USER MANUAL

Honeywell BW ™ Flex Series

Portable Multiple GasDetector

shorehire.

Honeywell

M05-4002-003 EN-Rev.A

Safety

 WARNINGS

- The BW Flex Series detector with LEL-IR sensor (PN with W5) will not detect some combustible gases like Hydrogen or Acetylene. For detectable combustible gases,See "Combustible Sensor Information" on page 25 for more information. If your application has one or more of these hazards, please consult Honeywell Analytics to determine the best solution.
- High off-scale LEL readings may indicate an explosive concentration.

 CAUTION

- The detector is a personal safety Device. It is your responsibility to respond properly to the alarm.
- For safety reasons, this equipment must be operated and serviced by qualified personnel only.
- The Li-ion battery in this product presents a risk of fire, explosion, and chemical burn if misused. Do not disassemble, incinerate, or heat above 212°F (100°C). Batteries exposed to heat at 266°F (130°C) for 10 minutes can cause fire and explosion. Batteries must only be charged in a safe area free of hazardous gas.
- Deactivating the detector by removing the battery pack may cause improper operation and harm the detector.
- Use only Honeywell approved battery chargers such as the vehicle Charger.
- Do not use the Detector if it is damaged. Inspect the Detector before use. Look for cracks and missing parts.
- Honeywell recommends bumping 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 and visual alarm activate. Call Shore Hire if the readings are not within the specified limits.
- Protect the catalytic combustible sensor from exposure to lead compounds, silicone, and chlorinated hydrocarbons. Although certain organic vapors (Such as leaded gasoline and halogenated hydrocarbons) may temporarily inhibit sensor performance, in most cases, the sensor will recover after calibration.
- Honeywell recommends the catalytic combustible sensor be checked with a known concentration of calibration gas after any known exposure to catalytic contaminants ot poisons (sulfur compounds, silicons vapors, halogenated compounds, etc.).
- The catalytic 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.

CHAPTER

1 Introduction

Learn what you need to know about the Honeywell BW™ Flex Series Gas Detector before operating.

Product Description

The Honeywell BW™ Flex Series gas detector warns of hazardous gas at levels above user-defined alarm setpoints. The detector can monitor up to four gases at a time.

Standards and Certifications

IECEx: IECEx SIR 20.0020X

With IR sensor installed: Ex ia op is I Ma, Ex ia op is IIC T4 Ga, -40°C≤ Tamb ≤ 60°C

With LEL sensor installed: Ex da ia I Ma, Ex da ia IIC T4 Ga, -40°C≤ Tamb ≤ 60°C

With IR and LEL sensor installed: Ex da ia op is I Ma, Ex da ia op is IIC T4 Ga, -40°C≤ Tamb ≤ 60°C

Without IR and LEL sensor installed: Ex ia I Ma, Ex ia IIC T4 Ga, -40°C≤ Tamb ≤ 60°C

ATEX: Sira 20ATEX2012X

With IR sensor installed:

 I M1 Ex ia op is I Ma, -40°C≤ Tamb ≤ 60°C

 II 1G Ex ia op is IIC T4 Ga, -40°C≤ Tamb ≤ 60°C

With LEL sensor installed:

 I M1 Ex da ia I Ma, -40°C≤ Tamb ≤ 60°C

 II 1G Ex da ia IIC T4 Ga, -40°C≤ Tamb ≤ 60°C

With IR and LEL sensor installed:

 I M1 Ex da ia op is I Ma, -40°C≤ Tamb ≤ 60°C

 II 1G Ex da ia op is IIC T4 Ga, -40°C≤ Tamb ≤ 60°C

Without IR and LEL sensor installed:

 I M1 Ex ia I Ma, -40°C≤ Tamb ≤ 60°C

 II 1G Ex ia IIC T4 Ga, -40°C≤ Tamb ≤ 60°C

Contains FCC ID: SU3RMBLED

Contains IC: 20969-RMBLED

CAN ICES-3(A)/NMB-3(A)

FCC Compliance statement

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

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

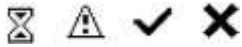
What's in the Box

1	Honeywell BW™ Flex Series gas detector
1	CalGaz Bump Test Gas Cylinder
1	240v charger
1	Calibration cap
1	Klick Fast stud
1	Quick Reference Guide
1	Tubing

Overview

1	Alarm LED	6	Sensor
2	IntelliFlash	7	Clip
3	Display	8	Certification, model and Serial Number
4	Button	9	Charging and IR connection Port
5	Beeper		

Display Elements

	• Battery full • Battery half • Static icon • Battery low, Batterycharging • Flashingicon: batteryritical; Battery can't be charged
	• BLE connected • BLE fault • IR connected • Profile mode
	• AVV failed • Stealth mode
	• Sensor fault • SensorEOL
	• Cal fail /due • Cal countdown • Predictive Caldue
	• Bump fail / due • Bump countdown
	• Inert Mode
	• Press and hold the button
	• Wait • Warning • Pass • Fail
	• Back • Next
	• Information • Bump • Zero • Calibration • Exit

Activate the Detector

To turn the detector on, press, and hold the button for four seconds. LEDs light and the instrument vibrates and beeps.

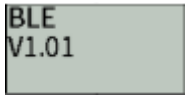
The detector performs a Self Test, the IntelliFlash flashes amber, and Sensors warm-up. During the Sensor warm-up, the sensors LEDs flash clockwise.

In the regular mode, the IntelliFlash flashes green every fifteen seconds.

Self Test

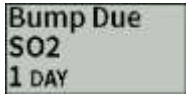
When the detector is activated, it performs several start-up tests:

Firmware Version

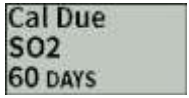


BLE Version

End Of Life sensors, if any

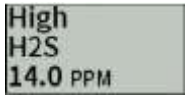


Bump Due Date by sensor



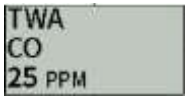
Calibration Due Date by sensor

Low Alarm Setpoint by sensor



High Alarm Setpoint by sensor

STEL Alarm Setpoint by sensor



TWA Alarm Setpoint by sensor

When the detector has passed all the start-up self-tests, it enters the regular operation mode.

Note: We strongly recommend to review the Alarm Settings after Start-Up.

Deactivate the Detector

To deactivate your Honeywell BW™ Flex Series detector, press the button, and hold for four seconds.

The detector beeps and vibrates, and the alarm LEDs light red.

Common Button Operations

Feature	Operation
Power On	4-second hold
Power Off	4-second hold
Enter the menu	Double press
Exit the menu (on Exit screen)	Press and hold
Move to next Option menu	Single-press
Initiate Selected Option	3-second hold
Acknowledge latched alarm	1-second hold
Backlight	Single-press

Bluetooth Pairing

You can pair the Honeywell BW™ Flex Series detector to a mobile device via built-in Bluetooth Low Energy (BLE) and The Honeywell Device Configurator app. If you do not have the app installed on your mobile device, you can download it from your Google Play Store or App Store.

The Honeywell Device Configurator app can show gas readings and alarms from the BW Flex Series unit that is connected, and then, send this data to the Honeywell remote monitoring software.

On the Honeywell BW™ Flex Series, the Bluetooth connection is on by default.

1. Turn On the BW Flex Series detector and your mobile device.
2. In your mobile device, activate the Bluetooth and open the Device Configurator app.
3. Select the detector's serial number in the Available Devices list.

4. Input the pairing code displayed on the detector's screen to complete the BLE pairing.

Bump Test

- Via the detector's menu.


CAUTION

- Move to a normal atmosphere (20.9% v/v O2) that is free of hazardous gas.
- Honeywell recommends bump testing 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 and visual alarms activate.

Details for Bump Test and maintenance:

- Recommendations for initial checking of the equipment on a routine basis including the maximum time interval between calibrations.
- 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.

Bump Test via the Menu

Apply gas from a cylinder to the sensors manually through the calibration cap, and using the detector's menu.

1. Turn On the BW Flex Series and Wait a few minutes to sensors warm up.
2. Double press the button to enter the menu.
3. Hold the button to enter the bump test, then the sensor slot LED starts flashing blue.
4. Place the cap over the detector, and then press down on both tabs to snap it into place.

5. Attach the hose.

6. Apply span gas when the sensor slot LEDs start flashing. The bump test starts after the BW Flex Series detects gas. The four slots LEDs flash blue clockwise. After the bump test is completed, the LEDs are solid green if calibration passed, or red if failed.
7. Remove the calibration cap; the detector starts purging, and the sensor slots LEDs flash in amber clockwise. After the purge is complete, the detector is back to the regular mode.

Capture Real Time Reading

1. Pair your BW Flex Series with a mobile device.
2. In your mobile device, open the Device Configurator app.
3. Tap Menu
4. Tap Measurements .
5. Tap Start Recording.

Configure the detector Settings via DC

1. Pair the BW Flex Series with the Device Configurator App on your mobile device.
2. Tap the menu button
3. Tap DetectorSetup
4. Tap Download, to get the configuration table.

5. Tap Edit to change the settings, and then tap Upload to apply them.

CHAPTER

2 Maintenance

Clean the Detector

Clean the detector using a soft cloth with a water-based or non-alcoholic cleaner. Other types of cleaners, solvents, and lubricants can contaminate and cause permanent damage to the detector sensors.

Charge the Battery

You can charge the battery via an IntelliDox docking module, the charger adaptor & USB Charger, and the CradleCharger.

Note:

The Li-ion battery may require 5 hours to full capacity. The time needed to charge will increase if the Detector is activated. The detector may be warm during charging; this is normal. To preserve the life of the battery, deactivate the Detector when not in use.

The battery operating temperature is -40°C to +60°C.

WARNING

The Honeywell BW™ Flex Series uses a Li-ion battery that may present a risk of fire or chemical burn hazard if misused. Do not disassemble, heat above 100°C, or incinerate.

CAUTION

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

- Charge the battery immediately when the Detector emits a low battery alarm.
- Charge the battery in a safe area that is free of hazardous gas in a temperature range from 0- 45°C.
- Charge the battery using Honeywell charger adapters designed for this Detector only. Do not use any other charger adapters. Failure to adhere to this caution can lead to fire and explosion.

Battery Capacity Indicator

Status	Indication or Alarm	Duration with LEL sensor	Duration with LEL IR sensor
Normal	Static 2-bar battery icon. The Intelliflash flashes green	>5h	>12h
Normal	Static1-bar battery icon. The Intelliflash flashes green	≤5h	≤12h
Battery Low	Static empty battery icon. Display exclamation mark instead of SAFE	≤1h	
Battery Critical	Flash empty battery icon. The Intelliflash flashes amber, the alarm LED's flashes red alternatively. The detector beeps and vibrates.	20min	

Battery Icons

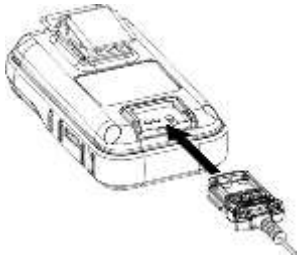
Status	Percentage	Indication or Alarm
Charging	Less than 100%	
Fully Charged	100%	
Depleted	0%	
Can't charge	0%	

Charge the battery via the 240v Charger

1. Press and hold the button to deactivate the detector.
2. Plug the USB charger into an USB port.
3. Attach the charging adapter to the charging Port.

Battery charging when the detector is OFF.

Battery charging when the detector is ON.



Charge the battery via the Cradle Charger

1. Deactivate the detector.
2. Insert the detector into the detector bay and press down firmly on the detector to ensure contact between the detector and the contact pins. The detector can be activated during charging.
3. After charge is complete, the full battery icon is displayed 
4. Remove the detector.

3 Maintenance

Sensor Poisons and Contaminants

Several cleaners, solvents, and lubricants can contaminate and cause permanent damage to sensors.

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

Sensor Specifications

Sensor	Measuring Range	Resolution	Measuring Unit	Working Temperature
CO	0-2000 ppm	1 ppm	ppm, mg/m^3, µmol/mol	-40°C to +60°C
H_2S	0-200 ppm	1/0.1ppm	ppm, mg/m^3, µmol/mol	-40°C to +60°C
SO_2	0-150ppm	0.1ppm	ppm, mg/m^3, µmol/mol	-40°C to +55°C
O_2	0-30% v/v	0.1% VOL	%VOL	-40°C to +60°C
LEL IR	0-100% LEL CH_4	1% LEL CH_4	%LEL, % v/v	-40°C to +60°C
LEL	0-100% LEL	1% LEL	%LEL, % v/v	-20°C to +60°C* *Can be operated from -40°C to -20°C

Sensor	SPAN Count Down	Default SPAN Value	Calibration Flow Rate	New Sensor Stabilization Time
CO	60 sec	100ppm	500ml/min	0.5 hour
H_2S	60 sec	25ppm	500ml/min	0.5 hour
SO_2	90 sec	20ppm	500ml/min	0.5 hour
O_2	60 sec	18.0% v/v	500ml/min	24 hours
LEL IR	60 sec	50% LEL CH_4	500ml/min	N/A
LEL	60 sec	50% LEL	500ml/min	N/A

Sensor	Default Low Alarm	Default High Alarm	Default TWA	Default STEL
CO	35ppm	200ppm	35ppm	50ppm
H_2S	10.0ppm	15.0ppm	10.0ppm	15.0ppm
SO_2	2.0ppm	5.0ppm	0.5ppm	1.0ppm
O_2	19.5% v/v	23.5% v/v	N/A	N/A
LEL IR/LEL	10% LEL	20% LEL	N/A LEL	N/A LEL

General Specifications

Size	108.2 mm x 61.5 mm x 43.2 mm (4.29 in x 2.44 in x1.7 in) with Alligator Clip. 108.2 mm x 61.5 mm x 37.8 mm (4.29 in x 2.44 in x 1.49 in) with Klick Fast Stud.
Weight	With Catalytic LEL: 189 g (6.7 oz) with Alligator Clip, 173 g (6.1 oz) with Klick Fast Stud. With IR LEL: 186 g (6.6 oz) with Alligator Clip, 170 g (6.0 oz) with Klick Fast Stud.
Appearance Colour	Amber, Dark Grey
Working Temperature	-40°C to +60°C (-40°F to 140°F) -20°C to +60°C (-4°F to 140°F) with Catalytic LEL sensor
Working Humidity	5%-95% RH
IP Rating	IP 66/68, 45min@underwater 1.2m
Gas Type	CO, H2S, O2, SO2, Combustible gases*
Display	Monochrome 160X80px, black and white display.
Alarms Condition	Low Alarm, High Alarm, TWA Alarm, STEL Alarm, Negative Drift, Over- Range Alarm, Multi-Alarm.
Visual Alarm	6 Main Alarm LED's and 4 sensor LEDs
Audible Alarm	95 dBA at 10cm
Battery Life	40 days (8 hour per day at room temperature with Catalytic Combustible sensor). 16 hours at room temperature with the LEL sensor
Event/ Datalogging	50 alarm events. Continuous datalogging (45 days at 15 seconds interval and 8 hours per day). User configurable datalogging interval (5 to 60 seconds).
Calibration	Is conducted by Shore Hire on the Intellidox System in the branch?

Troubleshooting

Problem	Cause	Solution
"Battery 0%" message is displayed	Depleted battery	Charge the rechargeable battery pack
Error 1006	Temperature sensor fail	Replace PCBA
Error 1007	Data flash fail	Replace PCBA
Error 1008	BLE fail	Replace PCBA
Error 3001	RTC fail	Replace PCBA
Error 4004	The sensor is in the wrong slot.	Correct the sensor position.
Error 4006	Sensors fail or no communication	Replace the sensor or the PCBA
Need Force Bump. "Bump Now" message is displayed.	Bump overdue and must carry out bump testing before use.	Hold the button for 3 seconds or connect to DC/SSDC or insert to IntelliDoX to start the bump testing; otherwise, the detector will auto power off after 60 secs.
Need Force Calibration "Cal Now" message is displayed.	Calibration overdue and must carry out calibration testing before use.	Hold the button for 3 seconds or connect to DC/SSDC or insert to IntelliDoX to start the Calibration; otherwise, the detector will auto power off after 60 secs.
Detector alarms after start- up sequence	Sensor not stabilized	O_2 sensor: Wait for at least 10 min before power on.
	Sensors require calibration	For the NDIR-CH4 sensor, please allow 5 minutes following startup for the sensor to warm-up before attempting to calibrate F
Detector does not respond when button is pressed	The battery state is critically low, or the battery is depleted.	Charge the rechargeable battery pack
Detector does not respond when button is pressed	Detector is performing operations that do not require user input.	Button operation restores automatically when the operation ends.

Problem	Cause	Solution
Detector does not accurately measure gas.	Sensor(s) require calibration.	Carry out calibration.
	Detector is colder/hotter than gas temperature.	Allow the Detector to attain ambient temperature before use.
	The sensor filter is blocked.	Replace sensor filter
The detector does not alarm.	Alarm setpoints set incorrectly.	Define the alarm setpoint in Detector Configurator.
	Alarm setpoints set to zero.	Define the alarm setpoint in Detector Configurator.
	Detector is in calibration mode.	Complete the calibration procedure.
	Detector is in DC mode.	Stop data communication via a mobile phone.
	Detector is in IR communication.	Stop data communication via IR Link.
The Detector alarms without reason	Thesensor was exposed to the target gas.	Detector is operating normally. Use caution in suspected areas. Check the peak gas exposure reading.
	Alarm setpoints are set incorrectly.	Define the alarm setpoint in Detector Configurator.
	Sensors require calibration.	Carry out calibration.
	Missing or faulty sensors.	Replace the sensors.
	Battery temperature is out of acceptable range.	Move to lower temperature ambient to charge the battery.
Battery indicator doesn't display when charging.	Battery is depleted.	Charge the battery for 8 hours. If the battery indicator doesn't light after charging, contact Honeywell

DataLogs and Event Logs

DataLogs

The detector records various information to create a report. The detector is capable of storing 45 days of data at 15 sec interval, 8hrs/day.

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

Event Logs

The detector records a maximum of 50 gas alarm, maintenance events, and error conditions. The following event types are recorded:

1. Gas high
2. Gas low
3. Gas STEL
4. Gas TWA
5. Gas over range
6. Gas negative
7. Sensor failure
8. Multi alarm
9. Zeroing
10. Spanning
11. Bumping
12. Disabled

Alarms

A gas detected event supersedes any other event.

When more than one alarm occurs on one sensor, the highest priority is displayed: Over Range > High > STEL, TWA, Low, Negative.

When more than one sensor alarms, the alarm status is displayed as multi-alarm no matter what kind of gas alarms they are.

Alarm type from high priority to low		Description
Multi-Alarm		"MULTI ALARM" message is displayed. Alarm LEDs alternately flash. Alarmed sensor LEDs flash too. It beeps and vibrates.
Over Limit		"+OL" message is displayed. Alarm LEDs alternately flash. Alarmed sensor LED flashes too. It beeps and vibrates.
High		"HIGH" message is displayed. Alarm LEDs alternately flash. Alarmed sensor LED flashes too. It beeps and vibrates.

