SENSIT® GOLD 3

MULTI GAS DETECTOR

For use with combustible gases and optionally available oxygen and toxic gases.

INSTRUCTION MANUAL

Read and understand instructions before use.

710183
UL913

Intrinsically safe for use in:

Class I Div. 1
Groups C, D
Temp Classification: T4, IP64
Hazardous Locations

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

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SPECIFICATIONS

TYPE	TECHNOLOGY	RESOLUTION	RANGE	ACCURACY
LEL	Semiconductor	Variable: 0.1 % - 2.0% Increments	0-100% LEL	±10% or 1%LEL*
PPM	Semiconductor	1ppm or 10ppm	0 - 50,000ppm	±10% or 500ppm*
%Gas	Thermal Conductivity	0.1 %	5-100% Methane, 2.2-100% Propane	±5%
O2	Electrochemical	0.1 %	0-25%	±0.2% or 10%*
CO	Electrochemical	1ppm	0-2,000ppm	±5ppm or 5%*
H2S	Electrochemical	1ppm or 0.1ppm	0-100ppm	±2ppm or 5%*
HCN	Electrochemical	1ppm or 0.1ppm	0-30ppm	±1ppm or 5%*
SO2	Electrochemical	0.1ppm	0-20ppm	±1ppm or 10% *

*whichever is greater

PRODUCT SPECIFICATIONS

SIZE	L-13 x W-3 x D-3.2 in (330 x 76 x 81mm)
WEIGHT	2.3lbs (1.0kg)
OPERATIONAL TEMP	-4 to 122° F (-20 to 50° C)
STORAGE TEMP	-4 to l 40°F (-20 to 60° C)
BATTERY LIFE	>12hrs Continuous with Rechargeable
RECHARGE TIME/TEMP	5hrs Max/ 32°F to 104°F (0°C to 40°C)
INGRESS PROTECTION	IP64
DISPLAY	2. 7" TFT LCD

HARDWARE AND SOFTWARE FEATURES

The **SENSIT GOLD G3** has many different available features and custom settings, so that the instrument can be configured to meet all customer requirements. A "setup sheet" is created at the time of order that contains all settings that you choose, so that any additional instruments ordered in the future will be setup the exact same way.

Many of these settings are in the "Expert Menu" and can be adjusted over the phone as well, if the customers' requirements change. See the Expert Menu section for a list of settings in the order they appear in the menu. This section covers both the Expert Menu and settings that are in the Factory Menu (generally only accessed by **SENSIT**) and are broken down into categories.

COMBUSTIBLE GAS SENSORS

All **SENSIT GOLD G3** instruments incorporate a highly sensitive and uniquely designed metal oxide semiconductor sensor. The function and accuracy of the sensor are monitored and controlled by specialized circuitry and a microprocessor. The sensor is capable of measuring concentrations as low as 1PPM methane, up to 100%LEL (5.0%VOL).

There is additional optional combustible gas sensor called the TC sensor that increases the capability of the instrument to measure above 100%LEL, up to 100%VOL. This proprietary state-of-the-art thermal conductivity sensor can measure high concentrations of gas quickly and accurately.

All gas readings are automatically switched between scales of PPM , %LEL, and %VOL (if enabled) without requiring input from the operator.

ELECTROCHEMICAL SMART SENSORS

All other sensors in the **SENSIT GOLD G3**, if equipped, are "electrochemical" type sensors. Options for these sensors are:

- Oxygen (O2), detectable range from 0-25% with a 0.1% resolution.
- Carbon Monoxide (CO), detectable range from 0-2,000ppm with a 1ppm resolution.
- Hydrogen sulfide (H2S), detectable range from 0-100ppm with either a 1ppm (default) or 0.1ppm resolution.
- Hydrogen cyanide (HCN), detectable range from 0-30ppm with a 0.1ppm resolution.

The maximum number of available "slots" for these sensors is 3. However, detection capability for all 4 is available (making the instrument a 5-gas detector), in which case the CO and H2S sensors will be a combination sensor.

FLEXIBLE WAND AND FLASHLIGHT

The combustible gas sensor for the LEL range and Tick is installed at the end of the flexible wand or "gooseneck". This allows for extremely fast, near instantaneous reaction to gas, because there is essentially no travel time for the gas sample. As soon as it is drawn in by the pump, the first thing it hits is the sensor.

