**SENSCIENT ELDS™**  
**ENHANCED LASER DIODE SPECTROSCOPY GAS DETECTION**  

**TECHNICAL SPECIFICATIONS**

**Performance**
- **Response Time**: 70% ± 2 SECONDS (TYPICAL)
- **Repeatability**: < ±10% N.V.
- **Size**: 140 MM DIA. X 300 MM (5.5" DIA X 11.8")
- **Weight**: Tx & Rx: 12 KG (26.5 LB) EACH (C/W BRACKET)
- **Supplied**: WITH SUN / DELUGE PROTECTION
  - **Lens Material**: Tx: FACETED OPTICAL GLASS
  - **Lens Material**: Rx: ASPHERIC OPTICAL GLASS

**Environmental**
- **Ingress Protection**: IP66/67 NEMA TYPE 4/4X/6
- **Enclosure Material**: 316L STAINLESS STEEL
- **Operating Temperature**: -67°F TO 140°F
- **Humidity**: 0% - 100% RH NON-CONDENSING
- **Electrical**:
  - **Voltage**: Tx & Rx: +24VDC (18 to 32 VDC)
  - **Power**: Tx = 12 W (MAX), Rx = 10 W (MAX)
  - **Outputs**: 4-20 mA, CONFIGURABLE FOR 2 WIRE ISOLATED OR SINGLE WIRE, SINK OR SOURCE
  - **Outputs**: HART 7.1 & MODBUS RTU SUPPORTED

**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
  - **Tamb**: -40°C TO +60°C [-40°F TO 140°F]
- **ATEX / IECEX**: II 2 GD Exd IIB + H2 T5 Gb
  - **Tamb**: -40°C TO +60°C [-40°F TO 140°F]
  - **Ex tb IIIC T100°C [212°F]
  - **Tamb**: -40°C TO +60°C [-40°F TO 140°F]
  - **Db IP66/67
  - **Entry**: M25

**Safety Integrity**
- **Suitable for use in SIL2 safety systems per IEC 61508**
- **SIL2**
- **Wetzel**
- **Sun & Deluxe Protection**: Tx & Rx supplied with Sun / Deluxe Protection
- **Mounting**: Tx & Rx supplied with mounting brackets suitable for flat surface or pole Mounting

**Optical**
- **Uses Harmonic fingerprint™ to ensure false alarm immunity during adverse environmental conditions, misalignment or partial obscuration.
  - **Alignment**: ≤ ±5°
  - **Absorption**: OPERATES UP TO 50% Absorbed Power
  - **Hazardous Area**: CLASS 1 1E (IEC 60079-11)
  - **Laser Beam**: CLASS 1 (EYE SAFE) IEC 60825-1
  - **FDA Accession No.** 1410373-000 (FOR IMPORTS INTO USA)
  - **Uses**: HARMONIC FINGERPRINT™ TO ENSURE FALSE ALARM IMMUNITY DURING ADVERSE ENVIRONMENTAL CONDITIONS, MISALIGNMENT OR PARTIAL OBSCURATION.

**Calibration**
- **Factory Calibrated for Life, no routine calibration required.**

**Note:** This bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products. Specifications subject to change without notice.

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LOWER OPERATIONAL COSTS BY MORE THAN 80%

TOXIC GASES

AMMONIA (NH₃)
HYDROGEN FLUORIDE (HF)

DETECTS UP TO 120M (394FT)

CARBON DIOXIDE (CO₂)
HYDROGEN CHLORIDE (HCl)
HYDROGEN SULFIDE (H₂S)

DETECTS UP TO 60M (197FT)

YOUR MOST DIFFICULT TOXIC GAS DETECTION PROBLEMS...

Costly Sensor Replacements
Frequent Maintenance Cycles
Interferent Gases

...SOLVED.

No consumable parts. Nothing to replace. Laser sources last over 15 years.

