# USER MANUAL

## Honeywell BW ™ Icon & BW ™ Icon +

Portable Multiple Gas Detector

Honeywell

M05-4002-002 EN-A ©2020

# Table of Contents


## Introduction ..... 5

Product Description ..... 5
Safety ..... 5
Standards and Certifications ..... 5
What's in the Box ..... 7
Overview ..... 7

## Operations ..... 9

Activate the Detector ..... 9
Self Test ..... 9
Deactivate the Detector ..... 9
Common Button Operations ..... 10
Bluetooth Pairing ..... 10
Calibration ..... 11
Bump Test ..... 19
Zero Calibration ..... 25
Capture Real Time Reading ..... 25
Set the Detector via Device Configurator ..... 25

## Maintenance ..... 27

Charge the Battery ..... 27
Firmware Update ..... 30

## Additional Information ..... 31

Sensor Poisons and Contaminants ..... 31
Sensor Specifications ..... 32
General Specifications ..... 33
Time Out Events ..... 34
Troubleshooting ..... 34
DataLogs and Event Logs ..... 37
Alarms ..... 38
Replacement Parts ..... 40

Security Information ..... 41
Contact Us ..... 44

CHAPTER

# 1 Introduction

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

## Product Description

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

## Safety

**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 lithium 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 apparatus if it is damaged. Inspect the apparatus before use. Look for cracks and missing parts.

## Standards and Certifications

**IECEx: IECEx SIR 20.0020X**

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

Ex ia I Ma Ex ia IIC T4 Ga, -40°C≤ Tamb ≤ 60°C

North America: CSA 20CA80028223X CSA C22.2 No.60079-29-1 UL60079-29-1

Class I, Division 1, Group A,B,C,D, T4;

Class I, Zone 0, AEx ia op is IIC T4 Ga; Ex ia op is IIC T4 Ga (With IR sensor installed)

Class I, Division 1, Group A,B,C,D, T4;

Class I, Zone 0, AEx ia IIC T4 Ga; Ex ia IIC T4 Ga

ATEX: Sira 20ATEX2012X

I M1 Ex ia op is I Ma, -40°C ≤ Tamb ≤ 60°C (with IR sensor installed)

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

RE-D Directive 2014/53/EU

EMC Directive 2014/30/EU

ROHS Directive (EU) 2015/863 amending 2011/65/EU

IP: IP66, IP68 (1.2 meters for 45 minutes)

Contains FCC ID: SU3RMBLED

Contains IC: 20969-RMBLED

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

FCC Compliance statement

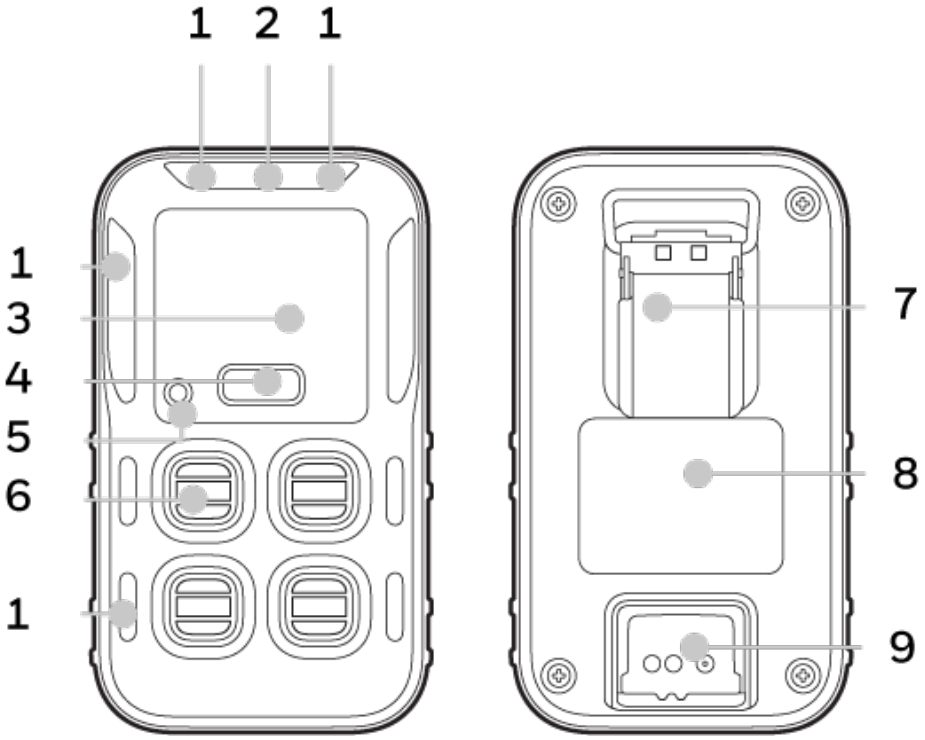
This device complies with part 15 of the FCC Rules. operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, 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™ Icon gas detector |
| 1 | Battery (factory-installed) |
| 1 | USB charger |
| 1 | Calibration cap |
| 1 | Klick Fast stud |
| 1 | Quick Reference Guide |
| 1 | Tubing |

# Overview




| | | | |
|---|---|---|---|
| 1 | LED Alarm | 6 | Sensor |
| 2 | IntelliFlash | 7 | Clip |
| 3 | Display | 8 | Battery |
| 4 | Button | 9 | Charging Port |
| 5 | Beeper | | |

| User Interface | |
|---|---|
| | **Alarm One** — Shows when alarm one is breached and gas highlighted next to sensor |
| | **Alarm Two** — Shows when alarm two is breached. Alarm two will over write any alarm one status. |
| | **Time Weighted Average** — Settable in Safety Suite DC for each toxic sensor. |
| | **Short Term Exposure Limit** — Settable in Safety Suite DC for each toxic sensor. |
| | **Bump** — Shows when bump is due and you can configure to have a count down. |
| | **Calibration** — Shows when calibration is due and you can configure to have a count down. |
| | **Battery status** — Shows battery status and when on charge will show charging status. |
| | **Bluetooth** — All devices have Bluetooth – double click to enter menu. for search mode |

CHAPTER

# 2 Operations

Learn what you can do with your Honeywell BW™ Icon Detector, from commissioning to Calibration.

## 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 and Sensors warm-up.

During the Self Test, the icons light and the IntelliFlash flashes in amber.

During the Sensor warm-up, the sensors LEDs flash clockwise.

In the regular mode, the IntelliFlash flashes in green every five seconds.

## Self Test

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

- Battery
- Data Flash
- RTC. Real Time Clock
- Temperature sensor.
- BLE module
- Sensors
- Bump and Calibration due date

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

## Deactivate the Detector

To deactivate your Honeywell BW™ Icon, press the button for four seconds.

The instrument beeps and vibrates, and the alarm LEDs light in red.

