

USER & OPERATOR MANUAL

UNOIQ/DUOIQ

Designed for the detection of various gases
in industrial and hazardous environments

May 2026

M070091/EN/ISSUE 1.1



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PROLOGUE

This product is a gas detector, not a measurement device. Read and understand this manual before use. Check that all display segments, alarm LEDs, sounder and vibrator function during the start-up procedure and that the device does not have any mechanical defects before each use. Charge fully before first use. Charge and service in non-hazardous areas.

NOTE: The certification label shows the part number, serial number, relevant certification, and manufacture details. Please reference the serial number as a minimum when contacting Crowcon regarding your product.

IMPORTANT: For Hazardous Area certifications, the main body and sensor tray are approved as a whole. Where a non-hazardous area sensor tray is used, this negates all hazardous area certifications and is not suitable for use in potentially explosive atmospheres.

Understand the manual carefully before use to familiarise yourself and ensure that it is used accordingly for your application. Failure to comply may result in severe injury or loss of life.

INTRODUCTION

Thank you for choosing our UnoIQ/DuoIQ Portable Gas Detector. This device is designed for the detection of various gases in industrial and hazardous environments. It provides real-time monitoring and alerts users to the instantaneous presence of harmful gas concentrations, Time-Weighted Average (TWA) exposures and peak readings.

EASE OF USE

Single-button operation simplifies the user experience with quick, intuitive control, reducing complexity and learning curves, while making the device more widely accessible.

DEVICE AND FLEET INSIGHTS

Using the free Crowcon Companion App, users can view device information and live readings (Bluetooth™ enabled device dependant). Managers can view fleet-wide compliance information using the Crowcon Connect portal (portal subscription required).

MODULAR, SERVICEABLE SENSOR TRAYS

Easily swap out pre-calibrated sensors without manufacturer intervention, reducing downtime and maintenance costs.

COMPLIANCE MADE EASY

Effortlessly store and retrieve calibration certificates in Crowcon Connect to simplify audits and ensure regulatory compliance.

LIGHTWEIGHT, COMPACT DESIGN

With its compact design, UnoIQ delivers reliable performance in a lightweight form - measuring under 10cm in height and weighing only 125g*, ensuring portability and ease of use.

*Weight may vary depending on configuration.

UPGRADEABLE TO DUAL-GAS DETECTION

The only single-gas detector that can be upgraded to support two gases mid-life, offering flexibility as operational needs evolve.

SEAMLESS HUB INTEGRATION

'Dock and go' functionality with IQhub allows for automated bump testing, calibration, and compliance reporting.

SAFETY INFORMATION

Document No. M070092 - Revision Number: 1.2

This section is version controlled by certification approval bodies.

The detector is certified for use in hazardous areas and must be operated and maintained in strict compliance with the instructions, warnings, and labelling provided in this manual. It must be used within the specified limitations.

Carefully read and fully understand all instructions in the operation section of this manual before use.

Prior to operation, ensure that the equipment is in proper working condition, with the enclosure intact and undamaged.

If any damage is identified, do not use the device. Instead, contact your local Crowcon office or authorised agent for repair or replacement.

Do not disassemble the device or replace components, as this may compromise intrinsic safety and invalidate safety certification.

Only genuine Crowcon replacement parts should be used; the use of substitute components may void both certification and warranty. Refer to the "Service and Maintenance" section for further details.

Adhere to all warnings and instructions indicated on the unit and within this manual.
Follow site-specific health and safety protocols related to monitored gases and evacuation procedures.

Familiarise yourself with the screen display and alarm warnings before use.

If the device is not functioning correctly, consult the troubleshooting guide or contact your local Crowcon office or authorised agent. Refer to the "Crowcon Contacts" section of the manual for details.

Ensure that maintenance, servicing, and calibration are conducted in accordance with the procedures outlined in this manual and performed only by trained personnel.

SAFETY CERTIFICATIONS

ATEX IECEX INMETRO (Pending)	CSANe 25ATEX1122X IECEX CSAE 25.0043X INMETRO UL-BR 26.0579 (Pending) When UnoIQ DuoIQ 5th part number character is defined as "A" Example: xxxxAxx-xx Ex II 1 G Ex ia IIC T4 Ga (-20°C < Ta < +60°C) When UnoIQ DuoIQ 5th part number character is defined as "C" Example: xxxxCxx-xx Ex II 2 G Ex db ia IIC T4 Gb (-20°C < Ta < +55°C) When UnoIQ DuoIQ 5th part number character is defined as "D" Example: xxxxDxx-xx Ex II 1 G Ex da ia IIC T4 Ga (-20°C < Ta < +60°C)
cCSAus	Class I, Zone 0, A/Ex ia IIC T4 Ga Class I, Division 1, Group A, B, C, and D T4 CSA 26CA80281927X

CERTIFICATION STANDARDS	IIECEx IEC 60079-0:2017 Ed 7 + CORR1:2020 IEC 60079-1:2014 Ed.7 IEC 60079-11:2011 Ed.6 ATEX EN IEC 60079-0:2018/AC:2020 EN 60079-1:2014 EN 60079-11 :2012 CSA CSA C22.2 No. 61010-1-12, UPD1 :2015, UP2 :2016, AMD1 :2018, UPD3 :2023, UPD4 :2024 UL 61010-1-2024 CSA C22.2 No. 60079-0:19 (R2024) CSA C22.2 No. 60079-11 :14 (R2023) UL 60079-0-2024 UL 60079-11-2023 UL 913-2022 ABNT NBR IEC 60079-0:2020 Versão Corrigida:2024 ABNT NBR IEC 60079-1:2016 Versão Corrigida:2020 ABNT NBR IEC 60079-11:2013 Versão Corrigida:2017
	Complies with RED, RoHS, ATEX EN 50270, EN 301 489 and EN 300 328 Refer to EU Declaration of Conformity for further information

SPECIFIC CONDITIONS OF USE

The equipment must only be charged in a non-hazardous area using a suitably certified SELV, PELV or ES1 or equivalent charger with $U_m = 6.5V$ d.c

WIRELESS CERTIFICATIONS

EUROPE & UK	Complies with radio equipment directive.
USA	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. Contains FCC ID R7T1201102
CANADA	Contains IC ID 5136A-1201102
BRAZIL	Contact Crowcon for availability.
UAE	
SINGAPORE	
INDONESIA	
MALAYSIA	
HONG KONG	
SOUTH AFRICA	
AUSTRALIA NEW ZEALAND	

SPECIFICATIONS

SIZE/WEIGHT	9.6 x 5.5 x 3.2 cm / ~135g
TEMPERATURE/HUMIDITY	-20 to +60°C (Sensor Dependant) / 0% - 95%
IP RATING	IP 66/68
ALARMS	Visual, Vibrating, Audible (95dB @ 30cm), Low/High, TWA, STEL
RECHARGE TIME	3-4 Hours
CONNECTIONS	Bluetooth, NFC Connection to Crowcon Connect App for Live Data and Configuration.
DATA LOGGING	Up to 500 Event Logs
LANGUAGES	English (additional languages pending)

PROPER PRODUCT DISPOSAL AT END OF LIFE

EU Directive 2012/19/EU: Waste Electrical and Electronic Equipment (WEEE)

The product must not be discarded as general industrial or household waste. Instead, it should be disposed of through appropriate WEEE disposal facilities.

For further information on proper disposal methods, please contact your local authority, distributor, or the manufacturer.

End of Certification Sub Controlled Section.

1. UNBOXING

The device is calibrated and passes quality inspection before leaving our manufacturing facility.

