



Senscient ELDS™ Series 2000 for Multi Hydrocarbons + Hydrogen Sulphide

Overview

This laser based Open Path Gas Detector (OPGD) can detect a range of Hydrocarbons e.g. Methane, Ethane, Propane, Butane, Pentane, Hexane, Ethylene, Propylene and Butene plus Hydrogen Sulphide in a single device.

Unlike traditional NDIR hydrocarbon devices, which are calibrated for a single hydrocarbon, Senscient's Multi Hydrocarbon+H₂S device is factory calibrated to provide accurate gas readings for Methane, Ethane, Ethylene plus a fourth higher hydrocarbon selectable at the time of manufacture and H₂S.

This laser based Multi Hydrocarbon+H₂S device, provides significant advantages over traditional NDIR OPGD Hydrocarbon and point H₂S devices: Can detect Hydrocarbons and H₂S in a single device, saving on installation costs, improved accuracy of response to a range of different hydrocarbons, greater resilience to the effects of rain, fog, obscuration and misalignment, plus total immunity to false alarms from oil mist, and interference gases.

Combined with the patented daily auto-self testing facility; called SimuGas™; the Senscient ELDS™ Multi Hydrocarbon+H₂S detector negates the need for manual intervention with plastic filters or test gases to validate performance and has no consumable sensing elements, providing significant operational cost savings.

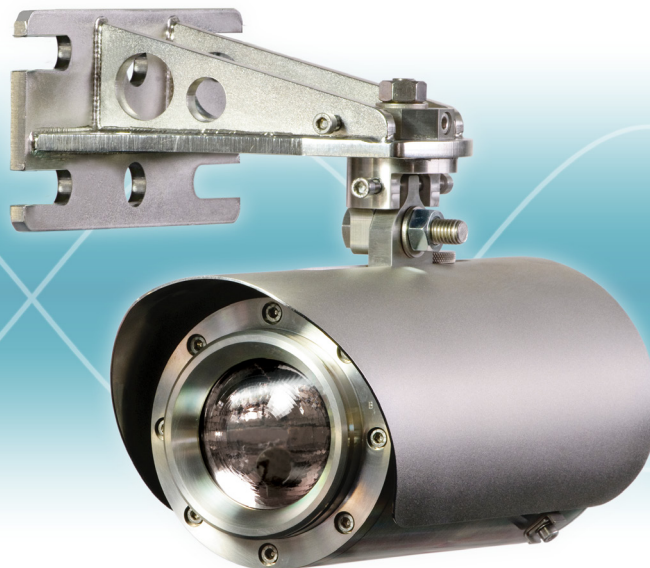
Applications:

This Multi Hydrocarbon+H₂S OPGD device is used to protect plant from the risk of explosion and warning of a toxic H₂S presence. Typically located to provide a detection barrier around the perimeter of a plant, process or storage area; or positioned in close proximity to specific items of plant, that pose a real risk of gas escape: e.g. compressors, pump sets, scrubber units, valves and pipe flanges.

A Multi Hydrocarbon+H₂S detector is ideally suited for:

- Petrochemical refineries
- Chemical plants
- Gas conditioning plants

Laser Technology for Reliable Gas Detection



Multi Hydrocarbon + Hydrogen Sulphide OPGD

Features:

- Operates up to 60 metres – Significant installation cost savings over multiple fixed point gas detectors.
- Ultra narrow wavelength operation - Improved availability in heavy fog and rain compared to traditional, NDIR devices
- Reduced operating cost - No consumable sensing elements compared to traditional electro chemical cell based devices.
- Fail safe - Will respond to H₂S after long periods of H₂S free exposure, unlike traditional metal oxide devices.
- SimuGas™ daily auto gas testing – No manual intervention or on-going cost for routine testing.

About Senscient ELDS™

Senscient's Enhanced Laser Diode Spectroscopy (ELDS™) product range builds upon the proven benefits of laser based gas sensing, taking this sensing principle to the next level, providing significant advances in false alarm rejection and safety integrity in the most challenging operating conditions.

