# PRODUCT CATALOG




PICARRO

Environmental Science
Instruments and Solutions

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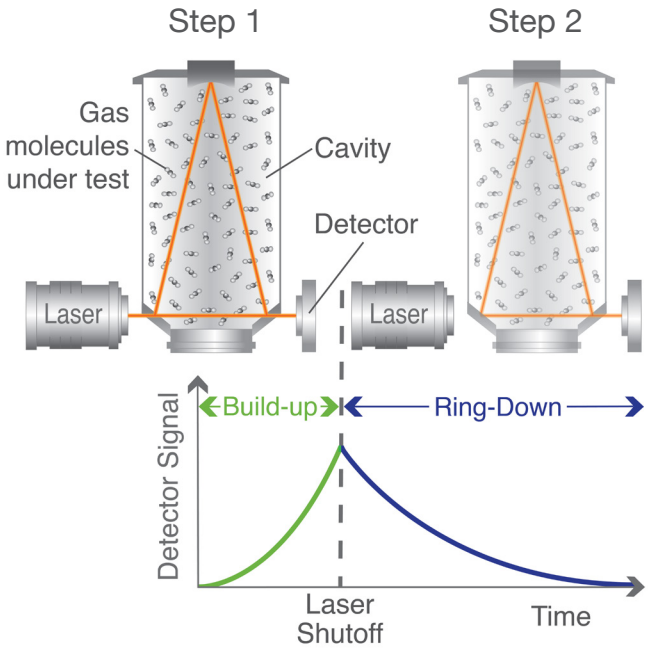
## Cavity Ring-Down Spectroscopy (CRDS)

Applications requiring trace gas analysis include environmental monitoring, emissions monitoring, greener automotive engine development, semiconductor fabs, cleanroom technology and bio-pharmaceutical process monitoring. All these applications can benefit from a turnkey analyzer that provides real-time speed, high precision and sensitivity to parts per billion and beyond. And, from a practical standpoint, the ideal trace gas analyzer requires minimal or no sample preparation or dilution, and is contained in a rugged, compact platform with low operating costs. Specifically, the latter means no need for a trained technician and, optimally, the capability for remote, unmanned operation.

CRDS is the first trace-gas analysis instrumentation to meet all these needs, and it can even provide isotope ratios for environmental and biomedical applications. Just as important, the same Picarro CRDS analyzers can be used as unmanned remote monitors, industrial process sensors, and reference laboratory instruments, greatly simplifying transfer of standards and protocols. And the extraordinary low drift of these instruments means they can operate for months without recalibration in most applications.

## CRDS Advantages

- Superb sensitivity, precision & accuracy with negligible drift
- Fast, continuous, real-time measurements with no interferences
- 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, pressure or vibration



# Molecules Measured by Model

## Greenhouse Gas Analyzers

| MODEL | $CO_2$ | $CH_4$ | $N_2O$ | $H_2O$ | $NH_3$ | CO |
|---|---|---|---|---|---|---|
| G2301 | X | X | | X | | |
| G2311-*f* | X | X | | X | | |
| G2401 | X | X | | X | | X |
| G2401-*m* | X | X | | X | | X |
| G2508 | X | X | X | X | s | |
| G2509 | X | X | X | X | X | |
| PI5310 | | | X | X | | X |

## Trace Gas Analyzers

| MODEL | $CO_2$ | $CH_4$ | $H_2O$ | $NH_3$ | $H_2CO$ | $H_2O_2$ | $H_2S$ | HCl | HF | $O_2$ |
|---|---|---|---|---|---|---|---|---|---|---|
| G2204 | | X | X | | | | X | | | |
| G2307 | | s,sur | X | | X | | | | | |
| PI2103 | s,sur | | X | X | | | | | | |
| PI2114 | | s,sur | X | | | X | | | | |
| SI2104 | | | X | | | | X | | | |
| SI2108 | | s,sur | X | | | | | X | | |
| SI2205 | | | X | | | | | | X | s,sur |

