BW TECHNOLOGIES BY HONEYWELL

ImpactXtreme

Operator's Manual

Heidi Leury

8 March 2013

Table of Contents

Limited Warranty and Liability

BW Technologies LP ('BW' or 'BW Technologies') 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:

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

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

Contact BW Technologies by Honeywell

Corporate Headquarters

BW Technologies by Honeywell
2840 2nd Ave. SE
Calgary, AB
Canada T2A 7X9
Tel: +1.403.248.9226
Toll-free: 1.800.663.4164
Fax: +1.403.573.3708

United States

BW Technologies by Honeywell
405 Barclay Blvd.
Lincolnshire, IL
USA 60069
Tel: +1.847.955.8200
Toll-free: 1.800.538.0363
Fax: +1.847.955.8210

Europe

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

Asia Pacific

Honeywell Analytics Asia Pacific
#508, Kolon Science Valley (1)
187-10 Guro-Dong, Guro-Gu
Seoul, 152-050
Korea
Tel: +82 (0)2 6909 0300
Fax: +82 (0)2 2025 0329
Email: analytics.ap@honeywell.com

Email

info@gasmonitors.com

Web

www.gasmonitors.com

Glossary of Terms

Common Terms

AC	Alternating current
Auto zero	See *Zero calibration*
Bump test	A procedure that confirms the detector's ability to respond to target gases by exposing the detector to gas concentrations that exceed its alarm setpoints. BW recommends bump testing the sensors before each use.
Calibration	A two-step procedure that determines the measurement scale for the detector's response to gas. In the first step, a baseline reading is taken in a clean, uncontaminated environment (see Zero Calibration). In the second step, the sensors are exposed to known concentrations of gas. The detector uses the baseline and known gas concentrations to determine the measurement scale. BW recommends to 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 to calibrate sensors regularly and at least once every 180 days (6 months).
CD	Computer-readable compact disc
FleetManager II	FleetManager II is proprietary software developed by BW Technologies to configure and manage docking modules; detector calibrations and bump testing; and datalogs. FleetManager II is available from www.gasmonitors.com
IEEE	The Institute of Electrical and Electronics Engineers' (IEEE)
IR	Infrared
LCD	Liquid crystal display screen
LED	Light-emitting diode
LEL	Lower explosive limit.
Normal atmosphere	Fresh air environment with 20.9% O_2 that is free of hazardous gas
OL	Over limit.
OL alarm	When gas levels in an area exceed the measuring range of the sensors, the detector displays *OL* for the sensor which has exceeded its measuring range.
PDF	Portable document format (PDF) is file format developed by Adobe as a means to distribute compact, platform-independent documents. To view pdf files, download and install Adobe Reader from www.adobe.com
STEL	Short-term exposure limit. STEL is an accumulated exposure limit to toxic gases averaged over a defined time period that ranges from 5 to 15 minutes.

STEL alarm	When an accumulated value exceeds a STEL setpoint, the detector enters into a STEL alarm. Because this alarm is based on exposure over time, it remains active until sufficient time has passed *without additional exposure* to lower the overall accumulated value.
TWA	Time-weighted average. TWA is an accumulate exposure limit to toxic gases averaged over a defined time period that ranges from 4 to 16 hours.
TWA alarm	When an accumulated value exceeds a TWA setpoint, the detector enters into a TWA alarm. Because this alarm is based on exposure over time, it remain active until sufficient time has passed *without additional exposure* to lower the overall accumulated value.
USB	Universal serial bus
Wi-Fi	A technology that allows an electronic device to exchange data wirelessly (using radio waves) over a computer network.
Zero calibration	A procedure that establishes stable baseline readings for all sensors by adjusting the detector's baseline concentration reading to match the concentration of gas found in a clean, uncontaminated environment. The baseline reading becomes the 'zero' on the measurement scale that the detector uses to display changes in gas concentrations.

Warnings and Cautions

This manual uses the following signal words, as defined by ANSI Z535.4-1998:

⚠DANGER	Hazardous situation which, if not avoided, ***will*** result in death or serious injury. This symbol identifies the most extreme hazardous situations.
⚠WARNING	Hazardous situation which, if not avoided, ***could*** result in death or serious injury.
⚠CAUTION	Hazardous situation which, if not avoided, ***may*** result in moderate or minor injury.
NOTICE	Situations which, if not avoided, may result in property damage.

Important Safety Information: Read First

The ImpactXtreme gas detector ('the detector') is a personal safety device that is designed to warn of hazardous gas levels above user-defined set points. It is your responsibility to respond properly to the alarms.

Use the detector only as specified in the ImpactXtreme Operator Manual and ImpactXtreme Technical Reference Guide, otherwise protection provided by the detector may be impaired. Read and understand the following warnings and cautions before using the detector.

⚠CAUTION

- **Warning:** Substitution of components may impair Intrinsic Safety
- Before using the detector, refer to **Sensor Poisons and Contaminants**.
- Protect the combustible sensor from exposure to lead compounds, silicones, and chlorinated hydrocarbons. Although organic vapors (such as leaded gasoline and halogenated hydrocarbons) may temporarily inhibit sensor performance, in most cases the sensor will recover after calibration.
- **Caution:** For safety reasons, this equipment must be operated and serviced by qualified personnel only. Read and understand the technical reference manual completely before operating or servicing.
- For detectors using the rechargeable battery, 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 to calibrate sensors regularly and at least once every 180 days (6 months).
- Calibrate only in a normal atmosphere (20.9% O_2) that is free of hazardous gas.
- The combustible sensor is factory calibrated to 50% LEL methane. If monitoring a different combustible gas in the % LEL range, calibrate the sensor using the appropriate gas.
- Only the combustible gas detection portion of this detector has been assessed for performance by CSA International.
- BW Technologies by Honeywell recommends to check the combustible sensor with a known concentration of calibration gas after any exposure to contaminants/poisons such as sulfur compounds, silicon vapors, halogenated compounds, etc.
- BW Technologies by Honeywell recommends to bump test the sensors before each day's use to confirm their 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.
- **Caution:** High off-scale LEL readings may indicate an explosive concentration.
- Any rapid upscaling reading followed by a declining or erratic reading may indicate a gas concentration beyond upper scale limit, which can be hazardous.
- **Caution:** Catalytic bead combustible sensor readings are not reliable in atmospheres with less than 12% (v/v) O_2.
- **Caution:** IR combustible sensor is not capable of detecting H_2.
- 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 a detector component 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 (IX-BAT-R1) may present a risk of fire or chemical burn hazard if misused. Do not disassemble, heat above 100°C (212°F), or incinerate.

- **Warning:** Do not use any other lithium batteries with the ImpactXtreme detector. Use of any other lithium batteries can cause fire and/or explosion. To order and replace the (IX-BAT-R1) lithium battery, contact BW Technologies by Honeywell.
- **Warning:** Lithium polymer cells exposed to heat at 130°C (266°F) for 10 minutes can cause fire and/or explosion.
- e c **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.

Introduction

About the ImpactXtreme Portable Gas Detector

The ImpactXtreme ('the detector') is a compact, portable gas detector that is carried or worn. It continuously monitors the atmosphere for hazardous levels of up to six gases. Audible, visible and vibrating alarms alert you to danger when potentially hazardous gases are detected.

The detector is supplied with a replaceable cartridge containing up to six gas sensors for detecting oxygen enrichment and deficiency; flammable gases up to the Lower Explosive Limit (LEL); and toxic gases.

Various sensor technologies are used, including:

1) electrochemical, to detect oxygen and toxic gases;
2) catalytic combustion, to detect flammable gases; and
3) infrared, to detect flammable and carbon dioxide gases.

Wireless Model

The ImpactXtreme may be factory-configured as a wireless- and GPS-ready device. The ImpactXtreme Wireless model uses Wi-Fi technology based on IEEE 802.11 standards to connect with, and exchange data wirelessly over, a computer network.

Intended use

The ImpactXtreme is intended to alert you to potentially hazardous gases which you may encounter while performing normal duties. Therefore, you must activate the detector and wear it as close as possible to your breathing area. Several accessories allow you to wear the detector in different ways, such as:

1) On the chest
2) On a belt
3) Attached to a body harness

Confined Spaces

Accessories are available to help you comply safely with confined space regulations. Contact BW Technologies by Honeywell or an authorized distributor for more information.

About this Manual

The *ImpactXtreme Operator Manual* provides basic information to activate, operate and maintain the ImpactXtreme gas detector standard and wireless models. Unless otherwise indicated, features and procedures described in this manual apply to both models.

Information in this manual is based on an ImpactXtreme detector equipped with a disposable, six-gas sensor cartridge. Disregard references to sensors not fitted in your detector.

For complete operating instructions, refer to *the ImpactXtreme Technical Reference Guide*.

Ensure that you read and understand the instructions in this manual BEFORE installing or operating any part of the equipment.

Getting Started

ImpactXtreme Standard Model

➔ *<insert annotated standard image here>*

ImpactXtreme Wireless Model

➔ *<insert annotated standard image here>*

Accessories

The following accessories are included with the detector:

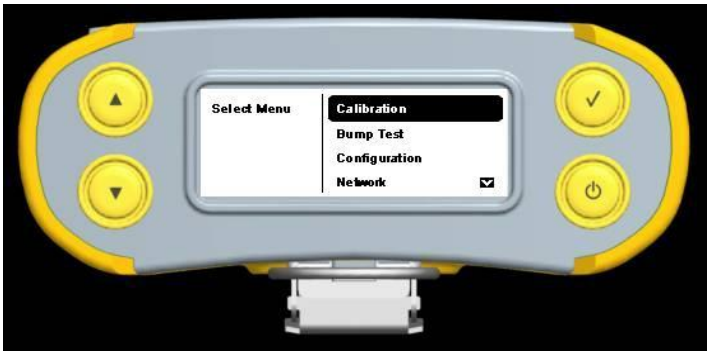
1) pump adapter
2) calibration adapter and calibration tubing, cut to appropriate length
3) screwdriver with double-ended bit (Phillips and hex)
4) one battery pack, specified at time of purchase as
   a) alkaline, with four double-A batteries, OR
   b) rechargeable, with lithium polymer cells
5) Operator's Manual
6) Compact disc containing Operator's Manual in portable document format (PDF)

If the detector or accessory parts are missing or damaged, contact BW Technologies by Honeywell or an authorized distributor immediately.

