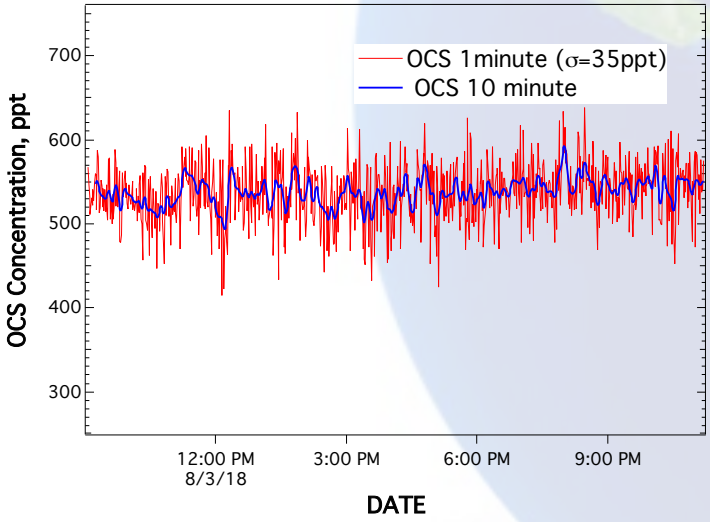
MIRA *Pico OCS*

Trace Carbonyl Sulfide Analyzer

Monitor OCS levels in real-time with sub-ppb sensitivity and accuracy with the World's first handheld, laser-based OCS analyzer.

Introducing the MIRA *Pico OCS*, the new high accuracy, portable carbonyl sulfide gas analyzer from Aeris Technologies, Inc. The *Pico OCS* is based on the revolutionary, miniature Aeris laser spectrometer engine that enables ppt-level precision in seconds. The MIRA *Pico* is the Worlds first truly portable, high accuracy laser-based gas analysis platform.

The *Pico OCS* provides precise and accurate concentrations via the proven method of tunable diode laser absorption spectroscopy. However, Aeris MIRA Series analyzers uniquely operate in the *middle infrared (MIR) region*, achieving unparalleled specificity and sensitivity in a compact, low power consumption platform. The distinct, middle infrared "fingerprint" used in the *Pico OCS* enables the rapid determination of sub-ppb to ppm levels in seconds. The ability to monitor carbonyl sulfide in real-time opens the door for a wide range of new applications previously impractical due to the size, weight, power, and cost constraints of competing products.



MIRA Pico OCS time series displaying 1-minute and 10-minute sensitivity levels. Sensitivity in the 10ppt regime can be routinely achieved using the on-board calibration feature.

Key Features

- *Real-time, sub-ppb sensitivity and accuracy*
- *Autonomous, built-in calibration*
- *Fast 1Hz response time, out-of-the-box operation*
- *GPS option for creating OCS "maps"*
- *Wifi, RS-232, and optional analog outputs*
- *Lowest, 15W power consumption*
- *Maintenance-free sensor core*
- *External, user-serviceable filter*
- *Built-in 6hr battery, built-in sampling pump*
- *Compact, 2.75kg Lab-In-a-Box™*

Real-Time OCS Monitoring

The MIRA *Pico OCS* determines OCS concentrations with high accuracy in real-time, enabling field studies in a range of applications such as soil chamber studies or ambient monitoring. OCS is a known proxy for quantifying photochemically induced carbon uptake in biological systems. Traditionally, OCS has been measured with more expensive systems that are 10x larger with considerable power requirements, making field measurements difficult or impossible.

As an absorption-based method, Aeris Pico OCS systems achieve high accuracy and linearity over a wide dynamic range. The Pico OCS is the World's first truly portable, battery powered, high accuracy OCS analyzer, enabling lab-quality measurements in a lunchbox-sized instrument. The MIRA Pico OCS represents a game-changing proposition for carbonyl sulfide monitoring.

About Aeris Technologies, Inc.

