



Senscient ELDS™ Series 1000 for Methane - Ventilation Zone

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 0.5 to 5 metres.

Constructed in high grade corrosion resistant 316L Stainless Steel this device is ideally suited for onshore and offshore, open and enclosed environments. Typically positioned in front of one or a number of banked ventilation air intakes and with a genuine speed of response then 1 second, this device is ideal for fast shutdown of HVAC inlets.

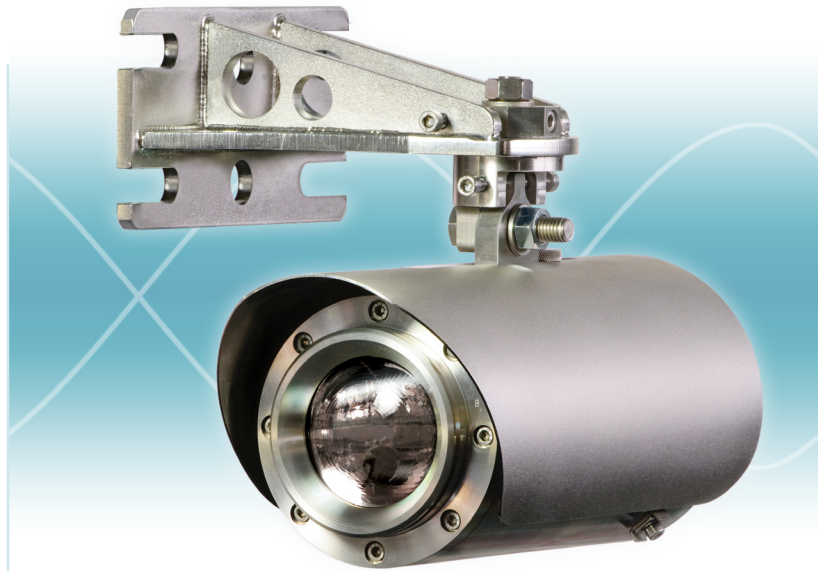
With no consumable parts and the patented daily auto-self testing facility; called SimuGas™; the Senscient ELDS™ CH₄ VZ detector offers significant installed and operational cost savings over conventional fixed point and cross duct flammable gas detectors.

Applications:

Open path Natural Gas / CH₄ ventilation inlet gas detectors are used to monitor for fugitive emissions, protect plant from the risk of explosion. These devices are typically located in front of a single banked set of ventilation air inlet grills to provide fast detection and shutdown of ventilation dampers.

- Oil & gas exploration rigs
- Oil & gas production platforms
- Oil & gas Production facilities
- FPSO's
- Petrochemical refineries
- Gas Turbine combustion air intakes

Laser Technology for Reliable Gas Detection



Natural Gas / Methane - Ventilation Zone OPGD

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 (<1 seconds) – Increased safety by providing earlier warning.
- Increased sensitivity over conventional IR devices e.g. 0-10,25 or 100% LEL -providing earlier detection & faster HVAC inlet shutdown
- CH₄ specific – No false alarms from other hydrocarbon gases, as experienced with many other flammable gas detection technologies.

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) and Hydrogen Fluoride (HF). Other gases to be added.

Specifications:

Gas Ranges	Methane (CH ₄) 0-10% LEL 0-25% LEL 0-100% LEL
Path Length Format	0.5 - 5m Individual Transmitter (Tx) & Receiver (Rx)

Performance:

Response Time	T90 =< 1 second
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 + 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 + 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

GOST-K

II 2 G Ex d IIB + H₂ T5
II 2 D Ex tD A21 IP66/67 T100°C
Tamb = -40°C to +60°C
Entry: M25

GOST-R

1EXDIIBT5/H₂X
Entry: M25

InMetro

Ex d UB + H₂ T5 Gb
Ex tD A21 IP66/67 T100°C
-40°C < Tas +60°C
Entry: M25

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	+/- 2.5°
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 1000VZ
Gas type:	CH ₄
Measuring Range:	e.g. 0-25% LEL
Path length:	0.5- 5m
Certification:	e.g. ATEX

Accessories:

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

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	HART 7.1 & MODBUS RTU supported
Beam Block	
Inhibit	
Fault	
Over Range	
Output (Digital)	

Distributed by:

