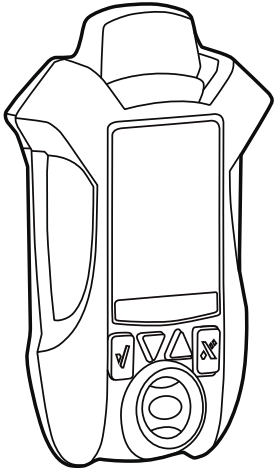


CONNEX1

Single Gas Detector

Operator's Manual

BW Technologies
by Honeywell

Limited Warranty and Limitation Liability

BW Technologies by Honeywell LP (BW) warrants the product to be free from defects in material and workmanship under normal use and service for a period of two years, beginning on the date of shipment to the buyer. This warranty extends only to the sale of new and unused products to the original buyer. BW's warranty obligation is limited, at BW's option, to refund of the purchase price, repair or replacement of a defective product that is returned to a BW authorized service center within the warranty period. In no event shall BW's liability hereunder exceed the purchase price actually paid by the buyer for the Product.

This warranty does not include:

a. fuses, disposable batteries or the routine replacement of parts due to the normal wear and tear of the product arising from use;

b. any product which in BW's opinion, has been misused, altered, neglected or damaged, by accident or abnormal conditions of operation, handling or use; or

c. any damage or defects attributable to repair of the product by any person other than an authorized dealer, or the installation of unapproved parts on the product.

The obligations set forth in this warranty are conditional on:

a. proper storage, installation, calibration, use, maintenance and compliance with the product manual instructions and any other applicable recommendations of BW;

b. the buyer promptly notifying BW of any defect and, if required, promptly making the product available for correction. No goods shall be returned to BW until receipt by the buyer of shipping instructions from BW; and

c. the right of BW to require that the buyer provide proof of purchase such as the original invoice, bill of sale or packing slip to establish that the product is within the warranty period.

The buyer agrees that this warranty is the buyer's sole and exclusive remedy and is in lieu of all other warranties, express or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose. BW shall not be liable for any special, indirect, incidental, lost profits, or consequential damages or losses, including loss of data, whether arising from breach of warranty or based on contract, tort or reliance or any other theory.

Since some countries or states do not allow limitation of the term of an implied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warranty may not apply to every buyer. If any provision of this warranty is held invalid or unenforceable by a court of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision.

Contacting BW Technologies by Honeywell

Corporate Headquarters
BW Technologies by Honeywell
2840 2nd Ave. SE
Calgary, AB
Canada T2A 7X9
+1.403.248.9226 / 1.800.663.4164
+1.403.573.3708

United States
BW Technologies by Honeywell
405 Barclay Blvd.
Lincolnshire, IL
USA 60069
+1.847.955.8200 / 1.800.538.0363
+1.847.955.8210

Europe
BW Technologies by Honeywell
4 Stinsford Road
Nuffield Industrial Estate
Poole, Dorset BH17 0RZ
+44 (0) 1295.700.300
+44 (0) 1295.700.301


info@gasmonitors.com
www.gasmonitors.com

Table of Contents

⚠ Cautions

- **Warning:** Substitution of components may impair Intrinsic Safety
- Before using the detector, refer to Sensor Poisons and Contaminants.
- **Caution:** For safety reasons, this equipment must be operated and serviced by qualified personnel only. Read and understand the operator's manual completely before operating or servicing.
- Charge the detector before first-time use. BW Technologies by Honeywell recommends the detector be charged after every workday.
- Calibrate the detector before first-time use and then on a regular schedule, depending on use and sensor exposure to poisons and contaminants. BW Technologies by Honeywell recommends that the sensor should be calibrated regularly and at least once every 180 days (6 months).
- Calibrate only in a safe area that is free of hazardous gas in an atmosphere of 20.9% oxygen.
- BW Technologies by Honeywell recommends to bump test the sensor before each day's use to confirm its ability to respond to gas by exposing the detector to a gas concentration that exceeds the alarm setpoints. Manually verify that the audible, visual, and vibrator alarms are activated. Calibrate if the readings are not within the specified limits.
- Any rapid upscaling reading followed by a declining or erratic reading may indicate a gas concentration beyond upper scale limit, which can be hazardous.
- For use only in potentially explosive atmospheres where oxygen concentrations do not exceed 20.9% (v/v).
- Extended exposure of the detector to certain concentrations of combustible gases and air may stress an detector element that can seriously affect its performance. If an alarm occurs due to high concentration of combustible gases, calibrate the detector. If necessary, replace the sensor.
- **Warning:** The lithium battery may present a risk of fire or chemical burn hazard if misused. Do not disassemble, heat above 212°F (100°C), or incinerate.
- **Warning:** Lithium polymer cells exposed to heat at 266°F (130°C) for 10 minutes can cause fire and/or explosion.
- ♻ **Warning:** This detector contains a lithium polymer battery. Dispose of used lithium cells immediately. Do not disassemble. Do not dispose of in fire. Do not mix with the solid waste stream. Spent batteries must be disposed of by a qualified recycler or hazardous materials handler.
- Keep lithium cells away from children.
- Deactivating the detector by removing the battery pack may cause improper operation and harm the detector.
- ♻ **Warning:** At the end of their working lives, sensors must be disposed of in an environmentally safe manner, in accordance with local waste management requirements and environmental legislation. Do NOT incinerate sensors as they may emit toxic fumes.

1. Introduction

The ConneX1 is a compact, portable gas detector designed to be carried or worn without hindering the user. Its purpose is to continuously monitor the atmosphere continuously for hazardous levels. Audible, visual, and vibratory alarms alert the user to danger when hazardous conditions are detected.

1.1 Intended Use

The ConneX1 has been designed to alert the user to potentially hazardous atmospheres while carrying out his/her normal duties. Therefore, the detector must be kept switched on and worn as close to the breathing area as possible, and several accessories are provided to allow the detector to be worn in a number of different ways:

a. On the chest

b. On a belt

The detector is provided with various methods to enable the user to comply safely and easily with confined space regulations.

CAUTION

BW recommends that the detector be calibrated at least every 6 months or in accordance with customer site procedures, whichever is sooner. Correct operation of the detector should be confirmed with test gas of known concentration before each use.

The use of the IntelliDoX accessory is strongly recommended as it enables a calibration to be performed quickly and easily.

WARNING

A sensor which cannot be calibrated or which is found to be out of tolerance should be replaced immediately.

1.2 Product Overview

1.2.1 Parts of the ConneX1

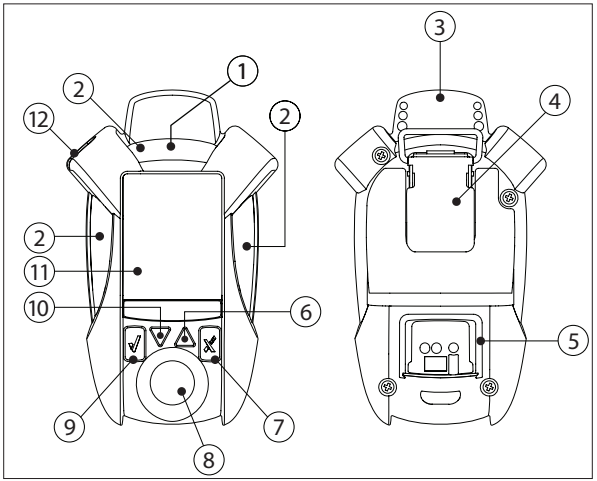
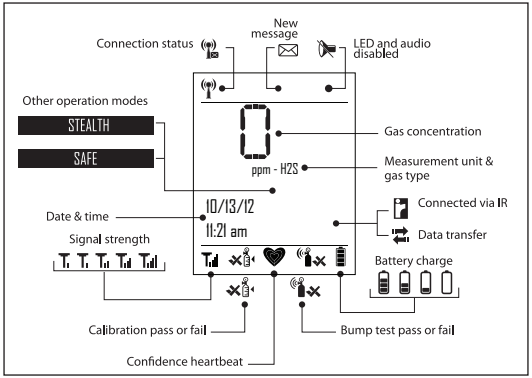


Figure 1. Parts of ConneX1

Table 1. Parts of ConneX1

Item	Description
1	Confidence flash
2	Alarm LED
3	Antenna
4	Belt clip
5	Charge connection/IR Link inferface
6	Up button ▲
7	X button ☒
8	Sensor
9	Check button ☑
10	Down button ▼
11	LCD
12	Beeper

1.2.2 Display Elements



1.2.3 Buttons

Table 2. Pushbuttons

Button	Description
Check	• To power on the detector, press and hold √ for 3 seconds • To power off the detector, press and hold √ for 5 seconds • To read a message when the pop up displays, press √ • To enter the Configuration menu, press √ • To select a menu item, press √ • To select a menu command, press √ • To acknowledge a latched alarm, press √ • To acknowledge a low alarm and temporarily disable the audible alarm, press √. The **Low Alarm Acknowledgement** option must be enabled in Fleet Manager II
▼ Down	• To enter Quick Review, press ▼ • To decrement the displayed value, scroll down, scroll through digits, press ▼ • To scroll down an entire screen in Operator and Location menus, press and hold ▼

Table 2. Pushbuttons

Button	Description
▲ Up	• To enter Review Mode, press ▲ • To increment the displayed value, scroll up, or move the cursor to the right press ▲ • To scroll up an entire screen in Operator and Location menus, press and hold ▲
X	• To generate a panic alarm, press and hold X for 4 seconds • To clear a panic alarm, press and hold X for 4 seconds • To move to a previous menu level, press X • To abort a menu command while in a menu, press X

1.3 Sensor Poisons and Contaminants

Several cleaners, solvents, and lubricants can contaminate and cause permanent damage to the sensor. Before using cleaners, solvents, and lubricants in close proximity to the sensor, read the following cautions and refer to Table 3.

CAUTION

Use only the following BW Technologies by Honeywell recommended products and procedures:

- **Use water-based cleaners.**
- **Use non-alcohol based cleaners.**
- **Clean the exterior of the detector with a soft, damp cloth**
- **Do not use soaps, polishes, or solvents**

The following table lists common products to avoid using around sensor.

Table 3. Sensor Poisons and Contaminants

Cleaners and Lubricants		
Brake cleaners	Lubricants	Rust inhibitors
Window and glass cleaner	Dishsoaps	Citrus-based cleaners
Alcohol-based cleaners	Hand sanitizers	Anionic detergents
Methanol (fuels and antifreezes)		
Silicones		
Silicone cleaners and protectants	Silicon based adhesives, sealants, and gels	Hand/body and medicinal creams that contain silicone
Tissues containing silicone	Mold releasing agents	Polishes
Aerosols		
Bug repellents and sprays	Lubricants	Rust inhibitors
Window and glass cleaners		

2. Getting Started

2.1 Activating/Deactivating the Detector

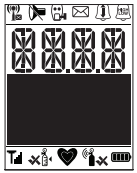
CAUTION

Only activate the detector in a fresh air environment.

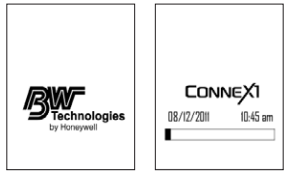
Activate: Press and hold ☑ for 3 second

Deactivate: Press and hold ☑ for 5 seconds.

1. The Segment Testing screen displays.



2. The Splash screen displays.

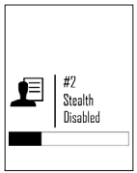


At this time the detector is running a self-test and auto zero on the sensor.

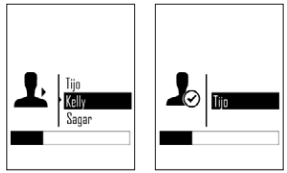
3. The firmware version, hardware version, and serial number displays.

4. If a startup message is enabled in Fleet Manager, the text displays.

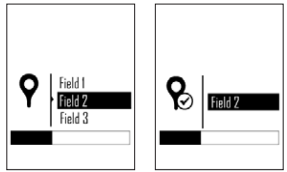
5. The current profile, operation mode, and Wi-Fi mode display. For more information on profiles, refer to 4.2 Sensor and Profile Configuration on page 16.



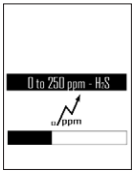
6. The detector presents the opportunity to select a different operator. To confirm the selection, press ▲ or ▼ and then ☑ to select a different operator.

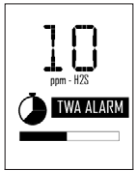


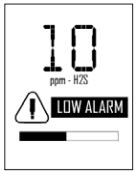
7. The detector presents the opportunity to select a new location. To confirm the selection, press ▲ or ▼ and then ☑ to select a different location.



8. The screen then displays the measuring range, TWA Alarm, STEL Alarm, Low Alarm, and High Alarm.

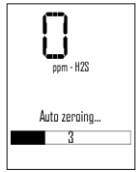




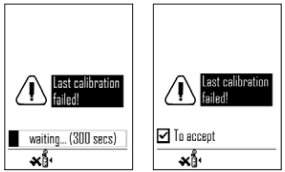


9. The detector then completes the sensor self-test.

10. If Auto Zero is enabled, the sensor begins to auto zero.



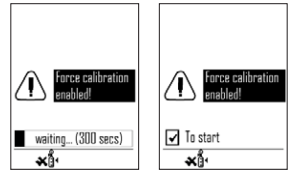
11. If the last calibration failed, press ☑ to acknowledge. If the failure is not acknowledged, the detector powers off.



12. If the calibration is overdue, press ☑ to acknowledge. If calibration is not overdue, proceed to step #13.

(Note: "☑ To start" alternates with "☒ To continue" every 4 seconds.)

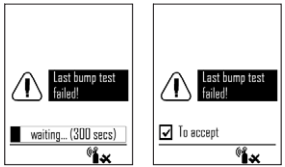
If Force Calibration is enabled, a calibration must be completed before entering normal operation. If a calibration is not performed, the detector automatically powers off.



13. If Cal Reminder is enabled, the screen displays the number of days before a calibration should be performed.

If Cal Reminder is not enabled, the Calibration Interval displays. Proceed to step #15.

14. If the last bump test failed, press ☑ to accept. If the failure is not acknowledged, the detector powers off.



If the last bump test was successful, proceed to step #16.

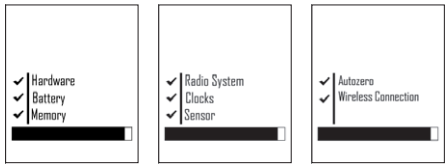
15. If the bump test is overdue, press ☑ to accept. If bump test is not overdue, proceed to step #16.

(Note: "☑ To start" alternates with "☒ To continue" every 4 seconds.)

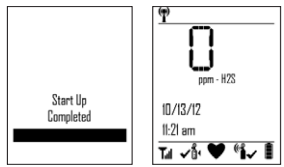
If Force Bump Test is enabled, a bump test must be completed before entering normal operation. If a bump test is not performed, the detector automatically powers off.

16. The screen displays the number of days until the next bump test.

17. The detector displays a startup summary.



18. If the startup summary is error-free, the screen displays that the startup sequence is finished. The detector then enters normal operation.



3. Installing Fleet Manager II

Fleet Manager II is required to configure the detector. To install Fleet Manager II, refer to the Fleet Manager II CD-ROM that includes the

- installation wizard, and
- Fleet Manager II Operator's Manual (located under **Help**)

3.1 Using Fleet Manager II to Configure the Detector

1. Activate the detector and wait for the startup sequence to complete.
2. Connect the USB cable to the USB port of the computer.

NOTE **Plug the USB into the same USB port where the USB drivers were installed.**

3. Connect the USB cable to the IR Link.
4. Insert the IR Link into the IR interface on the back of the detector.

Figure 2. Connecting the IR Link

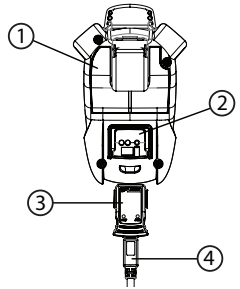
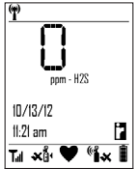


Table 4. Connecting the IR Link

Item	Description
1	Detector
2	IR Link interface
3	IR Link
4	USB cable

5. From the PC, open Fleet Manager II.

   The following screen displays when the IR Link is connected to the detector.



6. Click **Administration**.
7. From the **Administration** toolbar, click **Login / Logout** to access the Enter Password dialog box. Enter **Admin** and click **OK** (password is case sensitive).
8. From the **Devices** toolbar, click **Configure Device via IR Link**.
9. The **Device** selection popup displays. Select **ConneX1** and click **OK**.
10. From the configuration window, click **Retrieve from Device** at the bottom of the window. The fields automatically populate with the detector's current configuration settings.
11. Refer to 4. User Options on page 13 for descriptions about how to enter data, enable/disable, and define settings.
12. When all settings are defined, click **Save to Device** at the bottom of the window. The detector is now updated with the new settings.

4. User Options

User options can be configured using Fleet Manager II.

4.1 General User Options

Backlight timeout (seconds): Define how long (**0**-**30** seconds) the backlight will stay lit after pressing a button. The default value is 10 seconds. This does not affect the backlight behaviour during alarms, startup sequence, critical system faults, and powering off. Default is XX seconds.

Enable Calibration Lock: If enabled, the sensor can only be calibrated when calibration is initiated from Fleet Manager II or with the IntelliDoX.

Confidence Beep/Flash Interval (seconds): The field defines how often the confidence beep (5-255 seconds) and confidence flash (1-120 seconds) occur (The default confidence beep interval is 10 seconds. The default flash interval is 1 second). Enter the desired value.

Date Format: Choose how the date will display, either day/month/year or month/day/year. Select **dd/mm/yyyy** or **mm/dd/yyyy**. Default is mm/dd/yyyy.

Distributor Contact Information: Contact information (phone number or email) of the distributor.

Distributor Name: Name of the distributor company.

Enable Force Bump: If Force Bump is enabled and the sensor is past due for a bump test, the following screen displays during the startup self-tests.

(Note: "√ To start" alternates with the progress bar every 4 seconds.)

The sensor must be bump tested to continue and enter normal operation. Press √, and refer to 10.2 Performing a Manual Bump Test on page 30.

Or

Press and hold √ to deactivate the detector.

A value must be entered in the **Bump Interval (days)** field in the Sensor Configuration section before enabling **Force Bump**.

CAUTION

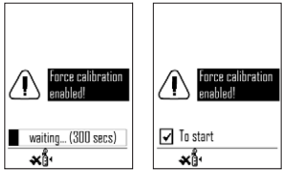
If 0 is entered in the Bump Interval (days) field, the Force Bump option is automatically disabled.

NOTE **BW Technologies by Honeywell recommends to bump test the sensor before each day's use to confirm its ability to respond to gas by exposing the detector to a gas concentration that exceeds the alarm setpoints. Verify that the audible and visual alarms activate. Calibrate if the readings are not within the specified limits.**

For complete instructions to perform a bump test, refer to 10.2 Performing a Manual Bump Test on page 30.

The detector is shipped with the **Force Bump** option disabled.

Enable Force Calibration: If enabled and a sensor is past due for calibration or the last calibraiton failed, the following screen displays during the startup self-tests.



The sensor must be calibrated to continue and enter normal operation. Press ☑, and refer to 9.4 Manual Calibration Procedure on page 28.

Or

Press and hold ☑ to deactivate the detector.

A value must be entered in the **Cal Interval (days)** field in the Sensor Configuration section before enabling Force Calibration.

CAUTION

If 0 (zero) is entered in the Cal Interval (days) field, the Force Calibration option is automatically disabled.

The detector is shipped with the **Force Calibration** option disabled.

Language: Choose the display language. All screens are displayed in that language. Currently, only English is available. Later releases of firmware will have other languages.

Locations: List of locations that can be assigned as the default location. Up to 20 locations can be customized.

Log Interval (seconds): This field defines how often the detector records a datalog (1 to 600 seconds).

The total number of 8-hour days datalogs that can be recorded is assuming 90% of the day has no gas concentrations.

Table 5. Datalog Storage Capacity

Datalog Interval	Total Number of Days Datalogs Can Be Recorded
5 seconds	up to 15 days
15 seconds	up to 45 days
60 seconds	up to 180 days

CAUTION

When the memory is full, the detector replaces the oldest datalogs with the most recent datalogs.

The detector is shipped with the default setting of 5 seconds.

Operators Name: List of names that can be assigned as the default operator. Up to 10 operator names can be customized.

Owner Name: Name of the detector owner. Field can be used to identify personnel responsible for detector upkeep.

Profile Name/Default: Choosing a profile pre-selects user options appropriate to the working condition. Refer to Fleet Manager II Operator's Manual to set up profiles.

Refer to Appendix A Regional Setpoints on page 56.

Serial Number: Displays the unique serial number of the detector. This is a read-only field. Serial number is factory defined

Time Format: Select the 12-hour clock or 24-hour clock in time stamps. Select from **12** (12-hour clock) or **24** (24-hour clock). Default is 12-hour clock.

Wireless Mode Selection: If enabled, the user can enable or disable WiFi. The detector is shipped with Wireless Mode Selection enabled.

4.1.1 Message Configuration

Pre-Configured Message: Create messages to respond to received messages sent from LocaXion Manager (20 characters maximum). These messages are used to communicate with LocaXion Manager.

Enable Startup Message: When checked, a message will display on the detector LCD during startup.

Startup Message: Enter text to display on the detector LCD during startup (25 characters maximum).

4.1.2 Mandown Configuration

For more information, refer to 5. Mandown Alarm on page 20.

Enable Mandown Feature: If enabled, the detector alarms if movement is not detected after a certain time period. The time period is defined in Mandown Timeout.

Mandown Idle Time: Defines how long no motion must be detected before a Mandown alarm (10 to 240 seconds). The default value is 10 seconds.

Mandown Sensitivity: Define the sensitivity of the detector accelerometer. 100 equals high sensitivity and 0 equals low sensitivity.

4.1.3 Password Configuration

Enable User Config Password: When enabled, a password must be entered to to enter Configuration Menu on the detector. The detector is shipped with the password disabled.

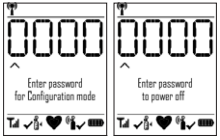
Enable Password Protection for Device Shutdown: When enabled, a password must be entered to deactivate the detector. The detector is shipped with the password disabled.

Password: Set the 4-digit password.

4.1.3.1 Entering a Password

To enter the password on the detector. Complete the following procedure.

1. Change the digit by pressing ▲ to increment the digit and ▼ to decrement the digit. Move the cursor to the next digit by pressing ☑. Move the cursor to the previous digit by pressing ☒.
2. When at the last digit and the correct number is selected, press ☑ to enter the password.



4.2 Sensor and Profile Configuration

A profile is a set of configuration options which allows the user to quickly change the configuration and behaviour of the instrument, depending on the situation.

4.2.1 Profile Options

Beep per key press: If enabled, every time a button is pressed, the beeper sounds. The detector is shipped with the beep per key press enabled. Beep per key press is disabled if Stealth Mode is enabled.

Confidence Beep: If enabled, the Confidence Beep provides continuous audible confirmation that the detector is operating correctly. Frequency of the beep is defined with Confidence Beep/Flash Interval (seconds).

NOTE **The confidence beep automatically disables if the bump test is overdue, low battery, calibration is overdue, watchdog timer, self-test fail, any alarm condition, any warnings or faults.**

The detector is shipped with confidence beep disabled.

IntelliFlash: If enabled, a green LED flashes to indicate the detector is operating correctly. The Confidence Flash deactivates during a low battery alarm, calibration fail, bump test fail, self-test fail, and during an alarm condition. Frequency of the flash is defined with Confidence Beep/Flash Interval (seconds).

Latching Alarms: If enabled, during an alarm condition the Latching Alarms option causes the low and high gas alarms (audio, visual, and vibrator) to persist until the alarm is acknowledged and the alarm condition no longer exists. The LCD displays the peak concentration until the alarm no longer exists. Local regulations in your region may require the Latching Alarms option be enabled.

The detector is shipped with the Latching Alarms option disabled.

Default Operation Mode Selection: Defines the operation mode as Standard, Stealth, or Safe. Refer to 8. Modes on page 25 for more information.

WiFi: Enable/disable WiFi. If WiFi is disabled, and T display on the LCD. The detector is shipped with the WiFi enabled.

4.2.2 Sensor Options

4.2.2.1 Alarm Settings by Profile

NOTE **The alarm setpoints are different between the two profiles.**

Low Alarm: Define the low alarm setpoints for each sensor. Refer to Appendix A Regional Setpoints on page 56 for alarm setpoints.

High Alarm: Define the high alarm setpoints for each sensor. Refer to Appendix A Regional Setpoints on page 56 for alarm setpoints.

STEL Alarm: The short-term exposure limit (STEL) is the maximum permissible gas concentration a worker can be safely exposed to for short periods of time (5-15 minutes maximum). For toxic sensors only.

Refer to Appendix A Regional Setpoints on page 56 for alarm setpoints.

NOTE **Standard factory alarm setpoints may vary by region. Refer to Appendix A Regional Setpoints on page 56.**

TWA Alarm: The time-weight average (TWA) is a safety measure used to calculate accumulated averages of gases. Using the US Occupational Safety and Health Administration (OSHA) method or the American Conference of Governmental Hygienists (ACGIH) method, an average is calculated to ensure the detector alarms when the TWA has accumulated. For toxic sensors only.

Refer to Appendix A Regional Setpoints on page 56 for alarm setpoints.

4.2.2.2 Sensor Configuration

NOTE **The sensor configuration settings are the same between the two profiles.**

20.8 based: When enabled, the detector assumes 20.8% O_2 as ambient air (factory default is 20.9% O_2). Applicable to the O2 sensor only.

The detector is shipped with the **20.8 based** option disabled.

Auto Zero on Startup: When enabled, the sensor automatically zeros during the startup sequence.

The detector is shipped with the **Auto Zero on Startup** option enabled.

Enable Low Alarm Acknowledgement: If enabled, the audible alarm can be disabled during a low alarm. The LEDs and visual alarm indicators remain active until the gas concentration changes or the detector deactivates. For toxic sensors only.

Press ☑ to acknowledge the low alarm and deactivate the audible alarm. If the alarm escalates to a high, TWA, or STEL alarm, the audible alarm reactivates.

The detector is shipped with the **Low Alarm Acknowledgement** disabled.

STEL Period: The STEL Interval option provides protection for workers from over exposure to high concentrations of gas, and is based on user-defined 5-15 minute intervals. When the maximum STEL is reached, the detector alarms to notify the worker. For toxic sensors only.

⚠ CAUTION

Follow all safety procedures as defined by your employer.

Enter the interval (**5**-**15** minutes) in the **STEL Interval (minutes)** field. The detector is shipped with a default setting of **15** minutes.

TWA Method: The TWA Method defines the TWA calculating method. Select either the US Occupational Safety and Health Administration (OSHA) or the American Conference of Governmental Industrial Hygienists (ACGIH) TWA calculating method. The detector is shipped with the default method of US OSHA. For toxic sensors only.

- **US OSHA Method:** 8 hours moving average

  The US OSHA method is defined as a moving average that accumulates over an 8-hour average. If the worker is in the field longer, the oldest accumulated values (first hour) are replaced by the newest values

(ninth hour). This continues for the duration of the work shift until the detector is deactivated.

- **ACGIH Method:** Infinite accumulated average to 8 hours

  The ACGIH method is defined as the infinite (total) accumulated average, where it is 2 hours or 8 hours.

TWA Period: The **TWA Period (hours)** option calculates a time-weighted moving average of accumulated gases over a period of 4-16 hours, to ensure the detector alarms when the defined maximum average is accumulated. For toxic sensors only.

Example: The **TWA Period** option is set to 8 hours. Therefore, the moving average accumulates over a 8-hour average. If the worker is in the field longer, the oldest accumulated values (first hour) are replaced by the newest values (ninth hour). This continues for the duration of the work shift until the detector is deactivated.

NOTE **Regulations may vary depending upon region. Adhere to the regulations defined for your area.**

Enter the period (**4**-**16** hours) in the **TWA Period (hours)** field. The detector is shipped with a default setting of 8 hours.

