

Senscient ELDS™ Series 1000 for Methane

Overview

This Open Path Gas Detector (OPGD) is specific to Natural Gas / Methane (CH₄). The separate transmitter and receiver assemblies are certified for use in potentially explosive atmospheres and can detect CH₄ over distances of 5 to 200 metres.

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

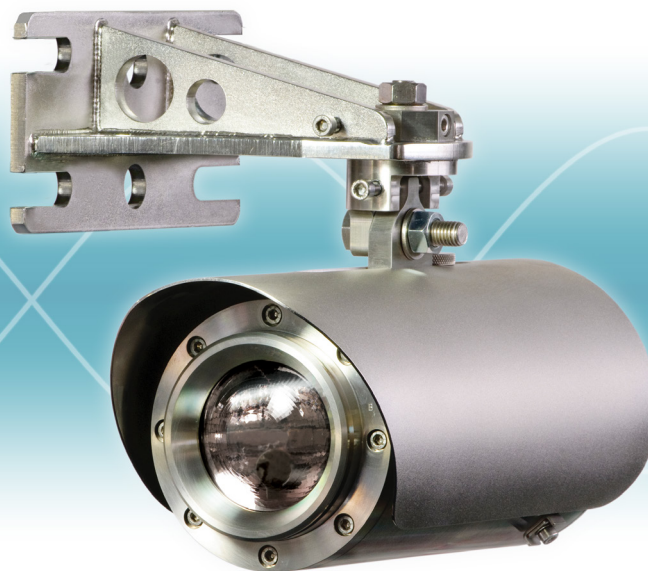
With no consumable parts and the patented daily auto-self testing facility; called SimuGas™; the Senscient ELDS™ CH₄ detector offers significant installed and operational cost savings over conventional fixed point flammable gas detectors.

Applications:

Open path Natural Gas / CH₄ gas detectors are used to monitor for fugitive emissions, protect plant from the risk of explosion. These devices are 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, pressure reducers, valves and pipe flanges

- Oil & gas exploration rigs
- Oil & gas production platforms
- Gas processing plants
- Gas terminals & processing plant
- Gas compressor & metering stations
- Gas fired power plants
- Petrochemical refineries
- Metals manufacturing plant
- Waste water treatment plants
- Landfill sites

Laser Technology for Reliable Gas Detection



Natural Gas / Methane Open Path Gas Detector

Features:

- Ultra narrow wavelength operation - Improved availability in heavy fog and rain compared to conventional, Infra Red devices
- SimuGas™ daily auto gas testing – No manual intervention or on-going cost for routine gas testing.
- Fastest speed of response (<3 seconds) – Increased safety by providing earlier warning.
- Capable of increased sensitivity to 3 orders of magnitude over conventional IR devices -providing earlier warning
- CH₄ specific – No false alarms from other hydrocarbon gases, as experienced with many other flammable gas detection technologies.
- 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 (CH₄), Ethylene (C₂H₄), Ammonia (NH₃), Carbon Dioxide (CO₂), Hydrogen Sulphide (H₂S), Hydrogen Chloride (HCl), Hydrogen Fluoride (HF) and Multihydrocarbons (MHC). Other gases to be added.

Specifications:

Gas Ranges	Methane (CH ₄) 0-1 LEL.m - <i>See Note 1 below</i> 0-5 LEL.m
Path Length Format	0-1000 ppm.m - <i>See Note 2 below</i> 5-40 m or 40-120 m or 120-200m Individual Transmitter (Tx) & Receiver (Rx)

Performance:

Response Time	T90 ≤ 3 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

Customs Union of Russia, Kazakhstan & Belarus

EAC EX TR CU CoC
IExdIIIBT5/H2X
Entry: M25

InMetro

Ex d IIB+H2 T5 Gb
ou
Extb IIIC T100°C Db IP66/67
Tamb: -40°C a +60°C
Entry: M25

ATEX / IECEx

II 2 GD Exd IIB + H₂ 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. Primary range on 4-20mA(1) Secondary range on 4-20mA(2), Note: Secondary range is typically greater than the primary. 3 mA (configurable 1 to 4 mA) 2.5 mA (configurable 0 to 3.5 mA) 2 mA (configurable 1 to 3.5 mA) 0.5 mA (configurable 0 to 1 mA) 21.5 mA (configurable 20 to 21.9 mA)
Low Signal Beam Block 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 x 2)	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	Operates up to 95%
Heated Optics	Tx & Rx lenses are continuously heated.
Laser Beam	Class 1 (Eye Safe) IEC 60825-1
FDA Accession No.	1410373-000 (For Imports into USA)

Calibration :

Factory calibrated for life, no routine calibration required.

Ordering Information:

To order / specify:	Senscient ELDS 1000,
Gas type:	CH ₄
Measuring Range:	e.g. 0-1 LEL.m
Path length:	e.g. 5-40m
Certification:	e.g. ATEX

Accessories:

Approved Interface terminal (PC)
Interface terminal (Tablet)
Optical Alignment Scope
Gassing Cell (Optional)
Snow Cowl (Optional)

Notes:

Note 1: FM performance approval on this range
Approval No. FM3049893

Note 2: Only available in 5-40m and 40-120m path lengths

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