1.1 STANDARD BOX CONTENTS

- UnoIQ/DuoIQ Gas Detector – calibrated and configured
- Quick start guide
- Calibration report
- Declaration of conformity.

1.2 OPTIONAL BOX CONTENTS

- USB-C Charging Cable
- USB-A Charging Cable.

2. OVERVIEW

2.1 PRIOR TO USE

Before use, the detector should always be checked for any signs of physical damage.

The detector is equipped with a Lithium-ion Polymer (LIP) rechargeable battery pack and is supplied with a sufficient charge for immediate use upon unpacking. However, for first-time use, it is recommended to fully charge the battery to achieve the maximum operating time.

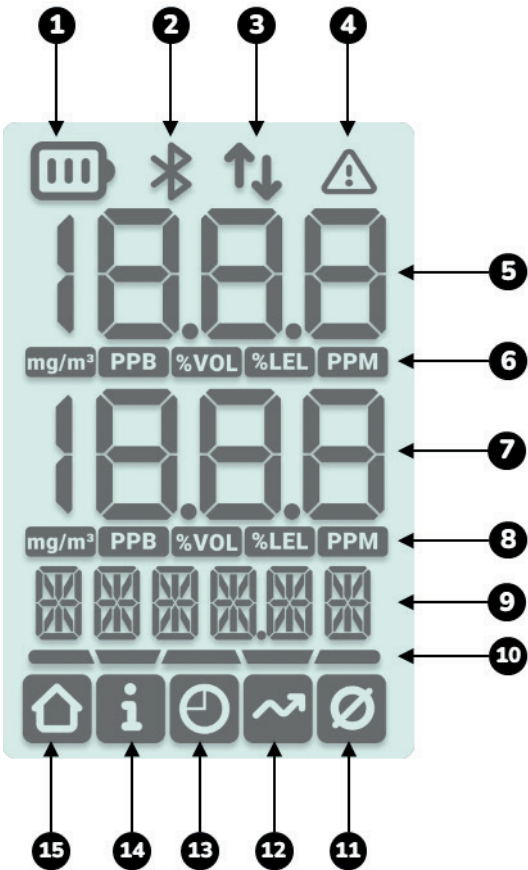
2.2 PRODUCT OVERVIEW

- Simple one-button operation
- Removable, swappable pre-calibrated sensors
- NFC data communications
- (Optional) real time data bluetooth communications
- Worker/operator assignment
- Time weighted average tracking
- Records peak gas readings
- Data/event logging

- | | |
|---|------------------------------|
| 1 | Alarm LED |
| 2 | Button |
| 3 | Sensor |
| 4 | Gas Type |
| 5 | Sounder |
| 6 | Display with backlight |
| 7 | Grip clip/klick fast adapter |
| 8 | Charging port |



2.3 DISPLAY



1	Battery level indicator (charge remaining or charging state)
2	Bluetooth connectivity status (if Bluetooth® configured and connected to Connect Companion App)
3	Data transmitting indicator
4	Status indicator
5	Primary gas reading
6	Unit of measure for primary gas reading
7	Secondary gas reading (if sensor fitted)
8	Unit of measure for secondary gas reading
9	Text segments
10	Status bar
11	Adjust (Zero/bump) navigation
12	Peak readings
13	TWA readings
14	Device information navigation
15	Home screen navigation

2.3.1 MENU ICONS

The icons on the lower part of the display indicate the 5-part menu structure. The menu options are described in the table below:

	Home Screen
	Information
	Time Weighted Average
	Peak Measurements
	Adjust / Zero

2.4 CHARGING & BATTERY INDICATION

Locate a Safe Charging Area: Ensure you are in a designated non-hazardous environment before connecting your device to a power source.

Use Only the Supplied Crowcon USB Cable: To prevent damage and ensure safe operation, always use the original USB charging cable provided from Crowcon.

Connect to a suitable power source: Plug the USB cable into a certified safety extra low voltage (SELV) power adapter, computer, or other USB power source that meets the manufacturer's specifications.

The device's battery indicator will display the charging status. .



Status key:

- 1) Battery life critical: recharge now
- 2) Battery life low
- 3) Battery life half charged
- 4) Battery life fully charged

While charging, the battery segments will illuminate sequentially from 1 to 4.

Once fully charged, the fourth battery icon will begin to flash.

Unplug when fully charged: Once fully charged, disconnect the USB cable and store the device properly before returning it to use.

WARNING:

- Always charge your detector in a safe, non-hazardous area. Charging the device in areas where explosive gases or combustible dust may be present could pose a serious safety risk.
- Avoid exposure to extreme temperatures, moisture, or direct sunlight while charging.
- Inspect the USB cable and charging port for damage before use. Replace if damaged/worn.

3. OPERATION

NOTE: Before zeroing the instrument, ensure it is in 'clean air' (i.e. outside, in normal air, away from any plant process or suspected gas location). This will allow the instrument to be zeroed using clean air as the base point. If the device is zeroed in contaminated air a false gas reading can result, or the zero could fail.

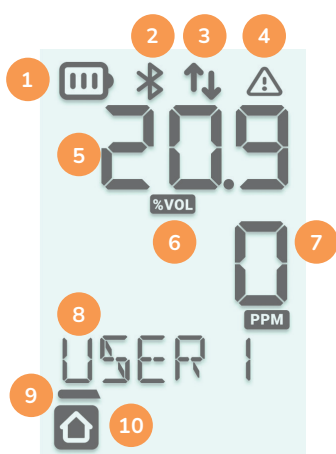
3.1 TURNING THE DEVICE ON

Press and hold the button for five to ten seconds. The detector display will activate, illuminating all segments. The alarm will sound, accompanied by vibration and LED illumination for a few seconds to indicate the alarm status.

Subsequently, the device will proceed with the startup sequence and begin stabilising the sensor. It will not respond to gas until the startup sequence and stabilising is complete.

NOTE: The detector will be preconfigured with the default regional settings, including alarm levels and setpoints.

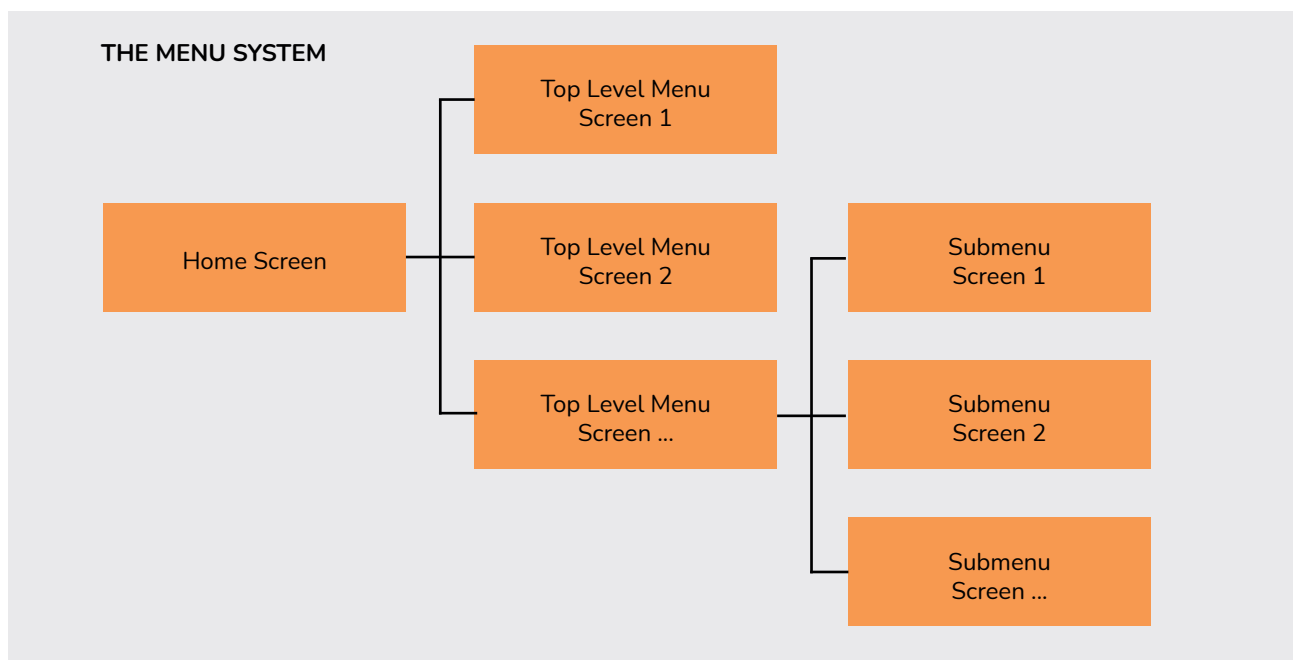
3.2 HOME SCREEN



- Battery Level Indicator**
Displays the current charge status of the device's battery.
- Bluetooth Connectivity Status**
The Bluetooth icon illuminates when the device is actively connected to the Crowcon Connect Companion App.
- Data Transfer Indicator (BLE/NFC)**
The icon illuminates during active data transmission via Bluetooth Low Energy (BLE) or Near Field Communication (NFC).
- Notification Status Indicator**
Alerts users to operational notifications or warnings within the system.
- Primary Live Gas Reading Display**
Shows real-time measurements for the primary gas sensor.
- Unit of Measurement (UoM) for Primary Gas Reading**
Indicates the unit (e.g., ppm, %LEL) associated with the primary live gas reading.
- Secondary Live Gas Reading Display (DuoIQ Models Only)**
If equipped with DuoIQ technology, this section displays real-time measurements for the secondary gas sensor.
- Operator Identification Field**
Displays the name of the assigned operator, if one has been registered to the detector.
- Animated Status Bar**
A dynamic visual element that continuously cycles to confirm normal device operation.
- Home Screen Navigation Icon**
Returns users to the main interface screen from any submenu or secondary display.

3.3 ACCESSING THE MENU

The device information can be accessed through the menu system. The overall structure groups common information or features in the Top-Level Menu and submenus for ease of navigation.



3.3.1 ONE BUTTON NAVIGATION

All navigation follows a similar pattern using the control button:

- Double tap to access the Top-Level Menu or a submenu
- Single tap to cycle through screens in the current menu.

3.3.1.1 ACCESS TOP-LEVEL MENU

From the Home Screen, double tap the button to enter the top-level menu.

3.3.1.2 CYCLE THROUGH MENU SCREENS

Single tap the button to sequentially navigate through available screens in the current menu structure.

3.3.1.3 ACCESS SUBMENUS

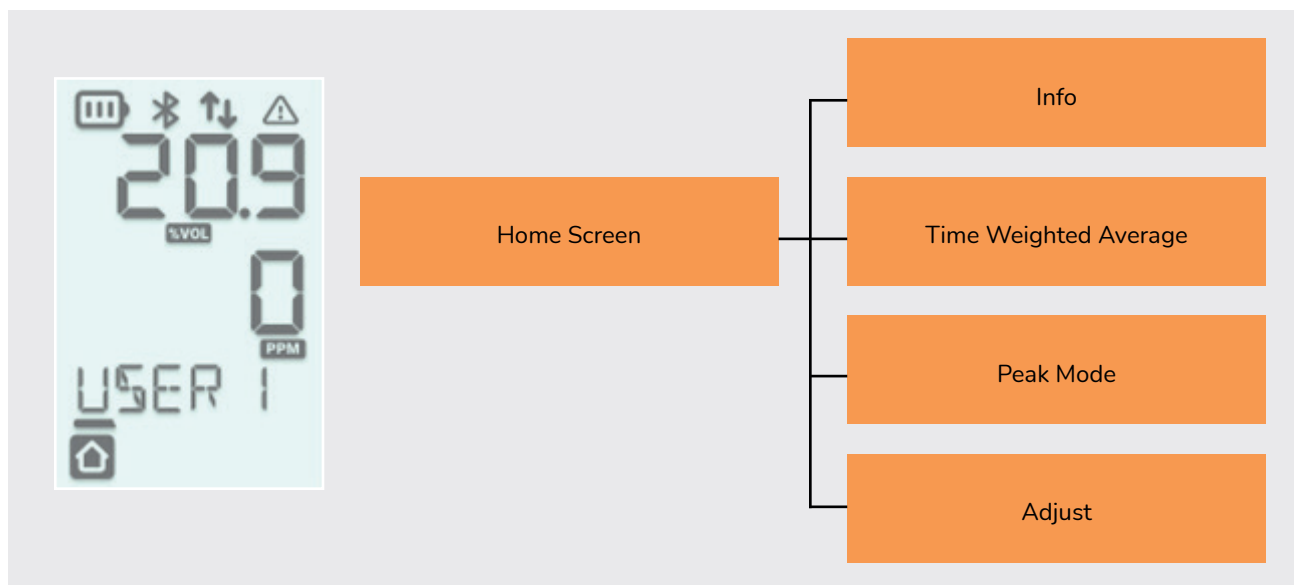
Double tap the button to select and enter any submenu within the current screen.

3.3.1.4 RETURNING TO PREVIOUS SECTION

To return to the previous section, single tap to cycle through all screens in the current menu. If you are in a submenu, you will return to the Top-Level Menu. If you are in the Top-Level Menu, you will be brought back to the Home Screen.

3.4 TOP-LEVEL MENU

From the Home Screen, double tap the control button to access the Top-Level Menu. Each of these screens contain submenus, which are discussed in detail in the following sections.



