

Laser Open Path Gas Detector

Open Area Detection

Open Area Detection

Senscient ELDSTM are capable of detecting toxic, flammable and combined gas releases over distances of 5 –200m (gas dependant), providing a detection barrier adjacent to or around industrial plants or processes.

Configuration

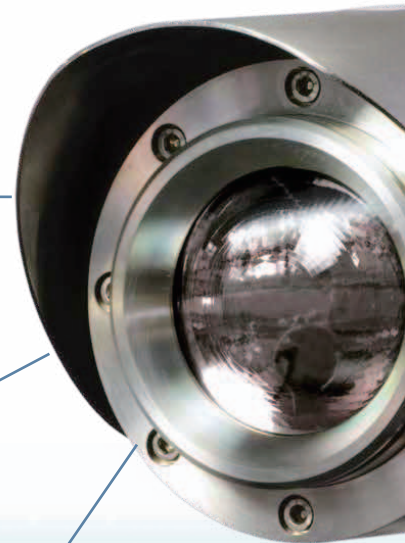
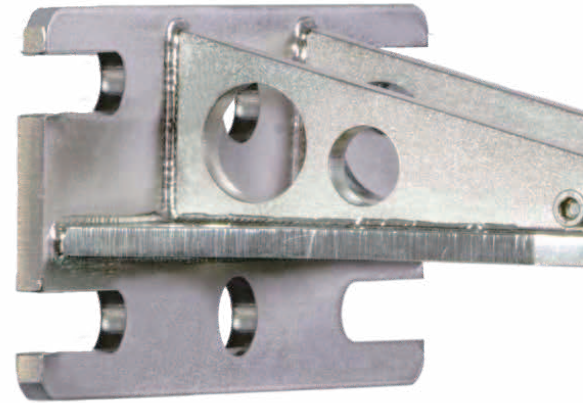
Each system comprises of a separately Fixed transmitter (Tx) sending an eye safe laser signal to a receiver (Rx).

Operation

Any target gas in the beam will modify the laser signal which generates a unique ' HARMONIC FINGERPRINT ' whose amplitude correlates to the gas concentration. Best in class, fast alarm notification for flammable gases in <3 seconds and toxic gases in <5 seconds.

Mounting

A clear line of sight plus rigid mounting are essential for reliable performance. All systems are supplied with alignment / fixing brackets.



No False Alarms

Uses Patented ' HARMONIC FINGERPRINT ' gas recognition technology to eliminate false alarms from interference gases.



Highest Availability in Adverse Weather

Best availability in rain and fog. Uses NIR detection technology with low water vapour absorption.



Reduces High Level Working

Removes any need for ladders or scaffolding. Uses Bluetooth connectivity for interrogation.





Detectable

Toxic : H₂S, NH₃, HF, HCL, CO₂
Flammable : CH₄, C₂H₄(Ethylene)
Combine : H₂S + CH₄

Toxic Gas Measurements

Fixed point toxic gas detectors measure gas concentration in parts per million (ppm). Open path devices measure in ppm over distance in meters (ppm.m) e.g. A 5 meter gas cloud with a concentration of 15ppm will read 75ppm.m (15 ppm x 5m) on an open path device.

Flammable Gas Measurements

Fixed point flammable gas detectors measure concentrations in percent of the Lower Explosive or Flammable Level (%LFL). Open path devices measure in LFL over distance in meters (LFL.m) e.g. A 5 meter gas cloud with a concentration of 50% LFL will read 2.5 LFL.m (50% LFL x 5m) on an open path device.

Routine Testing

Senscient ELDSTM devices all use 'SimuGasTM' daily Auto gas testing, removing the need for test filters or test gases, and reducing operator exposure to risk.

Removes Personnel from Risk Area

No manual intervention required for routine testing.
Uses patented ' SimuGasTM ' daily Auto gas testing.



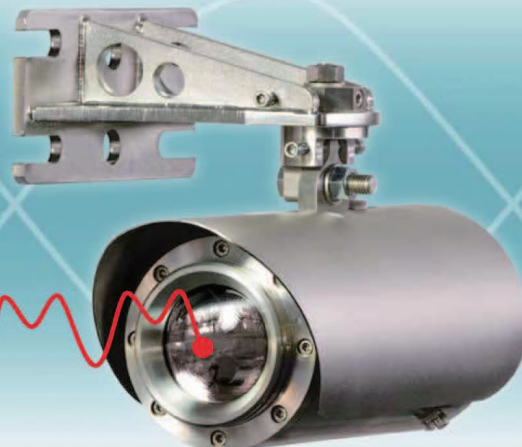
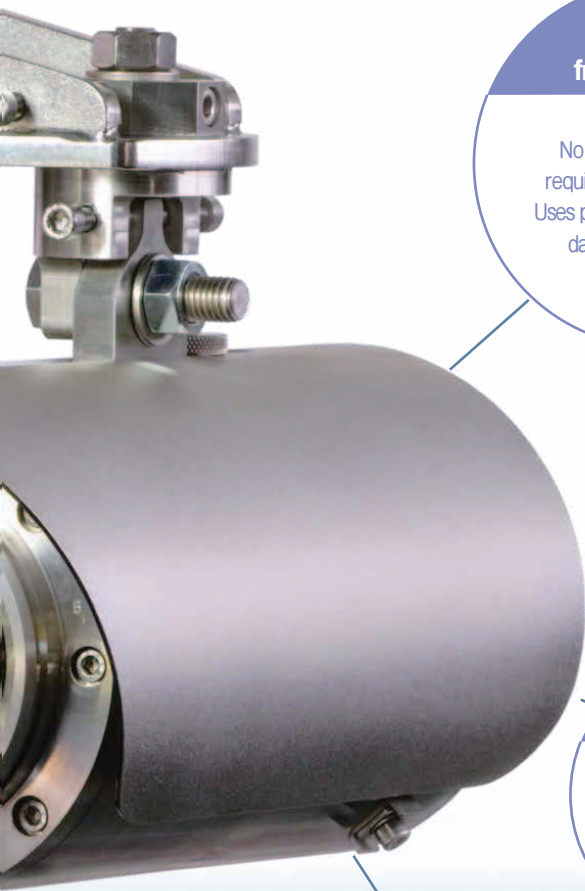
Significant Opex Savings

