

GEN²

Model OI-2100 TOCSIN Single Gas Personal Monitor

Operation Manual

Revision 2.1w



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Introduction

This document is an Operation Manual containing diagrams and step-by-step instruction for proper operation of the Otis Instruments, Inc. Gen II Model OI-2100 TOCSIN Single Gas Personal Monitor. This document should be read before initial operation of the product.

Should a question arise during the use of the product, this document will serve as a first reference for consultation. If further questions arise, or if the device is not working properly, please contact the sales representative of this product.

Warnings Statements/Avertisseement

- Do not substitute components as this may interfere with the intrinsic safety of the device.
- If the unit is past the “Activate Before Date” on the package, please do not activate.
- Do not attempt part replacement or substitution as this could impair the intrinsic safety rating and will void the warranty of the product.
- Ne pas essayer de la remplacer une partie ou la substitution, car cela pourrait nuire à la cote de sécurité intrinsèque et annulera la garantie du produit.
- Before daily use check the following:
 - Sensor and Audio ports are clear of any obstructions i.e. debris or blockage
 - Perform the “Self Test” to ensure proper operation of visual, audible, and vibrating alarms
 - Confirm receipt of a check mark in the manual test is to be performed make sure to test in a clean air environment.
- If a unit fails the Self Test or Bump Test please discontinue use of the detector.
- The detector contains a lithium battery that must be disposed of by a qualified recycler.
- Do not substitute internal components as this may interfere with the intrinsic safety of the device.
- Do not attempt to replace the battery or sensor, this product is designed to be disposable. Changing these components will void the warranty.
- If you suspect any malfunction or have any technical problems please contact your local Otis Instruments representative.

First Time Activation

To activate the detector, press and hold down button for approx 5 seconds. When activated, the detector will vibrate, flash, and sound the audible alarm. A successful activation will display the life remaining in months on the detector as 24 months.

Display Details

The detector utilizes a special high viewing angle LCD that is designed to enhance the screen visibility. In the absence of gas, it displays life remaining. In those cases where gas is present, the display will automatically shift to a display that shows gas concentration and a battery icon.

NOTE: The display mode can be changed in the IR Link software with the "Sensor Reading" and "Life Remaining" user options.

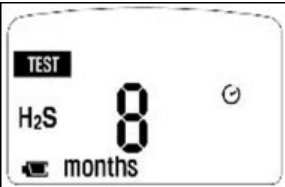



WARNING: Users must familiarize themselves with the icons in both non-alarm and alarm states
 WARNING: If the display is missing icons or cannot be clearly read, please contact your local Otis Instruments representative immediately.



1	Alarm Condition Icon
2	Self-Test Status Icon
3	Test Reminder Icon
4	Gas Type Icon
5	Battery Indicator Icon (used during Real-Time Gas Reading)
6	Instrument Life Remaining or Real-Time Gas Reading Data
7	High and Low Alarm Set Point Icons
1 / 7	Alarm Condition Icons
6 / 8	Instrument Life Remaining Icons
9	Infrared Data Transfer Icon
10 / 11	Months / Days / Hours Since Last Maximum Exposure
6 / 11	Instrument Life Remaining Data and Icon

Day to Day Usage

Prior to daily use, the detector will prompt the user to perform a self test. This process is a simple and effective way to ensure safe operation of the detector. During the “Self Test” the audio, visual, and vibrating alarms are activated and the sensor is tested. Below is a step by step process for performing the test:

Screen Display	Detail
	<p>Screen 1:</p> <p>When the “Test” Icon appears in the upper left hand corner, a self test is required. Press the button on the front of the detector to perform the test.</p>
	<p>Screen 2:</p> <p>After pressing the button, the following screen will appear. During the self test, ensure that the following occurs: The unit emits one audible beep; all LEDs light up; the unit vibrates; all LCD display elements appear.</p>
	<p>Screen 3:</p> <p>After the full element LCD screen, the low alarm and high alarm set points will be displayed. NOTE: These alarm set points can be adjusted using the IR Link or Calibration Station Dock configuration options.</p> <p>Factory Standard Alarm Set Points are: H2S = Low 10 ppm / High 15 ppm CO = Low 35 ppm / High 200 ppm O2 = Min 19.5% / Max 23.5%</p>
	<p>Screen 7: (see steps 4-6 for additional screen displays)</p> <p>When a self test is successful, the unit will turn to the original screen, displaying a check mark in place of where the test icon was previously displayed, and one audible beep will sound.</p> <p>The unit will by default prompt another self test in 20 hours from when the button was pressed.</p> <p><i>NOTE: This value can be changed via the IR Link software from 8-20 hours. See the IR Link Quick Reference Guide for details.</i></p>

Additional Steps




In the previous section, the most common screen configurations were outlined. If the unit has been programmed via the IR Link or has been exposed to gas additional, though, the following screens may appear.