Alarm type from high priority to low		Description
STEL		"STEL" message is displayed. Alarm LEDs alternately flash. Alarmed sensor LED flashes too. It beeps and vibrates.
TWA		"TWA" message is displayed. Alarm LEDs alternately flash. Alarmed sensor LED flashes too. It beeps and vibrates.
Low		"LOW" message is displayed. Alarm LEDs alternately flash. Alarmed sensor LED flashes too. It beeps and vibrates.
Negative		"-OL" message is displayed. Intelliflash LED flashes amber. Alarmed sensor LED turns solid red.

Combustible Sensor Information

The BW Flex device can be installed with either a Non-dispersive Infra-red LEL sensor or a Catalytic type LEL sensors. Furthermore, the catalytic LEL sensors are offered in both filtered and unfiltered variations. Each type of combustible sensors has standard characteristics and limitation which the user should be made aware of.
The following information provided is there to:

- Enable you to identify the type of combustible sensor which is installed within your device, i.e., IR, Catalytic filtered, or unfiltered.
- Provide you with a basic relative response of the IR sensor to other common combustible gases.
- Provide you with a basic list of detectable gases for both catalytic filtered and unfiltered sensors.
- Provide a basic of list recommended Correction factors for the Catalytic LEL sensors.

Identifying Combustible Sensor Type

The type of combustible sensor may be determined by the model number printed on the Certification / serial number label on the rear of the device, as shown in the following example.

The model number should look like "CPD-W6X1H1M1-Y-00," the type of combustible sensor is identified by the 4th and 5th characters; in this case, "W6".

Use the following table to identify your particular sensor type:

Combustible Sensor option from the model number	Sensor Type
W5	NDIR Combustible
W6	Filtered Catalytic Combustible
W7	Un-filtered Catalytic Combustible

Non-Dispersive Infrared (NDIR) sensor Relative Response

The BW Flex NDIR LEL sensor is optimized to see methane. While the unit can detect and respond to other combustible gases listed in the below table, the readings' accuracy may be in- consistent. If the primary need is to detect a specific combustible gas other than methane, please contact Honeywell to discuss an alternative product.

Gas[1]	Expected IR LEL response at 20% LEL target gas
Methane	20% LEL
Propane	28% LEL to 56% LEL
Butane	28% LEL to 56% LEL
Pentane	31% LEL to 62% LEL
Hexane	20% LEL to 48% LEL
Methanol[2]	40%LEL to 80% LEL
Ethanol	21% LEL to 42% LEL
Hydrogen	No response
Acetylene	No response

[1]For any gases not listed, please contact Honeywell to find the best solution for your application.

[2]Please use caution when using the BW Flex Series around Methanol and Ethanol. The BW Flex Series CO sensor may become inhibited by prolonged exposure to concentrations of Methanol and Ethanol thus causing the unit to alarm. This condition can last up to 12 hours before the CO sensor recovers to normal levels.

Filtered and Unfiltered Catalytic Bead Combustible (LEL) Sensor Information

Honeywell BW Flex multi-gas detectors are offered with both filtered and unfiltered combustible gas (LEL) sensors. The filtered LEL sensor provides enhanced resistance to airborne sensor poisons such as volatile silicone vapors and high hydrogen sulfide gas concentrations. Due to some molecules' physical size, the filtered LEL sensor is not typically suitable for the detection of some compounds, including complex hydrocarbons, alcohols, ketones, and esters. The filtered LEL sensor is suitable for detecting less complex molecules, including C1 to C6 hydrocarbons, hydrogen, and acetylene.

For applications requiring the detection of more complex compounds, select a detector with an unfiltered LEL sensor.

Consult the following chart for assistance in selecting a suitable combustible sensor.