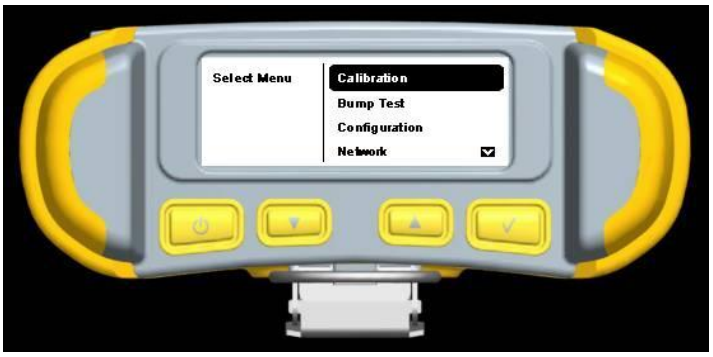
Battery packs, sensors and sensor packs, docking stations, calibration and purge gas cylinders, and other accessories are sold separately. Contact BW Technologies by Honeywell or an authorized distributor for more information.

Buttons

Standard Model



Wireless Model



Power/Escape Button

⏻

Activate detector	Press and hold for 2 seconds
Deactivate detector	Press and hold for 3 seconds
Reset alarms	Press when detector is in alarm while in normal monitoring mode
Return to previous menu	Press when navigating menus
Cancel menu command	Press to cancel without committing changes
Move cursor to previous digit	Press when entering values

Enter Button

☑

View main menu	Press while in normal monitoring mode
Select menu item	Press to select highlighted item when navigating menus
Acknowledge warning or fault	Press when warning or fault is displayed

Enter a value and move cursor to next digit	Press when entering values
Select an option or sensor channel	Press when selecting an option or a sensor channel

Up Button

Activate panic alarm	Press and hold for 5 seconds
View detector information menu	Press while in normal operating mode
Increment displayed value	Press when entering or editing values
Place or remove a checkmark	Press when selecting options or sensor channels
Scroll up	Press when navigating menus

Down Button

Acknowledge low alarm and temporarily disable audible alarm	Press while low alarm is active. The **Low Alarm Acknowledgement** option must be enabled in FleetManager II.
View detector information menu	Press while in normal operating mode
Decrement displayed value	Press when entering or editing values
Move cursor to the right of a checkbox	Press when selecting options or sensor channels
Scroll down	Press when navigating menus

Status Icons

Icon	Meaning
	TWA alarm.
	STEL alarm.
	OL alarm.
	High alarm.
	Low alarm.
	Message received.
	Audible alarm deactivated.
	Visual alarm deactivated.
	Pump operation (animated).
	Pump blocked.
	IR connection established.

Icon	Meaning
	Last calibration successful.
	Calibration over due.
	Last bump test successful.
	Bump Test overdue.
	Heartbeat (animated).
	Fault acknowledged but still exists.
	Warning acknowledged but still exists
	Battery charging.
	Low battery warning / critical low battery
	Log memory full.
	Wireless model only Wireless connection established. Wi-Fi module enabled.
	Wireless model only Wireless connection not established. Wi-Fi module disabled.
	Wireless model only. Animated. Scanning Wireless network.
	Wireless model only Wireless signal strength.
	Wireless model only Satellite found.
	Wireless model only Satellite not found. GPS module disabled.
	Wireless model only Animated. Scanning GPS satellite.

LCD Backlight

The LCD backlight changes color to indicate a change in detector status. Green is the default backlight color. During normal operation, the LCD backlight is inactive. Press any button to activate the backlight for ten seconds.

Detector Status	Backlight	Description
Activate	Multi-color flash	When the detector is activated, the backlight displays multiple colors to verify performance.
Start-up and self-test	Green	During startup and self-test procedures, the backlight is green.
Normal operation	Inactive	During normal operation, the backlight is inactive. Press any button to activate the backlight for ten seconds.
Critical system fault	Red	When a critical system fault occurs, the backlight

Detector Status	Backlight	Description
		changes to red.
Alarm	Red	When an alarm occurs, the backlight changes to red.
Panic mode	Red	When panic mode is activated, the backlight changes to red.
Fault or warning	Yellow	When a non-critical fault or warning occurs, the backlight turns yellow.

LED Visual Alarm Indicators

The LED visual alarm indicators change color and flashing pattern to indicate a change in detector status. During normal operation, a short, green flash provides continuous visual confirmation of detector operation and compliance.

Description	LED	Flashing pattern
Confidence signal	Green	Short flash
Battery charging	Red	Short flash
Battery charging complete	Green	Short flash
Alarm / Critical system fault	Red	High frequency flash
Fault / Warning	Yellow	Low frequency flash
Message received	Green and yellow	Short flash, alternating
Powering up	Green, red and yellow	Two short, sequential flashes, alternating
Powering off	Red	Two short flashes

Sensor Poisons and Contaminants

Certain cleaners, solvents, and lubricants may contaminate and cause permanent damage to sensors. Before using cleaners, solvents, and lubricants in close proximity to the detector or sensor packs, read and understand the following cautions and table of contaminants.

⚠CAUTION

Use only the following BW recommended products and procedures:

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

Sensor Poisons and Contaminants

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

Activate and Deactivate the Detector

⚠CAUTION

Only activate the detector in a normal atmosphere (20.9% O_2) that is free of hazardous gas.

Hand-aspirated remote sampling only provides continuous gas readings as long as the bulb is being operated.

BW Technologies by Honeywell recommends that the detector be calibrated at least once every 6 months or in accordance with customer site procedures, whichever is sooner. Accurate detection of gases by the detector should be confirmed with test gas of known concentration before each use.

Use of the ImpactXtreme Enforcer accessory is strongly recommended as it enables 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.

Before You Begin

Each time the detector is activated, it automatically performs a series of self-tests to confirm that it is fully functional. During testing, you may be prompted to acknowledge messages or follow test procedures.

1. Move to a normal atmosphere (20.9% O2) that is free of hazardous gas.
2. Inspect the detector and accessories for damaged or missing parts. If parts are damaged or missing, contact BW Technologies by Honeywell or an authorized distributor immediately.
3. Ensure that the battery pack is charged. See Battery Packs for more information.

Related Topics

1) Buttons
2) Connect/Disconnect Gas Cylinder
3) Bump Test
4) Zero Calibration (Auto Zero)
5) Battery Packs
6) User Options and Settings

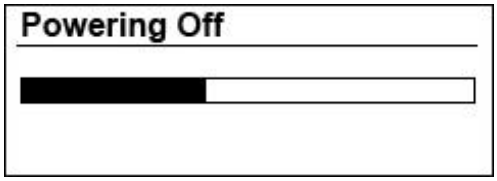
Activate/Deactivate the Detector

Activate the Detector

1. **Activate:** Press and hold ⏻ for 2 seconds. The start-up sequence begins.

Deactivate the Detector

1. **Deactivate:** Press and hold ⏻ for 3 seconds.
   a) If ***Detector Shutdown Passcode*** is enabled, the detector prompts for a passcode before powering off. If the passcode is incorrect, or if a passcode is not entered, the detector will not deactivate. For more information, see ***User Options and Settings***.
2. The Powering Off progress bar is displayed.

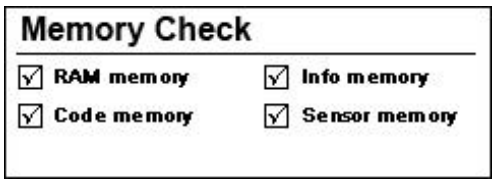


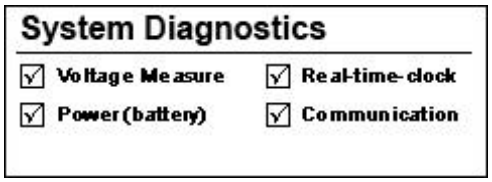
3. LEDs flash red and the detector beeps once to indicate deactivation.

Start-up Sequence

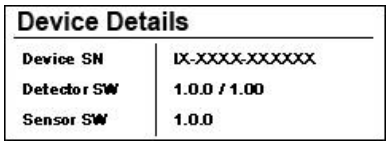
1. When the detector is activated, audible, visual and vibrating features are tested. Verify that the LCD activates. Ensure that the detector beeps, flashes and vibrates, and that the LCD backlight is activated.
2. Product identification screens appear.

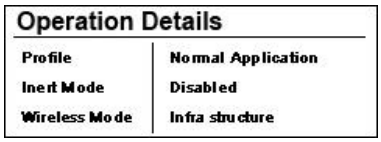
3. The detector performs series of diagnostic tests. When all tests are complete, the results are displayed.



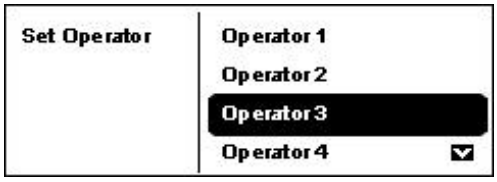


4. If the start-up message option is enabled and message data is entered, a start-up message is displayed. If this option is disabled, it is bypassed during start-up. For more information, see ***User Options and Settings***.
5. Device details and operation details are displayed.

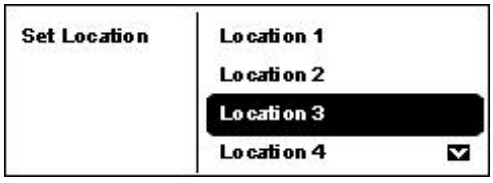




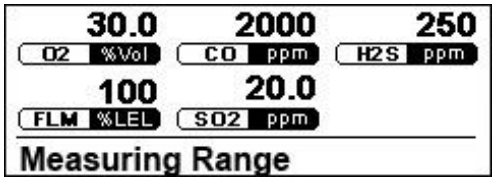
6. The Set Operator menu is displayed. For more information, see ***User Options and Settings***.
   a) Press ▲ and ▼ to scroll to a different operator.
   b) Press ☑ to select an operator.

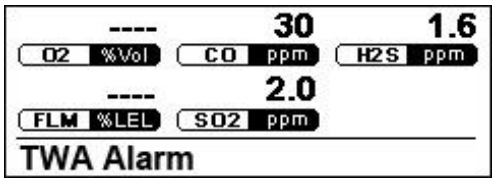


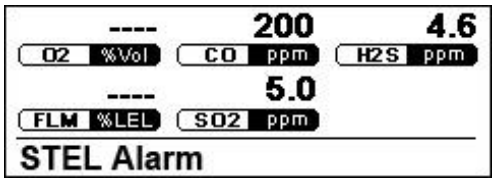
7. The Set Location menu is displayed. For more information, see ***User Options and Settings***.
   a) Press ▲ and ▼ to scroll to a different location.
   b) Press ☑ to select a location.

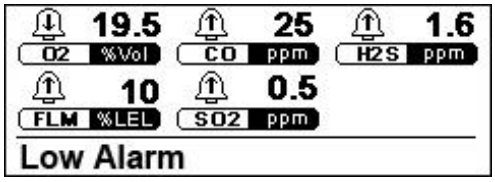


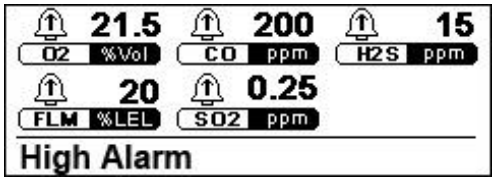
8. Settings for measuring range, TWA alarm, STEL alarm, high alarm, low alarm, and target gas correction factors are displayed.