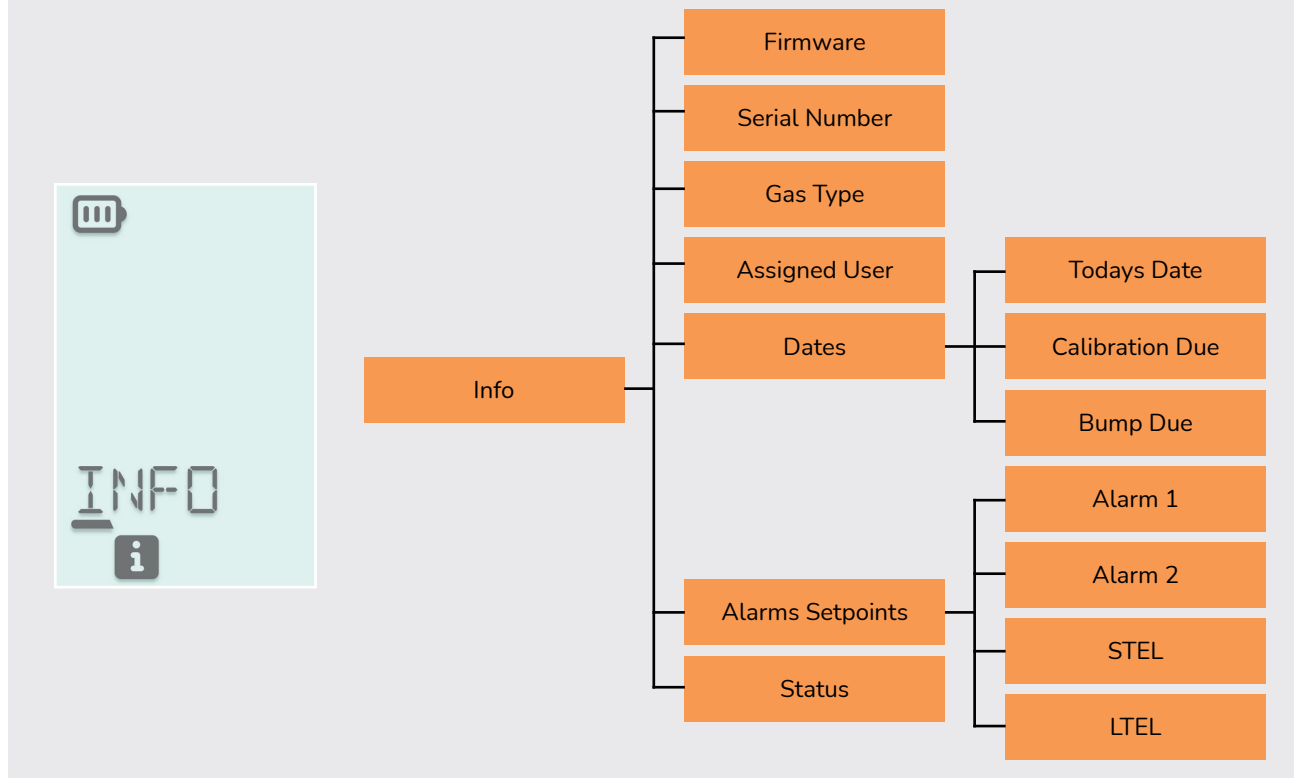
3.5 INFORMATION SCREEN

The Information menu enables users to navigate between screens to review current settings and status details. Each screen displays read-only information, with no options to edit or modify data directly from these views.

INFORMATION MENU STRUCTURE

See One Button Navigation section for moving around the menus.

The INFO menu contains the following selectable options:



3.5.1 FIRMWARE

Lists the firmware for the main body and each sensor module.

3.5.2 SERIAL NUMBER

Displays the unique identifier for both the detector's main body and the connected sensor tray for inventory management, warranty claims, and technical support. Record this number for future reference.

3.5.3 GAS TYPE

Shows the specific gases (e.g., CO, H₂S, O₂) and their units (ppm, %LEL, %Vol) configured on the installed sensor tray. The sensor tray's pre-programmed settings determine this display. Ensure the tray matches your monitoring needs (e.g., toxic gases, combustibles).

3.5.4 ASSIGNED USER

Indicates the operator's name assigned to the detector. Ensures accountability in multi-user environments.

3.5.5 DATES

3.5.5.1 TODAY'S DATE

Displays the current date and time, synchronised automatically via Bluetooth®, NFC or manually via the service application and connected IQHub.

3.5.5.2 CALIBRATION DUE

Specifies the deadline for calibrating each sensor in the tray to ensure accuracy. Calibration adjusts sensor baseline readings using certified test gas. Overdue calibration triggers alerts and may disable the device depending on configuration.

3.5.5.3 BUMP DUE

Indicates when a bump test (functional check with gas) is required for each sensor. Bump tests verify alarm functionality.

3.5.6 ALARM SETPOINTS

3.5.6.1 ALARM 1 (LOW ALARM)

Shows the threshold at which the detector triggers a low-level alarm (audible, visual, vibrate).

3.5.6.2 ALARM 2 (UPPER ALARM)

Displays the critical threshold for escalated alarms (louder tones, vibrant flashing LEDs & vibrate).

3.5.6.3 STEL (SHORT-TERM EXPOSURE LIMIT)

Indicates the 15-minute average exposure limit point. Exceeding this over an average of 15 minutes triggers a health-risk alert

3.5.6.4 LTEL (LONG-TERM EXPOSURE LIMIT)

Displays the 8-hour average exposure limit. Persistent exceedance over this point during an 8-hour average requires workplace evaluation.

3.5.7 STATUS

Displays information intended for trained service engineers to understand advanced device troubleshooting.

3.6 TIME-WEIGHTED AVERAGE (TWA) SCREEN

Exposure to low levels of gas may not trigger an immediate alarm but sustained exposure—even to moderate concentrations—can pose serious health risks. The TWA alarm ensures these risks are not overlooked. The detector includes a TWA alarm (also referred to Workplace Exposure Limits, WELs) to monitor and protect workers from prolonged exposure to hazardous gases over an extended period. TWAs have two set-points:

A Short-Term Exposure Limit (STEL) and a Long-Term Exposure Limit (LTEL).

These limits are set by national health and bodies and are what are used to determine alarm set points in our devices, and are the driver for regional-specific configurations.

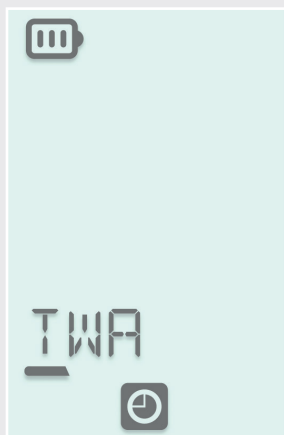
WHAT IS STEL AND LTEL?

A Short-Term Exposure Limit (STEL) alarm protects workers from brief but potentially dangerous spikes in gas concentration over a rolling 15 minutes exposure.

A Long-Term Exposure Limit (LTEL) alarm protects workers from prolonged exposure over a shift (assumed 8 hours). The calculation starts when the unit is switched on and continues until the unit is switched off, even if it passes the 8 hour assumed shift length as it applies a ppm-hours calculation over the duration of time it is on.

HOW IT WORKS

The Detector continuously calculates the average gas concentration throughout the workday and over a rolling 15-minute window. If the calculated average exceeds the preset STEL/ LTEL limit, the device triggers the STEL or LTEL alarm, indicating that the operator should immediately evacuate the work area and follow company procedure on whether they return to work that day or not.



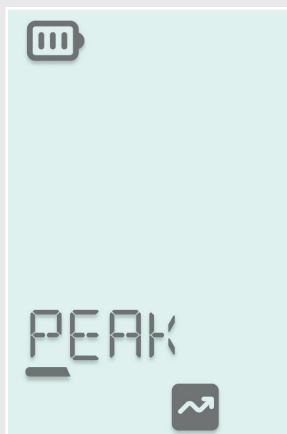
ACCESSING TWA VALUES

Navigate to the **TWA** menu icon using the control button. The device will display the both the active STEL and LTEL readings for all gases detected.

STEL and LTEL readings can be logged and transmitted to **Crowcon Connect** for compliance documentation and trend analysis.

3.7 PEAK MODE SCREEN

The Peak measuring mode on the detector allows users to capture and review the highest gas concentration (or lowest O2 reading) detected during a given session or time period. This feature is particularly useful for understanding maximum exposure levels in hazardous environments, even if alarms were not triggered at the time.



ACCESSING PEAK MODE

Navigate to the Peak menu icon using the control button. The device will display the peak readings recorded since the last reset. Some models may allow manual reset of peak values via the menu or app.

When Peak Mode is active, "PEAK VALUES" will scroll along the status bar.

Peak readings can be logged and transmitted to Crowcon Connect for compliance documentation and trend analysis.

To clear the peak value and begin a new measurement cycle, double tap the button again while in this screen. This will prompt a 5 second countdown. Single tap the button to confirm a reset.

