# GasScouter™ $CH_4$, $CO_2$ and $H_2O$ Analyzer

PICARRO

- High-precision measurements of $CO_2$ and $CH_4$ concentrations with ppb levels of sensitivity
- Portable, lightweight and low power
- Built-in rechargeable Li-ion battery for up to 8 hours of continuous operation, and seamless battery switching for uninterrupted measurement
- Built-in WiFi for mobile operation with a tablet or smartphone in remote locations
- Optional accessories for mobile soil flux system and GPS

The **Picarro G4301 GasScouter** is a new-generation, light-weight, portable, battery-powered cavity ring-down spectroscopy (CRDS) gas concentration analyzer designed for science on the move. It is a perfect mobile solution for high-precision greenhouse gas measurements in the world's most challenging, remote environments.

The GasScouter simultaneously and continuously measures $CO_2$, $CH_4$ and $H_2O$ concentrations over a wide dynamic range, enabling effective background and emissions measurements. This makes it ideal for exact natural gas leak detection and quantification of greenhouse gas, especially in remote locations.

The GasScouter is also an excellent instrument for soil flux measurements. The sampling system has an integrated pump. It can be used for continuous field mapping or in closed-loop configurations for soil chamber studies, which makes it a versatile analyzer for field applications.

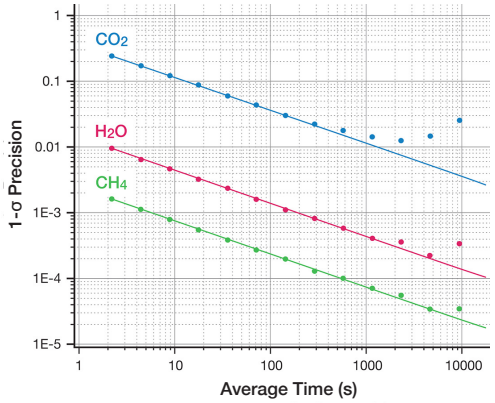
The Picarro GasScouter weighs just 23 pounds (10.4 kilograms) with a power consumption of 25 watts. All essential components are housed within its compact 14-inch (35.6 cm) wide, 6.95-inch (17.7 cm) deep and 18.25-inch (46.4 cm) high, backpack case. A 223 watt-hour (Wh) lithium-ion (Li-ion) rechargeable battery provides over 8 hours of continuous operation, and it is hot swappable for uninterrupted operation.


The GasScouter has a built-in WiFi card to connect with a tablet or smart-phone for viewing its web-based graphical user interface (GUI) in remote locations. You can also connect directly to a computer by USB port.

## Patented Cavity Ring-Down Spectroscopy (CRDS) Technology

Picarro's patented CRDS technology enables an effective measurement path length of up to 20 kilometers in a compact cavity, which results in exceptional precision and sensitivity from a small footprint analyzer. A meticulously designed small optical cavity incorporates precise temperature and pressure control. The result is an analyzer that delivers a best-in-class combination of precision, accuracy, low drift and ease-of-use.

## Allan Deviation Plot




($CO_2$ and $CH_4$ expressed as ppm, $H_2O$ as %)

| Picarro G4301 GasScouter Performance Specifications | | | |
|---|---|---|---|
| Specification | $CO_2$ | $CH_4$ | $H_2O$ |
| **Raw precision** (5 sec) | 0.4 ppm + 0.1% of reading<br>**Typical = 0.15 ppm*** | 3 ppb + 0.1% of reading<br>**Typical = 0.8 ppb*** | 100 ppm + 5% of reading |
| **Precision** (300 sec, 1σ) | 0.04 ppm + 0.02% of reading<br>**Typical = 0.025 ppm*** | 0.3 ppb + 0.02% of reading<br>**Typical = 0.1 ppb*** | 10 ppm + 5% of reading |
| **Lower Detection Limit** (300 sec, 3σ) | 0.12 ppm<br>**Typical = 0.075 ppm*** | 0.9 ppb<br>**Typical = 0.3 ppb*** | – |
| **Drift** (24 hr, peak-to-peak 50 min average) | 0.5 ppm<br>**Typical = 0.18 ppm*** | 1 ppb<br>**Typical = 0.56 ppb*** | – |
| **Measurement Range** | 0–3% | 0–800 ppm | 0–3% (non-condensing) |
| **Measurement Interval** | 3 sec | | |
| **Response Time**<br>*(Rise/Fall Time 10–90%/90–10%)* | 5 sec | | |

*Typical performance is defined as the median of testing results from 29 sequentially built G4301 analyzers measured at ambient concentration levels.

| Picarro G4301 GasScouter System Specifications | |
|---|---|
| **Operating Temperature** | 10°C to 45°C |
| **Ambient Humidity** | <85% R.H. non-condensing |
| Dimensions | 14" w × 18.2" h × 6.95" d (35.6 × 46.4 × 17.7 cm) |
| **Sample Flow Rate** | Built-in vacuum pump, ~1 sl/m at atmospheric pressure |
| **Pump Off-Gassing**<br>(in recirculation configuration with 1L chamber) | <0.1 ppb/min $CH_4$<br><1 ppb/min $CO_2$ |
| **Weight** | 23 lbs (10.4 kg) |
| **Power Consumption** | 25 W |
| **Battery** | Built-in Li-ion battery, 223 Wh, in/out 12-19 V, charge time 5-8 hours |
| **Sample Inlet/Outlet Connections** | Colder non-valved quick-connect |
| **Data Output** | USB (x2), Wi-Fi Connectivity |
| **Operating System** | Windows 7 Professional |

| Picarro G4301 Accessories | |
|---|---|
| **GPS Kit (A0946)** | GPS antenna and module (connected via USB). Includes Picarro software upgrade to report GPS parameters in raw data file that is exportable to KML format |
| **Mobile Soil Flux System (A0947)** | Gas flux chamber (stainless steel with inlet/outlet quick disconnect fittings) and flux computational software |

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3105 Patrick Henry Drive, Santa Clara, CA 95054 | +1 408-962-3900 | sales@picarro.com | picarro.com