Explosive Gas/Vapour	Detectable by Non-Filtered LEL Sensor	Detectable by Filtered LEL Sensor
Hydrogen (H_2)	X	X
Methane (CH_4)	X	X
Ethane (C_2H_6)	X	X
Propane (C_3H_8)	X	X
n-Butane (C_4H_{10})	X	X
n-Pentane (C_5H_{12})	X	X
n-Hexane (C_6H_{14})	X	X
n-Heptane (C_7H_{16})	X	
n-Octane (C_8H_{18})	X	
n-Nonane (C_9H_{20})	X	
Methanol (CH_3OH)	X	
Ethanol (C_2H_6O)	X	
Iso-propyl alcohol (C_3H_8O)	X	
Acetylene (C_2H_2)	X	X
1, 3 Butadiene (C_4H_6)	X	X
Carbon monoxide (CO)	X	X
Acetone (C_3H_6O)	X	
Methyl ethyl ketone (C_4H_8O)	X	
Toluene (C_7H_8)	X	
Ethyl acetate ($C_4H_8O_2$)	X	

Explosive Gas/Vapour	Detectable by Non-Filtered LEL Sensor	Detectable by Filtered LEL Sensor
Ammonia (NH_3)	X	X
Cyclohexane (C_6H_{12})	X	X
Gasoline	X	
Ethylene (C2H4)	X	X
Benzene (C6H6)	X	

Note: This list is not all-inclusive. As combustible sensors are a non-specific sensing technology, it is recommended you verify detection capabilities for any specific compounds.

Catalytic bead sensors are typically not recommended for detection of combustible gases with flash points greater than 37.8° C/100° F.

Correction Factor for catalytic type combustible LEL sensors

The following table shows the % relative sensitivity of several common detectable gases based on a methane (CH_4) calibration. This table applies to both Filtered and Unfiltered versions of the catalytic combustible sensors offered in the BW Flex detector.

Gas	Rel Sens	CF Value (vs Methane)
n-Butane	66	1.5
Hydrogen	111	0.90
Methane	100	1
n-Pentane	58	1.7
Propane	61	1.6
Custom		0.1-15

User Preferences

All of the parameters and options can be configured using the Safety Suite Device Configurator desktop application. An IntelliDox docking station is required to connect a BW Flex Series detector to SSDC. The BW Flex Series communicates with an IntelliDox using infrared signals, and the IntelliDox is connected to the SSDC computer via a USB or network cable. For more information, refer to the IntelliDox manual and Safety Suite Device Configurator manual.

Sensor Options

As for each sensor, these parameters and options are available.

- Auto Zero:
  If enabled, the detector will perform Zero Calibration at start-up. Disabled is the default value.
- TWA Method:
  This option is to choose the algorithm between ACGIH and OSHA.
- Inert Mode:
  It is used to switch the work mode of the Oxygen sensor. Normal mode is for the atmospheric environment, and the zero reading is between low and high alarm. The Inert mode is for an anaerobic environment, and the zero reading is below the Low Alarm. Normal mode is the default value.
- ATEX Performance Compliance:
  If enabled, the blanking zone will be disabled, and the minus reading will be display. Disabled is the defaultvalue.
- Low Alarm Acknowledge:
  If enabled, the audible alarm can be disabled during a Low Alarm. The vibration, visual indication, and LCD remain enabled. It applies for H_2S, CO, and LEL sensors only.
- Cal / Bump Countdown:
  This countdown is an indication before calibration due. Users can customize how many days before calibration due to start this indication. Disabled is the default value.
- Bump Threshold:
  The bump Threshold is the percentage of calibration gas needed to get detected in the bump test.
- Predictive calibration %:
  It is an Intelligent EC sensor function. For the predictive calibration, a calculation taking historical measurements such as the temperature, electrolyte concentration, sensitivity, accuracy, and time is considered. Users can set the threshold of sensitivity attenuation for the predictive calibration. 20% is the default value.
- Sensor Disabled:
  Disable an unnecessary gas sensor.
- Calibration GasConc:
  Define the gas concentration for calibration.
- Low Alarm:
  Define the threshold at which a low-level alarm is triggered.

