

PICARRO G2106 Ethylene (C₂H₄) Analyzer

- Superb sensitivity, precision & accuracy with virtually no drift
- Fast, continuous, real time measurements
- 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



Advantage Note: The Picarro G2106 Ethylene (C₂H₄) Analyzer is a real time, trace gas monitor capable of measuring C₂H₄ with parts-per-billion (ppb) sensitivity. Our unique CRDS analyzer is a time-based measurement system that uses a near-infrared laser to quantify spectral features of molecules in a sample gas passed through an optical measurement cavity. An effective path length of up to 20 kilometers inside the cavity results in exceptional instrument precision and sensitivity. Picarro analyzers use a small 35 cc volume cavity, ensuring better temperature stability, faster gas exchange, lower noise and higher sensitivity. Precise cavity temperature and pressure control is designed into the system to ensure accurate measurements over very long periods of time. Picarro CRDS systems also include a patented, high-precision wavelength monitor that makes certain the analyzer only monitors spectral features of interest. This virtually eliminates spectral “noise” from interfering species.

The analyzer is exceptionally rugged, with minimal drift and essentially maintenance free. It requires virtually no consumables, thereby offering significant ease-of-use and cost of ownership benefits. Easily transportable from site to site, the analyzer can be set up and running within minutes, and typically requires no sample preparation or drying. The gas concentration is displayed in real-time with no post-processing required, and is continuously archived to the analyzer’s internal hard drive. Designed to operate both in laboratories and in harsh environments, it can operate for many months without user interaction. The software includes a valve sequencer, capable of automatically controlling up to six external solenoid valves and a rotary valve.

Performance Specifications		
Target Gas (Requires an air-like matrix)	Lower Detectable Limit* (5 sec / 5 min., 1σ) <i>*Guaranteed over operating conditions below</i>	Max Drift* (over 24 hrs / 1 month) (peak-to-peak, 50-minute average) <i>*Guaranteed over operating conditions below</i>
C₂H₄	2 ppb / 0.2 ppb	< ± 4 / ± 10 ppb

Picarro’s diagnostic software suite continuously measures and records over 30 parameters for rigorous quality control and assurance of data integrity. If an analyzer is connected to the Internet, Picarro’s service organization can access it remotely to provide rapid support and problem resolution. Users can connect remotely and control the analyzer through a standard Remote Desktop connection or with similar remote login software. 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.

System Specifications	
Measurement Technique	Cavity Ring-Down Spectroscopy (CRDS)
Measurement Cell Temperature Control	± 0.005 °C
Measurement Cell Pressure Control	± 0.0002 atm
Range	0-300 ppm
Measurement Interval	~5 seconds
Sample Temperature	-10 to 45 °C
Sample Flow Rate	< 0.4 slm at 760 Torr, no filtration required
Sample Pressure	300 to 1000 Torr (40 to 133 kPa)
Sample Humidity	< 99% R.H. non-condensing @ 40 °C, no drying required
Temperature	10 to 35 °C (operating) -10 to 50 °C (storage)
Humidity (ambient)	< 99% R.H. non-condensing
Other Gases Measured	H ₂ O
Accessories	Pump (external, included), keyboard (included), mouse (included), LCD monitor (optional)
Outputs	RS-232, Ethernet, USB, analog (optional) 0 – 10 V
Fittings	¼" Swagelok® PFA fittings
Dimensions	Dimensions 17" w x 7" h x 17.5" d (43.2 x 17.9 x 44.5 cm) including feet, not incl. small external pump module, 5.6" w x 6.4" h x 11.9" d (14.3 x 16.3 x 30.3 cm)
Installation	Benchtop or 19" rack mount chassis
Weight	Analyzer 46 lbs (20.9 kg), Pump 14.4 lbs (6.5 kg) not inc. fittings
Power Requirements	100 - 240 VAC, 47 - 63 Hz (auto-sensing), < 260 W start-up (total); 110 W (analyzer), 80 W (pump) at steady state
Applications Considerations	Requires an air-like matrix. Interference can occur for concentrations of H ₂ O, CO ₂ , and CH ₄ well above normal ambient levels, as well as for organics, including, but not limited to ethane, acetylene and also ammonia, other nitrogen and sulfur containing compounds. Users should verify with prepared lab samples. Please contact us to discuss the experimental conditions. Pressure drops in the instrument's gas path can draw external air when this system is used in recirculating applications.