

Liaison™: Universal Interface for Bulk ¹³C Analysis



Couples Picarro's CRDS to various CO₂ generating front-ends

Liaison is Picarro's fully-automated universal interface for isotopic CO₂ applications and is capable of lab use or field deployment. It enables the Picarro isotopic CO₂ analyzer (G1101-*i*) to supplant IRMS and extends the capability of carbon isotope analysis with unprecedented ease-of-use and low cost of ownership to scientists who are currently challenged by the complexity of IRMS and its taxing price tag.

Liaison™ Features

- Attaches to commercially available front-ends
- High-precision δ¹³C
- Fully-automated and high-throughput
- Laboratory & field and deployable

Liaison is uniquely positioned to leverage the high-precision, and low cost of ownership features of Picarro's isotopic CO₂ Cavity Ring-Down Spectroscopy (CRDS) technology into a plethora of applications, that wouldn't otherwise be possible and expand the use of stable isotope techniques into new scientific applications and research initiatives.

The flexibility of the Liaison interface allows it to interface to any third party sample preparation devices. Compatible front-ends certified to date include the Picarro Combustion Module, Costech elemental analyzers and the AutoMate FX® DIC sample preparation system.

Even though isotope ratio measurement with CRDS doesn't require the pulsing of a CO₂ reference gas of known isotope ratio for each sample analysis (unlike IRMS), Liaison allows the admission of a reference gas at the beginning of a sample sequence in order to offer researchers transitioning from IRMS more confidence in their analyses.

Liaison is software-controlled via a stand-alone utility accessible through a desktop icon installed on the G1101-*i* analyzer. Users can connect remotely and control Liaison and the analyzer through a standard Remote Desktop connection or with similar remote login software.

Specified precision is guaranteed by running a series of 10 pulses of CO₂ standard gas at 3000ppm in N₂ and with 6 combusted solid samples of USGS40 (L-glutamic acid).

Targeted Performance (depends on front-end)	
Gas species	Precision)
CO ₂ Concentration (¹² C & ¹³ C)	< 200 ppbv (¹² C), < 10ppbv (¹³ C) (5min average., 1-σ)
δ ¹³ C	< 0.4 ‰ (0.2 - 0.3 ‰ typical)

System Requirements	
Sample Volume	Dependent on front end. Precision guaranteed for CO ₂ liberated @ ca. 3000ppm)
Sample Throughput	10 min sample-to-sample, unless rate-limited by front-end
Sample Flow Rate	< 100ml/min at 760 Torr
Fittings	1/8" Swagelok®
Installation	Benchtop
Weight/ Dimensions	40lbs, 17 in x 17 in x 5.75 in
Power Requirements	90-120VAC, 50/60 Hz, 220 VAC, 50Hz, 40 Watts
Communication with Front-End	Contact closure or TTL
Gas Requirement	N ₂ as carrier gas / CO ₂ Standard @ 3000ppmv in N ₂