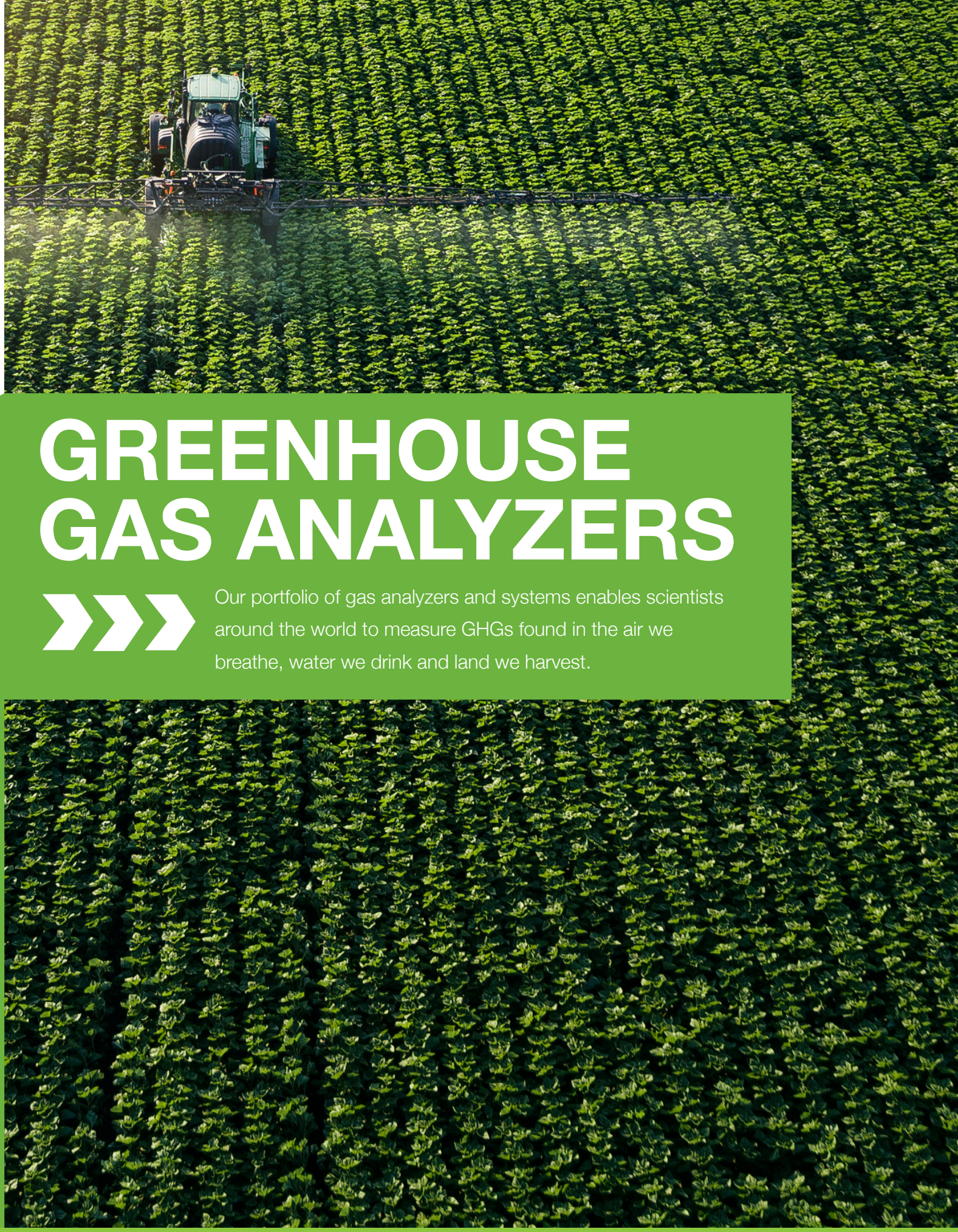
## Gas Isotope Analyzers

| | $CO_2$ | | $CH_4$ | | $C_2H_6$ | $H_2O$ | | | | $N_2O$ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODEL | $[CO_2]$ | $\delta^{13}C$ | $[CH_4]$ | $\delta^{13}C$ | $[C_2H_6]$ | $[H_2O]$ | $\delta^{2}H$ | $\delta^{18}O$ | $\delta^{17}O$ | $\delta^{15}N$ | $\delta^{15}N^{\alpha}$ | $\delta^{15}N^{\beta}$ | $\delta^{18}O$ |
| G2131-*i* | X | X | X | | | X | | | | | | | |
| G2201-*i* | X | X | X | X | | X | | | | | | | |
| G2210-*i* | X | | X | X | X | X | | | | | | | |
| PI5131-*i* | | | | | | | | | | X | X | X | X |
| L2130-*i* | | | s | | | X | X | X | | | | | |
| L2140-*i* | | | s | | | X | X | X | X | | | | |

**X** *denotes a primary measurement,* **s** *denotes a supporting measurement.*

**sur** *denotes a surrogate gas used for validation of instrument performance, which may or may not be useful for a customer's measurement purposes, depending on precision requirements.*

*All instruments measure water for correction purposes.*



# GREENHOUSE GAS ANALYZERS

Our portfolio of gas analyzers and systems enables scientists around the world to measure GHGs found in the air we breathe, water we drink and land we harvest.


## G2301 Gas Concentration Analyzer

The Picarro G2301 gas concentration analyzer provides simultaneous, precise measurement of carbon dioxide ($CO_2$), methane ($CH_4$), and water ($H_2O$) vapor at parts-per-billion (ppb) sensitivity with negligible drift.

- Long-term stability for infrequent calibration
- Continuous measurement of three atmospheric trace gases
- Compliant with WMO and ICOS international ambient atmospheric monitoring requirements
- Water correction automatically reports dry gas mole fractions

**Molecules Measured:**

$CO_2$ $CH_4$ $H_2O$

**Related Applications:**

- Air Quality
- Atmospheric Science
- Emissions Quantification
- Agriculture & Soil Science


## G2311-*f* EC Flux Gas Concentration Analyzer

The Picarro G2311-*f* flux gas concentration analyzer provides simultaneous, precise measurement of carbon dioxide ($CO_2$), methane ($CH_4$), and water ($H_2O$) vapor at 10 Hz for eddy covariance, gradient, and eddy accumulation methodologies.

- Continuous measurement of two or three (dual mode) atmospheric trace gases
- Automatic synchronization with 10 Hz anemometer data in real-time
- Parts-per-billion (ppb) sensitivity, precision, and accuracy with exceptionally low drift
- Water correction automatically reports dry gas mole fractions

**Molecules Measured:**

$CO_2$ $CH_4$ $H_2O$

**Related Applications:**

- Emissions Quantification
- Ecology
- Agriculture & Soil Science


## G2401 Gas Concentration Analyzer

The Picarro G2401 gas concentration analyzer provides simultaneous, precise measurement of carbon monoxide (CO), carbon dioxide ($CO_2$), methane ($CH_4$), and water ($H_2O$) vapor at parts-per-billion (ppb) sensitivity with negligible drift.