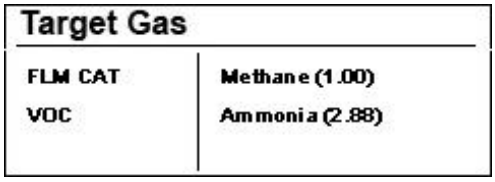




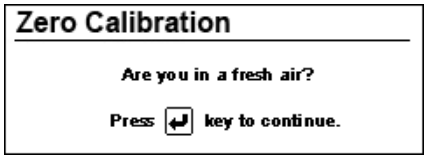




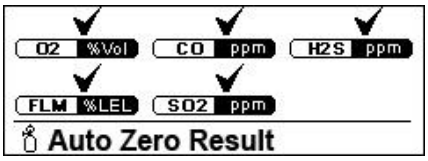
9. If a flammable sensor or PID sensor is installed, the Target Gas screen is displayed.



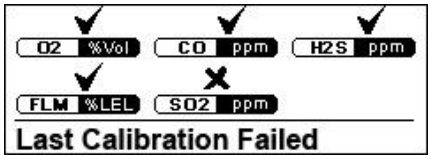
10. If a pump module is installed, Pump Check begins.
    a) Follow instructions displayed on the LCD.
    b) When Pump Check is complete, the results are displayed.
    c) For more information, refer to the ***ImpactXtreme Technical Reference Guide.***
11. If the ***Auto Zero on Startup*** option is enabled, zero calibration begins. For more information, see ***Zero Calibration*** and ***User Options and Settings***.



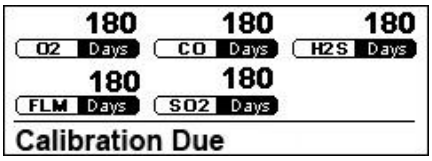
    a) If you are not in a normal atmosphere (20.9% O_2) that is free of hazardous gas, press ⏻ to cancel Zero Calibration.
    b) To confirm that you are in a normal atmosphere (20.9% O_2) that is free of hazardous gas, press ☑. The Auto Zero process begins.
    c) When Auto Zero is complete, the results are displayed.



12. If the last calibration failed and the calibration interval is not zero, the detector displays the last failed calibration result.



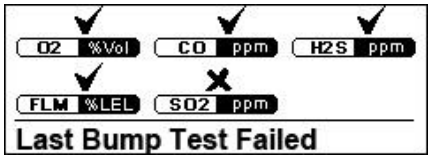
13. If the calibration interval is not zero, the detector displays the number of days remaining until the next calibration is due.



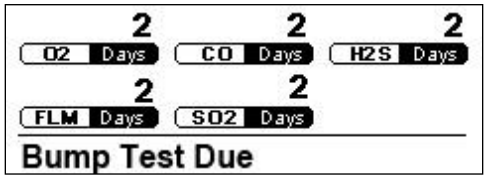
14. If calibration is due and Forced Calibration is enabled, the Forced Calibration screen is displayed. For more information, see ***Calibration*** and ***User Options and Settings***.

a) Follow on-screen instructions
b) If a calibration is not performed, the detector automatically deactivates.

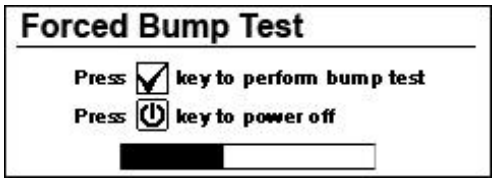
15. If the last bump test failed and bump test interval is not zero, the detector displays the last failed bump test result.



16. If the bump test interval is not zero, the detector displays the number of days until the next bump test is due.



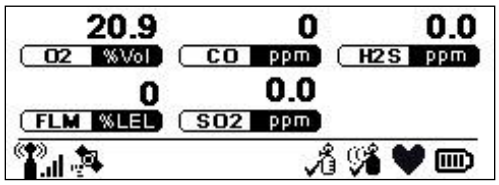
17. If Bump Test is overdue and Forced Bump Test is enabled, the Forced Bump Test screen is displayed. For more information, see ***Bump Test*** and ***User Options and Settings***.



a) Follow on-screen instructions.

b) If bump test is not performed, the detector automatically deactivates.

18. The detector begins normal operation.



Calibration

Calibration is a two-step procedure that determines the measurement scale for the detector's response to gas. In the first step, a baseline reading is taken in a clean, uncontaminated environment (see Zero Calibration). In the second step, the sensors are exposed to known concentrations of gas. The detector uses the baseline and known gas concentrations to determine the measurement scale.

BW Technologies by Honeywell recommends to 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 to calibrate sensors regularly and at least once every 180 days (6 months).

Before you begin

1) Have ready the calibration adapter and calibration tubing cut to a maximum 1.0 metre (3 foot) length.
2) Ensure access to calibration gas cylinders.
3) Use premium-grade calibration gases.
4) Use gases approved by the National Institute of Standards and Technology, or equivalent.
5) Do not use gas cylinders past their expiration date.
6) Verify that the gas you intend to use matches the span concentration values set for the monitor.

Related Topics

1) ***Connect/Disconnect Gas Cylinder***
2) ***Zero Calibration***
3) ***Troubleshooting Calibration***

⚠CAUTION

Calibrate only in a normal atmosphere (20.9% O_2) that is free of hazardous gas. Do not calibrate in a hazardous area.

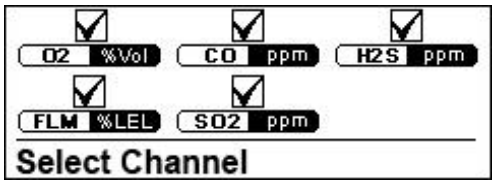
The maximum tubing length for calibration is 1m (3 ft).

Calibrate the Detector

1) Move to a normal atmosphere (20.9% O2) that is free of hazardous gas.
2) Activate the detector, if necessary.
3) Begin the calibration.
   a) With the detector in normal operating mode, press ☑ to open the main menu.
   b) Press ▼ to scroll to Calibration, then press ☑ to open the calibration menu.

c) Press ▼ to scroll to Span Calibration and press ☑ to begin the calibration..

4) Select the sensor channels to calibrate.



a) Press ▲ to select or deselect the channels that you will calibrate.

b) Press ▼ to move to the next channel.

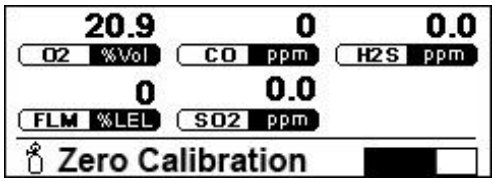
c) When ready, press ☑ to continue to the next step.

5) When prompted, press ☑ to confirm that you are in a normal atmosphere (20.9% O2) that is free of hazardous gas.

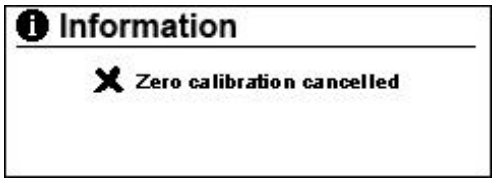
a) If you are not in a normal atmosphere (20.9% O2) that is free of hazardous gas, press ⏻ to cancel the Span Calibration.

6) Before calibrating, the detector automatically performs a zero calibration. For more information, see ***Zero Calibration***.

7) When zero calibration is complete, the results are displayed.

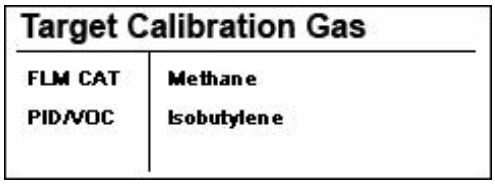


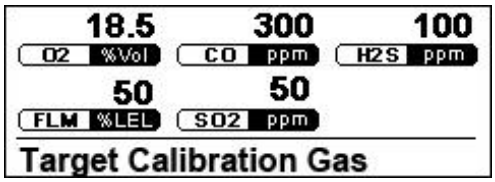
a) To cancel the zero calibration, press ⏻. When prompted, press ☑ to confirm the cancellation. The detector returns to the main Calibration menu.



8) Span Calibration begins.

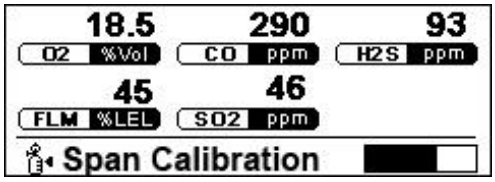
9) If FLM catalytic sensors or PID sensors are installed and selected for calibration, the target calibration gas screens are displayed.



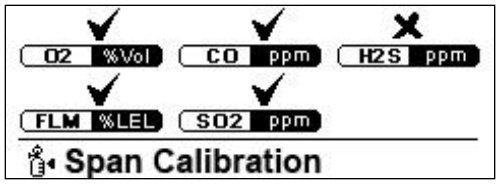


10) When prompted to ***Apply calibration test gas now***, connect the detector to the calibration gas cylinder. Ensure that the calibration cap is fastened securely before applying gas. For more information, see ***Connect/Disconnect Gas Cylinder***.

11) During span calibration, gas readings fluctuate. The progress bar in the lower-right corner of the LCD displays span calibration progress.



12) When the span calibration is complete, the results are displayed.



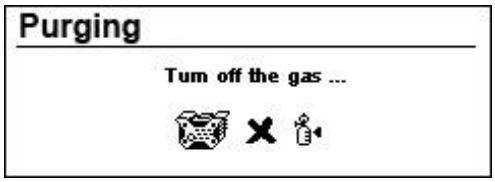
a) When calibration succeeds, ✓ is displayed above the sensor channel.

b) When calibration fails, ✗ is displayed above the sensor channel.

c) If any sensors fail, repeat the calibration

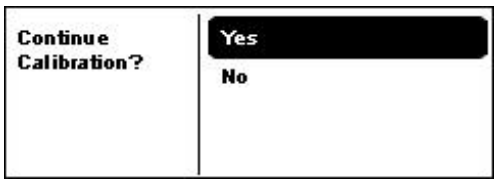
d) For more information on failed bump test results, see Troubleshooting.

13) When prompted, turn off the gas. Disconnect the tubing from the calibration adapter and regulator. Remove the calibration adapter from the detector.



a) The detector purges the test gas until readings are zero.

14) When prompted, select Yes to calibrate another sensor, or No to return to the Calibration menu.



15) Press ⏻ to return to normal operation.

Bump Test

Bump test is a procedure that confirms a detector's ability to respond to target gases by exposing the detector to gas concentrations that exceed its alarm setpoints. Perform bump tests regularly to confirm that sensors are responding correctly to gas, and that audible, visual, and vibration alarms activate during an alarm condition.