Aeris Technologies, Inc. provides high accuracy, 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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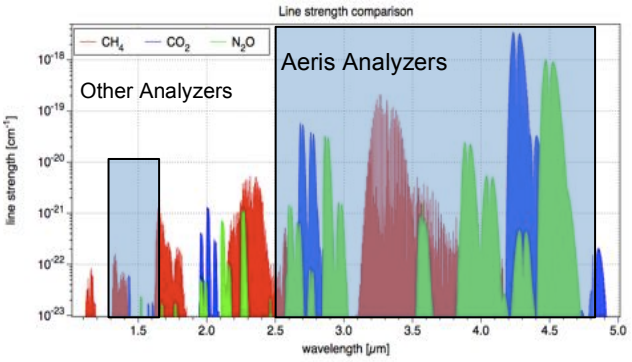
MIRA *Pico OCS*

System Specifications

Metric	***Specification***
Measurement method	Middle-Infrared Laser Absorption Spectroscopy
Sensitivity (σ)	35ppt/min, <10ppt 15 minutes
Accuracy	<50ppt (differential mode)
Temperature Range	10-40°C, 10 to 95% RH (non-condensing)
Concentration Range	<1ppb to 100 ppm
Size	11.5"W x 8"D x 3.75"H
Weight	2.75 kg (6 lbs), with 6hr battery and pump
Power Consumption	15W
Voltage, current	110V, 0.2A, 12V, 1.5A
Interface/Outputs	WiFi, USB, RS232
Memory	32GB, expandable
Data Update	1Hz or 2Hz

Core Sensor Technology

MIRA series analyzers combine Aeris' unique multipass absorption cell technology, custom electronics, and solid-state MIR lasers to achieve ppt level sensitivity and accuracy in an extremely compact and robust package. The MIRA Platform operates in the mid-IR, where OCS absorption is thousands of times stronger than in the near-IR.

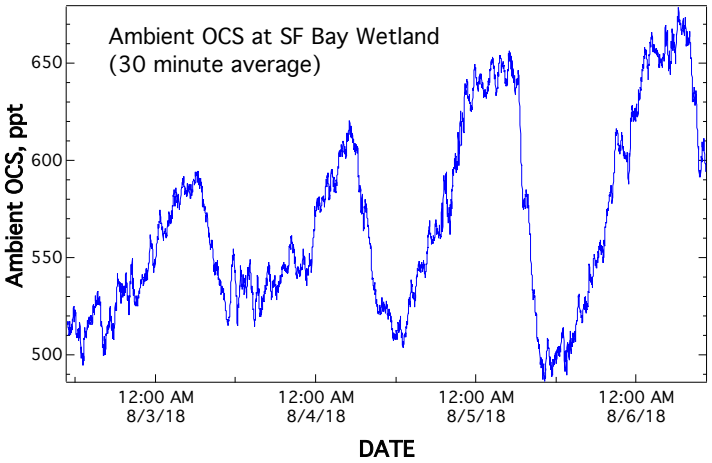


The Patent Pending sensor engine used in the *Pico Mobile LDS* uniquely achieves a long absorption path length in an extremely small volume, providing ultra-high sensitivity and rapid response time with reduced pumping and power requirements.

MIRA laser-based sensor engine, comprising a fixed, hermetic optical bench, integrated laser and detector subassemblies, and ultra-compact, 60cc, 15m path length optical multipass cell.

Portable, High Accuracy OCS Levels in Real-Time

MIRA Pico OCS gas analyzers achieve 35ppt level sensitivity in one minute, and <10ppt with further signal averaging. Pico OCS systems feature user-defined calibration intervals, which enables the highest accuracy to be achieved for specific applications. All MIRA Pico systems are GPS-ready and record location and gas concentration in a .kml file format that is suitable for viewing in Google Earth. MIRA gas analyzers also include a built-in WiFi hub that allows access to the analyzer via user networks or tablets, laptops, etc. Systems can also be configured to support other hardware such as cellular modems, RS-232 interfaces, and other hardware such as sonic anemometers.



Extended, autonomous monitoring of outdoor OCS levels in the San Francisco Bay Wetlands using the Pico OCS. Built-in, periodic calibration is performed autonomously with the instrument at user-defined intervals, enabling system accuracy to be optimized. Here, 10ppt level precision is obtained by signal averaging over a period of 30 minutes, with periodic calibration that essentially eliminates long-term instrument drift. In these data, the diurnal photochemically-induced OCS uptake cycle is clearly evident, which in many cases is correlated with CO_2 uptake.

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