

# Biogas Analyser

## ER315



- For permanent gases, hydrocarbons and  $H_2S$  in biogas
- Robust
- 19" form factor

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# Biogas Analyser

The GAS Biogas Analyser complies with several international standards, including ASTM D1945, D1946, ISO 6974, 6975, 6976, and GPA 2261, 2177, 2186, and 2286.

## Principle of operation

Diagram 1 illustrates the principle of the biogas analyser. Hydrogen (H<sub>2</sub>), oxygen (O<sub>2</sub>), nitrogen (N<sub>2</sub>), methane (CH<sub>4</sub>), and carbon monoxide (CO) are analysed on column 3 (Molsieve), while carbon dioxide (CO<sub>2</sub>), ethylene, ethane, acetylene, and hydrogen sulphide (H<sub>2</sub>S) are analysed on column 2 (Hayesep). Carbonyl sulphide (COS) can also be measured. Column 1 (Hayesep) back-flushes propane and higher-boiling components to vent. The detector used is a Thermal Conductivity Detector (TCD).

## Instrument configuration

- GAS CompactGC<sup>4.0</sup> with single TCD
- Three micro packed columns
- Heated valve oven with two 6-port valves (rotary valves optional)
- Chromeleon CDS data system
- Runtime: 9 minutes
- Limit of detection: < 10 ppm (for all components except H<sub>2</sub> using He carrier gas)
- Repeatability: < 1% RSD

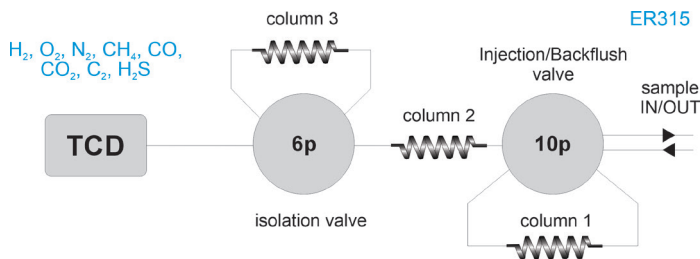


Figure 1 Diagram ER315 analyser

## Results

Figure 2 shows the chromatogram, while figure 3 reports the repeatability.

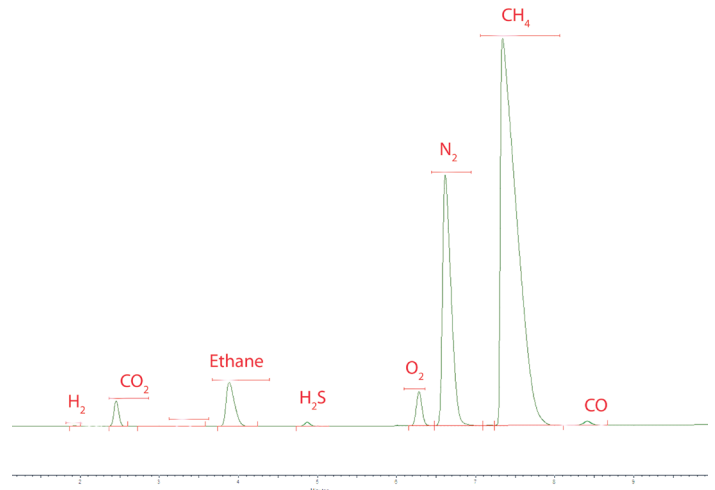


Figure 2 Chromatogram biogas analyser

TRACE 1300 GC-TCD Sample ID	CO2 Area	Ethane Area	Nitrogen Area	Methane Area
Reprotest NGA 111	2226454	5898353	5345064	90507939
Reprotest NGA 112	2217093	5902294	5346925	90445635
Reprotest NGA 113	2215965	5903676	5346602	90526422
Reprotest NGA 114	2227435	5904121	5345091	90517862
Reprotest NGA 115	2213580	5897482	5346060	90501697
Reprotest NGA 116	2217296	5901460	5349411	90488306
Reprotest NGA 117	2222737	5903879	5349656	90549145
Reprotest NGA 118	2219658	5908502	5350448	90595649
Reprotest NGA 119	2223410	5902305	5351021	90504111
Reprotest NGA 120	2217703	5904050	5353904	90638117
Reprotest NGA 121	2225062	5898589	5345321	90599110
Reprotest NGA 122	2219024	5902849	5351045	90574361
Reprotest NGA 123	2224970	5902603	5350286	90568154
Reprotest NGA 124	2226904	5901536	5349733	90598430
Reprotest NGA 125	2223668	5904325	5345351	90531033
Reprotest NGA 126	2232354	5907475	5351045	90639410
Reprotest NGA 127	2224065	5903110	5350234	90640979
Reprotest NGA 128	2219309	5904037	5352404	90670039
Reprotest NGA 129	2216183	5913463	5352165	90560228
Reprotest NGA 130	2221801	5909808	5346745	90588078

Min:	2213580	5897482	5345064	90445635
Max:	2232354	5913463	5353904	90670039
Mean:	2221734	5903696	5348926	90562235
Std Dev:	4782	3839	2770	59659
%RSD:	0.22	0.07	0.05	0.07

Figure 3 Repeatability

## Ordering information ER315 - ABCDE

For the selection of 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.

[www.gassite.com](http://www.gassite.com)