

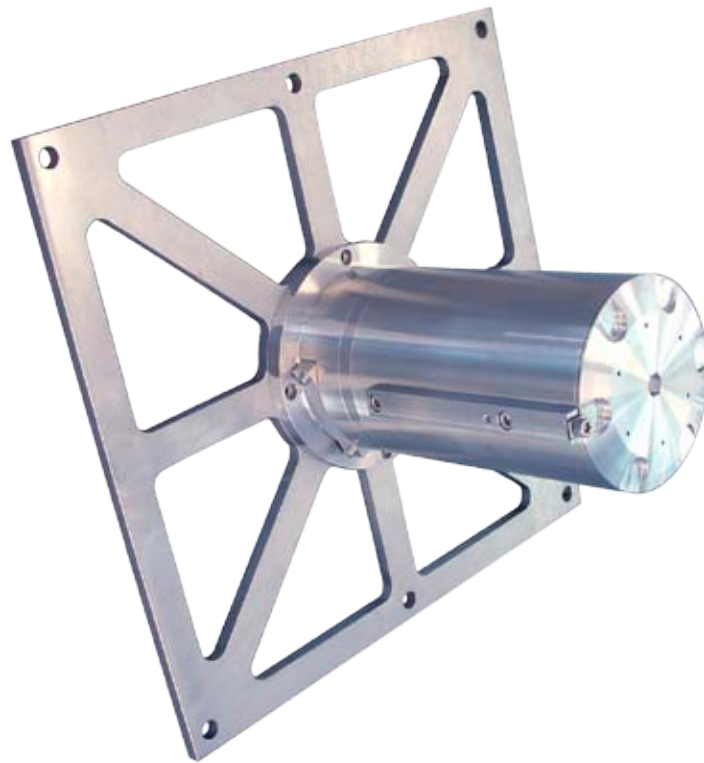
Senscient ELDS™ OPGD Series 1000 XC Methane

Fulfilling the promise of open path gas detection (OPGD)

About Senscient ELDS OPGD

ELDS™ is a patented, new open path gas detection (OPGD) technology from Senscient. The innovative Enhanced Laser Diode Spectroscopy (ELDS) detection technology featured in our ELDS Series of open path gas detectors truly fulfills the promise of fit-and-forget open path gas detection...

- **Reliable detection of both toxic & flammable gases.**
- **Industry's first false-alarm free Open Path Gas Detector.** ELDS detection is molecular species specific, eliminating false alarms from common atmospheric or non-hazardous gases that plague traditional OPGD (or any NDIR or LDS technology) systems.
- **FIRST and ONLY laser open path combustible gas detector to meet current industry Safety Standards.**
- **FIRST and ONLY gas detector with SimuGas™, an electronic, remote functionality check.**
- **3 orders of magnitude greater sensitivity for combustible gases versus conventional NDIR-based detectors.**
- **Up to 60% reduction in gas detection project CapEx and OpEx, with true Fit-&-Forget functionality.**
- **Backed by a network of industry-leading gas detection solutions providers.**



Senscient ELDS OPGD Series 1000 XC Coal Bed Methane Detector

Features / Benefits:

- Reliable, rapid detection of methane concentrations in pre-combustion ventilation systems at 0.5 to 5.0 meters.
- 100% continuous measurement of normal gas levels present in the combustion stream and rapid, accurate detection of breakthrough gas levels for optimum safety in combustion operations.
- Fully heated optics and no retroreflector panels in the duct eliminates interference from condensation and moisture in the gas stream.
- No false alarms from any other hydrocarbon gases including ethane diesel fumes or oil mist.
- True ease-of-installation, with vibration and misalignment tolerant optics.
- SimuGas™ feature provides ability to accomplish on-demand, remote functionality testing right from the control room or PLC.
- 316L Stainless steel construction designed to provide maximum corrosion resistance for installation in sea and land-based Hazardous Area facilities.

Applications:

Coal mine ventilation, combustion systems.

