WARRANTY

Your **SENSIT® HXG-2d** instrument is warranted to be free from defects in materials and workmanship for a period of two years after purchase (excluding sensor, calibration and batteries). 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. A purchase receipt or other proof of date of original purchase will be required before warranty performance will be rendered. Instruments out of warranty will be repaired for a service charge. Return the unit postpaid and insured to:

SENSIT TECHNOLOGIES
851 Transport Drive
Valparaiso, IN 46383

Phone: (219) 465-2700
Fax: (219) 465-2701

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

MADE IN USA

SENSIT® HXG-2d

Combustible Gas Detector
INSTRUCTION MANUAL
Read and understand Instructions before use.

710183
UL 913

Intrinsically Safe for Use in
Class I, Groups C and D, T3
Hazardous Locations

AEx ia IIB T3
IP20
For use in clean dry areas only.

Suitable for combustible gases such as Methane, Butane, Propane and Natural Gas

CONTENTS

NOTICE

⚠ **CAUTION:** This safety symbol is used to indicate a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

⚠ **WARNING:** This safety symbol is used to indicate a potentially hazardous situation which, if not avoided, may result in serious injury.

⚠ **WARNING:** Do not replace batteries when an explosive atmosphere is present.

⚠ **WARNING:** Use only DURACELL® PROCELL, Type PC1400 Alkaline Batteries

⚠ **WARNING:** Do not mix batteries of different age or type.

⚠ **WARNING:** For use in clean dry areas only.

⚠ **WARNING:** Not for use in atmospheres of oxygen greater than 21%.

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

⚠ **WARNING: <u>ONLY</u>** zero instrument in a gas free environment.

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

⚠ **WARNING:** All Accessories are to be used in an area known to be non-flammable.

⚠ **WARNING:** Use only sensor from SENSIT Technologies. PN 375-2611-01

NOTE: Performance/Accuracy aspects of this product have not been assessed and are not covered as a part of the SGS approval.

ACCESSORIES AND PARTS

Standard Accessories (included)

Soft Carrying Pouch	360-00006
T10 Torx Wrench	360-00105
Duracell "C"Alkaline Battery (ea)	310-00004*
Sensor Retainer Filter	360-00203
Wrist Strap	360-00040
Instruction Manual	750-00022

Optional Accessories and Parts

Extension Adapter	870-00012
Calibration Kit 2.5% Methane	881-00017
Calibration Kit .5% Methane	881-00075
LEL Sensor	375-2611-01
Sensor Cap	365-00045

GENERAL DESCRIPTION

The **Sensit® HXG-2d** is designed to detect combustible gases. This instrument incorporates an advanced low power semiconductor sensor to measure a wide variety of combustible gases in both the PPM and %LEL range. The PPM readings auto-range to %LEL when the concentration exceeds 990PPM (2%LEL methane). Optionally all readings can be set to a resolution of 0.1%LEL only (PPM off). An "on demand" backlight allows use in dark environments. A user activated "TICK" control assists in locating small gas leaks. Audible and visual alarms warn the operator of hazards. The alarms can be set in either the PPM or LEL modes. The default alarm is 10%LEL methane.

The instrument is adjusted at the factory for either methane or propane as the primary gas, and is calibrated accordingly. The primary gas can be selected when ordering.

The **Sensit® HXG-2d** meets US UL913 requirements when used with approved batteries.

The **Sensit® HXG-2d** is operated using approved alkaline batteries only.

⚠ **WARNING: Never mix batteries of different age or type.**

SPECIFICATIONS

SENSOR SPECIFICATIONS

TYPE	RESOLUTION	RANGE	ACCURACY
PPM	10ppm	0-990ppm	±10%
LEL	0.1%	0-100%LEL	±10%

PRODUCT SPECIFICATIONS

Size:	10" x 3" x 1.6" (254 x 76 x 41 mm)
Weight:	1.2 lbs. (544g)
Operational Temp:	-20 to 40°C (-4 to 104° F)
Battery Life:	Alkaline: 50 hours continuous

PRODUCT FEATURES

SENSOR FILTER

SOLID STATE SENSOR

BACKLIT DISPLAY

SPEAKER (ON BACK)

WARNING LED

16" FLEXIBLE GOOSENECK

PUSH BUTTONS

BATTERY SLEEVE RETAINING SCREW
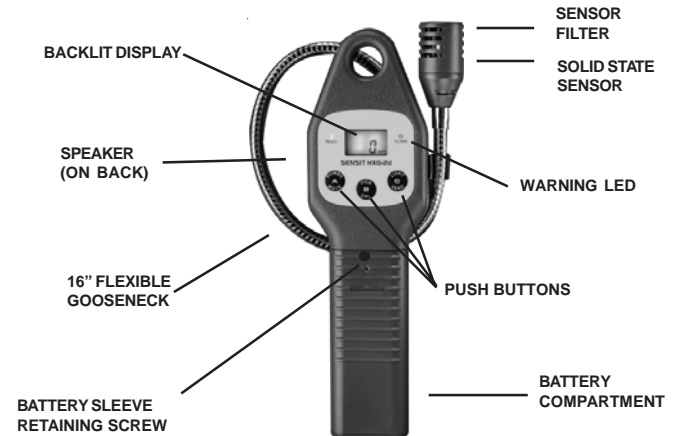
BATTERY COMPARTMENT

Sensit® HXG-2d instruments are constructed of durable high impact ABS to withstand the rigors of field use.

Incorporated in the hand grip area is the battery compartment. All **Sensit® HXG-2d** instruments require 3. *Duracell PC1400* batteries provide approximately 50 hours of continuous use.

A push button located in the center of the instrument activates an audible tick sound that will help in locating the source of a gas leak. This tick is generated by using specialized circuitry in combination with the LEL sensor located at the end of the goose-neck assembly. The tick can be easily heard with the speaker located in the back of the instrument.

A flexible gooseneck is used to assist in locating the source of gas leaks and remote sampling.

The display continuously updates the operator of changes in gas concentrations and alerts of low battery power. A green LED on the left side indicates the instrument is ready for use. A red LED indicates the preset alarm points have been exceeded.

There are 3 operational button pads on the front of all Sensit® HXG-2d instruments.

(A) POWER/MUTE BUTTON:
Operate the POWER and MUTE feature and exit menu items.

(B) TICK/CAL BUTTON:
Use to operate TICK or begin calibration.

(C) LIGHT/ZERO BUTTON:
Use to turn on the backlight or manually zero the sensor.

SENSOR TYPE

Combustible Gas Sensor
All **Sensit® HXG-2d** instruments incorporate a highly sensitive semiconductor type sensor. The function and accuracy of the sensor are monitored and controlled by specialized circuitry and a microprocessor. This sensor is capable of measuring concentrations of 10ppm of methane up to 100% LEL. Factory calibration uses methane gas. This sensor will detect many combustible gases.

SENSOR FILTER REPLACEMENT / CLEANING

Remove sensor cap by pressing retaining tab located on side of sensor and pulling the cap away from base. Filter will be loose inside. Clean filter with mild soap and water and thoroughly dry filter cap. Replace Cap/Filter on base until retaining tab engages.

BATTERY INSTALLATION/REPLACEMENT

⚠ **WARNING: Always change batteries in an environment free of combustible gases.**

⚠ **WARNING: Do not mix batteries of different type or age.**

Battery replacement is necessary when the BAT icon is illuminated and the green LED is flashing. This warning indicates there is approximately 15 minutes or less operational time before the instrument turns off automatically due to insufficient battery power.

Remove the battery sleeve cover by removing the battery sleeve screw with a T-10 screwdriver. Depress the locking tab on the front of the handle with a coin or flat object and pull the battery sleeve handle away from the top or display area of the instrument.

Place 3 approved batteries into the battery holder. Observe the polarity markings on the inside of the battery holder for proper battery installation. Improper installation will cause the instrument not to operate. Replace the battery sleeve and allow the locking tab to snap into position. Replace the battery sleeve retaining screw. Check to be sure the handle is secure to the instrument body by firmly pulling the handle away. The handle will remain in place if a proper connection is made.

OPERATION AND USE

⚠ **CAUTION: Always start any Sensit® HXG-2d in a gas free environment to ensure a proper zero.**

1. Push and hold the power button (A) until the display and backlight illuminates.

2. If the display fails to illuminate or the **BAT** icon is shown on the display, replace the batteries.

3. During successful start-up the instrument will display:
   a. Display all segments
   b. Turn on and off the backlight
   c. Display "S2d" as the model number
   d. Display software version
   e. Display "50.0%" or "10.0%" indicating the LEL Calibration point for the instrument
   f. Display "dIS" indicating display resolution of PPM / %LEL or both.
   g. Display "AL" followed by the alarm set point.
   h. Activate the alarm sound and red LED for 3 beeps
   i. Continue to flash all segments until proper warm-up is attained (no more than five minutes)
   j. Flash "Zro" indicating fresh air zeroing
   k. Working display is shown

NOTE: A failure to properly zero due to the presence of gas is indicated by "bAd" + cal icon illuminated on the display. Pressing the ZERO (C) button for 6 seconds and releasing will restart the zeroing process.

NOTE: If a sensor is completely inoperable or improperly zeroed at start up, the display will show "bAd"**.**

4. All instruments read with a resolution of 10ppm up to 990ppm. The scale automatically switch to LEL when 990ppm is exceeded with a resolution of 0.1% LEL. Optionally all readings may be displayed in LEL only. Readings beyond 100% LEL are indicated by "OL" (overload).

5. It may be necessary to manually zero the instrument based on company practices and environmental conditions.

⚠ **CAUTION: Zeroing should be done in a gas free environment only.**

6. When testing high areas or overhead lines the use of the optional extension adapter will allow a broom handle or painters stick to extend the instrument to the area where sensing must be accomplished. This slides onto the battery sleeve and is held in place by the locking nut assembly.

7. When a gas is sensed the display will update. If an alarm condition exists, based on a preset alarm point, the red LED will flash and the alarm will sound.

8. During an alarm condition (factory default at 10% LEL methane) the display will flash and an audible alarm will sound indicating a potentially unsafe environment. To disable the audible alarm press and release the MUTE button (A). To enable the alarm press and release it again.

NOTE: These instruments have cross sensitivities to a variety of gases.

9. To assist in locating the source of small combustible gas leaks or surveying areas outdoors or indoors, press and release the TICK/CAL button (B). This will start an audible tick preset at 2-3 ticks per second.

Move the sensor toward the area suspected of leakage. As the sensor moves closer to a leak source the tick will increase. When the tick becomes a steady tone press the TICK/CAL button (B) again while keeping the sensor head in the same position. This will slow down the tick and allow the operator to find a higher concentration using the same procedure.

If there is no tick, press the TICK/CAL button (B) again to reset to the steady ticking sound. For best results always use the leak detector prior to using any liquid leak detection fluids as these sensors will detect their presence.

10. Following Country, Province, State, Municipal and/or Company procedures move to the areas where gas readings are suspected or must be tested. During sampling the respective readings may change. Audible and visual alarms will activate when the preset limits are reached.

11. When being used in dark areas press and release the LIGHT/ZERO button (C) to turn on the back light Press again to turn off.

12. To turn instrument off, push and hold the POWER/MUTE button (A) for 5-6 seconds until "OFF" appears on the display.

CALIBRATION CHECK

To verify the accuracy of any **Sensit® HXG-2d** it must be exposed to a known concentration of test gas. Any sensor that does not meet the specifications listed in this manual may require calibration or replacement.

Any time it is suspected the **Sensit® HXG-2d** is not working properly, has read "OL" or has been exposed to silicone, check calibration.

CALIBRATION

Calibration is the process of setting the readings of the instrument to equal the value of the certified calibration gas. The instrument should operate for 5 minutes before calibrating.

NOTE: Use of calibration kits other than those offered or approved by SENSIT TECHNOLOGIES may cause inaccurate readings. Repairs may be required if the instrument fails to calibrate. Use only sensors supplied by SENSIT TECHNOLOGIES or their authorized representative.

NOTE: During the calibration process the numbers on the display are not the actual gas concentration.

Step 1: Prepare 50%LEL or 10% LEL Methane/Air, depending on what calibration point the unit calls for, and proper regulator and adapter.

Step 2: Press the TICK/CAL button (B) for 6 seconds until "GAS" is displayed.

Step 3: Attach the adapter to the sensor cap assembly.

Step 4: Press the TICK/CAL button (B) and the cal icon will flash and numbers will change on the display. Upon completion, the working display will appear with the gas reading.

A reading of "bAd" indicates unsuccessful calibration. Repeat process if "bAd" appears. Press the POWER/MUTE button (A) to clear the "bAd" display reading and go to the working display.

Continued unsuccessful calibrations may indicate faulty sensor. Any instrument that will not calibrate or continues to indicate "bAd" on the display, should be taken out of service. Please contact Sensit Technologies for further assistance.

SENSOR REPLACEMENT

⚠️ **WARNING: Perform service only in areas known to be non-flammable.**

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

⚠️ **WARNING:** Use only sensor from SENSIT Technologies. Part Number 375-2611-01

Step 1: Turn off instrument.

Step 2: Remove sensor cap and sensor retainer filter.

Step 3: Remove sensor. Observe the location of the tab relative to the white dot beneath, on the circuit board.

Step 4: Replace sensor. Be sure to align the sensor tab directly over the white dot.

Step 5: Place sensor retainer filter inside sensor cap and install sensor cap.

Step 6: Turn instrument on and wait for zero process to complete. "bAd" indicates improperly installed sensor or additional warm-up time is required. Allow the instrument to operate for 10 minutes, then press and hold the C button to reestablish zero. If "bAd" remains on the display, remove the instrument from service.

Step 7: If zeroing of the replacement sensor was successful and at least a 5 minute warm-up has been observed, proceed with the calibration instructions.

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ADJUSTABLE FEATURES

MENU ITEMS	RANGE	DEFAULT
Alarm PPM	100-990	OFF
Alarm-LEL	2-60%	10%
Show PPM	10PPM Resolution	ON

The Above settings are field adjustable:

Setting Display Mode For %LEL & Alarm Setpoint For %LEL
1. While the unit is on and in the working display, push the A and C buttons until the display shows OPt.
2. Press the B button once until the display shows diS%. This indicates the working display will show measurements in %LEL.
3. Press the B button once more until the display shows AL%. This indicates the alarm setpoint can be set in units of %LEL.
4. Press the B button once more until the display shows XX.X%. This is the alarm setpoint (XX.X can be values of 0-9).
5. Press the C button to increment the alarm setpoint or press the B button to decrement the alarm setpoint (Minimum 2.0%LEL, Maximum 60.0%LEL)
6. Press the A button once to exit to the OPt menu.
7. Press the A button once more to exit to the working display which will show measurements in %LEL.

Setting Display Mode For PPM & %LEL & Alarm Setpoint For PPM
1. While the unit is on and in the working display, push the A and C buttons until the display shows OPt.
2. Press the B button once until the display shows diS%. This indicates the working display will show %LEL measurements.
3. Press the C button once until the display show diS% ppm. This indicates the working display will initially show ppm measurements then transition to %LEL measurements once the unit measures greater than 990ppm.
4. Press the B button once more until the display shows AL ppm. This indicates the alarm setpoint can be set in units of PPM.
5. Press the B button once more until the display shows XXXppm. This is the alarm setpoint; it must be set to a PPM value greater than or equal to 100ppm to activate the PPM alarm.
6. Press the C button to increment the alarm setpoint or press the B button to decrement the alarm setpoint (PPM Alarm Off: 99ppm, Minimum 100ppm, Maximum 990ppm)
7. Press the A button once to exit to the OPt menu.
8. Press the A button once more to exit to the working display which will show measurements in PPM.

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