



## Senscient ELDS™ Series 1000 for Methane - Ventilation Zone

### Overview

This Open Path Gas Detector (OPGD) is specific to Natural Gas / Methane (CH<sub>4</sub>). The separate transmitter and receiver assemblies are certified for use in potentially explosive atmospheres and can detect CH<sub>4</sub> 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™ CH<sub>4</sub> VZ detector offers significant installed and operational cost savings over conventional fixed point and cross duct flammable gas detectors.

### Applications:

Open path Natural Gas / CH<sub>4</sub> 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
- CH<sub>4</sub> 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 (CH<sub>4</sub>), Ethylene (C<sub>2</sub>H<sub>4</sub>), Ammonia (NH<sub>3</sub>), Carbon Dioxide (CO<sub>2</sub>), Hydrogen Sulphide (H<sub>2</sub>S), Hydrogen Chloride (HCl), Hydrogen Fluoride (HF) and Multihydrocarbons (MHC). Other gases to be added.

## Specifications:

Gas Ranges	Methane (CH <sub>4</sub> ) 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	-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 + H<sub>2</sub> T5  
Class I, Zone 1, AEx d IIB + H<sub>2</sub> T5  
Tamb = -40°C to +60°C  
Entry: ¾" NPT

### ATEX / IECEx

II 2 GD Exd IIB + H<sub>2</sub> 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

EAC Ex TR CU Coc  
IExdIIBT5/H2X  
Entry: M25

### GOST-R

EAC Ex TR CU Coc  
IExdIIBT5/H2X  
Entry: M25

### InMetro

Ex d IIB+H2 T5 Gb  
ou  
Extb IIIC T100°C Db IP66/67  
Tamb: -20°C a +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. 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 Fault Over Range	
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	+/- 2.5°
Obscuration	<= 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 1000VZ
Gas type:	CH <sub>4</sub>
Measuring Range:	e.g. 0-25% LEL
Path length:	0.5- 5m
Certification:	e.g. ATEX

## Accessories:

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

Distributed by:

