

Hydrogen Peroxide (H₂O₂) Gas Concentration Analyzer

PICARRO



- Parts-per-billion (ppb) sensitivity and precision
- Infrequent maintenance
- Patented cavity ring-down spectroscopy (CRDS) technology
- Ease of installation and operation without consumables or carrier gases

Hydrogen peroxide (H₂O₂) has been widely used as a medical antiseptic, cleanser, and environmental decontaminant in the pharmaceutical industry and hospitals. Reducing environmental contamination in an ongoing effort to mitigate infection transmission has long been a top priority for healthcare facilities. With growing concern over airborne respiratory pathogens including SARS-COV-2 (the virus causing COVID-19), many other public spaces including retail, government, schools, and theaters are seeking vaporized hydrogen peroxide as a solution to reducing viral load in the air.

The **Picarro G2114 hydrogen peroxide analyzer** is the ideal solution for ensuring the safety and efficiency of whole-room decontamination technologies based

on hydrogen peroxide. Built upon our revolutionary Cavity Ring-Down Spectroscopy (CRDS) technology, the G2114 offers incredibly stable and precise sensitivity in the parts-per-billion range, on more than four orders of linear dynamic range, and long-term calibration-free operation.

The G2114 is exceptionally easy to install and operate. The system can be installed and run in minutes, requires no consumables while in use, and is essentially maintenance free. The gas concentration is displayed in real-time with no post-processing required and is continuously archived to the analyzer's internal hard drive. The analyzer can also be configured to automatically output measurement data in a digital format or via the optional analog outputs.

G2114 Performance Specifications	Typical Performance**	Specifications***
Precision (1 σ , 10 sec) Precision (1 σ , 300 sec)	0.62 ppb 0.14 ppb	<3 ppb + 0.1% of reading <1.0 ppb + 0.1% of reading
Lower Detection Limit (3 σ , 300 sec)	2.4 ppb	<3.0 ppb
Zero Drift*	\pm 0.28 ppb (24 hrs)	\pm 1.5/ \pm 7.5 ppb (24 hrs/1 month)
Accuracy	N/A	\pm 5% of reading
Measurement Range	N/A	0–100 ppm
Measurement Interval	~6.2 seconds	~10 seconds
Response Time (Rise/Fall Time 10–90% / 90–10%)	N/A	<2 min

* Picarro analyzers do not require a zero reference gas or zero cartridge to operate or meet specifications.

** Typical performance is defined as the median of testing results from 37 sequentially built G2114 analyzers. Results available upon request.

*** Specifications and an instrument-specific testing report (Certificate of Compliance) provided with every analyzer purchase.

G2114 System Specifications

Measurement Technique	Cavity Ring-Down Spectroscopy
Sample Temperature	-10 to 45°C
Sample Flow Rate	<1 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
Operating Temperature	15 to 35°C (operating); -10 to 50°C (storage)
Ambient Humidity	<99% R.H. non-condensing
Other Gases Measured	H ₂ O, CH ₄
Accessories	Pump (external, included), keyboard (included), mouse (included), LCD monitor (optional)
Data Outputs	RS-232, Ethernet, USB, analog (optional) 0–10 V
Fittings	1/4" Swagelok® PFA Fittings
Dimensions	17" w x 7" h x 17.5" d (43.2 x 17.9 x 44.5 cm) including feet, not including small external pump module, 7.5" w x 4" h x 11" d (19 x 10.2 x 28 cm)
Weight	Analyzer 46 lbs (20.9 kg); Pump 10 lbs (4.5 kg) not including fittings
Power Requirements	100–240 VAC, 47–63 Hz (auto-sensing), <260 W start up (total): 110 W (analyzer), 120 W (pump) at steady state
System Validation	Picarro has developed a validation procedure using commercially available, stabilized, certified hydrogen peroxide with 30% concentration (for example Fisher Scientific H323-500). If you have questions about this procedure please contact Picarro.
Application Considerations	Requires an air-like matrix. Interference can occur for high concentrations of organics. Please contact us to discuss the experimental conditions.