- Continuous measurement of four atmospheric trace gases
- Compliant with WMO and ICOS international ambient atmospheric monitoring requirements
- Water correction automatically reports dry gas mole fractions

**Molecules Measured:**

$CO_2$ $CH_4$ CO $H_2O$

**Related Applications:**

- Air Quality
- Atmospheric Science
- Emissions Quantification


## G2401-*m* In-flight Gas Concentration Analyzer

The Picarro G2401-*m* gas concentration analyzer provides simultaneous, precise measurement of carbon monoxide (CO), carbon dioxide ($CO_2$), methane ($CH_4$), and water ($H_2O$) vapor at parts-per-billion (ppb) sensitivity with negligible drift.

- Continuous measurement of four atmospheric trace gases
- Allowing airborne measurements
- Rugged design for guaranteed performance during flight
- Water correction automatically reports dry gas mole fractions

**Molecules Measured:**

$CO_2$ $CH_4$ CO $H_2O$

**Related Applications:**

- Air Quality
- Atmospheric Science
- Emissions Quantification


## G2508 Gas Concentration Analyzer

The Picarro G2508 gas concentration analyzer provides simultaneous, precise measurement of nitrous oxide ($N_2O$), methane ($CH_4$), carbon dioxide ($CO_2$), ammonia ($NH_3$), and water ($H_2O$) vapor.

- Parts-per-billion sensitivity for excellent rate-of-rise quantification
- Rapid response time and continuous measurements provide data at high temporal resolution
- Operates in open or closed systems and integrates easily with chamber systems
- Water correction automatically reports dry gas mole fractions

**Molecules Measured:**

$CO_2$ $CH_4$ $N_2O$ $H_2O$ $NH_3$

**Related Applications:**

- Agriculture & Soil Science
- Ecology
- Emissions Quantification


## G2509 Gas Concentration Analyzer

The Picarro G2509 gas concentration analyzer provides simultaneous, precise measurement of nitrous oxide ($N_2O$), methane ($CH_4$), carbon dioxide ($CO_2$), ammonia ($NH_3$), and water ($H_2O$) vapor.

- Optimized flow path for fast ammonia response
- Wide $CH_4$ dynamic range up to 800 ppm
- Parts-per-billion sensitivity for excellent rate-of-rise quantification
- Rapid response time and continuous measurements provide data at high temporal resolution

**Molecules Measured:**

$CO_2$ $CH_4$ $N_2O$ $H_2O$ $NH_3$

**Related Applications:**

- Agriculture & Soil Science
- Ecology
- Emissions Quantification


## PI5310 Gas Concentration Analyzer

The Picarro PI5310 gas concentration analyzer provides simultaneous, precise measurements of nitrous oxide ($N_2O$), carbon monoxide (CO), and water ($H_2O$) vapor at parts-per-trillion (ppt) sensitivity with negligible drift.

- Continuous measurement of $N_2O$ and CO
- Mid-IR CRDS for high precision and low drift analysis
- Compliant with WMO and ICOS international ambient atmospheric monitoring requirements
- Water correction automatically reports dry gas mole fractions

