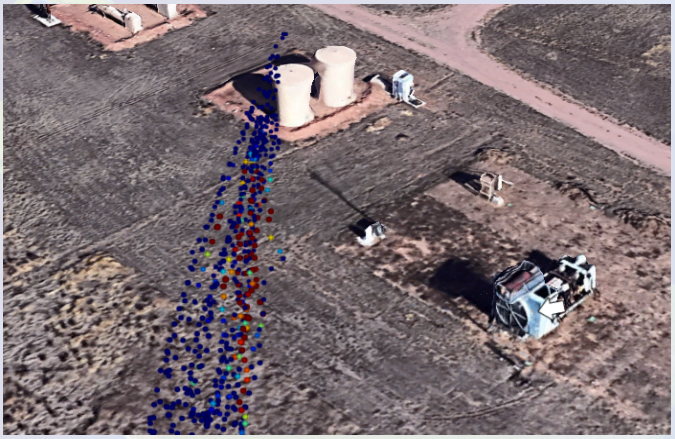
The *Strato LDS* operates in the mid-IR, achieving unparalleled, simultaneous methane and ethane sensitivity at the 1ppb/s level. Natural gas is discriminated from other interfering methane sources such as vehicle exhaust, and unambiguously identifies biogenic sources such as landfill gas and sewer gas. This unique capability provides a discrimination capability *30 times greater* than that of other laser-based analyzers at fraction of the size, weight and cost. *Strato LDS* systems come with two swappable, 90-minute battery packs, and can also run on external DC power such as from the drone using a DC-DC converter.

The compact, lightweight MIRA Strato is easily adapted to many commercially available drones (DJI Matrice 600 shown), and can be mounted in any orientation. Communication is typically achieved via the RS-232 port, which can stream at data rates of up to 10Hz. The Strato is inherently immune to vibrations, and has proven robust in many drone studies to date. (Photo courtesy of Scientific Aviation)

Key Features include:

- *Superior sensitivity: <1ppb/s CH_4 , <500ppt/s C_2H_6*
- *Real-time analytics, statistics*
- *Fast response time*
- *Hermetically sealed sensor core keeps optics clean*
- *1 or 2 Hz operation standard, up to 10Hz optional*
- *High accuracy GPS, compact antennae*
- *Wi-Fi, RS232, data streaming capability*
- *Low power consumption, battery or drone powered*
- *Robust platform: 100x less sensitive to contamination than "cavity-based" systems*
- *Water vapor measured to report dry mole fractions*
- *Data in .kml format for viewing in Google Earth™*

Unmatched Sensitivity, Accuracy, and Speed with Superior Thermogenic/Biogenic Discrimination



Leak plumes from a METEC storage tank are mapped in minutes using the MIRA Strato gas analyzer strapped to the underside of a DJI Matrice 600 drone. Red indicated highly correlated ethane and methane.

About Aeris Technologies, Inc.

Aeris Technologies, Inc. provides high accuracy, ultrasensitive gas analyzers for numerous fixed, mobile and handheld gas analysis applications. Aeris is redefining the *state-of-the-art* in laser-based natural gas leak detection solutions, reaching unparalleled performance, size, weight, power, and cost milestones.

Aeris Technologies, Inc. 26250 & 26252 Eden Landing Road, Hayward CA 94545
PH: 650.620-9421 FAX: 9451 www.aerissensors.com

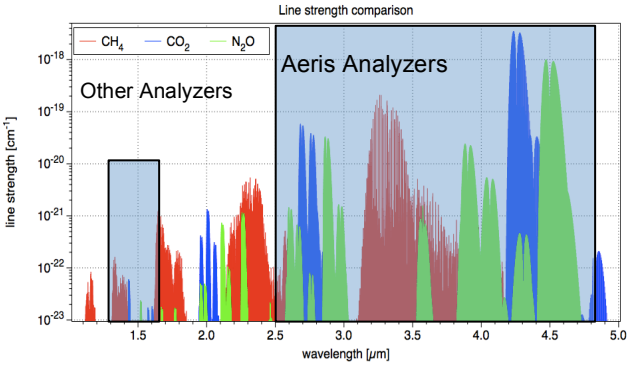
MIRA *Strato LDS w/GPS*
System Specifications

Metric	***Specification****
Measurement method	Mid-Infrared Laser Absorption Spectroscopy
Species, Sensitivity (σ)	CH_4: <1ppb/s, C_2H_6: 500ppt/s
Drift, typical	1-2% of reading typical, long-term
Temp/Humidity	5-40°C, 10 to 90% RH (non-condensing)
Concentration Range*	10 ppb to 10,000ppm (CH4)
Size	7.5"W x 7.5"D x 3.5"H
Weight	2 kg (4.4 lbs) w/ battery
Power Consumption	17W, 80-90 minute swappable battery
Voltage, current	12-15V DC: 2A, 110-220V AC: 0.5A,
Interface/Outputs	Wi-Fi, RS-232, analog output (optional)
Memory	32GB default, scalable
Data Update Rate	up to 10Hz , 1-2Hz standard

**Optional ranges, etc. can be configured for specific applications*

Core Technologies

MIRA series analyzers combine Aeris' Patented multipass cell technology with MIR solid-state lasers and custom electronics to achieve 1ppb sensitivity and ppb level accuracy in an extremely robust and compact package. The MIRA Platform operates in the mid-IR, where ethane absorption is 6000 times stronger than in the near-IR leading to superior sensitivity and bio/thermogenic discrimination.

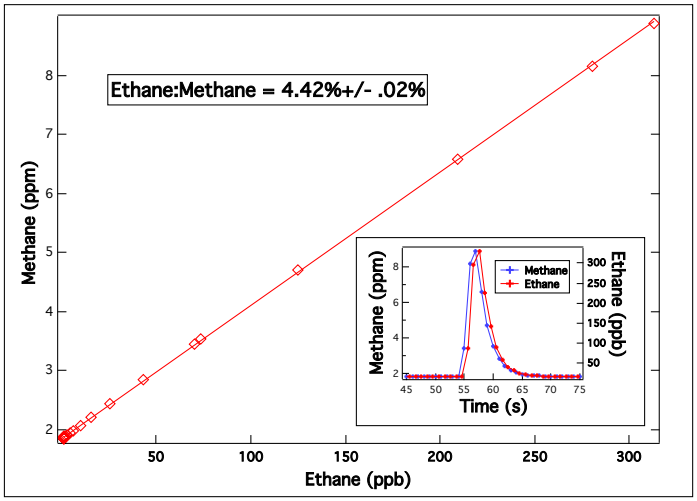


The spectrometer used in the *Strato LDS* uniquely achieves a 13m absorption path length in an extremely small volume (60cc), providing ultra-high sensitivity and rapid response time with reduced power consumption. Temperature and pressure are precisely controlled to achieve high accuracy.

MIRA laser-based sensor engine, comprising a fixed, hermetic optical bench, integrated laser and detector subassemblies, and ultra-compact, 60cc, 13m path length optical multipass cell.

Unparalleled Leak Discrimination via Superior Ethane:Methane Quantification

Strato LDS systems have the unique ability to instantly determine if the leak source is thermogenic vs. biogenic via the clear correlation of ethane and methane, eliminating false alarms triggered by other analyzers that have either inferior or no ethane detection capability whatsoever. Emissions from neighboring livestock or farming operations are rapidly discriminated from E&P emissions, as there is no ethane emitted from such sources. The high-fidelity ethane signature also assists in source attribution within E&P operations, indicating specific pieces of equipment in some cases as well as discriminating flare emissions from fugitive emissions. The high accuracy baseline measurement also assists in discriminating upwind sources from neighboring operations.



Top: *Time series (inset, C_2H_6 time shifted) and calculated C_2H_6:CH_4 ratios for a single leak source, with 4.42% +/- 0.02% ethane. In cases where multiple sources are present, multiple slopes are typically visible owing to the varying ethane:methane ratio at the site.*

Aeris Technologies, Inc. 26250 & 26252 Eden Landing Road, Hayward CA 94545
PH: 650.620-9421 FAX: 9451 www.aerissensors.com