Wear yellow. Work safe.

User Manual
Limited Warranty and Limitation Liability

BW Technologies 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;

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; or

The obligations set forth in this warranty are conditional on:

a) property 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, 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.
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Introduction

⚠️ Warning

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

The GasAlert Extreme 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 GasAlert Extreme models and the gases monitored. This manual includes examples from each model.

Table 1. GasAlert Extreme Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Gas Monitored</th>
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<tr>
<td>GasAlert Extreme O₂</td>
<td>Oxygen (% by volume)</td>
</tr>
<tr>
<td>GasAlert Extreme CO</td>
<td>Carbon monoxide (ppm)</td>
</tr>
<tr>
<td></td>
<td>Low H₂ sensitivity</td>
</tr>
<tr>
<td>GasAlert Extreme CO</td>
<td>Carbon monoxide (ppm)</td>
</tr>
<tr>
<td>GasAlert Extreme H₂S</td>
<td>Hydrogen sulfide (ppm)</td>
</tr>
<tr>
<td></td>
<td>High range</td>
</tr>
<tr>
<td>GasAlert Extreme NH₃</td>
<td>Ammonia (ppm)</td>
</tr>
<tr>
<td></td>
<td>High range</td>
</tr>
<tr>
<td>GasAlert Extreme NH₃</td>
<td>Ammonia (ppm)</td>
</tr>
<tr>
<td></td>
<td>High range</td>
</tr>
<tr>
<td>GasAlert Extreme NO₂</td>
<td>Nitrogen dioxide (ppm)</td>
</tr>
<tr>
<td>GasAlert Extreme HCN</td>
<td>Hydrogen cyanide (ppm)</td>
</tr>
<tr>
<td>GasAlert Extreme ETO</td>
<td>Ethylene oxide (ppm)</td>
</tr>
<tr>
<td>GasAlert Extreme ClO₂</td>
<td>Chlorine dioxide (ppm)</td>
</tr>
<tr>
<td>GasAlert Extreme O₃</td>
<td>Ozone (ppm)</td>
</tr>
<tr>
<td>GasAlert Extreme NO</td>
<td>Nitric oxide (ppm)</td>
</tr>
</tbody>
</table>
Contacting BW Technologies by Honeywell
To contact BW Technologies by Honeywell, call:
USA: 1-888-749-8878
Canada: 1-800-663-4164
Europe: +44 (0) 1295 700300
Other countries: +1-403-248-9226
Address correspondence to:
BW Technologies by Honeywell
2840 – 2 Avenue S.E.
Calgary, AB  T2A 7X9
CANADA
Email us at: info@gasmonitors.com
Visit BW Technologies by Honeywell’s website at:
www.gasmonitors.com
ISO 9001

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.
Caution

To avoid possible personal injury, adhere to the following:

- **Warning:** Substitution of components may impair Intrinsic Safety.
- **Warning:** To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.
- Do not use the detector if it is damaged. Before using the detector, inspect the case. Look for cracks and missing parts.
- Use only a sensor specifically designed for the GasAlert Extreme model. Refer to Replacement Parts and Accessories.
- Do not deactivate the detector during a work shift. Deactivating the detector resets the time-weighted average (TWA), short-term exposure limit (STEL), and maximum gas exposure values to 0. Refer to Alarms.
- Ensure the sensor screen is not blocked.
- If the detector is damaged or parts are missing, contact BW Technologies by Honeywell immediately.
- If the detector has been disassembled, ensure the front and rear shells are properly aligned and fastened before activating the detector. Refer to Maintenance.
- Periodically test the sensor’s response to gas by exposing the detector to a targeted gas concentration that exceeds the high alarm setpoint. Manually verify that the audible and visual alarms are activated.
- Calibrate the detector before first-time use, and then at least once every 180 days. For HCN detectors, calibrate once every 90 days.
- 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 a safe area free of hazardous gas.
- Do not place the detector near the mouth or shoulders.
\section*{Caution}

To avoid possible damage to the detector, adhere to the following:

- Do not expose the detector to electrical shock and/or severe continuous mechanical shock.
- The oxygen GasAlert Extreme detector is classified by Underwriters Laboratories Inc. up to an atmosphere of 21\% oxygen.
- 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 BW Technologies by Honeywell replacement parts. Refer to \textit{Replacement Parts and Accessories}.
- The detector warranty will be voided if customer personnel or third parties damage the detector during repair attempts. Non-BW Technologies by Honeywell repair/service attempts void this warranty.

\begin{table}[h]
\centering
\begin{tabular}{|c|l|}
\hline
Symbol & Meaning \\
\hline
\includegraphics[width=0.1\textwidth]{ul} & Classified to both U.S. and Canadian Safety standards by Underwriter’s Laboratories, Inc. \\
\hline
\includegraphics[width=0.1\textwidth]{ce} & Conforms to European Union Directives \\
\hline
\includegraphics[width=0.1\textwidth]{ex} & European Explosives Protection \\
\hline
ATEX & Conforms to European ATEX Directives \\
\hline
\includegraphics[width=0.1\textwidth]{iecex} & International Electrotechnical Commission Scheme for Certification to Standards for Electrical Equipment for Explosive Atmospheres \\
\hline
\end{tabular}
\caption{International Symbols}
\end{table}
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
- GasAlert Extreme O₂ model: O₂ sensor;
  GasAlert Extreme CO model: CO sensor
  (low H₂ sensitivity);
- GasAlert Extreme CO model: CO sensor;
- GasAlert Extreme H₂S model: H₂S sensor (high range);
- GasAlert Extreme H₂S model: H₂S sensor;
- GasAlert Extreme PH₃ model: PH₃ sensor;
- GasAlert Extreme SO₂ model: SO₂ sensor;
- GasAlert Extreme Cl₂ model: Cl₂ sensor;
- GasAlert Extreme NH₃ model: NH₃ sensor;
- GasAlert Extreme NH₃ model: NH₃ sensor (high range);
- GasAlert Extreme NO₂ model: NO₂ sensor;
- GasAlert Extreme HCN model: HCN sensor; GasAlert Extreme ETO model: ETO sensor;
- GasAlert Extreme ClO₂ model: ClO₂ sensor;
- GasAlert Extreme O₃ model: O₃ sensor;
- GasAlert Extreme NO model: NO sensor.
- Test cap and hose

