

# Oxygen and Carbon Dioxide *precisely*



First analyzer to report ambient O<sub>2</sub> and CO<sub>2</sub> simultaneously

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

### Features and Benefits

- Developed for applications requiring highest accuracy
- All gases measured simultaneously
- Measured spectra always viewable
- O<sub>2</sub> and CO<sub>2</sub> reported on dry mole fraction basis directly
- Ideal for ambient air and chamber flux studies
- Wide measurement range
- *Extended Range* option allows CO<sub>2</sub> measurements to 10%
- Remote access simplifies field measurements

LGR's O<sub>2</sub>/CO<sub>2</sub> Analyzer is the first instrument capable of reporting oxygen, carbon dioxide and water vapor in air with extremely high precision and fast response. Designed for measurements in ambient air for applications requiring high precision, the O<sub>2</sub>/CO<sub>2</sub> Analyzer applies LGR's proven cavity enhanced laser absorption spectroscopy technique for simultaneous continuous measurements of these three important atmospheric gases.

The O<sub>2</sub>/CO<sub>2</sub> Analyzer is simple to use, low power and rugged which makes it ideal for field studies. The ability to measure O<sub>2</sub> and CO<sub>2</sub> at the same time simplifies the analysis of air samples. In addition, analysis of the measured absorption spectra allows the instrument to accurately correct for water vapor dilution and absorption line broadening effects and thus to report CO<sub>2</sub> and O<sub>2</sub> on a dry mole fraction basis directly without drying or post processing. Furthermore, LGR's new "*Extended Range*" option provides accurate CO<sub>2</sub> measurements up to 10% mole fraction without reducing precision and sensitivity at typical ambient levels - a unique LGR capability.

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 measurements at mole fractions more than 20 times ambient levels.

LGR's patented technology, a fourth-generation cavity enhanced absorption technique, has many advantages (simpler, easier to build, rugged) over older, conventional cavity ringdown spectroscopy (CRDS) techniques. As a result, LGR Analyzers provide higher performance at lower cost.

LGR Analyzers have an internal computer (Linux OS) that can store data practically indefinitely on a hard disk drive and send real time data to a data logger via the digital (RS232), analog or Ethernet outputs. LGR analyzers may be controlled remotely via the Internet. This capability allows the user to operate the analyzer using a web browser anywhere Internet access is available. Furthermore, remote access allows full control of the instrument and provides the opportunity to obtain data and diagnose the instrument operation without being on site.

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

## Performance Specifications

### Precision (1 $\sigma$ , 1 sec / 100 sec):

O<sub>2</sub>: 100 ppm / 25 ppm  
CO<sub>2</sub>: 400 ppb / 100 ppb  
H<sub>2</sub>O: 100 ppm / 25 ppm

### Maximum Drift (1 $\sigma$ , 15 min average, at STP, over 24 hrs):

O<sub>2</sub>: 100 ppm  
CO<sub>2</sub>: 120 ppb  
H<sub>2</sub>O: 100 ppm or 1% reading, whichever greater

### Measurement Rates:

0.01 – 1 Hz  
(external pump required for < 6 second flow response)

### Measurement Range (meets all specs; all models):

O<sub>2</sub>: 100 ppm – 100%  
CO<sub>2</sub>: 200 – 20000 ppm  
H<sub>2</sub>O: 7000 – 70000 ppm

### Operational Range

(external calibration may be required):

O<sub>2</sub>: 0 – 100%  
CO<sub>2</sub>: 0 – 10% (Extended Range option)  
H<sub>2</sub>O: 0 – 70000 ppm (0 – 100% relative humidity)

### Sampling Conditions:

Sample Temperature: -10 – 50 °C  
Operating Temperature: 0 – 45 °C  
Ambient Humidity: 0 – 100% RH non-condensing

### Outputs:

Digital (RS232), analog (all 3 gases), Ethernet, USB

### Power Requirements:

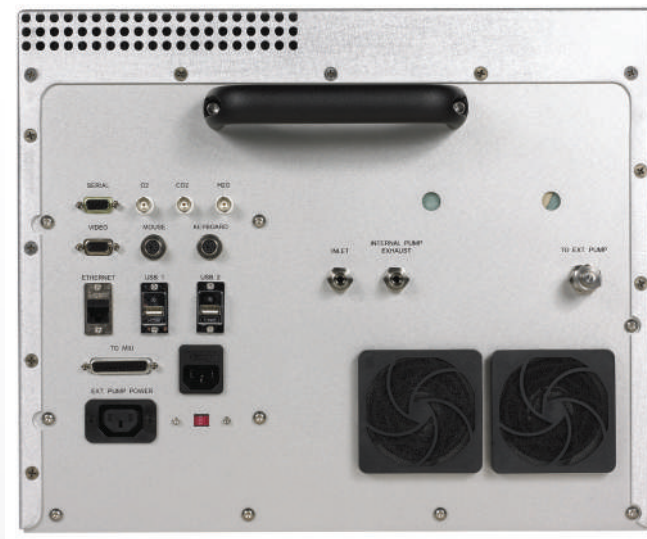
115/230 VAC, 50/60 Hz  
150 watts (Enhanced Performance model, steady state)

### Dimensions:

15.75" (H) x 19" (W) x 24" (D)

### Weight:

40 kg



## Ordering Information

Model 911-0035

## Accessories

908-0003-9001: Multiport Inlet Unit – 16 inlet port multiplexer

908-0003-9002: Multiport Inlet Unit – 8 inlet port multiplexer

908-0008-9009: N920 Pump – provides flow-through (1/e) time = 1.2 secs

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)

