**Specifications**

Operating temperature range: -30°C to +60°C standard.

Operating humidity range: 20% to 90% RH continuous.

Power consumption: 700mW.

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

Power consumption: 700mW.

Signal output: mV bridge.

Warm up time: recommended between 1 and 1.5 l/min.

Expected poisoning: pH5 standard.

IP rating: IP67 with weather protection.

- **Expected operating life:** 5 years.
- **Expected poisoning:** Exposure to silicones, halogenated hydrocarbons, heavy metals or sulphur compounds.
- **Signal output:** Recommended between 1 and 1.5 l/min.
- **Operating pressure range:** 90 to 110 kPa.
- **Gas concentration:** 10% to 110% RH intermittent.
- **Gas concentration:** 20% to 90% RH continuous.
- **Temperture range:** -30°C to +65°C standard.
- **Warm-up time:** 20 minutes.
- **Sensor model:** Sensepoint Combustible Gas.
- **M20, 3/4" NPT.**
- **Weight:** 190g
- **Manufacturer:** Honeywell Analytics Ltd.
- **Part number:** 901009-A-0100
- **Contact:** Honeywell Analytics Ltd.

**SAFETY**

**WARNINGS**

- This apparatus is not suitable for use in oxygen enriched atmospheres (>21%v/v). Oxygen enriched atmospheres (>21%v/v) may suppress sensor output.
- Refer to local or national regulations relative to installation at the site.
- Operators should be fully aware of the action to be taken if the gas concentration exceeds an alarm level.
- 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.
- 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.
- Atmospheres above 100% LEL may suppress the sensor reading.
- Do not modify or alter the sensor construction as essential safety requirements may be invalidated.
- Install using certified Ex e or Ex d junction box, connectors and glandings.
- Dispose of in accordance with local disposal regulations. Materials used – Fortron® (PPS-Polyphenylene Sulphide).
- This equipment is designed and constructed as to prevent ignition sources arcing, even in the event of frequent disturbances or equipment operating faults.
- The control card must have a suitability rated fuse.

**ATTENTION**

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**ATEX SPECIAL CONDITIONS FOR SAFE USE**

The detector must be protected from impact. The integral supply cables must be protected from impact and terminated in a suitable terminal facility.

- **Introduction & associated documentation**
  - Sensepoint is a sealed disposable sensor for the detection of flammable gases and is designed for use with an approved junction box.
  - It employs a catalytic pellet sensor device which is used as part of a bridge measuring circuit.
  - Sensepoint sensors are certified for hazardous areas to EN60079 and is protected against water and dust ingress to IP67. The installation must be consistent with the certification approval.
  - The control card must have a suitability rated fuse.

**1. INTRODUCTION & ASSOCIATED DOCUMENTATION**

- Sensepoint is a sealed disposable sensor for the detection of flammable gases and is designed for use with an approved junction box.
- It employs a catalytic pellet sensor device which is used as part of a bridge measuring circuit.
- Sensepoint sensors are certified for hazardous areas to EN60079 and is protected against water and dust ingress to IP67. The installation must be consistent with the certification approval.
- The control card must have a suitability rated fuse.
3. INSTALLATION

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

The Sensepoint must be fitted into a suitably approved Ex e or Ex d junction box fitted with a suitably approved cable gland. This should be correctly installed before use.

The sensor should be installed in a location free from direct heat sources. For optimum protection against water ingress ensure that the sensor is installed facing downwards.

See the Sensepoint Gas Sensors Technical Handbook for installation in a duct or in forced air conditions.

Remove the sensor’s protective disc before use by unscrewing the filter housing, removing the filter and then the disc. Discard the protective disc. Refill the filter into the filter housing and replace the filter housing on the sensor.

The field connections should be three-core multi-strand cable with a maximum conductor size of 2.5mm² (14AWG). A screened cable is necessary.

The sensor should be fitted into a threaded hole within the junction box and locked in place with a lock nut. Ensure that junction box thread is compatible with sensor thread.

Connect the field and Sensepoint wiring to the junction box connector block as shown in the following diagram. The unit requires 200mA current with a nominal 3V supply.

4. CALIBRATION

4.1 CALIBRATION PROCEDURE

The calibration adjustments are carried out at the control card and gassing is performed at the sensor.

(1) Apply power and allow the sensor to warm up for 20 minutes.

(2) First ensure there is no gas present on the sensor. If combustible gas is suspected to be in the vicinity of the Sensepoint sensor, fit a Flow Housing accessory and flow clean air over the sensor.

(3) Set the zero reading on the control system.

(4) Remove the filter housing or accessory and replace it with a Flow Housing accessory, if not already fitted.

(5) Connect the Flow Housing input to a regulated cylinder, containing a known concentration of target gas at approximately the sensor alarm point (e.g. 50% FSD gas in air), using nylon or PTFE tubing.