The detector is shipped with the battery and sensor installed. To order replacement sensors 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: GasAlert Extreme 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).
Figure 1. GasAlert Extreme Detector

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Visual alarm indicators (LEDs)</td>
</tr>
<tr>
<td>2</td>
<td>Liquid crystal display (LCD)</td>
</tr>
<tr>
<td>3</td>
<td>Pushbuttons</td>
</tr>
<tr>
<td>4</td>
<td>Audible alarm</td>
</tr>
<tr>
<td>5</td>
<td>Sensor and sensor screen</td>
</tr>
<tr>
<td>6</td>
<td>Infrared (IR) communication port</td>
</tr>
<tr>
<td>7</td>
<td>Alligator clip</td>
</tr>
</tbody>
</table>
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 when stealth mode is enabled.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Numeric value</td>
</tr>
<tr>
<td>2</td>
<td>Gas cylinder</td>
</tr>
<tr>
<td>3</td>
<td>Automatically span sensor</td>
</tr>
<tr>
<td>4</td>
<td>Passcode lock</td>
</tr>
<tr>
<td>5</td>
<td>Set alarm setpoints and user options</td>
</tr>
<tr>
<td>6</td>
<td>Maximum gas exposure</td>
</tr>
<tr>
<td>7</td>
<td>Alarm conditions</td>
</tr>
<tr>
<td>8</td>
<td>Battery</td>
</tr>
<tr>
<td>9</td>
<td>Data transmission</td>
</tr>
<tr>
<td>10</td>
<td>Alarm or alarm setpoint</td>
</tr>
<tr>
<td>11</td>
<td>Automatically zero sensor</td>
</tr>
<tr>
<td>12</td>
<td>Optional datalogger indicator</td>
</tr>
<tr>
<td>13</td>
<td>Parts per million (ppm)</td>
</tr>
<tr>
<td>14</td>
<td>Percentage by volume (% vol.)</td>
</tr>
<tr>
<td>15</td>
<td>Percentage by lower explosive limit (% LEL) (future use)</td>
</tr>
</tbody>
</table>
## Table 5. Pushbuttons

<table>
<thead>
<tr>
<th>Pushbutton</th>
<th>Description</th>
</tr>
</thead>
</table>
| 🔷️ (up)    | - To activate the detector, press 🔷️.  
- To enable/disable the confidence beep, while the detector is deactivated press and hold 🔷️. While holding 🔷️, press 🔷️ to enable or disable the confidence beep during start-up.  
- To deactivate the detector, press 🔷️ and hold until OFF displays (5 seconds). If the detector is pass-code protected to prevent deactivation, PASS will display. A passcode must be entered to deactivate the detector. For more information, refer to [Deactivation Passcode Protection](#). |
| 🔽️ (down)  | - 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 (5 seconds).  
- To initiate calibration and set alarm setpoints, press and hold 🔽️ and 🔷️ simultaneously until CAL. displays. |
| 🔼️ (up)    | - To increment the displayed value, press 🔼️.  
- To view the TWA, STEL and maximum (MAX) gas exposures, press 🔼️ and 🔷️ simultaneously. |
| 🔷️ (center) | - To save a displayed value, press 🔷️.  
- To clear TWA, STEL, and maximum (MAX) gas exposures, press and hold 🔷️ for 6 seconds.  
- To acknowledge a latched alarm, press 🔷️. |
GasAlert Extreme
User Manual

Activating the Detector
To activate the detector, press in a safe area, free of hazardous gas.

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.

<table>
<thead>
<tr>
<th>Year</th>
<th>Month: JAN, FEB, MAR, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td></td>
</tr>
<tr>
<td>MON</td>
<td></td>
</tr>
</tbody>
</table>

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 beeps slowly, the LEDs flash slowly, and "ALARM" 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 monitor. Refer to Table 1 for the type of gases monitored. 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 O₂ detectors.*

8. **STEL Alarm Setpoint:** The LCD displays the STEL alarm setpoint. *Note: The STEL alarm setpoint screen does not apply to O₂ detectors.*
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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 \( \bigcirc \) to acknowledge the warning message.

If the calibration past due option is enabled or disabled, one of the following two events will occur.

- **Calibration Past Due Disabled:** If the detector is not pass-code protected and after the **CAL. PAST** message is acknowledged, the detector continues the self-test and then enters normal operation.

- **Calibration Past Due Enabled:** If the detector is passcode protected and when **CAL. PAST** displays, press \( \bigcirc \) to acknowledge the message and to access the **PASS** screen. If required, refer to Passcode Protection Option.

Press \( \uparrow \) or \( \downarrow \) to scroll to the required passcode, and press \( \bigcirc \) 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 detector beeps eight times, the LEDs flash 8 times, and the LCD displays the following screen.
The detector then automatically deactivates.

12. **Bump Test Fail**: If a previous bump test failed, the detector beeps, vibrates, and **BUMP FAIL** displays:

![Bump Fail Symbol]

Press 🔄 to acknowledge the alarm.

