

SYSTEM SPECIFICATIONS

Certified system for measuring the calorific value of biomethane in accordance with current metrological standards:

OIML R140 / WELLMEC / ISO 6976

Explosion-proof certified analysis system designed for installation in ATEX zones.

ATEX/IECEX certification: II 2 G Ex db IIB or IIB+H2 T5 Gb

Modular and customizable systems

Modular system configurations designed to meet applications for biomethane or enriched biomethane

Options are also available to enhance the system's analytical capabilities for sulfur compounds: THT odorant, and mercaptans

Limit of detection

few ppmV depending on the compound

Extremely low gas consumption

Carrier gas: One gas cylinder (B50 – 200 bar) per year under continuous 24/7 operation

Sample gas: Flow rate of 30 mL/min

Easy start up, Easy use and friendly interface, Easy maintenance

Calibration once a year

Flexible communication

Modbus, RS485, TCP/IP

Our Story

Founded in 2014, APIX Analytics is a gas chromatograph manufacturer delivering cutting-edge solutions that redefine precision and reliability.

From our Grenoble headquarter to our advanced manufacturing facility in Pau, we design and produce systems proudly made in France. We specialize in miniaturized, modular gas chromatography (GC) solutions, leveraging breakthrough technologies like our patented Nano Gravimetric Detector (NGD) to deliver unmatched precision, efficiency, and reliability.

With over 1,000 gas chromatographs sold worldwide, our technologies excel in applications ranging from natural gas and biomethane to hydrogen and pollutant analysis. Our team of over 30 skilled professionals ensures exceptional quality and client-focused service, supported by a global network of trusted partners and distributors around the world.

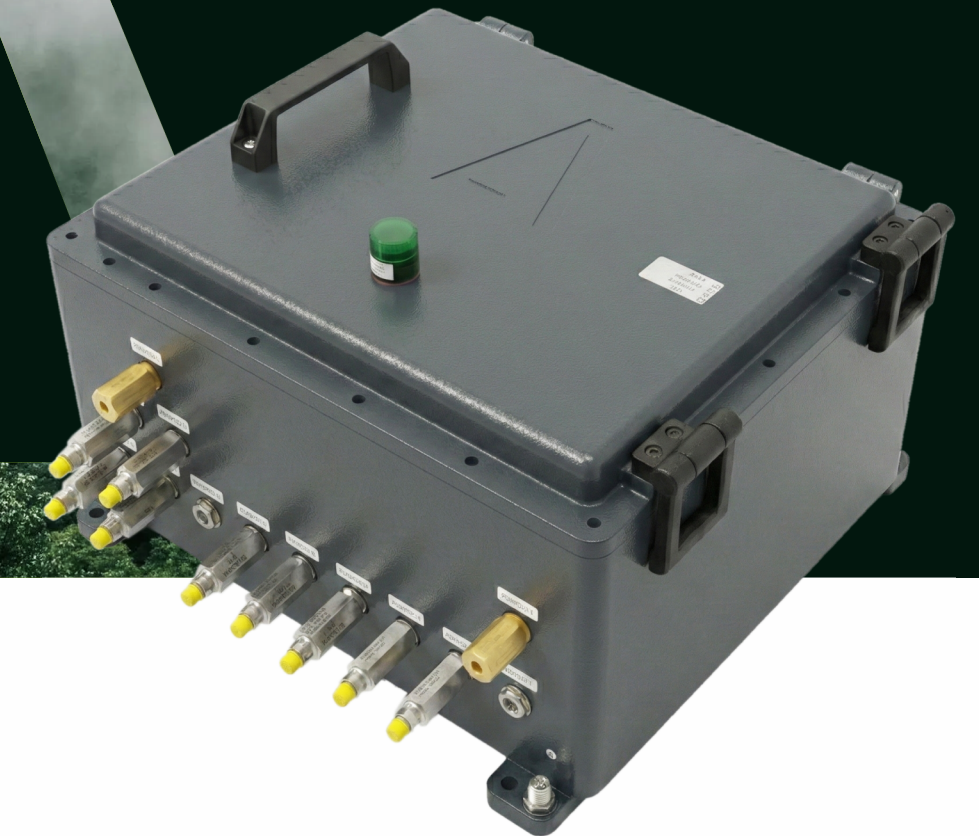
Wherever you are, Europe, USA, Africa, South America, or Asia, APIX Analytics is your partner for sustainable, high-performance chromatograph analysis solutions.

APIX
ANALYTICS

CERTIFIED CALORIFIC VALUE MEASUREMENT FOR BIOMETHANE

APPLICATION

USING CHROMEX – THE WORLD'S LEADING ATEX MICRO GC



Compact solutions, powerful results
for a sustainable future

2014

APIX ANALYTICS FOUNDED

+15

COUNTRIES

+10000

GC RUNNING

www.apixanalytics.com

Mini parc Polytec • Immeuble Tramontane • 60 rue des Berges • 38000 Grenoble contact@apixanalytics.com