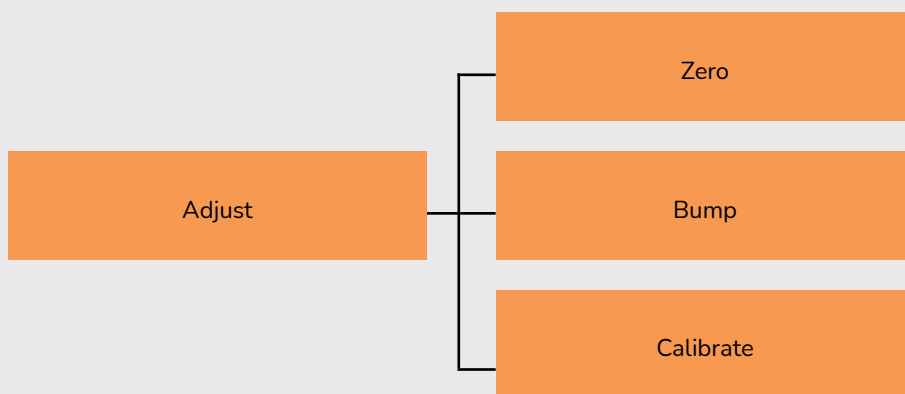
3.8 ADJUST SCREEN – ZERO, BUMP, AND CALIBRATION



ACCESSING ADJUST MENU

Navigate to the Adjust menu icon using the control button. The device will provide the options to Zero, Calibrate and Bump the detector.

NOTE: Some features in this menu are dependent on configuration and may only be available for servicing.



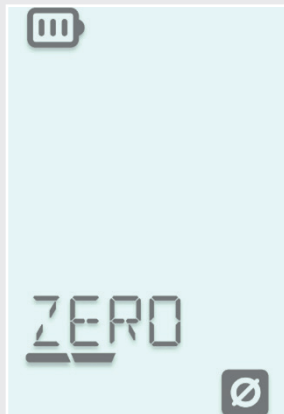
3.8.1 ZERO ADJUSTMENT

Zeroing the detector ensures that the gas sensors provide accurate and reliable baseline readings. This process should always be performed in a clean air environment, free from target gases or contaminants.

WHEN TO ZERO

- After powering on the device for the first time
- Before each use in a new environment
- After sensor replacement or exposure to high gas levels
- As part of routine calibration and maintenance

IMPORTANT: Do not zero the detector in an environment that may contain trace amounts of the target gas. Doing so may cause incorrect readings and delayed alarms.



HOW TO ZERO

1. Ensure you are in a safe, clean air location — outdoors or in a known uncontaminated area.
2. Navigate to the Adjust option in the menu.
3. To access the menu, double-tap the button. Then, double-tap on the “ZERO” option.
4. The device will begin a countdown from 5 seconds. Single-tap the button within the 5 seconds to begin zeroing, otherwise the operation will be cancelled.
5. The detector will stabilise and adjust sensor baselines.
6. Once complete, a ‘PASS’ confirmation message will appear.

If the Detector is unable to complete a successful zero operation, the screen will display a ‘FAIL’ message. This typically indicates that the sensor is detecting gas or is unable to stabilise at a safe baseline.

3.8.2 BUMP TESTING

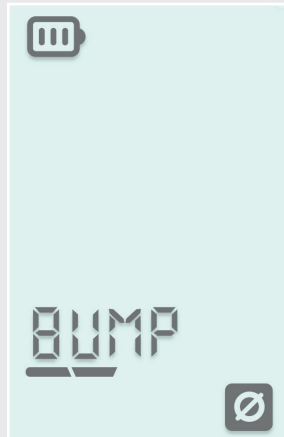
Before using any portable gas detection equipment each day, it is strongly advised, where practical, to perform a bump test.. This confirms that all sensors are responsive and all alarms are functioning correctly, by exposing the device to a known concentration of target gas that exceeds the low alarm threshold.

A bump test is also advised if there is any doubt about the device’s performance (ie: the device has experienced a physical shock, exposure to an over limit alarm, etc).

For further guidance on functional checks and to aid determining an appropriate bump test frequency refer to EN 60079-29-2 and / or 62990-2.

3.8.3 PERFORMING A BUMP TEST

A bump test can be performed from the adjust menu on the device.



HOW TO BUMP TEST

1. Ensure you are in a safe, clean air location — outdoors or in a known uncontaminated area.
2. Fit the flow plate with a connected gas bottle to the detector.
3. Navigate to the Adjust option in the menu.
4. To access the menu, double-tap the button. Then, single-tap until “BUMP” is displayed.

NOTE: The Bump option will only appear if it has been configured. If the Bump option is not visible, use the Crowcon Companion app or contact your service partner to enable this feature.

5. Double Tap the Group of Sensors that needs to be Bumped. See Sensor Groups for more information.
6. The device will begin a countdown from 5 seconds. Press the button within the 5 seconds, otherwise the operation will be cancelled.
7. Now apply gas to the detector.
8. Once complete, a ‘PASS’ confirmation message will appear.

If the Detector is unable to complete a successful bump operation, the screen will display a ‘FAIL’ message.

3.8.4 CALIBRATION

NOTE: Calibration via the menu must be performed using the pre-configured gas levels set on the device.

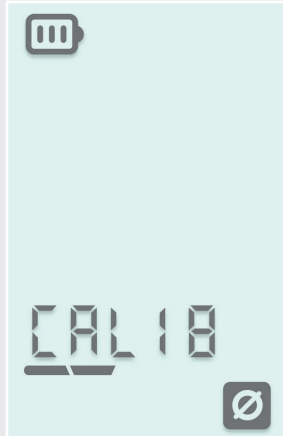
NOTE: It is recommended to read the procedures described in IEC EN 60079-29-2 to define an appropriate calibration interval.

NOTE: For MPS devices, do not calibrate the device using a standard methane cylinder with a balance gas composition of 20.9%Vol O₂ balanced in Nitrogen. This cylinder does not contain required level of oxygen and will result in incorrect gas bump test readings. Refer to section 4.4.1. Calibration of MPS Flam sensor for guidance on suitable gas mixtures.

The device must be calibrated if:

- The scheduled calibration interval has been exceeded (calibration overdue).
- The sensor has failed a previous calibration or bump test.

3.8.4.1 PERFORMING A CALIBRATION VIA THE DEVICE



HOW TO CALIBRATE

1. Ensure you are in a safe, clean air location — outdoors or in a known uncontaminated area.
2. Fit the flow plate with a connected gas bottle to the detector.
3. Navigate to the Calibrate option in the menu.
4. To access the menu, double-tap the button. Then, single-tap until “CALIB” is displayed.

NOTE: The Calibration option will only appear if it has been configured. If the Bump option is not visible, use the Crowcon Companion app or contact your service partner to enable this feature.

5. Double Tap the Group of Sensors that needs to be Calibrated. See Sensor Groups for more information.
6. The device will begin a countdown from 5 seconds. Press the button within the 5 seconds, otherwise the operation will be cancelled.
7. Now apply gas to the detector.
8. The device will show “BUSY” while it is Calibrating. Once complete, a ‘PASS’ confirmation message will appear.

If the Detector is unable to complete a successful calibration operation, the screen will display a ‘FAIL’ message.

3.8.5 CALIBRATING AND BUMP TESTING MULTIPLE SENSORS

When a detector is equipped with more than one sensor, it is possible to carry out calibration or bump tests on multiple sensors simultaneously. This approach not only conserves test gas but also reduces the overall time required to complete a full calibration of a DuoIQ detector.

3.8.5.1 SENSOR GROUP CONFIGURATION

Sensors are organised into groups during manufacture, or they can be grouped later using the Crowcon service software. Once a group of sensors is selected for calibration, the procedure updates the calibration information and dates for all sensors within the group upon completion.

