

# MULTICOMPOUND GAS ANALYZER

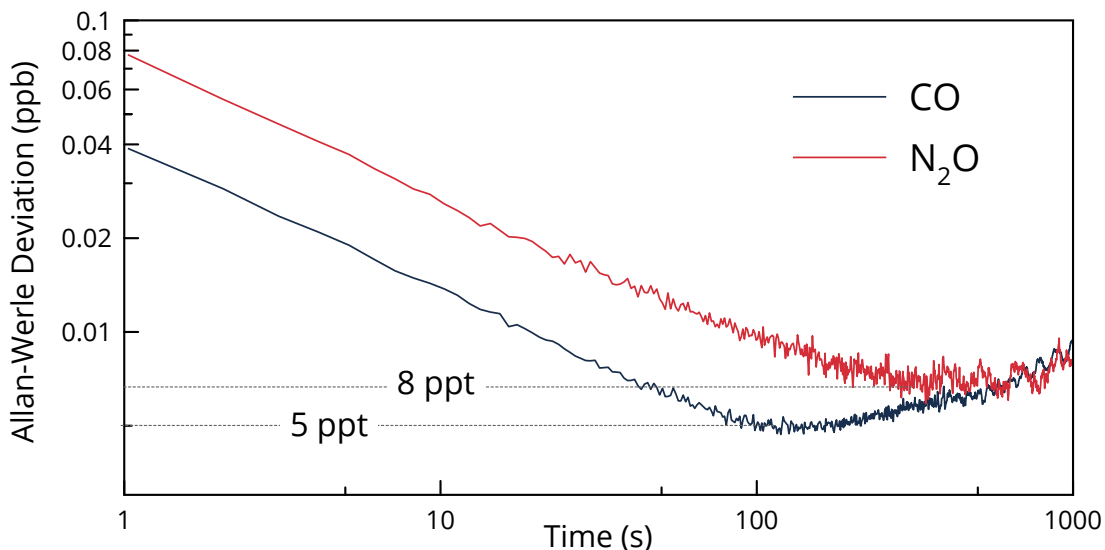
## MGA<sup>10</sup> - GP

### Highlights

- Measures 10 gases simultaneously: CH<sub>4</sub>, CO, CO<sub>2</sub>, SO<sub>2</sub>, NH<sub>3</sub>, N<sub>2</sub>O, NO, NO<sub>2</sub>, H<sub>2</sub>O and O<sub>3</sub>
- Direct measurement of all compounds (incl. NO<sub>2</sub>)
- High precision for ambient air quality and greenhouse gas monitoring
- High time resolution (1Hz or 10Hz)
- Suitable for mobile measurements (aircraft, marine, ground-based stations)



### Allan-Werle Deviation Plot



**The MIRO MGA<sup>10</sup>-GP** has revolutionized and simplified the monitoring of greenhouse gases and air pollutants by enabling simultaneous online measurements of 10 gases at high measurement rates, while offering excellent stability and precision.

MIRO's MGA<sup>10</sup>-GP analyzers directly measure concentrations of all compounds using mid-infrared laser absorption spectroscopy with Quantum Cascade Lasers as light sources. This allows for highly specific and accurate gas detection along with maximum measurement sensitivity. Our analyzers are typically free of measurement interferences from other gas species. The intuitive touch display enables fast and easy control. The analyzer is suitable for various applications from air monitoring to gas flux measurements.

MIRO's products are made in Switzerland and undergo strict quality control before shipping.



## System parameters

System Operation Parameters	Specifications
Ambient Temperature	15-30°C
Ambient Humidity	< 90% RH, non-condensing
Sample Pressure	700 - 1050 mbar
Sample Flow Rate	0.5 to 1.5 slpm (higher flow optional)
Sample Inlet Fittings	6 mm-Swagelok (optional: 12 mm-Swagelok)
Dimensions	48 w x 18 h x 70 d (cm)
Accessories required	Chiller unit, Vacuum pump
Weight	20 kg (Analyzer) + 11 kg (Chiller unit) + 9 kg (Vacuum pump)
Power Requirements	220V/50 Hz; <450 W (Analyzer, Vacuum pump and Chiller unit)
Installation	19" Rack mountable or Benchtop
Data Output	RS232
Connectivity	The instrument provides remote access and control of its main functionalities. It contains a PC which is running the instrument software. If a network access is provided, the instrument's full functionality can be accessed via a remote control software.
Electrical and laser safety	CE-Mark (IEC 61010-1: 2010, IEC 61326-1: 2012, IEC 60825: 2019)
Service Interval	The instrument is suitable for operation without on-site interventions for a period of at least three weeks.
Accessories	Vacuum pump, chiller unit, keyboard, mouse LCD monitor. Optional: temperature stabilized enclosure for field campaigns.
Options	Control of 3 external valves for complex sampling Control of an external calibrator such as a permeation source using a command-based protocol. The customer has to provide details on the interface and protocol.
Measurements rate	Standard rate is 1Hz (or 10Hz optional). The measurement rate can be lower for "sticky" gases such as NH <sub>3</sub> .

## Specifications

Species (unit)	Precision @ 1s	Precision @ 200s	Max. Drift	Specification range	Measurement Range (ppm)
CH <sub>4</sub> (ppb)	1	0.2	5	1'000-3'000	0-200
CO (ppb)	0.4	0.1	1	0-1'000	0-20
CO <sub>2</sub> (ppm)	0.9	0.09	1	300-500	0-8'000
SO <sub>2</sub> (ppb)	2	0.2	5	0-300	0-150
NH <sub>3</sub> (ppb)	0.1	0.02	1	0-50	0-15
N <sub>2</sub> O (ppb)	0.5	0.05	2	300-400	0-20
NO (ppb)	0.8	0.1	2	0-400	0-100
NO <sub>2</sub> (ppb)	0.4	0.04	1	0-200	0-40
H <sub>2</sub> O (ppm)	40	6	120	0-30'000	0-100'000
O <sub>3</sub> (ppb)	1	0.2	10	0-300	0-300

\*Drift for reactive species (SO<sub>2</sub>, NO, NO<sub>2</sub>, O<sub>3</sub>) can be greatly improved by activating MIRO's automatic zero-air correction using scrubbed, clean air or nitrogen.

### MIRO Analytical AG

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