

Certified system for measuring the calorific value of natural gas 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 natural gas or natural gas blends including hydrogen

Options are also available to enhance the system’s analytical capabilities for sulfur compounds: H2S, COS, THT odorant, and mercaptans

Limit of detection

<1ppmV depending on the compound

Extremely low gas consupction

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.

Certified Calorific Value Measurement

for Natural C1 to C6+Gas including Hydrogen & Sulfur Compounds

Using Chromex – The World’s Leading ATEX Micro GC



2014

APIX ANALYTICS FOUNDED

15

COUNTRIES

+1000

GC RUNNING

CHROMEX SYSTEM DATASHEET

CERTIFIED SYSTEM FOR CALCULATING THE CALORIFIC VALUE OF NATURAL GAS

Dimensions	596 x 526 x 290 mm	Sampling	Fittings	1/8'
Weight	39.2 kg		Pressure	max 1 bar. Regulated @300mbar
Certification	ATEX / IECEX certification II 2 G Ex db IIB/IIB+H2 T5 Gb		Consumption	30mL/min
	Metrological certification for measuring calorific value in compliance with OIML R140 / WELLMEC / ISO6976 standards	Purity	2 µm filter	
		Actuation gas	Fittings	1/8'
Instrument Control			Nature	Helium depending on the application
	Pressure		min 5.0 bar(g), max 5.2 bar(g)	
	Consumption	< 1 mL/min		
Instrument Display	—	Carrier gas	Fittings	1/8'
Communication Interfaces	Ethernet / RS232 / RS485		Nature	Helium//Argon depending on the application
Communication Protocol	ModBus TCP-IP			
Power input	24 VDC			
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	Detector	µ-TCD	

SYSTEM configuration

Calorific value of Natural gas (including Hydrogen analysis as an option)

System configuration	Up to three-module system configuration												
	NATURAL GAS + H2	H2	N2+O2	CH4	CO2	C2	C3	iC4	nC4	neoC5	iC5	nC5	C6+
	PPU Module	—	HHV-N2+O2	HHV-CH4	HHV-CO2	HHV-C2	—	—	—	—	—	—	—
	PDMS Module	—	—	—	—	—	HHV-C3	HHV-iC4	HHV-nC4	HHV-neoC5	HHV-iC5	HHV-nC5	HHV-C6+
	MS5A Module (OPTIONAL)	HHV-H2	—	—	—	—	—	—	—	—	—	—	—
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	For natural gas only: Once every 12 months												
	For natural gas including hydrogen:												
	* Once every 12 months, using Helium as the carrier gas for hydrogen analysis *Once every 6 months, using Argon as the carrier gas for hydrogen analysis (Drift test in progress for annual system calibration)												

PERFORMANCE for Natural gas

application C1 to C6+

Analytical channels		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			4 1 mL/min		
Cycle time analysis		150 s			150 s		
Analytical module		PPU module			PDMS module		
Detector		µ-TCD			µ-TCD		
Analyzed gases		N ₂ +O ₂ , CH ₄ , CO ₂ , C ₂ H ₆			C ₃ H ₈ , iC ₄ H ₁₀ , nC ₄ H ₁₀ , neoC ₅ H ₁₂ , iC ₅ H ₁₂ , nC ₅ H ₁₂ , C ₆ +		
Concentration range (covered by the metrological certification)	Component	Min. Threshold	Max. Threshold	Component	Min. Threshold	Max. Threshold	
	N ₂	110 ppm	21.8%	C ₃ H ₈	10 ppm	10%	
	CH ₄	50%	100%	iC ₄ H ₁₀	10 ppm	2%	
	CO ₂	10 ppm	15%	nC ₄ H ₁₀	10 ppm	2%	
	C ₂ H ₆	80 ppm	20%	neoC ₅ H ₂	10 ppm	0.5%	
	—	—	—	iC ₅ H ₁₂	10 ppm	0.5%	
	—	—	—	nC ₅ H ₁₂	10 ppm	0.5%	
Repeatability	—	—	—	C ₆ +	10 ppm	0.39%	
	Concentration range			Concentration range			RSD (%)
	50 - 100 %			50 - 100 %			< 0.1 %
	10 - 50 %			10 - 50 %			< 0.2 %
	1 - 10 %			1 - 10 %			< 0.5 %
	0.1 - 1 %			0.1 - 1 %			< 1 %
	10 - 1000 ppm			10 - 1000 ppm			< 5 %
Limit of quantification	2 - 10 ppm			2 - 10 ppm			< 10 %
	N ₂	50 ppm		C ₃ H ₈	10 ppm		
	CO ₂	10 ppm		iC ₄ H ₁₀	10 ppm		
	C ₂ H ₆	10 ppm		nC ₄ H ₁₀	10 ppm		
	—	—		neoC ₅ H ₂	10 ppm		
	—	—		iC ₅ H ₁₂	10 ppm		
	—	—		nC ₅ H ₁₂	10 ppm		
Accuracy	—	—		C ₆ +	100 ppm		
	Concentration range	0-100ppm	100ppm-1%	1-5%	5-10%	10-50%	50-100%
	RSD	< 20% rel	< 10% rel	< 5% rel	< 5% rel	< 2% rel	< 0.5% rel

Optional analytical module for Hydrogen

analysis and calorific value calculation

Analytical channels		CHANNEL 3 (OPTIONAL)					
Carrier gas	Nature	Helium			Argon		
	Pressure	5 bar(g) ± 0.5 bar			5 bar(g) ± 0.5 bar		
	Consumption	9 mL/min			11 mL/min		
Cycle time analysis		100 s			100 s		
Analytical module		MS5A module			MS5A module		
Detector		µ-TCD			µ-TCD		
Analyzed gases		H ₂			H ₂		
Concentration range (covered by the metrological certification)		Component	Min.Threshold	Max.Threshold	Component	Min. Threshold	Max. Threshold
		H ₂	10 ppm	10%	H ₂	10 ppm	10%
Repeatability		> 3 % at 5 % < 5 % at 1 %	<10 % at 0.5 % >10 % under 0.5 %		< 3 % at 10 000 ppm < 5 % at 1000 ppm	<10 % at 100 ppm > 10 % under 100 ppm	
Limit of quantification		H ₂	0.50%		H ₂	50 ppm	
Accuracy		TBD			< 5 % rel. at 10 000 ppm < 20 % rel. at 1000 ppm	< 50 % rel. at 100 ppm > 50 % rel. under 100 ppm	

Optional additional analytical modules to

extend the analytical capability to

Sulfur-containing compounds

Optional analytical modules can be added to complete the system configuration					
Analyzed gases	THT (natural gas odorant)		H ₂ S, COS		Sulfur compounds, mercaptans
Analytical module	PDMSP module		PPU module		PDMSCP module
Detector	μ-TCD		μ-TCD		μ-TCD
Concentration range	THT	0 - 100 mg/m3 (0 - 30 ppmV) Can be extended to higher levels	H ₂ S	0 - 200 mg/m3 (0 - 150 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.
			COS	0 - 370 mg/m3 (0 - 150 ppmV) Can be extended to higher levels	
Limit of quantification	THT	2 ppm (<10% RSD)	H ₂ S	3 ppm (<10% RSD)	Typical limits of quantification are 3 ppm.
			COS	2 ppm (<10% RSD)	