XD Personal Gas Detector

Operating Manual

Honeywell

Limited Warranty and Limitation of Liability

All products are designed and manufactured to the latest internationally recognized standards by Honeywell Analytics under a Quality Management system that is certified to ISO 9001:2000.

Device	Warranty Terms
XD Personal Gas Detector	**24 months** from date of switch on / installation
Service	**Warranty Terms**
A. Replacement with new product within the first 90 days of the original warranty period.	**Full warranty period** as specified in Warranty Terms above.
B. Repair (or replacement with new or reconditioned product at HA discretion) after the first 90 days of the original warranty period.	**Pro-rata warranty** realized as balance of original warranty specified in Warranty Terms above, or equivalent discounted price on a new, fully warranted instrument or component.
Components replaced under original product warranty.	Warranted against same fault for **3 months** from date of repair
Repair or Replacement outside of original warranty period.	

Warranty Conditions

1. The HA Limited Product Warranty only extends to the sale of new and unused products to the original buyer where purchased from a HA authorized distributor or service center.
2. Not covered are:
   - consumable items such as dry-cell batteries, filters and fuses or routine replacement parts due to the normal wear and tear of the product;
   - any product which in HA's opinion has been altered, neglected, misused or damaged by accident or abnormal conditions of operation, handling, use or severe sensor poisoning; or failure to maintain and calibrate the product as prescribed in the product documentation;
   - defects attributable to improper installation, repair by an unauthorized person or the use of unauthorized accessories/parts on the product;
3. Any claim under the HA Product Warranty must be made within the warranty period and as soon as reasonably possible after a defect is discovered.
4. If a Warranty claim is being sought it is the responsibility of the buyer to return the product to the distributor or HA authorized service center along with a full description of the fault.
5. A warranty claim will be accepted if conditions contained within this Warranty are met. When, in the opinion of HA, a warranty claim is valid, HA will repair or replace the defective product according to the terms herein.
6. Please note that if, in the opinion of HA the warranty claim is not valid, HA will, at the option of the buyer, return the unit unaltered at the buyer's expense, repair the unit at the then prevailing rates, replace the unit with an appropriate replacement item at the then prevailing price, or discard the unit.
7. In no event shall HA's liability exceed the original purchase price paid by the buyer for the product.
8. HA makes no other warranty expressed or implied except as stated above.

Contacting Honeywell Analytics

While this information is presented in good faith and believed to be accurate, Honeywell disclaims the implied warranties of merchantability and fitness for a particular purpose and makes no express warranties except as may be stated in its written agreement with and for its customers.

In no event is Honeywell liable to anyone for any indirect, special or consequential damages. The information and specifications in this document are subject to change without notice.

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Introduction

WARNING

To ensure your personal safety, read "Safety Information" before using the detector.

The XD gas detector ("the detector") warns of hazardous gas at levels above a factory set alarm setpoint. This product is a gas detector, not a measurement device.

The detector is a personal safety device. It is your responsibility to respond properly to the alarms.

Table 1 lists the XD models and the gases monitored. This manual includes examples from each model.

Model	Gas Monitored	Model	Gas Monitored
XD O_2	Oxygen (% by volume)	XD SO_2	Sulfur dioxide (ppm)
XD CO	Carbon monoxide (ppm)	XD Cl_2	Chlorine (ppm)
XD H_2S	Hydrogen sulfide (ppm) (High range)	XD NH_3	Ammonia (ppm)
XD H_2S	Hydrogen sulfide (ppm)	XD HCN	Hydrogen cyanide (ppm)
XD PH_3	Phosphine (ppm)		

Table 1. XD Models

Safety Information - Read First

Use the detector only as specified in this manual, otherwise the protection provided by the detector may be impaired.

International symbols used on the detector and in this manual are explained in *Table 2*.

Read the **Warnings** and **Cautions** on the following pages before using the detector.

NOTE

This instrument contains a lithium battery. Do not mix with the solid waste stream. Spent batteries should be disposed of by a qualified recycler or hazardous materials handler.

WARNING

Substitution of components may impair Intrinsic Safety.

To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.

CAUTION

To avoid possible personal injury:

- **Do not use the detector if it is damaged. Before using the detector, inspect the case. Look for cracks or missing plastic.**
- **If the detector is damaged or parts are missing, contact Honeywell Analytics immediately.**
- **Ensure the front and rear shells are properly aligned and fastened before activating the detector. Refer to *Maintenance*.**

- Use only a sensor specifically designed for your XD model. Refer to ***Replacement Parts and Accessories***.
- Make sure the sensor screen is not blocked.
- To maintain optimal accuracy, the detector should be periodically supplied with a known concentration test gas (bump test) and if the readings are outside of 15% of the applied gas concentration, a span calibration should be performed, under conditions of standard temperature (15°C to 25°C/59˚F to 77˚F), humidity and pressure. Follow local regulations and/or your company's policy on the frequency of bump testing. For more information on test gas, contact your local Honeywell Analytics representative.
- HA recommends to "bump test" the sensors before each day's use to confirm their ability and response to gas by exposing the detector to a gas concentration that exceeds the high alarm setpoints. Manually verify that the audible and visual alarms are activated. Calibrate if the readings are not within the specified limits.
- Calibrate the detector before first-time use, and then at least once every 180 days. (For HCN detectors, calibrate once every 90 days.)
- Do not deactivate the detector during a work shift. Deactivating the detector resets the TWA (time-weighted average), STEL (short-term exposure limit), and maximum gas exposure values to 0. Refer to ***Alarms***.
- Use only the Energizer 1CR2 battery. Refer to Replacing the Battery or Sensor.
- To reduce the risk of ignition of a flammable atmosphere, batteries must only be changed in an area known to be nonflammable.

To avoid possible damage to the detector:

- Do not expose the detector to electrical shock and/or severe continuous mechanical shock.
- Do not attempt to disassemble, adjust, or service the detector unless instructions for that procedure are contained in the user manual and/or that part is listed as a replacement part. Use only Honeywell Analytics Replacement Parts.
- The detector warranty will be voided if customer personnel or third parties damage the detector during repair attempts.
- The oxygen XD detector is classified by Underwriters Laboratories Inc. up to an atmosphere of 21% oxygen.
- Do not cover the sensor grill with hands.
- Do not place the detector near the mouth or shoulders.

International Symbols

Symbol	Meaning
c UL us	Classified to both U.S. and Canadian safety standards by Underwriter's Laboratories, Inc.
CE	Conforms to European Union Directives
Ex	European Explosives Protection
ATEX	Conforms to European ATEX Directives
IECEx	International Electrotechnical Commission Scheme for Certification to Standards for Electrical Equipment for Explosive Atmospheres

Table 2. International Symbols

Getting Started

The items listed below are included with the detector. If the detector is damaged or parts are missing, contact the place of purchase immediately.

- 3 V lithium CR2-series battery.
- XD O_2 model: O_2 sensor;
  XD CO model: CO sensor;
  XD H_2S model: H_2S sensor (high range);
  XD H_2S model: H_2S sensor;
  XD PH_3 model: PH_3 sensor;
  XD SO_2 model: SO_2 sensor;
  XD Cl_2 model: Cl_2 sensor;
  XD NH_3 model: NH_3 sensor;
  XD HCN model: HCN sensor.
- Test cap and hose.

The detector is shipped with the battery and sensor installed. To order replacement parts and accessories, refer to ***Replacement Parts and Accessories***.

To become familiar with the features and functions of the detector, study the following figures and tables:

- ***Figure 1*** and ***Table 3: XD Detector*** (describes the detector's components).
- ***Figure 2*** and : ***Table 4: Display Elements*** (describes the LCD screen and icons).
- ***Table 5: Pushbuttons*** (describes the buttons on the detector).

Parts of the XD Gas Detector

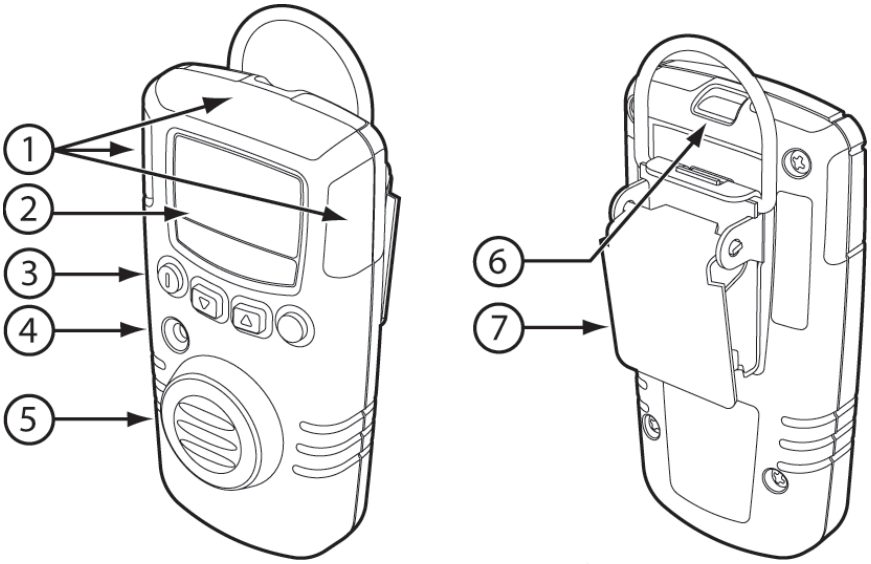


Figure 1. XD Gas Detector

Item	Description	Item	Description
1	Visual alarm bars (LED)	5	Sensor and sensor screen
2	Liquid crystal display (LCD)	6	Infrared communication port
3	Pushbuttons	7	Alligator clip
4	Audible alarm		

Table 3. XD Gas Detector

Display Elements

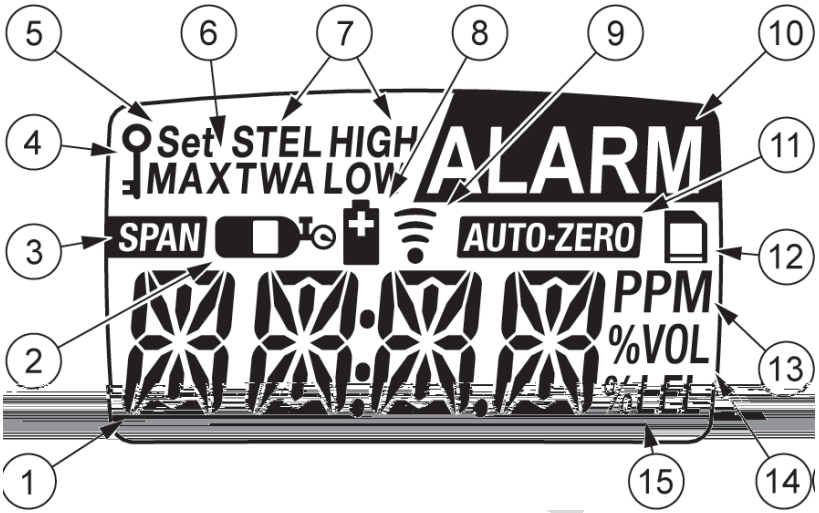


Figure 2. Display Elements

NOTE

When enabled, the backlight option automatically activates for 3 seconds whenever there is insufficient light to view the LCD. Press and hold (until the backlight activates) any button to activate the backlight for 6 seconds. The detector is shipped with the backlight option enabled.

The backlight does not operate while stealth mode is enabled.

Item	Description
1	Numeric value
2	Gas cylinder
3	Automatic span sensor
4	Pass code lock
5	Set alarm setpoints and user opt
6	Maximum gas exposure
7	Alarm conditions
8	Battery
9	Data transmission
10	Alarm or alarm setpoint
11	Automatically zero sensor
12	Datalogger indicator
13	Parts per Million (ppm)
14	Percentage by Volume (% vol)
15	Percentage by Lower Explosive Limit (% LEL)

Table 4. Display Elements

Pushbuttons

Pushbutton	Description
	• To activate the detector, press ⓘ. • To enable/disable the confidence beep, while the detector is deactivated press and hold ◯. While holding ◯, press ⓘ. This enables/disables the confidence beep during start-up. • To deactivate the detector, press ⓘ and hold until **OFF** displays (approximately 5 seconds). If the detector is passcode protected to prevent deactivation, **PASS** will display. A passcode must be entered to deactivate the detector. For more information refer to ***Deactivation Passcode Protection***.
	• To decrement the displayed value or to scroll down, press ▼. • To enter the user options menu, press ▼ and ▲ simultaneously and hold until **OPTN** and then **EXIT** displays (approximately 5 seconds) . • To initiate calibration and set alarm setpoints, press and hold ▼ and ◯ simultaneously until **CAL**. displays.
	• To increment the displayed value, press ▲. • To view the TWA, STEL, and maximum gas exposures, press ▲ and ◯ simultaneously
	• To save the displayed value, press ◯. • To clear TWA, STEL, and maximum gas exposures, press and hold ◯ for 6 seconds. • To acknowledge a latched alarm, press ◯.

Table 5. Pushbuttons

Activating the Detector

To activate the detector, press ⓘ in a normal atmosphere (20.9% oxygen).

Self-Test

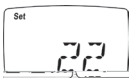
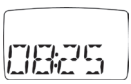
When the detector is activated, it performs several self-tests. Confirm the following tests occur.

NOTE

The following tests are listed in the order they are automatically performed on the detector.

1. **Display Elements Test**: The LCD displays all screen elements.

2. **Alarm Function Test**: The detector beeps, the LEDs flash, the backlight activates briefly, and the detector vibrates.
3. **Battery Test**: The detector tests the batteries. If the battery voltage is too low to continue, the detector performs an automatic shutdown. Refer to Automatic Shutdown Alarm.
4. **Date and Time**: The LCD displays the date and time automatically in the following order.

	Year: The LCD displays the current year (20XX).
	Month: JAN, FEB, MAR, etc.
	Day of the month: (1 to 31)
	Day of the week: MON, TUE, WED, etc.
	Hour/Minute: 00:00 hours to 23:59 hours

To adjust the date or time, refer to ***Clock Option***.

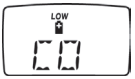
5. **Sensor Test**: The detector tests the sensor. If the sensor test fails, the detector slowly beeps, the LEDs flash slowly, and the ALARM icon flashes.

If the sensor test passes, the self-test continues.

6. **Gas Type**: The LCD displays the type of gas the detector is manufactured to measure.

Refer to Table 1. XD Models.

If the battery is low, the LCD displays the low battery icon and the self-test continues.



7. **TWA Alarm Setpoint**: The LCD displays the TWA alarm setpoint.

NOTE

The TWA alarm setpoint screen does not apply to O_2 detectors.

8. **STEL Alarm Setpoint**: The LCD displays the STEL alarm setpoint.

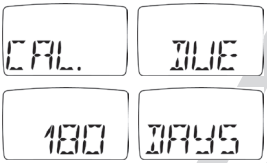
NOTE

The STEL alarm setpoint screen does not apply to O_2 detectors.

9. **Low Alarm Setpoint**: The LCD displays the low alarm setpoint.

10. **High Alarm Setpoint**: The LCD displays the high alarm setpoint.

11. **Calibration Due Test**: The LCD displays the calibration due date.



The LCD displays the number of days remaining before the detector must be calibrated. For more information, refer to ***Calibration***.

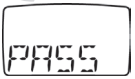
If calibration is past due, **CAL. PAST** displays.

Press ○ to acknowledge the warning message.

If the Calibration Past Due Option is enabled, one of the following two events will occur.

a) **Not Passcode Protected**: If the detector is not passcode protected, after the **CAL. PAST** message is acknowledged, the detector continues the self-test and then enters normal operation.

b) **Passcode Protected**: If the detector is passcode protected, when **CAL. PAST** displays, press ○ to acknowledge the message and to access the **PASS** screen. If required, refer to ***Passcode Protection Option***.



Press ▲ or ▼ to scroll to the required passcode, and press ○ within 10 seconds to confirm the selection. The detector enters normal operation.

NOTE

Calibrate the detector before continuing operation.

If the passcode is not confirmed within 10 seconds or the passcode is incorrect, the LCD displays the following screen.

The detector then automatically deactivates.

12. **Bump Check Test Fail**: If a bump check test has not been performed or the bump test failed, the detector beeps and vibrates, and **BUMP FAIL** displays:

Press ○ to acknowledge the alarm.

NOTE

Bump test the detector before continuing operation.

For information regarding bump tests, refer to the *MicroDock II Operating Manual*.

Self-Test Pass

If the detector passes the self-test, it enters normal operation. The LCD displays the ambient gas reading.

The detector begins recording immediately. It records the

- maximum (MAX) gas exposure,
- the short-term exposure levels (STEL), and
- calculates the time-weighted average (TWA).

Self-Test Fail

If the detector fails the self-test, refer to ***Troubleshooting***.

NOTE

To maintain optimal accuracy, the detector should be periodically supplied with a known concentration test gas (bump test) and if the readings are outside of 15% of the applied gas concentration, a span calibration should be performed, under conditions of standard temperature (15°C to 25°C/59°F to 77°F), humidity and pressure. Follow local regulations and/or your company's policy on the frequency of bump testing. For more information on test gas, contact your local Honeywell Analytics representative.

Deactivating the Detector

NOTE

A detector can be enabled to not deactivate by enabling a second passcode protection option. If **PASS** displays immediately after **OFF**, refer to ***Deactivation Passcode Protection***.

To deactivate the detector, complete the following:

1. Press and hold ⓘ until **OFF** displays (approximately 5 seconds).

2. The detector beeps and vibrates four times, the LEDs flash four times, and then the detector deactivates.

NOTE

If ⓘ is not held down until **OFF** displays, the detector will remain activated.