Caution: As some test gases may be hazardous, the Flow Housing outlet should exhaust to a safe area.

(6) Pass the gas through the Flow Housing at a flow rate of approximately 1 to 1.5 litres per minute. Allow the sensor two to three minutes to stabilise.

(7) Adjust the control card to indicate the concentration of the target gas being applied

Note: It is useful to record the mV output of the sensor, via the control card, throughout the life of the sensor to ensure that there are no poisoning effects that will reduce the sensor performance. This would be indicated by a reduction in the mV output for the same gas concentration. It is recommended that the sensor is replaced when 60% loss has occurred.

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

4.2 CROSS CALIBRATION PROCEDURE

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

Table 1 lists gases according to the reaction they produce. (These are not applicable at %LEL levels). Other calibration information may be obtained from Honeywell Analytics or the Technical Handbook.

<table>
<thead>
<tr>
<th>Gas or Vapour</th>
<th>Applied gas or vapour</th>
<th>Relative Sensitivity*</th>
<th>Applied gas or vapour</th>
<th>Relative Sensitivity*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>120</td>
<td>Hydrogen</td>
<td>113</td>
<td></td>
</tr>
<tr>
<td>Ammonia</td>
<td>65</td>
<td>MIBK</td>
<td>181</td>
<td></td>
</tr>
<tr>
<td>Butane</td>
<td>164</td>
<td>Octane</td>
<td>197</td>
<td></td>
</tr>
<tr>
<td>Butanone (MEK)</td>
<td>140</td>
<td>Propane</td>
<td>153</td>
<td></td>
</tr>
<tr>
<td>Cyclohexane</td>
<td>193</td>
<td>Tetrahydrofuran</td>
<td>136</td>
<td></td>
</tr>
<tr>
<td>Diethyl ether</td>
<td>140</td>
<td>Toluene</td>
<td>131</td>
<td></td>
</tr>
<tr>
<td>Ethane</td>
<td>133</td>
<td>Triethylamine</td>
<td>142</td>
<td></td>
</tr>
<tr>
<td>Ethylene</td>
<td>181</td>
<td>Xylene</td>
<td>173</td>
<td></td>
</tr>
<tr>
<td>Heptane</td>
<td>200</td>
<td>Methane</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Hexane</td>
<td>193</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* relative to Methane = 100

6. MAINTENANCE

6.1 CHANGING FILTERS

- Remove the black plastic retainer or accessory.
- Remove the old filter and replace it with a fresh filter.
- Replace the black plastic retainer or accessory.

6.2 MAINTENANCE

- Replace the sensor if poisoning is suspected.
- Adjust the zero of the control system.
- Replace the sensor if poisoning is suspected.
- Adjust the span of the control system.
- Replace the sensor if poisoning is suspected.

Filter
Black plastic retainer
Main body of sensor

Table 2: Recommended full scale deflection (fsd)

<table>
<thead>
<tr>
<th>Gas or Vapour</th>
<th>fsd</th>
<th>Gas or Vapour</th>
<th>fsd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>3000 ppm</td>
<td>Hydrogen</td>
<td>5000 ppm</td>
</tr>
<tr>
<td>Ammonia</td>
<td>1500 ppm</td>
<td>MIBK</td>
<td>3000 ppm</td>
</tr>
<tr>
<td>Butane</td>
<td>5000 ppm</td>
<td>Octane</td>
<td>3000 ppm</td>
</tr>
<tr>
<td>Butanone (MEK)</td>
<td>5000 ppm</td>
<td>Propane</td>
<td>5000 ppm</td>
</tr>
<tr>
<td>Cyclohexane</td>
<td>3000 ppm</td>
<td>Tetrahydrofuran</td>
<td>5000 ppm</td>
</tr>
<tr>
<td>Diethyl ether</td>
<td>5000 ppm</td>
<td>Toluene</td>
<td>3000 ppm</td>
</tr>
<tr>
<td>Ethane</td>
<td>5000 ppm</td>
<td>Triethylamine</td>
<td>5000 ppm</td>
</tr>
<tr>
<td>Ethylene</td>
<td>3000 ppm</td>
<td>Xylene</td>
<td>3000 ppm</td>
</tr>
<tr>
<td>Heptane</td>
<td>3000 ppm</td>
<td>Methane</td>
<td>7000 ppm</td>
</tr>
<tr>
<td>Hexane</td>
<td>3000 ppm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.1 FAULT FINDING

Caution: There are no user serviceable parts within the Sensepoint and attempted changes may invalidate the certification requirements.

Sensor reads zero all the time:
- Gas could be present, ensure that there is no combustible gas in the atmosphere.

Sensor reads 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.