Global Analyser Solutions

Electrolyser gas analyser

- Analysing O_2 in bulk H_2 and H_2 in bulk O_2
- Robust analyser
- InstantConnect detector technology

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ER200v1

Electrolyser Gas Analyser

An electrolyser utilises electricity to split water into hydrogen and oxygen.
Through electrolysis, hydrogen and oxygen gases are generated; hydrogen plays an important role in the energy transition, and oxygen can be captured for industrial and medical use.

Principle of operation

Figure 1 shows a two-channel gas analyser for measuring ppm to % levels of hydrogen in oxygen and oxygen in hydrogen.
Both channels use a Thermal Conductivity Detector (TCD). Helium or hydrogen serve as carrier gas for oxygen analysis, while nitrogen or argon is used for hydrogen analysis. Backflush columns prevent water from entering the analytical columns and affecting separation.
The analyser can have separate or combined inlets for anode and cathode gases. Nitrogen can also be measured, with optional configurations for argon or water analysis.

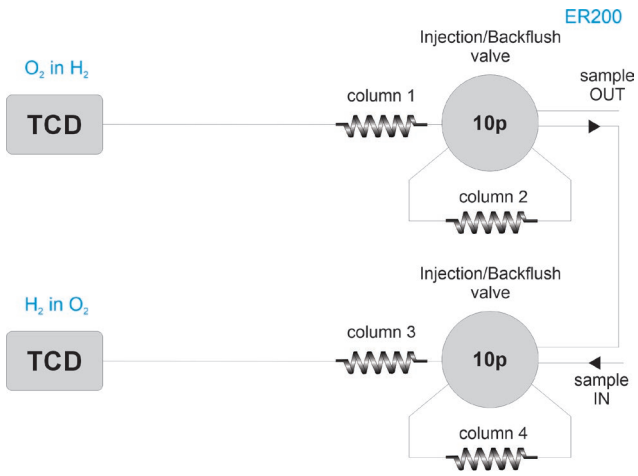

Figure 1 Electrolyser Gas Analyser

Limit of detection

The analyser provides low ppm limits of detection using thermal conductivity detectors. When lower levels need to be analysed, the Pulsed Discharge Detector (PDD) is available, offering down to ppb level detection. When concentration levels vary from ppb to %, both TCD and PDD are offered.

24/7 operation

The instrument is designed for continuous 24/7 operation. Robust diaphragm valves are used for high uptime and low operational costs. The use of backflush columns is important in achieving continuous unattended operation.

Repeatability

Inj. No.	Injection Name Selected Peak:	Type	Ret.Time min TCD_Ch1 O2	Amount % TCD_Ch1 O2	Rel.Area % TCD_Ch1 O2
34	*TM2 rep*	*Unknown*	*0.696*	*5.4695*	*100.00*
35	TM2 rep	Unknown	0.696	5.4700	100.00
36	TM2 rep	Unknown	0.696	5.4746	100.00
37	TM2 rep	Unknown	0.696	5.4987	100.00
38	TM2 rep	Unknown	0.696	5.5029	100.00
39	TM2 rep	Unknown	0.696	5.5012	100.00
40	TM2 rep	Unknown	0.696	5.4721	100.00
41	TM2 rep	Unknown	0.696	5.5516	100.00
42	TM2 rep	Unknown	0.695	5.5071	100.00
43	TM2 rep	Unknown	0.695	5.5015	100.00
44	TM2 rep	Unknown	0.695	5.5026	100.00
Maximum			0.696	5.5516	100.00
Average			0.696	5.4956	100.00
Minimum			0.695	5.4695	100.00
Standard Deviation			0.001	0.0240	0.00
Relative Standard Deviation			0.09%	0.44%	0.00%

Figure 2 Repeatability of analysis of oxygen in hydrogen

Instrument configuration

- Thermo GC1600 with dual InstantConnect TCD
- Four 1/16" micro-packed columns
- Heated valve oven with two 10-port diaphragm valves (rotary valves optional)
- Chromeleon CDS data system
- Separate or combined sample inlets for both channels
- Runtime: < 2 minutes
- Limit of detection: < 5 ppm

Ordering information	ER200 - ABCDE			
code X	0	1	2	3
GC model, power	1600, 230V	1610, 230V	1600, 115V	1610, 115V

For the selection of options (e.g. valve type and passivation, pump and vacuum sampling, rotameter and sample connections, pressure and moisture sensors, hydrogen sensor for safety shut-off, GC oven cryo valves, power plug type and more), see the options table.

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