3.9 SHUT DOWN

While the device is powered on, press and hold the button for five to ten seconds. A countdown will appear on the display, indicating the impending shutdown. To cancel the shutdown, release the button before the countdown completes.

Once the countdown reaches completion, the detector will power off, and the display will go blank.

NOTE: Certain devices may be configured to prevent the detector from being turned off.

4. ALARMS

4.1 ALARM TYPES

- Instantaneous Gas Alarms (Alarm 1 and Alarm 2)
- Long-Term Exposure Limit (LTEL) Alarm
- Short-Term Exposure Limit (STEL) Alarm

4.2 INSTANTANEOUS GAS ALARMS

The Detector is equipped with two levels of instantaneous gas alarms to alert users to hazardous gas levels in real time. These alarms are designed to provide escalating warnings based on the severity of gas exposure, ensuring prompt and appropriate action can be taken.

IMPORTANT: Do not ignore alarms. Follow training and company procedures. They are there to give time to evacuate dangerous atmospheres before workers are overcome with symptoms of poisoning and suffocation or before conditions become suitable for possible explosions.

4.2.1 ALARM 1 – LOW LEVEL GAS ALARM

This alarm is activated when gas concentrations exceed the first preset threshold (Alarm 1). It serves as an early warning to indicate the presence of gas that may become dangerous if levels continue to rise.

ALERTS:

- Audible beep at regular intervals
- Flashing red LED
- Vibration
- Not latched (can be cleared in atmospheric conditions below Alarm 2 levels).

4.2.2 ALARM 2 – HIGH LEVEL GAS ALARM

This alarm activates when gas levels exceed a higher threshold (Alarm 2), indicating a more immediate and serious hazard. It signifies that the environment is unsafe and immediate evacuation or intervention is required.

ALERTS:

- Rapid, louder audible alarm
- Intensified flashing LED sequence
- Vibration
- Latched (can only be cleared in safe atmospheres when gas readings are at safe levels)

NOTE: Both alarm thresholds are pre-configured during manufacture based on configuration and region. Alarm threshold can be configured via the servicing application. Alarm behaviour may vary slightly depending on gas type and regional regulations.

4.3 LONG-TERM EXPOSURE LIMIT (LTEL) ALARM

This alarm activates when the 8-hour average gas concentration exceeds the defined LTEL limit.

ALERTS:

- Steady audible tone
- Flashing LED indicators
- Vibration alert
- This alarm cannot be cleared

The running LTEL value is viewable in the TWA menu for review.

NOTE: LTEL limits are defined by occupational safety guidelines (e.g., OSHA, HSE) and vary by gas type and regulatory region. These thresholds are pre-configured during manufacture or can be configured via Crowcon Connect.

4.4 SHORT-TERM EXPOSURE LIMIT (STEL) ALARM

This alarm activates when the 15-minute average gas concentration exceeds the defined STEL limit.

ALERTS:

- Intermittent audible alarm
- Red LED flashing
- Vibration feedback
- This alarm cannot be cleared

The running STEL values can be accessed in the TWA menu for review.

NOTE: STEL limits are defined by occupational safety guidelines (e.g., OSHA, HSE) and vary by gas type and regulatory region. These thresholds are pre-configured during manufacture or can be configured via the servicing application.

5. INSTRUMENT STATUS CONDITIONS

The instrument categorises its operational status into four distinct conditions: OK, Information, Warning, and Fault. These indicators help assess the status of the instrument and determine if any action is needed.

5.1 OK

The instrument is operating normally with no detected issues.

INDICATION: A green LED will flash with the configured interval. If the confidence beep has been enabled through custom configuration, the sounder will also beep periodically.

5.2 INFORMATION AVAILABLE

Information available indicates an event or status that may be of interest.

INDICATION: If there is information available, the instrument will display a triangular warning indicator on the top right of the screen. No changes in the audible, LED, or vibration alerts will be triggered.

ACTION: Users can look at device logs for more information.

Examples include:

- Bump test or calibration is due soon.

5.3 WARNING

A warning indicates a potential issue that may impact certain functions or compromise its ability to report gas levels accurately.

INDICATION: A warning is indicated by amber LEDs that flash slowly and a low pitch beep, and a short pulsing vibration. The instrument will also display a blinking triangular warning indicator on the screen.

ACTION: Users should review the affected function and take corrective action, as needed.

Examples include:

- Calibration is overdue
- Gas readings are too low (below zero), requiring bump test or calibration.

5.4 FAULT

IMPORTANT: A fault indicates a critical failure that compromises instrument reliability or safety functions. In this case, the instrument may not be able to perform correctly and should not be used until the issue is resolved.

INDICATION: A fault is indicated by amber LEDs that flash quickly, a high pitched beep, and a short pulsing vibration. The instrument will also display a blinking triangular warning indicator on the screen and "FLT."

ACTION: If a Fault occurs, stop using the instrument immediately and refer to the troubleshooting guide at the end of the manual in the first instance. If you are unable to resolve the issue yourself, have it serviced as soon as possible to restore full functionality.

Examples include:

- Communication failure with sensors, impacting the device's ability to detect gas.
- Device has gone into low battery auto-shutdown.

6. CONNECTIVITY

Users can use the Crowcon Companion App to connect to the device using NFC or Bluetooth, where enabled. The option to connect allows for additional features, but does not affect the device's baseline functionality as a gas detector.

6.1 NEAR FIELD COMMUNICATION (NFC)

Every device offers NFC connection. This feature can be used with the mobile application and allows users to quickly view a summary of device compliance, such as the most recent bump test and calibration dates.

To use this, the servicing app must be downloaded to a phone or tablet. Users can then select the option for NFC scan on the app's home page, and touch the back of their device to the phone or tablet. This is guided by visual instructions within the app.

6.2 BLUETOOTH

Bluetooth connectivity is offered as an optional feature and must be specified when placing an order. If a device is configured with Bluetooth, the functionality will be enabled by default.

Users can connect the device to Bluetooth using the servicing application. They can either scan for nearby Bluetooth devices, or they can connect via NFC and then select the option to connect through Bluetooth. While in use with the app, a Bluetooth symbol will appear on the device, showing it is connected.

NOTE: Bluetooth functionality can be disabled using the servicing app, allowing management of connectivity as required for specific operational environments.

7. DATA LOGGING

The detector is equipped with an integrated event logging function designed to capture and store significant operational activities and system events. This feature enhances traceability and supports effective device monitoring and diagnostics.

An event can be a gas reading or an event on the device. The event log can store approximately 50,000 individual entries. Logged events include, but are not limited to, the following:

- Device power on/off
- Activation of Alarm 1
- Activation of Alarm 2
- STEL (Short-Term Exposure Limit) alarm activation
- TWA (Time-Weighted Average) alarm activation
- Operator acknowledgements
- Calibration events and status updates
- Bump test events and status updates
- Zeroing events and status updates
- Low battery warnings
- User assignments and changes
- Changes to configuration
- Upload of the event logs
- System faults
- Gas Value

This log provides valuable data for audit trails, compliance verification, and troubleshooting. For best results, ensure that event data is reviewed periodically using Crowcon Connect.

8. SERVICE & MAINTENANCE

The device is intended to require minimal service and maintenance. However, electrochemical sensors require periodic replacement.

Many internal components—such as the printed circuit board (PCB), display, vibration alarm, and grip clip—are replaceable; however, servicing these parts is intended for qualified service personnel. Attempting to service the device yourself may void the warranty.

For additional service or maintenance, contact your authorized Crowcon servicing partner, local Crowcon agent, or regional office as referenced in the Contacts.

