



MULTICOMPOUND GAS ANALYZER

MGA³ - GHG

High-precision all-in-one gas analyzers to combat climate change and air pollution

Innovation with Integrity

Highlights

- Measures 3 gases simultaneously e.g.: **CH₄, N₂O, H₂O** or **CO, N₂O, H₂O**
- Automated water vapor correction
- Ideal solution for **eddy covariance** measurements
- High time resolution (1 Hz or 10 Hz)
- Suitable for mobile measurements (aircraft, vehicle, marine, ground-based stations)

The MIRO MGA³-GHG has revolutionized and simplified the monitoring of greenhouse gases by enabling simultaneous online measurements of 3 gases at high measurement rates, while offering excellent stability and precision. Different gas combination options are below:

Species	Option 1 - CH ₄		Option 2 - CO		Common		
	Precision @ 1s	Precision @ 100-200 s	Precision @ 1s	Precision @ 100-200 s	Max. Drift*	Specification Range	Measurement Range (ppm)
CH ₄ (ppb)	0.3	0.1	-	-	5	1'000 - 3'000	0 - 200
CO (ppb)	-	-	0.1	0.05	1	0 - 1'000	0 - 20
N ₂ O (ppb)	0.06	0.02	0.03	0.01	2	300 - 400	0 - 20
H ₂ O (ppm)	10	5	10	5	120	0 - 30'000	0 - 100'000

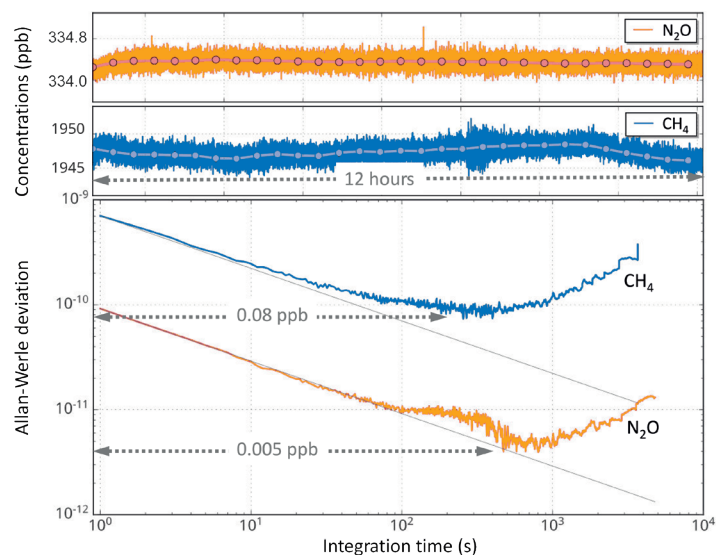
* Maximum pk-to-pk difference of 1-hour averaged data over 24 hours.

MIRO's MGA³-GHG analyzers directly measure concentrations of all compounds using mid-infrared laser absorption spectroscopy with **Quantum Cascade Lasers**. This allows for highly specific and accurate gas detection along with maximum measurement sensitivity without the need of conversion.

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 **eddy covariance flux** measurements.

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

Stability and Precision (Allan-Werle Deviation)



Technical Specifications

Parameters	1 Hz	10 Hz
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	>15 slpm
Sample Inlet Fittings	6 mm - Swagelok	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)	20 kg (Analyzer), 11 kg (Chiller unit), 24 kg (Vacuum pump)
Power	100–240 VAC / 50–60 Hz; <100 W Analyzer, <230 W (Pump and Chiller unit)	100–240 VAC / 50–60 Hz; <100 W Analyzer, <450 W (Pump and Chiller unit)
Installation	19" Rack mountable or benchtop	
Digital Ports	RS232 (for data output), USB, Ethernet	
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 (EN IEC 61326-1: 2021, EN IEC 61000-3-2: 2019, EN 61000-3-3:2013/ A2 :2021, EN 61010-1:2010/ A1:2019/AC:2019, EN 60825-1:2014/ A11:2021/AC:2022, EN IEC 63000:2018)	
Service Interval	The instrument is suitable for operation without on-site interventions for a period of at least three weeks.	

Bruker Optics & MIRO Analytical are continually improving their products and reserves the right to change specifications without notice.
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