## Common Button Operations

| Feature | Operation |
|---|---|
| Power On | 4-second hold |
| Power Off | 4-second hold |
| Enter or Exit menu | Double-Press |
| Switch Menu (bump, cal, & BLE) | Single-Press |
| Initiate selected | 3-second hold |
| Acknowledge latched alarm | 1-second hold |

## Bluetooth Pairing

The user can pair the Honeywell BW™ Icon to a mobile device via built-in Bluetooth Low Energy (BLE). The Honeywell Device Configurator app, installed on the mobile device, can then show gas readings and alarms from the BW Icon unit that is connected.

Readings and alarms can then be sent to Honeywell remote monitoring software

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

1. Turn On the BW Icon.
2. In your mobile device, open the Device Configurator app
3. In your BW Icon:
   - Double press to enter the menu
   - Single press until the BLE icon is displayed
   - Hold press 3 secs to initiate the pairing mode.
4. In the Device list screen from the Device Configurator app, select the BW Icon Serial Number to start pairing.

| BLE Status | | Description |
|---|---|---|
| Pairing | | The BLE icon flashes every second, Tee IntelliFlash flashes every five seconds, and two shot beeps. |
| Succeed | | The BLE flashes in blue every 15 seconds. The IntelliFlash flashes every five seconds in green. |
| Fail | | The BLE icon is solid red, and two short beeps. |

# Calibration

Perform a calibration to adjust the sensitivity levels of sensors and ensure accurate responses to gases.

The detector can be calibrated in two ways:

• Apply gas from a cylinder to the sensors using the Safety Suite Device Configurator (SSDC) software or the Device Configurator (DC) app.

• Use an IntelliDoX module. For further reference see the IntelliDox User Manual.

**CAUTION**

Move to a normal atmosphere (20.9% v/v $O_2$) that is free of hazardous gas. Use 50% LEL for test gas.

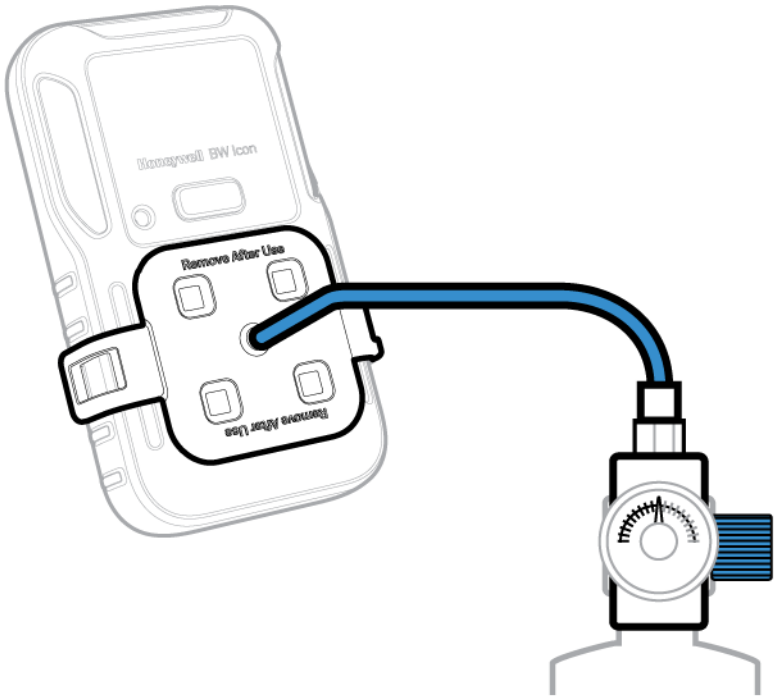
**Details for calibration and maintenance:**

- Recommendations for calibration of the equipment on a routine basis including the maximum time interval between calibrations.
- Calibrate the apparatus before first-time use and then on a regular schedule, depending on use and sensor exposure to poisons and contaminants. Honeywell recommends that the sensors be calibrated regularly and at least once every 180 days (6 months).
- 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.

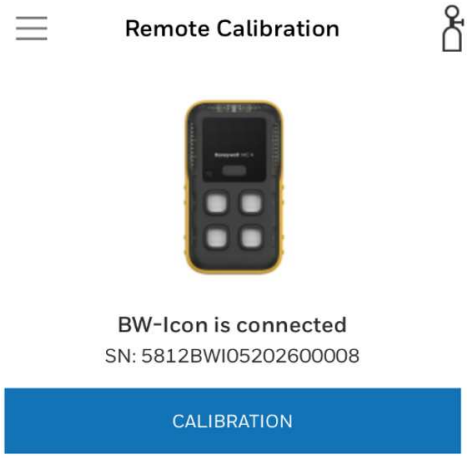
## Procedure to calibrate the detector via the calibration cap and the DC app on a mobile device

1. Turn On the BW Icon. Place the cap over the detector, and then press down on both tabs to snap it into place. Wait a few minutes to sensors warm up.

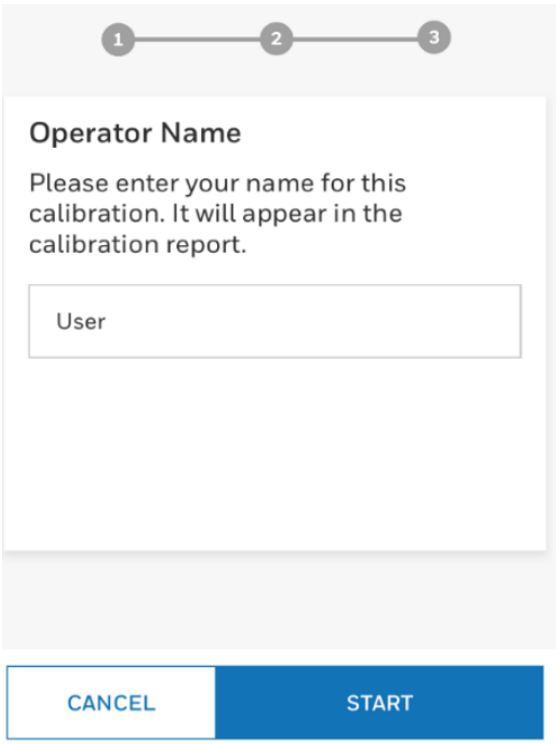
2. Attach the hose.



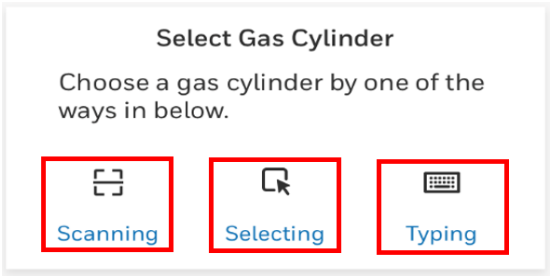

3. In your mobile device, open the **Device Configurator** app
4. In your BW Icon:
    - Double press to enter the menu.
    - Single press until the BLE icon is displayed.
    - Hold press 3 secs to initiate the pairing mode.
5. In the Device list screen from the Device Configurator app, select the BW Icon Serial Number to start pairing.
6. In your Mobile device, tap on the Menu button and then select **Remote Calibration**
7. Tap **Calibration**, the IntelliFlash flashes amber to indicate the calibration process has started.



