

Operating temperature range:  
-30°C to +40°C.

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:  
no greater than 10 minutes.

Voltage range:  
2.9 V to 3.5 V bridge (at 200mA drive current).

Power consumption:  
700mW.

Signal output:  
mV bridge.

Calibration flow rate:  
recommended between 1 and 1.5 l/min.

Poisoning:  
the sensing elements may become inactive after extensive exposure to silicones, halogenated hydrocarbons, heavy metals and sulphur compounds.

Expected operating life:  
5 years.

IP rating:  
IP54 for indoor applications.

Certification:  
II 2 G Ex de IIC T4 (T<sub>amb</sub> -30°C to +40°C) Gb  
BAS98ATEX2085X.

This product complies with the relevant CE standards concerning performance: EMC to EN50270.

**EC Declaration of Conformity**

The undersigned of  
**Honeywell Analytics Ltd**  
4 Stoneford Road  
Poole, Dorset  
BH17 9RZ  
UK

Declares that the products listed below

**Signalpoint Combustible Gas Detector**  
Signalpoint is a flammable hydrocarbon gas detector with integral junction box certified for use in potentially explosive atmospheres.

Are in conformity with the provisions of the following European Directives, when installed, operated, serviced and maintained in accordance with the installation/service instructions contained in the product documentation.

2004/108/EC	EMC Directive
94/9/EC	ATEX Directive - Equipment for use in Potentially Explosive Atmospheres

And that the standards and/or technical specifications referenced below have been applied or considered:

Harmonised Standard	Description
EN 50270:2000	Electromagnetic Compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen
EN 60079-29-1:2007	Explosive atmospheres. Gas detectors. Performance requirements of detectors for flammable gases
EN 60079-0:2009	Electrical apparatus for explosive gas atmospheres. General requirements
EN 60079-1:2007	Electrical apparatus for explosive gas atmospheres. Flammable atmospheres "G"
EN 60079-7:2007	Electrical apparatus for explosive gas atmospheres. Increased safety "i"

Notified Body for ATEX: **Baswell Ltd**  
Rockhead Business Park  
Staden Lane  
Burslem  
Dorsetshire  
BH17 9RZ

Certificate Number: **BAS98ATEX2085X**

Quality Assurance Notification Number: **Baswell ATEX 0081**

Type Approval: **II 2 G**  
Ex de IC T4 (T<sub>amb</sub> -30°C to +40°C) Gb

Notified Body Number: **1180**

Year of CE marking: **1998**

Signature: *[Signature]*  
Name: **Steve Hamilton**  
Position: **Senior Regulatory Compliance Engineer**  
Date: **25/10/10**  
Declaration Number: **20041085\_02A03404**  
Declaration of Conformity in accordance with EN ISO/IEC 17050-1:2010

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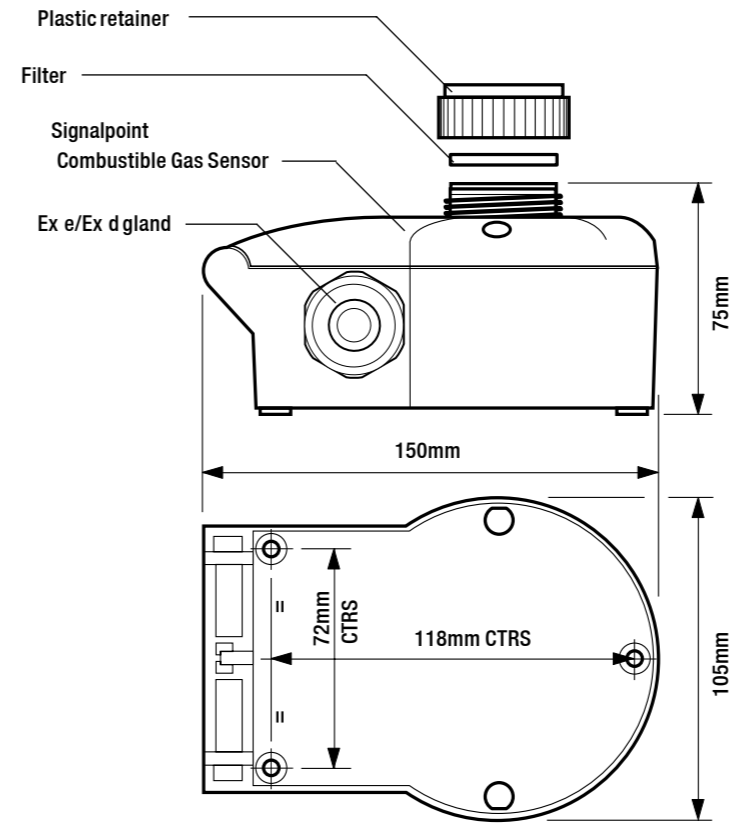
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The underside of the Signalpoint Sensor showing position of mounting holes

