

Features

- Microprocessor based
- 4-20mA Analogue Output
- Voltage free relay contacts
- RS485 digital interface
- Alphanumeric dot-matrix display
- "One Person" calibration
- Small size
- Certified ATEX II 2 G Ex d IIC T6
- Low power consumption
- Standalone operation

The Monicon S500L is a high quality, self contained, Intelligent gas sensor that offers a host of sophisticated features to provide fast, reliable warnings against explosive concentrations of combustible gases.

The S500L will operate as a standalone instrument or in conjunction with a controller or a computer. The S500L 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 4-character alphanumeric display which also indicates instrument status. The S500L 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.

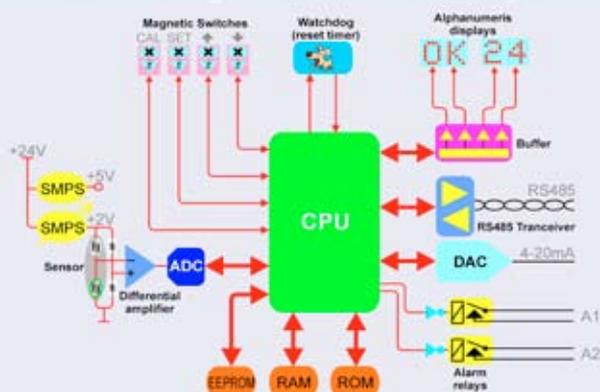


Typical Applications for the S500L

- Oil refineries
- Chemical processing
- Offshore platforms
- Gas processing
- Oil and gas storage depots
- Gas pipelines
- Tank farms
- Laboratories
- Petrochemical industry

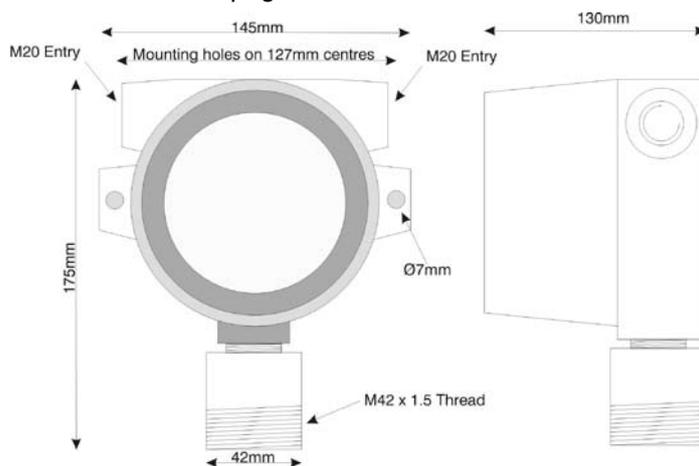
The S500L uses the proven Monicon CGS500 thermocatalytic sensor combined with advanced, surface-mount microprocessor and firmware technology. Combustible gas oxidising on the surface of a thermocatalytic element causes an imbalance in a Wheatstone bridge circuit. This imbalance is amplified to give a voltage proportional to the gas concentration. This voltage is then processed by the CPU. A watchdog circuit monitors the system operation and resets the CPU if a failure is detected.

The S500L is calibrated or user-programmed by activating the 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 Specifications

Supply voltage	<i>Nominal 24Vdc (operates from 20Vdc to 35Vdc)</i>
Power consumption	<i>2W nominal, 2.3W maximum</i>
Circuit protection	<i>Electronic current limiter, 1.5A auto-reset</i>
Transient Protection	<i>PCB mounted, 3 Joule, Metal Oxide Varistor</i>
Analogue output	<i>4-20mA current source referenced to 0V</i>
Analogue output load	<i>500 Ohms maximum</i>
Operating temperature	<i>-20°C to +60°C</i>
Storage temperature	<i>-40°C to +66°C</i>
Humidity range	<i>5%RH to 95%RH (Non-condensing)</i>
Preconditioning Requirements	<i>Operational: 30 seconds, Specification: 60 minutes</i>
Full-Scale range	<i>0 - 100% LEL (Lower Explosive Limit)</i>
Response time (T90)	<i>Typically <15 seconds</i>
Drift, S.T.P. continuous duty in air	<i><7% over three months (complies with EN50057)</i>
Linearity	<i>±5%</i>
Repeatability	<i>±2%</i>
Resolution	<i>1%</i>
Sensor life	<i>Typically 5-7 years</i>
Weight	<i>1.8Kg (including sensor)</i>
RS485 operating mode	<i>Slave mode, half duplex, polled</i>
Max. units on RS485 loop	<i>100</i>
RS485 comm parameters	<i>1200-N-8-1</i>
RS485 error checking	<i>1 byte checksum</i>
Unit interrogation time	<i>40mS</i>
Relay contacts	<i>SPST, NO, 125V @ 0A5 (30V DC @ 1A) each for A1 & A2</i>
Option setting	<i>Digital setting (all options fitted as standard and user selectable)</i>
Alarm setting	<i>Digital setting (fully adjustable between 10% and 90% of full scale)</i>
Alarm types	<i>Energised/de-energised. Enrichment/deficiency. User selectable</i>
ATEX certification	<i>II 2 G Ex d IIC T6 Tamb -20°C to +60°C (Certificate number Baseefa08ATEX0056)</i>
Recommended calibration flow rate	<i>300mL per minute</i>
Mounting holes	<i>2 holes, diam 7mm, spaced 127mm</i>
User variable storage	<i>Non-volatile RAM (EEPROM)</i>
Electromagnetic Conformance (EMC)	<i>Complies with EN50081 and EN50082</i>
Cable gland entries	<i>2 entries, each M20 x 1.5</i>
Terminations	<i>PCB mounted terminal blocks to accept 1.5mm² cable</i>
Enclosure material	<i>Aluminium pressure die-casting, chromated with blue epoxy finish.</i>
Literature supplied	<i>30-page detailed instruction manual with wiring diagram</i>



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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 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 explosive concentrations of combustible gases.