Confidence Beep

The confidence beep confirms that the detector is activated and the batteries have sufficient power to respond to a hazardous level of gas.

When battery power is sufficient, the detector beeps one time every 5 seconds. The confidence beep stops when battery power is low. The confidence beep can be enabled or disabled during start-up.

NOTE

The detector is shipped with the confidence beep disabled. Enabling the confidence beep decreases battery life.

To enable/disable the confidence beep, complete the following:

1. Ensure the detector is deactivated.
2. Press and hold ○. While holding ○, press ⓘ.

   When the confidence beep option is enabled, the detector automatically begins beeping when activated.

   When the confidence beep option is enabled in stealth mode, the detector vibrates one time every 60 seconds. For more information refer to ***Stealth Mode Option*** and ***Alarms***.

User Options Menu

The user options menu provides access to 13 user options.

NOTE

When selecting a user option, the LCD displays the opposite of what is currently selected.

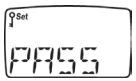
To access the user options menu, complete the following:

1. Press and hold ▲ and ▼ simultaneously until **OPTN** displays and then release the buttons.

   The detector beeps and vibrates four times and the LEDs flash four times while accessing the user options menu.

   If the passcode protection is not enabled, the **EXIT** screen automatically displays.

   If the detector is passcode protected, the following screen displays:



2. Press ▲ or ▼ to scroll to the required passcode. Press ○ to confirm the selection and access the **EXIT** screen.

NOTE

If the passcode is not confirmed within 10 seconds, **NO** displays and the detector returns to normal operation.

3. From the **EXIT** screen, press ▲ or ▼ to scroll through the user options.
4. Press ○ to select a displayed option.

NOTE

As a safety precaution, if an option is not selected within 20 seconds the detector automatically returns to normal operation.

When the required activities have been performed for a selected option, the **EXIT** screen automatically displays.

5. Press ▲ or ▼ to select another option or press ○ to exit the user options menu and return to normal operation.

Exit

When entering user options, the **EXIT** screen displays immediately following the options (**OPTN**) screen. The LCD automatically returns to the **EXIT** screen after a user option has been accessed.

From the **EXIT** screen, use ▲ or ▼ to scroll to additional user options,

Or

Press ○ to exit user options and return to normal operation.

Clock Option

The clock (**CLCK**) option sets the date (year/month/day/day of the week) and time (hour/minute) of the detector. To set the time or date, complete the following:

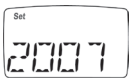
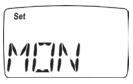
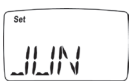
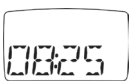
1. From the **EXIT** screen, press ▲ or ▼ to scroll to the **CLCK** option.
2. Press ○ to select the option and access the first date/time option, the year. Set and the last two digits of the year continually flash.
3. Press ▲ or ▼ to scroll to the required year and press ○ to confirm the selection.

   Or

   To bypass the year, press ○ to retain the current value and automatically proceed to the month screen.
4. Repeat step #3 for the remaining date/time changes.
5. Press ▲ or ▼ to select another option or press ○ to exit the user options menu and return to normal operation.

NOTE

The time and date values can only be changed in the order they are presented in this table. To bypass any setting, press ○. The detector automatically retains the current value and proceeds to the next date/time option.

	**Year**: Requires only the last two numerals of the year (**00-99**).		**Day of the week**: Scroll to select the required day (**MON, TUE, WED**, etc.).
	**Month**: Scroll to select the required month (**JAN, FEB, MAR**, etc.).		**Time**: The hour value flashes first. Scroll to select (**0:00** hrs to **23:59** hours).
	**Day**: Scroll to select the required day (**1-31**). For months with 30 days (**1-30**) is available. For February, (**1-28** & **29**) is available.		

NOTE

If a value is not bypassed by pressing ○ within 10 seconds, the detector automatically proceeds to the next date/time option. If the Time Minute value was not bypassed, the detector automatically proceeds to the **Exit** screen.

If a new value is selected but not confirmed by pressing ○ within 10 seconds, **NO** displays and the detector proceeds to the next date/time option. If a new Time Minute value was selected but not confirmed, the detector automatically proceeds to the **Exit** screen.

Passcode Protection Option

The passcode protection option (**PASS**) prevents unauthorized access to the user options and the calibration/set alarm setpoint functions.

The passcode protection option can be enabled or disabled.

NOTE

The detector is shipped with the passcode protection option disabled.

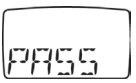
Enable Passcode Protection

To enable passcode protection, complete the following:

NOTE

The passcode is provided on a separate card inside the shipping container.

1. From the **EXIT** screen of the user options menu, press ▲ or ▼ to scroll to the **PASS** option.



2. Press ○ to select the option.
3. Set and **PASS** continually flash. Press ▲ or ▼ to scroll to the required passcode, and press ○ to confirm the selection.
4.
5. The **ON** screen displays and flashes continually. Press ○ to confirm. The LCD then returns to the **EXIT** screen.

5. Press ▲ or ▼ to select another user option, or press ○ to exit the user options and return to normal operation.

NOTE

If an incorrect passcode is selected or a correct passcode is not confirmed within 10 seconds, **NO** displays and the LCD returns to the **EXIT** screen.

Disable Passcode Protection

When the detector is passcode protected, the key icon displays continually. To disable the passcode protection option, complete the following:

1. Press and hold ▲ and ▼ simultaneously to access the user options menu.

   The **OPTN** screen displays briefly before the flashing passcode screen displays.

2. Press ▲ or ▼ to scroll to the required passcode and press ○ to confirm. The following **EXIT** screen displays.

   The key icon indicates that the passcode protection is currently enabled.

3. Press ▲ or ▼ to scroll to the **PASS** option, and press ○ to select the option.
4. The LCD displays a flashing **OFF** screen. Press ○ to confirm the disabling option.

NOTE

To ensure if the passcode protection option is enabled/disabled, use ▲ and ▼ to toggle between the **ON** and **OFF** options. Display the desired option and press ○ to confirm the selection.

The LCD returns to the **EXIT** screen.

5. Press ▲ or ▼ to select another user option, or press ○ to exit the user options and return to normal operation.

NOTE

If a passcode value is not selected or confirmed by pressing ○ within 10 seconds, **NO** displays and the LCD returns to the **EXIT** screen.

Deactivation Passcode Protection

NOTE

A detector can be enabled to prevent deactivation without a passcode. If requested, the detector is shipped with this option enabled permanently. This option cannot be disabled by a customer.

As a backup safety precaution, the detector can be manufactured to prevent unauthorized deactivation. A separate security passcode is required for this option and will be available to limited personnel only.

The passcode must be entered every time the detector is deactivated.

To deactivate the detector, complete the following:

1. From normal operation, press and hold A to deactivate the detector.

   If the detector is passcode protected to prevent deactivation, **OFF** displays briefly and then **PASS** immediately displays.

2. Press ▲ or ▼ to scroll to the required security passcode. Press ○ to confirm the selection.

   The detector then deactivates.

Stealth Mode Option

The stealth (**STLH**) mode option ensures that the detector is undetected in situations that require concealment. This option disables the

- audible alarms,
- visual alarms, and
- backlight.

Only the vibrator alarm remains enabled.

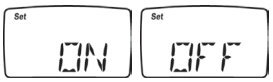
NOTE

The detector is shipped with stealth mode disabled.

To enable/disable the stealth mode, complete the following:

1. From the **EXIT** screen of the user options menu, press ▲ or ▼ to scroll to the **STLH** option.

2. Press ○ to select the option. The LCD flashes either **ON** or **OFF**.



Enabled Disabled

3. Press ▲ or ▼ to toggle between the **ON/OFF** options. Ensure the desired option is displayed and press ○ to confirm the selection.

   The LCD returns to the **EXIT** screen.

If stealth mode has been enabled, the screen displays **STLH** continually unless

- functions are being performed,
- readings are not 0 ppm for toxics, or
- reading is not 20.9% vol for oxygen.

NOTE

The vibrator alarm is disabled at -20°C.

4. Press ▲ or ▼ to scroll to a new user option or press ○ to exit and return to normal operation.

NOTE

If the option is not confirmed by pressing ○ within 10 seconds, the detector returns to normal operation.

Automatic Backlight Option

The automatic backlight (**BKLT**) option enables or disables the automatic backlight of the detector. When enabled, the backlight automatically activates for 3 seconds whenever there is insufficient light to view the LCD.

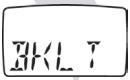
Press and hold (until the backlight activates) any button to activate the backlight for 6 seconds.

NOTE

The detector is shipped with the automatic backlight option enabled. The backlight option is not available in the user options menu while stealth mode is enabled.

To enable/disable the automatic backlight, complete the following:

1. From the **EXIT** screen of the user options menu, press ▲ or ▼ to scroll to the **BKLT** option.



2. Press ○ to select the option. The LCD flashes either **ON** or **OFF**.
3. Press ▲ or ▼ to toggle between the **ON/OFF** options. Ensure the desired option is displayed and press ○ to confirm the selection.

