



Battery swelling gas analyser

ER415

- Instant insight in battery conditions
- Only 1-2 ml total sample required
- Direct sampling from battery or via syringe
- Syringe autosampler optional



Get ready for tomorrow's analytics

Battery swelling gas analyser

The GAS battery swelling gas analyser measures a variety of gases produced during charge/discharge processes in lithium batteries. The gas composition provides important information about battery performance and safety risks.

Principle of operation

The GAS battery swelling gas analyser comprises three analytical channels. Two thermal conductivity detectors (TCDs) provide rapid measurement of permanent gases, while hydrocarbons are analysed using a flame ionisation detector (FID) combined with a temperature-programmed column oven. This setup enables detailed isomer analysis from C₁ to C₆ (extendable to C₁₀). Figure 1 shows the schematic diagram, and Figures 3 and 4 show representative chromatograms (the upper channel chromatogram is not shown).

Only 1-2 ml of sample needed

Since available sample volumes are often limited, a vacuum sampling option ensures minimal requirements. Samples may be taken directly from the battery or via syringe. In both cases, the sample loop is evacuated before sampling, reducing the required volume and preventing cross-contamination.

Instrument configuration

- GAS CompactGC^{4.0} with dual TCD and FID
- Five capillary columns
- Heated valve oven with three 6-port diaphragm valves (rotary valves optional)
- Vacuum sampling
- Chromeleon CDS data system
- Programmable oven
- Runtime 5 minutes-



Figure 2

Vacuum sampling from a single syringe (above) and autosampler for multiple syringe injection (right).

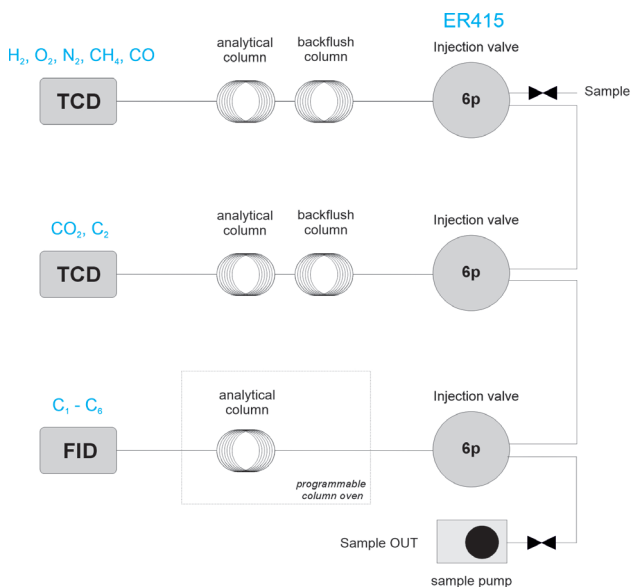


Figure 1 Diagram ER415 analyser

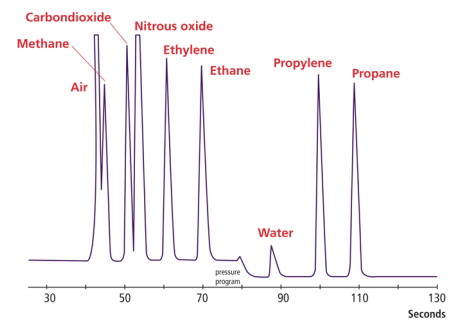


Figure 3

Chromatogram middle channel (figure 1)

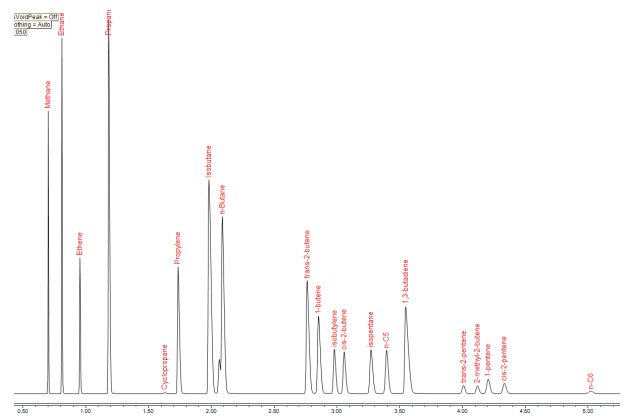


Figure 4

Chromatogram FID channel (C₁-C₆ hydrocarbons)

Ordering information ER415 - ABCDE

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, 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