8.1 CLEANING

Cleaning of the device should be carried out using only a damp cloth. This precaution helps to prevent the build-up of electrostatic discharge. Avoid using dry cloths or abrasive materials, as these can generate static electricity and compromise device safety and performance.

Do not use solvents, abrasive cleaners, or excessive water, as these may damage the detector or affect its operation.

8.2 CHANGING SENSOR TRAY

To change the sensor tray on the detector, switch off and work in a non-hazardous area. Locate the single screw securing the tray to the bottom of the main body.

Using a T10 Torx screwdriver, carefully unscrew and remove this screw. Once the screw is released, gently pull the sensor tray away from the detector's main body.

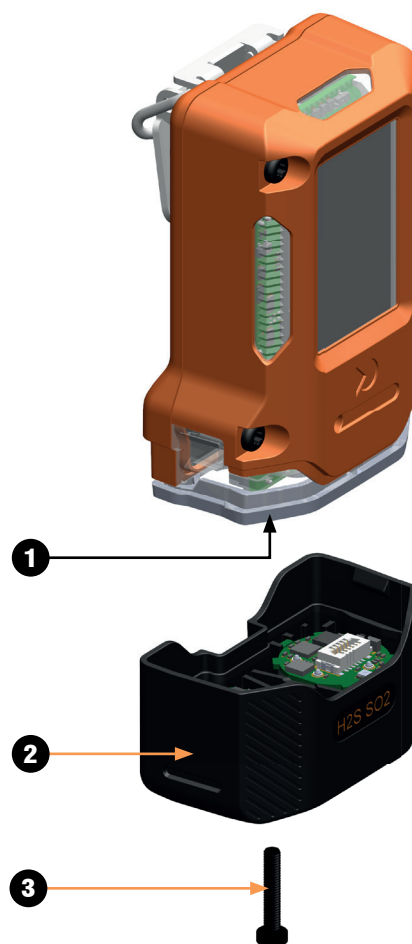
To fit the new or serviced sensor tray, align it with the main body ensuring the sensor modules are oriented in their correct position and push it firmly into place. Ensure the side clips of the tray are engaged with the side of the main body.

Secure the tray by replacing and tightening the screw to 0.6Nm.

After reassembly, check that the tray is properly seated and the screw is secure before powering the device back on.

NOTE: If switching trays for the main body, it is possible to upgrade from an Uno tray to a Duo tray. However, it is not possible to downgrade a Duo tray to an Uno.

- | | |
|---|--------------------|
| 1 | Main Detector Body |
| 2 | Sensor Tray |
| 3 | T10 M3 Torx Screw |



8.3 SENSOR TRAY VARIANTS

There are two sizes of sensor trays: half height and full height. Some sensors require use of full height trays due to size limitations. There is no difference in servicing the two types of trays. Some sensor trays are for use in non-hazardous areas only.

IMPORTANT: For Hazardous Area certifications, the main body and sensor tray are approved as a whole. Where a non-hazardous area sensor tray is used, this negates all hazardous area certifications and is not suitable for use in potentially explosive atmospheres.

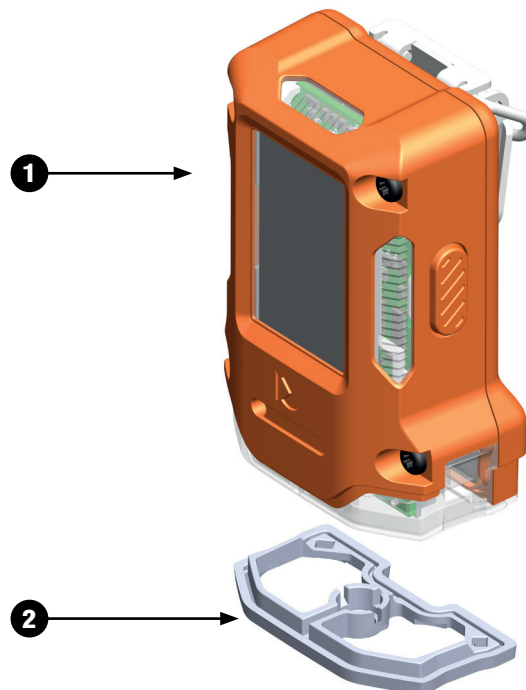
8.4 CHANGING TRAY GASKET

When changing the sensor tray, it is important to inspect the main gaskets for any signs of degradation, such as cracks, flattening, or brittleness.

If the gasket appears worn or damaged, it should be replaced to ensure the detector maintains its IP rating and remains protected against dust and moisture ingress.

The gasket can be easily removed by gently pulling it away from the main body, and a new gasket can be pushed into place, ensuring a proper seal before reassembly.

- | | |
|---|--------------------|
| 1 | Main detector body |
| 2 | Tray gasket |



8.5 FIRMWARE AND CONFIGURATION UPDATES

Firmware updates for the detector can be carried out using either the IQhub with the servicing app or returning to the local Crowcon office.

Configuration changes can be made through the mobile Companion App, using a servicing login. Devices must have Bluetooth for this option. Alternatively, these changes can be made using the IQHub with the servicing app or through a Crowcon servicing partner.

8.6 DEFAULT CONFIGURATION

- Confidence Strategy: LED Only, 3 second interval
- Bump Interval: 6 Months (183 Days)*
- Calibration Interval: 6 Months (183 Days)
- Cal Due Lock: Inactive
- Logging Frequency: 30 seconds
- Region-Specific Alarm Settings:
 - Alarm 1: Latching, can be muted
 - STEL: Set to Alarm 2 for relevant gases
 - LTEL: Set to Alarm 1 for relevant gases
- Module Change Action: Accept all changes (different sensor, different gas) with acknowledgement.

* The default bump interval is set to match the calibration interval for shipping and set-up purposes, preventing bump due warnings during set-up. This interval should be reviewed and then adjusted accordingly through the servicing app.

19. SPECIFICATIONS

SIZE	Half Height: 96 x 55 x 32 mm Full Height: 106 x 55 x 32mm
WEIGHT	Half Weight: 135 g* (Tox) Full Weight: 140 g* (Tox) *Weight may vary depending on sensor configuration
RESPONSE TIME (T90)	<10s (sensor dependent)
ALARMS	Visual, vibrating, audible (95dB at 30cm), low/high, TWA, STEL
DISPLAY	Backlit segment display
DATA LOGGING	Up to 500 event logs, with 50,000 individual entries; see data logging section above
BATTERY	Rechargeable lithium-ion battery Tox or O2: 10 days (31 days at 8 hour shifts) Tox / O2 Tox : 7 days, (20 days at 8 hour shifts) Tox / O2 IR: 1 day (4 days at 8 hour shifts) Tox / O2 Pellistor: 1 day (3 days at 8 hour shifts) Recharge time: 0-80% 2 hours; 0-100% <3 hours
OPERATING TEMPERATURE RANGE	-20 to +55°C (-4 to +131°F)
HUMIDITY	0-95% RH
INGRESS PROTECTION	IP66 & IP68
APPROVALS	See safety information section above
CHARGING OPTIONS	Power cable (device to USB-A & USB-C)
CONNECTIVITY	NFC Bluetooth® (optional) required for connection to Crowcon Connect App for live data and configuration
LANGUAGES	English

10. TROUBLESHOOTING

The detector may display alerts or have warnings that require user action. The table below outlines these conditions, potential causes, and steps to resolve or address them.