In addition to this Multi Hydrocarbon + H₂S device, gas species specific devices are available using patented Harmonic Fingerprint™ technology for the detection of: Methane (CH₄), Ethylene (C₂H₄), Ammonia (NH₃), Carbon Dioxide (CO₂), Hydrogen Sulphide (H₂S), Hydrogen Chloride (HCl) and Hydrogen Fluoride (HF). Other gases to be added.

Specifications:

Gas	Multi Hydrocarbon (Responding to Methane, Ethane, Propane, Butane, Pentane, Hexane, Ethylene, Propylene & Butene) Plus Hydrogen Sulphide
Factory calibrated with	Methane, Ethane, Ethylene plus Hydrogen Sulphide
Additional calibration option	Butane or Propane or Propylene or Hexane
Range	0-5 LEL.m (MHC) 0-500 ppm.m (H ₂ S)
Path Length	5-60 m
Format	Individual Transmitter (Tx) & Receiver (Rx)

Performance:

Response Time	T90 =Typically 5 seconds
Repeatability	< ± 5% FSD
Linearity	< ± 5% FSD

Environmental:

Ingress Protection	IP66/67 NEMA type 4/4X/6
Enclosure Material	316L stainless steel
Lens Material Tx	Faceted Optical Glass
Lens Material Rx	Aspheric Optical Glass
Operating Temperature	-55°C to +60°C (ambient)
Humidity	0 – 100% RH (non-condensing)
Vibration	10 – 150 Hz, 2 g
EMC	EN50270

Certification/Approvals:

CSA and UL

Class I Div 1 Groups B C & D T5
Class II Div 1 Groups E F & G T5
Class III Div 1
Ex d IIB + H₂ T5
Class I, Zone 1, AEx d IIB + H₂ T5
Tamb = -40°C to +60°C
Entry: ¾" NPT

ATEX / IECEx

II 2 GD Exd IIB + H, T5
Tamb -40°C to +60°C Gb
and Ex tb IIIC T100°C
Tamb = -40°C to +60°C Db IP66/67
Entry: M25

Safety Integrity

Suitable for use in SIL2 Safety Systems per IEC 61508

Electrical:

Operating Voltage	Tx & Rx +24V DC , (+18 to +32V DC)
Power Consumption	Tx = 12 W (max), Rx = 10 W (max)
Outputs (Analog x 2)	4-20 mA, Configurable for 2 wire isolated or single wire, sink or source. Output 1 - MHC on 4-20mA Output 2 - H ₂ S on 4-20mA
Low Signal	3 mA (configurable 1 to 4 mA)
Beam Block	2.5 mA (configurable 0 to 3.5 mA)
Inhibit	2 mA (configurable 1 to 3.5 mA)
Fault	0.5 mA (configurable 0 to 1 mA)
Over range	21.5 mA (configurable 20 to 21.9 mA)
Output (Digital)	HART 7.1 & MODBUS RTU supported

Mechanical:

Size	Tx/Rx 140 mm dia. x 300 mm
Weight	Tx/Rx 12 kg each (c/w bracket)
Sun / Deluge Protection	Tx & Rx supplied with sun / deluge protection
Mounting	Tx & Rx supplied with mounting brackets incorporating fixing holes / slots for flat surface or metal pole mounting. (Note: mounting poles should be of 4" to 6" [100 mm to 150mm] diameter. Fixing bolts / U bolts are not supplied)

Optical:

Uses HARMONIC FINGERPRINT™ to ensure no false alarms during adverse environmental conditions, misalignment or partial obscuration.

Alignment	+/- 0.5°
Obscuration	>= 95%
Heated Optics	Tx & Rx lenses are continuously heated.
Laser Beam	Class 1 (Eye Safe) IEC 60825-1

Calibration :

Factory calibrated for life, no routine calibration required.

Ordering Information:

To order / specify:	Senscient ELDS 2000,
Calibrated option:	e.g Butane (see specification section)
Measuring Range:	0-5 LEL.m (MHC) 0-500ppm.m (H ₂ S)
Path length:	5-60m
Certification:	e.g. ATEX/IECEx

Accessories:

Optical alignment scope with transport case
Approved industrial computer, c/w SITE software

Distributed by:

