

- Operating temperature range:**
see table 1.
- Operating humidity range:**
20% to 90% RH continuous.
10% to 99% RH intermittent - non condensing.
- Operating pressure range:**
90 to 110 k Pa.
- Warm up time:**
see table 1.
- Voltage range:**
18 to 30 V at sensor.
- Power consumption:**
0.9 W Max.
- Signal output:**
4 to 20 mA loop powered.
- Calibration flow rate:**
recommended between 1 and 1.5 l/min.
- Expected operating life:**
H₂S, CO, no less than 24 months.
NH₃, Cl₂, H₂, SO₂, NO₂, NO, O₂ no less than 12 months.
- IP rating:**
IP65 standard.
IP67 with weather protection.
- Certification:**
II 2 GD Ex d ia IIC T4 Gb Tamb -40° to +65°C
Ex tb IIIC Db IP67 T135°C
Baseefa08ATEX0263X
IECEx BAS08.0070X

EC Declaration of Conformity

The undersigned of
Honeywell Analytics Limited
4 Slinford Road
Poole
Dorset
BH17 0RZ
United Kingdom

Declares that the products listed below:

SENSEPOINT Toxic and Oxygen Gas Sensors

Sensepoint toxic and oxygen gas sensors are certified for use in potentially explosive atmospheres.

Conform to the provisions of the following European Directives, when installed, operated, serviced and maintained in accordance with the installation/operating instructions contained in the product documentation:

Harmonised Standard	Description
EN 50270:2006	Electromagnetic compatibility. Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen
EN 60079-0:2012	Explosive atmospheres. Equipment. General requirements
EN 60079-1:2007	Explosive atmospheres. Equipment protection by flameproof enclosures "d"
EN 60079-11:2012	Explosive atmospheres. Equipment protection by intrinsic safety "i"
EN 60079-31:2009	Explosive atmospheres. Equipment dust ignition protection by enclosure "t"

Notified Body for ATEX
Baseefa Ltd
Rockhead Business Park
Staden Lane
Stuton
Derbyshire
SK17 9RZ

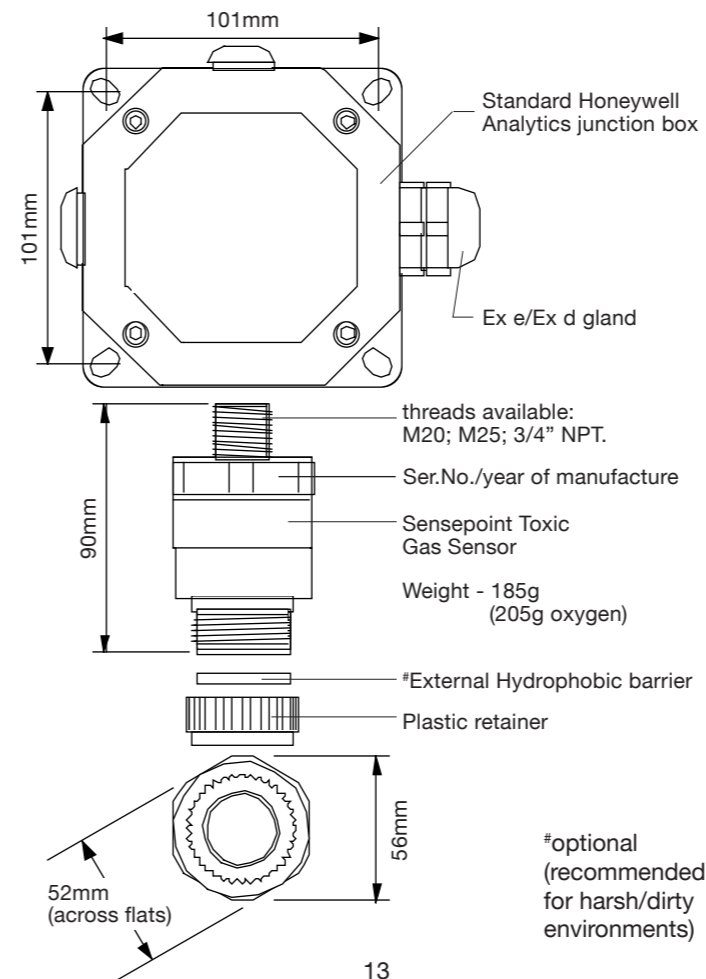
Certificate Number
Baseefa08ATEX0263X

Quality Assurance Notification Number
SIRA 11 FATEX M518

Type Approval
II 2 GD - Ex d ia IIC T4 Gb (-40°C to +65°C)
Ex tb IIIC Db (-40°C to +65°C) IP67

Year of CE Marking: 1999

Signature: *Richard King*
Name: Richard King
Authorised Signatory
Date: 10th January 2013
Declaration Number: 2004Y0003_03/A03939
Declaration of Conformity in accordance with EN ISO/IEC 17050-1:2010



1. INTRODUCTION & 2. ASSOCIATED DOCUMENTATION

1. INTRODUCTION

Sensepoint is for the detection of toxic gases and is designed for use with an approved junction box.

