Senscient

Laser Technology for Reliable Gas Detection

Senscient ELDS™ Series 2000 for Hydrogen Sulphide + Methane

Hydrogen Sulphide + Methane OPGD

Overview

This Open Path Gas Detector (OPGD) detects two gases in a single instrument, Hydrogen Sulphide (H_2S). and Methane (CH_4). Each of the two detection channels is configured and specific to the target gas. The separate transmitter and receiver assemblies are certified for use in potentially explosive atmospheres and can detect H_2S + CH_4over distances of 5 to 60 metres.

Constructed in high grade corrosion resistant 316L Stainless Steel this device is ideally suited for onshore and offshore, open and enclosed environments.

With no consumable parts and the patented daily auto-self testing facility; called SimuGas™; the Senscient ELDS™ H_2S + CH_4 detector offers significant installed and operational cost savings over conventional fixed point toxic and flammable gas detectors.

Applications:

Open path H_2S + CH_4 gas detectors are used to monitor for fugitive emissions, protect personnel and warn of plant failure. These devices are typical 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. pump sets, pressure reducers, valves and pipe flanges.

- Oil & gas exploration rigs
- Oil & gas production platforms
- Sour gas sweetening plants
- Petrochemical refineries
- Waste water treatment plants
- Landfill sites

Features:

- Fastest speed of response (H_2S <5 & CH_4 < 3seconds) – Increased safety by providing earlier warning.
- Operates up to 60 metres – Significant installation cost savings over multiple fixed point gas detectors.
- No consumable parts – No on-going cost for replacement sensing elements and associated service labour.
- SimuGas™ daily auto gas testing – No manual intervention or on-going cost for routine gas testing.
- H_2S & CH_4 specific – No false alarms from interference gases as experienced with many fixed point toxic gas detectors.
- Bluetooth™ connectivity – No physical intervention needed for interrogation, event log downloading and trouble shooting.

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. Patented technologies such as the Harmonic Fingerprint™ and SimuGas™ provide the highest levels of gas specificity, false alarm rejection and safety integrity in the most challenging operating conditions.

Detectable gases include: Methane (CH_4) , Ethylene (C_2H_4), Ammonia (NH_3), Carbon Dioxide (CO_2), Hydrogen Sulphide (H_2S), Hydrogen Chloride (HCl) and Hydrogen Fluoride (HF). Other gases to be added.

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Specifications:

Gas	Hydrogen Sulphide (H_2S) + Methane (CH_4)
Ranges	0-250 ppm.m or 0-500 ppm.m or 0-15000 ppm.m (H_2S) 0-1 LEL.m (CH_4)
Path Length	5-60 m
Format	Individual Transmitter (Tx) & Receiver (Rx)

Performance:

Response Time	T90 =< 5 seconds (H_2S) T90 =< 3 seconds (CH_4)
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	-40°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 + H_2 T5
Class I, Zone 1, AEx d IIB + H_2 T5
Tamb = -40°C to +60°C
Entry: ¾" NPT

ATEX / IECEx

II 2 GD Exd IIB + H_2 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

GOST-K

II 2 G Ex d IIB + H_2 T5
II 2 D Ex tD A21 IP66/67 T100°C
Tamb = -40°C to +60°C
Entry: M25

GOST-R

1EXDIIBT5/H_2X
Entry: M25

InMetro

Ex d UB + H_2 T5 Gb
Ex tD A21 IP66/67 T100°C
-40°C < Tas +60°C
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. CH_4 on 4-20mA(1) H_2S on 4-20mA(2), Note: Secondary range is typically greater than the primary.
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" [100mm 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,
Gas type:	H_2S + CH_4
Measuring Range:	e.g. 0-1 LEL.m + 0-250 ppm.m
Path length:	5-60m
Certification:	e.g. ATEX

Accessories:

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

Distributed by:

Senscient

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