SimuGas™ automated full system integrity checks eliminates need for gas checks.

Senscient ELDS™ is immune to the cross-interferents that plague electrochemical sensors, thanks to target gas specific Harmonic Fingerprint detection.

Keep workers out of harms way.
SimuGas™ self testing verifies operation. No gas checks required.
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HYDROGEN CHLORIDE
HCl

HYDROGEN SULFIDE
H₂S
Lasers focused on gas, not weather.

Finds gas, not faults. Even through the fog.

Tunable lasers lock cell

Class 1 eye safe lasers penetrate thick fog, heavy rain, and snow further than differential infrared based detectors.

Part of the laser light is reflected through a sample of the target gas contained by a hermetically sealed Lock Cell. This ensures the laser remains locked on the selected wavelength for the target gas.

**Flammable Gases**

- Methane (CH₄)
- Detects up to 200m (656ft)

- Ethylene (C₂H₄)
- Detects up to 60m (197ft)

- Sour gas (CH₄ + H₂S)

Detects up to 200m [656ft] and 60m [197ft].
Finds gas, not faults. Even through the fog.

Class 1 eye safe lasers penetrate thick fog, heavy rain, and snow further than differential infrared based detectors.

Part of the laser light is reflected through a sample of the target gas contained by a hermetically sealed Lock Cell. This ensures the laser remains locked on the selected wavelength for the target gas.

Lasers focused on gas, not weather.

Gas检测

<table>
<thead>
<tr>
<th>Gas</th>
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<tbody>
<tr>
<td>Methane</td>
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<tr>
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Flammable gases

Detects up to 200m (656ft)

Detects up to 60m (197ft)

Sour gas

CH₄ + H₂S
INTRODUCING
HARMONIC FINGERPRINT™

TECHNOLOGY YIELDS RETURN ON INVESTMENT

HARMONIC FINGERPRINT™ DETECTION

Only multiple harmonic detection reduces costly nuisance false alarms that plague other open path detectors.

LOCK CELL

Real target gas sample ensures laser is locked on target wavelength.

ZERO MAINTENANCE

Increased uptime availability and lower OPEX costs.

WIDER COVERAGE AREA FOR TOXICS

Improved leak detection coverage with less capital expense.

STAY CONNECTED. WORK SMARTER.

Bluetooth® wireless technology for faster commissioning and troubleshooting while keeping workers out of harms way.

SimuGas™ SAFETY INTEGRITY

SimuGas™ DAILY SELF TESTING

The only open path detector that can check and record functional tests, automatically.

HARMONIC IDENTIFIER

TARGET GAS

INTERFERENT GAS

HARMONIC IDENTIFIER

CONVENTIONAL LASER

SENSIENT ELDS

WAVELENGTH ABSORPTION

ASORPTION ANALYSIS

Single point verification
Low false alarm rejection

Four point verification
Highest false alarm rejection

NO GAS

TARGET GAS

INTERFERENT GAS

HARMONIC IDENTIFIER

0

TM

WIDER COVERAGE FOR TOXICS
INTRODUCING HARMONIC FINGERPRINT™

CONVENTIONAL LASER

SENSIENT ELDS®

WAVELENGTH ASSISTANCE

WAVELENGTH ABSORPTION

CONVENTIONAL LASER

SENSIENT ELDS®

NO GAS
TARGET GAS
INTERFERENT GAS
HARMONIC IDENTIFIER

HARMONIC FINGERPRINT™ DETECTION
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TECHNOLOGY YIELDS RETURN ON INVESTMENT