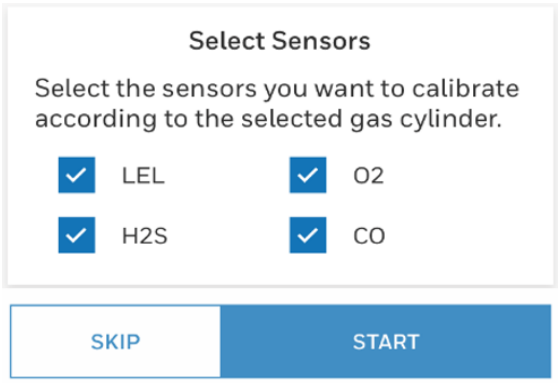
8. Enter the **Operator Name**, and then Tap **START**. The instrument will start Zero calibration; the IntelliFlash flashes amber, and the Calibration icon lights in blue.



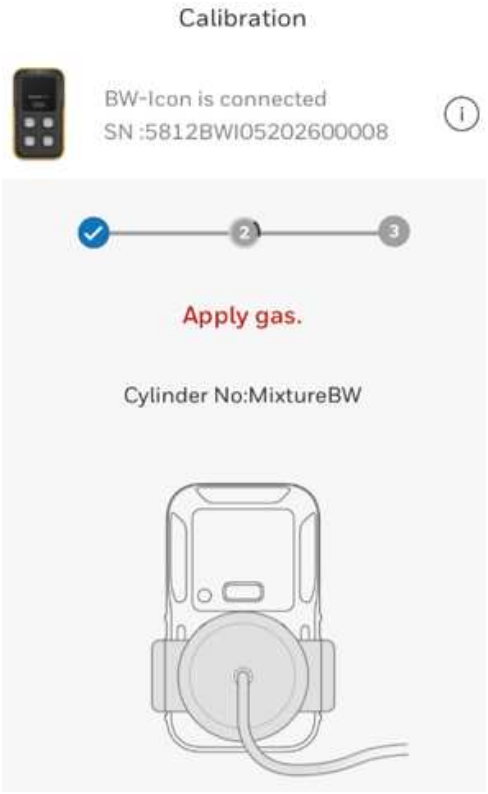

9. After the Zero calibration is completed, use any of the following three ways to select the gas cylinder, and then click **START**.

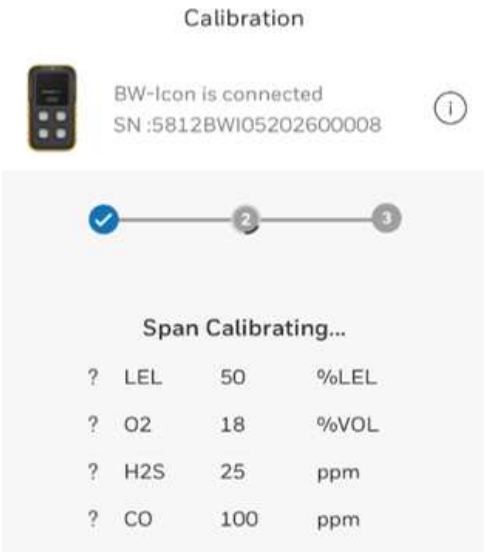



10. Select the sensor that you want to calibrate and then tap **START**.

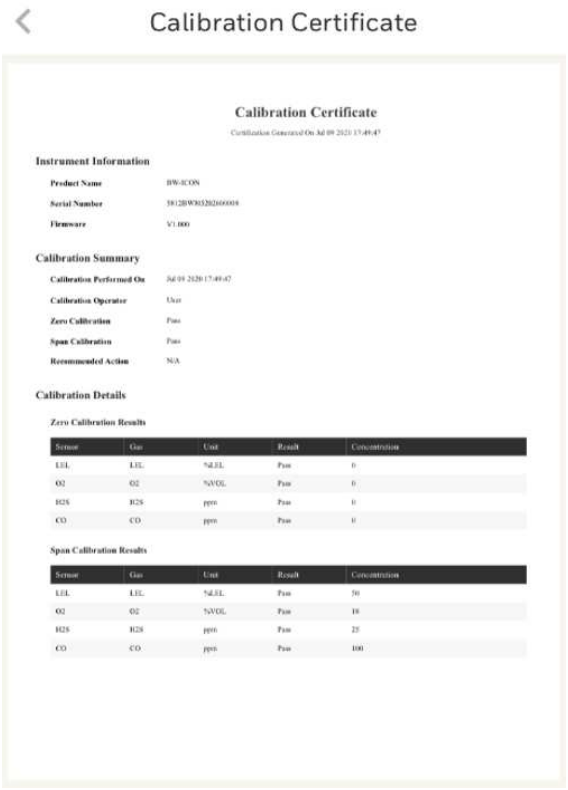


11. Open the cylinder valve by turning the pressure regulator knob counterclockwise. Follow onscreen instructions to know when to apply gas. The IntelliFlash lights amber.



12. After calibration is complete, a report is displayed. Tap the Return Arrow button to exit the report and go back to the remote calibration main screen.



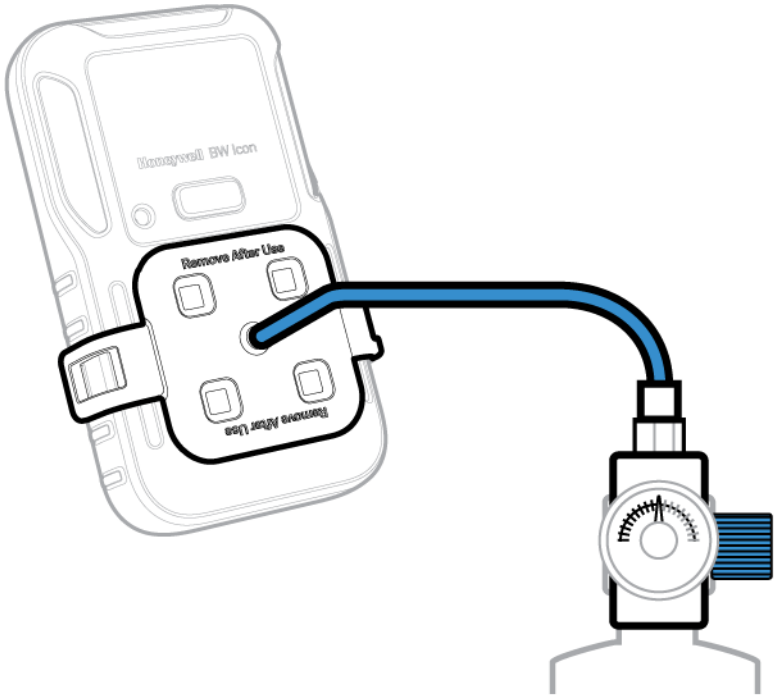

The detector will start purge, and the slots LEDs will flash in yellow clockwise. After purge is completed, the instrument will back to the regular mode.

## Procedure to calibrate the detector via the SSDC

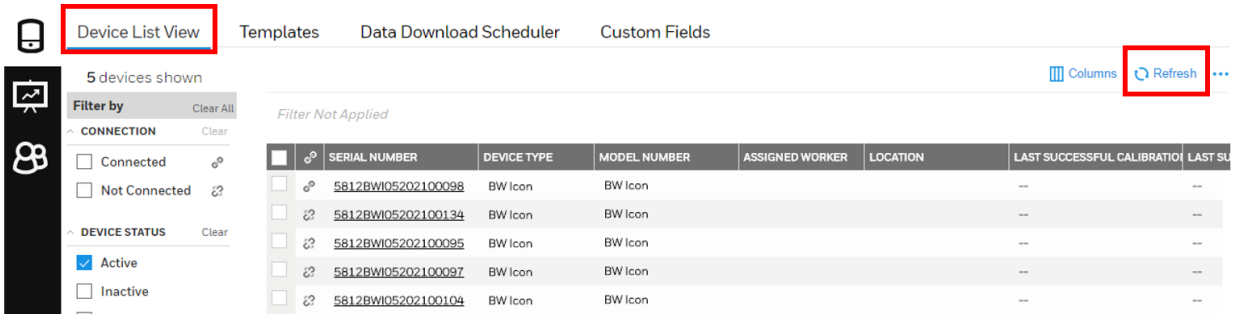
Calibrate the BW Icon via the Safety Suite Device Configurator (SSDC).

1. Turn On the BW Icon. Place the cap over the detector, and then press down on both tabs to snap it into place. Wait a few minutes to sensors warm up.

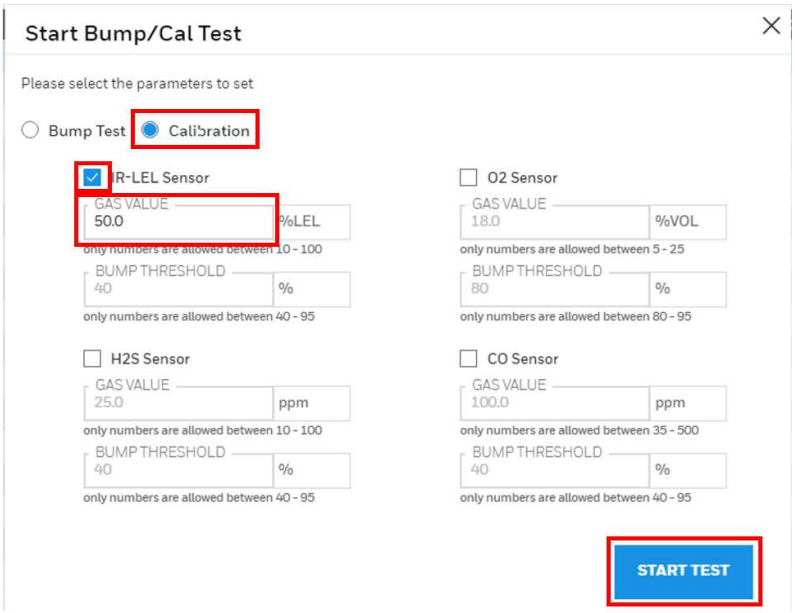
2. Attach the hose.



3. Connect the instrument to the PC via the IR link.
4. Log in to SSDC with an authorized user account. For further information, refer to the SSDC User Manual.
5. Click on the **Device List View** tab, the SSDC scans for connected devices or you can click Refresh to browse manually.




6. Select the connected detector and then click **Start Bump/Cal**.
7. In the Start Bump/Calibration Test window, do the following:
   - Select **Calibration**;
   - Select the calibration sensor. You can modify the default values;
   - Click **START TEST**
   - Wait for several seconds. The detector starts ZERO Calibration, and the four slots LEDs flash blue clockwise. After Zero Calibration is complete, the LEDs are solid blue if calibration passed, or red if failed.




8. Optional Step. You can either remove or keep the IR link connection, the remaining operation is in the instrument.
9. Apply span gas when the slot LEDs start flashing. Span calibration starts after the instrument detects gas. The four slots LEDs flash blue clockwise. After the Span calibration is completed, the LEDs are solid green if calibration passed, or red if failed.
10. Remove the calibration cap. The detector starts purging, and the slots LEDs flash in yellow clockwise.
    After the purge is complete, the device is back to the regular mode.

# Bump Test

The detector can be tested in four ways:

- Apply gas from a cylinder to the sensors manually through the calibration cap, and using the detector's menu.
- Apply gas from a cylinder to the sensors manually through the calibration cap, and using the Safety Suite Device Configurator (SSDC) software on a computer.
- Apply gas from a cylinder to the sensors manually through the calibration cap, and using the Device Configurator (DC) app on a mobile device.
- Use an IntelliDoX module. For further reference see the *IntelliDoX User Manual*.

**CAUTION**

Move to a normal atmosphere (20.9% v/v $O_2$) that is free of hazardous gas. Use 50% LEL for test gas.

**Details for Bump Test and maintenance:**

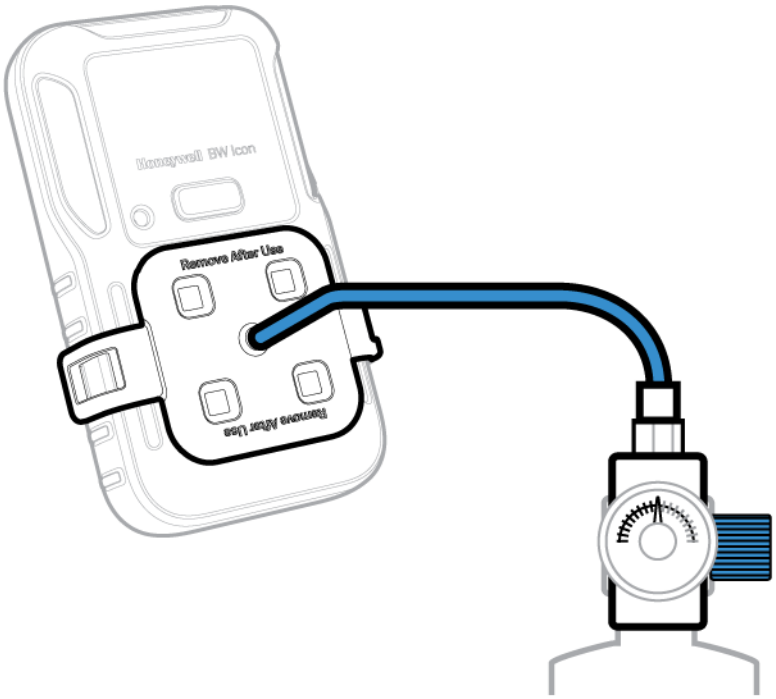
- Recommendations for initial checking of the equipment on a routine basis including the maximum time interval between calibrations.
- Perform a functional check with gas before each day of use.
- Honeywell recommends bump testing the sensors before each day's use to confirm their ability to respond to gas by exposing the apparatus to a gas concentration that exceeds the alarm setpoints. Manually verify that the audible and visual alarms activate.
- 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 Icon. Place the cap over the detector, and then press down on both tabs to snap it into place. Wait a few minutes to sensors warm up.

2. Attach the hose.



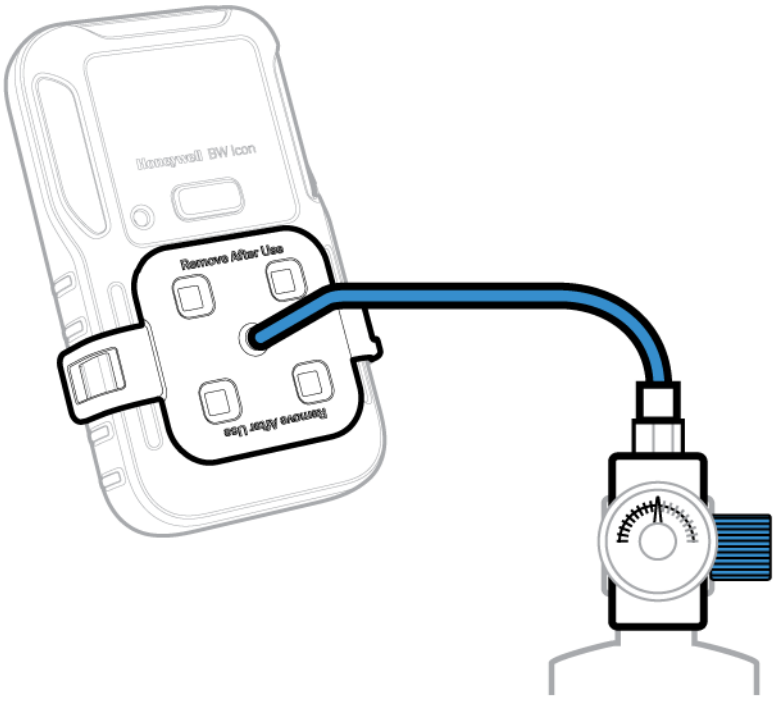

3. Double press the button to enter the menu.
4. Hold the button to enter the bump test, then the slot LED starts flashing blue.
5. Apply span gas when the slot LEDs start flashing. The bump test starts after the instrument detects gas. The four slots LEDs flash blue clockwise. After the bump test is completed, the LEDs are solid green if calibration passed, or red if failed.
6. Remove the calibration cap; the detector starts purging, and the slots LEDs flash in yellow clockwise. After the purge is complete, the device is back to the regular mode.

## Bump Test via SSDC

Apply gas from a cylinder to the sensors manually through the calibration cap, and using the Safety Suite Device Configurator (SSDC) software on a personal computer (PC).

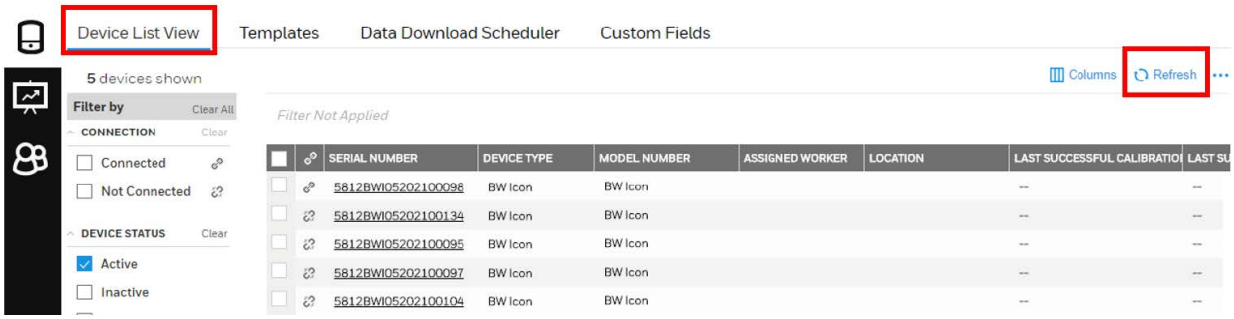
1. Turn On the BW Icon. Place the cap over the detector, and then press down on both tabs to snap it into place. Wait a few minutes to sensors warm up.

2. Attach the hose.

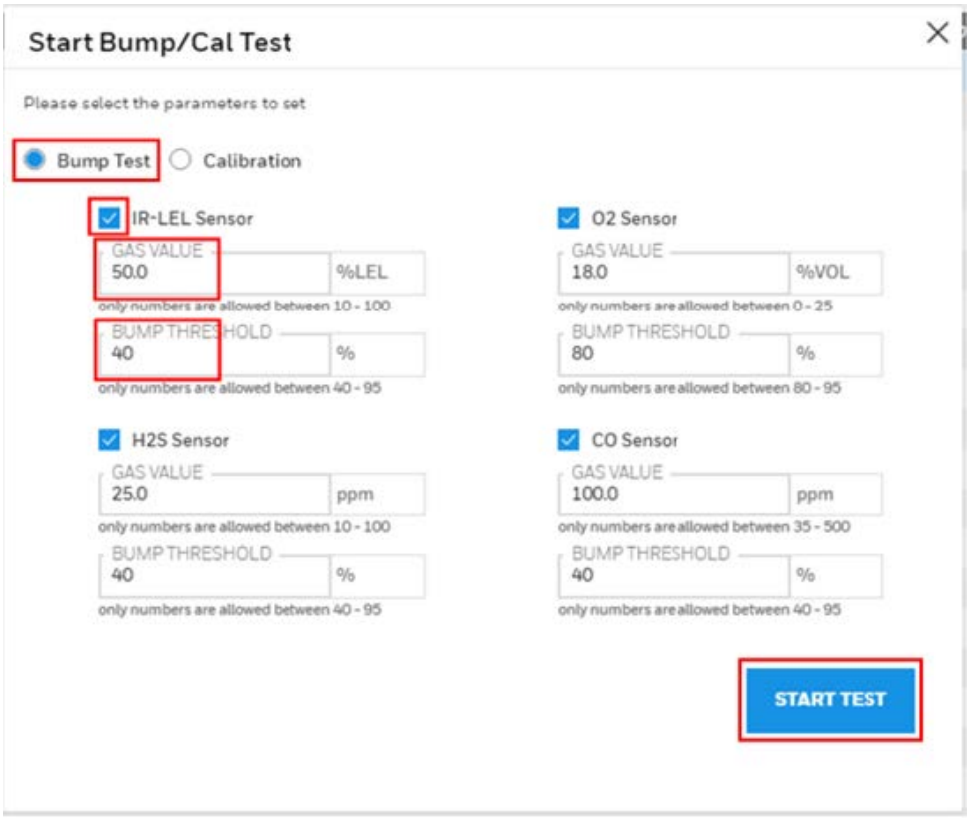



3. Connect the instrument to the PC via the IR link.

4. Log in to SSDC with an authorized user account. For further information, refer to the *SSDC User Manual*.
5. Click the **Device List View** tab, the SSDC scans for connected devices, or you can click Refresh to browse manually.




6. Select the connected detector and then click **Start Bump/Cal**.
7. In the Start Bump/Calibration Test window, do the following:
   - Select Bump
   - Select the bump test sensor. You can modify the default values
   - Click **START TEST**



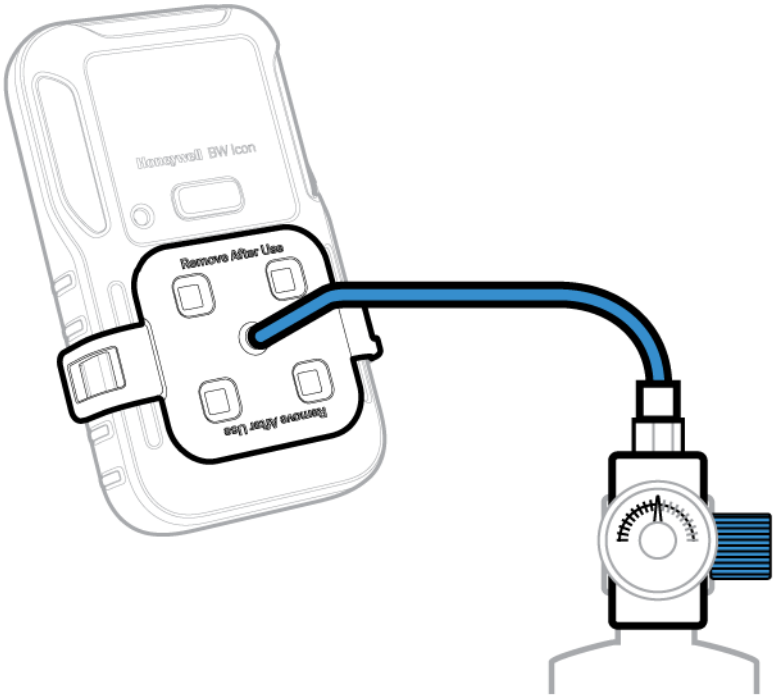

8. Optional Step. You can either remove or keep the IR link connection. The remaining operation is in the instrument.
9. Apply span gas when the slot LEDs start flashing. The bump test starts after the instrument detects gas. The four slots LEDs flash blue clockwise. After the bump test is completed, the LEDs are solid green if calibration passed, or red if failed.
10. Remove the calibration cap. The detector starts purging, and the slots LEDs flash in yellow clockwise. After the purge is complete, the device is back to the regular mode.

## Bump Test via DC

Apply gas from a cylinder to the sensors manually through the calibration cap, and using the Device Configurator (DC) app on a mobile device.

1. Turn On the BW Icon. Place the cap over the detector, and then press down on both tabs to snap it into place. Wait a few minutes to sensors warm up.

2. Attach the hose.




3. In your mobile device, open the Device Configurator app

4. In your BW Icon:
    - Double press to enter the menu
    - Single press until the BLE icon is displayed
    - Hold press 3 secs to initiate the pairing mode.
5. In the Device list screen from the Device Configurator app, select the BW Icon Serial Number to start pairing.
6. In your Mobile device, tap on the Menu button and then select **Bump Test**.
7. Enter the **Operator Name**, and then Tap **Save**. The IntelliFlash LED flashes amber to indicate the bump test process has started.
8. In the Input Gas level screen, check the sensor that you want to test and enter the Span gas concentration, and then tap **START**.
9. Open the cylinder valve by turning the pressure regulator knob counterclockwise. The Zero process starts and a message is displayed when succeeded.
10. Follow onscreen instructions to know when to apply gas and when the bump test process is complete.
11. The process is complete when the results are displayed on your mobile device. You can now remove the cap by pulling on the tabs.

# Zero Calibration

1. Double press the button to enter the menu.
2. Single press to switch to the calibration icon.
3. Press and hold the button for 3 seconds.

   Zero calibration starts automatically, and the sensor LEDs light clockwise in blue.

   After Zero calibration passes, the sensor LED lights solid blue for 5 seconds, and then the detector is back to the normal mode.

# Capture Real Time Reading

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

# Set the Detector via Device Configurator

1. Pair the BW Icon with the Device Configurator App on your mobile device.
2. Tap the menu button ☰
3. Tap **Device Setup**
4. Tap Download, to get the configuration table.

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

CHAPTER

# 3 Maintenance

## Charge the Battery

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

**Note:**

The lithium battery may require 5 hours to full capacity. While charging, the battery icon will flash amber once per second. The time needed to charge will increase if the apparatus is activated. The detector may be warm during charging; this is normal. To preserve the life of the battery, deactivate the device when not in use.
The battery operating temperature is -40°C~ +60°C.

**WARNING**

**The Icon uses a lithium 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 apparatus 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.
- If the device is out of charging range, the battery icon flashes blue.
- Charge the battery using Honeywell charger adapters designed for this apparatus only. Do not use any other charger adapters. Failure to adhere to this caution can lead to fire and explosion.
- If replacing the battery, use only approved lithium polymer cells that are available through Honeywell. User of any other cell can cause fire and explosion.

- Dispose of used lithium cells immediately. Do not disassemble and 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.

## Battery Capacity Indicator

| Status | Duration | Indication or Alarm |
|---|---|---|
| Battery low | Less than 7 days | IntelliFlash, the battery icon, and the sensor LEDs flash amber every 5 seconds. |
| Battery low | Less than 12 hours | IntelliFlash, the battery icon, and the sensor LEDs flash every 5 seconds. Beeps and vibrates. |
| Battery critical | Less than 20 minutes | IntelliFlash flashes every 5 seconds, the battery icon and the sensor LEDs flash every second. Beeps and vibrates.<br>The IR Link is invalid, and the Menu cannot be accessed. |
| Battery depleted | | The battery icon LED is solid red for five seconds, and then the detector powers off. |

| Status | Percentage | Indication or Alarm |
|---|---|---|
| Charging | Less than 100% | The Battery icon flashes in amber. |
| Fully charged | 100% | The Battery icon lights in solid green, and one short beep. |
| Can't charge | 0 % | When the Temperature: >45 °C, <0°C.<br>The battery icon flashes twice per second. |

**Notes when charging with an IntelliDoX:**

- The auto-power is off if there is no communication with the IntelliDox for five minutes.
- For further information, refer to the IntelliDoX user Manual.

## Charge the battery via the USB 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.

## 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 battery icon flashes green.
4. Remove the detector.

Note: For further information, refer to the Multi-Unit Cradle Charger User Manual.

# Firmware Update

1. Open the Device Configurator app on your mobile phone.
2. Tap **Menu**
3. Tap **Firmware**
4. Tap Update

5. Tap **YES** to implement the Firmware update, and wait until Update Successfully is displayed.
6. Tap **OK**.

CHAPTER

# 4 Additional Information

Learn from about strategic information related to the Honeywell BW™ Icon Detector.

## 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 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) | | |

## Sensor Specifications

| Gas Type | Measuring Range | Resolution | Measuring Unit | New Sensor Warm Up Time | Working Temperature |
|---|---|---|---|---|---|
| CO | 0~2000 ppm | 1 ppm | ppm, mg/m3, umol/mol | 0.5h | -40°C to +60°C |
| H2S | 0~200 ppm | 0.1 ppm | ppm, mg/m3, umol/mol | 0.5h | -40°C to +60°C |
| O2 | 0~30% VOL | 0.1% VOL | %VOL | 12h | -40°C to +60°C |
| NDIR-CH4 | 0~100% LEL | 1% LEL | %LEL/%VOL | | -40°C to +60°C |
| SO2 | 0~150 ppm | 0.1 ppm | ppm, mg/m3, umol/mol | 0.5h | -20°C to +50°C/ intermittent -40°C to +55°C |

| Gas Type | Default SPAN Value | SPAN Value Range | Calibration Flow Rate |
|---|---|---|---|
| CO | 100 | 35~500 | 500ml/min |
| H2S | 25 | 10~100 | 500ml/min |
| O2 | 18.0% | 0~25% | 500ml/min |
| NDIR-CH4 | 50% | 10~100% | 500ml/min |
| SO2 | 20 | 10~100 | 500ml/min |

| Gas Type | Default Low Alarm | Low Alarm Setting Range | Default High Alarm | High Alarm Setting Range | Default TWA | TWA Setting Range | Default STEL | STEL Setting Range |
|---|---|---|---|---|---|---|---|---|
| CO | 35 | 10~2000 | 200 | 10~2000 | 35 | 0 (disable), 10~2000 | 50 | 0 (disable), 10~2000 |
| H2S | 10.0 | 1~200 | 15 | 1~200 | 10 | 0 (disable), 1~200 | 15 | 0 (disable), 1~200 |
| SO2 | 2 | 0.5~150 | 5 | 0.5~150 | 0.5 | 0 (disable), 0.3~150 | 1 | 0 (disable), 0.3~150 |
| O2 | 19.5% | 0.5~20.2, 21.6~25% | 23.0% | 0.5~20.2, 21.6~25% | N/A | N/A | N/A | N/A |
| NDIR-CH4 | 10% | 5~60% | 20% | 5~60% | N/A | N/A | N/A | N/A |

# General Specifications

| | BW Icon | BW Icon + |
|---|---|---|
| Size | 108.2mm x 61.5mm x 43.2mm(4.29" x 2.44" x1.7 ") with Alligator Clip 108.2mm x 61.5mm x 37.8 mm(4.29" x 2.44" x 1.49") with Klick Fast Stud | |
| Weight | 185g with Alligator Clip,169g with Klick Fast Stud | |
| Appearance Colour | Yellow, Dark Gray | |
| Working Temperature | -40°C to +60°C | |
| Working Humidity | 0%~95% | |
| IP Rating | IP 66 IP 68, 45min@underwater 1.2m | |
| Gas Type | CO,H2S,O2,SO2,CH4 | |
| Display | 8 Icon LED to show Alarm and Information, Green and Amber LED to show device status. | |
| Alarms Condition | Low Alarm, High Alarm, TWA Alarm, STEL Alarm, Negative Drift Alarm, Over Limit Alarm, Multi Gas Alarm. | |
| Visual Alarm | 6 Red LED | |
| Audible Alarm | 95 dB at 10cm | |
| Battery Life | 2 months (8 hour per day at room temperature with NDIR CH4 sensor) | |
| Datalogging | Continuous datalogging (45 days at 15 seconds interval and 8 hours per day).<br>User configurable datalogging interval (5 to 60 seconds) | |
| Calibration | Manual calibrate with Safety Suite Device Configurator or Device Configurator app, Automatic with IntelliDoX. | |

# Time Out Events

| Action | Time Out |
|---|---|
| Auto exit error screen and power off | 5 seconds |
| Auto skip error message screen and enter warmup | 5 seconds |
| Auto exit menu and turn off Icon LED | 6 seconds |
| Auto exit Force bump and Calibration | 30 seconds |
| Exit auto detected span gas | 60 seconds |
| Pairing, bump, and calibration result display | 5 seconds |
| BLE pairing timeout | 60 seconds |

# Troubleshooting

| Problem | Cause | Solution |
|---|---|---|
| Battery icon blinks for 5 seconds when press button to power on. | Depleted battery | Charge the rechargeable battery pack |
| The detector, side LEDs, all bays, and IntelliFlash blink for 5 seconds when press the button to power on. | The detector expired | The apparatus is over two years lifetime, cannot continue to use. |
| All bays and IntelliFlash light for 5 seconds | All sensors fail | Replace the sensor or the PCBA |
| The detector, side LEDs, and IntelliFlash light for 5 seconds, and sound two long beeps. | RTC fail | Replace PCBA |
| The detector, side LEDs, and IntelliFlash light for 5 seconds, and sound five short beeps. | Data flash fail | Replace PCBA |
| The detector, side LEDs, and IntelliFlash light for 5 seconds, and sound one long beep and two short | Temperature sensor fail | Replace PCBA |

| Problem | Cause | Solution |
|---|---|---|
| beeps. | | |
| BLE icon and IntelliFlash light for 5 seconds | BLE fail | Replace PCBA |
| Sensor bay and IntelliFlash light for 5 seconds | Sensors fail | Replace the sensors |
| Bump icon lights for 30 seconds. | Bump overdue and must carry out bump testing before use. | Hold the button for 3 seconds to start the bump testing or detector will auto power off after 30 secs. |
| Detector alarms after start-up sequence | Sensor not stabilized | SPE O2 sensor: Wait for at least 10 min before power on. |
| | Sensors require calibration | NDIR-CH4 sensor must carry out calibration 5 minutes after warmed up for power on |
| Detector does not respond when button is pressed | The battery state is critically low, or the battery is depleted. | Charge the rechargeable battery pack |
| | Apparatus is performing operations that do not require user input. | Button operation restores automatically when the operation ends. |
| Apparatus Doesn't accurately measure gas. | Sensor(s) require calibration. | Carry out calibration. |
| | Apparatus is colder/hotter than gas temperature. | Allow the apparatus 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 Device Configurator. |
| | Alarm setpoints set to zero. | Define the alarm setpoint in Device Configurator. |
| | Apparatus is in calibration mode. | Complete the calibration procedure. |
| | Apparatus is in DC mode. | Stop data communication via a mobile phone. |
| | Apparatus is in IR communication. | Stop data communication via IR Link. |

| Problem | Cause | Solution |
|---|---|---|
| The device alarms without reason | The sensor is exposed to a puff of the target gas. | Apparatus is operating normally. Use caution in suspected areas. Check the peak gas exposure reading. |
| | Alarm setpoints are set incorrectly. | Define the alarm setpoint in Device 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 |
| Battery icon flashes in blue. | Battery is out of required charging temperature range. | Move to 0~45°C ambient temperature. |

# DataLogs and Event Logs

## DataLogs

The detector records various information to create a report. The detector is capable of storing 45 days of data.