If ***Force Bump Test*** is enabled, you may be prompted to bump test during startup. For more information, see ***User Options and Settings***, or consult the ImpactXtreme Technical Reference Guide.

BW Technologies by Honeywell recommends that you

1) Bump test the detector before each use.
2) Calibrate the detector if readings are not within specified limits.

⚠CAUTION

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

Bump test only in a normal atmosphere (20.9% O_2) that is free of hazardous gas. Do not bump test in a hazardous area.

The maximum tubing length for calibration is 1m (3 ft).

Before you begin

1) Have ready the calibration adapter and calibration tubing cut to a maximum 1.0 metre (3 foot) length.
2) Use premium-grade calibration gases.
3) Use gases approved by the National Institute of Standards and Technology, or equivalent.
4) Do not use gas cylinders past their expiration date.
5) Verify that the gas you intend to use matches the span concentration values set for the monitor.

Related Topics

1) ***Connect/Disconnect Gas Cylinder***

2) ***Zero Calibration***

3) ***Troubleshooting Bump Test***

Bump Test the Detector

1) Move to a normal atmosphere (20.9% O_2) that is free of hazardous gas.
2) Activate the detector, if necessary.

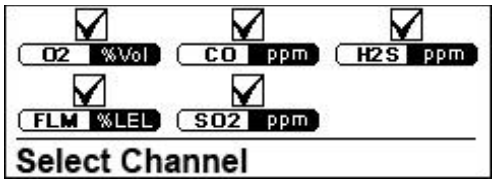
3) Begin the bump test.

   a) With the detector in normal operating mode, press ☑ to open the main menu.

   b) Press ▼ to scroll to Bump Test, and press ☑ to open the bump test menu.

   c) Select Normal Bump Test and press ☑ to begin the bump test.

4) Select the sensor channels.

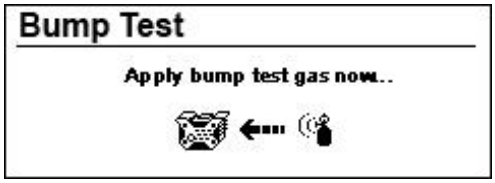


   a) Press ▲ to select or deselect the channels that you will test.

   b) Press ▼ to move to the next channel.

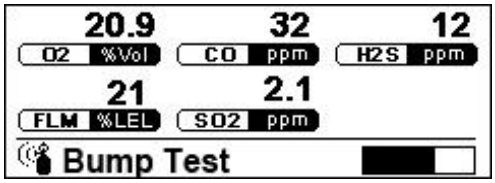
   c) When ready, press ☑ to continue to the next step.

5) When prompted to ***Apply bump test gas now***, connect the detector to the test gas cylinder. For more information, see ***Connect/Disconnect Gas Cylinder***.

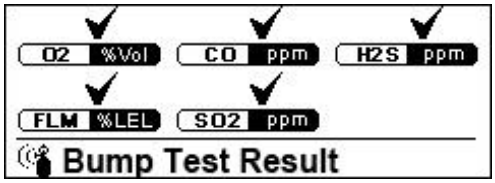


   a) Ensure that the calibration cap is fastened securely before applying gas.

6) During the bump test, gas readings fluctuate. The progress bar in the lower-right corner of the LCD displays bump test progress.



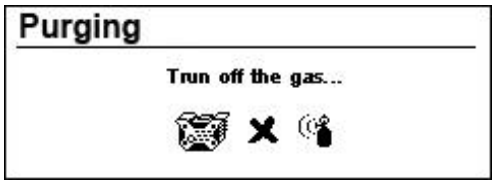
7) When the bump test is complete, the results are displayed.



a) When bump test succeeds, ✓ is displayed above the sensor channel.

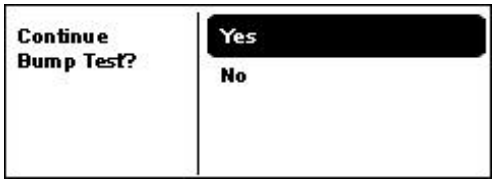
b) When bump test fails, ✗ is displayed above the sensor channel. For more information on failed bump test results, see Troubleshooting.

8) When prompted, turn off the gas. Disconnect the tubing from the calibration adapter and regulator. Remove the calibration adapter from the detector.



a) The detector purges the test gas until readings are zero.

9) When prompted, select Yes to bump test another sensor, or No to return to the Bump Test Menu.



10) Press ⏻ to return to normal operation.

Connect/Disconnect Gas Cylinder

⚠CAUTION

Calibrate only in a atmosphere (20.9% O_2) that is free of hazardous gas. Do not calibrate in a hazardous area.

The maximum tubing length for calibration is 1m (3 ft).

Before You Begin

1) Have ready the calibration adapter and calibration tubing cut to a maximum 1.0 metre (3 foot) length.
2) Use premium-grade calibration gases.
3) Use gases approved by the National Institute of Standards and Technology, or equivalent.
4) Do not use gas cylinders past their expiration date.
5) Verify that the gas you intend to use matches the span concentration values set for the monitor.

Related Topics

1) ***Calibration***

2) ***Bump Test***

3) ***Zero Calibration***

Connect/Disconnect Gas Cylinder

1) Verify that the calibration gas you are using matches the span concentration value(s) that are set for the detector.
2) Connect one end of the calibration tubing to the 0.5 litre/minute regulator on the gas cylinder.
3) Connect the free end of the calibration tubing to the intake inlet on the calibration adapter.
4) Begin the calibration procedure.
    a) Do not attach the calibration adapter to the detector until prompted to apply gas.
5) When prompted to apply gas, attach the calibration adapter to the detector.
    a) Hook the calibration adapter to the front, right side of the detector and align with the sensor grill.

b) When the adapter is aligned, turn the thumbscrew until it is tight. Do not over tighten the thumbscrew.

c) Ensure that the calibration cap is securely fastened before applying gas.

6) When calibration or bump test is complete, disconnect the tubing from the calibration adapter and the gas cylinder regulator. Remove the calibration adapter from the detector.

Zero Calibration

Zero calibration, or 'auto zero, establishes stable baseline readings for all sensors by adjusting the detector's baseline concentration reading to match the concentration of gas found in a clean, uncontaminated environment. The baseline reading becomes the 'zero' on the measurement scale that the detector uses to display changes in gas concentrations.

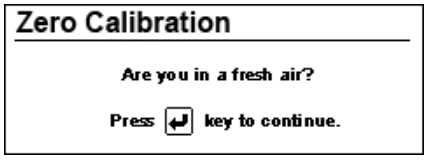
Related Topics

1) Connect/Disconnect Gas Cylinder
2) Calibration
3) Troubleshooting

⚠CAUTION

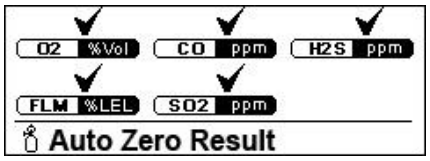
Calibrate only in a normal atmosphere (20.9% O_2) that is free of hazardous gas. Do not calibrate in a hazardous area.

Zero Calibration

1) Move to a normal atmosphere (20.9% O_2) that is free of hazardous gas.
2) Activate the detector, if necessary.
3) Begin the zero calibration.
4) With the detector in normal operating mode, press ☑ to open the main menu.
5) Press ▼ to scroll to Calibration, and press ☑ to open the Calibration menu.
6) Select Zero calibration and press ☑ to begin the Zero calibration.
7) When auto-zero on start-up is enabled, then the instrument will start zero calibration after start-up sequence is complete automatically. For more information, see User Options and Settings, or consult the ImpactXtreme Technical Reference Guide.
8) When prompted, press ☑ to confirm that you are in a normal atmosphere (20.9% O_2) that is free of hazardous gas.
9) 

10) If you are not in a normal atmosphere (20.9% O_2) that is free of hazardous gas, press ⏻ to cancel the Zero Calibration.

11) When the zero calibration is complete, the results are displayed.

12) 

Alarms

The ImpactXtreme uses visible, audible and vibration indicators to confirm detector operation and compliance, and to alert you to potentially harmful gas concentrations or critical system faults that may impair detector operation and reliability. It is your responsibility to respond appropriately to alarms, faults, warnings and other cautionary notifications.

Gas alarms occur when the ImpactXtreme detects concentrations that exceed defined setpoint limits for monitored gases. They stop automatically when the concentrations are within defined setpoint limits.

WARNING

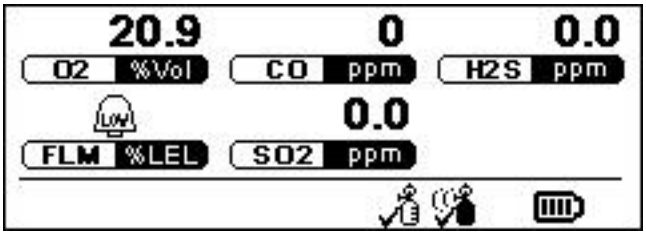
Follow all safety procedures defined by your employer. Confirm with your supervisor before clearing TWA and STEL alarms.

Related Topics

1) Status Icons
2) LCD Backlight
3) LED Visual Alarm Indicators

Gas Alarms

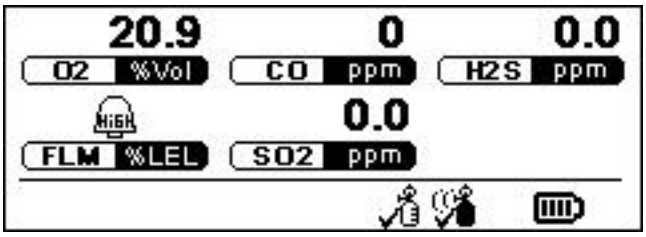
Low Alarm



Detector Behavior

a) Gas channel display alternates between alarm icon and gas concentration.
b) Heartbeat icon disappears.
c) LCD backlight changes to red.
d) LED visual alarm indicators flash fast, red.
e) Audible alarm is slow with upward tone.
f) Vibrator alarm activates.

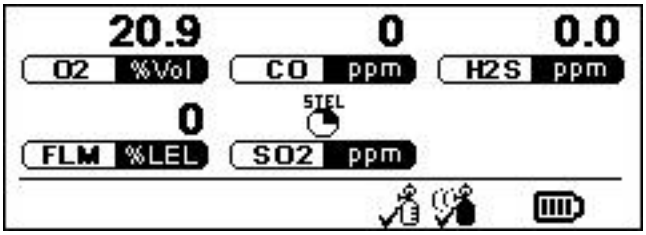
High Alarm



Detector Behavior

a) Gas channel display alternates between alarm icon and gas concentration.
b) Heartbeat icon disappears.
c) LCD backlight changes to red.
d) LED visual alarms flash fast, red.
e) Audible alarm is fast with downward tone.
f) Vibrator alarm activates.