   The LCD returns to the **EXIT** screen.

NOTE

The **BKLT** option is not available in the user options menu while stealth mode is enabled.

4. Press ▲ or ▼ to scroll to a new user option or press ○ to exit and return to normal operation.

NOTE

If the option is not confirmed by pressing ○ within 10 seconds, the detector returns to normal operation.

Latching Alarm Option

The latch alarm (**LTCH**) alarm option ensures that an alarm persists until it is acknowledged by the user.

In the event of an alarm condition, and if the high and low alarms are set to latch, the audible and visual alarms persist until the alarm is acknowledged and the gas concentration is below the alarm setpoints.

In stealth mode, the detector continues to vibrate until the alarm is acknowledged.

The audible alarm can be temporarily deactivated (press ○) for 30 seconds, but the LCD continues to display the peak concentration until the alarm condition no longer exists.

NOTE

The detector is shipped with the latching alarm option disabled.

To enable/disable the latching alarm option, complete the following:

1. From the **EXIT** screen of the user options menu, press ▲ or ▼ to scroll to the **LTCH** option.

2. Press ○ to select the option. The LCD flashes either **ON** or **OFF**.
3. Press ▲ or ▼ to toggle between the **ON/OFF** options. Ensure the desired option is displayed and press ○ to confirm the selection.

   The LCD returns to the **EXIT** screen.
4. Press ▲ or ▼ to scroll to a new user option or press ○ to exit and return to normal operation.

NOTE

If the option is not confirmed by pressing ○ within 10 seconds, the detector returns to normal operation.

Automatic Oxygen (O_2) Calibration Option

NOTE

For oxygen detectors only.

If the automatic oxygen (O_2) calibration option is enabled, ensure the detector is activated in a clean atmosphere only.

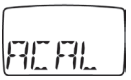
This option enables/disables the automatic oxygen (O_2) calibration. The O_2 calibration begins automatically during start-up after the calibration due screen displays.

NOTE

The detector is shipped with the automatic O_2 calibration option disabled.

To enable/disable the automatic O_2 calibration option, complete the following:

1. From the **EXIT** screen of the user options menu, press ▲ or ▼ to scroll to the **ACAL** option.



2. Press ○ to select this option. The LCD flashes either **ON** or **OFF**.
3. Press ▲ or ▼ to toggle between the **ON/OFF** options. Ensure the desired option is displayed and press ○ to confirm the selection.

   The LCD returns to the **EXIT** screen.
4. Press ▲ or ▼ to scroll to a new user option or press ○ to exit and return to normal operation.

NOTE

If the option is not confirmed by pressing ○ within 10 seconds, the detector returns to normal operation.

Calibration Past Due Option

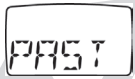
The calibration past due (**PAST**) option enables an automatic shutdown during start-up if the detector is past due for calibration.

NOTE

The detector is shipped with the calibration past due shutdown option disabled.

To enable/disable the calibration past due automatic shutdown option, complete the following:

1. From the **EXIT** screen of the user options menu, press ▲ or ▼ to scroll to the **PAST** option.



2. Press ○ to select the option. The LCD flashes either **ON** or **OFF**.
3. Press ▲ or ▼ to toggle between the **ON/OFF** options. Ensure the desired option is displayed and press ○ to confirm the selection.

   The LCD returns to the **EXIT** screen.
4. Press ▲ or ▼ to scroll to a new user option or press ○ to exit and return to normal operation.

NOTE

If the option is not confirmed by pressing ○ within 10 seconds, the detector returns to normal operation.

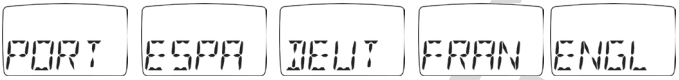
Languages

The detector can be set to display text in five different languages; Portuguese, Spanish, German, French and English. To change the display language, refer to the following language options.

NOTE

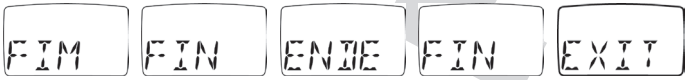
If the multi-language option is included, the detector is shipped with English selected as the default language.

1. From the **EXIT** screen of the user options menu, press ▲ or ▼ to scroll to the desired language.



Portuguese **Spanish** **German** **French** **English**

2. Press ○ to select the option. The LCD then displays the exit screen in the selected language.



Portuguese **Spanish** **German** **French** **English**

3. Press ▲ or ▼ to scroll to another user option or press ○ to exit and return to normal operation.

Datalogger Sampling Rate Option

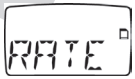
The datalogger sampling rate (**RATE**) option determines how often the detector records a datalog. The datalogger sampling rate ranges from 1 to 60 seconds.

NOTE

The detector is shipped with a datalogging sampling rate of 5 seconds.

To adjust the datalogger sampling rate, complete the following:

1. From the **EXIT** screen of the user options menu, press ▲ and ▼ to scroll to the **RATE** option.



2. Press ○ to select the option and display the sample rate screen.

3. The sample rate screen displays the current selected rate. Press ▲ or ▼ to scroll to a new rate and press ○ to save the new value.
4. Press ▲ or ▼ to scroll to another user option or press ○ to exit and return to normal operation.

NOTE

If a datalogging sample rate value is not selected or confirmed by pressing ○ within 10 seconds, NO displays and the LCD displays the EXIT screen.

Data Transfer Option

The data transfer (**SEND**) option transfers the datalog/event log information from the detector to a PC.

NOTE

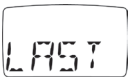
An IR DataLink (or other HA accessory) is required to transfer the data from the detector to a PC.

To transfer data, complete the following:

1. Connect the IR DataLink (or other HA accessory) to the detector and the PC.

   Refer to the IR DataLink Instruction Sheet.
2. From the **EXIT** screen of the user options menu, press ▲ or ▼ to scroll to the **SEND** option.

3. Press ○ to select the option and to access the data transfer option screens.
4. Select one of the following options to transfer data.

	Press ▲ or ▼ to scroll to the event (**EVNT**) option. Press ○ to automatically transfer all events.
	Press ▲ or ▼ to scroll to the last (**LAST**) option. Press ○ to automatically send all of the datalogs since the last datalog download.
	Press ▲ or ▼ to scroll to the all (**ALL**) option. Press ○ to automatically send all of the datalogs that are saved on the detector.

5. When the data transfer is complete, the detector beeps and vibrates, and the LEDs flash. The LCD displays the **EXIT** screen.

LAST and ALL Transfers

If the **LAST** or **ALL** option is selected, the LCD displays a countdown and the data transmission icon to indicate that the detector is transferring data.

NOTE

The number at the beginning of the countdown depends upon the amount of data to transfer.

EVNT Transfer

If the **EVNT** option is selected, the event logs transfer immediately and the LCD displays the **EXIT** screen.

Unsuccessful Transfer

If the connection between the detector and the IR DataLink is disturbed during a transfer, **FAIL** displays.

The LCD then displays the EXIT screen.

1. From the PC, save the previously transferred data to ensure that it will not be deleted.
2. Repeat steps #3-5 of the ***Data Transfer Option***.
3. From the detector, select **LAST** to automatically resume the transfer from where it stopped sending.

   Or

   Select **ALL** to transfer all of the data again.

Alarms

Table 6 describes detector alarms and corresponding screens. During an alarm condition, the detector activates the backlight and the LCD displays the current ambient gas reading. To change the factory-set alarm setpoints, refer to ***Calibration and Setting Alarm Setpoints***.

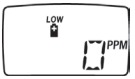
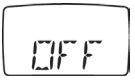
Alarm	Display	Alarm	Display
Low Alarm: » Slow beep » Slow flash » **ALARM** flashes » Slow vibrations		**TWA Alarm:** » Slow beep » Slow flash » **ALARM** flashes » Slow vibrations	
High Alarm: • Fast beep • Fast flash **ALARM** flashes • Fast vibrations		**STEL Alarm:** » Fast beep » Fast flash » **ALARM** flashes » Fast vibrations	
Sensor Alarm: » Slow beep » Slow flash » **ALARM** flashes » Slow vibrations		**Low Battery Alarm:** » One beep and one flash every 5 seconds, and one quick vibration every minute (when confidence beep is disabled). » No beeps, flashes, or vibrations (when confidence beep is enabled) » **LOW** displays	
Automatic Shutdown Alarm: (Low battery) » Eight beeps, flashes, and vibrations » **LOW** displays		**Automatic Shutdown Alarm:** (Calibration past) » Eight beeps, flashes, and vibrations	
After Automatic Shutdown: (Low battery) » No beep » No flash or vibrations » displays for a short time		» One beep every 5 seconds » One quick vibration per minute	

Table 6. Alarms

NOTE

The high alarm and STEL alarm have the same priority. A high alarm and/or STEL alarm overrides a low alarm and/or TWA alarm. To check STEL and TWA alarms specifically, press and hold ○ and ▲ simultaneously.

The vibrator alarm is disabled at -20°C.

The high and low alarms deactivate when the gas concentration is lower than the low alarm setpoint. If the alarms are set to latch, alarms persist until the gas concentration is below the alarm setpoint and the alarms have been acknowledged by pressing ○. The TWA and STEL alarms deactivate by clearing the TWA and STEL peak exposure. Refer to ***Clearing Gas Exposures***.

Computed Gas Exposures

WARNING

To avoid possible personal injury, do not deactivate the detector during a work shift. The detector automatically resets the TWA, STEL, and MAX gas exposures at start-up. If the detector is reactivated during a work shift, the values will not reflect the entire work shift.

Gas Exposure	Description
TWA	• Time-weighted average based on an 8-hour workday. • Accumulated value.
STEL	• Short-term exposure limit (STEL) to gas based on a 5-15 minute user-selectable period. • Accumulated value.
MAX*	• Maximum (MAX) concentration encountered during a work shift.

*For oxygen, it is the highest or the lowest concentration encountered.

Table 7. Computed Gas Exposures

Viewing Gas Exposures

Toxic Gases

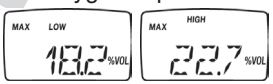
1. Press ○ and ▲ simultaneously. The LCD displays the TWA gas exposure first.

2. Then LCD displays the STEL gas exposure.

3. Then the LCD displays the MAX gas exposure.

Oxygen

For oxygen detectors, press ○ and ▲ simultaneously to view both the maximum low and maximum high levels of oxygen exposure.



Clearing Gas Exposures

The exposures automatically clear after 5 minutes of the detector being deactivated.

To clear the MAX, TWA, and STEL peak exposure readings immediately, press and hold ○ for 6 seconds. The detector beeps and vibrates two times to confirm that the exposures have been cleared.

Gas Alarm Setpoints

The detector gas alarm setpoints trigger the gas alarms that are described in Table 8.

Alarm	Condition
Low alarm	Toxic gases: Ambient gas level above low alarm setpoint. O_2: ambient gas level may be set to above or below 20.9%.
High alarm	Toxic gases: ambient gas level above high alarm setpoint. O_2: ambient gas level may be set to above or below 20.9%.
TWA alarm	TWA above TWA alarm setpoint. (O_2: not applicable)
STEL alarm	STEL above STEL alarm setpoint. (O_2: not applicable)

Table 8. Gas Alarm Setpoints

Resetting Gas Alarm Setpoints

NOTE

Standard factory alarm setpoints vary by region.

Table 9 lists the factory alarm setpoints.

To change the factory alarm setpoints, refer to ***Calibration and Setting Alarm Setpoints***.

NOTE

To disable an alarm, set the alarm setpoint to 0.

Gas	TWA	STEL	Low	High
O_2	N/A	N/A	19.5% vol.	22.5% vol.
CO (low H_2)	35 ppm	200 ppm	35 ppm	200 ppm
H_2S (high range)	10 ppm	15 ppm	10 ppm	15 ppm
H_2S	10 ppm	15 ppm	10 ppm	15 ppm
PH_3	0.3 ppm	1.0 ppm	0.3 ppm	1.0 ppm
SO_2	2.0 ppm	5.0 ppm	2.0 ppm	5.0 ppm
Cl_2	0.5 ppm	1.0 ppm	0.5 ppm	1.0 ppm
NH_3	25 ppm	35 ppm	25 ppm	50 ppm
HCN	4.7 ppm	10.0 ppm	4.7 ppm	10.0 ppm

Table 9. Factory Alarm Setpoints

Stopping a Gas Alarm

The low and high alarms deactivate when the ambient gas level returns to below the low alarm setpoint.

NOTE

If alarms are set to latch, press ◯ to reset the alarms.

The TWA and STEL alarms can be stopped either by

- clearing the MAX, TWA, and STEL peak exposures (refer to ***Clearing Gas Exposures***)

Or

- deactivating the detector for 5 minutes (minimum) and reactivating it again

If the detector is passcode protected to prevent deactivation, refer to ***Deactivation Passcode Protection***.

⚠ CAUTION

Follow all safety procedures as defined by your employer. Confirm with your supervisor before clearing TWA and STEL alarms.

Sensor Alarm

The detector tests for a missing or defective sensor during the activation self-test. Refer to ***Troubleshooting***.

Low Battery Alarm

The detector tests the battery upon activation and continuously thereafter. If the battery voltage is low, the detector activates the low battery alarm.

The low battery alarm continues until the battery is replaced or the battery power is almost depleted. If the battery voltage drops too low, the detector automatically deactivates.

NOTE

If the confidence beep is enabled, the audible alarm does not beep during a low battery alarm. Refer to ***Confidence Beep***.

Automatic Shutdown Alarm

There are two situations when an automatic shutdown alarm occurs.

1. If the battery voltage is in immediate danger of falling below the minimum operating voltage, the detector beeps and vibrates eight times, and the LEDs flashes eight times. After 3 seconds, the LCD deactivates and the detector deactivates.

   The LCD periodically displays the low battery icon ▮ until the battery power is depleted.

   To replace the battery, refer to ***Replacing the Battery or Sensor***.

NOTE

The low battery alarm continues for approximately 30 minutes before an automatic shutdown occurs.

2. If the calibration past due user option is enabled and the detector is past the calibration due date, the detector automatically deactivates.

Calibration and Setting Alarm Setpoints

Guidelines

When calibrating the detector, adhere to the following guidelines.

- Recommended gas mixture:

  O_2: clean air, 20.9% vol.
  CO: 50 to 500 ppm balance N_2
  H_2S (high range): 10 to 100 ppm balance N_2
  H_2S: 10 to 100 ppm balance N_2
  PH_3: 1 to 5 ppm balance N_2
  SO_2: 10 to 50 ppm balance N_2
  Cl_2: 3 to 25 ppm balance N_2
  NH_3: 20 to 100 ppm balance N_2
  HCN: 5 to 20 ppm balance N_2
- To ensure accurate calibration, use a premium-grade calibration gas. Gases approved by the National Institute of Standards and Technology (NIST) improve the validity of the calibration.
- Do not use a gas cylinder beyond its expiration date.
- Calibrate a new sensor before use. Allow the sensor to stabilize before starting calibration (used: 60 seconds; new: 5 minutes).
- Calibrate the detector at least once every 180 days (for HCN detectors calibrate at least once every 90 days), depending upon use and sensor exposure to poisons and contaminants.
- Calibrate the detector if the ambient gas display varies at start-up.
- It is best to calibrate the sensor before changing the alarm setpoints.
- Calibrate only in a safe area that is free of hazardous gas.
- To disable an alarm, set the alarm setpoint to zero.
- If a certified calibration is required, contact Honeywell Analytics.

NOTE

A generator must be used to calibrate Cl_2 XD sensors.

Test Cap

The calibration cap and hose are shipped with the detector for calibration.

Refer to Table 10 and Figure 3 for installation information.

NOTE

Only use the calibration cap during calibration.

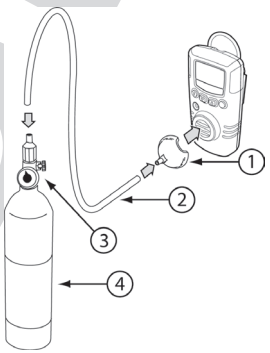


Figure 3. Test Cap

Item	Description
1	Test Cap
2	Hose
3	Regulator
4	Gas Cylinder

Table 10. Test Cap

Calibration

Calibration requires several functions, some of which can be bypassed. A note is added to each option that can be bypassed.

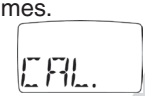
Start Calibration

NOTE

To quit at any point, press ⓘ. The detector retains any saved values and the detector beeps and vibrates four times before returning to normal operation.

Calibrate O_2 in clean air.

1. To enter calibration, in a safe area free of hazardous gas, press and hold ○ and ▼ simultaneously as the detector beeps and vibrates four times, and the LEDs flash four times.



After the **CAL.** screen displays, the detector beeps one time and the auto zero screen displays.

Auto Zero

The auto zero function automatically zeros the toxic sensors and calibrates the O_2 sensor.

2. The LCD flashes **AUTO-ZERO** while the detector automatically zeroes the sensor. When the auto zero is complete the detector beeps twice.

NOTE

Do not apply the calibration gas until the LCD displays the flashing gas cylinder icon; otherwise, the detector auto zero will fail.

Auto Zero Fail

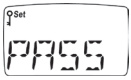
If the sensor fails auto zero, **FAIL** displays.

The detector then bypasses the sensor span and automatically proceeds to the alarm setpoints.

a) Press ⓘ to exit the alarm setpoint screens and to return to normal operation.
b) Restart the calibration procedures in a safe area that is free of hazardous gas. If auto zero fails a second time, deactivate and then reactivate the detector to test the sensors.
c) If the auto zero is successful and the passcode protection is disabled, the detector automatically proceeds to the auto span function.

