

# Senscient ELDS™ OPGD Series 2000 H2S+CH4 Simultaneous Methane & Hydrogen Sulfide

*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 open path toxic 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 2000 H2S+CH4 Detector Features / Benefits:

- Reliable, open path detection of both methane and hydrogen sulfide in a single unit.
- Faster response than any other hydrogen sulfide detection technology.
- No need to replace or re-calibrate sensors.
- No false alarms from any other gases including 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:

Offshore Platforms, FPSO's, Onshore Petrochemical facilities and Refineries.

## Theory of Operation:

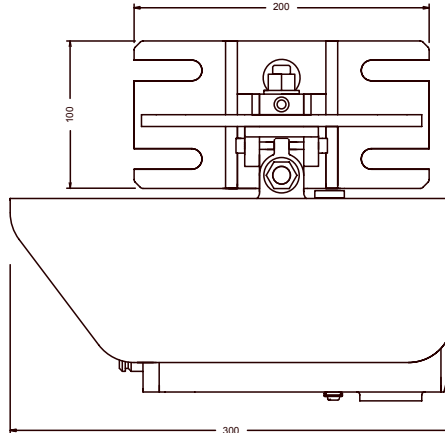
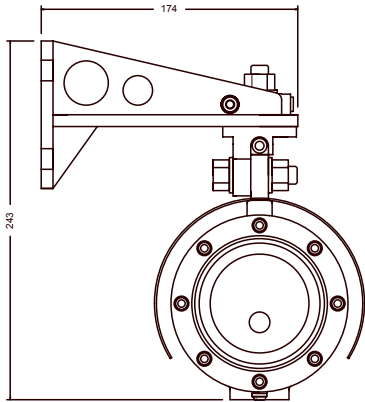
Using a separate transmitter and receiver configuration, Senscient ELDS Series 2000 H2S+CH4 OPGD systems can detect and measure methane and hydrogen sulfide over distances between 5 and 60 m. The ELDS technique measures the Harmonic Fingerprint introduced onto the transmitter's laser beam(s) by absorption by any target gas in the monitored path.

In the vast majority of instances, hydrogen sulfide is found as a component of the solution gas or natural gas present at the facility, intimately mixed with predominantly methane. When solution gas or natural gas containing hydrogen sulfide leaks, its components do not separate regardless of the density of the individual gases. It remains intimately mixed and the hydrogen sulfide follows the same leak path as the rest of the gas.



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## Specifications:

Gas Methane and Hydrogen Sulfide  
 Methane Ranges 0-1 LEL.m  
 Hydrogen Sulfide 0-250 ppm.m, 0-500 ppm.m  
 Path-Length 5 - 60 m = Short = S

## Performance:

Response Time T90 <= 3 seconds (Methane)  
 T90 <= 5 seconds (Hydrogen Sulfide)  
 Resolution 0.5% FSD  
 Repeatability <= +/- 2% FSD  
 Linearity <= +/- 2% FSD  
 Zero Drift <= +/- 1% FSD  
 Span Drift <= +/- 2% FSD  
 Min. Alarm Threshold Minimum Alarm Threshold: Methane @ 200 ppm.m,  
 Hydrogen Sulfide @ 50 ppm.m  
 Minimum Reliable Detectable Quantity 25 ppm.m

## Environmental:

Ingress Protection IP66/67, NEMA 4X/6 (FM), 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  
 Meteorological Visibility Operates @ Met. Visibility > = Path-Length

## Electrical:

Operating Voltage +24 V nominal, operates correctly for supply voltages between +14 V and +32 V  
 Power Consumption TX = 12 W (max), RX = 10 W (max)  
 Output (Analog 2 O/Ps) 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

## Mechanical:

Size TX/RX 140 mm dia. x 300 mm  
 Weight TX/RX 12 kg each  
 Mounting TX & RX units supplied fitted with a mounting bracket which incorporates holes / slots for fixing on flat surfaces or metal poles (4" to 6" diameter - requires U bolts).

## Optical:

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

Alignment +/- 0.5°  
 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.

## Certification / Approvals:

### FM North America

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



### FM ATEX:

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

### CSA North America

Class 1 Div 1 Groups B C & D T5  
 Class II/III, Div 1, Groups E F & G  
 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

## Part Numbers:

Senscient ELDS V-GGGG-C

Where:-

V = S = Short Range  
 = M = Medium Range

GGGG =2013= 0-1 LEL.m Methane & 0-250 ppm.m Hydrogen Sulfide  
 =2033= 0-1 LEL.m Methane & 0-500 ppm.m Hydrogen Sulfide

C = 1 = FM NORTH AMERICA (5 - 40 meters only)  
 = 2 = FM ATEX (5 - 40 meters only)  
 = 3 = BASEEFA ATEX  
 = 4 = CSA UL NORTH AMERICA

E.g. Senscient ELDS M-2013-3 is a medium range Senscient ELDS OPGD calibrated for 0-1 LEL.m Methane and 0-250 ppm.m Hydrogen Sulfide with BASEEFA ATEX approval.

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