

Picarro L1115-*i*

World's Highest Performance Water Isotope Analyzer



The Picarro L1115-*i* is the Water Isotope Analyzer of choice for measuring $\delta^{18}\text{O}$ and δD and total H_2O concentration from water samples in the vapor phase. Capable of field station or lab use, the L1115-*i* measures δD , $\delta^{18}\text{O}$ and H_2O concentration, with unprecedented performance and incredible ease-of-use. And, if you want to measure water sample in the liquid phase on same instrument, either manually or with an autosampler, the L1115-*i* can do that too.

The L1115-*i* is configured with Picarro's unique Standards Delivery Module, a robust and reliable device that injects liquid standards directly into the vaporizer. This approach avoids isotopic fractionation processes that can plague other techniques for providing standards to a system measuring vapor phase samples. This module supports the delivery of 2 standards each at 2 concentrations.

Picarro L1115-*i* Features

- Highest precision & accuracy
- Field and laboratory deployable
- Largest dynamic range with high linearity
- Installed and operational in minutes

Using Picarro's unique time-based Cavity Ring-Down Spectroscopy (CRDS) and with an effective pathlength of up to 20 km, the sensitivity and precision of this instrument is unmatched by traditional absorption and ICOS based systems. Further, our patented wavelength monitor makes certain that only Picarro can operate unimpeded by interfering species.

In addition, Picarro analyzers use a small 35 cc volume cavity, ensuring better temperature stability, faster gas exchange, lower noise and higher sensitivity.

And, precise cavity temperature (better than 0.002 °C) and pressure control (better than 0.003% of an atmosphere) designed into the system ensure accurate measurements over very long periods of time. As a result, Picarro systems maintain high linearity, precision, and accuracy with minimal calibration, which means significant ease-of-use and cost of ownership benefits.

Further, Picarro's diagnostic software suite continuously measures and records 38 parameters and, if you are on the internet, our service organization can access all of them remotely, practically anytime. If you have a problem we'll get you up and running, fast.

The analyzer can be configured to automatically send out measurement data at regular intervals via the Ethernet or optional modem and can output real-time data in digital format and via optional analog outputs. Users can connect remotely and control the analyzer through a standard Remote Desktop connection or with similar remote login software.

L1115- <i>i</i> Performance Specifications		Precision, Guaranteed*	Precision, Typical†	High Throughput Typical††	Memory, Typical – 1 st Injection	Drift, Guaranteed (peak to peak, 24 hrs)
Water (Vapor and Standard) Performance	($\delta^{18}\text{O}$)	< 0.2 ‰	< 0.1 ‰			< \pm 0.3 ‰
	(δD)	< 1.0 ‰	< 0.5 ‰			< \pm 0.9 ‰
Water (Liquid) Performance, Autosampler Inject	($\delta^{18}\text{O}$)		< 0.07 ‰	< 0.15 ‰	98%	< \pm 0.3 ‰
	(δD)		< 0.2 ‰	< 0.6 ‰	93.5%	< \pm 0.9 ‰
Water (Liquid) Performance Manual Inject	($\delta^{18}\text{O}$)		< 0.1 ‰		98%	< \pm 0.3 ‰
	(δD)		< 0.5 ‰		93.5%	< \pm 0.9 ‰

*Guaranteed – specifications are tested and documented in the factory against a specific test criterion. Results are provided as a Certificate of Compliance to the customer with the instrument

†Typical results represent data gathered from various applications and is dependent on method.

††Using High Throughput mode for liquid water samples

System Specifications, L1115-i	
Measurement Technique	CRDS
Vapor and Standard Measurement Range	6000 – 26000 ppmv H ₂ O concentration, non-condensing
Vapor Measurement Interval	< 6 seconds
Vapor Measurement Sample Temp.	5 to 45 °C. (0 to 50 °C on request)
Vapor Measurement Sample Flow Rate	~30 sccm at 760 Torr, no filtration required
Vapor Measurement Sample Press.	400 to 1000 Torr (53 to 133 kPa)
Vapor Measurement Sample Humidity	< 99% R.H. non-condensing @40°C, no drying required
Operating Temperature (vapor and standard)	10 to 35 °C (-10 to 50 °C storage)
Gas Requirement Liquid Measurements	Guaranteed specifications performed using dry nitrogen, better than 100 ppmv H ₂ O. Zero air and Drierite® compatible
Outputs	RS-232, Ethernet, USB, optional analog, 4-20mA/-10 – 10V
Fittings	¼" Swagelok ®
Dimensions	17 x 9.75 x 23 in (43 x 25 x 59 cm), not inc autosampler 32 x 26 x 28 in (81.3 x 66 x 71.1 cm) inc. autosampler
Weight	58lbs (26.3kg), not inc autosampler < 80 lbs (36.3 kgs) inc. autosampler
Power Requirements	90-120VAC, 50/60 Hz, 220 VAC, 50Hz, < 500W