Passcode Protected

After a successful auto zero, and if the passcode protected option is enabled, the **PASS** screen displays. When enabled, the passcode is required to access the auto span and alarm setpoint functions.



3. Press ▲ or ▼ to scroll to the required passcode and press ○ to confirm. For additional information, refer to ***Passcode Protection Option***.

   If the correct code is confirmed by pressing ○ within 10 seconds, the detector beeps twice and automatically proceeds to the set span screen.

   If the passcode is not confirmed within 10 seconds or the passcode is incorrect, **NO** displays.

   The detector then beeps four times and automatically returns to normal operation.

Set Span

NOTE

To bypass the set span function, press ○ to automatically proceed to the span screen.

The set span function inputs a new calibration gas concentration value.

The **Set SPAN** screen flashes.

4. Press ▲ or ▼ to scroll to the required gas concentration. The detector value must match the concentration value of the calibration gas.

NOTE

If a new value is selected but not confirmed within 10 seconds by pressing ○, the detector rejects the new value and **NO** displays. The detector beeps six times and retains the original value. The detector automatically proceeds to the span screen.

5. Press ○ to save the new value and proceed to the span screen.

Span

NOTE

To bypass the span function, press ◯ to automatically proceed to the alarm setpoint screens. If the span is bypassed, the calibration due date cannot be changed.

Verify that the calibration gas being used matches the span concentration values that are defined for the detector. For more information, refer to Calibration Guidelines.

The set span screen displays a flashing gas cylinder.

NOTE

The flashing gas cylinder icon does not display for oxygen (O_2) detectors.

6. Apply the calibration gas.
7. Apply gas to the sensor at a flow rate of 500 ml/min. (for NH_3 and Cl_2: 1000 ml/min.)

   The gas readings change as gas is applied to the sensor. When the detector senses a sufficient concentration of gas (approximately 30 seconds), the audible alarm beeps once.
8. The detector then begins spanning the sensor as follows:
   - NH_3 and Cl_2: 5 minutes to span;
   - O_2: 30 seconds to span;
   - other gases: 2 minutes (approximately) to span.

   The audible alarm beeps three times when the span is complete.

Successful Span

If the span is successful, the LCD automatically displays the calibration due date screen.

Unsuccessful Span

If the detector fails to span a sensor successfully, **FAIL** displays.

The detector vibrates and beeps, and the LEDs flash. Then the detector automatically proceeds to the alarm setpoint screens.

If the span fails confirm that

- gas is being applied to the sensor,
- the sensor is detecting a sufficient gas concentration within 30 seconds, and
- the gas concentration has not dropped significantly during the 2-minute span.

If the span is still unsuccessful, use a new gas cylinder.

If the span continues to be unsuccessful, replace the sensor. Refer to ***Replacing the Battery or Sensor***.

Setting the Calibration Due Date

After a successful calibration, the LCD displays the **CAL. DUE** screens and the number of days remaining before the next calibration.

NOTE

To bypass the calibration due notification, press ○. The detector automatically proceeds to the TWA alarm setpoint.

Honeywell Analytics recommends that the detector be calibrated every 180 days (6 months). The detector is shipped with the factory default setting of 180 days.

9. Press ▲ or ▼ to scroll to the required value (**1** to **365**).
10. Press ○ to save the new value and automatically proceed to the TWA alarm setpoint screen.

NOTE

If a new value is selected but not confirmed within 10 seconds by pressing ○, the detector automatically retains the original value and **NO** displays. The detector proceeds to the TWA alarm setpoint.

Setting the TWA Alarm Setpoint

NOTE

To bypass and retain the current TWA alarm setpoint value, press ○. The detector automatically proceeds to the STEL alarm setpoint.

When the **CAL. DUE** function has been completed, the **Set TWA** alarm setpoint screen automatically displays.

11. Press ▲ or ▼ to scroll to the required value.
12. Press ○ to save the new value and proceed to the STEL alarm setpoint.

NOTE

If a new value is selected but not confirmed within 10 seconds by pressing ○, the detector automatically retains the original value and **NO** displays. The detector proceeds to the STEL alarm setpoint.

Setting the STEL Alarm Setpoint

NOTE

To bypass and retain the current STEL alarm setpoint value, press ◯. The detector automatically proceeds to the low alarm setpoint.

When the TWA alarm setpoint value has been changed or bypassed, the **Set STEL** alarm setpoint screen displays.

13. Press ▲ or ▼ to scroll to the required value.
14. Press ◯ to save the new value and proceed to the low alarm setpoint.

NOTE

If a new value is selected but not confirmed within 10 seconds by pressing ◯, the detector automatically retains the original value and **NO** displays. The detector proceeds to the low alarm setpoint.

Setting the Low Alarm Setpoint

NOTE

To bypass and retain the current low alarm setpoint value, press ◯. The detector automatically proceeds to the high alarm setpoint.

When the STEL alarm setpoint value has been changed or bypassed, the **Set LOW** alarm setpoint screen displays.

15. Press ▲ or ▼ to scroll to the required value.
16. Press ◯ to save the new value and proceed to the high alarm setpoint.

NOTE

If a new value is selected but not confirmed within 10 seconds by pressing ◯, the detector automatically retains the original value and **NO** displays. The detector proceeds to the low alarm setpoint.

Setting the High Alarm Setpoint

NOTE

To bypass and retain the current high alarm setpoint value, press ◯. The detector then returns to the normal operation.

When the low alarm setpoint value has been changed or bypassed, the **Set HIGH** alarm setpoint screen displays.

17. Press ▲ or ▼ to scroll to the required value.

18. Press ◯ to save the new value and return to normal operation.

NOTE

If a new value is selected but not confirmed within 10 seconds by pressing ◯, the detector automatically retains the original value and **NO** displays. The detector proceeds to normal operation.

When calibration is complete, the detector beeps and vibrates four times, and the LEDs flash four times before returning to normal operation.

Verification

1. After calibration is complete and the detector is in normal operation, verify calibration by using a gas cylinder other than the one used for calibration.
2. The gas concentration should not exceed the sensor's detection range. Confirm that the LCD displays the expected concentration values.
3. To ensure that the reading is accurate, apply the verification gas for the same period of time as was applied to the sensor when it was calibrated.

   Example: SO_2 span time was 2 minutes therefore, apply verification gas for 2 minutes.

Datalog and Event Log

The GasAlert Extreme datalogger version allows the detector to record various information so a report can be compiled.

Datalog

Datalog information is recorded based upon the sampling rate set in the detector user options. The following information is recorded in a datalog:

- Date and time
- The detector serial number
- The type of gas the detector monitors
- The current gas reading
- The sensor status
- The detector status
- Passcode protect enabled/disabled
- STEL period setting
- Confidence beep enabled/disabled
- Automatic backlight enabled/disabled
- Stealth mode enabled/disabled
- Latching alarm enabled/disabled;
- The calibration past due user option enabled/disabled
- Language the detector is set to display

Event Log

Event log information is recorded when an event (i.e., an alarm) occurs. The following information is recorded in an event log:

- The detector serial number
- The type of exposure the detector experienced
- The time the alarm started and ended
- The peak exposure of the alarm

Maintenance

To maintain the detector in good operating condition, perform the following basic maintenance as required:

- Calibrate, bump test check, and inspect the detector at regular intervals.
- Maintain an operations log of all maintenance, calibrations, bump check tests, and alarm events.
- Clean the exterior with a soft damp cloth. Do not use solvents, soaps, or polishes.
- Do not immerse the detector in liquids.

