



CO-CO₂ analyser

PG300



- CO, CH₄, CO₂ in H₂, permanent gases and hydrocarbons
- Robust analyser with reliable diaphragm valves
- UOP 603
- Limit of detection: <50 ppb

Get ready for tomorrow's analytics

CO-CO₂ analyser

The GAS CO-CO₂ analyser is the customised solution for analysing CO, CH₄ and CO₂ in several gas matrices such as hydrogen, hydrocarbon streams and industrial gases. A typical application is the analysis of sub-ppm levels in ethylene or propylene. The analyser complies with UOP 603-13.

Principle of operation

Figure 1 illustrates the principle of the CO-CO₂ analyser. The instrument includes a high-performance diaphragm valve for injection and back-flushing, two packed columns, a methaniser to convert CO and CO₂ into methane, and a Flame Ionisation Detector (FID). Column 1 (Hayesep) separates the components of interest from the bulk gas, which is effectively removed through back-flushing. Column 2 separates the components of interest, see figure 2. An optional second valve is available for heart-cutting high levels of methane.

Specification

- Thermo Trace GC1600 with one diaphragm gas switching valve (rotary valves are optional), methaniser and Flame Ionisation Detector (FID)
- 2 packed columns
- Chromeleon chromatography data system
- Runtime 4.5 minutes
- Minimum detectability: 50 ppb
- Repeatability: < 1 %
- Optional: additional valve for heart-cutting of high levels of methane (figure 2)

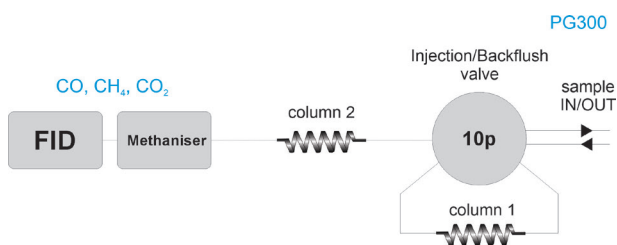


Figure 1 CO-CO₂ analyser.

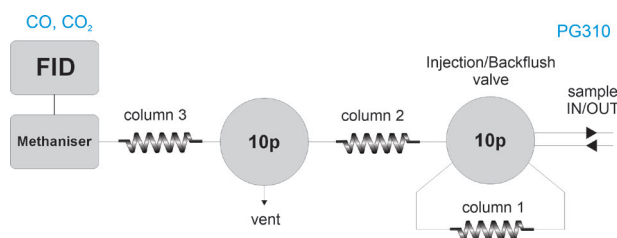


Figure 2 CO-CO₂ analyser with optional heart-cut valve.

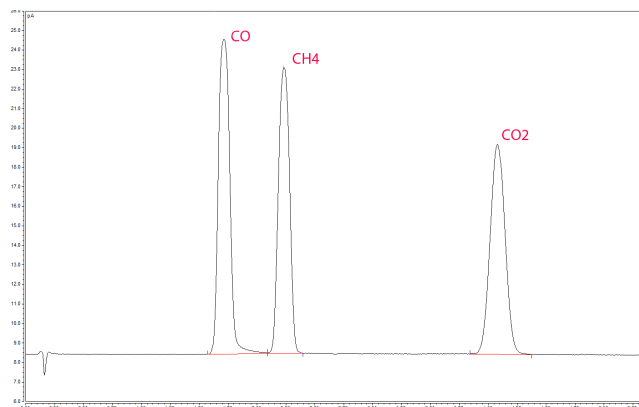


Figure 3 Chromatogram CO-CO₂ analyser. 5 ppm concentration level.

Inj. No.	Injection Name Selected Peak:	Type	Area pA*min		
			FID_Back CO	CH4	CO2
10	Reproducibility FID Back Unknown		1.851	1.679	1.586
11	Reproducibility FID Back Unknown		1.840	1.677	1.584
12	Reproducibility FID Back Unknown		1.841	1.674	1.591
13	Reproducibility FID Back Unknown		1.849	1.675	1.593
14	Reproducibility FID Back Unknown		1.851	1.671	1.596
15	Reproducibility FID Back Unknown		1.840	1.667	1.582
16	Reproducibility FID Back Unknown		1.840	1.665	1.582
17	Reproducibility FID Back Unknown		1.817	1.664	1.579
18	Reproducibility FID Back Unknown		1.828	1.670	1.589
19	Reproducibility FID Bac Unknown		1.824	1.660	1.587
Maximum			1.851	1.679	1.596
Average			1.838	1.670	1.587
Minimum			1.817	1.660	1.579
Standard Deviation			0.012	0.006	0.005
Relative Standard Deviation			0.64%	0.38%	0.33%

Figure 4 Repeatability CO-CO₂ analyser

Results

Figure 3 & 4 show the results of the CO-CO₂ analyser. The minimum detectability is <50 ppb and the repeatability is <1% RSD.

Ordering information	PG30X - ABCDE	Standard CO-CO ₂ analyser			
code X		PG31X - ABCDE	CO-CO ₂ analyser with heart-cut valve		
			0	1	2
					3

For selecting options ABCDE (e.g. valve type and passivation, pump and vacuum sampling, rotameter and sample connections, pressure and moisture sensors, hydrogen sensor for safety shut-off, power plug type and more), see the options table in the order guide.

About GAS

Global Analyser Solutions provides GC & GC-MS solutions for Energy, Refinery, Chemical and Environmental markets. Our analysers address a broad spectrum of measuring requirements with high precision and reliability. Please reach out for more information on our website.