4.2.2.3 Calibration and Bump Setup

NOTE **The calibration and bump test settings are the same between the two profiles.**

Bump Interval: Define how often the sensor should be calibrated.

1. Enter the value (**0**-**365** days) for the sensor.
2. Enter **0** to disable the bump interval option. The detector is shipped with the factory default setting of **0** days.

Bump Response Time (seconds): Define the maximum response time for the detector to react to bump test gas.

Bump Threshold (%): Define the minimum bump test gas concentration that must be registered by the detector to pass the bump test.

Cal Gas concentration (ppm):

WARNING

The gas concentration value entered in Fleet Manager II must match the gas concentration value on the gas cylinder.

Enter the gas concentration value in the **Calibration gas (ppm)** field.

Cal Interval (days): Define how often the sensor should be calibrated.

1. Enter the value (**0**-**365** days) for the sensor.
2. Enter **0** to disable the calibration interval option. Entering 0 automatically deactivates the **Force Calibration** option. The detector is shipped with the factory default setting of **180** days.

CAUTION

BW Technologies by Honeywell recommends that the sensor be calibrated at least once every 180 days (6 months).

Cal Reminder (days): A reminder for the next calibration will display a number of days before the calibration is due. The reminder can appear anywhere from **0**-**365** days before the calibration due date.

Enter **0** automatically deactivates the **Cal Reminder** option. The detector is shipped with a default setting of 10 days.

Bump Interval (days): Define how often a bump test should be performed for each sensor in the **Bump Interval (days)** field. A different bump interval can be defined for each sensor.

1. Enter the value (**1**-**365** days) for each sensor.
2. Enter **0** to disable the bump interval option. Enter **0** automatically deactivates the **Force bump** option.

The detector is shipped with the factory default setting of **0** days.

NOTE **BW Technologies by Honeywell recommends to bump test the sensor before each day's use to confirm its ability to respond to gas by exposing the detector a gas concentration that exceeds the alarm setpoints. Verify that the audible and visual alarms activate. Calibrate if the readings are not within the specified limits.**

4.3 Network Information Options

NOTE **For best results, consult with your IT department for optimal settings.**

Use DHCP: When enabled, a dynamic IP address is assigned to the detector.

Use a Static IP Address: When enabled, a static IP address is assigned to the detector.

- Static IP Address: Assign a static IP address to the detector
- Gateway: Enter the Gateway address
- Subnet Mask: Enter the Subnet Mask

Scan Channel List: Lists the channels the detector will scan for a signal. Click **Edit** to add more channels to the list. Default is all channels.

Security Mode: Select the type of security. Choose from **WEP**, **WPA-Personal**, **WPA2-Personal**, and **WPA2-Mixed**. Select **disabled** for no security.

Security Key: Enter the password to access the network.

SSID: Enter the name of the network.

LocaXion Manager IP Address: Enter the IP address of the computer running LocaXion Manager.

LocaXion Manager UDP Port: Leave as default **50009**.

5. Mandown Alarm

The Mandown feature allows sueprvisors to take action if no motion is detected.

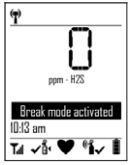
If no motion is detected for a user-defined period, the Mandown notification screens display for 10 seconds, alternating between “To cancel” and the countdown bar every 2 seconds. If the alarm is not cancelled by pressing ☒, the Panic Alarm activates and a Help message is sent to LocaXion Manager.

Mandown Alarm is temporarily disabled while the detector is in IntelliDoX, communicating with Fleet Manager via IR Link, and charging.

For more information on Panic Alarm, refer to 6. Panic Alarm on page 21.

5.1 Break Mode

If the Mandown Alarm needs to be temporarily disabled, press and hold ☑ and ☒. The detector will flash, beep, and vibrate once to indicate Break Mode is active. The LCD indicates that Break Mode is active.



Break Mode will deactivate after 30 minutes.

6. Panic Alarm

When Panic Alarm is activated, the detector activates the LEDs and audible alarm to maximum volume to alert nearby personnel for help. The detector sends a message to LocaXion Manager so the operator can send assistance. The detector will continue to send a message to LocaXion Manager until the operator acknowledges that the message has been received. LocaXion Manager cannot be operated until the message has been acknowledged.

To activate the Panic Alarm, press and hold X for 2 seconds. This will prompt the Panic Alarm warning. Continue to hold X for 3 more seconds to activate the alarm.

Follow the same procedure to deactivate the alarm.

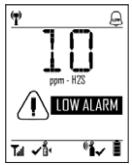
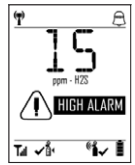
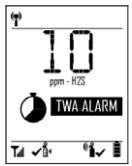
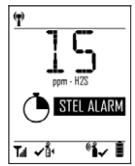
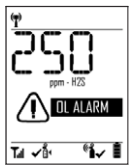
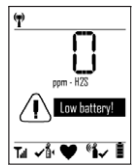
7. Alarms

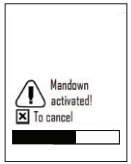
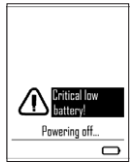
Gas alarms are one of four cautionary notifications for the detector. See Table 7. Recommended Calibration Gas Concentration on page 27 for information on severity of the cautionary notifications.

When an alarm occurs the heartbeat icon disappears, and if enabled, the confidence beep and confidence beep discontinue.

Table 6. Alarms describes the detector alarm and corresponding behaviour.

Table 6. Alarms

Alarm	Screen	Alarm	Screen
Low Alarm • Slow siren (upward tone) • Slow LED flash • Vibrator alarm activates • Backlight activates		**High Alarm** • Fast siren (downward tone) • Fast LED flash • Vibrator alarm activates • Backlight activates	
TWA Alarm • Fast siren (downward tone) • Fast LED flash • Vibrator alarm activates • Backlight activates		**STEL Alarm** • Fast siren (downward tone) • Fast LED flash • Vibrator alarm activates • Backlight activates	
Over Limit (OL) Alarm • OL displays in gas channel; • Fast siren (downward tone) • Fast flash • Vibrator alarm activates • Backlight activates • *Note: LCD may also display an underlimit reading (-OL)*		**Low Battery Alarm** • Sequence of 10 rapid sirens and alternating flashes with 7 seconds, lasting 15 minutes • Empty battery icon flashes • Vibrator alarm pulses • Backlight activates • After 15 minutes of the low battery alarm sequence, the detector enters critical battery alarm (see Critical Battery Alarm below)	

Alarm	Screen	Alarm	Screen
Mandown 1.A sequence 10 consecutive beeps f 2.Alternating LED flashes and vibrator 3.Silence for 3 seconds then the cycle repeats.		**Critical Battery Alarm** • 15 minutes after the low battery alarm activates, a sequence of 10 rapid sirens and alternating flashes with 1 second of silence in between (sequence reactivates seven times • Vibrator alarm pulses • Fast flash • Backlight activates	
Panic Alarm • Maximum beeper volume • Fast flash • Vibrator pulses • Backlight activates			

An alarm stops when the gas concentration is below the low alarm setpoint. If the alarms are set to latch, press ☑ to reset the alarms.

7.1 Alarm Setpoints

To change the alarm setpoints, refer to 4.2.2 Sensor Options on page 16.

To see the regional alarm setpoints, refer to Appendix A Regional Setpoints on page 56.

7.2 Stopping a Gas Alarm

7.2.1 Low and High Alarms

The low and high gas alarms stop when the gas concentration is below the alarm setpoints. If the Latching Alarm option is enabled in Fleet Manager II, refer to 7.2.3 Acknowledging Latching Alarms on page 24.

7.2.2 TWA and STEL Alarms

WARNING

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

TWA and STEL alarms can be stopped either by

- deactivating and then reactivating the detector, or
- clearing the TWA/STEL/peak exposure readings. Refer to 8.4 Review Mode on page 25.

7.2.3 Acknowledging Latching Alarms

If the Latching Alarm option is enabled, during an alarm the low and high gas alarms (audible, visual, and vibrator) persist until the alarm is acknowledged and the gas concentration is below the low alarm setpoint.

Press [√] to acknowledge a latched alarm.

Local regulations in your region may require the Latching Alarms option be enabled.

8. Modes

Selecting one of five modes determines how the detector behaves during alarms and during gas-free conditions.

8.1 Standard Operation

In standard operation is the default mode. It displays the gas channels and icons. When an alarm occurs, the audible, visual and vibrator alarms activate.

8.2 Stealth Mode

In Stealth Mode, the audible and visual alarms are disabled. The icon display on the LCD. When an alarm does occur, the vibrator alarm activates and the LCD displays the alarm condition, and the audible and visual alarms do not activate.

8.3 Safe Mode

If there is no alarm, the LCD displays **Safe** instead of real time gas readings, gas name, or measurement units. When an alarm occurs it will exit safe mode and display the alarm icon and peak gas reading, The audible, visual, and vibrator alarms activate normally.

8.4 Review Mode

In Review Mode, the user can view the

- 8.4.1 Gas Exposure on page 25
- 8.4.2 Sensor Details on page 26
- 8.4.3 Detector Details on page 26
- 8.4.4 Messages on page 26

Press ▲ to enter Review Mode.

8.4.1 Gas Exposure

Viewing gas exposure readings for the sensor, shows the

- peak reading
- minimum reading
- STEL reading (only applicable for toxic sensor)
- TWA reading (only applicable for toxic sensor)

Press ▲ or ▼ to scroll through the gas exposures.

To reset the peak gas exposures, press √ when prompted.

8.4.2 Sensor Details

The information can also be viewed/altered in Fleet Manager II.

- Measuring range
- Low Alarm setpoint
- High Alarm setpoint
- TWA alarm setpoint
- STEL Alarm setpoint
- Calibration due date
- Bump test due date

8.4.3 Detector Details

The following information details the detector settings.

The following information can also be viewed or changed in Fleet Manager.

- Current operator and location
- Current profile and operation mode
- Owner and WiFi status
- Software version, hardware revision, and serial number
- MAC address, IP address, and WiFi network name
- Distributor details
- Date format
- Time format

8.4.4 Messages

- Messages received from LocaXion Manager
- Messages sent to LocaXion Manager

9. Calibration

A calibration is performed to adjust the sensitivity levels of the sensor to ensure accurate responses to gas.

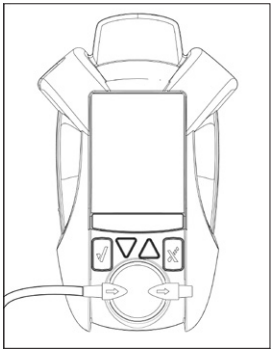
9.1 Calibration Using the IntelliDoX

If **Cal IR Lock** is enabled, calibration must be completed with the IntelliDoX. Refer to on page 12 or the IntelliDoX Technical Reference Guide for more information.

9.2 Calibration Guidelines

- Calibrate only in a fresh air environment. Do not calibrate in a hazardous area.
- The maximum hose length for calibration is 1 ft. (30 cm).
- To cancel the calibration or zero sensor, press X.
- For calibration troubleshooting, refer to Table 13. Calibration Error Screens on page 49

9.3 Installing the Calibration Cap



9.3.1 Gas Cylinder Connection

Gas Cylinder Guidelines

- To ensure accurate calibration, use a premium-grade calibration gas. Use gases approved by the National Institute of Standards and Technology or equivalent.
- If a certified calibration is required, contact BW Technologies by Honeywell.
- Do not use a gas cylinder past its expiration date .

Read the following steps prior to initiating a calibration or a bump test.

1. Verify the calibration gas being used matches the span concentration value(s) that are set for the detector.
2. Connect the calibration hose to the 0.5 l/min regulator on the gas cylinder.
3. Connect the calibration hose to the intake inlet on the calibration cap.

   Begin the calibration or bump test procedure. Do not attach the calibration cap until instructed to apply gas.
4. When instructed, place the calibration cap on the detector

When calibration is complete, turn off the gas, and disconnect the hose from the calibration cap and the regulator. Remove the calibration cap from the detector.

9.3.2 Calibration Gas Concentration

Refer to the table below for recommended gas concentrations for calibrations:

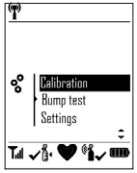
Table 7. Recommended Calibration Gas Concentration

Gas Type	Allowable Range
Carbon monoxide	50 ppm to 500 ppm
Hydrogen sulfide	15 ppm to 50 ppm
Oxygen	18% vol
Sulfur dioxide	5 ppm to 20 ppm

9.4 Manual Calibration Procedure

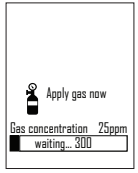
To cancel calibration at any time, press [X].

1. From normal operation, press [√] to enter Configuration Mode. Press [√] to select **Calibration**.



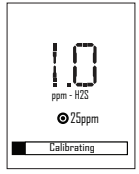
2. In the Calibration menu, scroll down and select **Calibration**.
3. The detector zeroes the sensor before the calibration.

4. When the zero calibration is complete, attach the calibration cap and apply the calibration gas at a flow rate of 0.25-0.50 L/min.



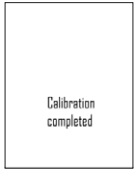
If Cal IR Lock is enabled, the following screen displays to indicate calibration can only be performed using an IR device (IntelliDoX or IR Link Adapter).

5. Once the detector has detected a sufficient amount of gas, the detector begins calibration of the sensor.



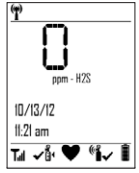
6. When the following screen displays, close the valve on the gas cylinder and remove the calibration cap from the detector.

7. When calibration is complete, the following screen displays.



8. The calibration due date resets to the number of days defined in the Cal Interval field in Fleet Manager II.

9. The detector now enters normal operation.



10. Bump Test

A bump test is the process of applying a small amount of test gas to force the detector into alarm. A bump test should be performed daily to confirm the sensor is responding correctly to gas, and that the audible, visual, and vibrator alarms activate during an alarm condition. Calibrate if the readings are not within specified limits.

10.1 Bump Test Using the IntelliDoX

The IntelliDoX can peform bump tests. Refer to the IntelliDoX Technical Reference Guide for more information.

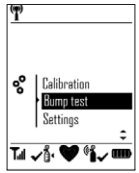
10.2 Performing a Manual Bump Test

CAUTION

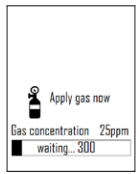
BW Technologies by Honeywell recommends to bump test the sensor before each day's use to confirm its ability to respond to gas by exposing the sensor to a gas concentration that exceeds the alarm setpoints.

Follow this procedure when **Force Bump** is enabled and a bump test is required during startup. To perform a bump test with the IntelliDoX, refer to the IntelliDoX Technical Reference Guide.

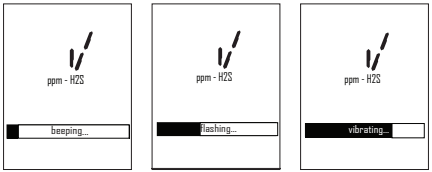
1. Connect the calibration hose to the 0.3 l/min regulator on the gas cylinder.
2. Connect the calibration hose to the intake inlet on the calibration cap. Refer to 9.3 Installing the Calibration Cap on page 27.
3. Press ☑ to enter Configuration Mode. Scroll down to **Bump Test**. Press ☑.



4. When the following screen displays, attach the calibration cap and apply bump test gas at a flow rate of 250-500 mL/min. Refer to 9.3 Installing the Calibration Cap on page 27.



5. When the sensor detects sufficient gas to enter an alarm state, all expected alarm responses are tested. Test results are displayed on screen.



6. When the following screen displays, close the valve on the gas cylinder and remove the calibration cap from the detector.

7. When bump test is complete, the following screen displays.

8. The LCD returns to the Bump Test Configuration Menu screen.

If the bump test failed, repeat the bump test again or refer to 18. Troubleshooting on page 41

11. Datalogs

The detector records datalog samples that can be compiled to create a report using Fleet Manager II.

Using Fleet Manager II, define the logging interval from 1 to 600 seconds. Default is 5 seconds.

The total number of 8-hour days of datalogs that can be recorded, assuming 90% of the day has no gas concentrations.

Table 8. Datalog Storage Capacity

Datalog Interval	Total Number of 8-Hour Days Datalogs Can Be Recorded
5 seconds	up to 15 days
15 seconds	up to 45 days
60 seconds	up to 180 days

When the memory is full, the detector replaces the oldest datalogs with the most recent datalogs.

The detector is shipped with the default setting of 5 seconds.

For more information on what is recorded in a datalog, refer to Appendix D Datalog Information on page 59.

12. Event Logs

An event log is recorded when the user changes the instrument status such as activating/deactivating the detector, profile change, or activation of a gas alarm.

Event logs are downloaded via Fleet Manager II and can be viewed with the program.

Up to 30 event logs can be recorded. When event log memory is full, the newer event logs overwrites the oldest event logs.

Refer to Appendix E Event Log Information on page 59.

13. Messaging

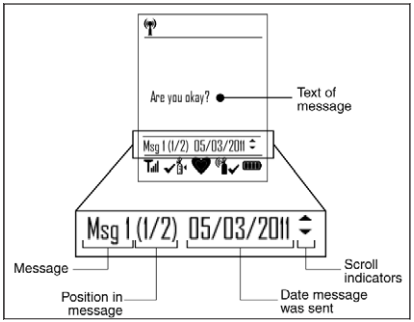
13.1 Receiving Messages

When the detector receives a message, an envelope appears and a brief portion of the message appears on the LCD. Press ✓ to read the full message.

After 10 seconds, if the message is not read, ✉ appears in the at the top of the screen. The detector will beep and vibrate to alert the user that there is an unread message.

13.2 Reading Messages

When reading a message, press ▼ to scroll through the message and press ▲ to scroll to the beginning of the message.



To exit from the message, press [X].

To reply to a message, press [√].

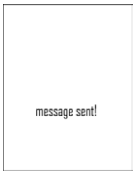
For more information, refer to 13.2.1 Sending Messages on page 33.

13.2.1 Sending Messages

A message can be sent as a reply or as a new message to a LocaXion Manager operator. Refer to the following to send messages or reply to received messages.

1. If replying to a recieved message, press [√] from the full message screen.

   If sending a new message, press [√] and scroll to **Send message**.
2. Select the pre-configured message and press [√] to send the message.
3. When the message has been sent, the following screen displays.



4. The detector returns to normal operation.

13.3 Panic Alarm Messages

When Panic Alarm is activated, a message is automatically sent to LocaXion Manager.

For more information, refer to 6. Panic Alarm on page 21.

14. LocaXion Manager

For more information, refer to the Network Settings section.

15. Fleet Manager II

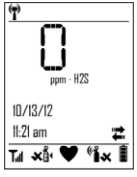
Go to *www.gasmonitors.com* for information about Fleet Manager II.

15.1 Downloading Data To Fleet Manager II

The datalog and event log files can be downloaded to a PC using the IR Link or IntelliDoX. Refer to either the

- Fleet Manager II Operator's Manual
- IntelliDoX Technical Reference Manual

When downloading event logs and datalogs from the detector, the following screen displays.



For more information on what is recorded in a datalog, refer to Appendix D Datalog Information on page 59.

15.2 Upgrading the Firmware

The detector firmware can be upgraded using the IR Link or IntelliDoX.

For more information, refer to the Fleet Manager II Operator's Manual or IntelliDoX Technical Reference Manual.

15.3 Generating Calibration Certificates

A calibration certificate can be generated from any calibration done manually or with the IntelliDoX. A certificate is generated using Fleet Manager II.

WARNING

This is not a certified calibration certificate. If a certified calibration is required, contact BW Technologies by Honeywell.

16. Maintenance

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

- Calibrate, bump test, and inspect the detector at regular intervals
- Maintain an operations log of all maintenance, bump tests, calibrations, and alarm event
- Clean the exterior with a soft damp cloth. Do not use solvents, soaps, or polishes. Refer to 1.3 Sensor Poisons and Contaminants on page 5.

16.1 Charging the Rechargeable Battery

WARNING

To avoid personal injury and/or property damage, adhere to the following:

- **Charge the battery immediately when the detector emits a low battery alarm.**
- **Charge the battery in a safe area that is free of hazardous gas in temperatures ranging from 5°C to 40°C (41°F to 104°F).**
- **Charge the battery using BW Technologies by Honeywell charger adapters designed for the ConneX1 only. Do not use any other charger adapters. Failure to adhere to this caution can lead to fire and/or explosion.**
- **The charging adapter is voltage specific to your region. Use of the charging adapter outside your region will damage the charger and the detector.**
- **The ConneX1 uses a lithium battery that may present a risk of fire or chemical burn hazard if misused. Do not disassemble, heat above 100°C (212°F), or incinerate.**
- **Lithium polymer cells exposed to heat at 130°C (266°F) for 10 minutes can cause fire and/or explosion.**
- **Dispose of used lithium cells immediately. Do not disassemble and do not dispose of in a fire. Do not mix with the solid waste stream. Spent batteries must be disposed of by a qualified recycler or hazardous materials handler.**
- **Keep lithium cells away from children.**

CAUTION

- **When charging, the detector will not detect gas.**
- **When charging, the detector will not communicate with LocaXion Manager.**

WARNING

The battery must be charged in a safe area that is free of hazards and in temperatures of 5°C to 40°C (41°F to 104°F).

If the battery is charged outside of the charging temperature specifications, a charging error will result.

To charge the battery, refer to Figure 1. Parts of ConneX1 on page 2 and the following procedures.

1. Press and hold ☑ to deactivate the detector.

NOTE **The time required to charge will increase if the detector is activated.**

2. Plug the charger into an AC outlet.

CAUTION

The charging adapter is voltage specific to your region. Use of the charging adapter outside your region will damage both the charger and the detector.

16.1.1 Optimum Battery Operation

To ensure maximum use of the battery, perform the following:

- To obtain full operating capacity, allow the battery to fully charge and discharge.
- To achieve the maximum number of charges, ensure the battery is charged between 5°C and 40°C (41°F and 104°F). Do not charge the battery in temperatures above 40°C (104°F) or below 5°C (32°F).

  If the battery is charged outside of the charging temperature specifications, a charging error will result.

16.1.2 Rechargeable Battery Capacity

A rechargeable battery's runtime decreases approximately 20% over a two-year period of typical use.

To maximize the battery's capacity over its lifetime, charge the battery at 20°C.

16.2 Replacing the Sensor and Sensor Filter

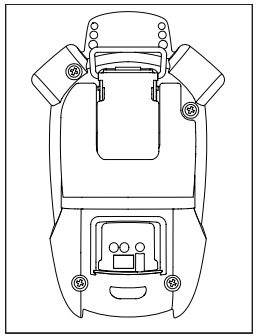
WARNING

To avoid personal injury and/or property damage, use only sensors that are specifically designed for the detector. Refer to 19. Replacement Parts and Accessories on page 53.

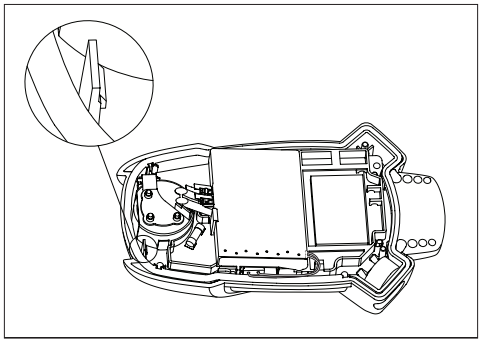
CAUTION

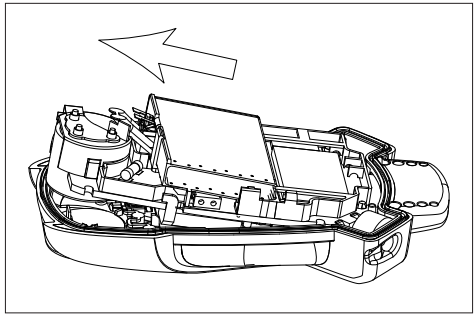
- **The sensor has a high degree of resistance to common vapours and gases. To clear a sensor, move the detector to a clean environment and wait 10 to 30 minutes.**
- **To prevent accidental poisoning of the sensor, refer to 1.3 Sensor Poisons and Contaminants on page 5.**

1. Press and hold ☑ to deactivate the detector.
2. Remove the four machine screws from the rear shell.



3. Remove the rear shell.
4. Simultaneously push on the PCB release tab while lifting the PCB up by the battery.





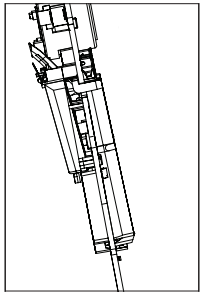
5. Gently remove the PCB by sliding out and then up. Place the PCB on a clean surface.

To replace the sensor, refer to 16.2.1 Replacing the Sensor on page 38.

To replace the sensor filter, refer to 16.2.2 Replacing the Sensor Filter on page 38

16.2.1 Replacing the Sensor

1. Remove the spent sensor from the PCB.

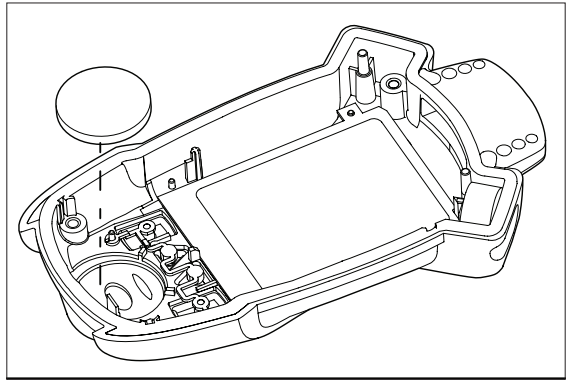


2. Insert the new sensor.
3. Reassemble the detector. Ensure the antenna is inserted first before the PCB.
4. Press the PCB down until a click is heard.
5. Replace the rear shell. Ensure the front and rear shells have a tight, uniform 1 mm (1/16 in.) seal on all sides of the detector.
6. Replace the four machine screws using 3-4 in. lbs of torque. Do not overtighten the screws.
7. New sensor should be calibrated prior to use. Calibrate the new sensor immediately. Refer to 9. Calibration on page 26.

16.2.2 Replacing the Sensor Filter

Replace the sensor filter as required. Environments with more airborne particulates may require more frequent filter changes.

1. Gently remove the PCB by sliding out and then up.
2. Remove the sensor filter.
3. Insert the new filter. Ensure the black side of the filter faces the sensor grill. The white back of the sensor filter should face the sensor.



4. Reassemble the detector. Ensure the antenna is inserted first before the PCB.
5. Press the PCB down until a click is heard.
6. Replace the rear shell. Ensure the front and rear shells have a tight, uniform 1 mm (1/16 in.) seal on all sides of the detector.
7. Replace the four machine screws using 3-4 in. lbs of torque. Do not overtighten the screws.

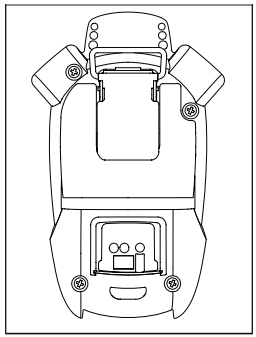
17. WEEE Directive and Battery Directive

♻ **Warning:** At the end of their working lives, sensors must be disposed of in an environmentally safe manner, in accordance with local waste management requirements and environmental legislation. Do NOT incinerate sensors as they may emit toxic fumes. Failure to comply with the following battery removal and disposal instructions may result in battery shorting, battery leakage, and/or other damage. Ensure a qualified technician completes the following procedure.

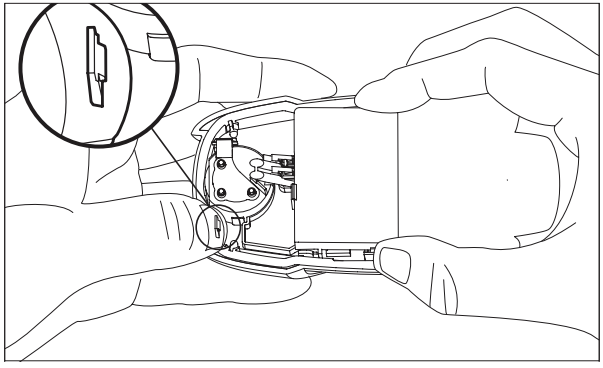
♻ **Warning:** This detector contains a lithium polymer battery. Dispose of used lithium cells immediately. Do not disassemble. Do not dispose of in fire. Do not mix with the solid waste stream. Spent batteries must be disposed of by a qualified recycler or hazardous materials handler.

