



# Eddy Covariance Package

High Speed (10 Hz) and High Precision (ppb) CH<sub>4</sub>/CO<sub>2</sub>/H<sub>2</sub>O Analyzer with full remote access

- External Pump
- Sonic Anemometer
- Weather Station
- Data Logging Software
- Wireless Use Interface Kit
- Maintenance Kits
- 3-Year Analyzer Warranty

Los Gatos Research introduces the most affordable Eddy Covariance package in the market. Compare to other available offerings in the market, you can save tens of thousands of dollars and still use the best analyzer technology in the world. LGR utilizes a unique laser absorption technology called Off-Axis Integrated Cavity Output Spectroscopy (OA-ICOS). This technique, which was patented by LGR, offers superior performance, value and reliability as compared to any other technology.

## Advantages of the LGR Eddy Covariance Package:

- 1 Measures simultaneously CH<sub>4</sub>, CO<sub>2</sub> and H<sub>2</sub>O using a single analyzer
- 2 10 Hz Response Time, ppb Precision and Accuracy of < 0.03% of reading
- 3 Automatically reports CH<sub>4</sub> and CO<sub>2</sub> on a dry (and wet) mole fraction basis
- 4 Accurately corrects for water vapor dilution and absorption line broadening effects
- 5 Used under all weather conditions
- 6 Closed path design prevents data loss due to weather or other mirror contamination
- 7 User cleanable optics
- 8 Full remote access allows bios-level control of the instrument and provides the opportunity to obtain data and to diagnose the instrument operation without being on site
- 9 64GB solid state hard drive!
- 10 Can send real time data to a data logger via the digital (RS232), analog or Ethernet outputs
- 11 Single data file with a time stamp (includes sonic data)
- 12 Total of 3 years analyzer warranty

The inherent advantages of OA-ICOS technology make LGR trace gas and stable isotope analyzers the best choice, whatever the application.

- **Parts-Per-Billion (ppb) Precision:** OA-ICOS avoids the expense and vulnerability of a sub-nanometer opto-mechanical setup. This enables it to easily deliver parts-per-billion precision (or better) quickly and in an easy-to-use package.
- **Wider Dynamic Range:** OA-ICOS directly measures absorption rather than only a cavity decay time. Therefore it offers a linear response over a significantly wider dynamic range than conventional CRDS (i.e. up to 100% mole fraction for some gases).
- **Best Performance:** OA-ICOS analyzer performance is not dependent on hyper-critical optical alignment, whereas older cavity-based techniques (e.g., CRDS) require sub-nanometer optical component alignment. This makes these older techniques very vulnerable to degraded performance due to vibrations, small physical shocks, and changes in temperature and pressure.
- **Field Serviceable:** OA-ICOS performance is orders of magnitude less sensitive to internal alignment, so our rugged instruments are robust and reliable. And designed with simplicity in mind, in the rare instance that repair is necessary; LGR instruments may be easily serviced on site.

- **Lower Manufacturing Cost = Lower Price:** OA-ICOS analyzer performance is not dependent on hyper-critical optical alignment, whereas older, conventional CRDS techniques require sub-nanometer optical component alignment. This necessitates the use of expensive electro-mechanical components and complex feedback loops as well as very time-consuming cleanroom assembly and elaborate testing.
- **Better Value:** OA-ICOS analyzer performance is completely unaffected by any minor shifts in optical alignment. This enables the use of simpler, lower-cost components and fewer feedback control systems, as well as simplifying our assembly process.
- **Minimal Downtime:** OA-ICOS technology does not require ultra-precise optical alignment. This means that a minimally trained user can easily remove a cavity mirror, if necessary, and then clean and replace it in only minutes, *with no impact on performance or expensive returns to the factory.*

# Eddy Covariance Package

The Eddy Covariance Package from Los Gatos Research includes the following:

**Model 911-0010 Fast Enhanced-Performance Greenhouse Gas Analyzer (FGGA-24EP)** – Simultaneous measurements of methane, carbon dioxide, and water vapor mole fractions (concentrations) continuously in flowing gas samples. It includes LGR's enhanced thermal stability technology that provides ultra-stable minimal-drift measurements in a rackmount package. The analyzer includes:

Software for system control (GUI) and fast data analysis (no licenses required), User Manual (in English), Remote access and control capability via the internet, Certificate of Compliance that guarantees performance specifications, Power Cable, LGR technical support (via email/phone) and One year warranty per LGR warranty policy.

**Model 908-0001-9001 Dry Scroll Vacuum Pump (DSVP)** – External pump provides 0.07 seconds flow response time

**Model 908-0001-9002 DSVP Accessory Kit** – Includes exhaust silencer, connection kit, and maintenance Kit

**Model 904-0002 Data Logging Software** – Simultaneously records the serial (RS-232) data outputs from multiple LGR analyzers and from other instruments, including Global Positioning System (GPS) devices, and sonic anemometers, into a single data file with a common time stamp. This allows users to easily synchronize, tabulate and graphically present and correlate historical data from several instruments with local GPS coordinates. Requires external Windows computer (laptop or desktop)

**RM Young Model 81000V 3D Sonic Anemometer** – a 3-axis, no-moving-parts wind sensor with four synchronized voltage input channels and serial output. It features durable corrosion-resistant construction with 3 opposing pairs of ultrasonic transducers supported by stainless steel members. Each sonic anemometer is individually wind-tunnel calibrated.

**Climatronics AIO Compact Weather Sensor** – The All-In-One (AIO) Weather Sensor is the next-generation weather instrument that measures temperature, relative humidity, wind speed, wind direction, and barometric pressure in a single compact, rugged unit.

**Model 908-0001-9025 Maintenance Kit** – includes a rebuild kit for internal pump, mirror cleaning kit, and 64GB solid state hard drive

**Model 915-9002 Wireless User Interface** – Google Nexus 7 with Wi-Fi router provides full instrument control and provides touch-screen video display, keyboard and mouse

**Model 911-9002-0000 Enhanced Durability** – Yellow 11U (height) Hardigg Rackmount Shipping Case

**Two-Year Extended Warranty** – Extends the standard one-year Analyzer warranty to a total of three years

## Customize It!

If this package does not meet your needs, see other options:

- 1 Replace the Greenhouse Gas Analyzer with other Los Gatos Research Analyzers such as model 913-0014 N<sub>2</sub>O/CO/H<sub>2</sub>O, model 913-1054 N<sub>2</sub>O/CH<sub>4</sub>/H<sub>2</sub>O, model 911-0001 CH<sub>4</sub>/H<sub>2</sub>O or model 911-0020 CO<sub>2</sub>/H<sub>2</sub>O. Contact LGR for pricing.
- 2 Use a different sonic anemometer such as one available from others: Campbell Scientific, Gill, Applied Technologies (ATI), Metek or other manufacturers.
- 3 Use a different weather station available from Climatronics or other manufacturers such as Campbell Scientific.
- 4 Replace the Google Nexus 7 with an Apple iPad

Please contact Chris Mantzios, Director of Sales & Marketing, at [c.mantzios@lgrinc.com](mailto:c.mantzios@lgrinc.com) for more information and to discuss your specific application.

## EXCLUSIVE OFFER SAVE EVEN MORE

Add the LGR Carbon Dioxide Isotope Analyzer, N<sub>2</sub>O isotope Analyzer or CH<sub>4</sub> Isotope Analyzer to the LGR Eddy Covariance Package and **get 5% off** the Isotope Analyzer price.