*Note*

*Bump test the detector before continuing operation.*

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

---

**Self-Test Pass**

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

![Self-Test Pass Icon]

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*. 
Deactivating the Detector

Note

*If Deactivation Passcode Protection is enabled, the detector cannot be disabled without entering a passcode first. PASS displays immediately after OFF, refer to **Deactivation Passcode Protection.** This option can only be enabled at the factory and cannot be disabled by the customer.*

To deactivate the detector, complete the following:

1. Press and hold \( \text{\textcircled{\scriptsize 0}} \) until \( \text{OFF} \) displays (approximately 5 seconds).

\[ \text{OFF} \]

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

Note

*If \( \text{\textcircled{\scriptsize 0}} \) is not held down until \( \text{OFF} \) displays, the detector will remain activated.*

Confidence Beep

The confidence beep provides continuous confirmation that the detector is operating properly. When the confidence beep is enabled, the detector beeps every 5 seconds.

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 \( \text{\textcircled{\scriptsize 0}} \). While holding \( \text{\textcircled{\scriptsize 0}} \), press \( \text{\textcircled{\scriptsize A}} \).

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.**

Note

*If confidence beep is enabled and a low battery alarm occurs, the confidence beep deactivates.*
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User Options Menu

When selecting a user option, Set flashes and the LCD displays the opposite of what is currently enabled.

To access the user options menu, complete the following:

1. Press and hold D and E 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.

2. Press D or E to scroll to the required passcode. Press C 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 D or E to scroll through the user options.

4. Press C 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 D or E to select another option or press C 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.

<table>
<thead>
<tr>
<th>Year: Requires only the last two numerals of the year (00-99).</th>
<th>Set 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month: Scroll to select the required month (JAN, FEB, MAR, etc.).</td>
<td>Set JUN</td>
</tr>
<tr>
<td>Day: Scroll to select the required day (1-31). For months with 30 days (1-30) is available. For February, (1-28 &amp; 29) is available.</td>
<td>Set 22</td>
</tr>
<tr>
<td>Day of the week: Scroll to select the required day (MON, TUE, WED, etc.).</td>
<td>Set MON</td>
</tr>
<tr>
<td>Time: The hour value flashes first. Scroll to select (0:00 hours. to 23:59 hours).</td>
<td>Set 2:24:17</td>
</tr>
</tbody>
</table>
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**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, \textit{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. 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, \textit{NO} displays and the LCD returns to the Exit screen.
**Disable Passcode Protection**

When the detector is passcode protected, the key icon displays continuously. 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**

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

**Note**

The detector can be shipped with this option enabled permanently. This option can only be enabled at the factory and cannot be disabled by a customer.

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 " 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, press ▲ or ▼ to scroll to the STLH 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.
   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 \( \bigcirc \) within 10 seconds, the detector returns to normal operation.

**Automatic Backlight Option**

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

Press 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 when stealth mode is enabled.

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

1. From the EXIT screen, press \( \bigtriangledown \) or \( \bigtriangleup \) to scroll to the BKLT option.

2. Press \( \bigcirc \) to select the option. The LCD flashes either ON or OFF.

3. Press \( \bigtriangledown \) or \( \bigtriangleup \) to toggle between the ON/OFF options. Ensure the desired option is displayed and press \( \bigcirc \) to confirm the selection.

The LCD returns to the EXIT screen.

4. Press \( \bigtriangledown \) or \( \bigtriangleup \) to scroll to a new user option or press \( \bigcirc \) to exit and return to normal operation.

Note
If the option is not confirmed by pressing \( \bigcirc \) within 10 seconds, the detector returns to normal operation.

**Latching Alarm Option**

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

If enabled, during an alarm condition the latched alarms (LTCH) option causes the low and high gas alarms (audible, visual, and vibrator) to persist until the gas concentration is below the alarm setpoint and the alarms have been acknowledged by pressing \( \bigcirc \).

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

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

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, 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.

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 (O₂) Calibration Option**

   Note
   For oxygen detectors only.

   If the automatic oxygen (O₂) calibration option is enabled, ensure the detector is activated in safe area in normal (20.9%) oxygen atmosphere.

This option enables/disables the automatic oxygen (O₂) calibration. The O₂ calibration begins automatically during start-up after the calibration due screen displays.

   Note
   The detector is shipped with the automatic O₂ calibration option disabled.

To enable/disable the automatic O₂ 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.

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 calibrate a past due calibration detector, refer to Calibration Past Due Enabled in Self-Test.

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 LCD can display text in five different languages. Refer to the following language options.

Portuguese Option

The Portuguese (PORT) option enables the LCD to display text in Portuguese.

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 PORT option.

2. Press ○ to select the option. The LCD then displays the Portuguese exit screen.

3. Press ▲ or ▼ to scroll to another user option or press ○ to exit and return to normal operation.
**Spanish Option**
The Spanish (ESPA) option enables the LCD to display text in Spanish.

*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 **ESPA** option.

2. Press □ to select the option. The LCD then displays the Spanish exit screen.

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

**German Option**
The German (DEUT) option enables the LCD to display text in German.

*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 **DEUT** option.

2. Press □ to select the option. The LCD then displays the German exit screen.

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

**French Option**
The French (FRAN) option enables the LCD to display text in French.

*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 **FRAN** option.
2. Press ⊙ to select the option. The LCD then displays the French exit screen.

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

**English Option**

The English (ENGL) option enables the LCD screens to display text in English.

*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 ENGL option.

2. Press ⊙ to select the option. The LCD then displays the English exit screen.

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 defines 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 BW 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 BW 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.

   SEND

   Press ◼ to select the option and to access the data transfer option screens.

4. Select one of the following options to transfer data.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVNT</td>
<td>Press ▲ or ▼ to scroll to the event (EVNT) option. Press ◼ to automatically transfer all events.</td>
</tr>
<tr>
<td>LAST</td>
<td>Press ▲ or ▼ to scroll to the last (LAST) option. Press ◼ to automatically send all of the datalogs since the last datalog download.</td>
</tr>
<tr>
<td>ALL</td>
<td>Press ▲ or ▼ to scroll to the all (ALL) option. Press ◼ to automatically send all of the datalogs that are saved on the detector.</td>
</tr>
</tbody>
</table>

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.

![Countdown and data transmission icon](image)

*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 disconnected 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 screen. 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.

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Display</th>
<th>Alarm</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low Alarm:</strong></td>
<td><img src="image" alt="Low Alarm Display" /></td>
<td><strong>TWA Alarm:</strong></td>
<td><img src="image" alt="TWA Alarm Display" /></td>
</tr>
<tr>
<td>• Slow beep</td>
<td></td>
<td>• Slow beep</td>
<td></td>
</tr>
<tr>
<td>• Slow flash</td>
<td></td>
<td>• Slow flash</td>
<td></td>
</tr>
<tr>
<td>• ALARM flashes</td>
<td></td>
<td>• ALARM flashes</td>
<td></td>
</tr>
<tr>
<td>• Slow vibrations</td>
<td></td>
<td>• Slow vibrations</td>
<td></td>
</tr>
<tr>
<td><strong>High Alarm:</strong></td>
<td><img src="image" alt="High Alarm Display" /></td>
<td><strong>STEL Alarm:</strong></td>
<td><img src="image" alt="STEL Alarm Display" /></td>
</tr>
<tr>
<td>• Fast beep</td>
<td></td>
<td>• Fast beep</td>
<td></td>
</tr>
<tr>
<td>• Fast flash</td>
<td></td>
<td>• Fast flash</td>
<td></td>
</tr>
<tr>
<td>• ALARM flashes</td>
<td></td>
<td>• ALARM flashes</td>
<td></td>
</tr>
<tr>
<td>• Fast vibrations</td>
<td></td>
<td>• Fast vibrations</td>
<td></td>
</tr>
<tr>
<td><strong>Sensor Alarm:</strong></td>
<td><img src="image" alt="Sensor Alarm Display" /></td>
<td><strong>Low Battery Alarm:</strong></td>
<td><img src="image" alt="Low Battery Alarm Display" /></td>
</tr>
<tr>
<td>• Slow beep</td>
<td></td>
<td>• One beep and one flash every 5 seconds, and one quick vibration every minute (when confidence beep is disabled).</td>
<td></td>
</tr>
<tr>
<td>• Slow flash</td>
<td></td>
<td>• If confidence beep is enabled no beeps, flashes, or vibrations</td>
<td></td>
</tr>
<tr>
<td>• ALARM flashes</td>
<td></td>
<td>• LOW displays</td>
<td></td>
</tr>
<tr>
<td>• Slow vibrations</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 6. Alarms

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Display</th>
<th>Alarm</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Automatic Shutdown Alarm:</strong></td>
<td></td>
<td><strong>Automatic Shutdown Alarm:</strong></td>
<td></td>
</tr>
<tr>
<td>(Low battery)</td>
<td><img src="image" alt="Low Battery" /></td>
<td>(Calibration past)</td>
<td><img src="image" alt="Calibration Past" /></td>
</tr>
<tr>
<td>• Eight beeps, flashes, and vibrations</td>
<td></td>
<td>• Eight beeps, flashes, and vibrations</td>
<td></td>
</tr>
<tr>
<td>• LOW 📈 displays</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Automatic Shutdown Alarm:</strong></td>
<td></td>
<td><strong>Confidence Beep:</strong></td>
<td></td>
</tr>
<tr>
<td>(After Automatic Shutdown Alarm)</td>
<td><img src="image" alt="Lock" /></td>
<td>• One beep every 5 seconds</td>
<td><img src="image" alt="Confidence Beep" /></td>
</tr>
<tr>
<td>• No beep</td>
<td></td>
<td>• One quick vibration per minute</td>
<td></td>
</tr>
<tr>
<td>• No flash or vibrations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 🔄 displays for a short time</td>
<td></td>
<td><em>Note</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>If the detector enters low battery alarm, the confidence beep deactivates.</em></td>
<td></td>
</tr>
</tbody>
</table>

**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 during start-up. If the detector is reactivated during a work shift, the new values will not reflect the entire work shift.

Table 7. Computed Gas Exposures

<table>
<thead>
<tr>
<th>Gas Exposure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA</td>
<td>Time-weighted average based on an 8-hour workday. Accumulated value.</td>
</tr>
<tr>
<td>STEL</td>
<td>Short-term exposure limit (STEL) to gas based on a 15-minute period. Accumulated value.</td>
</tr>
<tr>
<td>MAX*</td>
<td>Maximum (MAX) concentration encountered during a work shift.</td>
</tr>
</tbody>
</table>

*For oxygen, it is the highest or the lowest value from 20.9% encountered.

Viewing Gas Exposures

Toxic Gases

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

2. Then the 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.
Gas Alarm Setpoints

Table 8 describes the gas setpoints that trigger the gas alarms.

Table 8. Gas Alarm Setpoints

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low alarm</td>
<td>Toxic gases: Ambient gas level above low alarm setpoint. &lt;br&gt;O₂: ambient gas level may be set to above or below 20.9%.</td>
</tr>
<tr>
<td>High alarm</td>
<td>Toxic gases: ambient gas level above high alarm setpoint. &lt;br&gt;O₂: ambient gas level may be set to above or below 20.9%.</td>
</tr>
<tr>
<td>TWA alarm</td>
<td>TWA above TWA alarm setpoint. (O₂: not applicable)</td>
</tr>
<tr>
<td>STEL alarm</td>
<td>STEL above STEL alarm setpoint. (O₂: not applicable)</td>
</tr>
</tbody>
</table>

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, the alarms deactivate after the gas concentration is lower than the low alarm setpoint and the alarms have been acknowledged by pressing 🔄.