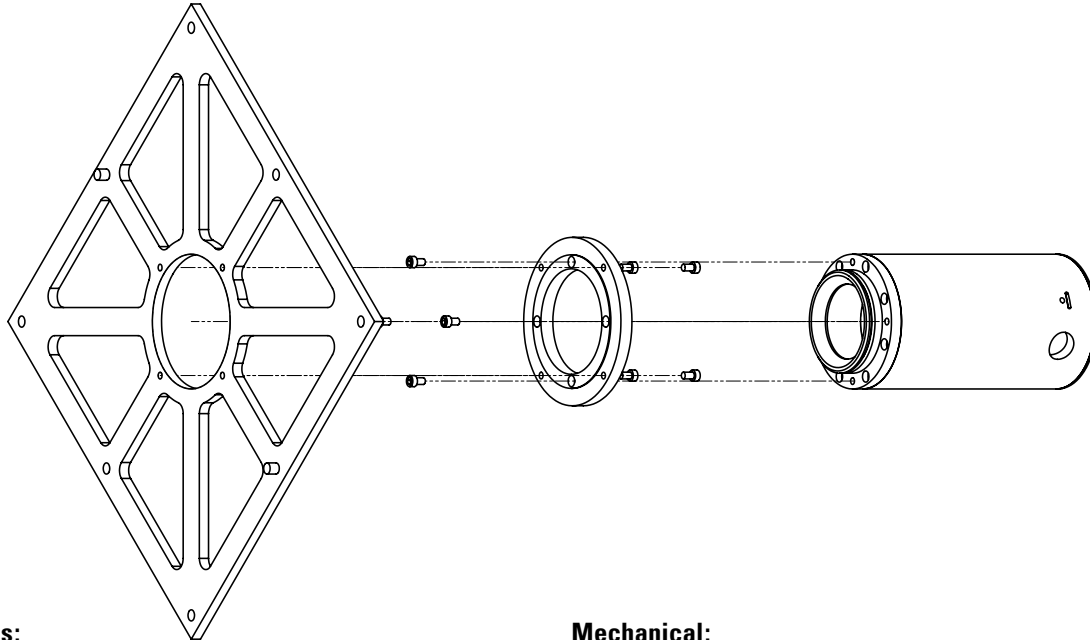
Theory of Operation:

Using a separate transmitter and receiver configuration, Senscient ELDS Series 1000 XC Coal Bed Combustion OPGD systems can detect and measure methane across distances between 0.5 m and 5 m wide. The ELDS technique measures the Harmonic Fingerprint introduced onto the transmitter's laser beam(s) by absorption of methane gas in the unit's path.

In coal bed methane combustion applications, it is anticipated that there will always be a significant %LEL of methane in the flow path. The ELDS Series 1000 XC very rapidly responds to any change in the concentration of methane in the combustion stream. This application for pre-combustion monitoring differs from the typical personnel safety application for HVAC ducts where the system is tasked with detecting the first and sudden appearance of low levels of methane in an HVAC duct that should normally contain only air.

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Specifications:

Gas	Methane
Ranges	0-25% LEL 0-100% LEL
Path-Length	0.5 - 5.0 m

Performance:

Response Time	T90 <= 1 second
Resolution	0.5% FSD
Repeatability	= < +/- 2% FSD
Linearity	= < +/- 2% FSD
Zero Drift	= < +/- 1% FSD
Span Drift	= < +/- 2% FSD
Min. Alarm Threshold	1% LEL (or 10% FSD, whichever is greater)

Environmental:

Ingress Protection	IP66/67 (Baseefa) Type 4/6 (CSA)
Enclosure Material	316L stainless steel
Operating Temperature	-40° C to +60° C
Humidity	0 – 100% RH (non-condensing)
Vibration	10 – 150 Hz, 2 g
EMC	EN50270

Certification / Approvals:

CSA North America Approval to CSA and UL Standards

Class 1 Div 1 Groups B C & D T5
Class II/III, Div 1, Groups E F & G T5
Ex d IIB + H2 T5
Class I, Zone 1, AEx d IIB + H2 T5
Tamb = -40° C to +60° C
Entry: ¾" NPT

BASEEFA ATEX:

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



GOST-K & GOST-R: Pending

Safety Integrity - Suitable for use in SIL2 Safety Systems per IEC 61508

Electrical:

Operating Voltage	+24 V nominal, operates correctly for supply voltages between +18 V and +32 V
Power Consumption	TX = 12 W (max), RX = 10 W (max)
Output (Analog)	4-20 mA (2 wire, isolated) Configurable for single wire, sink or source Capable of driving 0-600 Ohm load
Low Signal	3 mA (configurable 1 mA to 4 mA)
Beam Block	2.5 mA (configurable 0 mA to 3.5 mA)
Inhibit	2 mA (configurable 1 mA to 4 mA)
Fault	0 mA
Output (Digital)	HART and MODBUS RTU communication protocols pending

Mechanical:

Size	TX/RX 140 mm dia. x 300 mm
Weight	TX module = 12.8 kg RX module = 13.8 kg Mounting Plate = 5.7 kg
Mounting	TX & RX units supplied with mounting flanges and clamp plates suitable for mounting units on flat duct walls.

Optical:

The unit will operate correctly, without spurious readings or faults during conditions of misalignment or partial obscuration.

Alignment	+/- 5°
Obscuration	95%
Heated Optics	The window-lenses of the TX and RX units are heated.

Calibration, Testing & Maintenance:

Calibration Units supplied factory calibrated for the specified target gas or gases. Units should not require re-calibration in service.

Part Numbers:

Senscient ELDS V-GGGG-C

Where:-

V	= XC =	Standard
GGGG	= 1021 =	0-25% LEL Methane
	= 1022 =	0-100% LEL Methane
C	= 3 =	BASEEFA ATEX
	= 4 =	CSA North America Approval to CSA and UL Standards

E.g. Senscient ELDS XC-1021-4 is a Cross-Duct Senscient ELDS calibrated for 0-25% LEL Methane with CSA North America approval to CSA and UL Standards.

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