**Molecules Measured:**

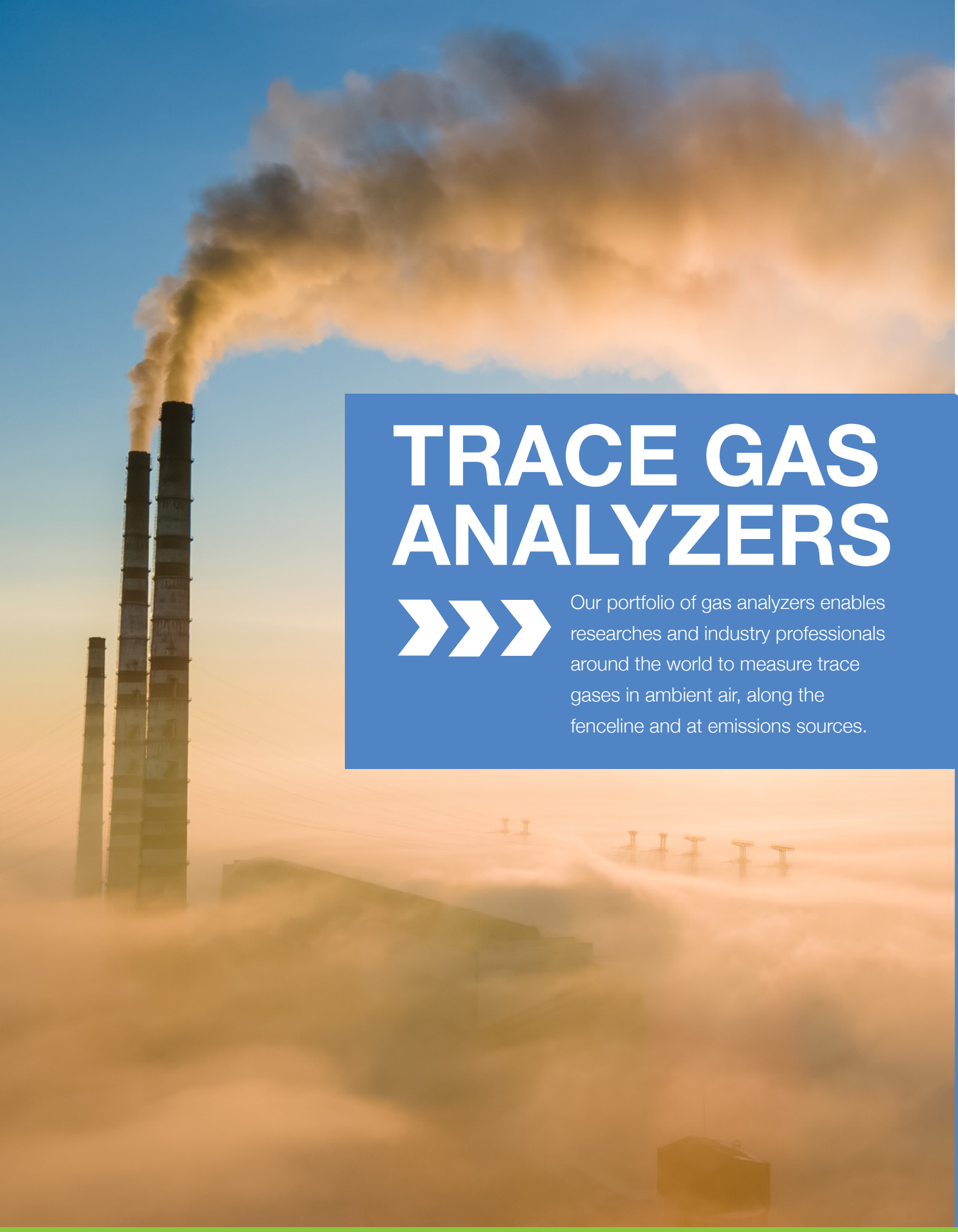
$N_2O$ CO $H_2O$

**Related Applications:**

- Air Quality
- Atmospheric Science
- Emissions Quantification



*denotes a primary measurement* *denotes a supporting measurement*



# TRACE GAS ANALYZERS

Our portfolio of gas analyzers enables researches and industry professionals around the world to measure trace gases in ambient air, along the fenceline and at emissions sources.


## G2204 Gas Concentration Analyzer

The Picarro G2204 gas concentration analyzer provides simultaneous, precise measurement of hydrogen sulfide ($H_2S$) and methane ($CH_4$) at parts-per-billion (ppb) sensitivity with negligible drift for emissions measurements from landfills, refineries, paper mills, or industrial plants.

- Continuous measurment of $CH_4$ and $H_2S$ concentrations
- Use for stationary monitoring or beyond the fence line remote emissions quantification
- Rugged and insensitive to changes in ambient temperature

**Molecules Measured:**

$H_2S$ $CH_4$ $H_2O$

**Related Applications:**

- Air Quality
- Emissions Quantification
- Health & Safety
- Petrochemical


## G2307 Gas Concentration Analyzer

The Picarro G2307 gas concentration analyzer provides precise, real-time measurement of formaldehyde ($H_2CO$), methane ($CH_4$), and water ($H_2O$) vapor.

- Fast, continuous, real-time measurement of $H_2CO$
- Long-term stability for infrequent calibration
- Small footprint, field or lab deployable with no consumables required
- Water correction automatically reports dry gas mole fractions

**Molecules Measured:**

$H_2CO$ $H_2O$ $CH_4$

**Related Applications:**

- Air Quality
- Atmospheric Science
- Emissions Quantification
- Health & Safety


## PI2103 Gas Concentration Analyzer

The Picarro PI2103 gas concentration analyzer provides precise, real-time measurement of ammonia ($NH_3$) and water ($H_2O$) vapor. It incorporates coated components in the critical gas pathway.

- Fast, continuous, real-time measurement of $NH_3$
- Long-term stability for infrequent calibration
- Small footprint, field or lab deployable with no consumables required
- Water correction automatically reports dry gas mole fractions
- Unprecedented response time

**Molecules Measured:**

$NH_3$ $H_2O$ $CO_2$

**Related Applications:**

- Air Quality
- Atmospheric Science
- Emmissions Qualification
- Agriculture & Soil Science
- Petrochemical


## PI2114 Gas Concentration Analyzer

The Picarro PI2114 gas concentration analyzer measures hydrogen peroxide ($H_2O_2$) levels as low as 3 parts-per-billion (ppb) to help avoid oxidation and safeguard drug stability.

- Continuous, real-time $H_2O_2$ monitoring
- Lower Detection Limit: <3 ppb (5 minutes averaging)
- Precision: <0.5 ppb (1σ, 5 minutes averaging)
- Rise time (10–90%) and fall time (90–10%) is <2 minutes
- Software designed to assist with 21 CFR part 11 compliance

**Molecules Measured:**

$H_2O_2$ $H_2O$ $CH_4$

**Related Applications:**

- Petrochemical
- Pharmaceutical


## SI2104 Gas Concentration Analyzer

The Picarro SI2104 gas concentration analyzer provides simultaneous, precise measurement of hydrogen sulfide ($H_2S$) at parts-per-billion (ppb) sensitivity with negligible drift for emissions measurements from landfills, refineries, paper mills, or industrial plants.

- Continuous measurement of $H_2S$ concentrations
- Use for stationary monitoring or beyond the fence line remote emissions quantification
- Rugged and insensitive to changes in ambient temperature

**Molecules Measured:**

$H_2S$ $H_2O$

**Related Applications:**

- Air Quality
- Emissions Quantification
- Health & Safety
- Petrochemical


## SI2108 Gas Concentration Analyzer

The Picarro SI2108 gas concentration analyzer provides precise, real-time measurement of hydrogen chloride (HCl) and water ($H_2O$) vapor at parts-per-trillion (ppt) sensitivity with negligible drift for atmospheric science and air quality applications.