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 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.
Clearing Gas Exposures

The peak gas exposures automatically clear after deactivating the detector.

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

⚠️ Caution

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

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.

Table 9. Factory Alarm Setpoints

<table>
<thead>
<tr>
<th>Gas</th>
<th>TWA</th>
<th>STEL</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>( O_2 )</td>
<td>N/A</td>
<td>N/A</td>
<td>19.5% vol.</td>
<td>22.5% vol.</td>
</tr>
<tr>
<td>CO (low ( H_2 ))</td>
<td>35 ppm</td>
<td>200 ppm</td>
<td>35 ppm</td>
<td>200 ppm</td>
</tr>
<tr>
<td>CO</td>
<td>35 ppm</td>
<td>200 ppm</td>
<td>35 ppm</td>
<td>200 ppm</td>
</tr>
<tr>
<td>( H_2S ) (high range)</td>
<td>10 ppm</td>
<td>15 ppm</td>
<td>10 ppm</td>
<td>15 ppm</td>
</tr>
<tr>
<td>( H_2S )</td>
<td>10 ppm</td>
<td>15 ppm</td>
<td>10 ppm</td>
<td>15 ppm</td>
</tr>
<tr>
<td>( PH_3 )</td>
<td>0.3 ppm</td>
<td>1.0 ppm</td>
<td>0.3 ppm</td>
<td>1.0 ppm</td>
</tr>
<tr>
<td>( SO_2 )</td>
<td>2.0 ppm</td>
<td>5.0 ppm</td>
<td>2.0 ppm</td>
<td>5.0 ppm</td>
</tr>
<tr>
<td>( Cl_2 )</td>
<td>0.5 ppm</td>
<td>1.0 ppm</td>
<td>0.5 ppm</td>
<td>1.0 ppm</td>
</tr>
<tr>
<td>( NH_3 )</td>
<td>25 ppm</td>
<td>35 ppm</td>
<td>25 ppm</td>
<td>50 ppm</td>
</tr>
<tr>
<td>( NH_3 ) (high range)</td>
<td>25 ppm</td>
<td>35 ppm</td>
<td>25 ppm</td>
<td>50 ppm</td>
</tr>
<tr>
<td>( NO_2 )</td>
<td>2.0 ppm</td>
<td>5.0 ppm</td>
<td>2.0 ppm</td>
<td>5.0 ppm</td>
</tr>
<tr>
<td>( HCN )</td>
<td>4.7 ppm</td>
<td>10.0 ppm</td>
<td>4.7 ppm</td>
<td>10.0 ppm</td>
</tr>
<tr>
<td>( ETO )</td>
<td>1.0 ppm</td>
<td>5.0 ppm</td>
<td>1.0 ppm</td>
<td>5.0 ppm</td>
</tr>
<tr>
<td>( ClO_2 )</td>
<td>0.1 ppm</td>
<td>0.3 ppm</td>
<td>0.1 ppm</td>
<td>0.3 ppm</td>
</tr>
<tr>
<td>( O_3 )</td>
<td>0.10 ppm</td>
<td>0.10 ppm</td>
<td>0.10 ppm</td>
<td>0.20 ppm</td>
</tr>
<tr>
<td>NO</td>
<td>25 ppm</td>
<td>25 ppm</td>
<td>25 ppm</td>
<td>25 ppm</td>
</tr>
</tbody>
</table>

Sensor Alarm

The detector tests for a missing or defective sensor during the activation self-test. Refer to Troubleshooting.
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**Low Battery Alarm**
If a low battery alarm occurs, follow your company’s safety procedures. 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 detector enters low battery alarm, the confidence beep deactivates.*

⚠️ **Caution**
Replace the battery in only a safe area, free of hazardous gas.

**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 ⚠️ 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:
  - O₂: clean air, 20.9% vol.
  - CO (low H₂ sensitivity): 50 to 500 ppm balance N₂
  - CO: 50 to 500 ppm balance N₂
  - H₂S (high range): 10 to 100 ppm balance N₂
  - H₂S: 10 to 100 ppm balance N₂
  - PH₃: 1 to 5 ppm balance N₂
  - SO₂: 10 to 50 ppm balance N₂
  - CI₂: 3 to 25 ppm balance N₂
  - NH₃: 20 to 100 ppm balance N₂
  - NH₃: (high range) 20 to 100 ppm balance N₂
  - NO₂: 5 to 50 ppm balance N₂
  - HCN: 5 to 20 ppm balance N₂
  - ETO: 5 to 50 ppm balance N₂
  - ClO₂: 0.1 to 1.0 ppm balance N₂
  - O₃: 0.1 to 1.0 ppm balance N₂
  - NO: 10 to 250 ppm balance N₂

- Before operating an ETO detector, allow the detector to stabilize at the temperature it will be operating in. After the detector has stabilized, zero the detector.

- It is necessary to periodically re-zero the ETO detector.

- To ensure accurate calibration, BW recommends using a premium-grade calibration gas approved by the National Institute of Standards and Technology (NIST).

- Do not use a gas cylinder beyond its expiration date.

- Before calibrating a new NO or ETO sensor, allow the sensor to stabilize for 2 hours in a safe area that is free of hazardous gas.

- 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 BW Technologies by Honeywell.

Note
A generator must be used to calibrate O₃ and ClO₂ GasAlert Extreme 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.*

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Test cap</td>
</tr>
<tr>
<td>2</td>
<td>Hose</td>
</tr>
<tr>
<td>3</td>
<td>Regulator</td>
</tr>
<tr>
<td>4</td>
<td>Gas cylinder</td>
</tr>
</tbody>
</table>

Figure 3. Test Cap
Calibration

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

Start Calibration

Note
To quit calibration at any point, press \( A \). 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 only.

