MONICON
ADVANCED GAS MONITORING INSTRUMENTS

S500L-IR-N2O NDIR Nitrous Oxide Monitor

Features

- *Microprocessor based*
- *4-20mA Analogue Output*
- *Voltage free relay contacts*
- *RS485 digital interface*
- *Alphanumeric dot-matrix display*
- *"One Person" calibration*
- *Dual detectors*
- *Certified ATEX II 2 G Ex d IIC T6*
- *Temperature compensation*
- *Standalone operation*

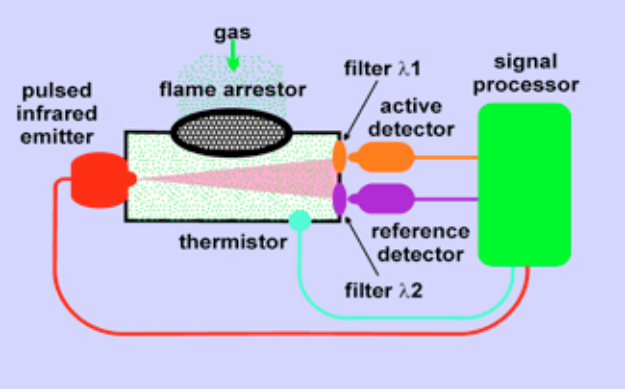
The Monicon S500L-IR-N2O is a high quality, self contained, NDIR (Non Dispersive Infra Red) gas monitor that offers a host of sophisticated features to provide fast, reliable warnings against dangerous concentrations of nitrous oxide gas.

The S500L-IR-N2O will operate as a standalone instrument or in conjunction with a controller or a computer. It is housed in an attractive, compact diameter enclosure and may be configured or calibrated by one person, without declassifying the hazardous area.

The gas concentration is indicated on a rugged 4-character alphanumeric display which also indicates instrument status.

The S500L-IR-N2O is fully user programmable and no physical adjustments are necessary during calibration as the on-board computer assists the calibration procedure. Because the unit uses infrared energy rather than catalysts, the sensor is unaffected by catalytic poisons that have an adverse affect on traditional "pellistor" based sensors.

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



Typical Applications for the S500L-IR-N2O

Hospitals
Dentistry
Chemical processing
Aerospace
Rocketry
Motor racing
Food processing
Nitrous oxide storage
Laboratories
Aerosol manufacture

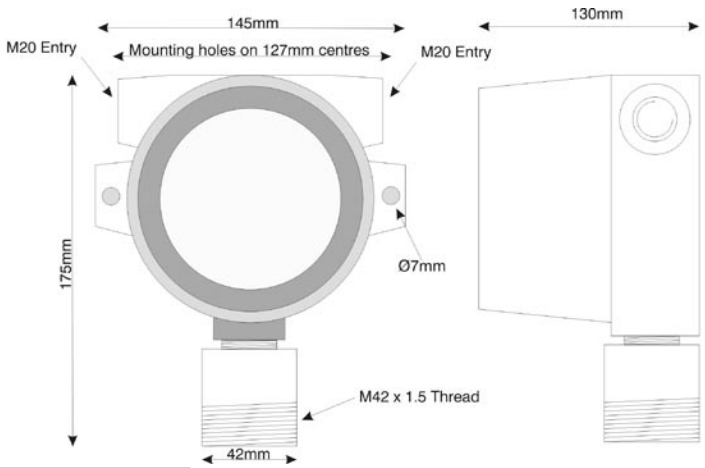
The instrument uses advanced NDIR technology combined with surface-mount microprocessor and firmware technology. A pulsed infrared source emits a broad spectrum infrared beam within an optical cavity. The system measures the adsorption of infrared energy as it passes through a gas sample. Nitrous oxide has clearly defined absorption characteristics, so the concentration can be determined by the 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 nitrous oxide. 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 and factors in variations in temperature.

The unit is calibrated or user-programmed by activating magnetic switches with a magnet. 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.

S500L-IR-N2O 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	500 Ohms maximum
Operating temperature	*-20˚C to +50˚C*
Storage temperature	*-20˚C to +66˚C*
Humidity range	*10%RH to 90%RH (Non-condensing)*
Preconditioning Requirements	*Operational: 30 seconds, Specification: 15 minutes*
Full-Scale range	*0 - 2000ppm or 0-1% nitrous oxide*
Response time (T90)	*Typically <30 seconds*
Drift, S.T.P. continuous duty in air	*<3% over three months*
Linearity	*±5%*
Repeatability	*±2%*
Resolution	*1%*
Sensor MTBF	*10 years (calculations based on MIL-HDBK-217F)*
Recommended calibration interval	*12 months (depending on application)*
Weight	*1.8Kg (including sensor)*
RS485 operating mode	*Slave mode, half duplex, polled (Modbus protocol TBA)*
Max. units on RS485 loop	*100*
RS485 comm parameters	*1200-N-8-1*
RS485 error checking	*1 byte checksum*
Unit interrogation time	*40mS*
Relay contacts	*SPST, NO, 125V @ 0A5 (30V DC @ 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*
ATEX certification - S500L-IR	*II 2 G Ex d IIC T6 Tamb -20˚C to +60˚C (certificate number Baseefa08ATEX0056)*
Recommended calibration flow rate	*500mL per minute*
Mounting holes	*2 holes, diam 7mm, spaced 127mm*
User variable storage	*Non-volatile RAM (EEPROM)*
Electromagnetic Conformance (EMC)	*Complies with EN50081 and EN50082*
Cable gland entries	*2 entries, each M20 x 1.5*
Terminations	*PCB mounted terminal blocks to accept 1.5mm^2 cable*
Enclosure material	*Aluminium pressure die-casting, chromated with with blue epoxy finish.*



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