In addition, the wand in the **SENSIT GOLD G3** is now equipped with a flashlight, made up of individual LEDs installed on the sensor circuit board. This flashlight feature can be enabled or disabled whenever the operator desires.

RECHARGEABLE BATTERY AND CHARGING STATION

The **SENSIT GOLD G3** comes standard with a rechargeable battery pack. This battery pack is installed in the handle of the instrument and secured with a captured Philips head screw. The battery pack can be charged while installed in the instrument, or when removed, with the included charging station/ dock. This charging station can be semi-permanently mounted to a table or wall, in a vehicle, or just left free standing without being secured. The station has a series of LEDs that indicate the charging status.

TWO-SPEED PUMP AND SAMPLING SYSTEM

All **SENSIT GOLD G3** instruments are equipped with a powerful and efficient pump that has two speeds, depending on what mode of operation the instrument is in. While in BARHOLE or LEAK SEARCH mode, the pump runs in the "high" speed (0.4 – 0.5 L/MIN), to make leak investigation quicker and more efficient. When in the work display or any other test mode, the pump runs in the "low" speed (0.3 L/min) to conserve power.

A hydrophobic dirt and water filter at the end of the gooseneck (sensor cap) protects the pump and internals of the instrument from foreign material. There is an additional internal micron filter that also helps to protect the pump from damaging debris. If the sampling system is compromised, a flow blocked message will be displayed.

⚠ **WARNING: Operating the SENSIT GOLD G3 without a sensor cap or damaged/ altered sensor cap can cause damage to the instrument and void the warranty.**

LED DOME

The LED dome on the **SENSIT GOLD G3** displays different colors and patterns to alert the operator of various conditions. See the chart below for information on each.

COLOR	INDICATION
Solid Green	"Ready" indication. No current alarm condition or failure.
Blinking Green	1. Low battery indication. The work display will also give an indication on screen to alert the operator. 2. Confined space mode. By default, the LEDs will blink off every 30 seconds (adjustable).
Solid Amber / Yellow	"LOW" or "HIGH" alarm condition (depending on configuration) for combustible gas. The default setpoint for this is 5.0%LEL.
Solid Red	"HAZ 1 & 2" conditions for combustible gas. Both will also be indicated on the work display. "HAZ1" is triggered at ≥10%LEL "HAZ2" is triggered at ≥25%LEL
Blinking Red	1. Any alarm conditions. How fast the LEDs blink is determined by the alarm level (low, high, or high-high). For combustibles, this is a "HAZ 3" alarm. 2. Sensor failure. 3. Flowblocked

WORK DISPLAY OPTIONS

COMBUSTIBLE GAS SCALE AND RESOLUTION

The combustible gas reading will be automatically displayed in one of three scales on the **SENSIT GOLD G3**: PPM, %LEL, and/or %VOL. By default, the reading starts in the %LEL scale (from 0.0%LEL) and will automatically switch to %VOL at ≥100%LEL (equal to 5.0%VOL by default, see the section on LEL Definition), if equipped with a TC sensor.

If the %LEL option is disabled, the **G3** will display in %VOL through the entire scale (either up to 5%VOL if the TC sensor is not equipped, or up to 100%VOL if equipped).

If the PPM option is enabled, the **G3** will instead start at 0ppm, and automatically scale to either %LEL (if enabled) or %VOL at the specified upper limit. By default, this is 2,000ppm. Other options are 5,000ppm, 10,000ppm, or 50,000ppm. If set to 50,000ppm, the **G3** will not scale to %LEL even if it is enabled, because at the highest LEL Definition, 50,000ppm is equal to 100%LEL.

In addition, the display resolution for the PPM and %LEL scales are customizable. The default display resolutions and options for each scale, while on the work display, are listed below.

	DEFAULT	RESOLUTION
PPM	Disabled	1ppm or 10ppm
%LEL	0.1%LEL	0.1% - 2.0%LEL [0.1% increments]
%VOL (FOR TC UNITS)	<5.0%VOL: 0.01%VOL ≥5.0%VOL: 0.1%VOL	Not adjustable
%VOL (FOR NON-TC UNITS)	Disabled	

H2S RESOLUTION

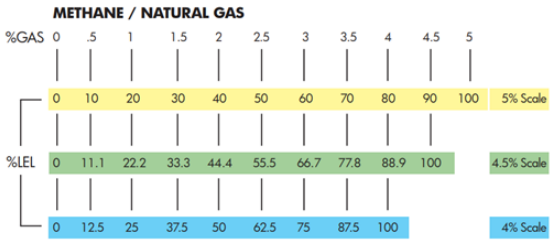
If the **SENSIT GOLD G3** is equipped with a hydrogen sulfide (H2S) sensor, it will have a resolution of 1ppm by default (0-100PPM range). There is an optional Expert Menu adjustment for this to increase the resolution to 0.1ppm.

HCN RESOLUTION

If the **SENSIT GOLD G3** is equipped with a hydrogen cyanide (HCN) sensor, it will have a resolution of 0.1ppm by default (0-30ppm range). There is an optional Expert Menu adjustment for this to decrease the resolution to 1ppm.

LEL DEFINITION

By default, the **SENSIT GOLD G3** defines the lower explosive limit (LEL) as 5.0%VOL methane and 2.2%VOL propane. This is factory adjustable between 4.0% and 5.0% for methane and 1.8% and 2.2% for propane, in 0.1% increments, based on company or industry requirements. This will affect how the instrument displays the %LEL scale. For example, if the LEL definition is 4.0%VOL, 2.5%VOL methane will display as 62.5%LEL. Reference the methane/natural gas chart below.



NON-STANDARD READINGS

When equipped with the optional TC sensor, the **SENSIT GOLD G3** has two "non-standard" readings available: NSR (non-standard response) and NSC (non-standard combustible). These can be triggered on the work display, leak search or in barhole mode.

NSR

NSR stands for "non-standard response". In the case of NSR, the gas is likely not combustible. If the **G3** gas type is set for natural gas (methane), NSR likely indicates a gas that is heavier than air such as carbon dioxide, and if the gas type is set for propane, NSR likely indicates a gas that is lighter than air such as helium.

NSC

NSC stands for "non-standard combustible". In the case of NSC, the gas is likely combustible. If the **G3** gas type is set for natural gas (methane), NSC likely indicates a combustible gas heavier than air such as propane, butane, gasoline vapors, etc. If the **G3** gas type is set for propane, NSC likely indicates a combustible gas lighter than air such as natural gas, naturally occurring methane, or hydrogen.

CALIBRATION OPTIONS

GAS TYPE

The **SENSIT GOLD G3** supports two different combustible gas types: natural gas (methane) and propane. The combustible gas reading will show which is currently set. This can be adjusted in the User Menu (Gas Type). The GAS TYPE setting only affects what calibration is applied,how the display reading is shown and how NSR/NSC are handled. It does not limit what gasses the 2611 (LEL) sensor will respond to.

NOTE: Currently only natural gas (methane) is available as a GAS TYPE option.

METHANE CALIBRATION POINT

The default calibration point for methane is 2.5%VOL. This setting can also be set to 2.2%VOL.

ALARMS

The **SENSIT GOLD G3** has audible and visual alarms to warn the operator when hazardous conditions are being sensed. There are alarm setpoints specific to the work display, leak search mode, and confined space mode. The LED dome on the **G3** changes color based on alarm conditions. See the following sections for information on each.

WORK DISPLAY ALARMS

WORK DISPLAY ALARM SETPOINTS	DEFAULT
LEL	50.0%LEL
PPM	0PPM
CO	35PPM
O2 - DEPLETION	19.5%VOL
O2 - ENRICHMENT	23.5%VOL
H2S	10.0PPM
HCN	4.7PPM
SO2	2.0PPM
NO2	3.0PPM

UEL SETPOINTS	DEFAULT
NAT	17.0%VOL
PRO	12.0%VOL

LEAK SEARCH MODE ALARM (IF ENABLED)

The LEL alarm, and UEL set points, outlined above in the work display section are active while in leak search mode. There is also an additional alarm specific to leak search mode. By default, this alarm is set to 50 PPM (unless otherwise noted on the setup sheet).

OPERATION AND USE

⚠**CAUTION: Always start/zero any SENSIT GOLD G3 in a gas free environment.**

NOTE: Fully read and understand this section of the instruction manual before using your **SENSIT GOLD G3**.

