

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 0.5 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.
IP66/67 when fitted with appropriate weather protection.

Certification:
(Ex) II 2G EEx dia IIC T4 -55 to +65°C.
Sensepoint 2106AXXX (Tox).
Vmax 32V BAS98ATEX2157X.
UL approved via IEC 79 (pending).

This product complies with the relevant CE standards concerning performance: EMC to BS EN50081 parts 1 & 2, BS EN50082 parts 1 & 2 and EN 45544.

Exd
Flame proof or explosion proof within the confines of European standards EN50014 and EN50018. An enclosure that can withstand the pressure developed during the internal explosion of an explosive mixture and which prevents transmission of the explosion to the explosive atmosphere surrounding the enclosure.

Exe
Increased safety within the confines of European standards EN50014 and EN50019 applied to electrical apparatus that does not produce arcs or sparks in normal service, in which additional measures are applied so as to give increased security against the possibility of excessive temperatures.

PPS
Polymer polyphenylene sulphide, suitable for use in most chemical environments (eg acids, aldehydes, ketones, alkalies, petroleum, aromatic hydrocarbons, alcohols, ethers, esters and most chlorinated hydrocarbons). Avoid immersion in solvents for extended periods. For further details contact Honeywell Analytics Ltd.

IS
Intrinsically safe, apparatus in which the circuits themselves are incapable of causing ignition of a flammable gas.

Certification label as defined in directive 94/9/EC

CE mark - conforms to all applicable European directives

manufacturer's trademark & address
Honeywell
Poole Dorset
SensePoint
static risk - read manual

test house trademark
Bas98ATEX2157X

certification number
II 2G

explosion protection mark and equipment group & category
EEx dia IIC T4 (Tamb -55 +65°C)

certified ambient temperature range

ident. number of ATEX notified body
0600

product name
SensePoint

caution
static risk - read manual

certification code as EN50014 1992

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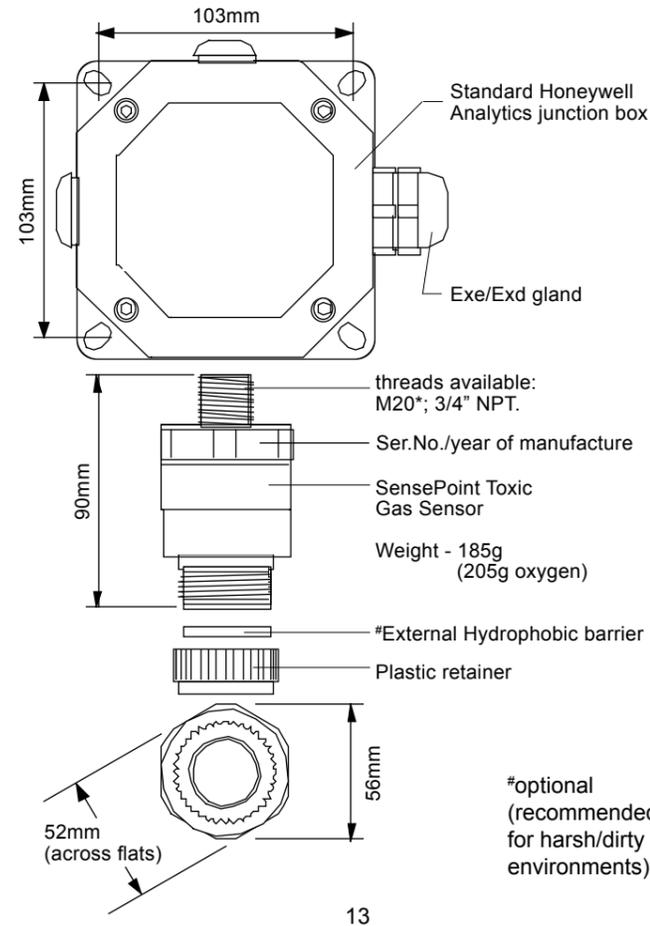
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1. INTRODUCTION & 2. ASSOCIATED DOCUMENTATION

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 Exd 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* 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 IP66/67 if approved weather protection is fitted.

**NOTE - M20 thread option awaiting certification.*

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.





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.
- SensePoint should be protected from mechanical impact. 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.

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 Exe or Exd 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).

4.1 INSTALLATION

The Unit should be fitted to a junction box certified Exd or Exe, 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 max. Sensors are supplied pre-calibrated.

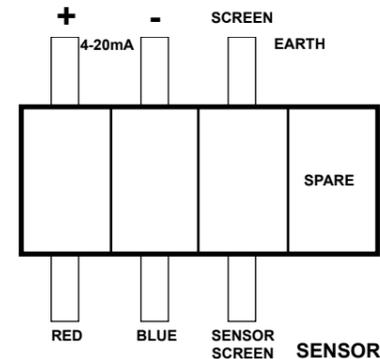
The apparatus should be installed in a location free from dusts and direct heat sources.

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 forced air conditions.

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).

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 in high flow applications refer to the technical handbook.

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

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 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.

5.1 CHANGING ELECTROCHEMICAL CELL AND INTERNAL FILTER

1. Unscrew and remove the grey plastic retainer (or accessory if fitted) from the sensor.
2. 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.
3. Remove the internal metal gauze insert.
4. 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.
- 5a. Toxic
Gently pull the old electrochemical cell from the pcb. (Dispose of this in accordance with the local regulations).
- 5b. Oxygen
For oxygen SensePoint, unscrew the old cell connections.
6. Remove the new cell from its packaging and remove the shorting link across the base of cell.
- 7a. Plug the new cell into the pcb. (toxic cell)
- 7b. Screw in the new cell via the metal tabs. (oxygen cell)
8. Screw the sensor cap assembly back onto the sensor main body.
9. Fit the new internal metal gauze assembly.
10. Fit the new internal hydrophobic assembly.

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

11. Replace the grey plastic retainer or accessory.
12. In the event of an apparatus failure, return unit to Honeywell Analytics Ltd.

5.2 CHANGING THE EXTERNAL FILTERS

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