1. To enter calibration, in a safe area free of hazardous gas, press \( C \) and \( E \) simultaneously as the detector beeps and vibrates four times, and the LEDs flash four times.

2. The LCD flashes \( \text{CAL} \) 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, the following screen displays.

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

1. Press \( \circ \) to exit the alarm setpoint screens and to return to normal operation.
2. 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.
3. 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, PASS displays. 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

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.

4. Set SPAN flashes.

   Press [▲] or [▼] to scroll to the required gas concentration. The detector value must match the concentration value on the gas cylinder.

   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 \( \textcircled{O} \) 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.

6. The set span screen displays a flashing \( \textcircled{O} \).

Note
The flashing \( \textcircled{O} \) does not display for oxygen (\( \text{O}_2 \)) detectors.

7. Apply the calibration gas.

8. Apply gas to the sensor at a flow rate of 500 ml/min.
   (for \( \text{NH}_3, \text{Cl}_2, \text{ClO}_2, \text{O}_3, \text{ETO} \): 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 detector beeps once.

9. The detector then begins spanning the sensor as follows:
   - \( \text{NH}_3, \text{Cl}_2, \text{ClO}_2, \text{O}_3, \text{ETO} \): 5 minutes to span
   - \( \text{O}_2 \): 30 seconds to span
   - other gases: 2 minutes (approximately) to span.
   The detector 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, \( \text{FAIL} \) 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.
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**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.

![CAL. DUE 180]

**Note**
To bypass the calibration due notification, press \( \text{C} \). The detector automatically proceeds to the TWA alarm setpoint.

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

10. Press \( \text{D} \) or \( \text{E} \) to scroll to the required value (1 to 365).

11. Press \( \text{C} \) to save the new value and automatically proceed to the TWA alarm setpoint screen.

**Setting the TWA Alarm Setpoint**

**Note**
To bypass and retain the current TWA alarm setpoint value, press \( \text{C} \). 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.

![Set TWA ALARM 35 PPM]

12. Press \( \text{A} \) or \( \text{B} \) to scroll to the required value.

13. Press \( \text{C} \) 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 \( \text{C} \), the detector automatically retains the original value and NO displays. The detector proceeds to the TWA alarm setpoint.*
Setting the STEL Alarm Setpoint

Note
To bypass and retain the current STEL alarm setpoint value, press \( \square \). 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.

14. Press \( \uparrow \) or \( \downarrow \) to scroll to the required value.
15. Press \( \square \) 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 \( \square \), 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 \( \square \). 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.

16. Press \( \uparrow \) or \( \downarrow \) to scroll to the required value.
17. Press \( \square \) 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 \( \square \), the detector automatically retains the original value and NO displays. The detector proceeds to the high alarm setpoint.
Setting the High Alarm Setpoint

Note
To bypass and retain the current high alarm setpoint value, press \( \circ \). 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.

18. Press \( \uparrow \) or \( \downarrow \) to scroll to the required value.
19. Press \( \circ \) 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 \( \circ \), the detector automatically retains the original value and \( \text{NO} \) 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: \( \text{SO}_2 \) span time was 2 minutes therefore, apply verification gas for 2 minutes.
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Datalog and Event Log
The GasAlert Extreme datalogger version allows the detector to record various information so a report can be compiled.

Datalog
Datalog sampling rate is defined in the detector user options. To set the sample rate, refer to Datalogger Sampling Rate Option.
The following information is recorded in a datalog:

- Date and time
- Detector serial number
- Type of gas the detector monitors
- Current gas reading
- Sensor status
- Detector status
- Passcode protect enabled/disabled
- STEL period setting (fixed to a 15 minute period)
- Confidence beep enabled/disabled
- Automatic backlight enabled/disabled
- Stealth mode enabled/disabled
- Latching alarm enabled/disabled
- 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:

- Detector serial number
- Type of exposure the detector that occurred
- Time the alarm started and ended
- Peak exposure of the alarm
**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, calibrations, bump 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.

**Table 11. Replacing the Battery or Sensor**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rear shell machine screws (4)</td>
</tr>
<tr>
<td>2</td>
<td>Rear shell</td>
</tr>
<tr>
<td>3</td>
<td>Battery</td>
</tr>
<tr>
<td>4</td>
<td>PCB machine screws (2)</td>
</tr>
<tr>
<td>5</td>
<td>PCB</td>
</tr>
<tr>
<td>6</td>
<td>Sensor</td>
</tr>
<tr>
<td>7</td>
<td>Sensor screen</td>
</tr>
<tr>
<td>8</td>
<td>Front shell</td>
</tr>
</tbody>
</table>

**Figure 4. Replacing the Battery or Sensor**
**Figure 5. Rear Shell Seal**

**Table 12. Rear Shell Seal**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Seal</td>
</tr>
</tbody>
</table>

**Figure 6. Front Shell Seal**

**Table 13. Front Shell Seal**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Seal</td>
</tr>
</tbody>
</table>
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 GasAlert Extreme model. 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 ETO or 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 ETO or 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.

To clean a removed sensor screen, 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. 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 the sensor grill.

   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 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.
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.
**Troubleshooting**

If a problem occurs, refer to the solutions provided in Table 14. If the problem persists, contact BW Technologies by Honeywell.