This section of the manual outlines the operation and use of the **SENSIT GOLD G3** by general categories. Due to the many custom options available, and many different applications the instrument can be used in, there is not one comprehensive sequential set of instructions for using the instrument. For a quick list of instructions to get up and running, see the Quick Start Guide in the Safety Manual. Use this Operation and Use section for more detailed instructions and use the sections that cover the Quick Menu and User Menu for more specific instructions for each test mode and menu.

POWER-ON AND STARTUP SEQUENCE

Before powering on the **SENSIT GOLD G3**, ensure that you are in a gas free environment, and that you have a charged battery pack installed and secured with the retaining screw.

Press and hold the [A] button until the **SENSIT** logo appears on the display and the LED dome illuminates. There are many custom settings available in the **G3** that may change what appears during the startup process.

The instrument will not be ready to use until it reaches the work display, and both a successful autozero and flow block check have been performed. The startup process will take less than 45 seconds , but can take up to a maximum of 5 minutes depending on the outputs of the sensors.

BUMP TESTING AND CALIBRATION

To verify the accuracy of any **SENSIT GOLD G3**, it must be exposed to a known concentration of test gas that will test the sensor combination included in your model. This is known as “bump testing”. This can be done either by exposing the instrument to gas from the work display or using the bump test feature which specifically tests each sensor and gives a pass or fail message. For more information, see the Bump Test section in this manual.

A bump test should not be substituted for a calibration and does not update the calibration due date. Full calibration is required to reset the calibration due dates for each individual sensor.

A calibration past due message will be displayed during startup if calibration has not been performed per your company specified interval. Any time it is suspected that the **SENSIT GOLD G3** is not working properly, check calibration.

THE WORK DISPLAY

After the startup process, the work display will be shown. This is the main working screen of the instrument, and what will be used most of the time when detecting gas. The live readings are shown on screen simultaneously for all sensors installed in the instrument.

FILTER INTEGRITY AND FLOW BLOCK CHECK

Prior to use, a flow block check needs to be performed to test the integrity of the sensor cap and internal tubing. Block the inlet of the instrument at the end of the gooseneck. Within a few seconds, FLOW BLOCKED should be shown on the display. This ensures all seals are intact and there are no air leaks in the probe or instrument. If flow block is not detected, check the integrity of the O-ring seals and connections on the probe and instrument. If flow block cannot be achieved, contact the factory for assistance. An airtight system is crucial for accurate readings.

READY FOR USE

After the startup process and Autozero are complete, and a successful flow block check has been done, the instrument is ready for use. The "work display"will show live gas readings. The readings from all currently installed sensors will be shown simultaneously. The operator does not need to leave this screen for most general-purpose applications. However, there are quite a few specialized test modes for specific applications, such as BAR HOLE TEST and PURGE MODE. See the Quick Menu section for more information on these.

To use the **SENSIT GOLD G3** for gas detection, always follow federal, state, municipal, and/or company procedures, then follow these generalized steps below for using the **SENSIT GOLD G3**.

1. It may be necessary to manually zero the instrument based on company practices and environmental conditions. To do so, press & hold the C button until AUTOZERO appears at the top of the screen. Always zero the instrument in a clean air environment.

2. When testing areas with elevated temperatures such as appliance vents or flues, always attach the optional hot air probe to the end of the sensor cap. These connections need only be finger tight. Failure to use the approved probe can result in damage to the instrument and may void the warranty. Always perform a flow block check when using any probe or attachment.

3. The sensors will cause the display to update when a gas is encountered. Additionally, if a combustible gas is encountered a combination of LED patterns and messages on the work display will occur when the preset concentrations are reached. If any alarm condition exists for any sensor, based on their preset alarm points, the red LED will flash, and the alarm will sound unless it is muted. Additionally, the reading for the gas exceeding the alarm set point will also flash. The standard alarms and LED patterns can be found in the features section.

4. To disable the alarm, quickly press and release the A button. To enable the alarm press and release the same button again. During an alarm, the gas that has exceeded the preset alarm point will flash on the display, HAZARD 3 will be shown on the display, and the red LED will flash indicating a potentially unsafe condition. When combustible gas readings exceed the alarm range, the audible alarm will turn off. If the alarm condition no longer exists, the alarm sound will activate if a new alarm condition is encountered.

