# Sensoric AsH3 3E 1 F LT

Arsine (AsH<sub>2</sub>) Gas Sensor with H<sub>2</sub>S Filter Patent: US 7060169 B2

# **Key Features & Benefits:**

- Excellent stability
- Resistant to drying out
- Reliable in continuous flow applications

## **Technical Specifications**

#### **MEASUREMENT**

Operating Principle Measurement Range Maximum Overload **Lower Detection Limit** 

3-electrode electrochemical 0-1 ppm AsH<sub>3</sub> 20 ppm

Filter

< 30 ppb when using recommended electronics To remove H<sub>a</sub>S

Filter Capacity Sensitivity

Linearity

200 ppm hr 1400 ± 450 nA/ppm

Response Time (T<sub>qn</sub>) Baseline Offset (clean air) Zero Shift (-40°C to +50°C) Repeatability

< ±20 nA < ±40 ppb <2 % of signal <10% of full scale

<30 Seconds

#### **ELECTRICAL**

Recommended Load Resistor  $\mid$  1.5 k $\Omega$ Bias Voltage

0 V

Resolution Dependent on Electronics

< 15 ppb when using recommended circuitry

#### **MECHANICAL**

Housing Material | PPO Noryl Weight | 4.5 g **Orientation** Any

#### **ENVIRONMENTAL**

Typical Applications | Portable & fixed life safety

**Operating Temperature Range:** Continuous

-20°C to +40°C -40°C to +50°C

Intermittent Operating Pressure Range

Atmospheric ± 10%

Operating Humidity Range | 10% to 95% RH non-condensing

#### **INTRINSIC SAFETY DATA**

**Maximum at 2000ppm** | <0.2 mA at 100 ppm Maximum o/c Voltage | <500 mV Maximum s/c Current | <1.0 A

## **LIFETIME**

Long Term Output Drift | <5% per 6 months Expected Operating Life | 2 years in normal use

Storage Life 3 months in sealed container Standard Warranty 10 months from date of despatch

## **Part Numbers**

| AsH3 3E 1 F LT | Part Number    |  |  |
|----------------|----------------|--|--|
| Mini           | 0731-237-30009 |  |  |
| 4 Series       | 0731-237-30049 |  |  |
| 7 Series       | 0731-237-30079 |  |  |
| Classic        | 0731-237-30069 |  |  |
| Smart          | 0731-237-30259 |  |  |
| Transmitter    | 0731-237-30659 |  |  |

Orders should be placed through Sensoric Gas Sensors in Bonn.

## Available in:











**IMPORTANT NOTE:** Connection should be made via PCB sockets only. Soldering to pins will render your warranty void.

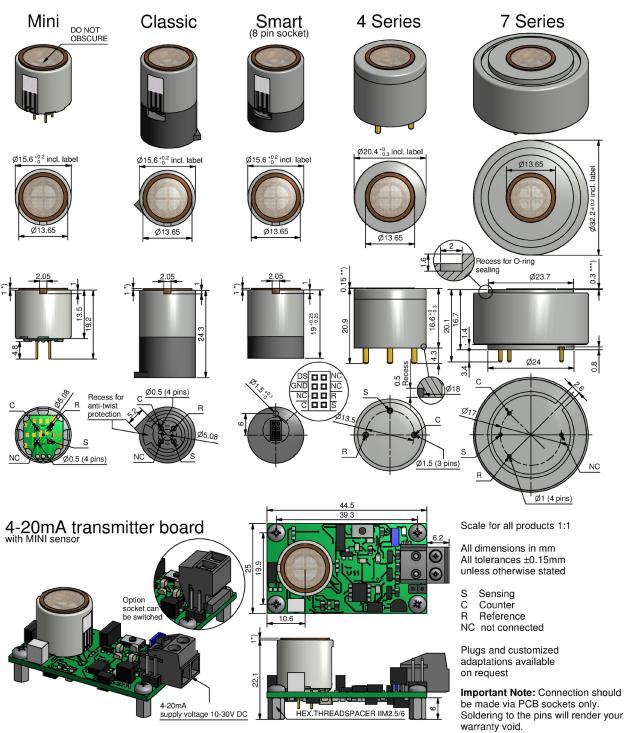
All performance data is based on conditions at 20°C, 50%RH and ambient pressure using Sensoric recommended circuitry. For information on sensor performance under other conditions, refer to the Operating Principles.

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## **Product Dimensions**



\*) Projection 0.6 - 1.25mm depending on gastype \*\*) Projection up to 0.4mm for 4 Series \*\*\*) Projection up to 0,55mm for 7 Series

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## **Product** Data Sheet

## **Poisoning**

Sensoric cells are designed for operation in a wide range of environments and harsh conditions. However, it is important that exposure to high concentrations of solvent vapours is avoided, both during storage, fitting into instruments, and operation.

When using sensors with printed circuit boards (PCBs), degreasing agents should be used before the sensor is fitted. Do not glue directly on or near the Sensoric cells as the solvent may cause crazing of the plastic.

#### **Cross Sensitivity Table**

Whilst Sensoric cells are designed to be highly specific to the gas they are intended to measure, they will still respond to some degree to various other gases. The table below is not exclusive and other gases not included in the table may still cause a sensor to react.

| Gas                                     | Conc. Used (ppm) | Reading<br>(ppm AsH <sub>3</sub> ) | Gas   | Conc. Used (ppm) | Reading<br>(ppm AsH <sub>3</sub> ) |
|---|------------------|------------------------------------|---|------------------|------------------------------------|
| Ammonia, NH <sub>3</sub>                | 108              | <0.1                               | Hydrogen Fluoride, HF                         | 7.2              | 0                                  |
| Carbon Dioxide, CO <sub>2</sub>         | 5000             | 0                                  | Hydrogen Selenide, SeH <sub>2</sub>           | 0.85             | 0                                  |
| Carbon Monoxide, CO                     | 85               | 0                                  | Hydrogen Sulfide, H₂S                         | 18.2             | 0                                  |
| Chlorine, Cl <sub>2</sub>               | 0.85             | < -0.05                            | Nitrogen Dioxide, NO <sub>2</sub>             | 10.1             | -2.1                               |
| Diborane, B <sub>2</sub> H <sub>6</sub> | 0.2              | 0.01                               | Phosphine, PH <sub>3</sub>                    | 0.18             | 0.25                               |
| Hydrocarbons, CH <sub>4</sub>           | 18000            | 0                                  | Propan-2-ol, C <sub>3</sub> H <sub>7</sub> OH | 20000            | <0.05                              |
| Hydrogen, H <sub>2</sub>                | 3100             | <0.05                              | Silane, SiH <sub>4</sub>                      | 3.5              | 0.6                                |
| Hydrogen Chloride, HCl                  | 7.9              | 0                                  | Sulfur Dioxide, SO <sub>2</sub>               | 17.8             | 0                                  |
| Hydrogen Cyanide, HCN                   | 12.6             | 0.4                                |   |                  |                                    |

The cross-sensitivity values quoted are based on tests conducted on a small number of sensors. They are intended to indicate sensor response to gases other than the target gas. Sensors may behave differently with changes in ambient conditions and any batch may show significant variation from the values quoted.

#### **SAFETY NOTE**

This sensor is designed to be used in safety critical applications. To ensure that the sensor and/or instrument in which it is used, are operating properly, it is a requirement that the function of the device is confirmed by exposure to target gas (bump check) before each use of the sensor and/or instrument. Failure to carry out such tests may jeopardize the safety of people and property.

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Performance characteristics on this data sheet outline the performance of newly supplied sensors. Output signal can drift below the lower limit over time.

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