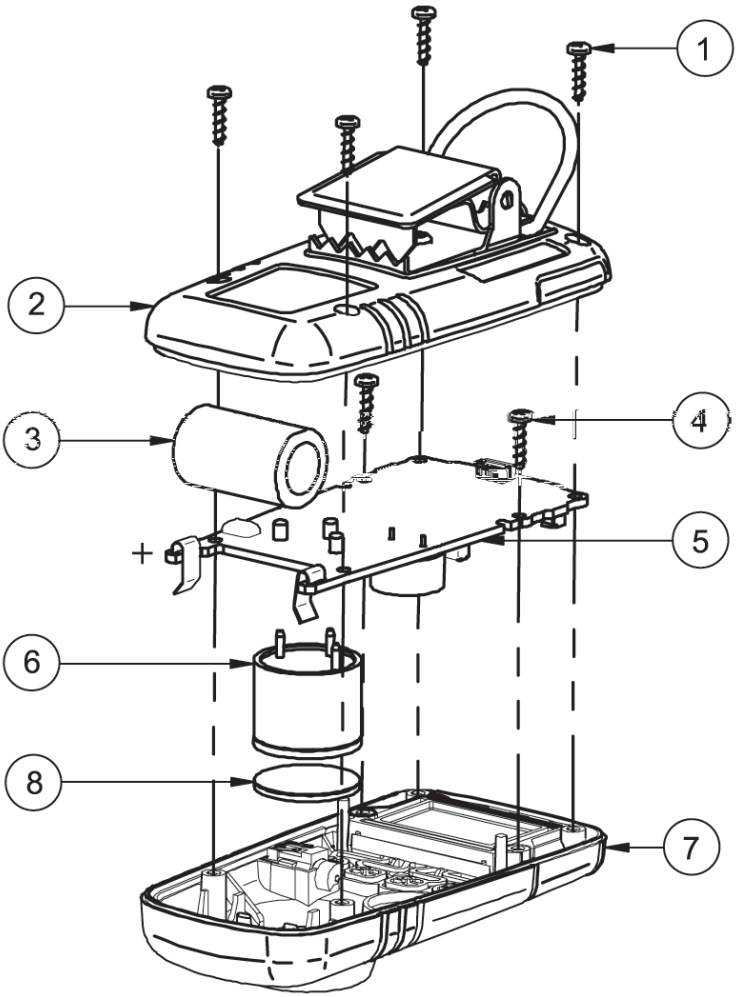


Figure 4. Replacing the Battery or Sensor

Item	Description
1	Rear shell machine screws (4)
2	Rear shell
3	Battery
4	PCB machine screws (2)
5	PCB
6	Sensor
7	Sensor screen
8	Front shell

Table 11. Replacing the Battery or Sensor

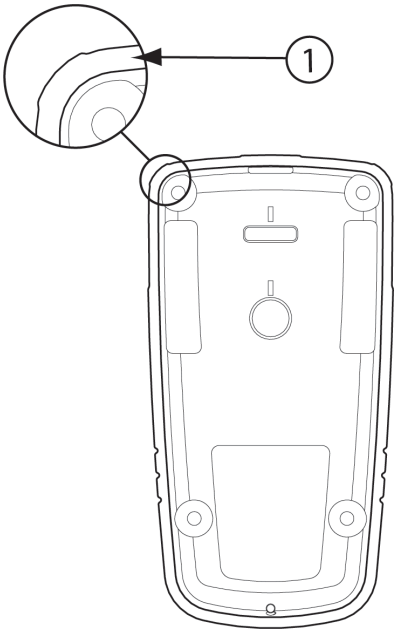


Figure 5. Rear Shell Seal

Item	Description
1	Seal

Table 12. Rear Shell Seal

Item	Description
1	Seal

Table 13. Front Shell Seal

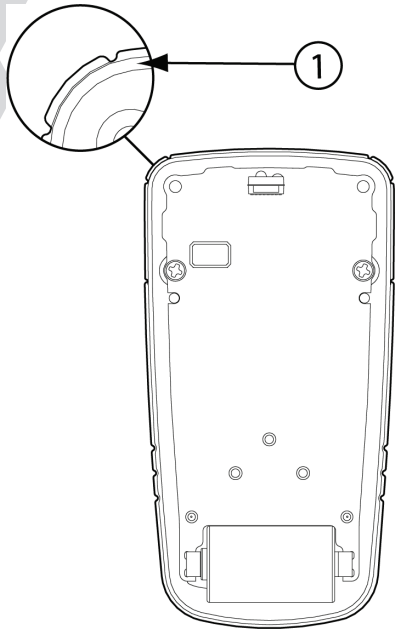


Figure 6. Front Shell Seal

Replacing the Battery or Sensor

WARNING

To avoid possible personal injury, adhere to the following:

- **Replace the battery in a safe area, free of hazardous gas immediately when the detector enters low battery alarm.**
- **Use only the Energizer 1CR2 battery.**
- **Use only the sensor specifically designed for the XD. Otherwise, the detector will not monitor the target gas. Refer to Replacement Parts and Accessories.**
- **After replacing a sensor, allow the new sensor 5 minutes to stabilize before use. For an NO sensor, allow the new sensor 2 hours to stabilize before use.**
- **Do not expose a sensor to vapors of organic solvents such as paint fumes or organic solvents.**

NOTE

When the battery is removed from the detector, the clock reverts back to the default value. Refer to ***Clock Option***.

To preserve the life of the battery, deactivate the detector when not in use.

For additional information regarding problems caused by a sensor requiring calibration or replacement, refer to ***Troubleshooting***.

Replacing the Battery

To replace a battery, complete the following. Refer to ***Figures 4***, ***5***, and ***6*** and Tables ***11***, ***12***, and ***13***. Replace the battery in a safe area, free of hazardous gas.

1. Deactivate the detector.
2. Remove the four machine screws on the rear shell and remove the rear shell.
3. Remove the battery.

WARNING

This instrument contains a lithium battery. Do not mix with the solid waste stream. Spent batteries should be disposed of by a qualified recycler or hazardous materials handler.

4. Insert the new battery.
5. Re-assemble the detector. When assembling the detector be aware of the following:
   - Clean the seal on the front and rear shells with a soft damp clean cloth. Do not use solvents, soaps, or polishes. Refer to ***Figures 5*** and ***6***.
   - Ensure the front and rear shells are properly aligned to ensure a proper environmental seal.
   - Torque the screws to 3-4 in-lbs in a crisscross pattern to ensure a proper environmental seal. Do not overtighten.

Replacing the Sensor

To replace a sensor, complete the following. Refer to ***Figures 4***, ***5***, and ***6*** and ***Tables 11***, ***12***, and ***13***.

1. Deactivate the detector.
2. Remove the four machine screws on the rear shell and remove the rear shell.
3. Remove the two machine screws from the PCB.

4. Remove the PCB.
5. Replace the sensor.

Gently rock the sensor back and forth to remove a tightly held sensor.

NOTE

Allow the new sensor 5 minutes to stabilize before use. For a new NO sensor, allow the new sensor 2 hours to stabilize before use.

6. Re-assemble the detector. When assembling the detector be aware of the following:
   - Clean the seal on the front and rear shells with a soft damp clean cloth. Do not use solvents, soaps, or polishes. Refer to ***Figures 5*** and ***6***.
   - Ensure the front and rear shells are properly aligned to ensure a proper environmental seal.
   - Torque the screws to 3-4 in-lbs in a crisscross pattern to ensure a proper environmental seal. Do not overtighten.

Cleaning a Sensor Screen

Clean or replace the sensor screen as required. If replacement sensor screens are required, refer to ***Replacement Parts and Accessories***.

Clean or replace the sensor screen as required. If replacement sensor screens are required, refer to Replacement Parts and Accessories.

To clean a removed sensor screen, complete the following. ***Figures 4***, ***5***, and ***6*** and Tables ***11***, ***12***, and ***13***.

1. Deactivate the detector.
2. Remove the four machine screws on the rear shell and remove the rear shell.
3. Remove the two machine screws from the PCB.
4. Remove the PCB. Place the PCB on a clean surface.
5. Remove the screen.
6. Using a soft, clean brush, wash the screen with clean, warm water.
7. Insert the sensor screen with the shiny side facing away from the detector.

NOTE

Ensure the screen is dry before inserting back into the detector.

8. Re-assemble the detector. When assembling the detector be aware of the following:
   - When inserting the sensor screen back into the detector, ensure the sensor screen is inserted with the shiny side facing the sensor grill.
   - Clean the seal around the edge of the front and rear shells with a soft damp clean cloth. Do not use solvents, soaps, or polishes. Refer to Figures ***Figures 5*** and ***6***.
   - Ensure the front and rear shells are properly aligned to guarantee a proper environmental seal.
   - Torque the screws to 3-4 in-lbs in a crisscross pattern to ensure a proper environmental seal. Do not overtighten.

Cleaning a Sensor

Before cleaning a sensor, clean or replace the sensor screen. Refer to ***Cleaning a Sensor Screen***.

To prevent damage, do not use excessive force when removing and inserting the sensor. Gently rock back and forth to remove a tightly held sensor.

⚠ CAUTION

Do not rip, tear, or puncture the sensor.

To clean a sensor, complete the following. Refer to ***Figures 4***, ***5***, and ***6*** and ***Tables 11***, ***12***, and ***13***.

1. If required, deactivate the detector.
2. Remove the four machine screws on the rear shell and remove the rear shell.
3. Remove the two machine screws from the PCB.
4. Remove the PCB. Place the PCB on a clean surface.
5. Remove the sensor.
6. Clean using a soft, clean brush. Do not use water.
7. Re-assemble the detector. When assembling the detector be aware of the following:
   - Clean the seal around the edge of the front and rear shells with a soft damp clean cloth. Do not use solvents, soaps, or polishes. Refer to ***Figures 5*** and ***6***.
   - Ensure the front and rear shells are properly aligned to ensure a proper environmental seal.
   - Torque the screws to 3-4 in-lbs in a crisscross pattern to ensure a proper environmental seal.

NOTE

Honeywell Analytics recommends that a test gas be applied to test the detector's response to gas following any cleaning procedure.