1. INTRODUCTION & 2. ASSOCIATED DOCUMENTATION

1. INTRODUCTION

Signalpoint is a sensor with an integral junction box. It is for the detection of combustible gases in light industrial and commercial applications.

Signalpoint employs a catalytic pellistor sensor device which is used as part of a Wheatstone bridge measuring circuit.

Signalpoint is certified for hazardous areas to EN60079 and is protected against water and dust ingress to IP54 for indoor, non-aggressive environments.

2. ASSOCIATED DOCUMENTATION

2106M0504 Signalpoint Technical Handbook.

Refer to the relevant control system manual for connection information.

ATEX SPECIAL CONDITIONS FOR SAFE USE

All terminal screws, used and unused shall be fully tightened down. Only one conductor shall be connected to each terminal way, unless the multiple conductors have previously been joined in a suitable manner (for example with a crimped boot-lace ferrule) such that they form a single cohesive item for insertion into the terminal way. Conductor insulation shall extend to within 1mm of the metal of the terminal throat. The installer shall use an appropriate method to ensure a minimum ingress protection of IP54 in accordance with EN 60529, at the cable entry. Any shrouding / connected metal work (when used) must be effectively earthed.

- Lid and sensor assembly .....2106B1130
  - Weather protection ..... 02000-A-1640
  - Sensor filter ..... 00780-F-0018
  - Flow housing ..... 02000-A-1645
- To re-order a complete new unit see the label on the product, or contact Honeywell Analytics Ltd.

Certification Label

Serial number and year of manufacture (indicated by last two digits of serial number) will appear in this box

**SignalPoint Combustible**  
READ AND UNDERSTAND MANUAL BEFORE OPERATING  
Honeywell Analytics Ltd Poole BH17 0RZ UK

Operating Instructions



Signalpoint Combustible Sensor

Find out more  
www.honeywellanalytics.com

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**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 (<10%V/V) may suppress sensor output.
- Refer to local or national regulations relative to installation at the site.
- Operator should be fully aware of the action to be taken if the gas concentration exceeds an alarm level.
- Signalpoint should be protected from mechanical impact. Installation should consider not only the best placing for gas leakage related to potential leak points, gas characteristics and ventilation, but also where the potential of mechanical damage is minimized or avoided.

**3.2 CAUTIONS**

- Do not open when hazardous (explosive) gas is present.
- Atmospheres above 100% LEL may suppress the sensor reading.
- Do not modify or alter the sensor/enclosure construction, as essential safety requirements may be invalidated.
- Do not install in forced air ventilation systems. Do not insert conduit directly into Signalpoint box.
- Dispose of in accordance with local disposal regulations. Materials used are:  
**Box:** nylon  
**Sensor:** Fortron® (PPS polyphenylene sulphide)  
**Terminal block:** polyester.

**4.1 INSTALLATION**

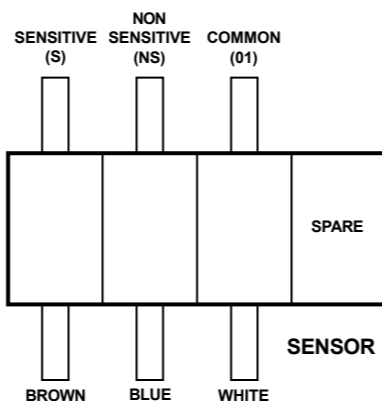
Signalpoint should be installed in a location free from dusts and direct heat sources. It must be fitted with a suitably approved M20 cable gland and installed in accordance with Ex e principles. Signalpoint should be correctly installed before use. Cabling should be multicore, three wires minimum, of conductor size 2.5 mm<sup>2</sup> max. Installation must be on a flat solid surface.

Wiring connections are:-

The unit requires 200mA current with nominal 3V supply.

Installation and service are to be performed by a qualified installation engineer with the power disconnected.

Disconnect the lid from the base by opening the closure to 180°, pressing and sliding the lid sideways off the base. Unscrew the grey plastic retainer and remove the sinter protection disk from the sensor. Replace it with a mesh screen. Replace the grey plastic retainer or fit the required accessory to the sensor screw thread. Affix the base to a flat solid surface using a No: 6 wood screw, or M3.5 screws in the holes (as shown on page 13). Reattach the lid by pushing the hinge inwards and upwards. Connect the wires to the terminal block as shown. Connect the external cable to the terminal block as shown. Close the lid ensuring that the wires are not trapped. Fix the lid to the base using the two M5 cap head bolts provided



**4.2 CALIBRATION**

Prior to calibration, allow the sensor to warm up for approximately 10 minutes. Re-calibration should only be attempted by qualified service personnel.

First zero the control system with no gas present on the sensor. If combustible gas is suspected to be in the vicinity of Signalpoint, 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 in air, at approximately the alarm point (e.g. 50% LEL), to the flow housing. 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 gasing 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.

Sensors should be calibrated at concentrations representative of those to be measured. It is always recommended that Signalpoint is calibrated with the target gas it is to detect. If this is not possible cross calibration can be used.

**4.3 CROSS CALIBRATION PROCEDURE:**

When the Signalpoint sensor is to be calibrated with a gas which is different to the gas/vapour to be detected, the following cross calibration procedure should be followed.

Table 1 lists gases according to the reaction they produce at the detector. An eight star (8\*) gas produces the highest output while a one star (1\*) gas produces the lowest output. (These are not applicable at ppm levels).

To calibrate the Signalpoint sensor, obtain the star rating for both the test gas and the gas to be detected from table 1. These values may then be used in table 2 to obtain the required meter setting when a 50% LEL test gas is applied to the detector.

If a sensor is to be used to detect a gas other than that for which it was calibrated, the required correction factor may be obtained from table 3. The meter reading should be multiplied by this number in order to obtain the true gas concentration.

**IMPORTANT**

- Since combustible sensors require oxygen for correct operation, a mixture of gas in air should be used for calibration purposes.
- Assuming an average sensor performance, the sensitivity information in tables 1 to 3 is normally accurate to ± 20%.

**Table 1: Star Rating of Gasses**

Gas	Star Rating	Gas	Star Rating
Acetone	4*	Hexane	3*
Ammonia	7*	Hydrogen	6*
Benzene	3*	Methane	6*
Butane	4*	Octane	3*
Diethyl ether	4*	Propan-2-ol	4*
Ethane	6*	Propane	5*
Ethanol	5*	Styrene	2*
Ethyl acetate	3*	Tetra hydrofuran	4*
Ethylene	5*	Xylene	2*

**Table 2: Meter Settings**

* Calibration Gas	* Rating of Gas to be Detected							
	8*	7*	6*	5*	4*	3*	2*	1*
8*	50	62	76	95	-	-	-	-
7*	40	50	61	76	96	-	-	-
6*	33	41	50	62	78	98	-	-
5*	26	33	40	50	63	79	100	-
4*	21	26	32	40	50	63	80	-
3*	-	21	26	32	40	50	64	81
2*	-	-	-	25	31	39	50	64
1*	-	-	-	-	25	31	39	50

Note: These settings must only be used with a calibration gas concentration of 50% LEL.

**Cross Calibration Example:**

- Target gas to be detected is butane. Calibration gas available is methane (50% LEL).
- Look up star rating for each (Table 1): butane 4\*, methane 6\*
- Check the meter settings for 50% LEL calibration gas (Table 2).

