



Natural Gas Analyser

ES165



- NGA with a small footprint
- High accuracy
- Single TCD
- Micropacked columns

Get ready for tomorrow's analytics

Natural Gas Analyser - ES165

The GAS NGA ES165 is a single-detector natural gas analyser in a small footprint 19" compact enclosure.

Principle of operation

The GAS ES165 Natural Gas Analyser is equipped with two independent analytical channels that share a single Thermal Conductivity Detector (TCD), providing comprehensive natural gas composition analysis. The upper channel is configured to measure CO₂ and hydrocarbons from C₁ to C₅, including both normal and iso-isomers. Components heavier than C₅ are quantified collectively as a C₆+ fraction and are directed to the detector via a backflush operation.

The lower channel is dedicated to the analysis of O₂, N₂, and CH₄. Higher boiling hydrocarbons and other heavy components entering this channel are removed by backflushing them to a vent, preventing interference with the separation and measurement of the permanent gases. This dual-channel configuration ensures accurate, reliable, and efficient determination of the key constituents required for natural gas quality and process monitoring applications.

See figure 1

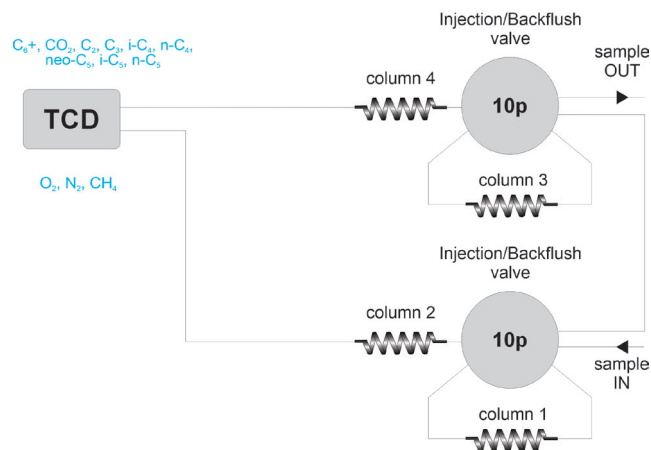


Figure 1 Diagram ES165 analyser

Instrument specification

- CompactGC4.0 with 2 x 10-port diaphragm valves, TCD and micropacked columns
- Optional NGA calculation pack for calorific value calculation
- Runtime 10 minutes

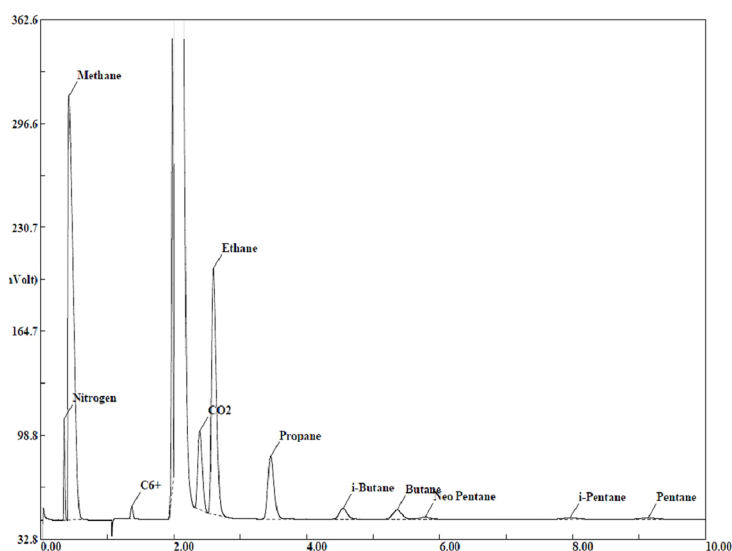


Figure 2 Chromatogram ES165 analyser

Results

Figure 2 shows the chromatogram, starting with the components of the lower channel. Figure 3 is the calorific value report, which is an integral part of Chromeleon; therefore exporting data to external software is not required.

Natural gas calculations						
Instrument	Trace1300 NGA			Sequence name	Data G.A.S. NGA pack	
Instrument Method	Initial gas injection			Data Vault	ChromeleonLocal	
Processing Method	New Processing Method			Report Template	G.A.S. NGA Report Template	
Data File	NGA mix repro TCDs			Seq. Line	10	
Injection Date	08/Jul/2014			Peaks	9	
Injection Time	13:21				10	
Calculation Type	Total					
Physical property report for the dry gas - combustion at 15°C according to ISO 6976						
Metering at 0°C and 101.325kPa						
	Molar basis	Mass basis	Volumetric basis	Calories	Wobbe Index	BTU
Sup. Calorific Value	897.41 kJ/mol	49.60 MJ/kg	40.13 MJ/m³	9587.52 kcal/m³	50.74 MJ/m³	1077.55 BTU/ft³
Inf. Calorific Value	809.73 kJ/mol	44.75 MJ/kg	36.23 MJ/m³	8650.79 kcal/m³	45.78 MJ/m³	972.27 BTU/ft³
Mean mol weight	18.093 g/mol					
Compression factor	0.9972					
Relative Density	0.6261					
Density	0.8094 kg/m³					
Metering at 15°C and 101.325kPa						
	Molar basis	Mass basis	Volumetric basis	Calories	Wobbe Index	BTU
Sup. Calorific Value	897.41 kJ/mol	49.60 MJ/kg	38.04 MJ/m³	9084.12 kcal/m³	48.09 MJ/m³	1020.97 BTU/ft³
Inf. Calorific Value	809.73 kJ/mol	44.75 MJ/kg	34.32 MJ/m³	8196.57 kcal/m³	43.39 MJ/m³	921.22 BTU/ft³
Mean mol weight	18.093 g/mol					
Compression factor	0.9977					
Relative Density	0.6258					
Density	0.7669 kg/m³					
Metering at 20°C and 101.325kPa						
	Molar basis	Mass basis	Volumetric basis	Calories	Wobbe Index	BTU
Sup. Calorific Value	897.41 kJ/mol	49.60 MJ/kg	37.39 MJ/m³	8928.14 kcal/m³	47.27 MJ/m³	1003.44 BTU/ft³
Inf. Calorific Value	809.73 kJ/mol	44.75 MJ/kg	33.73 MJ/m³	8055.83 kcal/m³	42.65 MJ/m³	905.40 BTU/ft³
Mean mol weight	18.093 g/mol					
Compression factor	0.9978					
Relative Density	0.6257					
Density	0.7538 kg/m³					

Figure 3 Calorific Value report by Chromeleon

Ordering information

ES165 - 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](#).