Senscient ELDS™ Series 2000 for Hydrogen Sulphide + Methane

Overview

This Open Path Gas Detector (OPGD) detects two gases in a single instrument, Hydrogen Sulphide (H₂S) and Methane (CH₄). Each of the two detection channels is configured and specific to the target gas. The separate transmitter and receiver assemblies are certified for use in potentially explosive atmospheres and can detect H₂S + CH₄ over distances of 5 to 60 metres.

Constructed in high grade corrosion resistant 316L Stainless Steel this device is ideally suited for onshore and offshore, open and enclosed environments.

With no consumable parts and the patented daily auto-self testing facility; called SimuGas™; the Senscient ELDS™ H₂S + CH₄ detector offers significant installed and operational cost savings over conventional fixed point toxic and flammable gas detectors.

Features:

- Fastest speed of response (H₂S <5 & CH₄ < 3seconds) – Increased safety by providing earlier warning.
- Operates up to 60 metres – Significant installation cost savings over multiple fixed point gas detectors.
- No consumable parts – No on-going cost for replacement sensing elements and associated service labour.
- SimuGas™ daily auto gas testing – No manual intervention or on-going cost for routine gas testing.
- H₂S & CH₄ specific – No false alarms from interference gases as experienced with many fixed point toxic gas detectors.
- Bluetooth™ connectivity – No physical intervention needed for interrogation, event log downloading and trouble shooting.

Applications:

Open path H₂S + CH₄ gas detectors are used to monitor for fugitive emissions, protect personnel and warn of plant failure. These devices are typical located to provide a detection barrier around the perimeter of a plant, process or storage area; or positioned in close proximity to specific items of plant, that pose a real risk of gas escape: e.g. pump sets, pressure reducers, valves and pipe flanges.

- Oil & gas exploration rigs
- Oil & gas production platforms
- Sour gas sweetening plants
- Petrochemical refineries
- Waste water treatment plants
- Landfill sites

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 (CH₄), Ethylene (C₂H₄), Ammonia (NH₃), Carbon Dioxide (CO₂), Hydrogen Sulphide (H₂S), Hydrogen Chloride (HCl), Hydrogen Fluoride (HF) and Multihydrocarbons (MHC). Other gases to be added.
**Specifications:**

<table>
<thead>
<tr>
<th>Gas</th>
<th>Hydrogen Sulphide (H₂S) + Methane (CH₄)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ranges</td>
<td>0-250 ppm.m or 0-500 ppm.m or 0-15000 ppm.m or 0-1000 ppm.m (H₂S)</td>
</tr>
<tr>
<td>Path Length</td>
<td>5-60 m</td>
</tr>
</tbody>
</table>

| Sun / Deluge Protection | T x & Rx supplied with sun / deluge protection |

**Mechanical:**

<table>
<thead>
<tr>
<th>Size</th>
<th>Tx/Rx 140 mm dia. x 300 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>Tx/Rx 12 kg each (c/w bracket)</td>
</tr>
</tbody>
</table>

**Performance:**

<table>
<thead>
<tr>
<th>Response Time</th>
<th>T90 ≤ 5 seconds (H₂S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeatability</td>
<td>&lt;± 5% FSD</td>
</tr>
<tr>
<td>Linearity</td>
<td>&lt;± 5% FSD</td>
</tr>
</tbody>
</table>

**Environmental:**

<table>
<thead>
<tr>
<th>Ingress Protection</th>
<th>IP66/67 NEMA type 4/4X/6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enclosure Material</td>
<td>316L stainless steel</td>
</tr>
<tr>
<td>Lens Material</td>
<td>Faceted Optical Glass</td>
</tr>
<tr>
<td>Lens Material Rx</td>
<td>Aspheric Optical Glass</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-55°C to +60°C (ambient)</td>
</tr>
<tr>
<td>Humidity</td>
<td>0 - 100% RH (non-condensing)</td>
</tr>
<tr>
<td>Vibration</td>
<td>10 - 150 Hz, 2 g</td>
</tr>
<tr>
<td>EMC</td>
<td>ENS0270</td>
</tr>
</tbody>
</table>

**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

**ATEX / IECEx**

- II 2 GD Ex d IIB + H₂ T5
- Tamb = -40°C to +60°C Gb
- Ex tb IIIC T100°C Db IP66/67
- Tamb = -40°C to +60°C Db IP66/67
- Entry: M25

**Customs Union of Russia, Kazakhstan & Belarus**

- EAC EX TR CU CoC
- IEExibIIBT5/H2X
- Entry: M25

**InMetro**

- Ex d IIB+H₂ T5 Gb
- Ex tb IIIb T100°C Db IP66/67
- Tamb = -40°C to +60°C
- Entry: M25

**Safety Integrity**

Suitable for use in SIL2 Safety Systems per IEC 61508

**Electrical:**

<table>
<thead>
<tr>
<th>Operating Voltage</th>
<th>Tx &amp; Rx +24V DC, (+18 to +32V DC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>Tx = 12 W (max), Rx = 10 W (max)</td>
</tr>
<tr>
<td>Outputs (Analog x 2)</td>
<td>4-20 mA, Configurable for 2 wire isolated or single wire, sink or source.</td>
</tr>
<tr>
<td></td>
<td>CH₄ on 4-20mA(1)</td>
</tr>
<tr>
<td></td>
<td>H₂ on 4-20mA(2), Note: Secondary range is typically greater than the primary.</td>
</tr>
<tr>
<td>Low Signal</td>
<td>3 mA (configurable 1 to 4 mA)</td>
</tr>
<tr>
<td>Beam Block</td>
<td>2.5 mA (configurable 0 to 3.5 mA)</td>
</tr>
<tr>
<td>Inhibit</td>
<td>2 mA (configurable 1 to 3.5 mA)</td>
</tr>
<tr>
<td>Fault</td>
<td>0.5 mA (configurable 0 to 1 mA)</td>
</tr>
<tr>
<td>Over Range</td>
<td>21.5 mA (configurable 20 to 21.9 mA)</td>
</tr>
<tr>
<td>Output (Digital x 2)</td>
<td>HART 7.1 &amp; MODBUS RTU supported</td>
</tr>
</tbody>
</table>

**Optical:**

- Uses HARMONIC FINGERPRINT™ to ensure no false alarms during adverse environmental conditions, misalignment or partial obscuration.
- Alignment ± 0.5°
- Obscuration Operates up to 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 2000, Gas type: H₂S + CH₄ Measuring Range: e.g. 0-1 LEL.m + 0-250 ppm.m Path length: 5-60m Certification: e.g. ATEX

**Accessories:**

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

**Notes:**

Note 1: FM performance on this range.
- Approval No FM3049893 (Methane Only)

Distributed by:

Senscient Ltd

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