The control card meter should, therefore, be set to 78% to give an accurate reading for butane, using 50% LEL methane as a calibration gas.

**Table 3: Meter Multiplication Factors**

Unit calibrated To Detect	Unit used to detect							
	8*	7*	6*	5*	4*	3*	2*	1*
8*	1.00	1.24	1.52	1.89	2.37	2.98	3.78	4.83
7*	0.81	1.00	1.23	1.53	1.92	2.40	3.05	3.90
6*	0.66	0.81	1.00	1.24	1.56	1.96	2.49	3.17
5*	0.53	0.66	0.80	1.00	1.25	1.58	2.00	2.55
4*	0.42	0.52	0.64	0.80	1.00	1.26	1.60	2.03
3*	0.34	0.42	0.51	0.64	0.80	1.00	1.27	1.62
2*	0.26	0.33	0.40	0.50	0.63	0.79	1.00	1.28
1*	0.21	0.26	0.32	0.39	0.49	0.62	0.78	1.00

**4.4 FAULT FINDING**

**Sensor reads non zero all the time:**

- gas could be present, ensure there is no combustible gas in the atmosphere.

**Sensor reads non-zero when no gas is present:**

- adjust the zero of the control system.

**Sensor reads low when gas is applied:**

- adjust the span of the control system.

**Sensor reads high when gas is applied:**

- adjust the span of the control system.

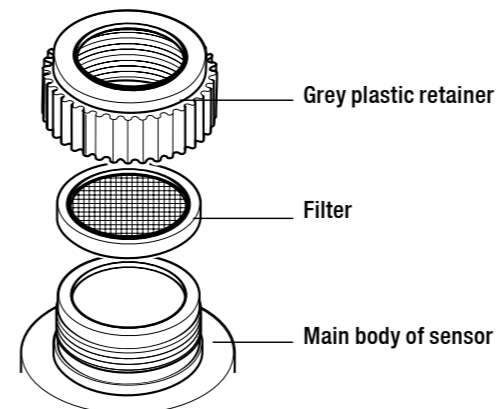
**Sensor reads zero when gas is applied:**

- check the wiring.
- check that the dust protection cap has been removed.
- check that the sinter is not obstructed.
- replace the sensor if poisoning is suspected.

**5. MAINTENANCE**

**5.1 CHANGING FILTERS**

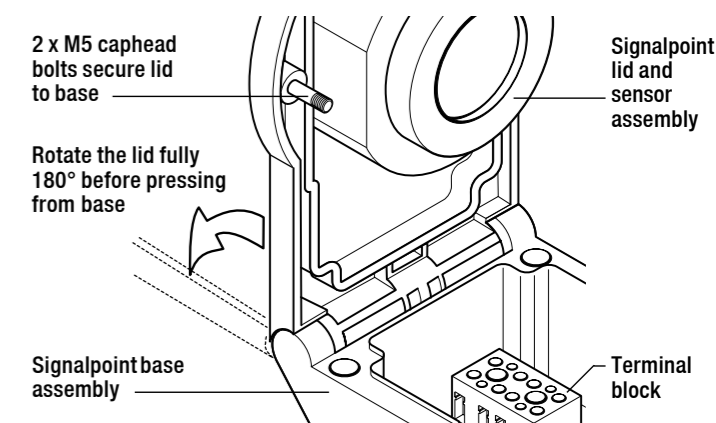
Remove the grey plastic retainer, or accessory if fitted. Remove the old filter and replace it with a fresh filter. Replace the grey plastic retainer.



**5.2 CHANGING THE SENSOR**

Disconnect the lid assembly from the base by opening the closure to 180°, disconnecting the sensor wires, then pressing down on the hinge, and sliding the lid assembly sideways off the base.

Reattach the new lid assembly by pushing the hinge inwards and upwards. Reconnect the sensor wires.



**5.3 RESPONSE CHECKING**

Use a gas test module to ensure that the sensor is operative. This is not a calibrated dose of gas.