Highest Precision and Speed.

Now available in portable.

LGR delivers.

Liquid Water Isotope Analyzer (δ^2H, $\delta^{17}O$, $\delta^{18}O$, d-excess, ^{17}O-excess)

Features and Benefits

- >800 injections per day (fastest)
- Enhanced Performance model: highest precision available
- Unsurpassed precision and unmatched accuracy
- Simple to operate - no need for factory return for service
- Easy switch between high throughput and high performance mode – no extra hardware required
- Compatible with "LIMS for Lasers"
- High-resolution absorption spectra are viewable continuously for real-time diagnostics
- Lowest power
- Rugged: Proven in the field and lab
- New Post-Analysis Software simplifies analyses and enables highest performance
- New portable analyzer and compact autoinjector (70W average, 19kg excluding external pump) allow δ^2H, $\delta^{18}O$ measurements anywhere.

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LGR's Liquid Water Isotope Analyzer provides measurements of δ^2H, $\delta^{17}O$ and $\delta^{18}O$ of water in liquid and discrete vapor samples with unsurpassed precision and speed. Now, measurements of δ^2H, $\delta^{17}O$ and $\delta^{18}O$ and are reported at the unmatched speed of 800 injections per day. With the typical operating procedure (6 injections per sample), this measurement rate yields 150 unknowns and 30 reference samples per day. For highest performance, LGR now offers the LWIA in the acclaimed Enhanced Performance package for unparalleled stability and accuracy.

LGR's "Enhanced Performance" series incorporates proprietary thermal control for ultra-stable measurements with unsurpassed precision, accuracy and drift as validated at leading labs throughout the world.

For 'high throughput' measurements of δ^2H and $\delta^{18}O$ virtually anywhere, LGR's ultraportable analyzer and ultracompact autoinjector require less than 70W total power and weigh 19kg.

The LWIA is ideal for a wide variety of hydrological, analytical, and biological applications that involve measurements of fresh water, seawater, and other liquids. The Analyzer's ease-of-use, field durability, and high throughput make it the industry standard. LGR's Liquid Water Isotope Analyzer is used by researchers, scientists, governmental agencies and intergovernmental organizations on all 7 continents.

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.

All LGR analyzers have an internal computer (Linux OS) that can store data practically indefinitely on an internal hard disk drive.

The LWIA includes advanced post-processor software which provides many features designed to increase user productivity, decrease data processing time, and provide data and system diagnostics. Furthermore, LGR's new Post Analysis Software package automatically performs many data analysis procedures that were previously done by researchers after the data was collected. Among the capabilities of the post analysis software package are to automatically apply calibration standard measurements made during the sample run, to graphically display all results, and to diagnose instrument operation. Moreover, the Post Analysis Software includes LGR's proprietary Spectral Contamination Identifier technology, which detects and accurately quantifies the presence of organic contaminants in water samples based on a detailed analysis of the measured high-resolution absorption spectra recorded by the LWIA. Finally, all models (including $\delta^{17}O$) are compatible with "LIMS for Lasers."

All LGR analyzers may be controlled remotely via the Internet. This capability allows the user to operate the Analyzer using a web browser practically anywhere internet access is available. Furthermore, remote access provides the opportunity to obtain and share data and to diagnose the instrument operation without being on site.

Liquid Water Isotope Analyzer

Performance Specifications

Precision (1s):
- High Performance Mode (model 912 series)
  - δ^2H: 0.2‰ (200 per meg)
  - $\delta^{17}O$: 0.03‰ (30 per meg)
  - ^{17}O-excess (20 per meg)
  - $\delta^{18}O$: 0.03‰ (30 per meg)
- Typical: High Performance Mode (model 912 series)
  - δ^2H: 0.15‰ (150 per meg)
  - $\delta^{17}O$: 0.02‰ (20 per meg)
  - ^{17}O-excess (15 per meg)
  - $\delta^{18}O$: 0.02‰ (20 per meg)
- High Throughput Mode (all models)
  - δ^2H: 0.4‰ (400 per meg)
  - $\delta^{17}O$: 0.1‰ (100 per meg)
  - $\delta^{18}O$: 0.1‰ (100 per meg)
- Typical: High Throughput Mode (all models)
  - δ^2H: 0.3‰ (300 per meg)
  - $\delta^{17}O$: 0.08‰ (80 per meg)
  - $\delta^{18}O$: 0.08‰ (80 per meg)

Throughput:
- 800 injections per day

Sample Volume:
- 1 µL per injection

Salinity:
- <4% (TDS < 40 parts per thousand)

Temperatures:
- Sample: 0 – 50 °C
- Operating: 0 – 45 °C

Outputs:
- Digital (RS232), Ethernet, USB

Power Requirements:
- 115/230 VAC, 50/60 Hz
- model 912: 180 watts (total, including pump)
- model 909 (portable): 70 watts (total, including pump)

Dimensions (analyzer):
- model 912: 11" H × 38" W × 22" D
- model 909 (portable): 7" H x 18.5"W x 14"D

Weight (analyzer):
- model 912: 40 kg
- model 909 (portable): 15 kg

Ordering Information

Part Number: LWIA-912 (δ^2H, $\delta^{18}O$)
Part Number: TLWIA-912 (δ^2H, $\delta^{17}O$, $\delta^{18}O$)
Part Number: U-LWIA-915 (δ^2H, $\delta^{18}O$)

Accessories and options

ACC-AUTOINJECT: Autoinjector (CTC Analytics) – Enables automated injection of samples at high speed (holds 216 vials)

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Endnotes