5. To assist in locating small leaks, utilize the TICK feature. See the Quick Menu section for more information.

6. Following Federal, State, Municipal and/or Company procedures move to the areas where gas readings are suspected or must be tested. Use necessary accessories to draw samples from areas not accessible with the instrument itself, such as confined spaces or flues. During sampling, the respective readings may change. Audible and visual alarms will activate when the preset limits are reached.

7. When equipped with the percent volume sensor, the instrument may read "NSR" or "NSC" followed by a number. If the instrument gas type is set for natural gas, "NSR" (Non-Standard

Response) likely indicates a heavy noncombustible gas (i.e.: heavier than air, such as carbon dioxide, etc.). If the response is "NSC" (Non-Standard Combustible) the gas is likely a heavy hydrocarbon, such as gasoline, propane, butane, etc. If the gas type is set for propane, "NSR" likely indicates gas lighter than air such as helium . "NSC" may indicate methane, hydrogen, or natural gas.

8. When being used in dark areas, enable the flashlight by pressing and holding the C button for 1-2 seconds. To disable the flashlight, again press and hold the C button for 1-2 seconds. Additionally, the display is always backlit, so it is easy to read.

POWER OFF & BATTERY CHARGING

POWER OFF

To power off the **SENSIT GOLD G3**, ensure you are in a gas free environment, and then press and hold the A button until the power off screen is shown. The instrument will purge for 10 seconds (by default) and then power off. During this purge, you can press and release the A button again to stop the power off process.

BATTERY CHARGING

The **SENSIT GOLD G3** battery pack can be charged both while installed in the instrument or standalone. In both cases the contacts located on the bottom of the battery pact connect to the pins located in the bottom of the charging base.

When charging with the battery installed in the instrument, place the bottom of the instrument into the charging base first, and the push the instrument back so that the stud located on the back of the housing engages with the arm of the charging base. You will feel it engage and hear a clicking noise. The instrument will then be locked in place. The charging LEDs will then illuminate. Orange/yellow indicates the charging base has power, red indicates the battery is currently charging, blinking red indicates the battery is outside of its charging temperature range and green indicates the battery is fully charged.

When charging the battery standalone, lift the arm on the back of the charging base, place the bottom of the battery into the base, and the lower the arm down so it locks the battery in place.

Ensure that both the contacts on the battery pack and pins on the charging base are kept clean.

CALIBRATION/BUMP TESTING

SMART-CAL (AUTOMATIC CALIBRATION/BUMP TESTING USING THE SMART-CAL 360)

STANDARD FEATURE

The **SENSIT GOLD G3** is compatible with the SMART-CAL 360 calibration/bump test station. Using the station completely automates the calibration/bump test process. Gasses are attached semi-permanently to the station, and all the user must do is attach the hose, start the process on the instrument and station by pushing a button. Calibration or Bump tesing will automatically proceedand at the end give the operator either a pass or fail indication.

The operator also has the option to manually calibrate/bump test the instrument by attaching bottles of gas, through the manual calibration or bump test menu.

For more information on the SMART-CAL 360, contact **SENSIT Technologies**.

The SMART-CAL menu is used to put the **SENSIT GOLD G3** in a communication mode to calibrate/bump test the instrument using the SMART-CAL 360. The instrument must be put in this mode, and then calibration/bump testing can be done using the station. Follow the instructions in the sections below to do so.

TO ENABLE SMART-CAL MODE:

Allow the instrument to warm-up for 5 minutes.From the work display, press and hold the [A] button for 1-2 seconds and release. SMART-CAL ENABLED will be shown on the display. Do not hold the button too long, otherwise the instrument will go to the power off screen. The instrument is now ready for calibration.

NOTE: You may see a brief "wait" message while Smart-Cal mode is being enabled. Within a couple seconds, you should see the "enabled" message.

PERFORMING A SMART-CAL CALIBRATION/BUMP TEST:

1. Once the **G3** is showing SMART CAL ENABLED, attach the instrument hose and press CALIBRATION or BUMP on the touchscreen of the SMART-CAL 360. If only 1 **G3** is in range and in Smart-Cal mode, communication will be established and the **G3** will display SMART-CAL CONNECTED. The calibration will proceed from there.