It employs an electrochemical cell sensor device which is gas specific and used as part of a 4-20mA loop powered measuring circuit. The sensor includes a voltage clamp within a sealed Ex d enclosure and an electrochemical cell driver and cell within an IS portion of the sensor.

Different sensor versions detect different gases. Sensors are available for the detection of H₂S, CO, Cl₂, NH₃, H₂, SO₂, NO, NO₂, O₂. The sensor is available in M20, M25 or 3/4 NPT thread versions. All accept accessories from the specified range. Should you require information outside the scope of these instructions please contact Honeywell Analytics Ltd.

This product is certified for use in hazardous areas and is protected against water and dust ingress to IP65, or IP67 if approved weather protection is fitted.

2. ASSOCIATED DOCUMENTATION

2106M0502 Sensepoint Technical Handbook.

Refer to the relevant control system manual for connection information.

Replacement sensing elements (including hydrophobic barrier):

Gas Type	Replacement Cell
O ₂	2106B1545
SO ₂	2106B1546
Cl ₂	2106B1547
CO	2106B1548
H ₂ S	2106B1549
NO	2106B1594
NH ₃ (1000ppm)	2106B1595
NH ₃ (50ppm)	2106B1596
H ₂ (1000ppm)	2106B1597
H ₂ (10000ppm)	2106B1598
NO ₂	2106B1599

Weather protection02000-A-1635

Flow housing (standard)02000-A-1645

Flow housing (for adsorbent gases).....02000-A-3120

Junction box (standard).....00780-A-0100

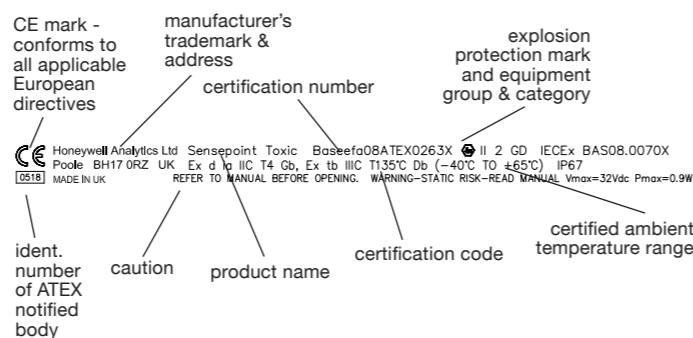
To reorder a complete new sensor, see the label on the product leads, or contact Honeywell Analytics Ltd.



CONTENTS

- 1. INTRODUCTION2
- 2. ASSOCIATED DOCUMENTATION2
- 3. SAFETY3
 - 3.1 Warnings3
 - 3.2 Precautions3
- 4. OPERATIONS4
 - 4.1 Installation4
 - 4.2 Calibration5
 - 4.3 Fault finding8
- 5. MAINTENANCE9
 - 5.1 Changing the electrochemical cell and internal filter9
 - 5.2 Changing the external hydrophobic assembly 10
- Appendix A - Specifications 11
- Appendix B - Glossary 12
- Appendix C - Main features 13
- Appendix D - Spare parts 14

Certification label



Find out more

www.honeywellanalytics.com

Contact Honeywell Analytics:

Europe, Middle East, Africa, India

Life Safety Distribution AG
Javastrasse 2
8604 Hegnau
Switzerland
Tel: +41 (0)44 943 4300
Fax: +41 (0)44 943 4398
India Tel: +91 124 4752700
gasdetection@honeywell.com

Americas

Honeywell Analytics Inc.
405 Barclay Blvd.
Lincolnshire, IL 60069
USA
Tel: +1 847 955 8200
Toll free: +1 800 538 0363
Fax: +1 847 955 8210
detectgas@honeywell.com

Asia Pacific

Honeywell Analytics Asia Pacific
#508, Kolon Science Valley (I)
187-10 Guro-Dong, Guro-Gu
Seoul, 152-050
Korea
Tel: +82 (0)2 6909 0300
Fax: +82 (0)2 2025 0329
analytics.ap@honeywell.com

Technical Services

EMEA: HAexpert@honeywell.com
US: ha.us.service@honeywell.com
AP: ha.ap.service@honeywell.com



We Save Lives



Please Note:
While every effort has been made to ensure accuracy in this publication, no responsibility can be accepted for errors or omissions. Data may change, as well as legislation, and you are strongly advised to obtain copies of the most recently issued regulations, standards, and guidelines. This publication is not intended to form the basis of a contract.