Has no consumable sensing elements or any need for routine test gases.



Significant Capex Savings

Wide area coverage reduces the need and installation costs of fixed point devices.



Specifications:

Gas	Hydrogen Sulphide (H₂S)
Ranges	0-250 ppm.m 0-500 ppm.m 0-1000 ppm.m 0-1500 ppm.m 0-5000 ppm.m 0-15000ppm.m
Path length	5-60 m
Format	Individual transmitter (Tx) & Receiver (Rx)

Ordering Information:

To order / specify:	Senscient ELDS 2000
Gas type:	H ₂ S
Measuring range:	e.g. 0-250 ppm.m
Path length:	5-60m
Certification:	e.g. ATEX

Specifications:

Gas	Ammonia (NH₃)
Ranges	0-1000 ppm.m
Path length	5-40 m or 40-120m
Format	Individual transmitter (Tx) & Receiver (Rx)

Ordering Information:

To order / specify:	Senscient ELDS 1000
Gas type:	NH ₃
Measuring range:	0-1000 ppm.m
Path length:	e.g. 5-40m
Certification:	e.g. ATEX

Specifications:

Gas	Hydrogen Fluoride (HF)
Ranges	0-25 ppm.m (5-60m only) 0-50 ppm.m 0-200 ppm.m 0-1000 ppm.m
Path length	5-60m 60-120m
Format	Individual transmitter (Tx) & Receiver (Rx)

Ordering Information:

To order / specify:	Senscient ELDS 1000
Gas type:	HF
Measuring range:	e.g. 0-25 ppm.m
Path length:	e.g. 5-60m
Certification:	e.g. ATEX

Specifications:

Gas	Hydrogen Chloride (HCl)
Ranges	0-50 ppm.m
Path length	5-60 m
Format	Individual transmitter (Tx) & Receiver (Rx)

Ordering Information:

To order / specify:	Senscient ELDS 1000
Gas type:	HCl
Measuring range:	0-50 ppm.m
Path length:	5-60m
Certification:	e.g. ATEX

Specifications:

Gas	Carbon Dioxide (CO₂)
Ranges	0-300,000 ppm.m
Path length	5-40 m or 40-120m
Format	Individual transmitter (Tx) & Receiver (Rx)

Ordering Information:

To order / specify:	Senscient ELDS 1000
Gas type:	CO ₂
Measuring range:	0-300,000 ppm.m
Path length:	e.g. 5-40m
Certification:	e.g. ATEX

Specifications:

Gas	Methane (CH₄)
Ranges	0-1 LEL.m 0-5 LEL.m 0-1000 ppm.m
Path length	5-40 m or 40-120 m or 120-200m
Format	Individual transmitter (Tx) & Receiver (Rx)

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

Specifications:

Gas	Ethylene (C₂H₄)
Ranges	0-1 LEL.m
Path length	5-40 m or 40-120m Or 120-200 m
Format	Individual transmitter (Tx) & Receiver (Rx)

Ordering Information:

To order / specify:	Senscient ELDS 1000
Gas type:	C ₂ H ₄
Measuring range:	e.g. 0-1 LEL.m
Path length:	e.g. 5-40m
Certification:	e.g. ATEX

Specifications:

Gas	Hydrogen Sulphide (H₂S) + Methane (CH₄)
Ranges	0-250 ppm.m or 0-500 ppm.m or 0-15000 ppm.m (H ₂ S) 0-1 LEL.m (CH ₄)
Path length	5-60 m
Format	Individual transmitter (Tx) & Receiver (Rx)

Ordering Information:

To order / specify:	Senscient ELDS 2000
Gas type:	H ₂ S + CH ₄
Measuring range:	e.g. 0-1 LEL.m + 0-250 ppm.m
Path length:	5-60m
Certification:	e.g. ATEX

Performance:

Response time	T90 ≤ 5 seconds (Toxic) T90 ≤ 3 seconds (Flammable)
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

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

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	
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	+/- 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.

Accessories:

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