- Fast, continuous, real-time measurement of HCl
- Long-term stability for infrequent calibration
- Small footprint, field or lab deployable with no consumables required
- Water correction automatically reports dry gas mole fractions

**Molecules Measured:**

HCl $H_2O$ $CH_4$

**Related Applications:**

- Air Quality
- Atmospheric Science
- Health & Saftety
- Petrochemical


## SI2205 Gas Concentration Analyzer

The Picarro SI2205 gas concentration analyzer provides precise, real-time measurement of hydrogen fluoride (HF) and water ($H_2O$) vapor at parts-per-trillion (ppt) sensitivity with negligible drift for atmospheric science and air quality applications.

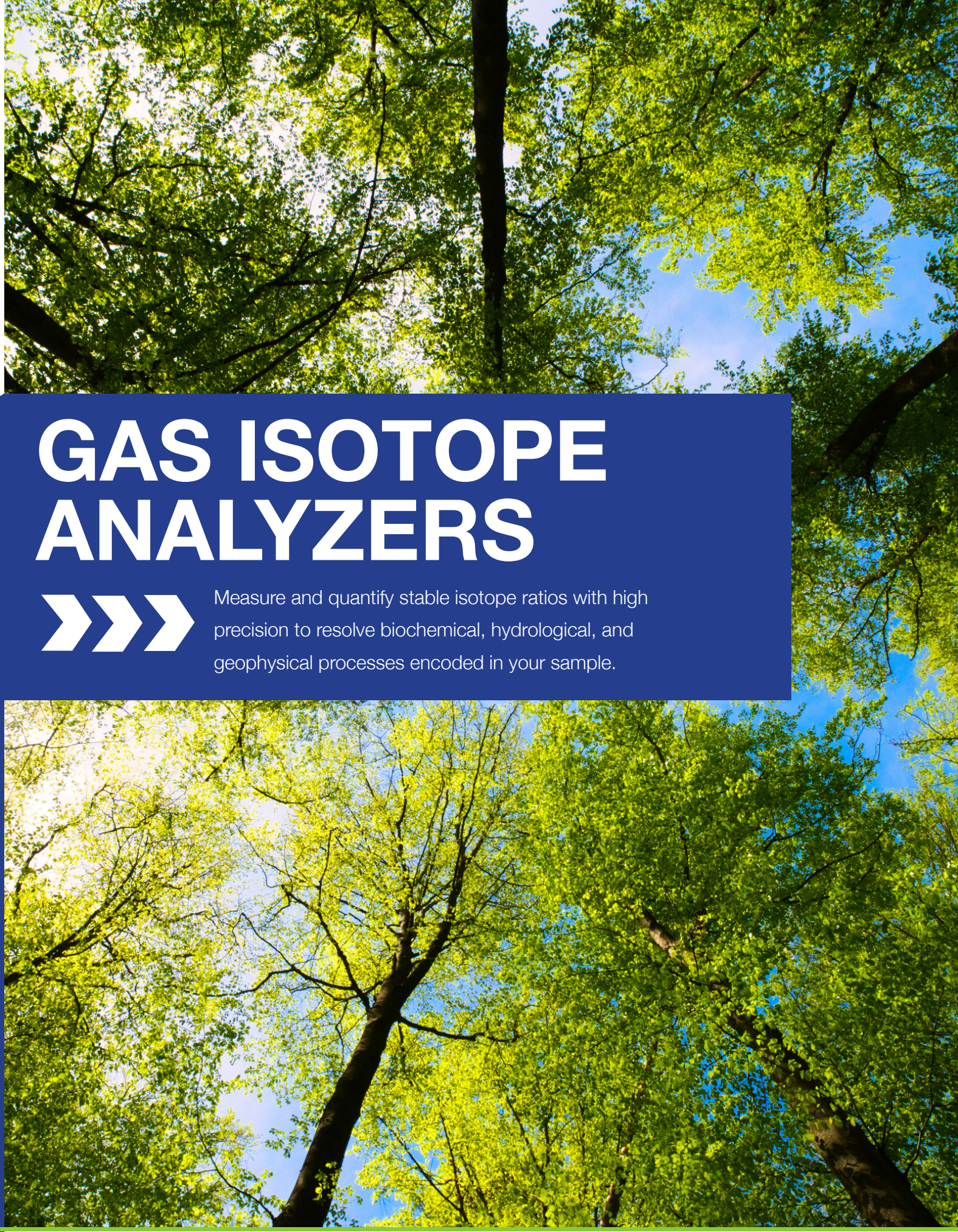
- Continuous measurement of HF and $H_2O$ concentrations
- Use for stationary monitoring or beyond the fence line remote emissions quantification
- Rugged and insensitive to changes in ambient temperature

**Molecules Measured:**

HF $H_2O$ $O_2$

**Related Applications:**

- Air Quality
- Atmospheric Science
- Health & Safety
- Petrochemical



# GAS ISOTOPE ANALYZERS

Measure and quantify stable isotope ratios with high precision to resolve biochemical, hydrological, and geophysical processes encoded in your sample.


## G2131-*i* Isotope and Gas Concentration Analyzer

The Picarro G2131-*i* isotope and gas concentration analyer precisely and continuously measures $\delta^{13}C$ in carbon dioxide ($CO_2$) and $CO_2$ and $CH_4$ gas concentration for a range of applications from atmospheric and ocean science research to food and beverage origin and authenticity.

- Measure $\delta^{13}C$ in $CO_2$ at >0.1‰ precision
- Pair with peripherals to measure $\delta^{13}C$ from many sample types
- Simultaneously measure $CO_2$ and $CH_4$ gas concentrations
- Measure $H_2O$ vapor and report dry mole fractions

**Molecules Measured:**

$\delta^{13}C$ in $CO_2$ | $CO_2$ | $CH_4$ | $H_2O$

**Related Applications:**

- Agricultural & Soil Science
- Ecology
- Ocean Science
- Paleoclimatology
- Food & Beverage
- Petrochemical


## G2201-*i* Isotope Analyzer

The Picarro G2201-*i* isotope analyzer precisely and continuously measures $\delta^{13}C$ in carbon dioxide ($CO_2$) and in methane ($CH_4$) to help understand the biological and geological mechanisms that produce and consume $CO_2$.

- Only field-deployable analyzer for simultaneous high-precision $\delta^{13}C$ measurements in $CO_2$ and $CH_4$
- Three measurement modes: $CO_2$ only, $CH_4$ only, and $CO_2$ and $CH_4$ combined
- Excellent precision at a fraction of IRMS operating cost—less calibration, less maintenance, no consumables

**Molecules Measured:**

$\delta^{13}C$ in $CO_2$ | $\delta^{13}C$ in $CH_4$ | $CO_2$ | $CH_4$ | $H_2O$

**Related Applications:**

- Atmospheric Science
- Emissions Quantification
- Agricultural & Soil Science
- Ecology
- Food & Beverage
- Petrochemical


## G2210-*i* Isotope Analyzer

The Picarro G2210-*i* isotope analyzer precisely, simultaneously, and continuously measures $\delta^{13}C$ in methane ($CH_4$) and the ethane ($C_2H_6$) to methane ($CH_4$) ratio for real-time source attribution and quantification of methane emissions.

- Simultaneously measures $\delta^{13}CH_4$ and $C_2H_6$-to-$CH_4$ ratio
- Measure $CO_2$ and $H_2O$ vapor, and reports dry mole fractions
- Field-deployable for real-time $CH_4$ emissions source attribution
- Small cavity (35 mL) for fast sample turnover time

**Molecules Measured:**

$\delta^{13}C$ in $CH_4$ | $CH_4$ | $CO_2$ | $C_2H_6$ | $H_2O$

**Related Applications:**

- Atmospheric Science
- Emissions Quantification
- Petrochemical


## PI5131-*i* Isotope and Gas Concentration Analyzer

Picarro PI5131-*i* isotope and gas concentration analyzer precisely measures site-specific and bulk $\delta^{15}N$ and $\delta^{18}O$ in nitrous oxide ($N_2O$) for applications ranging from field studies of greenhouse gas emissions to laboratory investigations of the global nitrogen cycle.

- Measure $\delta^{15}N$, $\delta^{15}N^{\alpha}$, $\delta^{15}N^{\beta}$ with <0.7‰ precision
- Measure $\delta^{18}O$ in $N_2O$ with <0.7‰ precision
- Cryogen-free, continuous operation
- Field-station and laboratory deployable for real-time or grab-sample measurements

**Molecules Measured:**

$\delta^{15}N$ in $N_2O$ | $\delta^{15}N^{\alpha}$ in $N_2O$ | $\delta^{15}N^{\beta}$ in $N_2O$ | $\delta^{18}O$ in $N_2O$

**Related Applications:**

- Agricultural & Soil Science
- Atmospheric Science
- Ecology

*denotes a primary measurement* *denotes a supporting measurement*


## L2130-*i* Isotope and Gas Concentration Analyzer

The L2130-*i* isotopic water analyzer enables high-precision measurements of $\delta^{18}O$ and $\delta^{2}H$ from liquids, vapor, and solids, using a variety of Picarro peripherals.

- Minimal drift: calibrate once per day while measuring with sub per mil certainty
- Flexibility to measure water samples from liquids, vapor, and solids
- Small footprint, robust design, and intuitive user-interface
- Unparalleled speed allows processing of up to 900 injections per day

**Molecules Measured:**

$\delta^{18}O$ in $H_2O$ | $\delta^{2}H$ in $H_2O$ | $CH_4$

**Related Applications:**

- Atmospheric Science
- Ecology
- Hydrology
- Ocean Science
- Paleoclimatology
- Food & Beverage
- Petrochemical


## L2140-*i* Isotope and Gas Concentration Analyzer

The Picarro L2140-*i* isotopic water analyzer enables simultaneous measurements of $\delta^{18}O$, $\delta^{17}O$, $\delta^{2}H$ and determines $^{17}O$-excess for paleoclimate, (eco) hydrology, and atmospheric science applications.