Screen Sequence #	Detail
Screen 4	If programmed with a “User ID”, after the alarm set points are displayed a combination of numbers and or letters will scroll across the screen. This will be a max of 2 screens with a maximum character limit on the “User ID” of 6 characters. The “User ID” can be changed/modified via the IR Link software.
Screen 5	If the detector has been exposed to gas exceeding the low alarm set point, a value will appear with “max” next to it. This represents the peak value (highest) that the detector has seen. After this screen, there will be another screen displaying a values with hours, days or months—this represents the amount of time past since the peak reading.
Screen 6	<p>After the peak reading and time since screens, a screen will appear with CLP. If the user presses the button down at while this is displayed, the peak value on the detector will be reset.</p> <p><i>NOTE: While the value will be cleared on the display the value will be held in the detector’s log. See the event log section for further details. This value can be cleared on the next screen.</i></p>

Failures/FAQ's

- If the self test fails, the detector emits five short beeps and flashes before displaying “Test”. Repeat the self test.
- If the self test fails three (3) consecutive times the detector will enter a Fail Safe mode. Please contact Otis Instruments for a replacement detector.
- During normal operation, the battery is continuously monitored. If the battery is low for more than (3) hours the detector enters Fail Safe mode.
- If the battery self test fails (5) consecutive times the LCD will display “EO5”. In case of an EO5 screen discontinue use and contact Otis Instruments for a replacement detector.
- Along with the battery, the sensor is continuously monitored during normal operation. If a problem with the sensor is detected, the screen will display “EO6”. In case of an EO6 screen, please discontinue use and contact Otis Instruments for a replacement detector.
- If the detector is displaying “bUP”, the detector is either due for a bump test because of a scheduled test or has failed a bump test. Please refer to “Bump Test Interval” for more detail.
- If the detector is displaying “EOL” the unit has reached the end of its operating life. Please discontinue use.

Alarms

Alarm Types	
Screen Display	Detail
	<p>Low Alarm:</p> <p>Audible Alarm = one slow beep every second</p> <p>Visual Alarm = one slow flash every second</p> <p>Vibrating Alarm = one slow vibration every second</p>
	<p>High Alarm and Over Limit (OL) Alarm:</p> <p>Audible Alarm = two fast beeps every second</p> <p>Visual Alarm = two fast flashes every second</p> <p>Vibrating Alarm = two fast vibrations every second</p>
	<p>Detector Life Countdown Alarm (EOL)</p> <p>When the unit has less than one month of life remaining, it will switch to days remaining.</p> <p>When the unit has less than one day remaining, it will switch to hours remaining.</p> <p>When the unit has eight hours remaining, it will begin to beep, flash, and vibrate intermittently.</p> <p style="text-align: center;"><i>NOTE: To end the alarms, press the button down.</i></p> <p>Once the unit has reached the end of its operating life, the display will show “EOL”.</p>

Alarm Set Points

Factory Standard Alarm Set Points are:

H2S = Low 10 ppm / High 15 ppm

CO = Low 35 ppm / High 200 ppm

O2 = Min 19.5% / Max 23.5%

NOTE: These set points can be changed using the OI-TOCSIN-LINK. Please refer to the IR Link Quick Reference Guide for further details. To display the detector alarm set points press the button on the front of the detector.

NOTE: Use caution when changing alarm set points. Confirm these levels with your company safety officer.

CAUTION: DO NOT use IR communications when an explosive atmosphere may be present.

Event Log

By default the detector stores the last twenty five (25) alarm events. The system stores events by first in first out, i.e. the 26th event will replace the first event and so on. This information can be downloaded using the OI-TOCSIN-LINK. For each alarm event the detector records the following:

- The detector serial number
- Bump Test (Yes or No)
- Life remaining on the detector
- Number of self tests performed
- Number of events
- Alarm Condition (Low, High, or OL)
- Specific event date and time
- Peak gas concentration in ppm or %.

“Bump Test Interval” (bUP) - Clearing the alert

Using the IR Link or Software Manager, units can be programmed to alert the user if a bump test is due. This interval can be set anywhere from 1 to 365 days.