SimuGas™ SAFETY INTEGRITY
TECHNICAL SPECIFICATIONS

Performance
- RESPONSE TIME: T90 ≤ 3 SECONDS (TYPICAL)
- REPEATABILITY: < ±0.5% FSD
- RESOLUTION: < ±0.5% FSD

Environmental
- INCREASED PROTECTION: INDOOR NEMA TYPE 4X
- ENCLOSURE MATERIAL: 316L STAINLESS STEEL
- LENS MATERIAL: FACETED OPTICAL GLASS
- LENS MATERIAL: 16 5/8" X 16 5/8" X 1/2" OPTICAL GLASS
- OPERATING TEMPERATURE: -40°C to +60°C (AMBIENT) [-40°F to 140°F]
- HUMIDITY: 0 - 100% RH (NON-CONDENSING)
- VIBRATION: 10 - 150 Hz, 2 G
- ENGAGEMENT: IP66/67 NEMA TYPE 4/4X/5

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 + H 2 T5
- TAMB: -40°C to +60°C [-40°F to 140°F]
- ENTRY: 3/4" NPT
- ATEX / IECEX: Ex tb IIIC T100°C [212°F] Db IP66/67
- TAMB: -40°C to +60°C [-40°F to 140°F]
- ENTRY: M25
- CUSTOMS UNION OF RUSSIA, KAZAKHSTAN & BELARUS: EAC EX TR CU CoC IExdIIBT5/H2X ENTRY: M25
- INMETRO: Ex d IIB + H2 T5 Gb Extb IIIC T100°C [212°F] Db IP66/67 TAMB: -40°C to +60°C [0°F to 140°F] ENTRY: M25

Safety Integrity
- SUITABLE FOR USE IN SIL2 SAFETY SYSTEMS PER IEC 61508
- FACTORY CALIBRATED FOR LIFE, NO ROUTINE CALIBRATION REQUIRED.

Electrical
- OPERATING VOLTAGE: Tx & Rx: 110-240VAC (90 to 32 VDC)
- POWER CONSUMPTION: Tx = 45 W (MAX), Rx = 45 W (MAX)
- OUTPUTS (ANALOG x 2): 4-20 mA, CONFIGURABLE FOR 2 WIRE ISOLATED OR SINGLE WIRE, DRY OR SOURCE
- ISOLATION: COMMON MODE BLOCK, ISOLATED INPUT RANGE
- DIGITAL OUTPUTS: HART 7.1 & MODBUS RTU SUPPORTED
- FAULT: TIGHT & MODBUS RTU SUPPORTED

Mechanical
- SIZE: Tx/Rx: 141 MM DIA. X 300 MM (5.5" DIA X 11.8")
- WEIGHT: Tx = 12 KG (MAX), Rx = 10 KG (MAX)
- SES: 4-20 mA, CONFIGURABLE FOR 2 WIRE ISOLATED OR SINGLE WIRE, DRY OR SOURCE
- DIODE GOVERNOR: HART 7.1 & MODBUS RTU SUPPORTED
- LINEARITY: ± 0.5°
- RESPONSE TIME: T90 ≤ 3 SECONDS (TYPICAL)
- REPEATABILITY: < ±0.5% FSD
- LINEARITY: < ±0.5% FSD

Optical
- USES HARMONIC FINGERPRINT™ TO ENHANCE FALSE ALARM IMMUNITY DURING ADVERSE ENVIRONMENTAL CONDITIONS, MISALIGNMENT OR PARTIAL OBSTRUCTION.
- ALIGNMENT: ± 0.5°
- ABSORPTION: OPERATES UP TO 80%
- LASER WAVELENGTH: 1410373-000 (FOR IMPORTS INTO USA)
- EXHAUSTIVE BEAM: CLASS 1 (EYE SAFE) IEC 60825-1
- LASER BEAM: FDA ACCESSION NO.
- SENSITIVE SOURCES: OPERATES UP TO 95%
- HEATED OPTICS: OPERATES UP TO 95%
- LASER BEAM: CLASS 1 (EYE SAFE) IEC 60825-1
- LASER BEAM: FDA ACCESSION NO.
- HEATED OPTICS: OPERATES UP TO 95%
- LASER BEAM: CLASS 1 (EYE SAFE) IEC 60825-1
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