

TILDAS Compact Single Laser OCS/COS Analyzer

Unprecedented precision and time response for OCS/COS measurements in a compact, transportable package



Features

- < 5 ppt 1-s precision.
- < 2 ppt 100-s precision.
- Fast time response (10 Hz).
- Direct measurement of OCS, CO₂, H₂O and CO in air without sample processing.
- Dual laser package allows simultaneous measurement of OCS and a variety of other molecules.

Rugged, field-ready instruments

Direct absorption spectroscopy allows for highly specific and accurate gas detection

Mid-IR detection enables maximum measurement sensitivity

TILDAS TECHNOLOGY

Aerodyne instruments use **tunable infrared laser direct absorption spectroscopy (TILDAS)** at mid-IR wavelengths to probe molecules at their strongest “fingerprint” transition frequencies. We further enhance sensitivity by employing a patented multi-pass broad-band absorption cell that provides optical path lengths up to 400 meters. Direct absorption spectroscopy allows for fast (<1 sec) absolute trace gas concentrations without need for elaborate calibration procedures. Moreover, TILDAS instruments are relatively free of measurement interference from other molecular species, enabling extremely specific detection.

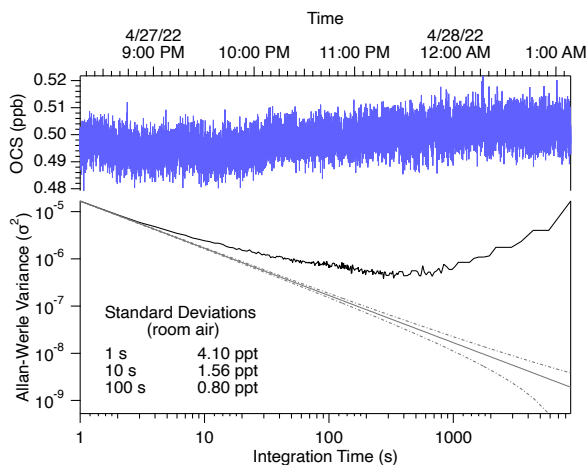
Advantages

- Measurement precision comparable to much larger and more expensive IRMS instruments.
- Time response up to 10 Hz enables eddy covariance studies.
- Powerful TDLWintel software provides flexible instrument control and real-time data analysis.
- Valve control capable of complex scheduling and automatic background and calibrations.
- 19” rack mountable for easy installation.
- Turn-key design allows unattended operation in remote field sites.

Applications

- Determination of atmospheric sources, sinks, and transport through OCS, CO₂ and CO.
- Biosphere exchange.
- Laboratory measurements of discrete samples.
- Mobile measurements aboard aircraft, marine, and ground-based platforms.
- Carbon capture and sequestration monitoring.

Allan-Werle Plot for OCS



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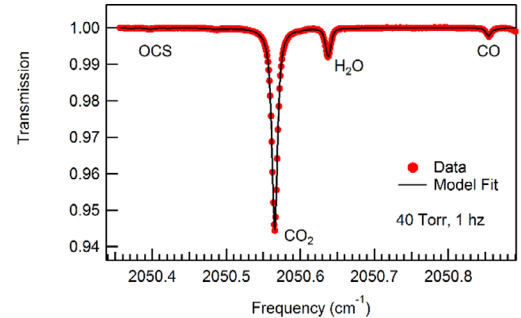
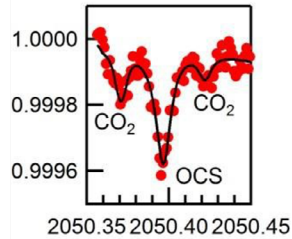
Specifications

COS/CO₂/CO/H₂O precision @ 2050 cm⁻¹ (1σ)

Time Response

	1 sec	100 sec
COS	0.005 ppb	0.002 ppb
CO ₂	100 ppb	25 ppb
CO	500 ppt	150 ppt
H ₂ O	5 ppm	2 ppm

Experimental spectrum acquired at 1 Hz



Operating Conditions

Operating temperature: -20 to +40 °C
Sample flow rate: 0 to 20 slpm

Installation

1-10 Hz data rate
0.05 s minimum Rise/Fall time (1/e)
(depends on vacuum pump)
19" rack mountable or benchtop

Data Outputs

RS-232, USB drive, ethernet

Aerodyne specializes in collaboration and custom design. Please contact us if you would like to discuss additional measurement options and applications.

Instrument Components

Core instrument
Thermoelectric chiller
Keyboard, mouse, and monitor
Vacuum pump (customer specified)
Inlet sampling system (customizable)

Size, Weight, Power

Dimensions: 440 mm x 660 mm x 6U (267mm)
(W x D x H)
Weight: 35 kg (core instrument) + 15 kg (chiller) +
pump weight
Electrical Power: 250 W, 120/240 V, 50/60 Hz
(without pump)

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