SENSIT® PIOO

SINGLE GAS MONITOR

INSTRUCTION MANUAL

Read and understand instructions before use.

For use with Oxygen (O2), Carbon Monoxide (CO), Hydrogen Sulfide (H2S), Hydrogen Cyanide (HCN)

⚠ **WARNING: To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.**

⚠ **WARNING: To reduce the risk of ignition of a flammable atmosphere, batteries must only be changed in an area known to be nonflammable.**

⚠ **AVERTISSEMENT: Pour réduire le risque d'allumage d'une atmosphere inflammable, des batteries doivent seulement étre changées dans un secteur connu pour étre inflammables.**

CE 2812 Ex II 1 G

Ex ia IIC T4 (-20°C ≤ T_{amb} to ≤ 50°C)
IP65
ATEX Cert. No.: TRAC 09 ATEX 11195X
EMC Directive (2004/108/EC)
EN 61000-4-2:1995, EN 61000-4-3:2002, EN 55011:2007

MET c us — complies with UL 913 CSA 22.2 NO. 157
LISTING NO: E112902

Class 1, Groups A, B, C & D
Exia, Temp code: T4

CONTENTS

SAFETY INFORMATION 3

ACCESSORIES 4

GENERAL DESCRIPTION 4

PHYSICAL SPECIFICATIONS..... 5

PRODUCT FEATURES 5

FUNCTION INDICATORS..... 7

SENSOR SPECIFICATIONS..... 7

ALARMS..... 7

ALARM ADJUSTMENT..... 8

STANDARD ALARM SETTINGS..... 8

FUNCTION (BUMP) TEST - MANUAL 8

ADJUST DATE/TIME 9

ALARM ADJUSTMENT..... 10

CALIBRATION/BUMP GAS 12

BUMP/CALIBRATION 12

OPERATION AND USE..... 13

EU WASTE ELECTRICAL AND

ELECTRONIC EQUIPMENT (WEEE) DIRECTIVE 15

WARRANTY AND REPAIR POLICY 16

SAFETY INFORMATION

⚠ **IMPORTANT**: Read and understand this manual prior to use.

⚠ **IMPORTANT**: Oxygen instruments will show high readings for up to 30 minutes if taken from warm air to cold temperatures and vice-versa. For best results let them "soak" in the ambient conditions prior to use.

⚠ **WARNING**: Substitution of components may impair intrinsic Safety.

⚠ **WARNING**: This instrument contains a lithium battery which may leak or explode if improperly used. DO NOT DISPOSE OF IN A FIRE.

⚠ **WARNING**: Only service in an area known to be free of combustible gases.

⚠ **WARNING**: Instruments are not certified intrinsically safe in environments above 21% oxygen.

⚠ **WARNING**: To verify operation prior to each day's use a function test (bump test) should be performed. If the instrument does not pass this test, full calibration should be performed.

⚠ **WARNING**: Keep all openings free from dirt, debris and foreign objects.

⚠ **WARNING**: Do not use a damaged or improperly operating instrument. Contact a service representative immediately.

ONLY zero instrument in a gas free environment

SEULEMENT l'instrument zéro dans un gas libèrent l'environnenment.

WARNING: To maintain intrinsic safety, service must be performed by factory authorized technicians with approved replacement parts only.

AVERTISSEMENT: Pour maintenir la sûreté intrinsèque, service doit être exécuté par les techniciens autorisés par usine avec les pièces de rechange approuvées seulement.

ACCESSORIES

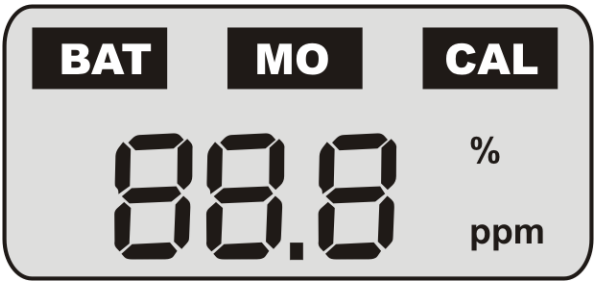
STANDARD ACCESSORIES: Instruction Manual, Belt Clip

OPTIONAL ACCESSORIES: Bump Test Bottles,
Balloon T Assembly for Bump Test, SCAL100-D, SCAL100-N, Calibration Kits, Regulators, Download Kit

GENERAL DESCRIPTION

The **SENSIT® P100** is an exceptionally rugged personal gas monitor. The **P100** is available in single gas configurations only. Preset alarms provide visual, audible and vibration alerts for low and high alarm conditions. Built-in "Time Weighted Average" (TWA) and "Short Term Exposure Limit" (STEL) alarms provide even greater margin of safety for the user. A custom display provides the user with easy to view information including gas concentration, time remaining in months to sensor replacement, battery low alert and activation of calibration process. (See Figure 1)

Figure 1: Custom Display



PHYSICAL SPECIFICATIONS

OPERATIONAL TEMP	-4 to 122° F (-20 to 50° C)	
HUMIDITY	15-90% RH (Non-condensing)	
DUTY CYCLE	Continuous	
RESPONSE TIME	T90 < 30 seconds	
ALARMS	**Sound:** **Sight:** **Touch:**	90 Db @ 12″ Display Alerts 270° viewable LEDs Vibration
POWER SOURCE	3.6V Lithium Battery	
SIZE	3.81″ x 2.31″ x 0.8″ (9.67 x 5.87 x 2 cm)	
WEIGHT	3.6 oz. (105 g)	
BATTERY LIFE	2+ Years	
SENSORS	Electrochemical	
CONSTRUCTION	Environmental resistance IP65 Impact resistant rubberized housing Durable belt clip	

PRODUCT FEATURES

The **SENSIT® P100** is constructed of durable ABS plastic. The top housing is additionally protected with a shock absorbing material to protect the instrument from the rigors of field use.

The front of the instrument has an opening for the sensor and sounder. These are sealed to maintain the integrity of the IP65 rating.

Two buttons operate the instrument.

The left button is for power while the right is for zeroing and performing calibration. Multiple LED's beneath the frosted area create a very bright warning even in bright sunlight.
The instrument is mounted using a sturdy suspender clip on the back of the instrument. This instrument cannot be powered off or zeroed when in alarm mode.

All sensors and batteries are designed for 2 years of continuous normal use. The on-board memory will store up to 100 events or alarm conditions. These can be downloaded through the use of SCal-100 with **SMART-LINK 360** Software. Oldest events are over-written automatically when the maximum is reached.

FUNCTION INDICATORS

Calibration
Battery Low
Operation Time Remaining (months)

- High/Low Alarm Set Points:
  Factory preset to OSHA requirements
- TWA/STEL Alarms: Preset to OSHA limits
- Other alarm settings available
- Datalogging: Up to 100 alarm events
- Continuous "ON" Option

SENSOR SPECIFICATIONS

TYPE	RESOLUTION	RANGE
O_2	0.1%	25%
CO	1ppm	0-999*
H2S	1ppm	0-100
HCN	0.1ppm	0-30
SO_2	0.1ppm	0-20

*Extended Range available up to 2000ppm.

ALARMS

The **SENSIT® P100** has two basic styles of alarm. Low Alarms activate at two second intervals while High Alarms activate at one

second intervals. All O_2 alarms are High Alarms.

The sound, LEDs and vibrating motor are sequenced during alarms. The alarm settings are controlled during the set-up of the product. All instruments are preset for the standards that need to be adhered for various locations and needs. Fig. 2 shows examples of some of the alarm ranges.

Other alarm ranges are supplied upon request and appropriately marked with your shipment.

ALARM ADJUSTMENT

See PAGE 9 of this manual for Alarm Adjustment instructions.

STANDARD ALARM SETTINGS

TYPE	LOW	HIGH	TWA	STEL
O2	19.5	23.5	NA	NA
CO	50	200	50	75
H2S	10	25	5	15
HCN	4.7	10	4.7	10
SO2	2.0	5.0	2.0	5.0

FUNCTION (BUMP) TEST - MANUAL

Turn the instrument on and wait for the working display to illuminate. Apply an approved concentration of gas to the sensor area using the P100 calibration adapter. The flow should be 200-400 cc/min. The alarm should occur in less than 20 seconds.

To verify the operation of this product this test should be done prior to each day's use. Failure to pass this test may indicate a product failure or the need for calibration.

ADJUST DATE/TIME

To adjust the P100 date/time manually, enter the menu by simultaneously pressing both buttons then release them. (The P100 will force the user to update the time if it is invalid during startup.)

P100 will show "Pin". Press and release either button to show "900". Press right button to increase the number to 925. Number will roll-over to 900 when it exceeds 998. Press and release the left button.

NEXT:

1. P100 will (beep continuously if invalid at startup and) show "rtc" until either button is pressed and released
2. P100 shows "Yr" until either button is pressed and released. P100 shows the last two digits of the current year
3. The number is increased by pressing the right button and will roll-over to 12 if it exceeds 50. Adjust to desired "Yr"
4. Press and release the left button to accept it
5. P100 turns on the Month icon and shows the current month
6. The number is increased by pressing the right button and will roll-over to 01 if it exceeds 12. Adjust to desired "MO"
7. Press and release the left button to accept it
8. P100 shows "dd" until either button is pressed and released
9. P100 shows the current date
10. The number is increased by pressing the right button and will roll-over to 01 if it exceeds the maximum number of days for the month specified. Adjust to desired "dd"

11. Press and release the left button to accept it
12. P100 shows “Hr” until either button is pressed and released
13. P100 shows the current hour in the 24-Hour format (no AM/PM selection)
14. The number can be increased by pressing the right button and will roll-over to 00 if it exceeds 23. Adjust to desired “Hr”
15. Press and release the left button to accept it
16. P100 shows “nn” until either button is pressed and released
17. P100 shows the current minute
18. The number can be increased by pressing the right button and will roll-over to 00 if it exceeds 59. Adjust to desired “nn”
19. Press and release the left button to accept it
20. The P100 date/time have now been updated

ALARM ADJUSTMENT

1. Press both buttons together when unit starts up and displays Gas Type and then release it OR
2. From working display, push both buttons simultaneously and release. The unit will display Pin, press either key to display 900.
3. Press the Right button to scroll up to 980 and then push left button. The number increases to 998 and then restarts from 900. It will go to the menu to adjust the alarm and display “Con” for Continuous On operation. Press Left button to select. Press Right Button to toggle mode. Press Left button to save the setting. It will now display “LO” for the low alarm.
4. Press Left button to adjust the “LO” alarm. The current setting will be displayed.
5. Press Right button to adjust the alarm. You can only increase the number. Once it exceeds 300 it will start from 0.
6. Press Left button to save the alarm setting and it will now

display “HI”.

7. Press the Left button to adjust the “HI” alarm. The current setting will be displayed.
8. Press Right button to adjust the alarm. You can only increase the number. Once it exceeds 300 it will start from 0.
9. Press Left button to save the alarm settings. It will now display “tA” for TWA.
10. Press Left button to adjust the TWA alarm. The current setting will be displayed.
11. Press Right button to adjust the alarm. You can only increase the number. Once it exceeds 300 it will start from 0.
12. Press Left button to save the alarm settings. It will now display “StL” for STEL.
13. Press Left button to adjust the STEL alarm. The current setting will be displayed.
14. Press Right button to adjust the alarm. You can only increase the number. Once it exceeds 300 it will start from 0.
15. Press Left button to save the alarm settings. It will automatically exit the menu and perform auto zero.

CALIBRATION

(Does not apply to SENSIT® P100 O2 model)

Turn on the **SENSIT® P100** until the working display is illuminated. Wait for 2 minutes prior to beginning the calibration process.

1. Prepare the approved gas cylinder and regulator with the calibration adapter attached. The flow should be 200-400 cc/min.
2. Push and hold the Zero button until the display reads “GAS”.
3. Attach the P100 calibration adapter.
4. Start the gas flow.

5. Push and release the Zero button. A changing number will flash as will the CAL icon.
6. Successful calibration is indicated when only the gas concentration is displayed. The CAL icon will no longer be illuminated.
7. Bad calibration will be indicated by the word "BAD" and the CAL icon on the display. Press the power button to acknowledge. (Retry calibration). If the acknowledgement has not been performed, the P100 will return to the working display after 30 seconds.
8. Successful calibration will be logged as an Alarm event in the log.

CALIBRATION/BUMP GAS

REQUIREMENTS

- O2 100% Nitrogen
- CO 100ppm
- H2S 25ppm
- HCN 10ppm
- SO2 10ppm

BUMP/CALIBRATION

USING SCAL-100 (SOLD SEPERATELY)

1. Prepare SCal-100 Station
2. Turn P100 On and allow to Zero
3. Install P100 into SCal-100 Station
4. Remove P100 when test is complete

OPERATION AND USE

Press the ON button to start the instrument in an area known to be gas free and with normal oxygen content. The following will display as a normal start up sequence:

1. Activate all segments and icons
2. Gas type to be sensed
3. Software version
4. Temperature in °C
5. Alarms will sound, illuminate and vibrate
6. "LO" Low alarm value displays
7. "HI" High alarm value displays
8. "tA" TWA alarm value displays (when applicable)
9. "StL"STEL alarm value displays (when applicable)
10. "Sn" Serial Number displays
11. Displays remaining life, in months
12. All segments will flash for 6 seconds indicating zeroing
13. Working display is shown

If the instrument is in an area that is not gas free, "BAD" will illuminate after the automatic zeroing followed by a reading based on factory zero set points.

Attach the instrument to the outermost garment as close to your head/face as practical. Follow federal, state, local and company regulations as it relates to the use of this product.

Alarms will indicate unsafe levels. The display will show concentration data in combination with audible, visual and vibration indications. TWA alarms can be acknowledged for 10 minute intervals by pressing any button.

A manual zeroing should only be done in an atmosphere known to be gas free and containing normal oxygen levels. Press the ZERO button for 2-3 seconds and release. All segments of the display will flash followed by the working display.

Exposure to gas in excess of sensors range specifications will result in "OL" being displayed with the high alarm activated.

To view the remaining operational time in continuous mode, press the zero button for 2-3 seconds and release. It will display the time remaining prior to performing autozero.

BAT indicates low battery output and service will be needed soon. Only factory trained personnel should perform any internal servicing.

BAT + LO indicates instrument should be immediately taken out of service for battery replacement. Only factory trained personnel should perform any internal servicing.

MO indicates months/days remaining of operation time before battery and sensor servicing are required. Only factory trained personnel should perform any internal servicing.

I2C indicates a communication error in the EEPROM. Service is required. Only factory trained personnel should perform any internal servicing.

To turn off, hold the POWER button down for 6 seconds until "OFF" is displayed and release the button.

EU WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE) DIRECTIVE

In August of 2005, the European Union (EU) implemented the EU WEEE Directive 2002/96/EC and later the WEEE Recast Directive 2012/19/EU requiring Producers of electronic and electrical equipment (EEE) to manage and finance the collection, reuse, recycling and to appropriately treat WEEE that the Producer places on the EU market after August 13, 2005. The goal of this directive is to minimize the volume of electrical and electronic waste disposal and to encourage re-use and recycling at the end of life.

Sensit Technologies LLC has met its national obligations to the EU WEEE Directive. Sensit Technologies LLC has also elected to join WEEE Compliance Schemes in some countries to help manage customer returns at end-of-life. If you have purchased. Sensit Technologies LLC branded electrical or electronic products in the EU and are intending to discard these products at the end of their useful life, please do not dispose of them with your other household or municipal waste. Sensit Technologies LLC has labeled its branded electronic products with the WEEE Symbol (figure above) to alert our customers that products bearing this label should not be disposed of in a landfill or with municipal or household waste in the EU.

WARRANTY AND REPAIR POLICY

Your **SENSIT® P100** is warranted to be free from defects in materials and workmanship for a period of 2 years after purchase (excluding calibration). If within the warranty period, your instrument should become inoperative from such defects, the unit will be repaired or replaced at our option. This warranty covers normal use and does not cover damage which occurs in shipment or failure which results from alteration, tampering, accident, misuse, abuse, neglect or improper maintenance. Proof of purchase may be required before warranty is rendered. Units out of warranty will be repaired for a service charge. Internal repair of maintenance must be completed by a **SENSIT TECHNOLOGIES** authorized technician. Violation will void warranty. Units must be returned postpaid, insured and to the attention of the Service Dept. for warranty or repair.

SENSIT

851 Transport Drive
Valparaiso, IN 46383-8432

Phone: 219 465 2700
Fax: 219 465 2701
www.gasleaksensors.com

750-00049, 750-00049-ATEX ISSUED: 2/24/12 REVISED: 4/1/2020