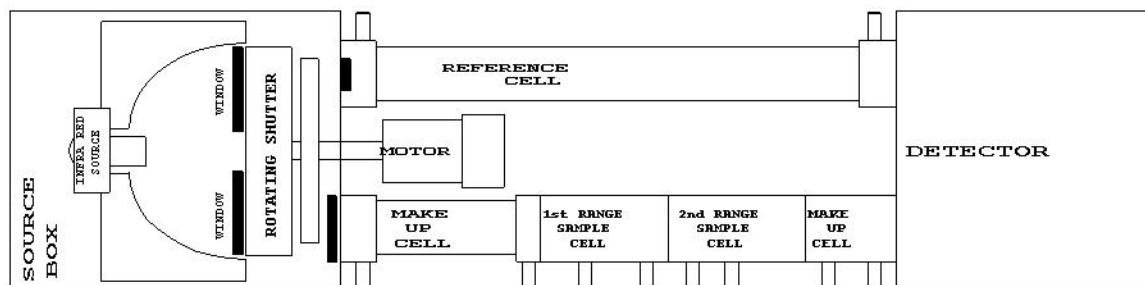


## Model 418 Dual beam non-dispersive infra-red gas analyser

|                                       |                                       |                                |
|---------------------------------------|---------------------------------------|--------------------------------|
| 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 <sub>3</sub>                               | 1.0       |
| Carbon Dioxide       | CO <sub>2</sub>                               | 0.3       |
| Carbon Monoxide      | CO  | 1.0       |
| CFCs/Freons          |   | 5.0       |
| Dichloromethane      | CH <sub>2</sub> Cl <sub>2</sub>               | 2.5       |
| Methane              | CH <sub>4</sub>                               | 2.0       |
| Nitric Oxide         | NO  | 5.0       |
| Nitrogen Trifluoride | NF <sub>3</sub>                               | 0.5       |
| Nitrous Oxide        | N <sub>2</sub> O                              | 0.5       |
| Sulphur Dioxide      | SO <sub>2</sub>                               | 2.0       |
| Sulphur Hexafluoride | SF <sub>6</sub>                               | 1.0       |
| Toluene              | C <sub>6</sub> H <sub>5</sub> CH <sub>3</sub> | 5.0       |
| Water Vapour         | H <sub>2</sub> 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<br>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 <sub>90</sub> **  |
| Flow rate                  | Typically 0.2 to 2 l/min   |
| Electrical connections     | 3 pin IEC power connector<br>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<br>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.<br>550mm behind mounting face<br>45mm in front of mounting face |
| Weight                     | Approximately 22Kg   |

\* not applicable if auto zero/span options fitted

\*\* dependent on cell size and flow rate