

# Simultaneous measurements of carbonyl sulfide and carbon dioxide in air?

Now, you can.

LGR delivers



**NEW**

## OCS Analyzer (OCS, CO<sub>2</sub>, H<sub>2</sub>O, CO)

### Features and Benefits

- Simultaneous measurements of OCS (or COS), CO<sub>2</sub> and H<sub>2</sub>O
- Fast response allows flux measurements
- 0.1-ppm CO<sub>2</sub> precision in only 10 seconds (better precision with increased averaging)
- H<sub>2</sub>O measured simultaneously and used to report values on dry mol basis accurately in real time (without post processing)
- Cryogen-free operation
- Installed in minutes
- High-resolution absorption spectra always viewable
- Linear over extremely wide ranges
- Simple adjustment allows simultaneous measurements of CO, CO<sub>2</sub> and H<sub>2</sub>O

Since OCS uptake by vegetation is associated with photosynthetic CO<sub>2</sub> uptake, but not with respiration, simultaneous measurements of OCS and CO<sub>2</sub> may serve as a new and potentially powerful method to study gross photosynthesis. LGR's OCS Analyzer (carbonyl sulfide) reports OCS and CO<sub>2</sub> simultaneously at ambient levels with extremely high precision. In addition, the OCS Analyzer also measures water vapor (H<sub>2</sub>O) to allow for reporting on a dry mole fraction basis without the need for sample drying, or any post correction procedure. In addition, with a simple modification, the Analyzer may be configured for simultaneous measurements of CO (carbon monoxide), CO<sub>2</sub> and H<sub>2</sub>O.

The Analyzer is extraordinarily simple to use, may be set up in minutes and does not require cryogens or water cooling.

LGR's OCS Analyzer is designed to study CO<sub>2</sub> ecosystem exchange but may also be used for other demanding applications including trace gas monitoring, eddy-correlation flux measurements, chamber flux measurements, and combustion diagnostics. The Analyzer is particularly well suited for measurements in the field since it is similar to versions that have been successfully deployed on-board NASA DC-8 aircraft for measurements in the upper troposphere and lower stratosphere. LGR's

OCS Analyzer is essentially unaffected by other atmospheric gases or changes in atmospheric pressure.

The Analyzer uses LGR's patented Off-axis ICOS technology, a fourth-generation cavity enhanced absorption technique. Off-axis ICOS has many advantages over conventional Cavity Ringdown Spectroscopy (CRDS) techniques such as being alignment insensitive, having a much shorter measurement time, and not requiring expensive and power consuming auxiliary components.

LGR's new "Enhanced Performance" series incorporates proprietary internal thermal control for ultra-stable measurements with unsurpassed precision, accuracy and drift. Moreover, only LGR's analyzers provide reliable guaranteed measurements at mole fractions more than 20 times ambient levels.

The Analyzer includes an internal computer that can store data practically indefinitely on its internal hard drive (for applications requiring unattended longer term operation), and send real-time data to a data logger through its analog and digital (RS232) outputs. Several optional features are available which improve the flow time response, allow multiple inlet sources, or provide for remote access and control of the analyzer via the Internet.

# OCS Analyzer (OCS, CO<sub>2</sub>, H<sub>2</sub>O, CO)

## Performance Specifications

### Precision (1 $\sigma$ , 1 second):

OCS: 10 ppt (Standard)  
OCS: 5 ppt (Enhanced Performance)  
CO<sub>2</sub>: 0.3 ppm (all packages)  
CO: 1.5 ppb (Standard)  
CO: 1.0 ppb (Enhanced Performance)  
H<sub>2</sub>O: 30 ppm (all packages)

### Measurement Rates:

User-selectable rates up to 10 Hz

### Maximum Drift (Enhanced Performance model) (15 min average, at STP, over 24 hrs):

OCS: 3 ppt  
CO: 0.5 ppb  
CO<sub>2</sub>: 0.1 ppm  
H<sub>2</sub>O: 30 ppm or 1% reading, whichever greater

### Measurement Range (meets all specs):

OCS: 0.2 – 400 ppb  
CO<sub>2</sub>: 10 – 10000 ppm  
CO: 50 – 40000 ppb  
H<sub>2</sub>O: 4000 ppm to 100% RH (non condensing)

### Operational Range:

OCS: 0 - 1 ppm  
CO: 0 – 100 ppm  
CO<sub>2</sub>: 0 – 10000 ppm  
H<sub>2</sub>O: 0 to 100% RH (non condensing)

### Temperature/Humidity:

Sample Temperature: 0 – 50 °C  
Operating Temperature:  
10 – 35 °C (Standard Model)  
0 – 45 °C (Enhanced Performance Model)  
Ambient Humidity: non-condensing (0-100% RH)

### Fittings:

Inlet: 3/8"  
Outlet (internal pump): 1/4"  
Outlet (optional external vacuum pump): 1/2"

### Outputs:

digital (RS-232), analog, Ethernet, USB

### Power Requirements:

115/230 VAC, 50/60 Hz  
180 watts (Standard Model; steady state)  
400 watts (Enhanced Performance Model; steady state)

### Dimensions:

19" x 30" x 14" (Standard Model)  
17" x 45" x 14" (Enhanced Performance Model)

### Weight:

36 kg (Standard Model)  
68 kg (Enhanced Performance Model)



## Ordering Information

Part Number 907-0028 (Standard model)

Part Number 914-0028 (Enhanced Performance model)

## Accessories

908-0003-9001: Multiport Inlet Unit –  
Automated control of up to 16 inlet ports

908-0003-9002: Multiport Inlet Unit –  
Automated control of up to 8 inlet ports

908-0008-9009: N920 Pump –  
Provides flow-through response (1/e) time of 1.2 seconds

908-0001-9011: N940 Pump –  
Provides flow-through response (1/e) time of 0.5 seconds

907-0005-9002: Dynamic Dilution System –  
Extends upper measurement range by 100x

904-0002: Data Logging System – multi-channel data logging  
system records and synchronizes serial (RS-232) outputs from  
multiple LGR analyzers and other devices (GPS, anemometers)