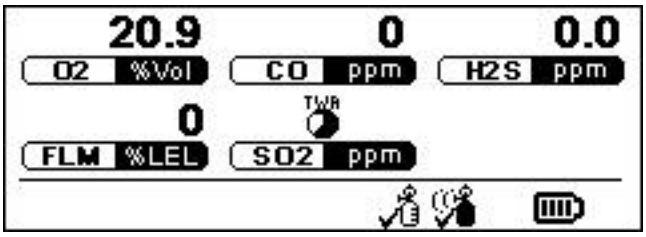
STEL Alarm



Detector Behavior

a) Gas channel display alternates between alarm icon and gas concentration.
b) Heartbeat icon disappears.
c) LCD backlight changes to red.
d) LED visual alarms flash fast, red.
e) Audible alarm is fast with downward tone.
f) Vibrator alarm activates.

TWA Alarm

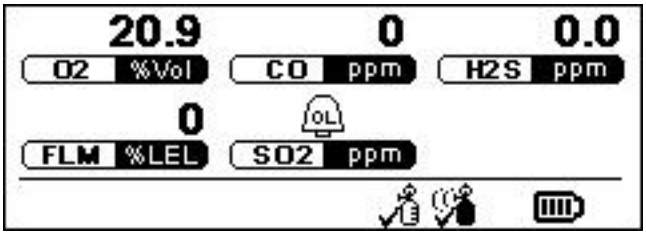


Detector Behavior

a) Gas channel display alternates between alarm icon and gas concentration.
b) Heartbeat icon disappears.
c) LCD backlight changes to red.
d) LED visual alarms flash fast, red.
e) Audible alarm is fast with downward tone.

f) Vibrator alarm activates.

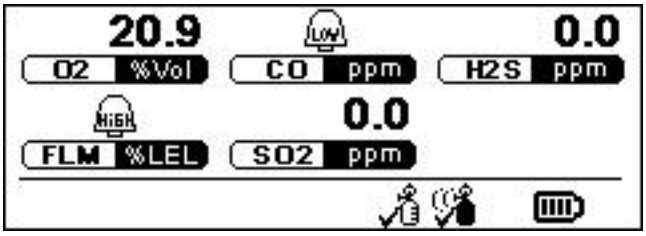
OL Alarm



Detector Behavior

a) Gas channel displays alarm icon.
b) Heartbeat icon disappears.
c) LCD backlight changes to red.
d) LED visual alarms flash fast, red.
e) Audible alarm is fast with downward tone.
f) Vibrator alarm activates.

Multi-Gas Alarm



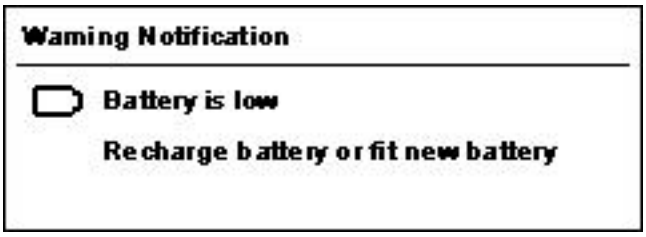
Detector Behavior

a) Gas channel display alternates between alarm icons and gas concentrations.
b) Heartbeat icon disappears.
c) LCD backlight changes to red.
d) LED visual alarms flash fast, red.
e) Audible alarm alternates between low alarm and high alarm tones.
f) Vibrator alarm activates.

Battery Alarms

The ImpactXtreme tests battery power during start-up, and continuously throughout operation. When there is only enough power left to operate in a normal atmosphere for about 15 minutes, the low battery alarm activates. After about 15 minutes of low-battery alarm, the detector enters Critical Battery Alarm, and initiates an automatic deactivation procedure. The low battery alarm is intended to provide enough time to leave a hazardous area before the detector automatically deactivates.

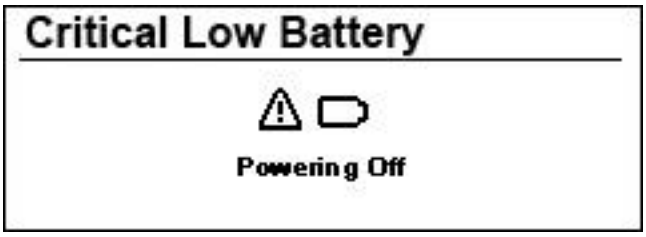
Low Battery Alarm



Detector Behavior

a) Battery icon flashes and vibrator alarm activates.
b) LCD backlight changes to yellow.
c) Detector initiates an alternating pattern of 10 fast audible alarm tones, yellow LED visual alarm flashes, and 7 seconds of silence.
d) After 15 minutes of low battery alarm, the detector enters Critical Battery Alarm.

Critical Low Battery Alarm



Detector Behavior

a) Vibrator alarm pulses.
b) LCD backlight is red.
c) Detector initiates an alternating pattern of 10 fast audible alarm tones, red LED visual alarm flashes, and 1 second of silence.
d) Critical Low Battery Powering Off is displayed, and the detector deactivates.

Panic Alarm

Detector Behavior

a) Panic Alarm is displayed.
b) Heartbeat icon disappears.
c) LCD backlight changes to red.
d) LED visual alarm indicators flash fast, red.
e) Audible alarm is fast with downward tones.
f) Vibrator alarm activates.

Alkaline Battery Pack

The alkaline battery pack holds 4 AA batteries. Use only batteries recommended by BW Technologies by Honeywell. For more information, see ***Specifications***.

Change alkaline batteries only in an area that is known to be non-hazardous.

⚠CAUTION

Only use batteries recommended by BW Technologies by Honeywell. Refer to Specifications for manufacturers and model numbers.

Use only new AA batteries. Do not recharge spent batteries.

Do not use batteries if they are damaged in any way.

Change alkaline batteries only in an area that is known to be non-hazardous.

Remove and Insert the Alkaline Battery Pack

Before you begin

1) Have ready the screwdriver with double-ended bit (Phillips and hex) provided.
2) Move to an area that is known to be non-hazardous.

Remove the Alkaline Battery Pack

1) In normal operating mode, press and hold ⏻ for 3 seconds to deactivate the detector.
2) Loosen the 4 screws that secure the battery pack to the detector.

3) Gently remove the battery pack from the detector.
   a) Press battery latch against outside edge of detector shell.

b) Lift the battery pack from the casing.

c) Do not use screwdrivers or other tools to press the battery latch, or pry the battery pack from the casing.

Insert the Alkaline Battery Pack

1) Insert the battery pack into the detector and tighten the four screws.
2) Place thumbs on either side of the battery latch and press firmly to lock the battery into position and ensure ingress protection.

Replace Spent Alkaline Batteries

Before you begin

1) Have ready the screwdriver with double-ended bit (Phillips and hex) provided.
2) Have ready 4 replacement AA batteries. Use only batteries recommended by BW Technologies by Honeywell. For more information, see **Specifications**.
3) Move to an area that is known to be non-hazardous.

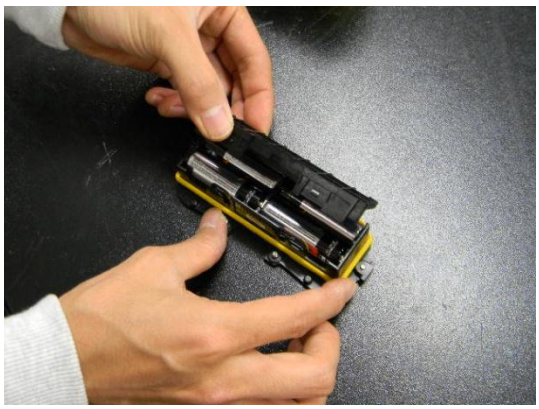
Related Topics

1) Specifications
2) Remove and Insert the Alkaline Battery Pack

Replace Spent Alkaline Batteries

1) Remove the battery pack. For more information, see Remove and Insert the Alkaline Battery Pack.

2) With the battery pack label facing away from you, remove the cover from the alkaline battery chamber.



3) Remove the spent batteries.

   a) Dispose of the spent batteries in accordance with local laws.

4) Insert the new batteries.

   a) Note the position of the negative and positive terminals.

   b) Hold the batteries flat for insertion.

   c) Press down firmly to ensure that the battery is properly inserted.

3) Replace the battery pack cover.

4) Insert the battery pack into the detector. For more information, see Remove and Insert the Alkaline Battery Pack.

Rechargeable Battery Pack

The rechargeable battery pack can be changed in hazardous conditions. The run time of the rechargeable battery decreases approximately 20% over 2 years of typical use.

⚠WARNING

Battery capacity may degrade after 300 charge cycles.

⚠CAUTION

Only use the rechargeable ImpactXtreme battery pack provided by BW Technologies by Honeywell or an authorized distributor.

If the rechargeable battery is swollen or damaged in any way, dispose of it immediately and in accordance with local laws.

The terminal on the bottom of the rechargeable battery heats when charged in the ImpactXtreme Cradle. Do not touch the terminal immediately after removing the rechargeable battery from the Cradle.

Run-time capacity

A properly maintained rechargeable battery pack can retain up to 80% of run-time capacity after approximately 2 years of typical use. To help prolong battery life and run time capacity, follow these guidelines:

1) Allow the battery to fully charge and fully discharge 3 times when you first use it.
2) Charge the battery in temperatures ranging from 0°C (32°F) and 40°C (104°F). Do not charge the battery in temperatures above 45°C (113°F) or below 0°C (32°F).
3) Deactivate the detector when not in use.

Remove and Insert the Rechargeable Battery Pack

Before you begin

1) Have ready the screwdriver with double-ended bit (Phillips and hex) provided.
2) Move to an area that is known to be non-hazardous.

Remove the Rechargeable Battery Pack

1) In normal operating mode, press and hold ⏻ for 3 seconds to deactivate the detector.
2) Loosen the 4 screws that secure the battery pack to the detector.

3) Gently remove the battery pack from the detector.

   a) Press battery latch against outside edge of detector shell.

   b) Lift the battery pack from the casing.

   c) Do not use screwdrivers or other tools to press the battery latch, or pry the battery pack from the casing.

Insert the Rechargeable Battery Pack

1) Insert the battery pack into the detector and tighten the four screws.
2) Place thumbs on either side of the battery latch and press firmly to lock the battery into position and ensure ingress protection.

Charge the Rechargeable Battery in a Deactivated Detector

Charge the battery in a normal atmosphere (20.9% O_2) that is free of hazardous gas. To avoid personal injury and/or property damage, adhere to the following warnings and cautions:

⚠WARNING

Charge the battery after each work day.

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 0°C to 40°C (32°F to 104°F).

Charge the battery using BW Technologies by Honeywell charger adapters designed for the ImpactXtreme only. Do not use any other chargers or adapters. Failure to adhere to this caution can lead to fire and/or explosion.

