



Capabilities of Picarro WS-CRDS Trace Gas Analyzers

Picarro Gas Analyzers are real time, trace gas monitors capable of measuring gas concentrations and isotopic ratios in gases extremely high sensitivity. The analyzers are based on Picarro's unique Wavelength-Scanned Cavity Ring Down Spectroscopy (WS-CRDS), a time-based measurement utilizing a near-infrared laser to measure a spectral signature of the molecule. Gas is circulated in an optical measurement cavity with an effective path length of up to 20 kilometers. A patented, high-precision wavelength monitor makes certain that only the spectral features of interest are being monitored, greatly reducing the analyzer's sensitivity to interfering gas species, and enabling ultra-trace gas concentration measurements even if there are other gases present. As a result, the analyzers maintain high linearity, precision, and accuracy over changing temperature with minimal calibration required. Their precise temperature and pressure control systems ensure accurate measurements over long periods of time with minimal use of calibration gases. The analyzers are exceptionally rugged, essentially drift and maintenance free, and require no consumables, thereby offering significant ease of use and cost of ownership benefits.

Features Common to all Picarro Analyzers

- Superb sensitivity, precision & accuracy with virtually no drift
- Fast, continuous, real time measurements without interference
- Large dynamic range with high linearity
- Field and laboratory deployable with no consumables
- Installed and operational in minutes
- Rugged and insensitive to changes in ambient temperature

Easily transportable from site to site, the analyzers can be set up and running within minutes, and require absolutely no sample preparation or drying. The gas concentration is displayed in real-time with no post-processing required, and is continuously archived to an internal hard drive. Designed to operate both in laboratories and in harsh environments, they can operate for many months without user interaction. They 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 (via RS-232 interface) and via optional analog outputs. Users can connect remotely with an analyzer's internal Windows-based PC and control it through a standard Remote Desktop connection or with similar remote login software. The analyzers can also use a modem or Ethernet connection to automatically synchronize with an atomic clock time service. The analyzer software includes a valve sequencer which can manually or automatically control up to six external solenoid valves.

Analyzers can be configured to detect a variety of single or multiple gas species, including various combinations from the list below. Contact us for more information on standard or specialized analyzers.

Partial List of Gas Species Measurable by Picarro WS-CRDS Analyzers		
Target Gas	Precision at Zero (1- σ) (ppbv) (~1 sec sample time)	Precision at Zero (1- σ) (ppbv) (~5 min sample time)
Ammonia (NH ₃)	0.75	0.09
Carbon Dioxide (CO ₂)	65	7
Ethylene (C ₂ H ₄)	2	0.2
Formaldehyde (H ₂ CO)	100	10
Hydrogen Fluoride (HF)	0.3	0.05
Hydrogen Sulfide (H ₂ S)	10	1
Methane (CH ₄)	1	0.1