



## Aerodyne Mini-TILDAS OCS/COS Monitor



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



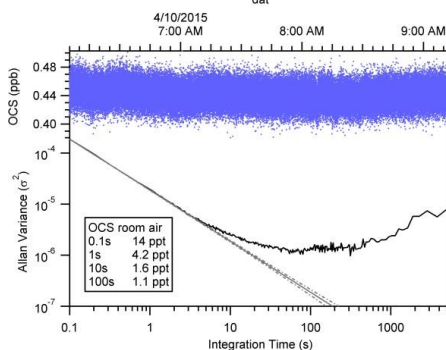
### Features:

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

### TILDAS TECHNOLOGY

Aerodyne instruments use tunable infrared laser direct absorption spectroscopy (TILDAS) at mid-IR wavelengths to probe molecules at their strongest “finger-print” transition frequencies. We further enhance sensitivity by employing a patented multi-pass broad-band absorption cell that provides optical path lengths up to 76 m. 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.

Allan-Werle Plot for OCS



### Rugged, field-ready instruments

*Direct absorption spectroscopy allows for highly specific and accurate gas detection*

*Mid-IR detection enables maximum measurement sensitivity*

### AERODYNE OCS 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, CO<sub>2</sub> and CO.
- Biosphere exchange.
- Laboratory measurements of discrete samples.
- Mobile measurements aboard aircraft, marine, and ground-based platforms.
- Carbon capture and sequestration monitoring.

# Mini-TILDAS OCS/COS Monitor

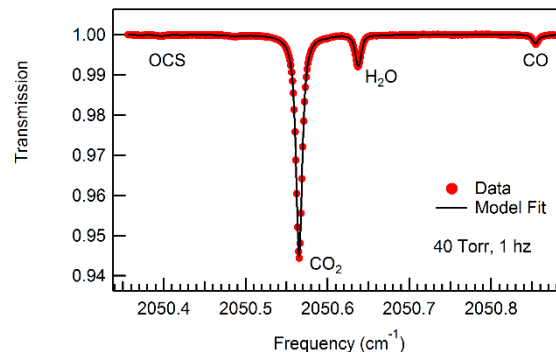
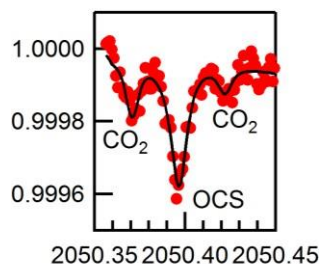
## SPECIFICATIONS

COS/CO<sub>2</sub>/CO/H<sub>2</sub>O precision @ 2050 cm<sup>-1</sup> (1  $\sigma$ )

### Time Response

	1 sec	100 sec
<b>COS</b>	0.005 ppb	0.002 ppb
<b>CO<sub>2</sub></b>	100 ppb	25 ppb
<b>CO</b>	500 ppt	150 ppt
<b>H<sub>2</sub>O</b>	5 ppm	2 ppm

Experimental spectrum acquired at 1 Hz



### Operation conditions

Operating temperature: 10 to 35 °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

### 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)

### 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.*

## REFERENCES

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