

Features

- *Microprocessor based*
- *4-20mA Analogue Output*
- *Voltage free relay contacts*
- *RS485 digital interface*
- *Alphanumeric dot-matrix display*
- *“One Person” calibration*
- *Dual detectors*
- *Temperature compensation*
- *Standalone operation*

The Monicon IR80 is a high quality, self contained, NDIR (Non Dispersive Infra Red) gas sensor that offers a host of sophisticated features to provide fast, reliable warnings against exposure to dangerous concentrations of carbon dioxide.

The IR80 will operate as a standalone instrument or in conjunction with a controller or a computer. It is housed in an attractive, compact enclosure and may be configured or calibrated by one person.

The gas concentration is indicated on a rugged 8-character alphanumeric display which also indicates instrument status.

The IR80 is fully user programmable and no physical adjustments are necessary during calibration as the on-board computer assists the calibration procedure.

All user variables are stored in non-volatile memory (EEPROM) and retained indefinitely even during total power failure.



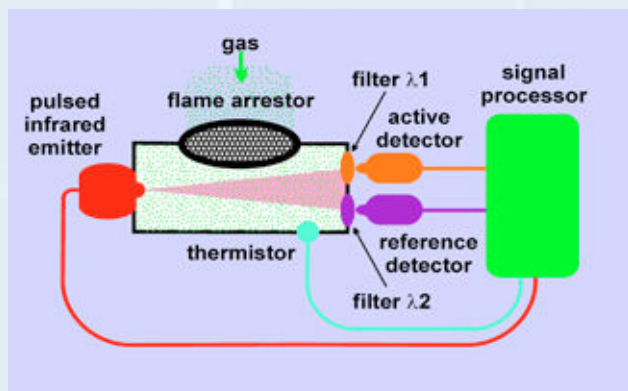
Typical Applications for the IR80

- *Breweries*
- *Landfill Sites*
- *Food processing*
- *Soft Drinks Manufacture*
- *Cellars*
- *Chemical Processing*
- *Ventilation Systems*
- *Laboratories*
- *Mushroom Farming*
- *Greenhouses*

The IR80 uses advanced NDIR technology combined with surface-mount microprocessor and firmware technology. A pulsed infrared source emits a broad spectrum infrared beam within an optical cavity. The system measures the adsorption of infrared energy as it passes through a gas sample. Different gases have clearly defined absorption characteristics, their concentration can be determined by their absorption of infrared radiation at the wavelength determined by filter lambda 1 in the diagram.

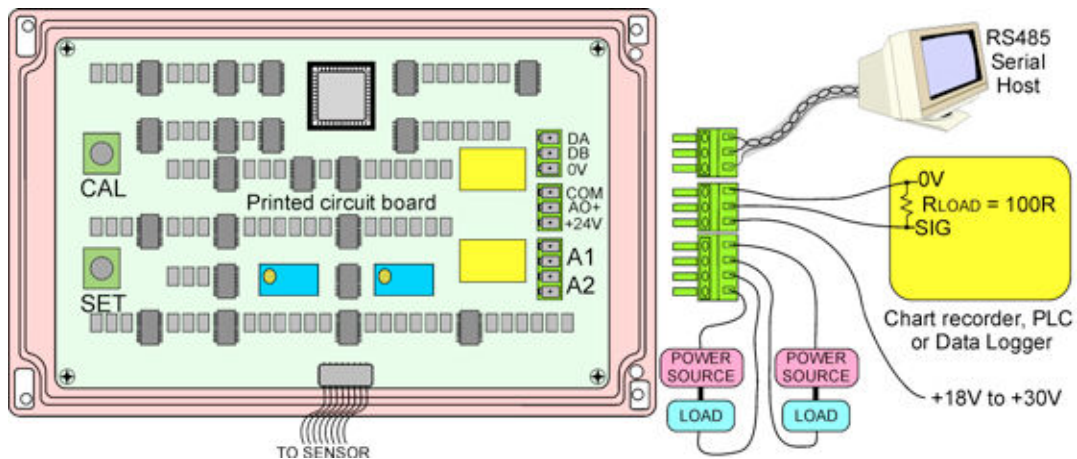
To compensate for interfering factors filter lambda 2 isolates another wavelength which is used to measure the total transmission through the optical cavity and is not affected by the gas being monitored. By comparing the infrared energy reaching each of the two detectors, the concentration of the gas sample can be determined. The signal processor compares and linearises these two signals. A thermistor monitors the sensor temperature and the signal processor factors in variations caused by temperature changes.

The unit is calibrated or user-programmed by means of on-board pushbutton switches. The operator is then guided through a variety of options by a user-friendly menu. The CPU constantly verifies system operation. In the unlikely event of a fault, the operator is alerted with a helpful diagnostic display.



IR80 Specifications

Supply voltage	Nominal 24Vdc (operates from 20Vdc to 35Vdc)
Power consumption	2W nominal, 2.3W maximum
Circuit protection	Electronic current limiter, 1.5A auto-reset
Transient Protection	PCB mounted, 3 Joule, Metal Oxide Varistor
Analogue output	4-20mA current source referenced to 0V
Analogue output load	100 Ohms typical, 500 Ohms maximum
Operating temperature	-20°C to +50°C
Storage temperature	-40°C to +66°C
Humidity range	10%RH to 90%RH (Non-condensing)
Preconditioning Requirements	Operational: 30 seconds, Specification: 60 minutes
Full-Scale range	0-1%, 0-3%, 0-5%, 0-25% or 0-100% CO ₂
Response time (T90)	Typically <45 seconds
Drift, S.T.P. continuous duty in air	<3% over three months
Linearity	±5%
Repeatability	±2%
Resolution	1% on 0-1%, 0-25% & 0-100% ranges. 2% on 5% range.
Sensor MTBF	10 years (calculations based on MIL-HDBK-217F)
Recommended Calibration Interval	12 months (depending on application)
Weight	1.5Kg (including sensor)
RS485 operating mode	Slave mode, half duplex, polled
Max. units on RS485 loop	100
RS485 comm parameters	1200-N-8-1
RS485 error checking	1 byte checksum
Unit interrogation time	400mS
Relay contacts	SPST, NO, 230V @ 1A each for A1 & A2
Option setting	Digital setting (all options fitted as standard and user selectable)
Alarm setting	Digital setting (fully adjustable between 10% and 90% of full scale)
Alarm types	Energised/de-energised. Enrichment/deficiency. User selectable
Recommended calibration flow rate	500mL per minute
Mounting holes	4 holes, diam 5mm, spaced 145mm horizontally, 63mm vertically
User variable storage	Non-volatile RAM (EEPROM)
Electromagnetic Conformance (EMC)	Complies with EN50081 and EN50082
Cable gland entry	M20 x 1.5
Terminations	Detachable, PCB mounted terminal blocks to accept 1.5mm ² cable
Enclosure	Epoxy coated aluminium. Size W: 160mm H: 100mm D: 60mm
Literature supplied	24-page detailed instruction manual with wiring diagram



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