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

The ImpactXtreme uses a lithium battery (IX-BAT-R1) that may present a risk of fire or chemical burn hazard if misused. Do not disassemble. Do not heat above 100°C (212°F). Do not incinerate.

Lithium polymer cells exposed to heat at 130°C (266°F) for 10 minutes can cause fire and/or explosion.

When replacing the battery, use only approved lithium polymer cells supplied by BW Technologies by Honeywell or an authorized dealer. Use of any other cell can cause fire and/or explosion. For more information, refer to Replacement Parts and Accessories.

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

Refer to the ImpactXtreme Cradle Charger Operator's Manual

The detector will not detect gas while in charging mode.

The wireless model will not communicate with Location Manager while in charging mode.

Remove the tubing from the pump adapter before inserting the detector into the cradle charger.

Before you begin

1) Move to a normal atmosphere (20.9% O_2) that is free of hazardous gas. Do not charge the battery in a hazardous area.
2) In normal operating mode, press and hold ⏻ for 3 seconds to deactivate the detector.

3) Remove the pump adapter before inserting the detector into the cradle charger.
4) Have ready the ImpactXtreme Cradle Charger and Cradle Charger Operator's Manual.
    a) Do not use any other chargers or adapters. Failure to adhere to this caution can lead to fire and/or explosion.

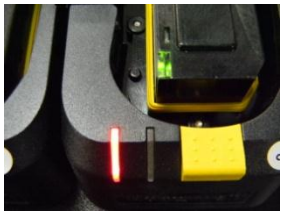
Related Topics

1) Specifications
2) Remove and Insert the Battery Pack
3) Replacement Parts and Accessories

Charge While the Rechargeable Battery is Inserted in a Deactivated Detector

1) Plug the charger into an AC outlet.
    a) Ensure that the correct power supply is used.
    b) Refer to the ImpactXtreme Cradle Charger Operator's Manual.
2) Insert the detector into the Cradle Charger.
    a) Press down firmly to ensure connection with the contact pins.
    b) The detector may be warm while charging. This is normal.
    c) A minimum of 6 hours of uninterrupted charging is required to fully charge the lithium battery.
3) While the battery is charging, the LED on the battery pack is red. The detector LCD displays operator, location and charge progress information.

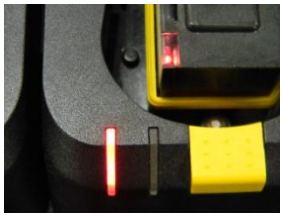
4) When charging is complete, the LED on the battery pack turns green. Charging Complete is displayed on the detector LCD screen.



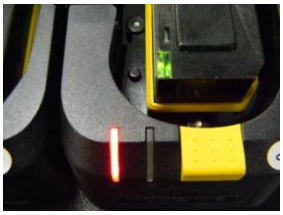
5) Press the release latch on Cradle Charge, and remove the detector.

Remove and Charge the Rechargeable Battery Pack

1) Remove the Rechargeable Battery Pack.
2) Plug the charger into an AC outlet.
   a) Ensure that the correct power supply is used.
   b) Refer to the ImpactXtreme Cradle Charger Operator's Manual.
6) Insert the battery pack into the Cradle Charger.
   a) Press down firmly to ensure connection with the contact pins.
   b) The battery may be warm while charging. This is normal.
   c) A minimum of 6 hours of uninterrupted charging is required to fully charge the lithium battery.
7) While the battery is charging, the LED on the battery pack is red.



8) When charging is complete, the LED on the battery pack turns green.



9) Press the release latch on Cradle Charge, and remove the rechargeable battery pack.
10) Insert the Rechargeable Battery Pack

Coin Cell Battery

The detector contains a coin cell battery that powers the real-time clock. Only a qualified technician should replace the coin cell battery. Coin cell failure does not impair the detector's ability to monitor the atmosphere or alert you to danger when potentially hazardous gases are detected. Coin cell failure may cause the detector's logs to register incorrect dates.

Contact BW Technologies by Honeywell or an authorized distributor if:

1) The real-time clock test fails during startup;
2) The detector displays a low or failed clock battery warning; or
3) The date or time displayed is has reset to 1 January 2000.

WEEE Directive and Battery Directive

Failure to comply with the following battery removal and disposal instructions may result in battery shorting, battery leaking, and/or other damage. Ensure that a qualified technician completes the following procedures.

⚠CAUTION

Ensure that a qualified technician completes the following procedures.

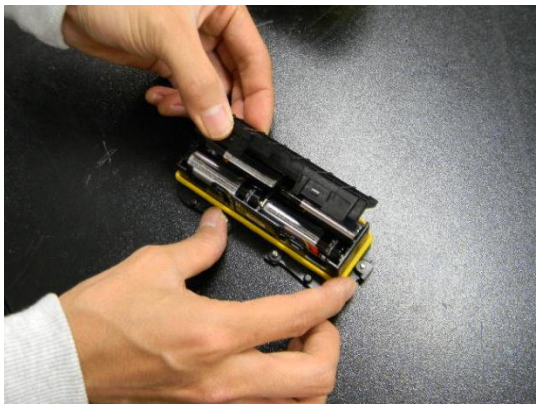
Remove and Dispose of the Alkaline Battery Pack

Before you begin

1) Have ready the screwdriver with double-ended bit (Phillips and hex) provided.
2) Move to an area that is known to be non-hazardous.

Remove Spent Alkaline Batteries

1) Remove the battery pack. For more information, see Remove and Insert the Alkaline Battery Pack.
2) With the battery pack label facing away from you, remove the cover from the alkaline battery chamber.



3) Remove the spent batteries.
4) Dispose of the spent batteries in accordance with local laws.

Remove and Dispose of the Rechargeable Battery Pack

Before you begin

1) Move to an area that is known to be non-hazardous.
2) Have ready the screwdriver with double-ended bit (Phillips and hex) provided.

Remove the Rechargeable Battery Pack

1) In normal operating mode, press and hold ⏻ for 3 seconds to deactivate the detector.

2) Loosen the 4 screws that secure the battery pack to the detector.

3) Gently remove the battery pack from the detector.

   a) Press battery latch against outside edge of detector shell.

   b) Lift the battery pack from the casing.

   c) Do not use screwdrivers or other tools to press the battery latch, or pry the battery pack from the casing.

4) Dispose of the rechargeable battery pack in accordance with local laws.

Remove the Coin Cell Battery

⚠CAUTION

Ensure that a qualified technician completes the following procedures.

Before you begin

1) Have ready the screwdriver with double-ended bit (Phillips and hex) provided.
2) Move to an area that is known to be non-hazardous.

Remove the Coin Cell Battery

1) Press and hold ⏻ for 3 seconds to deactivate the detector.
2) If the battery pack has not been removed, remove it now. For more information, refer to Remove and Dispose of the Alkaline Battery Pack or Remove and Dispose of the Rechargeable Battery Pack.
3) Loosen the 5 screws that secure the back panel of the ImpactXtreme.
4) Remove the back panel to expose the main PCB. The coin cell is located in the upper left corner of the board.
5) Remove the 2 screws holding the PCB in place, then remove the PCB.
6) The coin cell is connected to the board by 2 leads. Clip the leads individually to remove the coin cell.
7) Dispose of the coin cell in accordance with local laws.

Sensors

The detector is supplied with a replaceable cartridge containing up to six gas sensors for detecting oxygen enrichment and deficiency; flammable gases up to the Lower Explosive Limit (LEL); and toxic gases.

Detectors that are configured for fewer than 6 gases may contain dummy sensors in one or more sensor positions.

⚠WARNING

To avoid personal injury and/or property damage, use only sensors that are specifically designed for the detector.

Replace the sensors in a non-hazardous area.

⚠CAUTION

Each sensor has a high degree of resistance to common vapors and gases. To stablize a sensor, move the detector to a normal environment that is free of hazardous gases, and wait 10 to 30 minutes.

Prevent accidental poisoning of sensors. For more information, see Sensor Poisons and Contaminants.

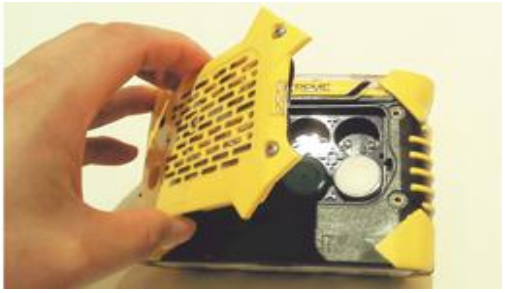
Use caution when removing sensors from the sensor cartridge. Do not twist or force the sensor.

Before you begin

1) Move to an area that is known to be non-hazardous.
2) Have ready the screwdriver with double-ended bit (Phillips and hex) provided.
3) Have ready replacement sensors and sensor filters.

Remove the Front Cover

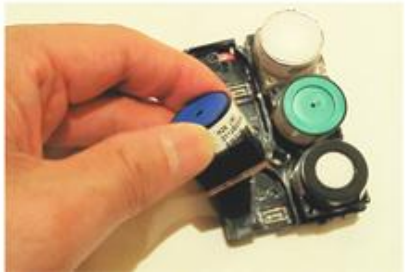
1) Press and hold ⏻ for 3 seconds to deactivate the detector.
2) Loosen the four screws on the front cover. Remove the cover.



Replace a Gas Sensor

1) Remove the front cover.
2) Identify and remove the sensor that will be replaced. Do not use a screwdriver or other sharp implement to pry the sensor out.
3) Insert the new sensor.





4) Replace the front cover and tighten the four screws.
5) Calibrate the new sensor prior to use. For more information, see Calibration.

Replace a Dummy Sensor with a Gas Sensor

1) Remove the front cover.
2) Gently flex the front cover to loosen the sensor housing and remove it from the eight snaps that hold it in place.
3) Push the dummy sensor through the back of the sensor housing. Do not use a screwdriver or other sharp implement to pry the sensor out. Retain the dummy sensor for future use.
4) Replace the sensor housing. Ensure that the eight snaps are fully engaged.
5) Insert the gas sensor.
6) Replace the front cover and tighten the four screws.
7) Calibrate the new sensor prior to use. For more information, see Calibration.

Insert a Dummy Sensor

1) Remove the front cover.
2) Gently flex the front cover to loosen the sensor housing and remove it from the eight snaps that hold it in place.
3) There are two tabs on the quartered side of the dummy sensor. Tip the dummy sensor to insert one tab against the side of the sensor cavity, then insert the other tab.

4) There are two wings on the flat side of the dummy sensor. Rotate the sensor until the wings are seated properly and the dummy sensor lies flat.
5) Replace the sensor housing. Ensure that the eight snaps are fully engaged.
6) Replace the front cover and tighten the four screws.