- 3.1 WARNINGS**
- This apparatus is not suitable for use in oxygen enriched atmospheres (>21%V/V). Oxygen deficient atmospheres (<6%V/V) may suppress the sensor output.
 - Refer to local or national regulations relative to installation at the site.
 - The operator should be fully aware of the action to be taken if the gas concentration exceeds an alarm level.
 - The ECC (electrochemical cell) contains a small quantity of acid.
 - Installation should consider not only the best placing for gas detection related to potential leak points, gas characteristics and ventilation, but also where the potential of mechanical damage is minimized or avoided.
 - Only assessed by ATEX for ignition hazards
 - Electrostatic risk - Do not rub or clean with solvents. Clean with a damp cloth. High velocity airflows and dusty environments can cause hazardous electrostatic charges.

- 3.2 CAUTIONS**
- Exposures to gas above the design range of the sensor may require the sensor to be re-calibrated.
 - Do not modify or alter the sensor construction as essential safety requirements may be invalidated.
 - Install Sensepoint using certified Ex e or Ex d junction box, connectors and glanding.
 - Sensors should be disposed of in accordance with local disposal regulations. Materials used:
Sensor: Fortron® (PPS-polyphenylene sulphide),
Cell: PPO (modified polyphenylene oxide).
 - This equipment is designed and constructed as to prevent ignition sources arising, even in the event of frequent disturbances or equipment operating faults. The electrical input is protected with a fuse.
 - Do not access the interior of the Sensepoint gas sensor when hazardous (explosive) gas or dust is present. Ensure o-ring is fitted and body is fully tightened when gas cell is replaced.

Table 1:

Gas	Range	Recommended Test Concentration	Warm up Time	Application Time	Operating Temp.	
					MIN.	MAX.
H ₂ S	0 to 20 ppm	10 ppm	3mins	3 mins	-20°C	+50°C
H ₂ S	0 to 50 ppm	20 ppm	3mins	3 mins	-20°C	+50°C
H ₂ S	0 to 100 ppm	50 ppm	3mins	3 mins	-20°C	+50°C
CO	0 to 100 ppm	50 ppm	3mins	3 mins	-20°C	+50°C
CO	0 to 200 ppm	100 ppm	3mins	3 mins	-20°C	+50°C
CO	0 to 500 ppm	250 ppm	3mins	3 mins	-20°C	+50°C
Cl ₂	0 to 5 ppm	3 ppm	5mins	10 mins	-20°C	+50°C
Cl ₂	0 to 15 ppm	10 ppm	5mins	10 mins	-20°C	+50°C
O ₂	0 to 25% v/v	19% v/v	5mins	1 mins	-15°C	+40°C
NH ₃	0 to 50 ppm	25 ppm	3mins	10 mins	-20°C	+40°C
NH ₃	0 to 1000 ppm	500 ppm	3mins	10 mins	-20°C	+40°C
H ₂	0 to 1000 ppm	500 ppm	3mins	3 mins	-5°C	+40°C
H ₂	0 to 10000 ppm	3000 ppm	3mins	3 mins	-5°C	+40°C
SO ₂	0 to 15 ppm	10 ppm	3mins	5 mins	-15°C	+40°C
SO ₂	0 to 50 ppm	20 ppm	3mins	5 mins	-15°C	+40°C
NO	0 to 100 ppm	50 ppm	12hrs	5 mins	-5°C	+40°C
NO ₂	0 to 10 ppm	5 ppm	1hr	5 mins	-15°C	+40°C

ATEX SPECIAL CONDITIONS FOR SAFE USE

The detector head must be protected from impact. The detector head must not be used in atmospheres containing greater than 21% oxygen. The integral supply leads must be mechanically protected and terminated in a terminal or junction facility suitable for the area classification if the installation. The terminal box and any shrouding metal work (when used) must be effectively earthed. The detector head is considered to present a potential electrostatic risk and must not be located in high air flows or rubbed. The front cover must not be removed when a dust hazard exists and must be fully tightened when replaced. The detector head is designed to be mounted vertically with the gas sensor facing downwards.

4.1 INSTALLATION

The Unit should be fitted to a junction box certified Ex d or Ex e, and fitted with an approved cable gland and connector block. The sensors should be fitted to a tapped hole within the enclosure and locked in place with a locknut if the parallel thread version is being used. Cabling should be multicore, two wires plus screen, conductor size 2.5mm² (14AWG) max. Sensors are supplied pre-calibrated.

The apparatus should be installed in a location free from dusts and direct heat sources.

For optimum protection against water ingress ensure that the sensor is installed facing downwards.

Installation is to be performed by a qualified installation engineer, with the power to the unit disconnected.

For oxygen versions, remove the neoprene stopper and snap the RFI screen and internal hydrophobic assembly (supplied separately) into place (page 10).