- Streamlined, simple, and simultaneous measurements of $\delta^{18}O$, $\delta^{17}O$, $\delta^{2}H$, and $^{17}O$-excess in liquids and vapor
- Average to <15 per meg precision on $^{17}O$-excess
- Unparalleled speed allows processing of up to 900 injections per day

**Molecules Measured:**

$\delta^{18}O$ in $H_2O$ | $\delta^{2}H$ in $H_2O$ | $\delta^{17}O$ in $H_2O$ | $\delta^{17}O$-Excess | $CH_4$

**Related Applications:**

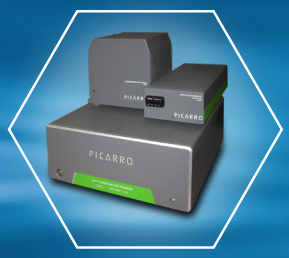
- Atmospheric Science
- Ecology
- Hydrology
- Ocean Science
- Paleoclimatology



*denotes a primary measurement* *denotes a supporting measurement*

# WATER PERIPHERALS

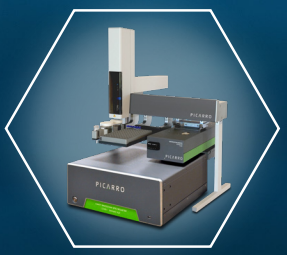
**Induction Module for matrix-bound water**



**Standards Delivery Module for ambient vapor**

**Continuous Water Sampler for continuous, real-time water**

**Micro-Combustion Module for plant and soil waters**



**Vaporizer and Autosampler for liquid water**

**L2130-*i* Analyzer measures $\delta^{18}O$ and $\delta^{2}H$**
**L2140-*i* Analyzer adds $\delta^{17}O$ and $^{17}O$-excess**

Accelerate your research with Picarro's solution for a wide variety of applications, and numerous peripheral options.

## High Precision Vaporizer and Autosampler

The Picarro A0211 Vaporizer and A0340 Autosampler offer exceptional precision with minimal maintenance. These peripherals fully integrate with the L2130-*i* and L2140-*i* water isotope analyzers, including onboard software control.

- Complete solution for automated analysis
- Choice of operating modes: high precision or high throughput
- Onboard software controls both Autosampler and Vaporizer
- Sample analysis conducted automatically with data reported per injection

**Compatibility:**

- L2130-*i*
- L2140-*i*

**Related Applications:**

- Hydrology
- Ocean Science
- Paleoclimatology


## Continuous Water Sampler (CWS)

The Picarro A0217 Continuous Water Sampler incorporates a porous membrane that enables diffusive sampling of water isotopes. When coupled with a Picarro water isotope analyzer, highresolution, real-time measurements of spatial and temporal features of $\delta^2H$ & $\delta^{18}O$ within water masses are simple and easy.

- Continuously monitor real-time changes in water isotopes
- Automated switching from samples to standards for calibration
- Pump directly from your water source—no discrete sampling required
- Quick and easy field deployment

**Compatibility:**

- L2130-*i*
- L2140-*i**

**excludes $^{17}O$ measurement*

**Related Applications:**

- Hydrology
- Ocean Science


## Induction Module (IM)

The Picarro A0213 Induction Module enables scientists to perform isotope analysis of matrix-bound water with high total-dissolved solids. The combination is ideal for a range of disciplines including ecohydrology, ecophysiology, and soil science.

- Prepare water extracted from samples with high total dissolved solids
- Fully integrates with the L2130-*i* and L2140-*i* water isotope analyzers
- Onboard software controls the Induction Module and analyzers

**Compatibility:**

- L2130-*i*
- L2140-*i**

*excludes $^{17}O$ measurement

**Related Applications:**

- Agriculture & Soil Science
- Hydrology
- Ocean Science


## Micro-Combustion Module (MCM)

The Picarro A0214 Micro-Combustion Module effectively removes spectral interference for commonly occurring alcohols and plant products, including multicomponent mixtures of alcohols, terpenes, and green leaf volatiles.

- Treat samples inline to decompose interfering organics
- Improve data quality for water isotope analysis
- Easily deploy in a laboratory or in the field

**Compatibility:**

- L2130-*i*
- L2140-*i*

**Related Applications:**

- Hydrology
- Ocean Science


## Standards Delivery Module (SDM)

The Picarro A0101 Standards Delivery Module makes automated delivery of isotopic water vapor standards in the field simple and reliable.

- Compact, self-contained, field deployable unit
- Collapsible standards bag eliminates head space fractionation
- Automates delivery of two standards at three concentrations per standard
- Automatic, reliable, unattended operation for weeks after setup

**Compatibility:**

- L2130-*i*
- L2140-*i**

*excludes $^{17}O$ measurement

**Related Applications:**

- Atmospheric Science

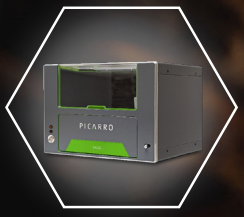
# CARBON PERIPHERALS


**SSIM 2 for small discrete gas samples**


**CSMP - Closed System Measurement Package**


**Combustion Module for solid and liquid samples**


**Caddy™ for solid and liquid bulk samples**




**Sage streamlines discrete sample analysis**

**AutoMate measures DIC in water and solids**


**Isotopic Analyzer measures $\delta^{13}C$ in $CH_4$ and $CO_2$**

Don't compromise, Picarro offers instruments with excellent precision, minimal calibration, little maintenance, no consumables, at a fraction of IRMS operating cost.


## Small Sample Introduction Module 2 (SSIM 2)

The Picarro A0314 Small Sample Introduction Module 2, or SSIM2, transforms all Picarro continuously-sampling analyzers into instruments capable of measuring small, discrete gas samples, as small as 20 mL. Users can effortlessly dilute samples for even smaller volumes.

- Introduce samples via syringe or gas-bag
- Single sample or automatic processing of up to 8 samples using the Picarro 16-Port Manifold (A0311)
- Built-in dilution system enables optimal concentration targeting for isotopic analysis
- Automatically measure isotopic reference gases between samples

**Compatibility:**

- G2131-*i*
- G2201-*i*
- G2508

**Related Applications:**

- Ecology
- Agricultural & Soil Science
- Health & Safety
- Petrochemical


## Closed System Measurement Package

The Picarro A0701/A0702 Closed System Measurement Package enables Picarro analyzers to provide high-precision concentration and isotope ratio measurements for experiments conducted in closed, recirculating systems.

- Real-time, non-destructive concentration and isotope studies
- Have confidence in your results; minimal efflux and influx
- Ideal for small sample work; perfectly matched to our small cavity technology
- Rugged, robust analyzers for use in the field or in the lab

**bottle not included*

**Compatibility:**

- G2131-*i*
- G2201-*i*
- G2301
- G2401
- G2508

**Related Applications:**

- Ecology
- Agricultural & Soil Science


## Combustion Module (CM)

The Picarro A0201 Combustion Module enables $\delta^{13}C$ measurements of bulk samples - soils or liquid organic materials. The samples are combusted within the CM and the $CO_2$ that is produced flows to a Picarro analyzer to measure $\delta^{13}C$ for bulk stable isotope analysis (BSIA).

- The CM-CRDS system can automatically process up to 148 samples at a rate of one sample every 10 minutes
- The precision of the system is better than 0.3‰
- Control and data recording are managed by software on the Picarro analyzer

**Compatibility:**

- G2131-*i*
- G2201-*i*

**Related Applications:**

- Air Quality
- Ecology
- Agriculture & Soil Science
- Paleoclimatology
- Food & Beverage
- Petrochemical


## Caddy™ Continuous Flow Interface

The Picarro A2100 Caddy Continuous Flow Interface connects commercially available solid and liquid bulk sample preparation instruments—including the Picarro Combustion Module—to Picarro analyzers for high-precision carbon isotope ($^{13}C$) measurements.

- Fully automated for high-throughput operation
- Low-cost, simple operation
- Laboratory and field deployable

**Compatibility:**

- G2131-*i*
- G2201-*i*

**Related Applications:**

- Air Quality
- Ecology
- Agriculture & Soil Science
- Paleoclimatology
- Food & Beverage
- Petrochemical
- Hydrology
- Ocean Science


## Sage

The Picarro A0344 Sage gas autosampler streamlines discrete sample analysis when paired with Picarro gas analyzers. Featuring a 150-position-vial rack for 12mL headspace vials, this system enables the analysis of up to 160 samples per day.

- Complete solution for automated analysis
- Compatible software for seamless operation
- Sample analysis conducted automatically with data reported

**Compatibility:**

- G2131-*i*
- G2201-*i*
- G2210-*i*
- G2508
- PI5310
- PI5131-*i*

**Related Applications:**

- Air Quality
- Ecology
- Agricultural & Soil Science
- Health & Safety
- Petrochemical
- Hydrology
- Ocean Science

## AutoMate Prep Device*

When a Picarro $\delta^{13}C$-$CO_2$ analyzer is coupled with an AutoMate A0304 sample preparation device, the system provides $\delta^{13}C$ measurements of the dissolved inorganic carbon in water samples or $\delta^{13}C$ in solid carbonate samples.

- Fast, fully automatic acidification of carbonate and DIC samples
- Low, consistent blanks
- Low downtime between samples
- Small dead volume

**Not available in Europe*

**Compatibility:**

- G2131-*i*
- G2201-*i*

**Related Applications:**

- Ocean Science
- Paleoclimatology
- Petrochemical

# 16 PORT-DISTRIBUTION MANIFOLDS

The Picarro 16-Port Distribution Manifolds dramatically enhances the flexibility of Picarro systems and analyzers by providing unparalleled multiport sample-data collection.


## 16-Port Distribution Manifold

The Picarro A0311 16-Port Distribution Manifold is ideal for tall tower research as well as for soil chamber applications and other functions where multiport sampling is essential.

- Sequentially samples up to 16 sources
- Significantly enhances research flexibility and analyzer capabilities
- Integrates seamlessly with Picarro gas analyzers and software
- Quick and easy setup and simple, maintenance-free design
- Suitable for closed loop when two 16-port are coupled

**Compatibility:**

- All Picarro analyzers

**Except those mentioned for A0311-s*

**Related Applications:**

- Air Quality
- Atmospheric Science
- Emissions Quantification
- Agricultural & Soil Science
- Ecology
- Petrochemical
- Health and Safety


## 16-Port Distribution Manifold (SilcoNert)

The Picarro A0311-s 16-Port Distribution Manifold is designed to optimize response time in the presence of reactive gases. It uses SilcoNert coated components and an additional vacuum pump to maintain flow in each of its 16 sampling channels.

- Flow through valve for reduced memory effects
- SilcoNer™ coating improves response time
- Simple, maintenance free design
- Sets up in minutes with standard tools

**Compatibility:**

- G2509
- G2204
- G2307
- PI2114
- PI2103
- SI2108
- SI2205

**Related Applications:**

- Air Quality
- Agricultural & Soil Science
- Health and Safety
- Pharmaceutical

# Applications

*These are guidelines. Other analyzers may also be suitable for a particular application.

## AIR QUALITY



## ATMOSPHERIC SCIENCE



## EMISSIONS QUANTIFICATION



## AGRICULTURE & SOIL SCIENCE

## ECOLOGY



## HYDROLOGY



## OCEAN SCIENCE



## PALEOCLIMATOLOGY



## FOOD & BEVERAGE



## HEALTH & SAFETY



## PETROCHEMICAL



## PHARMACEUTICAL

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