CHROMEX SYSTEM DATASHEET

CERTIFIED SYSTEM FOR CALCULATING THE CALORIFIC VALUE OF BIOMETHANE

Dimensions	596 x 526 x 290 mm	Sampling	Fittings	1/8'
Weight	39.2 kg		Pressure	max 1 bar. Regulated @ 300 mbar
Certification	ATEX / IECEX certification II 2 G Ex db IIB/IIB+H2 T5 Gb		Consumption	30 mL/min
	Metrological certification for measuring calorific value in compliance with OIML R140 / WELLMEC / ISO 6976 standards	Purity	2 µm filter	
Instrument Control	Integrated PC board	Actuation gas	Fittings	1/8'
			Nature	Helium
			Pressure	min 5.0 bar(g), max 5.2 bar(g)
Instrument Display	—	Carrier gas	Consumption	< 1 mL/min
Communication Interfaces	Ethernet / RS232 / RS485		Fittings	1/8'
Communication Protocol	ModBus TCP-IP		Nature	Helium//Argon depending on the application
Power input	24 VDC	Detector	Purity	6.0 (>99.9999%)
Power Consumption	Typical 40 W - Max 145 W		Filtration	2 µm filter
Operating Temperature	-10 °C to + 55 °C		Pressure	min 5.0 bar(g), max 5.2 bar(g)
Storage Temperature	10 °C to + 40 °C		Consumption	< 10 mL/min per module depending on the application
Operating Humidity	25 % - 75 % HR no condensing			
Ingress Protection	IP66			µ-TCD

SYSTEM CONFIGURATION

CALORIFIC VALUE OF BIOMETHANE (Including analysis of C2 and C3 as an option)

System configuration	Up to three-module system configuration									
	BIOMETHANE	O2	N2	CH4	CO2	C2	H2S	COS	C2	
	MSSA Module	O2	N2	CH4	—	—	—	—	—	—
	PPU Module	HHV-N2+O2	HHV-CH4	HHV-CO2	HHV-C2	—	—	—	—	—
	PDMS Module (OPTIONAL)	—	—	—	—	—	H2S	COS	—	HHV-C3
System Class	OIML R140 Class A									
Calorific value Repeatability	< 0.1 %									
Calorific value maximum error	< 0.5 %									
Drift over one year	< 0.25 %									
Calibration Frequency	Once every 12 months									

PERFORMANCES FOR BIOMETHANE APPLICATION

Analytical channels of the system		CHANNEL 1			CHANNEL 2		
Carrier gas	Nature	Helium			Helium		
	Pressure	5 bar(g) ± 0.5 bar			5 bar(g) ± 0.5 bar		
	Consumption	15 ± 1 mL/min			11 ± 1 mL/min		
Cycle time analysis		150 s			150 s		
Analytical module		PPU module			MS5A module		
Detector		µ-TCD			µ-TCD		
Analyzed gases		N ₂ +O ₂ , CH ₄ , CO ₂ , C ₂ H ₆ , H ₂ S, COS			O ₂ , N ₂		
Concentration range (covered by the metrological certification)	Component	Min. Threshold	Max. Threshold	Component	Min. Threshold	Max. Threshold	
	N ₂	110 ppm	21.8%	O ₂	1%	3%	
	CH ₄	50%	100%	N ₂	110 ppm	21.8%	
	CO ₂	10 ppm	15%	—	—	—	
	C ₂ H ₆	80 ppm	20%	—	—	—	
	H ₂ S	0 - 200 mg/m ³ (0 - 150 ppmV) Can be extended to higher levels		—	—	—	
	COS	0 - 370 mg/m ³ (0 - 150 ppmV) Can be extended to higher levels		—	—	—	
Repeatability	Concentration range		RSD (%)	Concentration range		RSD (%)	
	50 - 100 %		< 0.1 %	50 - 100 %		< 0.1 %	
	10 - 50 %		< 0.2 %	10 - 50 %		< 0.2 %	
	1 - 10 %		< 0.5 %	1 - 10 %		< 0.5 %	
	0.1 - 1 %		< 1 %	0.1 - 1 %		< 1 %	
	10 - 1000 ppm		< 5 %	10 - 1000 ppm		< 5 %	
	2 - 10 ppm		< 10 %	2 - 10 ppm		< 10 %	
Limit of quantification	N ₂	50 ppm		O ₂	100 ppm		
	CO ₂	10 ppm		N ₂	250 ppm		
	C ₂ H ₆	10 ppm		—	—		
	H ₂ S	3 ppm (<10% RSD)		—	—		
	COS	2 ppm (<10% RSD)		—	—		
Accuracy	Concentration range	0-100ppm	100ppm-1%	1-5%	5-10%	10-50%	50-100%
	RSD	< 20% rel	< 10% rel	< 5% rel	< 2% rel	< 1% rel	< 0.5% rel

OPTIONAL ADDITIONAL ANALYTICAL MODULES

Optional analytical modules can be added to complete the system configuration					
Analyzed gases	Propane (for enriched Biomethane)		THT (natural gas odorant)		Sulfur compounds, mercaptans
Analytical module	PDMS module		PDMSP module		PDMSCP module
Detector	µ-TCD		µ-TCD		µ-TCD
Concentration range	C ₃ H ₈	10 ppm - 10 %		THT	0 - 100 mg/m ³ (0 - 30 ppmV) Can be extended to higher levels
					In a natural gas matrix, certain sulfur compounds may co-elute with major gas components depending on the gas composition. The solution must therefore be evaluated on a case-by-case basis according to customer specifications.
Limit of quantification	C ₃ H ₈	10 ppm (<10% RSD)		THT	2 ppm (<10% RSD) Typical limits of quantification are 3 ppm.