

Programmable Gas Analyser

Program your application gas:

Hydrogen, Helium, Oxygen, Carbon Dioxide, Methane
Carbon Monoxide, Argon, Nitrogen
and many other gases



The Model 542 is a versatile, programmable gas analyser, based on the principles of thermal conductivity, capable of measuring almost any combination of gases. The instrument is especially suitable for measurements of mixtures containing hydrogen or helium.

With the use of sensitive control systems, the thermal conductivity analyser can detect gases down to parts per million levels and up to full concentration.

The analyser is pre-programmed for a wide range of sample and reference gases, easily selectable from the simple front panel menu.

Calibration settings, for each combination of gases used, are stored in an internal memory and are recalled automatically every time a particular gas mix is required. This enables quick and easy switching between gas combinations.

Sophisticated microprocessor electronics enable the fastest possible response time, excellent stability and flexibility.

Sample pressure and flow are internally controlled allowing connection to a wide range of pressurised samples.

Options include automatic calibration, when the instrument can be set to perform a zero and span calibration at timed intervals.

Features

- Programmable for different gases
- Built-in linearisation
- Fast response
- Good stability
- Insensitive to sample flow
- Computer communications
- Autoranging electronics

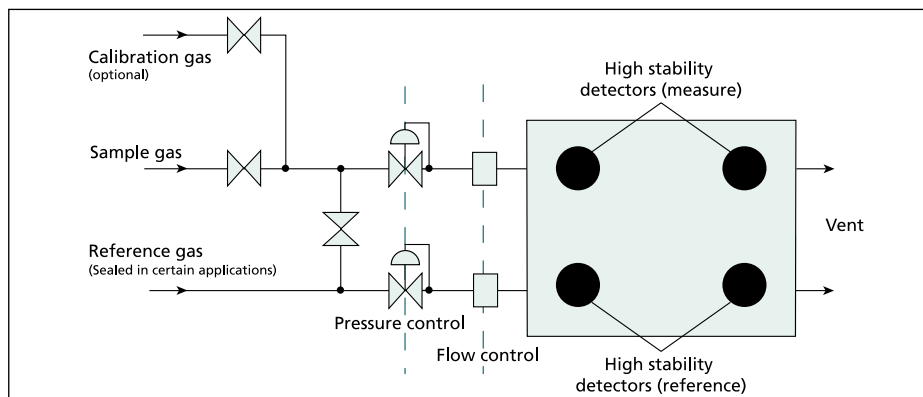
Applications

- Gas mixing
- Welding gases
- Heat treatment atmospheres
- Hydrogen/helium purity
- Food packaging gases

Principle of Operation

All gases conduct heat at a specific rate, known as the thermal conductivity of the gas. Matched pairs of heated filaments are installed in a large thermal mass detection block, one set in the stable reference gas and the other in the measured sample gas.

Each of these detectors form part of a Wheatstone Bridge powered by a constant current source. When the measured gas concentration changes, the sample detector will detect a change in the thermal conductivity and will cause an imbalance in the Wheatstone Bridge, resulting in a signal output proportional to the change in gas concentration. The signal is processed by state of the art digital electronics and the results shown on a high resolution digital LED display.



Technical Specification

Ranges	Dependent on selected gas mix Adjustable, auto-ranging Typical: 0-1000ppm (H ₂ in N ₂) 98-100% (O ₂ in Ar)
Resolution	0.5% or better
Accuracy	±2% of range
Response time	90% of reading in 20 seconds
Calibration range	0-100% of selected measure gas Automatic timed calibration as standard Auto zero
Measuring cell type	Thermal conductivity/katherometer, ultra stable
OPERATING CONDITIONS	
Sample inlet pressure	1.0 to 7.0 Barg
Sample flow rate	Internally controlled (max 250ml/min)
Sample temperature	-10 to 40°C
Ambient temperature	-5 to 50°C
Sample connections	1/8" OD compression fittings (others on request)
Unsuitable gases	Corrosive gases (contact Systech for alternatives)
POWER REQUIREMENTS	
Power supply	230/115V ±10%, 50/60Hz at 40VA
Display type	4 digit high visibility LED and 12 digit alphanumeric
CABINETY AND MOUNTING	
Enclosure	Sheet steel
Installation	Bench or panel mounting
Dimensions	535W × 165H × 300D (mm)
Panel cutout	445W × 132.5D (mm), if required
Weight	12kg
Ingress protection	IP40
OPTIONS	
Alarms	Two adjustable alarms with volt-free, change-over contacts Fully configurable over complete range. Contact rating 10A@ 240V ac/30V dc
Analogue outputs	0-10V, 4-20mA (0-20mA) isolated Max loop resistance 500 Ohms
Serial interface	Allows connection to a computer
Multipoint sampling	Sequenced sampling for up to 8 sample lines
Sample gas pump	Externally mounted
IP55 enclosure	
Sealed reference gas	Dependent on application and range (contact Systech for options)
Corrosive gases	Contact Systech for information on alternative options



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