Maintenance and Cleaning

To maintain the detector in good operating condition, BW Technologies by Honeywell recommends that you perform the following maintenance as required:

1. Calibrate, bump test, and inspect the detector on a regular schedule.
2. Maintain a log of all maintenance, bump tests, calibrations, and alarm events.
3. Clean the exterior with a soft, damp cloth. Do not use solvents, soaps, or polishes. For more information, refer to Sensor Poisons and Contaminants.

User Options and Settings

User options and detector configuration settings are managed through FleetManager II software. Visit www.gasmonitors.com to download FleetManager II.

This section describes some of the user options and configuration settings available for the ImpactXtreme detector through FleetManager II software. For more information, refer to the *FleetManager II Operator Manual* and the *ImpactXtreme Technical Reference Guide*.

Before you Begin

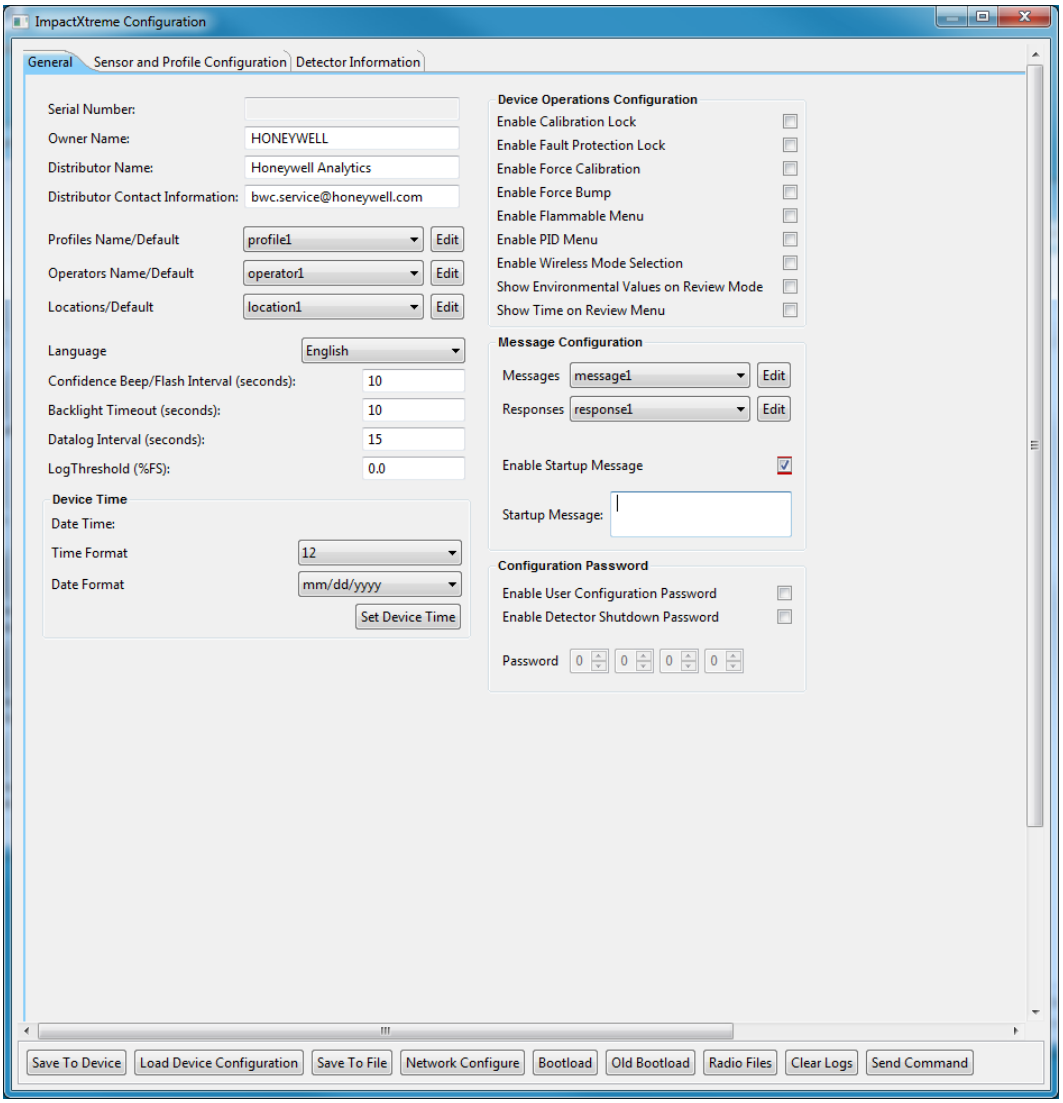
Have ready the following items:

1. Computer with FleetManager II software installed.
2. Detector
3. Cradle Charger or IR Adapter <model number needed>, plus compatible USB cable

Getting Started

1. Activate the computer. Start the FleetManager II software program, and login as an Administrator.
2. Connect the transfer device to computer.
    a. If you are using an IR Adapter, attach it to the USB cable. Then, connect the USB cable to the computer. Activate the detector, and place it close to the IR Adapter.
    b. If you are using a Cradle Charger, ensure that it is connected to a power supply and the red power LED is lit. Attach the Cradle Charger to the USB cable. Then, connect the USB cable to the computer. Insert the detector.
3. Choose Configure Device via IR Link from the Devices menu.
4. Select ImpactXtreme from the Device Selection menu. When the Device Configuration Selection window opens, select a configuration file to open:
    a. Choose *From default file* to load factory default settings for a specific country or region.
    b. Choose *From existing file* to load a settings file that you have saved on your computer or network.
    c. Choose *From connected device* to retrieve the settings from the detector that is connected to the computer.

General Settings



Owner Name

Enter an owner name or other identifying title. This value is displayed during detector startup. Maximum 16 characters.

Distributor Name

Enter a company name or other identifying title. This value is displayed during detector startup. Maximum 20 characters.

Distributor Contact Information

Enter a telephone number, web address or email address. Maximum 30 characters. This value is displayed during detector startup.

Profiles Name/Default

ImpactXtreme stores up to 2 setting profiles per detector. To set the default profile for a detector, select a profile name from the drop-down menu. To change a profile name, select Edit and enter a new name in the *Change To* field. Maximum 16 characters.

Use the Settings menu on the detector to load a stored profile.

Operators Name/Default

ImpactXtreme stores up to 10 operator names per detector. To set the default operator name for a detector, select an operator name from the drop-down menu. To change an operator name, select Edit and enter a new name in the *Change To* field. Maximum 12 characters.

Use the Settings menu on the detector to load a stored operator name.

Locations/Default

ImpactXtreme stores up to 49 locations per detector. To set the default location for a detector, select a location from the drop-down menu. To change a location description, select Edit and enter a new description in the *Change To* field. Maximum 12 characters.

Use the Settings menu on the detector to load a stored location.

Language

To change the default display language for a detector, select one of these options from the drop-down menu:

1. English (factory default)
2. French
3. German
4. Italian
5. Spanish
6. Dutch
7. Portuguese

Confidence Beep Interval (seconds)

To change the time interval between confidence beeps (in seconds) for a detector, enter a value from 5 to 255.

Backlight Timeout (seconds)

By default, the detector backlight deactivates after 10 seconds. To change the timeout interval (in seconds) for the backlight, enter a value from 10 to 255.

Datalog Interval (seconds)

By default, the detector records a datalog entry once every 15 seconds. To change the datalog recording interval (in seconds), enter a value from 1 to 600.

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

Log Threshold (%FS)

➔ ***What is %FS? Why would a user/administrator want to change the default value? What are the consequences of change?***

Device Time

Use these settings to change the way the detector displays times and dates.

Time Format

To change the default display format for time, choose an option from the drop-down menu. The detector supports 12-hour and 24-hour clock formats.

Date Format

To change the default display format for date, choose an option from the drop-down menu. The detector supports mm/dd/yyyy and dd/mm/yyyy formats.

Set Device Time

To synchronize the detector time with your computer's time, choose *Set Device Time*.

Device Configuration Options

Enable Calibration Lock

Enable Fault Protection Lock

When *Enable Fault Protection Lock* is selected and a fault occurs during detector start-up, the fault message is displayed continuously on the detector LCD. The detector will not enter normal operation until the fault is cleared.

To review the fault details, select *Historical Info* from the *Information* menu on the detector. The detector can be deactivated at any time during the fault condition.

Enable Force Calibration

When *Enable Force Calibration* is selected and sensors are past due for calibration, the sensors must be calibrated during startup for the detector to enter normal operation.

You must enter a value in the *Cal Interval (days)* field on the sensor Profile Settings menu before you select *Enable Force Calibration*.

Enable Flammable Menu

Enable PID Menu

Enable Wireless Mode Selection

Show Environmental Values on Review Mode

Show Time on Review Mode

Message Configuration

Messages

➔ ***Please provide more information on the messages & responses options – how will they work? Can a user access them from a detector menu or button? Can you provide an example of use?***

ImpactXtreme stores up to 10 messages per detector. To edit the text of a stored message, select the message from the drop-down menu. Then, select *Edit* and enter a new message in the *Change To* field. Maximum 20 characters.

Use the Settings menu on the detector to load a stored message.

Responses

ImpactXtreme stores up to 10 responses per detector. To edit the text of a stored response, select the message from the drop-down menu. Then, select *Edit* and enter a new message in the *Change To* field. Maximum 20 characters.

Use the Settings menu on the detector to load a stored response.

Startup Message

Select *Enable Startup Message* to display a custom message during detector start-up. Enter a message in the *Startup Message* field. Maximum 25 characters.

