

NEW

Highest accuracy and stability



Enhanced Performance model delivers *unsurpassed performance*

Greenhouse Gas Analyzer (CH₄, CO₂, H₂O)

Features and Benefits

- Developed for applications requiring highest accuracy (Enhanced Performance model)
- Gases measured simultaneously
- Measured spectra always viewable
- CH₄ and CO₂ reported on dry mole basis directly
- Ideal for eddy covariance flux and chamber flux
- Widest measurement range
- *Extended Range* option allows methane measurements at levels up to 10%
- Validated at leading labs and monitoring networks, LGR's GGA-24EP delivers *unsurpassed performance* and exceeds WMO requirements

LGR's Greenhouse Gas Analyzer is the world's most advanced instrument for simultaneous measurements of methane, carbon dioxide and water vapor. Quite simply, no other analyzer provides higher performance.

The GGA is simple to use, low power and rugged which makes it ideal for field and air quality studies. The ability to measure all gases quickly makes the GGA an excellent choice for eddy covariance and chamber flux measurements. 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 CH₄ and CO₂ on a dry mole fraction basis directly without drying or post processing. Furthermore, LGR's new "*Extended Range*" option provides accurate methane measurements at levels up to 10% mole fraction (without dilution) without reducing precision and sensitivity at typical ambient levels - a unique capability to LGR.

LGR's new "*Enhanced Performance*" series incorporates proprietary internal thermal control for ultra-stable measurements with unsurpassed

precision, accuracy and drift as validated at several leading labs and monitoring networks in Europe, Asia and the US. Moreover, only LGR's analyzers provide reliable *guaranteed* 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. In addition, 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.

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Performance Specifications

Precision (1 σ , 1 sec / 100 sec):

CH₄: 3 ppb / 0.3 ppb
CO₂: 400 ppb / 100 ppb
H₂O: 150 ppm / 50 ppm

Maximum Drift (Enhanced Performance model)

(1 σ , 15 min average, at STP, over 24 hrs):

CH₄: 0.8 ppb
CO₂: 120 ppb
H₂O: 100 ppm or 1% reading, whichever greater

Measurement Rates:

0.01 – 10 Hz (Standard)
0.01 – 1 Hz (Enhanced Performance, low flow)
0.01 – 10 Hz (Enhanced Performance, fast flow)
(external pump required for < 6 second flow response)

Accuracy (over all rated conditions):

uncertainty < 1% w/o calibration (Standard)
uncertainty < 0.03% (Enhanced Performance model)

Measurement Range (100 seconds):

CH₄: 0.01 – 100 ppm
CO₂: 200 – 20000 ppm
H₂O: 7000 – 70000 ppm

Operational Range (all models)

(external calibration may be required):

CH₄: 0 – 1000 ppm
CH₄: 0 – 10% (with Extended Range option)
CO₂: 0 – 20%
H₂O: 0 – 70000 ppm (0 – 100% relative humidity)

Sampling Conditions (all models):

Sample Temperature: -10 – 50 °C
Operating Temperature (standard model): 5 – 45 °C
Operating Temperature (EP model): 0 – 45 °C
Ambient Humidity: 0 - 100% RH non-condensing

Outputs (all models):

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

Power Requirements:

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

Dimensions:

Benchtop Package (Standard model): 10"×38"×14"
Rackmount Package (Standard model): 8.75"×19"×24"
Rackmount Package (Enhanced Performance): 15.75"×19"×24"

Weight:

29 kg (Standard models)
40 kg (Enhanced Performance model)

Ordering Information

Rackmount, fast flow (Standard model): 907-0010
Rackmount, low flow (Standard model): 907-0011
Benchtop, fast flow (Standard model): 908-0010
Benchtop, low flow (Standard model): 908-0011
Rackmount, fast flow (Enhanced Performance model): 911-0010
Rackmount, low flow (Enhanced Performance model): 911-0011
Ultraportable package (see separate datasheet): 915-0011

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
908-0001-9011: N940 Pump –
provides flow-through (1/e) time = 0.7 secs
908-0001-9001: Dry Scroll Pump –
provides flow-through (1/e) time = 0.1 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)

Options

Extended Range – Increases upper range to 10% methane