**Table 14. Troubleshooting Tips**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The detector does not activate.</td>
<td>No battery</td>
<td>Install a battery. Refer to <a href="#">Replacing the Battery or Sensor</a></td>
</tr>
<tr>
<td></td>
<td>Depleted battery</td>
<td>Replace the battery. Refer to <a href="#">Replacing the Battery or Sensor</a></td>
</tr>
<tr>
<td></td>
<td>Damaged or defective detector</td>
<td>Contact BW Technologies by Honeywell</td>
</tr>
<tr>
<td></td>
<td>Reversed battery</td>
<td>Reinstall the battery correctly.</td>
</tr>
<tr>
<td>The detector enters alarm mode immediately when it is activated.</td>
<td>Sensor needs to stabilize</td>
<td>Used sensor: wait 60 seconds. New sensor: wait 5 minutes.</td>
</tr>
<tr>
<td></td>
<td>Low battery alarm</td>
<td>Replace the battery. Refer to <a href="#">Replacing the Battery or Sensor</a></td>
</tr>
<tr>
<td></td>
<td>Sensor alarm</td>
<td>Replace the sensor. Refer to <a href="#">Replacing the Battery or Sensor</a></td>
</tr>
<tr>
<td>The start up self-test fails during one of the checks.</td>
<td>General fault</td>
<td>Contact BW Technologies by Honeywell</td>
</tr>
<tr>
<td></td>
<td>Alarm setpoints are incorrect</td>
<td>Reset the alarm setpoints. Refer to <a href="#">Resetting Gas Alarm Setpoints</a></td>
</tr>
</tbody>
</table>
## Table 14. Troubleshooting Tips

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The detector does not display a normal ambient gas reading after the activation self-test.</td>
<td>Target gas is present</td>
<td>Detector is operating properly. Use caution in suspect areas.</td>
</tr>
<tr>
<td></td>
<td>Detector requires calibration</td>
<td>Calibrate the detector. Refer to <a href="#">Calibration and Setting Alarm Setpoints</a>.</td>
</tr>
<tr>
<td></td>
<td>Sensor not stabilized</td>
<td>Used sensor: wait 60 seconds. New sensor: wait 5 minutes.</td>
</tr>
<tr>
<td>The detector does not respond to the push-buttons.</td>
<td>Battery is depleted</td>
<td>Replace the battery. Refer to <a href="#">Replacing the Battery or Sensor</a>.</td>
</tr>
<tr>
<td></td>
<td>Detector is performing operations that does not require user input</td>
<td>Pushbutton operation restores automatically when the operation ends.</td>
</tr>
<tr>
<td>The detector does not accurately measure the gas.</td>
<td>Detector requires calibration</td>
<td>Calibrate the sensor. Refer to <a href="#">Calibration and Setting Alarm Setpoints</a>.</td>
</tr>
<tr>
<td></td>
<td>Detector is colder/hotter than ambient gas</td>
<td>Allow the detector to acquire ambient temperature before use.</td>
</tr>
<tr>
<td></td>
<td>Sensor screen is blocked</td>
<td>Clean the sensor screen. Refer to <a href="#">Cleaning a Sensor Screen</a>.</td>
</tr>
<tr>
<td>The detector does not enter alarm mode.</td>
<td>Alarm setpoint(s) are set incorrectly</td>
<td>Reset the alarm setpoints. Refer to <a href="#">Resetting Gas Alarm Setpoints</a>.</td>
</tr>
<tr>
<td></td>
<td>Alarm setpoint(s) set to zero</td>
<td>Reset the alarm setpoints. Refer to <a href="#">Resetting Gas Alarm Setpoints</a>.</td>
</tr>
<tr>
<td></td>
<td>Detector is in calibration mode</td>
<td>Complete calibration. Refer to <a href="#">Calibration and Setting Alarm Setpoints</a>.</td>
</tr>
</tbody>
</table>
### Table 14. Troubleshooting Tips

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The detector intermittently enters alarm mode without apparent reason.</td>
<td>Ambient gas levels are near alarm setpoint or the sensor is exposed to a puff of the target gas</td>
<td>Detector is operating normally. Use caution in suspect areas. Check MAX gas exposure reading.</td>
</tr>
<tr>
<td></td>
<td>Alarms set incorrectly.</td>
<td>Reset the alarm setpoints. Refer to <em>Calibration and Setting Alarm Setpoints</em>.</td>
</tr>
<tr>
<td></td>
<td>Missing or faulty sensor</td>
<td>Replace the sensor. Refer to <em>Replacing the Battery or Sensor</em>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The detector automatically deactivates.</td>
<td>Automatic shutdown feature activated due to depleted battery</td>
<td>Replace the battery. Refer to &quot;Replacing the Battery or Sensor&quot;.</td>
</tr>
<tr>
<td>Detector does not auto zero or calibrate.</td>
<td>Sensor may be expired</td>
<td>Change the sensor.</td>
</tr>
<tr>
<td><strong>O₂ sensor reading is erratic.</strong></td>
<td>Sensor may be expired</td>
<td>Change the sensor.</td>
</tr>
</tbody>
</table>
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 BW Technologies by Honeywell.