DEVICE STATUS/CONDITION	POSSIBLE CAUSE	ACTION
Zero fails, device in warning status	Residual gas in air	Move to a clean air environment (e.g., outdoors or near fresh air intake), wait 1–2 minutes, and try again.
Zero repeatedly fails	Contaminated or saturated sensor	Expose the detector to clean air for 5–10 minutes to allow the sensor to stabilise.
Fluctuating sensor readings during zero	Unstable environmental conditions (wind, humidity, fumes)	Relocate to a calm, controlled area with stable conditions. Avoid areas with fans, exhaust, or fluctuating airflow.
Device not turning on	Low battery	Charge the device
“BUMP DUE”	Device has not been bumped to the appropriate interval	Perform a bump test
“CAL DUE”	Device has been used past the calibration date	Calibrate the device
“FLT FLT”	There is a failure in communication to the sensors	Check that the sensor tray has been fitted properly and the screw is fully tightened
“FLT FLT”	Configuration error	Check and update the configuration; return to Crowcon if problem persists.

For advanced troubleshooting, contact your authorized Crowcon servicing partner or local Crowcon agent.

11. APPENDICIES

11.1 SENSOR LIMITATIONS

The detector is not suitable for use in ambient temperatures above 55°C and electrochemical toxic gas sensors may be degraded, reducing life at these temperatures. Water should not be allowed to collect on the sensors as this may impede gas diffusion. Use with care in wet or humid environments where water may condense on the sensors, and check response after use.

Persistent exposure to high levels of toxic gas can shorten the life of toxic sensors. Toxic sensors may also be cross-sensitive to gases other than their specific target gas, and hence the presence of other gases may cause the sensor to respond. If unsure, contact Crowcon or your local agent.

Use of high power radio transmitters in close proximity to the detector may exceed RFI immunity levels and cause erroneous indications. If such problems are experienced, remove antennae to a reasonable distance from the detector (e.g. 30 cm).

Standard units detect flammable gases using a catalytic flammable sensor which operates in the presence of oxygen. It is advisable to check the oxygen concentration as well as the flammable gas concentration before entering a confined space. Oxygen levels below 10% will reduce a flammable gas reading.

The performance of catalytic sensors may be permanently degraded if exposed to silicones, sulphur containing gases (such as H₂S), lead or chlorine compounds (including chlorinated hydrocarbons).

Because the MPS performs an analysis of the molecular properties of a given “air” sample, large-scale fluctuations in the relative concentrations of the components in the air can affect accuracy. Normal air has an O₂ concentration of 20.95% by volume. Higher ambient O₂ concentrations up to ~21.8%VOL have little to no effect on the sensor. Oxygen levels below 15% will introduce an error of up to -6% LEL, with an error increasing to approximately -12% LEL with a local O₂ concentration of 5% VOL.

The MPS sensor is extremely poison resistant and unaffected when exposed to silicones, sulphur containing gases (such as H₂S), lead or chlorine compounds (including chlorinated hydrocarbons).

11.2 MPS OPERATIONAL GUIDANCE

NOTE: The following guidance for correct operation of the MPS Sensor.

SCENARIO	DO NOT
CALIBRATION	Do not calibrate the device using a standard methane cylinder with a balance gas composition of 20.9% Vol O ₂ balanced in Nitrogen. This cylinder does not contain required level of oxygen and will result in incorrect calibration (air indicated on cylinders is not typically atmospheric air)
CALIBRATION	Do not calibrate with gas other than methane, within the cylinder compositions detailed.
ISO CALIBRATED LEVELS	Ensure ISO calibration level set correctly, 2.2% VOL CH ₄ = 44% LEL, 2.5% VOL CH ₄ = 50% LEL
EN CALIBRATED LEVELS	Ensure EN calibration level set correctly, 2.2% VOL CH ₄ = 50% LEL, 2.5% VOL CH ₄ = 57% LEL
CALIBRATION	Do not perform zero with synthetic air as this will adversely affect accuracy – use ambient air only
BUMP TESTING. IF 'BUMP TESTING FOLLOWING OPERATION IN 'AMBIENT AIR	Do not bump test device using a standard methane cylinder with a balance gas composition of 20.9% Vol O ₂ balanced in Nitrogen. This cylinder does not contain required level of oxygen and will result in incorrect gas bump test readings

SCENARIO	DO
CALIBRATION & BUMP TEST	Do only use cylinder compositions detailed in this technical note
CALIBRATION	Do ensure actual level of applied calibration gas (stated on cylinder calibration certificate) is entered into calibration software for optimum accuracy
CALIBRATION	Do use ambient clean air only to perform 'zero' - synthetic air will adversely affect accuracy
BUMP TEST & CALIBRATION	Do ensure gas is applied for correct stabilisation time
CALIBRATION	Do only use methane as calibration gas, within the cylinder compositions detailed.
CALIBRATION & BUMP TEST	Do use recommended flow rate of 0.5 l/m

11.3 OZONE OPERATIONAL GUIDANCE

Unlike other most gases, ozone (O₃) gas is not bottled and instead must be generated using a dedicated generator. A generator using UV-light converts some of the oxygen from a 'dry air' cylinder to ozone, providing a consistent ozone concentration because the process can be more tightly controlled.

Unlike many other electrochemical sensors, ozone sensors have a limited life. Ozone sensors generally have a life expectancy of 2 years. They may continue to work for up to around 27 months, but after that, the sensitivity drops and they become very pressure sensitive.

Using out of date sensors risks failures in detecting gas events.

Ozone sensors must not be used past their life expectancy or after 27 months.

12. WARRANTY

For information regarding instrument and sensor warranty, please refer to the technical note, GEN067. This can be found on the Crowcon website, in the technical note library.

12.1 WARRANTY PROCEDURE

To facilitate efficient processing of any claim, contact your local Crowcon agent/distributor, a Crowcon regional office or our global customer support team (English working language) on +44 (0)1235 557711 or customersupport@crowcon.com to obtain a returns form for identification and traceability purposes. This form may be downloaded from our website 'crowconsupport.com' and requires the following information:

- Your company name, contact name, phone number and email address.
- Description and quantity of goods being returned, including any accessories.
- Instrument serial number(s).
- Reason for return.

The unit will not be accepted for warranty without a Crowcon Returns Number (CRN). It is essential that the address label is securely attached to the outer packaging of the returned goods.

The guarantee will be rendered invalid if the detector is found to have been altered, modified, dismantled, tampered with, or has not used Crowcon spares for replacement parts (including sensors) or has been serviced or repaired by any party not authorised and certified by Crowcon to do so. The warranty does not cover misuse or abuse of the unit including use outside of specified limits.

12.2 WARRANTY DISCLAIMER

Crowcon accept no liability for consequential or indirect loss or damage howsoever arising (including any loss or damage arising out of the use of the detector) and all liability in respect of any third party is expressly excluded. This warranty does not cover the accuracy of the calibration of the unit or the cosmetic finish of the product. The unit must be maintained in accordance with the instructions in this manual.

The warranty on replacement consumable items supplied under warranty to replace faulty items, will be limited to the unexpired warranty of the original supplied item.

Crowcon reserves the right to determine a reduced warranty period or decline a warranty period for any sensor supplied.

13. CONTACTS

**Trido Corporate,
#1425 407 2nd Street SW,
Calgary, AB T2P 2Y3
Canada**

Disclaimer

Due to ongoing research and product improvement, specifications are subject to change without notice. While every effort has been made to ensure accuracy in this document, no responsibility can be accepted for errors or omissions. Data may change, as well as legislation, and you are strongly advised to obtain copies of the most recently issued regulations, standards, and guidelines. This document is not intended to form the basis of a contract.

For more information:

**info@tridoes.com
+1 (855) 368-7438
www.tridoes.com**

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