17.1 Removal and Disposal of the Rechargeable Battery

1. Press and hold ☑ to deactivate the detector.
2. Remove the four machine screws from the rear shell.



3. Remove the rear shell.
4. Simultaneously push on the PCB release tab while lifting the PCB up by the battery.



5. Gently remove the PCB by sliding out and then up.
6. Lift the battery straight up by its sides.
7. Disconnect the female connector of the battery.
8. Dispose of the battery in accordance with the local laws.

18. Troubleshooting

If a problem occurs, refer to the solutions provided in this section. Refer to Table 10. Detector Operation on page 42, Table 11. Charging Troubleshooting on page 44, and Table 12. Startup Error Screens on page 45. If the problem persists, contact BW Technologies by Honeywell.

Table 9. Startup Troubleshooting

Problem	Possible Cause	Solution
The detector does not activate	Depleted battery	Recharge batteries. Refer to 16.1 Charging the Rechargeable Battery on page 35.
	Damaged detector	Contact BW Technologies by Honeywell
Detector automatically deactivates	Automatic deactivation due to critical low battery.	Replace alkaline batteries. Refer to Charging the Rechargeable Battery.
	Sensor requires calibration	Refer to 9. Calibration on page 26
The detector enters alarm immediately when activated.	Sensor needs to stabilize	Used sensor: Wait 60 seconds New sensor: Wait 5 minutes
	Hazardous environment	Leave the area immediately. Deactivate and reactivate the detector in safe area in a fresh air environment
	Low battery or critical low battery alarm	Charge the rechargeable battery pack. Refer to 16.1 Charging the Rechargeable Battery on page 35
	A new sensor has been inserted	Calibrate the sensor
The activation startup self-test fails	General fault	Contact BW Technologies by Honeywell
	Sensor error	Contact BW Technologies by Honeywell

Table 10. Detector Operation

Problem	Possible Cause	Solution
Detector does not display normal gas reading after startup sequence	Sensor not stabilized	Used sensor: Wait 60 seconds New sensor: Wait 5 minutes
	Sensor requires calibration	Refer to 9. Calibration on page 26
	Target gas is present	Detector is operating properly. Use caution in suspect areas.
Detector does not respond to pushbutton	Battery is in critical low battery state or is completely depleted	Charge the rechargeable battery pack. Refer to 16.1 Charging the Rechargeable Battery on page 35
	Detector is performing operations that do not require user input	Pushbutton operation restores automatically when the operation ends
Detector does not accurately measure gas	Sensor requires calibration	Refer to 9. Calibration on page 26
	Detector is colder/hotter than gas temperature	Allow the detector to attain ambient temperature before use
	Sensor filter is blocked	Refer to 16.2.2 Replacing the Sensor Filter on page 38
Detector does not enter alarm	Alarm setpoint(s) are set incorrectly	Refer to 7.1 Alarm Setpoints on page 24. The alarm setpoints are defined in Fleet Manager II
	Alarm setpoint(s) set to zero	Refer to 7.1 Alarm Setpoints on page 24. The alarm setpoints are defined in Fleet Manager II
	Detector is in calibration mode	Complete calibration

Table 10. Detector Operation

Problem	Possible Cause	Solution
Detector intermittently enters alarm without reason	Ambient gas levels are near alarm setpoint or the sensor is exposed to a puff of hazardous gas	Detector is operating normally. Use caution in suspect areas. Check peak gas exposure reading
	Alarm setpoints are set incorrectly	Refer to 7.1 Alarm Setpoints on page 24. The alarm setpoints are defined in Fleet Manager II
	Sensor requires calibration	Refer to Calibration on page 26
	Missing or faulty sensor	Refer to Replacing the Sensor and Sensor Filter on page 36
Features and options are not operating as expected	Changes in Fleet Manager II	Verify that the settings in Fleet Manager II are correct

Table 11. Charging Troubleshooting

Problem	Possible Cause	Solution
Battery has been charging for 6 hours. Charging indicator on LCD shows the battery is still charging	Battery is trickle charging	Battery is fully charged and is ready for operation
Battery indicator does not display when charging	Battery is depleted below normal levels	Charge the battery for 8 hours. If the battery indicator does not light after charging, contact Honeywell Analytics
Battery does not charge		If the battery is not charged after charging for 8 hours, contact Honeywell Analytics

Table 12. Startup Error Screens

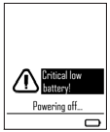
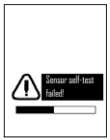
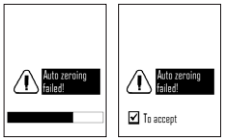
Error Screen	Problem	Solution
	**Critical Low Battery** Battery is in critical low battery state or is completely depleted	Charge the rechargeable battery pack. Refer to Charging the Rechargeable Battery on page 35
	**Self-test Failed** Sensor failed the self-test during startup.	Replace the sensor. Refer to 16.2.1 Replacing the Sensor on page 38. Contact BW Technologies by Honeywell
	**Auto-zero Error** Sensor failed to auto-zero.	Calibrate the sensor.

Table 12. Startup Error Screens

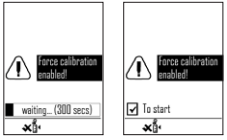
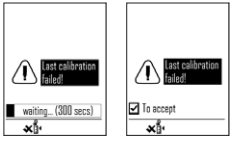
Error Screen	Problem	Solution
	**Force Calibration** If the **Force Calibration** option is enabled, the sensor must be calibrated to enter normal operation.	Press ☑ and calibrate the sensor immediately. Refer to 9. Calibration on page 26. If the **Calibration Lock** option is enabled, an IR device (IR Link or IntelliDoX) must be used to calibrate.
	**Last Calibration Failed** Displays when the last calibration failed. If the **Force Calibration** option is enabled, the sensor must be calibrated.	Press ☑ and calibrate the sensor immediately. Refer to 9. Calibration on page 26. If the **Calibration Lock** option is enabled, an IR device (IR Link or IntelliDoX) must be used to calibrate.
	**Calibration Overdue** Displays when calibration is overdue. If the **Force Calibration** option is enabled, the sensor must be calibrated to enter normal operation.	Press ☑ and calibrate the sensor immediately. Refer to 9. Calibration on page 26. If the **Calibration Lock** option is enabled, an IR device (IR Link or IntelliDoX) must be used to calibrate.

Table 12. Startup Error Screens

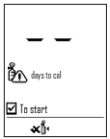
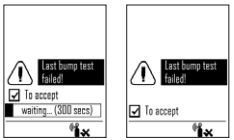
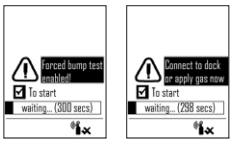
Error Screen	Problem	Solution
	**Calibration Due Today** Displays when calibration is due today. If the **Force Calibration** option is enabled, the sensor must be calibrated to enter normal operation.	Press ☑ and calibrate the sensor immediately. Refer to 9. Calibration on page 26. If the **Calibration Lock** option is enabled, an IR device (IR Link or IntelliDoX) must be used to calibrate.
	**Last Bump Test Failed** If the last bump test failed and the Force Bump option is enabled, a bump test must be performed.	Press ☑ and and perform a bump test immediately. Refer to 10. Bump Test on page 30.
	**Force Bump Test** If the **Force Bump** option is enabled, a bump test must be performed to enter normal operation.	Press ☑ and and perform a bump test immediately or place the detector into the IntelliDoX. Refer to 10. Bump Test on page 30.

Table 12. Startup Error Screens

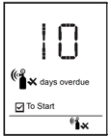
Error Screen	Problem	Solution
	**Bump Test Overdue** Screen displays when the sensor is over due for a bump test. If the **Force Bump** option is enabled, a bump test must be performed to enter normal operation.	Press ☑ and perform a bump test immediately. Refer to 10. Bump Test on page 30. Or Press ☒ and proceed to the next step in the start-up sequence.
	**Bump Test Due Today** Screen displays when the sensor is due for a bump test today. If the **Force Bump** option is enabled, a bump test must be performed to enter normal operation.	Press ☑ and perform a bump test immediately. Refer to 10. Bump Test on page 30. Or Press ☒ and proceed to the next step in the start-up sequence.

Table 13. Calibration Error Screens

Error Screen	Problem	Solution
	**Zeroing Error** Sensor failed to zero.	Zero the sensor in fresh air.
 	**Force Calibration** If the **Force Calibration** option is enabled, the sensor must be calibrated to enter normal operation.	Press ☑ and calibrate the sensor immediately. Refer to 9. Calibration on page 26. If the **Calibration Lock** option is enabled, an IR device (IR Link or IntelliDoX) must be used to calibrate.
 	**Calibration Lock** IR Lock enabled screen displays	An IR Device must be used to perform a calibration (IR Link or IntelliDoX). For manual calibration, refer to 9.1 Calibration Using the IntelliDoX on page 26. For automated calibration, refer to the IntelliDoX Technical Reference Guide.