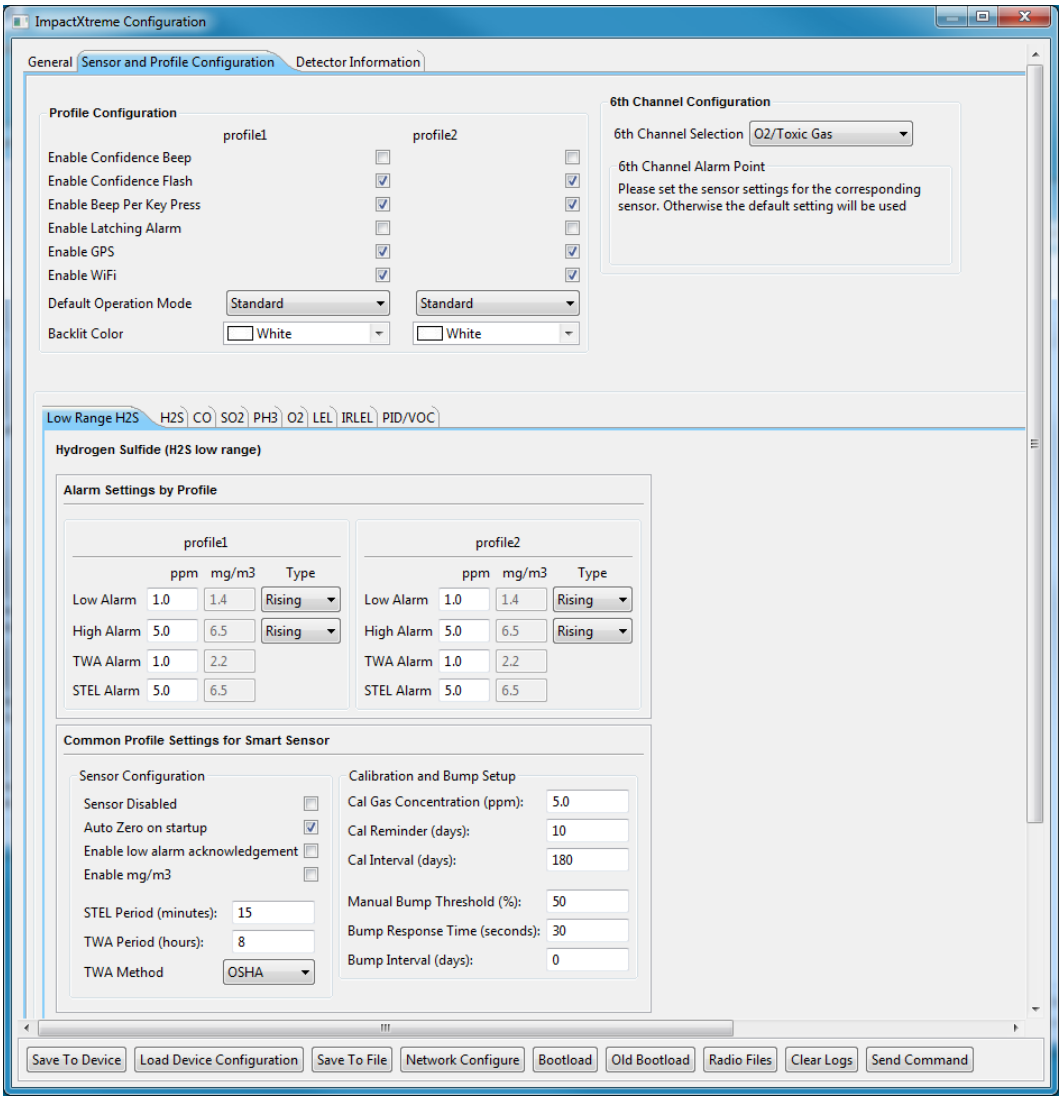
Configuration Password

Select *Enable User Configuration Password* to prompt detector users to enter a password each time a configuration change is made. This will help prevent unauthorized configuration changes.

Select *Enable Detector Shutdown Password* to prompt detector users to enter a password each time the detector is deactivated. This will help prevent unauthorized deactivation.

Set a 4-digit password.

Sensor and Profile Configuration



Profile Configuration

Enable Confidence Beep

Enable Confidence Flash

Enable Beep Per Key Press

Enable Latching Alarms

Enable GPS

Enable WiFi

Default Operation Mode

Standard

Safe

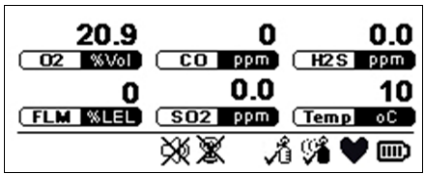
If *Default Operation Mode* is set to *Safe*, the word *Safe* is displayed during normal operation in non-alarm conditions. If a gas alarm, fault or warning occurs, the detector reverts to normal operating mode, and displays event information and gas readings. For more information, refer to the *FleetManager II Operator's Manual*.

Stealth

If Default Operation Mode is set to Stealth, the following features are disabled:

1. Audible alarms
2. Visual alarms
3. Confidence beep
4. IntelliFlash

Icons are display to indicate that audible and visual alarms are disabled.



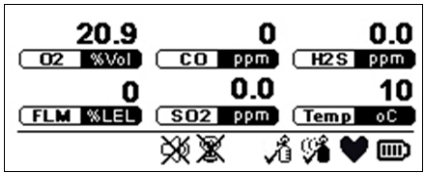
Backlit Color

Sensor Configuration

Detector Information

Stealth Mode

If *Default Operation Mode* is set to *Stealth* using FleetManager II, audible and visible alarms are deactivated and screen icons are marked with an X.



Troubleshooting

Specifications

➔ ***Text in red is for EXAMPLE ONLY, borrowed from GasAlertQuattro***

Dimensions

Standard version with clip: 138 by 97 by 65 cm (54.3 by 38.2 by 25.6 inches)

Wireless version with clip: 138 by 121 by 65 cm (54.3 by 47.6 by 25.6 inches)

Weight

Standard version with rechargeable battery pack and clip: 610 g (21.5 oz.)

Standard version with alkaline battery pack and clip: 620.5 g (21.9 oz.)

Wireless version with rechargeable battery pack and clip: 692.5 g (24.4 oz.)

Wireless version with alkaline battery pack and clip: 705 g (24.9 oz.)

Operating Temperature

Alkaline battery: -20°C to +50°C (-4°F to 122°F)

Rechargeable battery: -40°C to +60°C (-40°F to 140°F) (just for 20 minutes at -40°C)

LEL performance temperature range: -30°C to +55°C (-22°F to 144°F)

Accuracy specification of combustible gas performance

Allowed indication deviation is ± 3% of full scale concentration from 0°C and 40°C.

Allowed indication deviation is ± 5% of full scale concentration from -25°C to 0°C and from +40°C to +55°C.

Allowed indication deviation is ± 10% of full scale concentration from -30°C to -25°C.

Storage Temperature

-20 C to +65 C (-4°F to +149°F)

Operating Humidity

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

Dust and Moisture Ingress

IP 65; IP66 with flow adapter in place

Alarm Setpoints

Alarm setpoints may vary by region. For more information, refer to the ImpactXtreme Technical Reference Guide.

Detection Ranges

Gas	Detection Ranges
FLAM CAT	10 %LEL
FLAM IR(%LEL)	0 to 100%LEL
FLAM IR(%Vol)	0 to 100%Vol
VOC	0 to 1,000ppm
Oxygen	0 to 25.0%Vol
Carbon Monoxide	0 to 1,000ppm
Hydrogen Sulfide	0 to 250ppm
Sulfur Dioxide	0 to 100ppm
Phosphine	0 to 20.0ppm

Sensor Types

H_2S, SO2, CO, PH3, O_2: Single plug-in electrochemical cell

Combustibles: Plug-in catalytic bead and Infrared gas sensor

VOC: Photoionization sensor

O_2 Measuring Principle

➔ Capillary controlled concentration sensor

Bump test specified limits

BW recommends using a gas cylinder that will ensure the combustible sensor has an accuracy of -0 to +20% of actual reading (reference CAN/CSA C22.2 No. 152)

Alarm Conditions

TWA alarm, STEL alarm, low alarm, high alarm, multi alarm, over limit (OL) alarm, low battery alarm, critical low battery alarm, warning alarm, fault alarm, critical system fault alarm, IntelliFlash, confidence/compliance beep.

Audible Alarm

➔ 95 dB at 30 cm (12 in.) variable pulsed beeper

Visual Alarm

- Red light-emitting diodes (LEDs) and red LCD backlight for gas alarms and critical system faults.
- Yellow light-emitting diodes (LEDs) and yellow LCD backlight for warnings and faults.

Confidence/compliance beep

- Audible beep from variable pulsed beeper. Beep frequency is user-defined with confidence/ compliance beep interval option.

Display

Alphanumeric liquid crystal display (LCD).

Backlight

- Activates on startup and deactivates when start-up sequence is complete.
- Activates when the pushbutton is pressed and deactivates after 10 seconds.
- Activates during a gas alarm, warning, and fault conditions and remains lit until the alarm, warning, or fault ends.

Internal Vibrator

- Vibrates during all gas alarms, warnings, and faults.

Self-test

- Initiated during activation.
- Runs continuously on the battery, electrochemical sensors (PH3, H_2S, SO_2 and CO), combustible sensors (catalytic bead and IR sensor), PID sensor and monitor memory while detector is activated.

Calibration

- Zero and automatic span.

User Options

- Startup message, lockout on self-test error, safe mode, IntelliFlash, confidence/compliance beep, latching alarms, force calibration, force bump, stealth mode, datalog interval, IntelliFlash interval, confidence/compliance beep interval, profile selection, location tag, operator name, log threshold, unit of temperature, configuration password, message configuration, backlight colorm sixth channel configuration, and language selection.

Sensor Options

- Sensor enable/disable, calibration gas values, calibration interval, calibration reminder, bump test interval, bump threshold, bump response time, alarm setpoints (low/high/TWA/STEL), STEL interval, TWA period, auto zero at startup enable/disable, LEL correction factor, low alarm acknowledge, %vol methane measurement, VOC correction factor, mg/m3 enable/disable, target flammable gas, target flammable calibration gas

Year of Manufacture

- The detector's year of manufacture is determined from the serial number. The tenth and eleventh characters in the serial number determines the year of manufacture.
- For example: 1234IXS__**13**0100001 = 2013 year of manufacture

Alkaline Battery Pack and Batteries

Approved Alkaline Battery Pack <part #>

- ***From Quattro: As per standards UL913, EN60079-11, EN60079-0, EC 60079-0, IEC 60079-11, C22.2 No. 157***

Approved Alkaline Batteries

- Energizer E91 -20°C ≤ Ta ≤ +55°C T4 (129.9°C)

AA Alkaline Battery Operating Time

- 8 hours at 20°C (68° F) in fully-charged condition.

Rechargeable Battery Pack and Lithium Battery

Approved Lithium Battery for ImpactXtreme

Narada NL 662485H-3P

Rechargeable Battery (part number)

IX-BAT-R1

Lithium Battery Operating Time

- 9 hours at 20°C (68° F) in fully-charged condition. Run time may decrease over 300 charge cycles, or two years of normal use.

Battery Charger

ImpactXtreme Cradle Charger

First-time Charge

6 hours

Normal Charge

6 hours

Warranty

2 years, excluding sensors

EC Declaration of Conformity

http://www.gasmonitors.com/Declarations_of_Conformity

Approvals

CSA

ATEX

IECEx

Firmware

➔ Release version 1.1.0

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.

For the band 5600-5650 MHz, no operation is permitted.

IC-DFS Statements

The user manual for local area network devices shall contain instructions related to the restrictions mentioned in the above sections, namely that:

1) The device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;
2) The maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall comply with the e.i.r.p. limit; and
3) The maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.

Users should also be advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptibled'en compromettre le fonctionnement.

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.

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.

This radio transmitter IX (ImpactXtreme) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio IX (ImpactXtreme) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Replacement Parts and Accessories

For a complete list of replacement parts and accessories, visit www.gasmonitors.com

➔ ***Note to draft: Point to product home page.***