

APPENDIX D - SPARE PARTS

11070



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.

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.

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 mm² 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

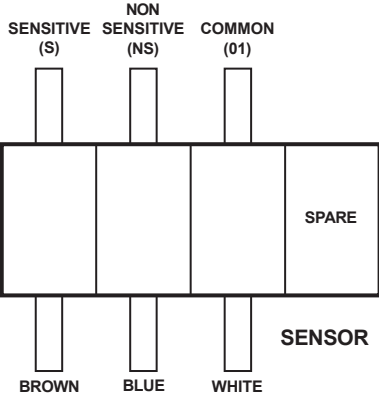


Table 3: Meter Multiplication Factors

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.

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 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.

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).

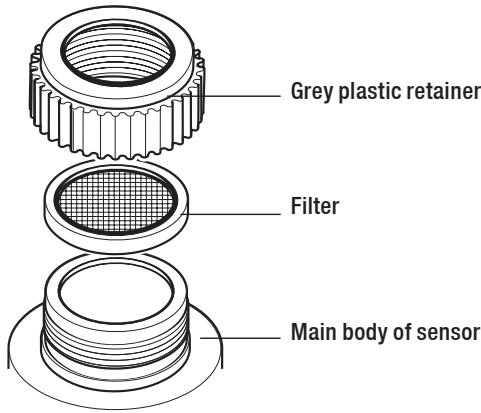
Sensor reads zero when gas is applied:

- 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.



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

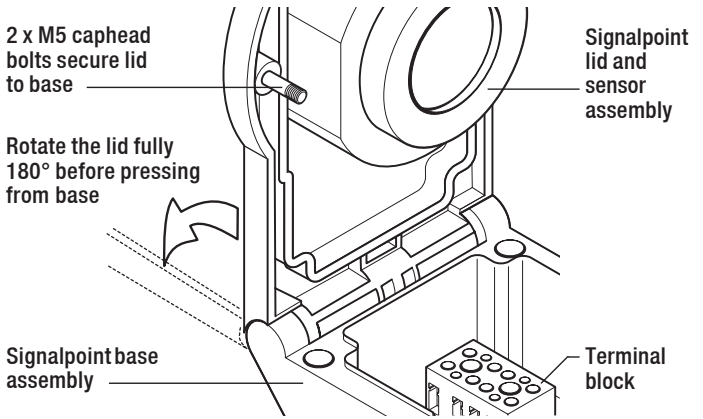
- Since combustible sensors require oxygen for correct operation, a mixture of gas in air should be used for calibration purposes.
- Assuming an average sensor performance, the sensitivity information in tables 1 to 3 is normally accurate to ± 20%.

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 hydrafuran	4*
Ethylene	5*	Xylene	2*

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.