The S500L-IR 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 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 the 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.



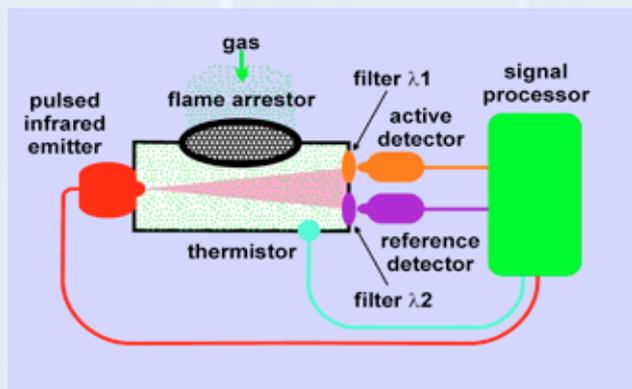
Typical Applications for the S500L-IR

- *Oil refineries*
- *Chemical processing*
- *Offshore platforms*
- *Gas processing*
- *Oil and gas storage depots*
- *Gas pipelines*
- *Tank farms*
- *Laboratories*
- *Petrochemical industry*

The S500L-IR 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.

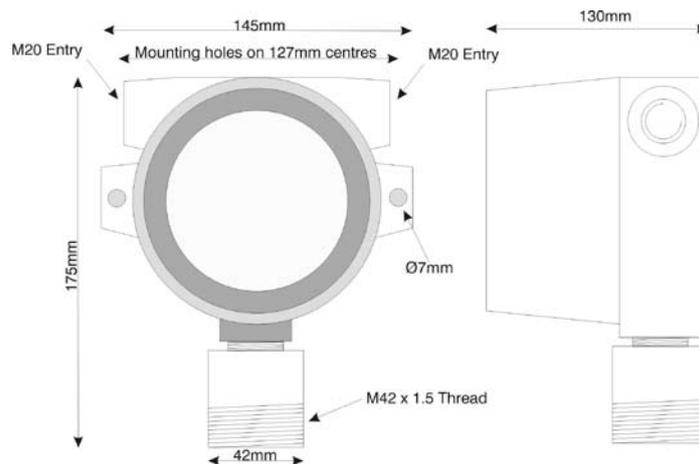
To compensate for interfering factors filter lambda 2 isolates another wavelength which is used to measure the total transmission through the optical cavity and is not affected by the gas being monitored. By comparing the infrared energy reaching each of the two detectors, the concentration of the gas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

Supply voltage	<i>Nominal 24Vdc (operates from 20Vdc to 35Vdc)</i>
Power consumption	<i>2W nominal, 2.3W maximum</i>
Circuit protection	<i>Electronic current limiter, 1.5A auto-reset</i>
Transient Protection	<i>PCB mounted, 3 Joule, Metal Oxide Varistor</i>
Analogue output	<i>4-20mA current source referenced to 0V</i>
Analogue output load	<i>500 Ohms maximum</i>
Operating temperature	<i>-20°C to +50°C</i>
Storage temperature	<i>-40°C to +66°C</i>
Humidity range	<i>10%RH to 90%RH (Non-condensing)</i>
Preconditioning Requirements	<i>Operational: 30 seconds, Specification: 15 minutes</i>
Full-Scale range	<i>0 - 100% LEL (Lower Explosive Limit)</i>
Response time (T90)	<i>Typically <30 seconds</i>
Drift, S.T.P. continuous duty in air	<i><3% over three months</i>
Linearity	<i>±5%</i>
Repeatability	<i>±2%</i>
Resolution	<i>1%</i>
Sensor MTBF	<i>10 years (calculations based on MIL-HDBK-217F)</i>
Recommended calibration interval	<i>12 months (depending on application)</i>
Weight	<i>1.8Kg (including sensor)</i>
RS485 operating mode	<i>Slave mode, half duplex, polled (Modbus protocol TBA)</i>
Max. units on RS485 loop	<i>100</i>
RS485 comm parameters	<i>1200-N-8-1</i>
RS485 error checking	<i>1 byte checksum</i>
Unit interrogation time	<i>40mS</i>
Relay contacts	<i>SPST, NO, 125V @ 0A5 (30V DC @ 1A) each for A1 & A2</i>
Option setting	<i>Digital setting (all options fitted as standard and user selectable)</i>
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ATEX certification	<i>II 2 G Ex d IIC T6 Tamb -20°C to +60°C (certificate number Baseefa08ATEX0056)</i>
Recommended calibration flow rate	<i>500mL per minute</i>
Mounting holes	<i>2 holes, diam 7mm, spaced 127mm</i>
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Terminations	<i>PCB mounted terminal blocks to accept 1.5mm² cable</i>
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