NOTE: The unit default is to have no bump interval programmed.

If a detector is due for a bump test, the unit display will alternate between the months remaining and “bUP”. In addition the unit will emit alternating flashes (left and right) every 5 seconds. And the “test” icon will remain even after a button push.

This alert can be cleared by either placing the unit in an OI-2100-DOCK or by manually applying gas to the unit. To manually clear the alert, press the button down once, the words "GAS" will show on the display while the TEST icon flashes. The detector will wait for 45 seconds for the target gas to be applied, or a button press to skip the bump test. If the SGC is bumped while showing "GAS", then it will record as a bump test in the event log instead of as an exposure. If no gas is applied, it will return to the normal screen and will not record anything in the event log.

O2 Detector-Calibration

NOTE: Otis Instruments recommends users of the OI-2100-O2 bump test the detector before using each day.

OI-2100-O2 detector factory default will prompt the user to calibrate the detector every 30 days. The user will be prompted by the screen flashing CAL, please see calibration instruction below:

Screen Display	Detail
"O2 CAL"	<p><i>NOTE: Only perform O2 calibration in normal air (20.9% Oxygen) that is free of hazardous gases.</i></p> <ol style="list-style-type: none">1. Press and hold the yellow button for four seconds.2. The display screen will show "CAL", and the "O2" icon will flash in the lower left corner.3. After a successful calibration, the detector will emit one beep, a vibration, and an LED flash.4. After an unsuccessful calibration, the detector will beep, flash, and continue to display "Cal". If several calibrations are failed, please contact your local Otis Instruments representative.

Specifications

Size:	3.3 in H X 2.0 in W X 1.1 in D/ 85mm X 50 mm X 28mm
Weight:	76 g / 2.7 oz
Humidity:	5% to 95% non-condensing relative humidity
Alarms:	Visual, vibrating, audible (minimum 95dB)
Battery Life:	24 months of operation/ 2 minutes of alarm per day.
Event Log Storage:	Last 25 events. Newer events replace older events.
Certifications:	Class I, Groups A, B, C, D T4 ETL 4003191 Europe: <input type="checkbox"/> 0359 <input type="checkbox"/> II 1 G Ex ia IIC T4 Ga IECEx Ex ia IIC T4 Ga ITS11ATEX27326 IECEx ETL 11.0002 -40°C<Tamb<50°C-CO -40°C<Tamb<50°C-H2S -35°C<Tamb<50°C-O2
Warranty:	2 years

Warranty Statement for **Gen II Model OI-2100 TOCSIN**

Otis Instruments, Inc. warrants this product to be free from defects in material and workmanship under normal use and service for a period of two years beginning upon the date of activation for all Otis Instruments products. This warranty extends only to the sale of new and unused products to the original buyer. Otis' warranty obligation is limited, at Otis Instruments' option, to refund of the purchase price, repair, or replacement of a defective product that is returned to a Otis Instruments authorized service center within the warranty period. In no event shall Otis Instruments' liability hereunder exceed the purchase price actually paid by the buyer for the product. This Warranty does not include: (1) Fuses, disposable batteries, or routine replacement of parts due to the normal wear and tear of the product arising from use. (2) Any product which in Otis Instruments' opinion, has been misused, altered, neglected or damaged by accident or abnormal conditions of operation, handling, or use. (3) Any damage or defects attributable to repair of the product by any person other than the authorized dealer, or installation of unapproved parts on the product. The obligations set forth in this warranty are conditional on: (1) Proper storage, installation, calibration, use, maintenance, and compliance with the user's manual instructions and any other applicable recommendations of Otis Instruments. (2) The buyer promptly notifying Otis Instruments of any defect and, if required, promptly making the product available for correction. No goods shall be returned to Otis Instruments until receipt by the buyer of instructions from Otis Instruments. (3) The right of Otis Instruments to require that the buyer provide proof of sale or packing slip to establish that the product is within the warranty period. The buyer agrees that this warranty is the buyer's sole and exclusive remedy and is in lieu of all other warranties, express or implied, including but not limited to any implied warranty or merchantability or fitness for a particular purpose. Otis Instruments shall not be liable for any special, indirect, incidental, or consequential damages or losses, including loss of data, whether arising from breach of warranty or based on contract, tort, or reliance on any other theory. Some countries or states do not allow limitation of the term of an applied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warranty may not apply to every buyer. If any provision of this warranty is held invalid or unenforceable by a court of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision.



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