See the technical handbook for details of installation in a duct or in forced air conditions.

4.3 FAULT FINDING

Sensor reads non-zero all the time:

- Gas could be present, ensure that there is no target gas in the atmosphere. Background or other volatile organic gases, eg. solvents, can interfere with the operation of the sensor.

Sensor reads non-zero when no gas is present:

- adjust the zero on the control card.

Sensor reads low when gas is applied:

- adjust the span on the control card.
- for oxygen versions, check that the neoprene plug has been removed from under the plastic retainer.

Sensor reads high when gas is applied:

- adjust the span on the control card.

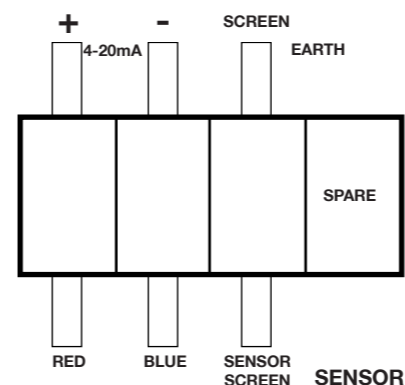
Sensor reads zero when gas is applied:

- check the wiring.
- check that the dust protection cap has been removed.
- check that the sensor is not obstructed.
- replace the sensor if failure is suspected.
- for oxygen versions, check that the neoprene plug has been removed from under the plastic retainer.

Cannot adjust span or zero at control card:

- refer to the technical handbook.

Wiring connections are:-



The unit requires a nominal 18 to 30V, 30mA current-loop-powered supply.

4.2 CALIBRATION

Sensepoint for toxic gas detection is supplied pre-calibrated, however, for increased accuracy in specific applications, on-site calibration is recommended.

Re-calibration should only be attempted by qualified service personnel. Calibration should only be attempted after the sensor has been installed and powered for a time exceeding the warm up time (Table 1).

5.1 CHANGING ELECTROCHEMICAL CELL AND INTERNAL FILTER

- Unscrew and remove the grey plastic retainer (or accessory if fitted) from the sensor.
- Remove the old internal hydrophobic assembly by pushing against the snap fit, through one of the retaining slots, with a small flat bladed screwdriver. The assembly will pop out. Do not attempt to lever the assembly out as this may damage the housing.
- Remove the internal metal gauze insert.
- Open the enclosure by unscrewing the sensor cap assembly from the sensor main body, ensuring that the electrochemical cell does not rotate with the cap.
- a. Toxic
Gently pull the old electrochemical cell from the pcb. (Dispose of this in accordance with the local regulations).
- b. Oxygen
For oxygen Sensepoint, unscrew the old cell connections. Support the screw pillars during removal and refitting of the oxygen cell screws.
- Remove the new cell from its packaging and remove the shorting link across the base of cell.
- a. Plug the new cell into the pcb. (toxic cell)
- b. Screw in the new cell via the metal tabs. (oxygen cell)
- Screw the sensor cap assembly back onto the sensor main body.
- Fit the new internal metal gauze assembly.
- Fit the new internal hydrophobic assembly.

Note: The sensor should now be calibrated. See Section 4.2

First zero the control system with no gas present on the sensor. If target gas is suspected to be in the vicinity of Sensepoint, flow clean air over the sensor using a flow housing (see below).

Fit a flow housing and connect a cylinder of either air, for a zero, or a known concentration of gas (approximately 50% FSD) to the flow housing using nylon or PTFE tubing. Tubing lengths should be kept to a minimum to avoid extending the speed of response. Connect the outlet of the flow housing to a safe exhaust area. Pass the gas through the flow housing at a flow rate of approximately 1 l to 1.5 l per minute. Allow the sensor to stabilise. When gassing with air, adjust the control card to indicate zero. For span, the control card should be adjusted to indicate the concentration of the target gas being applied. Remove the flow housing and the gas supply.

Note: for oxygen, the span gas is normally air at 20.8%v/v O₂. The control card should be adjusted to indicate this when the sensor is in either clean ambient air, or in a flow of 20.8%v/v O₂ in nitrogen from a cylinder. A zero adjustment is not normally required, however it is recommended that the alarm levels are tested using a cylinder of a lower concentration of oxygen in nitrogen.

See Table 1 for details of concentrations and times to be used. If the controller cannot be spanned, consult the technical handbook.

For calibration using the Weather Protection in high flow applications refer to the technical handbook.

- Replace the grey plastic retainer or accessory.
 - In the event of an apparatus failure, return unit to Honeywell Analytics Ltd.
- 5.2 CHANGING THE EXTERNAL HYDROPHOBIC BARRIER**

Remove the plastic retainer (or accessory). Remove the old external hydrophobic barrier and replace with the new one. Replace the plastic retainer.