Table 13. Calibration Error Screens

Error Screen	Problem	Solution
	**Calibration Error** An error occured during calibration.	Contact BW Technologies by Honeywell
	**Calibration Gas Not Detected** Insufficient amount of gas detected.	Verify the span gas values on the gas cylinder match the span gas values defined for the detector. Ensure gas is applied at a flow rate of 0.25-0.50 L/min. Ensure the gas cylinder is not empy nor expired. Replace immediately if required. Replace the regulator.
	**Calibration Error** An error occured during calibration	Retry calibration. Contact BW Technologies by Honeywell

Table 14. Bump Test Error Screens

Error Screen	Problem	Solution
	**Bump Test Gas Not Detected** Insufficient amount of gas detected.	Verify that the Bump Threshold and Bump Test gas concentration in Fleet Manager II is correct
	**Bump Test Error** An error occured during bump testn	Retry calibration. Contact BW Technologies by Honeywell

Table 15. Other Error Screens

Error Screen	Problem	Solution
	**Charging Error** The ambient temperature is outside the recommended charging temperature.	Charge the detector in an environment between 5°C to 40°C (41°F to 104°F). The detector will not charge outside these temperatures. The recommended charging temperature is 20°C (68°F).
	**Firmware Update Error**	Verify that the update file is valid. Contact BW Technologies by Honeywell.

19. Replacement Parts and Accessories

Part Number	Description	Qty
Sensors		
SR-X10-C1-CX1	Oxygen (O_2) sensor	1
SR-HO4-SC-CX1	Hydrogen sulfide (H_2S) sensor	1
PS-RS04-CX1	Sulfur dioxide (SO_2) sensor	1
PS-RM04-CX1	Carbon monoxide (CO) sensor	1
Sensor Filters		
CONNEX1-SS-K5	Sensor filters (kit of 5)	1
Gas Cylinders and Kits		
CONNEX1-CAL-CAP-1	Calibration cap	1
Chargers and Power Options		
GA-PA1-MC5-NA	ConneX1 multi-unit power adapter	1
CONNEX1-CRADLE-K1	ConneX1 multi-unit cradle charger (with power supply)	1
CONNEX1-CRADLE-01	ConneX1 multi-unit cradle charger (cradle only)	

Part Number	Description	Qty
IR Devices		
GA-USB1-IR	ConneX1 IR connectivity kit	1
IntelliDoX		
DX-A	IntelliDoX ConneX1 module with charging cable	1
Accessories		
CNX1-HLSTR	Holster	1
CNX1-BOOT	Protective boot	1

20. Specifications

Detector dimensions: 4.5 in. H x 2.5 in. W x 1.5 in. D

Weight: <150 g

Operating temperatures and lithium battery operating times:

Parameter	Normal Operating Range
Temperature Range	-20°C to +50°C -4°F to +105°F
Time	14 hours

Rechargeable battery: -20°C to +55°C (-4°F to 122°F)

Storage temperature: -20°C to +80°C (-4°F to +176°F)

Operating humidity: 20% to 90% relative humidity continuous, 0% to 95% relative humidity intermittent

Detection range:

Carbon monoxide: 0 to 500 ppm

Hydrogen sulfide: 0 to 200 ppm

Oxygen: 0 to 25.0% vol.

Sulfur dioxide: 0.0 to 50.0 ppm

Sensor type: oxygen and electrochemical

O_2 measuring principle: capillary-controlled concentration sensor

Alarm conditions: Gas alarm, fault alarm, warning alarm, critical system fault alarm

Audible alarm: >95 dB at 30 cm

Visual alarm: Red LEDs in 3 locations

Confidence/compliance beep: One short beep at a user-configurable interval of 1 to 120 seconds

Display: LCD with scratch-resistant

Backlight: Automatic in alarm conditions and upon keypress

Self-test: initiated at activation and tested continuously

Calibration: Manual and automated via a docking station

Nominal voltage: 4.2 volts

Warranty: 2 years (monitor), 1 or 2 years (sensors, depending on type)

Standards:

C22.2 No. 157, ANSI/ISA 12.02.01
Intrinsically safe: Class 1, Zone 0, Group IIC
AEX ia IIC T4
Approved by CSA to both U.S. and Canadian Standards
Standards: CAN/CSA C22.2 No. 157 ANSI/UL - 913
CSA Class I, Division 1, Group A, B, C, and D
ATEX: Ⓔx II 1 G Ex ia IIC T4 Ga
CE_{0539}
SIRA 12 ATEX 2174
EN60079-0, EN 60079-11, EN 60079-26
IECEx: Ex ia IIC T4 Ga IECEx CSA 12.0003
IEC 60079-0, IEC 60079-11

EC Declaration of Conformity:
http://www.gasmonitors.com/Declarations_of_Conformity/

Open Source Code: BW Technologies by Honeywell is subject to the terms and conditions of the Gnu General Public License, Version 3 (29 June 2007), available at *http://gasmonitors.com/software/opensource*.

FCC Statement: 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IC - DFS Statements:

i. The device for operation in the band 2400-2483.5 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

ii. The maximum antenna gain permitted for devices in the bands 2400-2483.5 MHz shall comply with the e.i.r.p. limit; and

iii. the maximum antenna gain permitted for devices in the band 2400-2483.5 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.

Operation is subject to the following two conditions:

1. this device may not cause interference, and
2. this device must accept any interference, including interference that may cause undesired operation of the device.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This radio transmitter has been approved to operate only with the built-in antenna.

Replacement antennas are not available.

The 802.11 transmitter has a fixed configuration assigned by the factory. 802.11 operational parameters can be adjusted through the FleetManager-II software.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada.

Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent dispositif est conforme aux normes du CNR sur les appareils radio exempts de licence d'Industrie Canada. Son opération est soumise aux conditions suivantes : (1) Le dispositif ne doit pas causer de brouillage radioélectrique et (2) le dispositif doit accepter tout brouillage, y compris du brouillage qui peut causer un mauvais fonctionnement de l'appareil.

Le présent émetteur radio a été approuvé pour fonctionner uniquement avec l'antenne intégrée.

Aucunes antennes de remplacement sont disponibles.

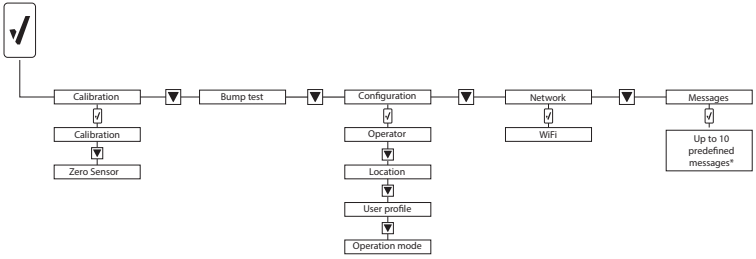
L'émetteur dispose d'une configuration fixe attribuée par l'usine. Les paramètres opérationnels 802.11 peuvent être ajustés via le logiciel FleetManager-II.

Appendix A Regional Setpoints

A.1 North America

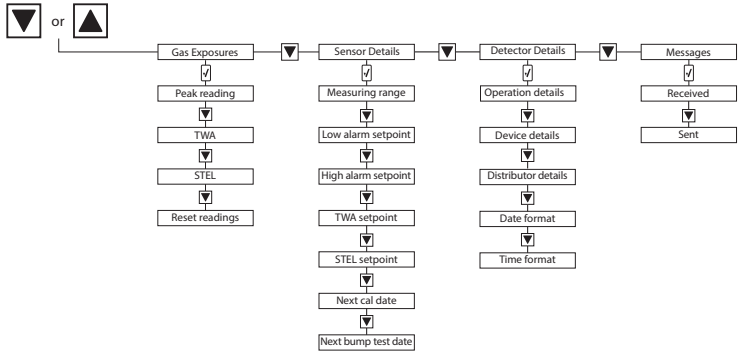
Sensor	Measuring range	Resolution	STEL	TWA	Low Alarm	High Alarm
Carbon monoxide	0 to 1000 ppm	1 ppm	30 ppm	25 ppm	35 ppm	200 ppm
Hydrogen sulfide	0 to 200 ppm	1 ppm	15 ppm	10 ppm	10 ppm	15 ppm
Oxygen	0 to 25 %vol	0.1 %vol	n/a	n/a	23.5 %vol	19.5 %vol
Sulfur dioxide	0 to 50 ppm	0.1 ppm	5 ppm	2 ppm	2 ppm	5 ppm

Appendix B Configuration Menu Structure



* Messages are user-configurable via FleetManager. In FleetManager, open the Connex1 tab, and select Message Configuration.

Appendix C Review Mode Menu Structure



Appendix D Datalog Information

The following information is recorded in a datalog

- Date and time
- TWA readings
- STEL readings
- Sensor readings
- Instrument status and sensor status flags
- Type of sensor installed
- Date of last successful calibration
- Date of last successful bump test
- Low alarm setpoint
- High alarm setpoint
- TWA alarm setpoint
- TWA interval
- STEL alarm setpoint
- STEL interval
- Calibration interval
- Bump test interval
- User configurations
- Operator Name
- Location Name
- Selected Profile
- Peripheral sensor readings
- Environmental data

Appendix E Event Log Information

The following events create an event log. Up to 60 event logs are stored. When event log memory is full, the newer event logs overwrites the oldest event logs.

- Activation
- Deactivation
- Auto-power off (e.g. critical low battery alarm)
- Configuration change
- Battery status (e.g. low battery alarm)
- Calibration due ignored
- Bump test due ignored
- Low alarm acknowledge
- Date/Time change
- LocaXion Manager message received
- Replies to LocaXion Manager messages
- Location change
- Operator change

Wear yellow. Work safe.

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