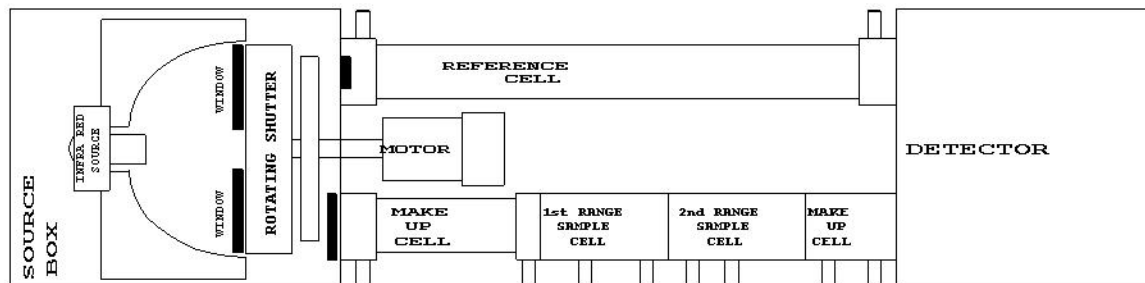


Model 418 Dual beam non-dispersive infra-red gas analyser

High sensitivity gas filled detectors	Wide range of gas species and ranges	Stable, selective measurements
Linearised signal outputs	Fast response	Continuous operation
Does not affect sample gas	Microprocessor controlled electronics	Compact 4U rack mount housing
Proven reliability	Wide range of ancilliary options	



Overview

Non-dispersive infrared gas analysis is an established technique for the quantitative determination of gases and vapours possessing heteroatomic molecules. The method has the advantages of being continuous and selective, as well as leaving the sample unaffected. It offers a wide range of sensitivity, and is free from hysteresis and poisoning effects.

The double beam analysers in the Signal 418 series offer a range of general purpose instruments, ideally suited to a wide range of applications wherever a high degree of selectivity is required. The gas sensitised detector employed ensures good sensitivity and enables a wide range of gases and vapours to be measured.

Operation

A heated source provides infrared radiation which is interrupted by a rotating shutter. The resulting series of pulses is directed through a pair of analysis cells into the detector unit. The sample gas passes through one of the analysis cells, whilst the other cell contains a non infrared absorbing gas to act as a reference. The detector responds to the difference in infrared energy levels arising from the presence of the measured stream in the analysis cell, and the output signal from the detector is amplified and displayed.

Gas to be measured	Formula	LDL (ppm)
Ammonia	NH ₃	1.0
Carbon Dioxide	CO ₂	0.3
Carbon Monoxide	CO	1.0
CFCs/Freons		5.0
Dichloromethane	CH ₂ Cl ₂	2.5
Methane	CH ₄	2.0
Nitric Oxide	NO	5.0
Nitrogen Trifluoride	NF ₃	0.5
Nitrous Oxide	N ₂ O	0.5
Sulphur Dioxide	SO ₂	2.0
Sulphur Hexafluoride	SF ₆	1.0
Toluene	C ₆ H ₅ CH ₃	5.0
Water Vapour	H ₂ O	5.0

Specifications

Measurement technique	Non-dispersive infrared absorption with gas sensitised detector. Double beam in space
Measuring range	Up to 100% for gases, and saturation concentration for vapours
Resolution	Display 0.1% FSD Output < 0.1% FSD
Repeatability	+/- 0.1% FSD
Noise	+/- 0.1% FSD
Linearity	+/- 0.5% FSD
Zero stability	< 0.5% FSD over 24 hours *
Span stability	< 0.5% FSD over 24 hours *
Temperature effect on zero	+/- 0.1% FSD per °C
Temperature effect on span	+/- 0.1% FSD per °C
Cell response	Typically 4 seconds to T ₉₀ **
Flow rate	Typically 0.2 to 2 l/min
Electrical connections	3 pin IEC power connector 9 pin D connector for RS232C
Gas connections	1/4 inch compression fittings
Installation	19 inch rack mounting with optional bench case
Operating conditions	0-40°C ambient temperature 0-95% Relative humidity
Sample conditions	0-50°C, non-condensing
Power requirements	Nominal 110/220/240V 50/60Hz 120VA
Dimensions	19" rack or bench mount 4U high. 550mm behind mounting face 45mm in front of mounting face
Weight	Approximately 22Kg

* not applicable if auto zero/span options fitted

** dependent on cell size and flow rate