Table 15. Replacement Parts and Accessories

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR-X10</td>
<td>Replacement O₂ sensor</td>
<td>1</td>
</tr>
<tr>
<td>PS-RM04H</td>
<td>Replacement CO sensor (low H₂ sensitivity)</td>
<td>1</td>
</tr>
<tr>
<td>PS-RM04</td>
<td>Replacement CO sensor</td>
<td>1</td>
</tr>
<tr>
<td>PS-RH04S</td>
<td>Replacement H₂S sensor</td>
<td>1</td>
</tr>
<tr>
<td>SR-P04</td>
<td>Replacement PH₃ sensor</td>
<td>1</td>
</tr>
<tr>
<td>PS-RS04</td>
<td>Replacement SO₂ sensor</td>
<td>1</td>
</tr>
<tr>
<td>PS-RC10</td>
<td>Replacement Cl₂ sensor</td>
<td>1</td>
</tr>
<tr>
<td>SR-A04</td>
<td>Replacement NH₃ sensor</td>
<td>1</td>
</tr>
<tr>
<td>SR-A204</td>
<td>Replacement NH₃ sensor (high range)</td>
<td>1</td>
</tr>
<tr>
<td>PS-RD04</td>
<td>Replacement NO₂ sensor</td>
<td>1</td>
</tr>
<tr>
<td>PS-RZ10</td>
<td>Replacement HCN sensor</td>
<td>1</td>
</tr>
<tr>
<td>SR-E04</td>
<td>Replacement ETO sensor</td>
<td>1</td>
</tr>
<tr>
<td>SR-V04</td>
<td>Replacement ClO₂ sensor</td>
<td>1</td>
</tr>
<tr>
<td>SR-G04</td>
<td>Replacement O₃ sensor</td>
<td>1</td>
</tr>
<tr>
<td>SR-N04</td>
<td>Replacement NO sensor</td>
<td>1</td>
</tr>
<tr>
<td>GAXT-SS</td>
<td>Sensor screens</td>
<td>10</td>
</tr>
<tr>
<td>GA-TC-1</td>
<td>Test cap and hose</td>
<td>1</td>
</tr>
<tr>
<td>GA-BALERT</td>
<td>Concussion-proof boot</td>
<td>1</td>
</tr>
<tr>
<td>GA-BSPLASH-K</td>
<td>Splash guard filters</td>
<td>5</td>
</tr>
<tr>
<td>GA-HC-1</td>
<td>Hard hat clip</td>
<td>1</td>
</tr>
<tr>
<td>GA-AG-1</td>
<td>Alligator clip (non-conductive)</td>
<td>1</td>
</tr>
<tr>
<td>GA-AG-2</td>
<td>Alligator clip (stainless-steel)</td>
<td>1</td>
</tr>
<tr>
<td>GA-CL-1</td>
<td>Belt clip with screw</td>
<td>1</td>
</tr>
<tr>
<td>GA-NS-1</td>
<td>Neckstrap with safety release</td>
<td>1</td>
</tr>
<tr>
<td>GA-LY-1</td>
<td>Short strap (6 in./15.2 cm)</td>
<td>1</td>
</tr>
<tr>
<td>GA-USB2</td>
<td>IR DataLink</td>
<td>1</td>
</tr>
</tbody>
</table>
Specifications

Instrument dimensions: 2.8 x 5.0 x 9.5 cm (1.1 x 2.0 x 3.75 in.)

Weight: 82 g (2.9 oz.)

Operating temperature:
- H₂S, SO₂, HCN: -40°C to +50°C (-40°F to +122°F)
- CO: -30°C to +50°C (-22°F to +122°F)
- NH₃, NH₃ (high range): -20°C to +40°C (-4°F to +104°F)
  Other gases: -20°C to +50°C (-4°F to +122°F)

Operating humidity:
- CO, H₂S, SO₂, Cl₂, HCN, NO₂, NH₃, PH₃, ETO, NO, O₃: 15% to 90% relative humidity (non-condensing)
- Cl₂: 10% to 95% relative humidity (non-condensing)
- ClO₂: 15% to 95% relative humidity (non-condensing)
- O₂: 0% to 99% relative humidity (non-condensing)

Detection range:
- GasAlert Extreme O₂: 0 – 30.0% vol. (0.1% vol. increments)
- GasAlert Extreme CO: 0 – 1000 ppm (1 ppm increments)
- GasAlert Extreme CO (low H₂ sensitivity): 0 – 1000 ppm (1 ppm increments)
- GasAlert Extreme H₂S: 0 – 100 ppm (1 ppm increments)
- GasAlert Extreme H₂S (high range): 0 – 500 ppm (1 ppm increments)
- GasAlert Extreme PH₃: 0 – 5.0 ppm (0.1 ppm increments)
- GasAlert Extreme SO₂: 0 – 150.0 ppm (0.1 ppm increments)
- GasAlert Extreme Cl₂: 0 – 50.0 ppm (0.1 ppm increments)
- GasAlert Extreme NH₃: 0 – 100 ppm (1 ppm increments)
- GasAlert Extreme NH₃ (high range) 0 – 400 ppm (1 ppm increments)
- GasAlert Extreme NO₂: 0 – 100.0 ppm (0.1 ppm increments)
- GasAlert Extreme HCN: 0 – 30.0 ppm (0.1 ppm increments)

GasAlert Extreme ETO: 0 – 100.0 ppm (0.1 ppm increments)
GasAlert Extreme ClO₂: 0 – 1.00 ppm (0.01 ppm increments)
GasAlert Extreme O₃: 0 – 1.00 ppm (0.01 ppm increments)
GasAlert Extreme NO: 0 – 250 ppm (1 ppm increments)

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, automatic shutdown alarm.

Audible alarm: 95 dB at 0.3 m (1 ft.) 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 and during alarm conditions. Any pushbutton reactivates the backlight for 6 seconds.

Self-test: Initiated upon activation
Battery test: Every 0.5 seconds
Battery: 3 V lithium Energizer 1CR2-series battery
Warranty: 2 years including sensors.

Approvals:
- Classified by UL to both U.S. and Canadian Standards as Intrinsically Safe for Class I, Division 1, Group A, B, C, D
- European Explosives Protection EEex ia IIC
- CE 0539 II 1 G DEMKO 04 ATEX 03 36363
- IECEx
- ABS Type Approved: VA-348-169-X
**General Specifications for Datalogger Units**

**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 BW accessory

**Support:**
- BW Excel Datalog Manager (EDM): This software organizes GasAlert Extreme datalog and event log files into a readable report
- Fleet Manager CD Support: This software organizes GasAlert Extreme 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 radio 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.