

### Senscient ELDS™ Series 1000 for Methane Cross Duct (XC)

#### Overview

This Cross Duct Gas Detector 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.

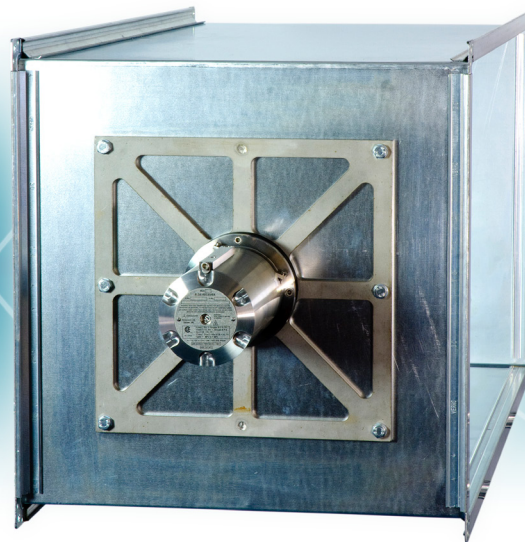
Constructed in high grade corrosion resistant 316L Stainless Steel this device is ideally suited for onshore and offshore, open and enclosed environments. Typically mounted on opposite sides of ventilation ducting and with a genuine speed of response of less than 0.25 seconds, this device is ideal for fast indication of gas concentration & the activation of process / ventilation control

With no consumable parts and the patented daily auto-self testing facility; called SimuGas™; the Senscient ELDS™ CH<sub>4</sub> XC cross duct detector offers significant operational cost savings over conventional fixed point & cross duct flammable gas detectors.

#### Applications:

The XC cross duct Methane (CH<sub>4</sub>) gas detector is used for applications where there is expected to be background concentrations of CH<sub>4</sub> and the objective is to detect significant changes to these levels e.g. coal mine exhaust ventilation, where the exhaust air flow is sent to an oxidizer and burnt before being sent to the atmosphere. These devices are typically mounted onto opposing side walls of ventilation ducting to provide earlier detection and fast activation of process executive actions.

- Coal Mining - Mine air ventilation supplies to oxidizer units



#### Methane - Cross Duct Gas Detector (XC)

#### Features:

- Fastest speed of response (<0.25 seconds) – Increased safety by providing earlier warning.
- SimuGas™ daily auto gas testing – No manual intervention or on-going cost for routine gas testing.
- Increased sensitivity over conventional IR devices e.g 0-25 or 100% LEL -providing earlier detection & faster activation of process ventilation executive actions.
- 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) and Hydrogen Fluoride (HF). Other gases to be added.

## Specifications:

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

## Performance:

Response Time	T90 =< 0.25 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	-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<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

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

### GOST-R

1EXDIIBT5/H<sub>2</sub>X  
Entry: M25

### InMetro

Ex d UB + H<sub>2</sub> T5 Gb  
Ex tD A21 IP66/67 T100°C  
-40°C < Tamb < +60°C  
Entry: M25

## Mechanical:

Size	Tx/Rx 140 mm dia. x 300 mm Mounting Plate (c/w fixing holes) Three size options 180mm x 180mm 250mm x 250mm 400mm x 400mm
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Weight (Module)	Tx = 12.8 kg Rx = 13.8 kg
Weight (Mounting Plate)	180 mm sq. 1.6 kg each 250 mm sq. 2.7 kg each 400 mm sq. 5.5 kg each

Mounting	Both Tx & Rx units require a mounting plate (ordered separately), for flat duct wall fixing. (Fixing bolts are not supplied).
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## 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 1000 XC
Gas type:	CH <sub>4</sub>
Measuring Range:	e.g. 0-25% LEL
Path length:	0.5-5m
Certification:	e.g. ATEX
Mounting Plate:	e.g. 250mm x 250mm

## Accessories:

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

Distributed by:

