# Sensepoint XCL

## Fixed Gas Detector

**Installation Manual**

# About This Manual

This manual describes how to install and use the Sensepoint XCL gas detector and should be read by anyone who installs, operates, or maintains these products.

Read and understand this manual in full before you install the product.

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# Contents

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Chapter **1**

# Introduction

</div>

## 1.1   Features

Sensepoint XCL is a single-sensor fixed gas detector, which supports the following interfaces dependent on the model:

**Analog output**:  Sensepoint XCL features current loop output, supporting signals in the range 0 to 22 mA. Typically this interface is referred to as 4 to 20 mA.

**Digital output**:  Sensepoint XCL supports Modbus RTU digital communications.
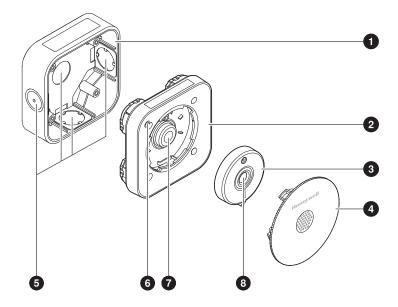
**Relay output**:  Sensepoint XCL provides two change-over relays for signaling to external control systems or controlling external alarming devices, for example audible and visual alarm indicators.

**Mobile app**:  A mobile app is available to commission and maintain the Sensepoint XCL gas detector.

Sensepoint XCL can be used either indoor or outdoors. If used outdoors, a sheltered location should be chosen, which is protected from direct sunlight and rain.

## 1.2   Appearance



| | |
|---|---|
| 1)  Back box | 2)  Gas detector module |
| 3)  Sensor cover | 4)  Front cover |
| 5)  Cable entries | 6)  Status indicator |
| 7)  Gas sensor | 8)  Dust protection membrane |

## 1.3   Accessories

| Part number | Description |
|---|---|
| SPXCLCAL | Sensepoint XCL Calibration/Flow Cap |
| SPXCLDMK | Sensepoint XCL Duct Mount Kit |
| SPXCLRGP | Sensepoint Fixed Remote Gassing Port |
| SPXCLGLD | Sensepoint XCL M20 Cable Glands, Black (10 pieces each pack) |
| SPXCLGLW | Sensepoint XCL M20 Cable Glands, White (10 pieces each pack) |

## 1.4   Detectable Gases
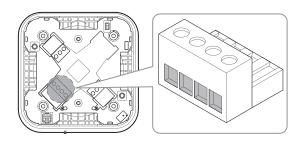
Sensepoint XCL is available for the detection of the following gases:

- Oxygen ($O_2$)
- Toxic gases

  - Ammonia ($NH_3$)
  - Carbon monoxide (CO)
  - Hydrogen ($H_2$)
  - Hydrogen sulfide ($H_2S$)
  - Nitrogen dioxide ($NO_2$)
  - Carbon Dioxide ($CO_2$)

- Combustible gases
  - Methane ($CH_4$)

## 1.5   Detector Versions

The 4-way terminal block(s) provide connection for both the gas detector output and the power supply. Assignment of the terminals and additional terminal blocks will vary dependent on the version.

### Analog (mA) Output Versions



| 1) +24 V DC or 24 V AC | 2) 0 V or 24 V AC |
|---|---|
| 3) 4 to 20 mA | 4) Common |
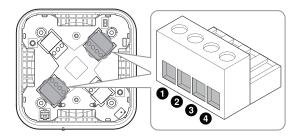
For details on wiring for the analog output version, see Wiring of mA Output Versions on page 17 and also Current Source/Sink Selection on page 18.

**Modbus Output Versions**
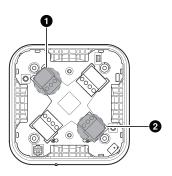
| | |
|---|---|
| 1) +24 V DC or 24 V AC | 2) 0 V or 24 V AC |
| 3) A | 4) B |
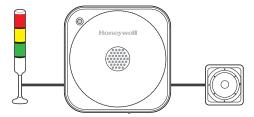
## 1.6 Relay Output
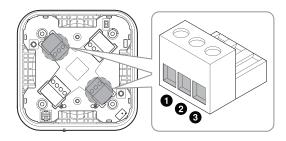


| | |
|---|---|
| 1) Relay No. 1 | 2) Relay No. 2 |

Where fitted, there are two configurable relays which can be used to control or signal to external devices, such as audible and visual alarms and other control systems.
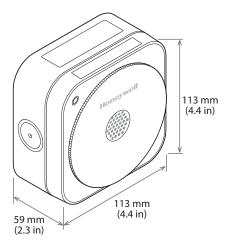


Connection to these relays are made through the two 3-way terminal blocks.

| 1) Normally closed (NC) | 2) Common |
|---|---|
| 3) Normally open (NO) | |

## 1.7   Specifications

### Dimensions and Weight



| Length | 113 mm (4.4 in) |
|---|---|
| Width | 113 mm (4.4 in) |
| hight | 59 mm (2.3 in) |
| Weight | 500 g (1.1 lb) |

### Power Supply

Sensepoint XCL requires an isolated power supply unit that is certified by a national or international standard, such as UL.

| Nominal DC input voltage | 24 V DC* |
|---|---|
| Nominal AC input voltage | 24 V AC⁺, 50/60 Hz |
| Inrush current | Less than 850 mA |

*mA versions: 11 to 32 V DC, Modbus versions: 9 to 32 V DC
⁺20 to 27 V AC

## Outputs

| | |
|---|---|
| Analog output | 0 to 22 mA sink or source (configurable) |
| Digital output | Modbus RTU |
| Relay output | 5 A, 250 V AC, 24 V DC |

The two relays can be used for fault signalling (normally energized) or for alarm signalling. The relay assignments and operations are configurable using the mobile app.

### Modbus RTU Default Communication Setting

| | |
|---|---|
| Baud rate | 9600 bps |
| Parity | None |
| Data bits | 8 |
| Stop bits | 2 |
| Flow control | None |

Refer to Appendix G for details on the Modbus registers.

Adjustable Modbus setting:

- Slave ID: 1 to 255
- Baud rate: 9600, 19200 bps
- Parity: None, Even, Odd

### Relay Default Setting

| | |
|---|---|
| Relay 1 | Any faults and initial state is energized. |
| Relay 2 | Gas alarm 1 and initial state is de-energized. |

## Maximum Power Consumption

The power consumption varies, depending on output version and sensor type. The additional maximum power consumption for the relay output version is 0.6 W.

### Analog Output Version

| | In normal state | During an alarm |
|---|---|---|
| Electrochemical-cell-type sensors | 0.5 W | 1.2 W |
| Catalytic-type sensors | 1.0 W | 1.7 W |
| Infrared-type sensors | 1.0 W | 1.7 W |

### Digital Output Version

|  | In normal state | During an alarm |
| --- | --- | --- |
| Electrochemical-cell-type sensors | 0.3 W | 0.7 W |
| Catalytic-type sensors | 0.8 W | 1.2 W |
| Infrared-type sensors | 0.8 W | 1.2 W |

## Operating Environment

| | |
| --- | --- |
| Operating temperature | –20 to 50 °C (–4 to 122 °F) |
| Storage temperature | 0 to 30 °C (32 to 86 °F) |
| Humidity | 0 to 99% (non-condensing)[†] |
| Atmospheric pressure | 90 to 110 kPa |
| Installation category | II (UL/CSA/IEC/EN 61010-1) |
| Pollution degree[‡] | 2 (UL/CSA/IEC/EN 61010-1) |

[†]Flammable catalytic versions: 10 to 90% RH. Operating the detector outside of this range may result in increased drift and a reduction in detector accuracy.
[‡]Sensepoint XCL conforms to IP65, Type 4 (in accordance with NEMA 250) making it suitable for use in Pollution Degree 3 environments.

> **NOTE**
>
> Install Sensepoint XCL in a sheltered location away from direct UV light and rain.

## Recommended Wall-Mounting Screws

| | |
| --- | --- |
| Type | Countersunk, pan head |
| Size | 4 mm (No. 8) diameter × 25 mm (1 in) min. |

## Cable Gland

| | |
| --- | --- |
| Inner knockout | M20 or ½ NPT |
| Outer knockout | M25 or ¾ NPT |

## Gas Test Tubing

For a bump test, use urethane tubing with one of the below dimensions. Select tubing appropriate for the gas being detected and length of tubing. See Remote Gassing Connection on page 26.

| Inner diameter | Outer diameter |
|---|---|
| 4 mm (0.16 in) | 6 mm (0.24 in) |
| 6 mm (0.24 in) | 8 mm (0.31 in) |

**Gas**

See Detector Parameters on page 42 for a full list of detectable gases, ranges and other information.

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Chapter **2**

# Installation

</div>

## 2.1  Safety Information

> ⚠ **CAUTION**
>
> Failure to observe the precautions described in this section can cause injury to persons or damage to property.
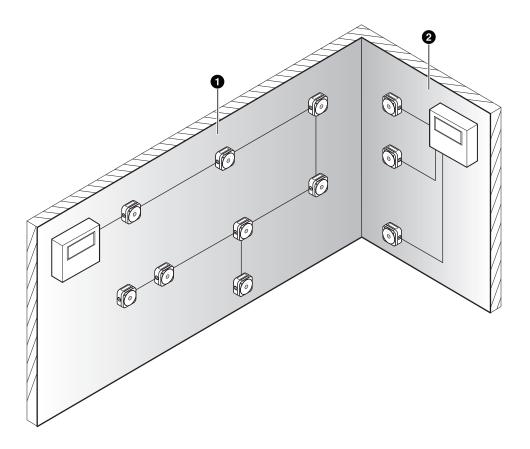
Observe these precautions:

- To minimize the risk of electrostatic charge, provision shall be made for adequate grounding and equipment shall be installed in such a manner so that accidental discharge shall not occur.

- When Sensepoint XCL reaches the end of its life, it should be disposed of in accordance with local regulations.

- Do not use cleaning solvents or abrasives to clean the gas detector.

- Do not attempt to modify the product in any way from the manufacturers design or specification. Warranty will be void and malfunction of the gas detector may result.

- Use only genuine spare parts and accessories with Sensepoint XCL. Malfunction may result if non-standard parts are used.

Sensepoint XCL is suitable for ordinary locations only and must not be installed in hazardous locations. Installation must be in accordance with the recognized standards of the appropriate authority in the country concerned. For Europe, see EN60079-14, EN60079-29-2, and EN61241-14. For installations in North America, the National Electrical Code (NFPA 70) should be strictly observed. All the appropriate local and national regulations should be observed.

## 2.2 Installation Layout
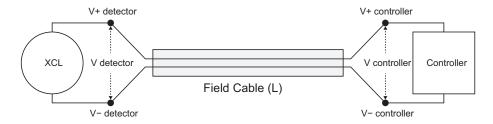


1) A gas detection system using Modbus RTU. Detectors are wired in a daisy chain on a single cable run.
2) A gas detector system using analog current loop principle. Each detector is individually wired to the controller on its own cable.

Final positioning of gas detectors should be indicated by the characteristics of the gas being detected and other environmental factors. Seek advice from experts where necessary.

## 2.3 Power Cable Specification

Sensepoint XCL requires a power supply from the controller of specified supply voltage range in Section 1.7. Ensure that a minimum supply voltage is measured at the Sensepoint XCL, taking into account voltage drops due to cable resistance.

The maximum loop resistance ($R_{loop\ max}$) in the field cable is calculated as follows:

$$R_{loop\ max} = (V_{controller} - V_{detector\ min}) \div I_{detector\ max}$$

$$I_{detector\ max} = W_{detector\ max} \div V_{detector\ min}$$

**Example**

The controller is supplying a nominal 24 V DC ($V_{controller}$), and the minimum allowable voltage of XCL is 11 V DC ($V_{detector\ min}$). Therefore the maximum allowable voltage drop across the cable between the controller and detector is $V_{controller} - V_{detector\ min}$ = 13 V DC. Power consumption of the detector is maximum 2.3 W ($W_{detector\ max}$). The maximum current required to drive the XCL at the minimum voltage is 2.3 W ÷ 11 V DC = 209.1 mA ($I_{detector\ max}$). So the maximum field cable loop resistance ($R_{loop\ max}$) is 13 V DC ÷ 0.2091 = 62 Ω. Therefore, the maximum cable length for any given cable type can be found by dividing the maximum allowable cable resistance per core by the cable resistance provided by the cable manufacturer.
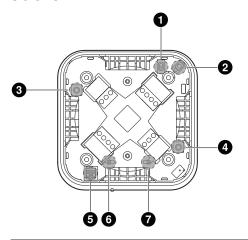
The following table shows the typical maximum cable distances for our example.

| Cable size (cross sectional areal) | Typical cable resistance | Maximum cable length (L) |
|---|---|---|
| 0.5 mm² (20 AWG[†]) | 36.8 Ω/km | 842 m |
| 1.0 mm² (17 AWG[†]) | 19.5 Ω/km | 1589 m |
| 1.5 mm² (16 AWG[†]) | 12.7 Ω/km | 2440 m |
| 2.0 mm² (14 AWG[†]) | 10.1 Ω/km | 3069 m |
| 2.5 mm² (13 AWG[†]) | 8.0 Ω/km | 3875 m |

[†]nearest equivalent

## 2.4  Detector Module



1) Inhibit switch
2) Status indicator
3) UP button
4) DOWN button
5) Current sink/source selection switch
6) Negative voltage output
7) Positive voltage output
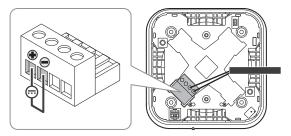
## 2.5  Wiring of mA Output Versions

⚠ CAUTION
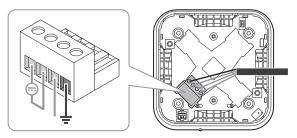
Ensure that the wiring of the detector is correct and the Current Source/Sink selection switch is correctly set BEFORE applying power.
Failure to do so may result in damage to the Sensepoint XCL detector.

**Power Connection**

When connecting to DC power, make sure that the polarity is correct.
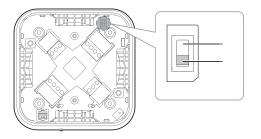


If an external power source is used, ensure that terminal 4 "Common" is used to connect the power and controller grounds together.

## Inhibit Level Selection

Use the inhibit switch to set the level of current which is required when inhibit is active.
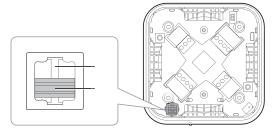


| |
|---|
| 1) With this switch in the upper position, a current of 4 mA is output in inhibit mode. In the case of oxygen versions only, 17.4 mA is used. |
| 2) With this switch in the lower position, a current of 2 mA is output in inhibit mode on all versions. |

## Current Source/Sink Selection

> ⚠ **CAUTION**
>
> Always disconnect power before changing the position of this switch. Failure to do so may result in damage to the Sensepoint XCL detector.

Use the current source/sink switch to choose between source mode and sink mode.



| |
|---|
| 1) Detector sink mode: With this switch in the upper position, the analog output drives current through the controller sensing circuit. |
| 2) Detector source mode: With this switch in the lower position, the analog output draws current through the controller sensing circuit. |

> **NOTE**
>
> The load resistance of the controller must be between 33 Ω and 250 Ω. When the mA output is not being used, a 33 Ω, 0.125 W load resistor should be connected between terminal 3 (4–20 mA) and terminal 2 (0 V) for source mode or terminal 1 (+24 V DC) for sink mode. Failure to do so will cause the unit to enter a fault condition.
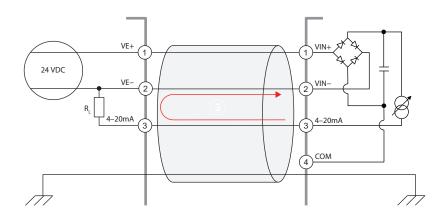
**NOTE**

When operating the detector from an AC power supply, the current loop (mA) wiring should be connected between terminals 3 (4–20 mA) and 4 (COM).
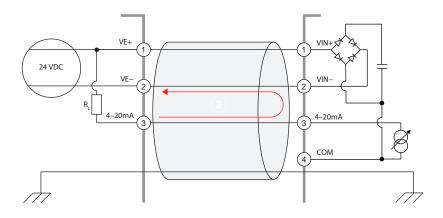
### Detector Source Mode with DC Power



| 1) System controller | 2) Sensepoint XCL detector |
|---|---|
| 3) Current flow | |
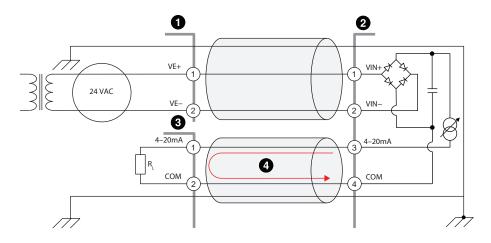
### Detector Sink Mode with DC Power



| 1) System controller | 2) Sensepoint XCL detector |
|---|---|
| 3) Current flow | |
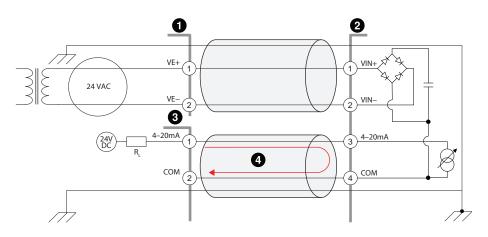
### Detector Source Mode with AC Power



| | |
|---|---|
| 1) External power supply | 2) Sensepoint XCL detector |
| 3) System controller | 4) Current flow |

### Detector Sink Mode with AC Power
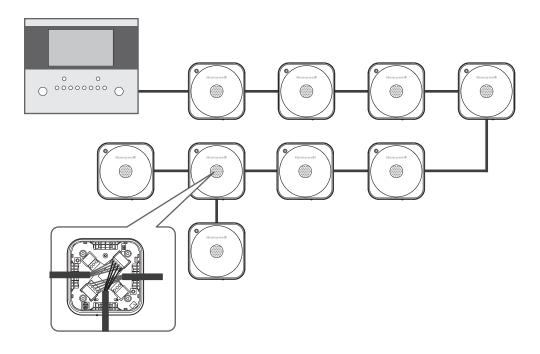


| | |
|---|---|
| 1) External power supply | 2) Sensepoint XCL detector |
| 3) System controller | 4) Current flow |

## 2.6 Wiring of Modbus Output Versions

### Modbus Connection

For Modbus versions, up to 32 Sensepoint XCL detectors can be connected in a daisy chain arrangement as shown in the diagram below.

**NOTE**
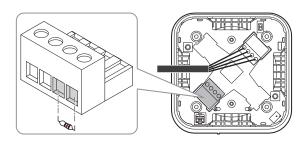
Where possible, spur or 'T' connections should be avoided. Always keep the spur connection as short as possible.

## Cable Specification for Modbus Connection

| Type | Cable Spec | Max Length |
|---|---|---|
| Modbus | 0.5 mm$^2$ to 2.5 mm$^2$ twist pair shied cable | 1000 m |

## Terminal Resistor
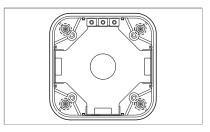
Connect a 120 Ω, 0.25 W terminal resistor between the A and B terminals at the end of the line.
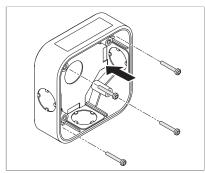
## 2.7 Securing the Back Box to a Wall

> ⚠ **CAUTION**
>
> Before starting installation, make sure that the system controller or external power source is switched off
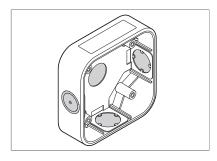


1. There are four screw positions in the rear of the back box for mounting purposes. Punch the required screw positions or drill using a 4 mm drill.
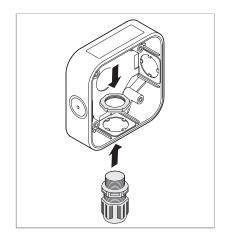


2. Secure the back box in its mounting position with suitable fixings appropriate to the mounting surface. Do not over-tighten.
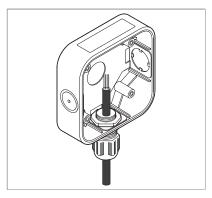


3. There are four cable entry knock-outs on three sides of and on the rear face of the back box. Drill or punch the entries as required.

## 2.8 Cable Connections
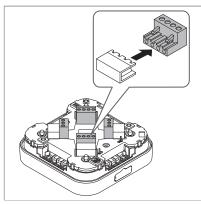


1. Fit suitable cable glands appropriate to the application and type of cable being utilized to the opened cable entries.
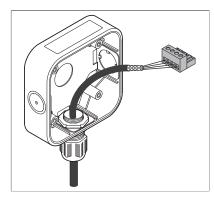
2. Feed the cable through the cable gland.



3. Turn over the detector module and locate the terminal blocks on the back. Remove the terminal blocks by pulling them toward the center of the module.
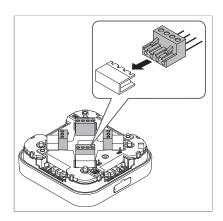


4. Connect the cable to the appropriate terminal block, referring to the relevant wiring diagram. Strip and insert the end of each wire into the corresponding terminal hole. Using a flat-blade terminal screwdriver, tighten the terminal screw until the wire is secured. Use a ferrule on the wire where necessary.

⚠ **CAUTION**
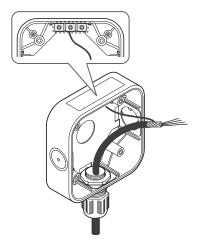
Do not over-tighten the terminal screw.

5.  Replace the terminal blocks in their correct positions.

## 2.9   Ground Connections
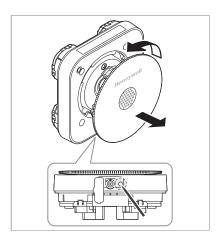


Effective grounding is crucial to ensure stable Modbus communications and to limit the effects of radio frequency interference. Ground points are provided inside the back box. In order to prevent false readings or alarms as a result of ground loops, ensure that the shield of all cables are grounded at a single point, preferably at the controller. Consideration should also be given to how conduit, glands and the internal earth plate are also grounded.
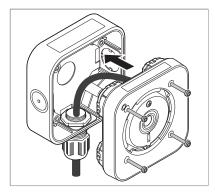
> **NOTE**
>
> Any earth regime must avoid earth loops.

## 2.10   Securing the Detector Module to the Back Box
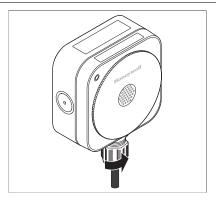


1. Remove the front cover from the detector module to expose the four retaining screws as follows:

    a) Pull the flap on the bottom side to expose the remote gassing port and front cover locking feature.

    b) To unlock the front cover, insert a thin, straight tool, such as a small screwdriver, into the hole to the right of the remote gassing port.

    c) Apply slight pressure to the tool and at the same time turn the cover counterclockwise until it stops. Lift the front cover clear of the module.
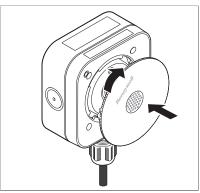


2. Position the detector module onto the back box ensuring that the status indicator is in the top left-hand corner when viewed from the front. Tighten the four retaining screws using a No. 2 Phillips screwdriver to secure.

⚠ CAUTION

Do not over-tighten the screws. If required, the current sink/source selection switch can be set at this point.

3. Where used, tighten the sealing nut of the cable gland to secure the cable.
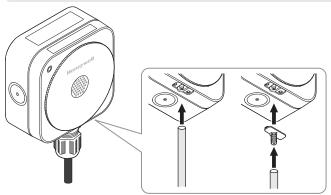


4. Replace the front cover. Place the front cover into the detector module in the position shown and rotate it clockwise until it locks into position.

## 2.11    Remote Gassing Connection

> **NOTE**
>
> Use the remote gassing connection for bump test only. Perform calibrations using the calibration cap accessory.



If the gas detector is installed in a difficult-to-access location, such as overhead on a ceiling, the remote gassing connection can be used to apply a test gas from a convenient location. Connect a tube appropriate for the type of gas being detected to the gas detector for bump test.

- For a temporary connection, open the flap on the bottom side and connect suitable tubing to the remote gassing port.

- For a permanent connection, remove the flap, clip in the tube connector accessory to the remote gassing port, and then connect a tube to the tube connector. Secure the tube using a cable tie or small jubilee clip, taking care not to over-tighten it.

<div align="right">
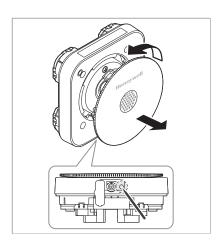
**Chapter 3**

# Commissioning

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**NOTE**

The Sensepoint XCL gas detector is supplied from the factory pre-calibrated. However, it is strongly recommended that the detector response is checked and if necessary, re-calibrated before placing it into service. Refer to Calibration on page 36 for details on the correct calibration procedure.

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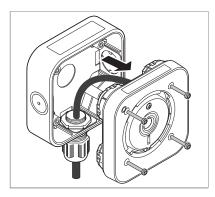
## 3.1 Commissioning the Detector

The following procedure should be followed carefully and only be performed by suitably-trained personnel.
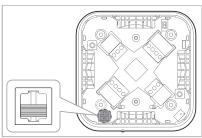


1. Remove the front cover.

   a) Pull the flap on the bottom side to open it.

   b) Insert a thin, straight tool, such as a small screwdriver, into the hole to the right of the remote gassing port.

   c) Apply slight pressure to the tool, turn the cover counterclockwise until it stops. Lift the cover clear of the electronics module.
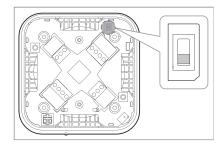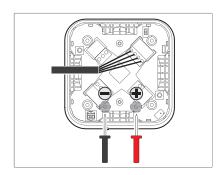
2. Remove the detector module of Sensepoint XCL.



3. Configure the sink/source mode of the detector. Refer to Current Source/Sink Selection on page 18 on details of how to do this.
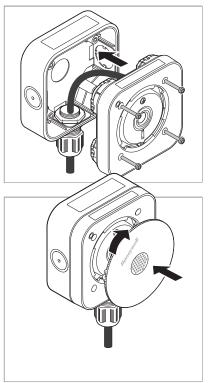


4. Configure the required inhibit level of the detector. Refer to section Inhibit Level Selection on page 18 on details of how to do this.

5. Check that all electrical connections are terminated correctly according to the connector terminal assignments shown on 8 and 9.



6. Switch on the power supply to the Sensepoint XCL.

   a) For DC operation, use a voltmeter set to measure DC voltage at the detector. Check that the power supply voltage between terminals 1 (+V) and 2 (0 V) is between 9 V DC and 32 V DC for Modbus versions and 11 V DC and 32 V DC for analog versions.

   b) For AC operation, use a voltmeter set to measure AC voltage to check that the power supply voltage between terminals 1 and 2 is between 20 V AC and 27 V AC.

7.  Remove power and refit the detector module to the back box.

8.  Refit the front cover.

9.  Apply power. The Sensepoint XCL will enter a warm-up mode during which time the status indicator will be steady yellow and the output (mA version) will be held in an inhibited state.

10. After the warm-up has been completed, the Sensepoint XCL will enter it's normal operating state.

## 3.2   Status Indicator

There is a status indicator on the face of the gas detector. The operating state of the detector is indicated by one of four colors, either steady or flashing.

● **Normal:**  The indicator is on steady green when the concentration of the target gas is within normal range.

> **NOTE**
>
> Using the mobile Sensepoint app, you can change how the green indicator behaves during normal operation. Select between steady green (default setting), confidence flash every 20 seconds or off.

**Warning**: The indicator alternatively flashes green and yellow when the gas detector is in a warning state.

**Fault**: The indicator flashes yellow when the gas detector is in a fault state.

**Inhibited**: The indicator is on steady yellow when the user has placed the detector into the inhibit state for maintenance or repair.

**Alarm**: The indicator flashes red when the gas concentration is beyond the alarm-level threshold.

**Out-of-range alarm**: The indicator rapidly flashes red when the gas concentration is beyond the full scale deflection of the detector.

**Bluetooth pairing**: The indicator flashes blue when Bluetooth pairing between the gas detector and an Android device is in progress.

**Bluetooth connected**: The indicator is on steady blue when a Bluetooth connection is established and the detector is in a normal condition.

## 3.3 Target Gas Selection (flammable catalytic versions only)

The target flammable gas of the Sensepoint XCL can be changed using the Sensepoint App and the user can select from a range of flammable gases. Please refer to the Sensepoint App manual for full details on how to do this.

> **NOTE**
>
> Before changing the target gas a zero calibration should be performed in clean air.

The Sensepoint XCL gas detector operates on a Star Rating system where gases are grouped depending on the response of the sensor to them. The higher the star rating, the more responsive the sensor is to the gas. The table below shows the Star Ratings for a range of gases.

| Gas | Equivalent Star Rating |
|---|---|
| Acetone | 3* |
| Ammonia | 7* |
| Benzene | 3* |
| Butanone | 3* |
| Butane | 4* |
| Butyl acetate | 1* |
| Butyl acrylate | 1* |
| Cyclohexane | 2* |
| Cyclohexanone | <1* |
| Diethyl ether | 3* |
| Ethane | 5* |
| Ethanol | 4* |
| Ethyl acetate | 3* |
| Ethylene | 5* |
| Heptane | 3* |
| Hexane | 3* |
| Hydrogen | 7* |
| Methane | 6* |
| Methanol | 5* |
| MIBK | 3* |
| Octane | 3* |
| Pentane | 3* |
| Propane | 4* |
| Propan-2-ol | 3* |
| Styrene | 2* |
| Tetrahydrofuran | 4* |
| Toluene | 3* |
| Triethylamine | 3* |
| Xylene | 2* |

For maximum accuracy, the Sensepoint XCL catalytic sensor should be calibrated using a known calibration gas (with an air balance) equal to 50% of the actual target gas intended to be monitored.
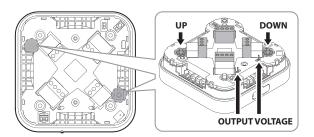
## Chapter 4

# Maintenance

## 4.1 Using the Control Buttons

It is possible to perform basic maintenance functions on the Sensepoint XCL gas detector without the use of the mobile app. This is achieved through the use of two control buttons inside the detector. Familiarize yourself fully on the operation of these buttons before attempting to use them.

> **NOTE**
>
> Make sure that the inhibit level is set to the desired level. See Inhibit Level Selection on page 18.



**To inhibit the detector output:** Press and hold the UP button for 2 seconds.

**To increase the output voltage:** Briefly press the UP button. Pressing once increases by 0.01 V. To increase by 0.1 V, press and hold the button.

**To decrease the output voltage:** Briefly press the DOWN button. Pressing once decreases by 0.01 V. To decrease by 0.1 V, press and hold the button.
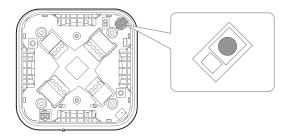
**To move to the next stage:** Press and hold the UP button for 2 seconds. If a change has been made, it is saved automatically before proceeding to the next stage.

**To escape and discard all changes:** This escape function can be used at any time during the procedures detailed in the following sections. Press and hold the DOWN button for 5 seconds.

## 4.2   Maintenance Status Indicator

There is another indicator on the rear of the detector module for easier maintenance. When performing maintenance, such as calibration or sensor replacement, using the control buttons, refer to the indicator to determine the status of the detector.



**Inhibit mode**

While in inhibit mode, the indicator is on steady yellow 🟡 .

**Sensor replacement mode**

While in sensor replacement mode, the indicator slowly flashes yellow 🌟 . When in warm-up, the indicator is on steady yellow 🟡 .

**Zero calibration**

During zero calibration, the indicator flashes long yellow 🌟 followed by two short yellow flashes 🌟 . First short yellow flash indicates zero status and second flash indicates span status . The indicator flashes long yellow 🌟 followed by short green flash 🌟 and short yellow flash 🌟 when the zero calibration is successfully completed, but flashes long yellow 🌟 followed by short red flash 🔴 and short yellow flash 🌟 if it fails.

**Span calibration**

During span calibration, the indicator flashes yellow 🌟 . The indicator flashes green 🌟 with two short pauses when the span calibration is successfully completed, but flashes red 🔴 with two short pauses if it fails.

**Calibration gas purge**

While the calibration gas is purged, the indicator is on steady yellow 🟡 .

**Cancel**

When a task is cancelled, the indicator flashes yellow ☀ with three short pauses.

## 4.3   Calibration Cap

The following table shows the recommended flow rate and stabilization time for each of the gas types.
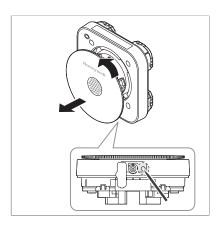
| Gas Type | Recommended Flow Rate | Recommended Stabilization Time |
|---|---|---|
| CO | 300 cc/min | 3 min |
| $H_2S$ | 300 cc/min | 3 min |
| $O_2$ | 300 cc/min | 3 min |
| $CH_4$ | 300 cc/min | 3 min |
| $NO_2$ | 300 cc/min | 5 min |
| $H_2$ | 300 cc/min | 5 min |
| $NH_3$ | 300 cc/min | 5 min |
| $CO_2$ (ppm, %vol) | 500cc/min | 3 min |

> **NOTE**
>
> Always use a flow regulator, tubing and fittings appropriate for the type of gas being applied.
>
> Use remote gassing connection for bump test only. Perform calibrations using the calibration cap accessory.
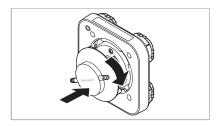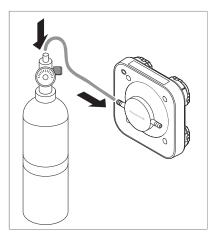
A calibration cap accessory is available for the application of reference gas for the purpose of calibration. To fit the calibration cap, follow the steps below.
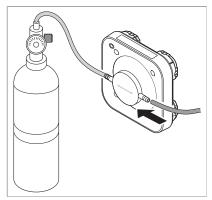
1. Remove the front cover.

   a) Pull the flap on the bottom side to open it.

   b) Insert a thin, straight tool, such as a small screwdriver, into the hole to the right of the remote gassing port.

   c) Apply slight pressure to the tool, turn the cover counterclockwise until it stops. Lift the cover clear of the electronics module.
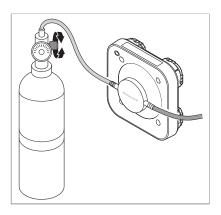


2. Attach the calibration cap to the detector. Insert the calibration cap into the front of the detector as shown, and turn it clockwise until it locks into place.



3. Connect a tube from a cylinder of calibration gas to either of the cap's gassing ports.



4. Connect another tube to the other gassing port, and place the end of this tube in a position so that gas can exhaust safely away from the work area and other personnel.

5.  Refer to the regulator manufacturer for instructions on how to start and stop the gas flow from the cylinder.

> ⚠ **CAUTION**
>
> Always use a gas cylinder that is within its expiration date.
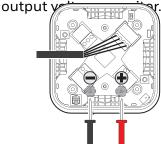
## 4.4   Calibration

> **NOTE**
>
> On versions that feature the Bluetooth® link, it is preferential to use a smartphone running the app to perform maintenance tasks.

This section describes how to perform a calibration using the control buttons and the internal maintenance status indicator. Before starting calibration, make sure that the gas detector is powered on.

1.  Activate inhibit mode by pressing and holding the UP button for 2 seconds. Make sure that the yellow indicator is on.

2.  Connect the positive probe of a voltmeter to the positive terminal, and connect the negative probe to the negative terminal of the output voltage monitor.



3.  Move to the next stage perform a zero calibration.

    a)  Move to the next step by holding the UP button for 2 seconds.

    b)  If there is any doubt of the quality of the atmosphere, connect a cylinder of fresh air to the detector using the installed tube or

the calibration cap. For details about how to use a calibration cap, see Calibration Cap on page 34.

c) Apply fresh air to the detector, and wait for a few minutes until the reading is stable.

d) Using the UP and DOWN buttons, adjust the output voltage so that the voltmeter is reading slightly above zero, and then decrease the reading slowly so that it reads zero.

e) When the output voltage is adjusted close to zero, accept the zero calibration by holding UP button for 2 seconds.

4. If a span calibration is required, after successful zero calibration it will move to span calibration automatically. If a span calibration is not required, exit from calibration by holding DOWN button for 5 seconds. This will cancel a span calibration while zero calibration result sustains.

a) Move to the next step by holding the UP button for 2 seconds.

b) Connect a cylinder of span gas to the detector. Where the greatest accuracy is required, the cylinder concentration should be usually around the alarm set point or 50% of the range of the detector.

c) Apply the span gas to the detector, and wait for a few minutes until the reading is stable.

d) Using the UP and DOWN buttons, adjust the output voltage until it reaches the target value. Use the formula below to calculate what the correct voltage should be.

$$V_{out} = \text{Gas concentration} \div \text{detector range}$$

For example, if you are applying 45% LEL gas with a 100% LEL detector range, you would need to adjust the voltage output so that the reading on the voltmeter shows:

$$45 \div 100 = 0.45 \text{ V}$$

e) When the output voltage is adjusted close to target gas concentration, accept the span calibration by holding UP button for 2 seconds.

5. Purge the gas sensor.

a) Move to the next step by holding the UP button for 2 seconds.

b) Remove the span gas from the detector.

c) Make sure that the reading voltage out returns to zero. If there is any doubt that the detector is not in fresh air, apply cylinder air. Otherwise, an alarm may occur.

6. Use the cancel function to return to normal monitoring mode.

If repeated calibration attempts continue to fail, replace the gas sensor with a new one, and then try again. See Replacing the Sensor on page 39.

## 4.5  Bump Test

This section describes how to perform a bump test. For details about the mobile app, see Mobile App on page 41.

Bump testing is the process of exposing the gas sensor to a known concentration of reference gas that is greater than the low alarm threshold in order to verify the proper operation of the gas detector.

1. Connect your smartphone with the target gas detector via Bluetooth.

2. Place the detector in inhibit mode by using the inhibit control on the mobile app.

3. Connect a cylinder of reference gas to the target detector using a suitable tube connected to the gassing port or the calibration cap. For details about how to use a calibration cap, see Calibration Cap on page 34.

4. Connect your smartphone with the target detector via Bluetooth.

5. Apply the bump test gas to the detector.

> **NOTE**
> For CO versions operating in UL 2075 alarm mode, apply 100 ppm of carbon monoxide at a flow rate of 300 ml/min for 3 minutes.

6. If the detector fails the bump test, check and if necessary, calibrate the detector.

> **NOTE**
> Perform a bump test at least twice a year.

## 4.6 Replacing the Sensor
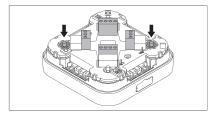
> ⚠ **WARNING**
>
> Use only genuine replacement sensors specifically for use with Sensepoint XCL. Attempting to use non-genuine sensors could result in malfunction of the product.
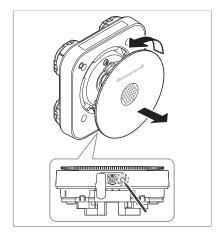
> ⚠ **CAUTION**
>
> Do not replace the sensor without first a) removing power to the Sensepoint XCL or b) placing the sensor into the sensor maintenance mode.

Connect your smartphone to the Sensepoint XCL via Bluetooth. Tap the Maintenance button and select Change Sensor. Follow the on-screen instructions.
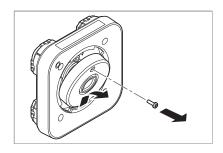
In cases where a smartphone running the mobile app is not available, follow the steps below:
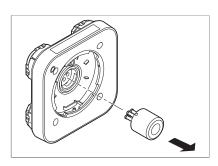


1. Press and hold the UP button for 10 seconds to switch to sensor replacement mode. In this mode, the detector output is inhibited and the sensor circuits are internally isolated.



2. Remove the front cover to expose the sensor cover.

    a) Pull the flap on the bottom side to open it.

    b) To unlock the front cover, insert a thin, straight tool, such as a small screwdriver, into the hole beside the remote gassing port.

    c) Apply slight pressure to the tool, turn the cover counterclockwise until it stops. Lift the front cover free from the sensor module.
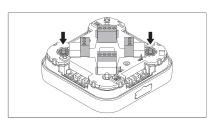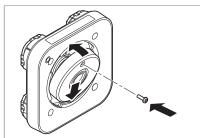
3. Remove the sensor cover.

   a) Loosen the screw on the top of the sensor cover.

   b) Holding the screw, tilt it downwards from the upper edge of the cover.

4. Pull out the gas sensor to remove it.

5. Ensuring that the sensor pins are correctly aligned, insert a new sensor into the sensor socket.

> ⚠ CAUTION
>
> Do not force the sensor into the socket, otherwise it may be damaged.

6. Press and hold the UP button for 2 seconds to activate warm-up mode. In this mode, the output continues to be held in its inhibit state.

7. Replace the sensor cover and secure with the screw, taking care not to over-tighten it.

8. Switch to normal monitoring mode by holding the DOWN button for 5 seconds.

9. Perform a calibration in accordance with Calibration on page 36.

## 4.7   Resetting Alarms and Faults

When there is latched gas alarm or faults, reset them by pressing the UP or DOWN button shortly. This will reset latched alarms and faults, and initiate a self diagnostics to make sure there is no warning or fault in the detector.

**Chapter  5**

# Mobile App

Use the Sensepoint app to allow your smart device to connect to Sensepoint XCL. This mobile app makes it much easier to configure and maintain Sensepoint XCL detectors. The general procedure of using the mobile app is as follows:

1. Download **Sensepoint App** from Google Play Store. Install and launch the app.

2. Create and register a user account, and log on with the created account information.

3. To associate with one or more gas detectors, scan the QR code on the sheet included in the box or enter its Activation Key and Device Serial Number.

4. Complete the installation of the detectors.

5. On the app's home screen, tap **DETECTORS** to scan for available detectors.

6. Select a detector from the detector list to pair with.

7. Look for the detector whose Status Indicator is flashing blue.

8. Tap **Confirm Detector** to pair with that detector. Otherwise, tap **Return to list** to select one of the others.

9. To connect to detectors that are not added to your user account, you will need registration sheet containing the device QR code. This can also be found on a label on the rear of the electronics module.

When a Bluetooth connection is established, the detector's reading is displayed on the app interface with the gas type.

For details how to use the mobile app, refer to the Sensepoint app manual.

Appendix   A

# Detector Parameters

## Non-Bluetooth Versions (not available in all countries)

| Gas | Detector Type | User Selectable Range | Default Range | User Selectable Cal Gas Range | Default Cal Point | Response Time t90 (s) | Resolution | Accuracy (Reading or % of applied gas which is the greater) |
|---|---|---|---|---|---|---|---|---|
| Oxygen | SPLLO1... | Fixed, 25.0% vol | 25.0% vol | N/A | N/A | <30 | N/A | <±0.5 %vol |
| Flammable (CAT) | SPLLF6... | Fixed, 100% LEL | 100% LEL | N/A | N/A | <30 | N/A | <±3 %LEL |
| Carbon Monoxide (low range) | SPLLC1... | Fixed, 100 ppm | 100 ppm | N/A | N/A | <30 | N/A | <±2 ppm or ±10% |
| Carbon Monoxide (high range) | SPLLC2... | Fixed, 300 ppm | 300 ppm | N/A | N/A | <30 | N/A | <±2 ppm or ±10% |
| Hydrogen Sulfide (low range) | SPLLH1... | Fixed, 50.0 ppm | 50.0 ppm | N/A | N/A | <30 | N/A | <±0.3 ppm or ±10% |
| Hydrogen Sulfide (high range) | SPLLH2... | Fixed, 100 ppm | 100 ppm | N/A | N/A | <30 | N/A | <±5 ppm or ±10% |
| Hydrogen | SPLLG1... | Fixed, 1000 ppm | 1000 ppm | N/A | N/A | <90 | N/A | <±15 ppm or ±20% |
| Nitrogen Dioxide | SPLLN1... | Fixed, 20.0 ppm | 20.0 ppm | N/A | N/A | <30 | N/A | <±0.2 ppm or ±20% |
| Carbon Dioxide (ppm) | SPLLB3... | Fixed, 5000 ppm | 5000 ppm | N/A | N/A | <30 | N/A | <±30 ppm or ±20% |
| Carbon Dioxide (%vol) | SPLLB4... | Fixed, 5.0% vol | 5.0% vol | N/A | N/A | <30 | N/A | <±0.2 %vol or ±20% |
| Ammonia | SPLLA1... | Fixed, 100 ppm | 100 ppm | N/A | N/A | <180 | N/A | <±4 ppm ±20% |

| Gas | Sensor Operating Temperature | | Default Alarm Points & Types | | | | | | LAL | LDL |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min | Max | A1 | Default A1 Type | A1 Options | A2 | Default A2 Type | A2 Options | | |
| Oxygen | -20 °C | 50 °C | 23.5% vol | Rising | N/A | 19.5% vol | Falling | N/A | N/A | 20.6 to 21.2% vol / 0 to 3.0% vol |
| Flammable (CAT) | -20 °C | 50 °C | 20% LEL | Rising | N/A | 50% LEL | Rising | N/A | N/A | 6% LEL |
| Carbon Monoxide (low range) | -20 °C | 50 °C | 25 ppm | Rising | N/A | 40 ppm | Rising | N/A | N/A | 10 ppm |
| Carbon Monoxide (high range) | -20 °C | 50 °C | 30 ppm | Rising | N/A | 100 ppm | Rising | N/A | N/A | 10 ppm |
| Hydrogen Sulfide (low range) | -20 °C | 50 °C | 10 ppm | Rising | N/A | 20 ppm | Rising | N/A | N/A | 0.8 ppm |
| Hydrogen Sulfide (high range) | -20 °C | 50 °C | 10 ppm | Rising | N/A | 20 ppm | Rising | N/A | N/A | 1 ppm |
| Hydrogen | -20 °C | 50 °C | 200 ppm | Rising | N/A | 400 ppm | Rising | N/A | N/A | 30 ppm |
| Nitrogen Dioxide | -20 °C | 50 °C | 2.0 ppm | Rising | N/A | 5.0 ppm | Rising | N/A | N/A | 0.3 ppm |
| Carbon Dioxide (ppm) | -20 °C | 50 °C | 1500 ppm | Rising | N/A | 3000 ppm | Rising | N/A | N/A | 300 ppm |
| Carbon Dioxide (%vol) | -20 °C | 50 °C | 0.4% vol | Rising | N/A | 0.8% vol | Rising | N/A | N/A | 0.1% vol |
| Ammonia | -20 °C | 40 °C | 25 ppm | Rising | N/A | 50 ppm | Rising | N/A | N/A | 6 ppm |

## Bluetooth Versions

| Gas | Detector Type | User Selectable Range | Default Range | User Selectable Cal Gas Range | Default Cal Point | Response Time t90 (s) | Resolution | Accuracy (Reading or % of applied gas which is the greater) |
|---|---|---|---|---|---|---|---|---|
| Oxygen | SPLCO1... | Fixed, 25.0% vol | 25.0% vol | | 20.9% vol | < 30 | 0.1% vol | < ±0.5 %vol |
| Flammable (CAT) | SPLCF6... | 20 to 100% LEL | 100% LEL | | 50% LEL | < 30 | 1% LEL | < ±3 %LEL or ±10% |
| Carbon Monoxide | SPLCC1... | 50 to 1000 ppm | 300 ppm | 20 to 70% of selected full scale range (except oxygen) | 100 ppm | < 30 | 1 ppm | < ±2 ppm or ±10% |
| Hydrogen Sulfide (low range) | SPLCH1... | 10.0 to 50.0 ppm | 50.0 ppm | | 25 ppm | < 30 | 0.1 ppm | < ±0.3 ppm or ±10% |
| Hydrogen Sulfide (high range) | SPLCH2... | 50 to 200 ppm | 100 ppm | | 25 ppm | < 30 | 1 ppm | < ±5 ppm or ±10% |
| Hydrogen | SPLCG1... | 1000 ppm only | 1000 ppm | | 500 ppm | < 90 | 1 ppm | < ±15 ppm or ±20% |
| Nitrogen Dioxide | SPLCN1... | 5.0 to 50.0 ppm | 20.0 ppm | | 5 ppm | < 30 | 0.1 ppm | < ±0.2 ppm or ±20% |
| Ammonia | SPLCA1... | 50 to 200 ppm | 100 ppm | | 50 ppm | < 180 | 1 ppm | < ±4 ppm ±20% |
| Carbon Dioxide (ppm) | SPLCB3... | 1000 to 5000 ppm | 5000 ppm | | 2500ppm | < 30 | 10 ppm | < ± 30 ppm or ± 20% |
| Carbon Dioxide (%vol) | SPLCB4... | 1.0 to 5.0% vol | 5.0% vol | | 2.5%vol | < 30 | 0.1% vol | < ± 0.2 %vol or ± 20% |

| Gas | Sensor Operating Temperature | | Default Alarm Points & Types | | | | | | LAL | LDL |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min | Max | A1 | Default A1 Type | A1 Options | A2 | Default A2 Type | A2 Options | | |
| Oxygen | -20°C | 50°C | 23.5% vol | Rising | Rising/Disabled | 19.5% vol | Falling | Falling/Disabled | 5.0% vol | 20.6 to 21.2% vol 0 to 3.0% vol |
| Flammable (CAT) | -20°C | 50°C | 20% LEL | Rising | Rising/Disabled | 50% LEL | Rising | Rising/Disabled | 10% LEL | 6% LEL |
| Carbon Monoxide | -20°C | 50°C | 30 ppm | Rising | Rising/Disabled | 100 ppm | Rising | Rising/Disabled | 15 ppm | 10 ppm |
| Hydrogen Sulfide (low range) | -20°C | 50°C | 10 ppm | Rising | Rising/Disabled | 20 ppm | Rising | Rising/Disabled | 1.0 ppm | 0.8 ppm |
| Hydrogen Sulfide (high range) | -20°C | 50°C | 10 ppm | Rising | Rising/Disabled | 20 ppm | Rising | Rising/Disabled | 5 ppm | 1 ppm |
| Hydrogen | -20°C | 50°C | 200 ppm | Rising | Rising/Disabled | 400 ppm | Rising | Rising/Disabled | 100 ppm | 30 ppm |
| Nitrogen Dioxide | -20°C | 50°C | 0.7 ppm | Rising | Rising/Disabled | 2.0 ppm | Rising | Rising/Disabled | 0.6 ppm | 0.3 ppm |
| Ammonia | -20°C | ⁰40°C | 20 ppm | Rising | Rising/Disabled | 50 ppm | Rising | Rising/Disabled | 20 ppm | 6 ppm |
| Carbon Dioxide (ppm) | -20°C | 50°C | 1500 ppm | Rising | Rising/Disabled | 3000 ppm | Rising | Rising/Disabled | 500 ppm | 300 ppm |
| Carbon Dioxide (%vol) | -20°C | 50°C | 0.4% vol | Rising | Rising/Disabled | 0.8% vol | Rising | Rising/Disabled | 0.2% vol | 0.1% vol |

**NOTE**

Performance figures are based on the following:

- The humidity of the test gas is 50% RH. The performance values given are valid between 10% and 90% RH.

- Are measured using test units calibrated at 50% of full scale,

- Measurements are based on gas being applied using the calibration adapter at a rate of 300 ml/min for a period of 3 minutes (oxygen, flammable (CAT), carbon monoxide, hydrogen sulfide) and 5 minutes (hydrogen, nitrogen dioxide and ammonia), at a rate of 500ml/min for a period of 3 minutes (carbon dioxide).

- Response time (T90) may increase when operating in lower temperature conditions.

- With the exception of oxygen and flammable (CAT), the accuracy for all sensors is ±30%. The accuracy of oxygen versions over is ±0.9% vol. The accuracy of the flammable (CAT) versions is ±5% LEL. All figures are valid over the temperature range –20 °C to 50 °C.

- Operating flammable CAT and $O_2$, zero drift may be experienced in high humidity environments. Recalibrate the unit in the environment in which it is going to be used.

- Maximum accuracy of the flammable CAT version will be achieved after the unit has been operating for 48 hours.

- For $H_2$ version, it is recommended to recalibrate the detector when used in low temperature environments (< –10 °C).

<div align="right">

Appendix  B

# Troubleshooting

</div>

## B.1  Warning

|  | Description | Troubleshooting |
|---|---|---|
| Warning 1 | Calibration Overdue | Calibrate the unit |
| Warning 3 | BLE failure (BLE version only) | Power-cycle the unit. If same warning occurs again, contact manufacturer |
| Warning 4 | Time/date not set (RTC not set) / RTC reset abnormally | Configure unit time. If same warning occurs again, contact manufacturer |
| Warning 5 | Log memory corrupted (CRC not matched) | Power-cycle the unit. Event log might be lost. |
| Warning 6 | Certificate is corrupted or missing certificate | Contact manufacturer |
| Warning 7 | Over-range warning | Calibrate the unit. |
| Warning 8 | Under-range warning | Calibrate the unit. |

## B.2  Fault

|  | Description | Troubleshooting |
|---|---|---|
| Fault 1 | Internal communication failure | Power-cycle the unit. If same fault occurs again, contact manufacturer |
| Fault 2 | Cell failure | Check the sensor connection. If same fault occurs again, replace sensor |
| Fault 3 | Cell is producing a negative reading | Calibrate the unit |
| Fault 4 | EEPROM is corrupted | Reconfigure the unit by using mobile app. If same fault occurs again, contact manufacturer |
| Fault 5 | MCU operating voltage failure | Power-cycle the unit. If same fault occurs again, contact manufacturer |
| Fault 6 | RAM read/write fault | Power-cycle the unit. If same fault occurs again, contact manufacturer |
| Fault 7 | Flash memory corrupted | Reconfigure the unit by using mobile app |
| Fault 8 | Code memory failure | Power-cycle the unit. If same fault occurs again, contact manufacturer |
| Fault 9 | mA output failure (mA output version only) | Check whether loopback resistor is connected correctly |
| Fault 10 | Supplied voltage failure | Power-cycle the unit. If same fault occurs again, contact manufacturer |
| Fault 11 | Internal HW Fault | Power-cycle the unit. If same fault occurs again, contact manufacturer |
| Fault 12 | Internal SW Fault | Power-cycle the unit. If same fault occurs again, contact manufacturer |
| Fault 13 | Calibration Overdue | Calibrate the unit. |

<div align="right">

# Appendix  C

# Ordering Information

</div>

## C.1  Detectors

| Part number | Description |
|---|---|
| SPLLO1XAXCXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $O_2$, 4–20 mA, Charcoal |
| SPLLF6XAXCXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $CH_4$ (CAT), 4–20 mA, Charcoal |
| SPLLC1XAXCXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, CO (L), 4–20 mA, Charcoal |
| SPLLC2XAXCXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, CO (H), 4–20 mA, Charcoal |
| SPLLH1XAXCXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $H_2S$ (L), 4–20 mA, Charcoal |
| SPLLH2XAXCXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $H_2S$ (H), 4–20 mA, Charcoal |
| SPLLG1XAXCXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $H_2$, 4–20 mA, Charcoal |
| SPLLN1XAXCXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $NO_2$, 4–20 mA, Charcoal |
| SPLLA1XAXCXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $NH_3$ (L), 4–20 mA, Charcoal |
| SPLLB3XAXCXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $CO_2$, 4~20 mA, Charcoal, ppm |
| SPLLB4XAXCXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $CO_2$, 4~20 mA, Charcoal, vol |
| SPLLO1XAXWXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $O_2$, 4–20 mA, White |
| SPLLF6XAXWXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $CH_4$ (CAT), 4–20 mA, White |
| SPLLC1XAXWXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, CO (L), 4–20 mA, White |
| SPLLC2XAXWXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, CO (H), 4–20 mA, White |
| SPLLH1XAXWXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $H_2S$ (L), 4–20 mA, White |
| SPLLH2XAXWXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $H_2S$ (H), 4–20 mA, White |
| SPLLG1XAXWXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $H_2$, 4–20 mA, White |
| SPLLN1XAXWXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $NO_2$, 4–20 mA, White |
| SPLLA1XAXWXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $NH_3$ (L), 4–20 mA, White |
| SPLLB3XAXWXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $CO_2$ (ppm), 4~20 mA, White |
| SPLLB4XAXWXNZZ | Sensepoint XCL Transmitter, Compliance, Safe Area, IP65, $CO_2$ (%vol) , 4~20 mA, White |

| Part number | Description |
|---|---|
| SPLCO1BAXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $O_2$, 4–20 mA, Charcoal |
| SPLCO1BARCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $O_2$, 4–20 mA, Relay, Charcoal |
| SPLCO1BAXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $O_2$, 4–20 mA, White |
| SPLCO1BARWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $O_2$, 4–20 mA, Relay, White |
| SPLCO1BMXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $O_2$, Modbus, Charcoal |
| SPLCO1BMRCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $O_2$, Modbus, Relay, Charcoal |
| SPLCO1BMXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $O_2$, Modbus, White |
| SPLCO1BMRWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $O_2$, Modbus, Relay, White |
| SPLCC1BAXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, CO, 4–20 mA, Charcoal |
| SPLCC1BARCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, CO, 4–20 mA, Relay, Charcoal |
| SPLCC1BAXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, CO, 4–20 mA, White |
| SPLCC1BARWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, CO, 4–20 mA, Relay, White |
| SPLCC1BMXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, CO, Modbus, Charcoal |
| SPLCC1BMRCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, CO, Modbus, Relay, Charcoal |
| SPLCC1BMXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, CO, Modbus, White |
| SPLCC1BMRWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, CO, Modbus, Relay, White |
| SPLCH1BAXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (L), 4–20 mA, Charcoal |
| SPLCH1BARCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (L), 4–20 mA, Relay, Charcoal |
| SPLCH1BAXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (L), 4–20 mA, White |
| SPLCH1BARWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (L), 4–20 mA, Relay, White |
| SPLCH1BMXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (L), Modbus, Charcoal |
| SPLCH1BMRCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (L), Modbus, Relay, Charcoal |
| SPLCH1BMXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (L), Modbus, White |
| SPLCH1BMRWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (L), Modbus, Relay, White |
| SPLCH2BAXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (H), 4–20 mA, Charcoal |
| SPLCH2BARCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (H), 4–20 mA, Relay, Charcoal |
| SPLCH2BAXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (H), 4–20 mA, White |
| SPLCH2BARWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (H), 4–20 mA, Relay, White |
| SPLCH2BMXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (H), Modbus, Charcoal |
| SPLCH2BMRCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (H), Modbus, Relay, Charcoal |
| SPLCH2BMXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (H), Modbus, White |
| SPLCH2BMRWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2S$ (H), Modbus, Relay, White |
| SPLCG1BAXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2$, 4–20 mA, Charcoal |
| SPLCG1BARCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2$, 4–20 mA, Relay, Charcoal |
| SPLCG1BAXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2$, 4–20 mA, White |
| SPLCG1BARWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2$, 4–20 mA, Relay, White |
| SPLCG1BMXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2$, Modbus, Charcoal |
| SPLCG1BMRCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2$, Modbus, Relay, Charcoal |
| SPLCG1BMXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2$, Modbus, White |
| SPLCG1BMRWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $H_2$, Modbus, Relay, White |

| Part number | Description |
|---|---|
| SPLCN1BAXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NO_2$,  4~20mA, Charcoal |
| SPLCN1BARCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NO_2$,  4~20mA, Relay, Charcoal |
| SPLCN1BAXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NO_2$,  4~20mA, White |
| SPLCN1BARWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NO_2$,  4~20mA, Relay, White |
| SPLCN1BMXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NO_2$, Modbus, Charcoal |
| SPLCN1BMRCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NO_2$, Modbus, Relay, Charcoal |
| SPLCN1BMXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NO_2$, Modbus, White |
| SPLCN1BMRWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NO_2$, Modbus, Relay, White |
| SPLCA1BAXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NH_3$ (L),  4~20mA, Charcoal |
| SPLCA1BARCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NH_3$ (L),  4~20mA, Relay, Charcoal |
| SPLCA1BAXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NH_3$ (L),  4~20mA, White |
| SPLCA1BARWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NH_3$ (L),  4~20mA, Relay, White |
| SPLCA1BMXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NH_3$ (L), Modbus, Charcoal |
| SPLCA1BMRCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NH_3$ (L), Modbus, Relay, Charcoal |
| SPLCA1BMXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NH_3$ (L), Modbus, White |
| SPLCA1BMRWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $NH_3$ (L), Modbus, Relay, White |
| SPLCF6BAXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CH_4$ (CAT),  4~20mA, Charcoal |
| SPLCF6BARCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CH_4$ (CAT),  4~20mA, Relay, Charcoal |
| SPLCF6BAXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CH_4$ (CAT),  4~20mA, White |
| SPLCF6BARWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CH_4$ (CAT),  4~20mA, Relay, White |
| SPLCF6BMXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CH_4$ (CAT), Modbus, Charcoal |
| SPLCF6BMRCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CH_4$ (CAT), Modbus, Relay, Charcoal |
| SPLCF6BMXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CH_4$ (CAT), Modbus, White |
| SPLCF6BMRWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CH_4$ (CAT), Modbus, Relay, White |
| SPLCB3BAXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (ppm), 4~20 mA, Charcoal |
| SPLCB3BARCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (ppm), 4~20 mA, Relay, Charcoal |
| SPLCB3BAXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (ppm), 4~20 mA, White |
| SPLCB3BARWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (ppm), 4~20 mA, Relay, White |
| SPLCB3BMXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (ppm), Modbus, Charcoal |
| SPLCB3BMRCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (ppm), Modbus, Relay, Charcoal |
| SPLCB3BMXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (ppm), Modbus, White |
| SPLCB3BMRWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (ppm), Modbus, Relay, White |
| SPLCB4BAXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (%vol), 4~20 mA, Charcoal |
| SPLCB4BARCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (%vol), 4~20 mA, Relay, Charcoal |
| SPLCB4BAXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (%vol), 4~20 mA, White |
| SPLCB4BARWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (%vol), 4~20 mA, Relay, White |
| SPLCB4BMXCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (%vol), Modbus, Charcoal |
| SPLCB4BMRCXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (%vol), Modbus, Relay, Charcoal |
| SPLCB4BMXWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (%vol), Modbus, White |
| SPLCB4BMRWXNZZ | Sensepoint XCL Transmitter, Safe Area, IP65, $CO_2$ (%vol), Modbus, Relay, White |
| SPLCC1BAXCXLZZ | Sensepoint XCL Transmitter, Safe Area, IP65, CO,  4~20mA, Charcoal, CoLA |
| SPLCC1BARCXLZZ | Sensepoint XCL Transmitter, Safe Area, IP65, CO,  4~20mA, Relay, Charcoal, CoLA |

## C.2   Accessories

| Part number | Description |
| --- | --- |
| SPXCLCAL | Sensepoint XCL Calibration/Flow Cap |
| SPXCLDMK | Sensepoint XCL Duct Mount Kit |
| SPXCLRGP | Sensepoint Fixed Remote Gassing Port |
| SPXCLGLD | Sensepoint XCL M20 Cable Glands, Black (10 pieces each pack) |
| SPXCLGLW | Sensepoint XCL M20 Cable Glands, White (10 pieces each pack) |

## C.3   Consumables

| Part number | Description |
| --- | --- |
| SPXCLZZO1SS | Sensepoint XCL Replacement Sensor, $O_2$ |
| SPXCLZZF6SS | Sensepoint XCL Replacement Sensor, Flam CAT |
| SPXCLRLC1SS | Sensepoint XCL/XRL Replacement Sensor, CO |
| SPXCLRLH1SS | Sensepoint XCL/XRL Replacement Sensor, $H_2S$ (suitable for both Low and High Range) |
| SPXCLRLG1SS | Sensepoint XCL/XRL Replacement Sensor, $H_2$ |
| SPXCLRLN1SS | Sensepoint XCL/XRL Replacement Sensor, $NO_2$ |
| SPXCLRLA1SS | Sensepoint XCL Replacement Sensor, $NH_3$ |
| SPXCLRLB3SS | Sensepoint XCL Replacement Sensor - $CO_2$ (ppm) |
| SPXCLRLB4SS | Sensepoint XCL Replacement Sensor - $CO_2$ (%vol) |
| SPXCLFLT | Sensepoint XCL Replacement Sensor Filter (10 pieces each pack) |

## C.4   Spares

| Part number | Description |
| --- | --- |
| SPXCLSK1 | Sensepoint XCL Service Kit |
| SPXCLSCC | Sensepoint XCL Sensor Cover, Charcoal |
| SPXCLSCW | Sensepoint XCL Sensor Cover, White |
| SPXCLDCC | Sensepoint XCL Decal Cover, Charcoal |
| SPXCLDCW | Sensepoint XCL Decal Cover, White |

# Appendix  D

# Warranty

Honeywell Analytics warrants the Sensepoint XCL gas detector against defective parts and workmanship.

This warranty does not cover consumable, batteries, fuses, normal wear and tear, or damage caused by accident, abuse, improper installation, unauthorized use, modification or repair, ambient environment, poisons, contaminants or abnormal operating conditions.

This warranty does not apply to sensors or components that are covered under separate warranties, or to any 3rd-party cables and components.

In no event shall Honeywell Analytics be liable for any damages or injury of any nature or kind, no matter how caused, that arise from incorrect handling or use of this equipment.

In no event shall Honeywell Analytics be liable for any equipment malfunction or damages whatsoever, including (without limitation) incidental, direct, indirect, special, and consequential damages, damages for loss of business profits, business interruption, loss of business information, or other pecuniary loss, resulting from the incorrect installation or use of this equipment.

Any claim under the Honeywell Analytics Product Warranty must be made within the warranty period and as soon as reasonably practicable after a defect is discovered.

This is a summary. For full warranty terms please refer to the Honeywell Analytics' *General Statement of Limited Product Warranty*, which is available on request.

# Appendix E

# Safety Information for Wireless Devices

## E.1 FCC Compliance

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter. This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance.

> **NOTE**
>
> This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

> ### ⚠ CAUTION
>
> Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines. This device has very low levels of RF energy that it is deemed to comply without maximum permissive exposure evaluation (MPE). But it is desirable that it should be installed and operated keeping the radiator at least 20 cm or more away from person's body.

## E.2   IC Compliance

This device complies with Industry Canada's license–exempt RSSs. Operation is subject to the following two conditions:

1) This device may not cause interference.

2) This device must accept any interference, including interference that may cause undesired operation of the device

## E.3   RED Compliance

Honeywell Analytics Asia Pacific Co., Ltd. hereby declares that this gas detector, Sensepoint XCL, is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

# Appendix  F

# Certification

**Electrical Safety**

- UL 61010-1
- CSA C22.2 No. 61010-1
- IEC/EN 61010-1

**Electromagnetic Compatibility**

- EN 50270:2015

**Radio**

- RED
- FCC
- BT SIG

**Enclosure Protection**

- IP65
- Type 4 in accordance with NEMA 250

**Gas Performance**

- UL 2075 ($CH_4$ and CO)

# Appendix  G

# Modbus Registers

The Modbus version of Sensepoint XCL allows interaction with the gas detector using Modbus/RTU over an RS-485 physical layer. The Modbus interface provides a means to monitor and interrogate the detector with the addition of being able to reset alarms remotely. The Modbus registers for Sensepoint XCL are given in the following table.

> **NOTE**
>
> Functions associated with the relays (if fitted) is limited to the viewing of their associated parameters. It is not possible to set or control the relays over the Modbus interface.

| Modbus Register Address | Information | R/W | Type | Size | Description | Notes |
|---|---|---|---|---|---|---|
| 30001 | Main SW Version of Instrument | R | u8 | 1 | | |
| 30002 | EEP Version of Instrument | R | u8 | 1 | | |
| 30004 to 3009 | Location String | R | string[12] | 6 | | Not used in Sensepoint XCL/XRL |
| 30010 | Modbus Slave ID | R | u8 | 1 | | |
| 30011 | Monitor Status | R | u16 | 1 | | 1 : Normal<br>2 : Warm Up after power on<br>3 : in Inhibit<br>12 : Calibration |
| 30012 | Inhibit Current (mA) | R | u8 | 1 | | Not used in Sensepoint XCL/XRL |
| 30013 | Reserved | R | u16 | 1 | | |
| 30014 | Active Alarm | R | u32 | 2 | | bit 0 Alarm 1 is active<br>bit 1 Alarm 2 is active<br>bit 1 Alarm 3 is active (not used) |
| 30016 to 30017 | Latched Alarm | R | u32 | 2 | | bit 0 Alarm 1 is latched<br>bit 1 Alarm 2 is latched<br>bit 2 Alarm 3 is latched (not used) |
| 30018 to 30019 | Active Fault | R | u32 | 2 | | Upper Two Bytes: fault<br>Lower Two Bytes: warning<br>Bit 0 to Bit 15: warning<br>Bit 16 to Bit 31: fault |
| 30020 to 30021 | Latched Fault | R | u32 | 2 | | Not used |
| 30022 to 30034 | Location Tag | R | string[26] | 13 | | Location tag for BLE scanning |
| 40101 | System ID Code | R | u16 | 1 | MSB always 0x26 to facilitate automatic identification. LSB repeat of Modbus address. | Upper Byte : Type Code: 0x26<br>Lower Byte : My Address |
| 40102 | System ID Code | R | u16 | 1 | Identical to 40101 | Upper Byte : Type Code: 0x26<br>Lower Byte : My Address : Dummy Spacer |
| 40103 to 40104 | Gas Reading | R | f32 | 2 | The reported gas concentration in current measurement units. For example, methane at 50% LEL would be reported as 50.0 here. This concentration is forced to last reading before switching into inhibit mode during inhibit mode. | |
| 40105 | Fault and Warning | R | u8 | 1 | This is the integer representation of the fault status. If any fault exists this will take a value in the range 1200 to 1999. Otherwise, if any warning exists, this will take a value in the range 1 to 999. Normally, this has the value zero. | Fault = 1200 + Number<br>Warning = Number as is |

| Modbus Register Address | Information | R/W | Type | Size | Description | Notes |
|---|---|---|---|---|---|---|
| 40106 | Alarm, Fault and Warning State | R | u8 | 1 | This register contains 4 meaningful bits regarding the presence of alarms or faults. The bit assignments are as follows: Bit 0: AL1 active Bit 1: AL2 active Bit 4: Warning active Bit 6: Fault Active All others: For future expansion | bit 0 Alarm 1 is active<br>bit 1 Alarm 2 is active<br>bit 2,3 for future expansion<br>bit 4 Warning is active<br>bit 5 Fault is active<br>bit 6,7 for future expansion<br>Note: Latching relay setting latches Modbus values in register 40006. |
| 40107 | Monitor State Monitoring | R | u8 | 1 | | 1 : Normal<br>2 : Warm Up after power on<br>3 : in Inhibit<br>12 : Calibration |
| 40108 | Heart Beat | R | u16 | 1 | This Heartbeat is provided to facilitate detection of communications problems in programming environments where the transport layer communication error information is unavailable. This increments approximately every 5 seconds. It is the responsibility of the system integrator to notify plant personnel if a Modbus master fails to communicate with the Sensepoint XCL/XRL. This register can facilitate this notification | |
| 40109 to 40110 | Calibration Due | R | f32 | 2 | This indicates the time remaining before the ECC sensor must be calibrated or replaced. Calibration interval – DaysPassedSinceLastSuccessfulCal | |
| 40111 | Measuring Unit | R | u8 | 1 | iMeasurementUnits | 0x00 : blank (no measurement unit)<br>0x01 :<br>0x02 : mA<br>0x03 : mg/m3<br>0x04 : g/m3<br>0x05 :<br>0x06 : ppm<br>0x07 : kppm<br>0x08 : LEL·m<br>0x09 : A<br>0x0A : dB<br>0x0B : dBA<br>0x0C : ppm·m |
| 40112 to 40113 | Peak Reading | R | f32 | 2 | | Peak Reading |
| 40114 | Relay Fitted | R | u16 | 1 | | 0x00: Relay not fitted, 0x01: Relay fitted |
| 40115 | BLE Fitted | R | u16 | 1 | | 0x00: BLE not fitted, 0x01: BLE fitted |

| Modbus Register Address | Information | R/W | Type | Size | Description | Notes |
|---|---|---|---|---|---|---|
| 40116 | Reserved | R | u16 | 1 | | |
| 40117 | Temperature (Degrees C) | R | s16 | 1 | Transmitter temperature | |
| 40118 to 40122 | Reserved | | | | | |
| 40123 to 40131 | Date and Time | R | string[18] | 9 | Format is "mm/dd/yy hh:mm:ss" | |
| 40132 | Sensor Type | R | u8 | 1 | 0x00:ECC<br>0x01: FL CAT<br>0x02: IR<br>0x03: PID<br>0x04: MOS | |
| 40133 to 40136 | Reserved | | | | | |
| 40137 to 40138 | Microcontroller Operating Voltage | R | f32 | 2 | | |
| 40139 to 40140 | Microcontroller Reference Voltage | R | f32 | 2 | | |
| 40141 | BLE Connection Status | R | u8 | 1 | | 0x00: Not connected, 0x01: Connected |
| 40142 to 40145 | Reserved | | | | | |
| 40146 to 40152 | Gas Name String | R | string[14] | 7 | | |
| 40153 | Temperature (Degrees C) | R | s16 | 1 | Transmitter temperature, duplicate | |
| 40154 | Temperature (Degrees F) | R | s16 | 1 | | |
| 40155 | Calibration Due | R | u16 | 1 | Calibration interval – DaysPassedSinceLastSuccessfulCal | |
| 40156 | Relay Status | R | u8 | 1 | | High nibble : Relay 2 status<br>Low nibble : Relay 1 status<br>1 : Energized, 0 : De-energized |
| 40157 | Supply Voltage | R | f32 | 2 | The voltage supplied to the Sensepoint XCL/XRL at the nominal 24.0 volt input, in millivolts. | |
| 40158 | Reserved | | | | | |
| 40159 | Calibration Interval | R | u16 | 1 | | |
| 40160 | Alarm Type | R | u8 | 1 | | High nibble : Alarm 2 Type<br>Low nibble : Alarm 1 Type<br>0: Disable, 1: Rising, 2:Falling |
| 40161 | Inhibit Timeout | R | u16 | 1 | | Not used in Sensepoint XCL/XRL |
| 40162 | Relay Configuration | R | u8 | 1 | 1011 | Bit: 0 to 1: Relay Type 1 (0: Fault, 1: Alarm1, 2: Alarm2)<br>Bit: 2 to 3: Relay Type 2 (0:Fault, 1: Alarm1, 2: Alarm2)<br>Bit: 4 : Initial Relay Status 1 (0: De-energized, 1: Energized)<br>Bit: 5 : Initial Relay Status 2 (0: De-energized, 1: Energized) |

| Modbus Register Address | Information | R/W | Type | Size | Description | Notes |
|---|---|---|---|---|---|---|
| 40163 | Relay On Delay Time | R | u16 | 1 | | |
| 40164 | Relay Off Delay Time | R | u16 | 1 | | |
| 40165 to 40166 | User configured full scale range | R | f32 | 2 | | Display Range (Full Scale) |
| 40167 to 40168 | Alarm Threshold 1 | R | f32 | 2 | | |
| 40169 to 40170 | Alarm Threshold 2 | R | f32 | 2 | | |
| 40171 to 40172 | Target Calibration Gas Concentration | R | f32 | 2 | | |
| 40173 | Gas Type | R | u16 | 1 | | 0x00: Flammable<br>0x01: Toxic<br>0x02: O2<br>0x03: VOC |
| 40174 to 40175 | Voltage Output | R | f32 | 2 | | |
| 40176 to 40183 | Device Serial Number | R | string[16] | 8 | | |
| 40184 to 40188 | BLE FW Version | R | string[10] | 5 | BLE FW Version | |
| 40189 to 40200 | Reserved | | | | | |
| 40201 | Reset Alarms & Faults | W | u16 | 1 | | |
| 40202 to 40207 | Reserved | | | | | |
| 40208 to 40213 | Raw A/D Counts | R | u16[6] | 6 | | |