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 alarm events are recorded:

0: No alarm

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 anything. When a gas alarm occurs, even when displaying other behavior, the device goes back to the home screen and displays appropriate gas behavior.

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 | | Alarm 2 icon lights red and flash every second. Left and Right alarm LEDs flash every second. Alarmed sensor LEDs flash twice every second. Beeps and vibrates. |
| Over Range | | Alarm 2 icon lights red and flash twice every second. Left and Right alarm LEDs flash every second. Alarmed sensor LED flashes twice every second. Beeps and vibrates. |
| High | | Alarm 2 icon lights red and flash once every second. Left and Right alarm LEDs flash every second. Alarmed sensor LED flashes twice every second. Beeps and vibrates. |

| Alarm type from high priority to low | | Description |
|---|---|---|
| STEL | | STEL icon lights in red. Left and Right alarm LEDs flash every second. Alarmed sensor LED flashes twice every second. Beeps and vibrates. |
| TWA | | TWA icon lights red. Left and Right alarm LEDs flash every second. Alarmed sensor LED flashes twice every second. Beeps and vibrates. |
| Low | | Alarm 1 icon lights red. Left, Right, and sensor alarm LEDs flash every second. Beeps and vibrates. |
| Negative | | Calibration icon flashes red every second. IntelliFlash flashes amber every five seconds. Sensor LED lights solid red. |

| Item | Alarm Setpoint | Resseting | Silencing |
|---|---|---|---|
| **Negative Alarm** | <-5%LEL | Keep alarm until reading increase above or equal to -5%LEL | Silence when transmitting data to Safety Suite Device Configurator or Device Configurator |

| Item | Alarm Setpoint | Resseting | Silencing |
|---|---|---|---|
| **Default Low Alarm** | 10%LEL | Keep alarm until reading decease to below 10%LEL | Silence when transmitting data to Safety Suite Device Configurator or Device Configurator |
| **Default High Alarm** | 20%LEL | Keep alarm until reading decease to below 20%LEL | Silence when transmitting data to Safety Suite Device Configurator or Device Configurator |
| **Default TWA** | N/A | | |
| **Default STEL** | N/A | | |
| **Over Alarm** | >100%LEL | Over alarm will be latched automatically. Hold the button for one second to release the latching alarm when reading has declined below 100% LEL | Silence when transmitting data to Safety Suite Device Configurator or Device Configurator |

| Gas Type | Setting Resolution | Low Alarm Setting Range | High Alarm Setting Range | TWA Setting range | STEL Setting Range |
|---|---|---|---|---|---|
| NDIR-CH4 | 1% LEL | 5~60% | 5~60% | N/A | N/A |

# Replacement Parts

CP-SS-K1 Sensor membrane (kit of 20)

CP-LBL-1 Sensor name plate

**Accessories:**

M05-2011-000 Calibration cap

# 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 Device 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 Device 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 Device 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 the software, the information used therein, and the network environment. This obligation includes complying with applicable cybersecurity standards and best practices including, but not limited to, the Federal Trade Commission consent decrees and other declarations of reasonable and appropriate security measures, the National Institute of Standards and Technology (“NIST”) Cybersecurity Framework and NIST Alerts, InfraGard Alerts, and the United States Computer Emergency Readiness Team (“US-CERT”) Alerts and Bulletins, and their equivalents.

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## In terms of North America flammable gas performance approval:

Honeywell BW™ Icon and BW Icon+ are performance tested only for the range 0-5% methane in the air as 0-100% LEL based on CSA 60079-29-1 and UL 60079-29-1

Only Honeywell BW™ Icon and BW Icon+ infrared sensor were evaluated for CSA 60079-29-1 and UL 60079-29-1.

The evaluation is valid with flow rate 500ml/min, CH4 (Methane) gas, and Safety Suite Device Configurator in CSA lab test.

The other options are not the scope of CSA 60079-29-1.

For the compliance of CSA 60079-29-1, the adjustable alarm point shall not exceed 5% to 60 %. The highest alarm shall be configured as a latching alarm, and the user can turn on/off the latching alarm by Safety Suite Device Configurator or Device Configurator.

Honeywell BW ™ Icon and Icon+ were pressure tested for 80 to 120 kPa, temperature tested for -40°C to 60°C, humidity tested for 5% to 90% RH, gas tested for 2.5%VOL CH4=50%LEL and air velocity less than 6m/s in CSA lab test.

The battery voltage is 3.7V, and the manufacturer verifies the duration time until the low battery condition mentioned; the performance test in the CSA lab only verifies the low battery duration. The maximum power consumption of BW™ Icon and Icon+ are 380mW.

Infrared CH4 sensor warm-up time is less than 45s, CSA lab calibrates after warm-up for 1 hour, and test gas application time is 60s. T90<60s for 50%LEL CH4 gas in diffusion mode.

To check reaction time, follow the section of 'Capture Real-Time Reading' to enter 'Measurement' in DC and apply calibration gas. The reaction time starts from the time once attached hose or applied gas and end when reading over 90% of calibration gas concentration.

Performance Test Temperature Dependence:

-20 to 60°C, ±5%LEL or ±10% of reading at 20°C, whichever value is greater

-40 to -21°C, ±10%LEL or ±20% of reading at 20°C, whichever value is greater

Reading shows 0%LEL below 3%LEL and indicates Negative alarm once reading below -5%LEL. Use the utility of manufacture to disable the suppression of reading.

Where it is necessary to apply LFL and UFL values for CSA 60079-29-1 and UL 60079-29-1, reference shall be made to ANSI/NFPA 497.

The storage life of BW™ Icon and Icon+ are six months in below condition:

Temperature: 0~30°C

Humidity: 5%~95%RH

Pressure: 80~120kpa

The measuring range of the combustible gas sensor is 0~100%LEL, it is recommended to do calibration if the readings are not within specified limits.

If necessary, read IEC 60079-29-2 for a special calibration procedure.

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