Clearing a Sensor

Each sensor has a high degree of resistance to common vapors and gases. To clear a sensor, move the detector to a clean environment and wait 10 to 30 minutes.

NOTE

Do not expose a sensor to the vapors of inorganic solvents, such as paint fumes or organic solvents.

Installing the Splash Filter Guard

To insert or replace the XD Sensor Splash Filter Guard, place Splash Filter Guard between the detector and carrying case and center inside the opening (see Figure 7)

Figure 7. Installing the Splash Filter Guard

Installing the Optional Alligator Clip

To install the optional Alligator Clip (p/n 1715-0164), remove the standard belt clip (1) by pushing the clip upward and clear of the XD case. Attach the Alligator Clip mount (3) to the existing hole in the rear of the XD using the supplied screw. Slide the Alligator Clip (2) over the mount until the clip seats completely. The clip should rotate freely.

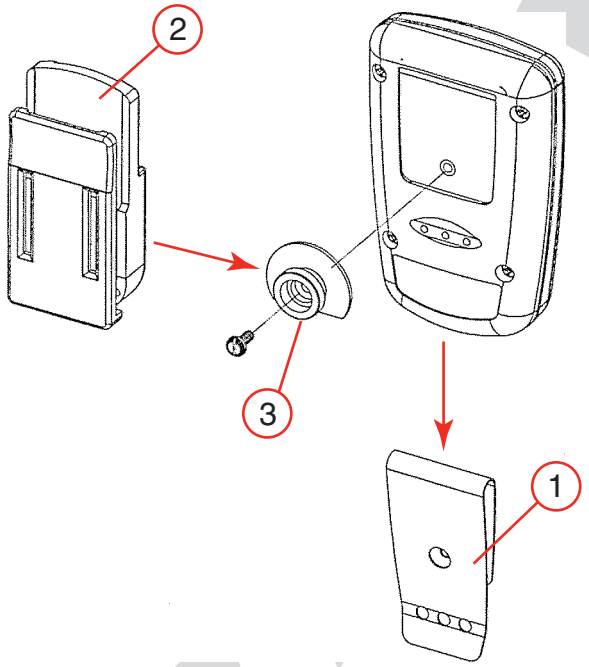


Figure 8. Installing the Alligator Clip

Troubleshooting

If a problem is occurs refer to the solutions provided in Table 14. If the problem persists, contact Honeywell Analytics.

Problem	Possible Cause	Solution
The detector does not activate.	No battery.	Install a battery. Refer to ***Replacing the Battery or Sensor***.
	Depleted battery.	Replace the battery. Refer to ***Replacing the Battery or Sensor***.
	Damaged or defective detector.	Contact Honeywell Analytics.
	Reversed battery.	Reinstall the battery correctly.
The detector enters alarm mode immediately when it is activated.	Sensor needs to stabilize.	Used sensor: wait 60 seconds. New sensor: wait 5 minutes.
	Low battery alarm.	Replace the battery. Refer to ***Replacing the Battery or Sensor***.
	Sensor alarm.	Replace the sensor. Refer to ***Replacing the Battery or Sensor***
The activation self-test fails during one of the checks.	General fault.	Contact Honeywell Analytics.
	Alarm setpoints are incorrect.	Reset the alarm setpoints. Refer to ***Resetting Gas Alarm Setpoints***.
The detector does not display normal ambient gas reading after activation self-test.	Sensor not stabilized.	Used sensor: wait 60 seconds. New sensor: wait 5 minutes.
	Detector requires calibration.	Calibrate the detectoo7382( )-136Rtee to ***alibrati attilr Setpoints***.
	T a	rqsen

Problem	Possible Cause	Solution
The detector does not enter alarm mode.	Alarm setpoint(s) are set incorrectly.	Reset the alarm setpoints. Refer to ***Resetting Gas Alarm Setpoints***.
	Alarm setpoint(s) set to zero.	Reset the alarm setpoints. Refer to ***Resetting Gas Alarm Setpoints***.
	Detector is in calibration mode.	Complete calibration. Refer to ***Calibration and Setting Alarm Setpoints***.
The detector intermittently enters alarm mode without apparent reason.	Ambient gas levels are near alarm setpoint or the sensor is exposed to a puff of the target gas.	Detector is operating normally. Use caution in suspect areas. Check MAX gas exposure reading.
	Alarms set incorrectly.	Reset the alarm setpoints. Refer to ***Calibration and Setting Alarm Setpoints***.
	Missing or faulty sensor.	Replace the sensor. Refer to ***Replacing the Battery or Sensor***.
The detector automatically deactivates.	Automatic shutdown feature activated due to depleted battery.	Replace the battery. Refer to ***Replacing the Battery or Sensor***.
Detector does not auto zero or calibrate.	Sensor may be expired.	Change the sensor.
O2 sensor reading is erratic.	Sensor may be expired.	Change the sensor.

Table 14. Troubleshooting Tips

Replacement Parts and Accessories

WARNING

To avoid personal injury or damage to the detector, use only specified replacement parts.

To order any parts or accessories, contact Honeywell Analytics.

Model No.	Description	Qty
1715-0103	Replacement O_2 sensor	1
1715-0101	Replacement CO sensor (low H_2 sensitivity)	1
1715-0102	Replacement H_2S sensor	1
1715-0112	Replacement PH_3 sensor	1
1715-0104	Replacement SO_2 sensor	1
1715-0105	Replacement Cl_2 sensor	1
1715-0109	Replacement NH_3 sensor	1
1715-0106	Replacement HCN sensor	1
1715-0160	Sensor screens w/gasket	10
1715-0161	Test cap and hose	1
1715-0162	Concussion-proof boot	1
1715-0163	Splash guard filters for replacement concussion-proof boot	5
1715-0164	Alligator clip (non-conductive)	1
1715-0135	Chest harness	1
1715-0165	Replacement 3V lithium battery	1
1715-0133	IR DataLink	1

Table 15. Replacement Parts and Accessories

Specifications

Instrument Dimensions	1.1 x 2.0 x 3.75 in / 2.8 x 5.0 x 9.5 cm
Weight	2.9 oz / 82 g
Operating Temperature	H_2S, SO_2, HCN: -40 to +122°F / -40 to +50°C CO: -22° to +122°F / -30° to +50°C NH_3 : -4° to +104°F / -20° to +40°C Other gases: -4° to +122°F / -20° to +50°C
Operating Humidity	CO, H_2S, SO_2, Cl_2, HCN, NO_2, NH_3, PH_3: 15% to 90% rh (non-condensing) Cl_2: 10% to 95% rh (non-condensing) O_2: 0% to 99% rh (non-condensing)
Alarm Setpoints	May vary by region and are user-settable.
Detector Ranges	O_2: 0-30.0% vol (0.1% vol incr) CO: 0-1000 ppm (1 ppm incr) H_2S: 0-100 ppm (1 ppm incr) H_2S (high rng): 0–500 ppm (1 ppm incr) PH_3: 0-5.0 ppm (0.1 ppm incr) SO_2: 0-150.0 ppm (0.1 ppm incr) Cl_2: 0-50.0 ppm (0.1 ppm incr) NH_3: 0-400 ppm (1 ppm incr) HCN: 0-30.0 ppm (0.1 ppm incr)
Sensor Type	Plug-in electrochemical cells
Calibration	Auto zero, set span, and span sensor
Alarm Conditions	TWA alarm, STEL alarm, low alarm, high alarm, sensor alarm, low battery alarm, confidence beep, and automatic shutdown alarm.
Audible Alarm	95 dB at 1 ft. (0.3 m) typical
Visual Alarm	Red light-emitting diode (LED)
Display	Alpha-numeric liquid crystal display (LCD)
Backlight	Automatically activates for 3 seconds whenever there is insufficient light to view the display (unless disabled in the user options) and during alarm conditions. Any pushbutton reactivates the backlight for 6 seconds.
Self-Test	Initiated at activation
Battery Test	Every 0.5-second
Battery	3V lithium Energizer 1CR2-series battery
Intrinsic Safety	Classified by UL to both U.S. and Canadian Standards as intrinsically safe for Class I, Division 1, Group A, B, C, D Class II, Group E, F, G DEMKO 08 ATEX 0728041 CE 1180 Ex II 1 G Ga Ex ia IIC T4

Datalogging Specifications

Storage	Maximum of 8 months of data at 5 second intervals (based on a normal workweek).
Memory Type	Wrap-around memory ensures most recent data is always saved.
Sample Rate	One reading every 5 seconds (standard).
Data Recorded	All sensor readings, all alarm conditions, calibrations, event flags, battery status, sensor status, confidence beep activation, and detector status along with the time and date and the detector serial number.
Indicators	Icon advising datalogger is operating normally.
Transfer Accessory	IR DataLink or other HA accessory.
Support	Fleet Manager CD Support: This software organizes XD datalog and event log files into a readable report.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules and ICES-003 Canadian EMI requirements. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Find out more
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