- High Alarm:
  Define the threshold at which a high-level alarm is triggered.
- TWA Alarm:
  Define the threshold at which a TWA alarm is triggered. This parameter is available only for H_2S and CO.
- STEL Alarm:
  Define the threshold at which a STEL alarm is triggered.
- Calibration Interval:
  Define how often a calibration should be executed.
- Bump Interval:
  Define how often a bump test should be executed.
- STEL interval:
  Define the period after which a STEL alarm is triggered. This parameter is available only for H_2S and CO. The available range is 5 to 15 minutes.
- Display Decimal:
  Determine whether to express as an integer or tenths decimal. This parameter is available only for H_2S.

Behaviour Options

These behavior options are available.

- 3rd. Party Profile:
  If enabled, the detector can connect to a Motorola device and send real-time data: Disabled is the default value. Only SSDC can set via IR Link.
- Datalog Download Since Last:
  If enabled, datalog download in DC, SSDC, IntelliDoX will always download the unsynchronized data to reduce Synchronization Time: Enabled is the default value.
- Lockout on Self-Test Error:
  If enabled and a failure occurs during the self-test, the detector deactivates. Disabled is the default value.
- TWA & STEL Backup:
  If enabled, when the device is powered down for greater than 2 hours, then STEL/TWA calculations will start freshly. Disabled is the default value.
- Latching Alarms:
  If enabled, the gas alarm latches until the user hold the button for 1 second to eliminate. Disabled is the default value.
- Disable Power Off:
  If enabled, the detector cannot be deactivated by pressing the button. The user can deactivate the detector by IntelliDoX or disable this feature. Disabled is the default value.
- Flip Display:
  If enabled, flip the display. Disabled is the default value.

- Cal Lock:
  If enabled, can't carry out calibration manually from the detector.
  Disabled is the default value.
- Recurrence Time:
  If enabled, the bump/cal due to indication will appear at the customized time point. If disabled, the bump/cal due to indication will appear at the same time point of the last bump/cal. Disabled is the default value.
- Stealth Mode:
  With this option enabled, the gas detector only vibrates without beeping and flashing when an alarm occurs.
- Alarm Latch:
  With this option enabled, when an alarm occurs, the detector continues beeping, flashing, and vibrating for a specified time even after the alarm condition is cleared. To acknowledge a latched alarm, press the button.
- Time zone:
  Specify the time zone where the detector is used.
- Automatically Adjust Clock for Daylight Savings Time:
  Determine whether to use daylight saving time.
- Spring Start Time:
  For daylight saving time, specify the date and time when the spring starts.
- Fall End Time:
  For daylight saving time, specify the date and time when the fall ends.

Security Information

This manual provides additional information for the customer and organization related to identification and risk management associated with the use of the system in connected infrastructure. It applies to a system with the following components:

- Safety Suite Detector Configurator
- IntelliDoX Docking Station
- Gas Detection Instruments

Some controls such as custom operating system, encrypted data for firmware updates, and elimination of confidential data from the system (except for gas log files if designated as confidential by the customer) are already built into the system. This manual is focusing on additional controls that could be added by the customer.

Security considerations for system installation

- To minimize unauthorized external access to the system, Safety Suite Detector Configurator should operate behind a sufficiently robust and current company firewall.
- Ensure virus protection is installed, signature files are up-to-date, and subscriptions are active as per applicable IT policies.
- Allow only digitally signed software from trusted sources to run on PC, where Safety Suite Detector Configurator is installed.
- To minimize the possibility of tampering with docking stations, instruments, and PCs, it is recommended to limit physical access to authorized personnel only.

Security considerations for instruments equipped with wireless connectivity

- Bluetooth communication is always ON. It cannot be turned OFF by the user.
- If possible pair devices ONLY when in a physically secure area

System Monitoring

It is highly recommended to perform regular security inspections of the system and review authorized access data.

Honeywell does not represent that the software is compatible with any specific third-party hardware or software other than as expressly specified by Honeywell. The Customer is responsible for providing and maintaining an operating environment with at least the minimum standards specified by Honeywell. The Customer understands and warrants that Customer must implement and maintain reasonable and appropriate security measures relating to

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