2. If more than one device is in range and in Smart-Cal mode, a list of available devices will be shown. Select the appropriate **G3** serial number of the instrument you are calibrating/bump testing. Communication will be established and the **G3** will display SMART-CAL CONNECTED. The calibration/bump test will proceed from there.

3. When the calibration or bump test process is complete, a message will be shown displaying the status (success or failure) along with the corresponding LED status (green=passed and red=failed).

   If calibration fails, attempt a second calibration . If calibration still does not pass, remove the instrument from service and contact the factory for assistance. If bump test fails, attempt a calibration.

AUTOCAL

The AUTOCAL process in the **SENSIT GOLD G3** is a semi-automated calibration process for all sensors currently installed in the instrument. The instrument will prompt when each gas and the specific concentration is to be applied.

TO PERFORM AN AUTOCAL:
Allow the instrument to warm-up for 5 minutes. In a gas free environment, press and hold the [C] button until "autozero" is displayed. If autozero passes, move on to #1.

1. From the work display, press and hold the [B] button until USER MENU is shown near the top of the display.

2. Press and release the until CALIBRATION is shown.

3. Press and release the [B] button to enter the CALIBRATION menu.

4. The first option shown will be AUTO CALIBRATION. Prepare your calibration gas, and then press and release the [B] button to begin the process.

5. The user will be prompted to attach the first gas, which will be METHANE LEL 2.5 VOL. Attach the gas within the 30 second timer shown, and wait for calibration to proceed. An audible beep will be heard when the calibration is finished (either passed or failed).

6. A message will be displayed to attach the next calibration gas. Follow the same procedure for each gas: attach the gas shown on screen and wait for the calibration to finish, followed by a beep and a prompt to attach the next gas.

7. After all calibrations have finished, a results screen will be shown, with individual passed,failed or skip messages for each sensor.

   NOTE: If FAILED is shown for any sensor, attempt calibration again. If successful calibration cannot be achieved, remove the instrument from service and contact the factory for assistance.

8. Press and release the [A] button once to return to the USER MENU or twice to return to the work display.

MANUAL CALIBRATION

The **SENSIT GOLD G3** gives the operator the option to manually calibrate each sensor type individually. This is a more manual process than the AUTOCAL option, but can be useful if you only need to calibrate one sensor, or if you are attempting a re-calibration of a sensor after a failureand do not want to re-calibrate every sensor.

Each of the following sections give instructions for manually calibrating each sensor type currently available.

MANUAL CALIBRATION: METHANE LEL 2.5 %VOL

NOTE: The methane 2.5%VOL calibration point combines two different calibrations, for both sensors that are calibrated to that gas (LEL and TC).

Allow the instrument to warm-up for 5 minutes. In a gas free environment, press and hold the C button until "autozero" is displayed. If autozero passes, move on to #1.

1. From the work display, press and hold the B button until USER MENU is shown near the top of the display.
2. Press and release the C button until CALIBRATION is shown.
3. Press and release the B button to enter the CALIBRATION menu.
4. Press and release the C button until ATTACH METHANE LEL 2.5 VOL is shown.
5. Attach 2.5%VOL methane calibration gas to the end of the gooseneck and then press and release the B button to start the calibration.
6. Wait for either a PASSED or FAILED result to be shown.
    a. If PASSED is shown, the calibration was successful, and the calibration due date will be updated for that sensor. Remove the calibration gas. Note that two passed messages must be shown for this calibration.
    b. If FAILED is shown, leave the calibration gas attached and attempt calibration again. If successful calibration cannot be achieved, remove the instrument from service and contact the factory for assistance.
7. The display will advance to the next calibration option. See the next section if you need to calibrate other sensors.

MANUAL CALIBRATION: CARBON MONOXIDE (CO) 100 PPM

1. From the work display, press and hold the B button until USER MENU is shown near the top of the display.
2. Press and release the C button until CALIBRATION is shown.
3. Press and release the B button to enter the CALIBRATION menu.
4. Press and release the C button until ATTACH CO 100 PPM is shown.

5. Attach 100 PPM CO calibration gas to the end of the gooseneck and then press and release the [B] button to start the calibration.

6. Wait for either a PASSED or FAILED result to be shown.

    a. a. If PASSED is shown, the calibration was successful, and the calibration due date will be updated for that sensor. Remove the calibration gas.

    b. b. If FAILED is shown, leave the calibration gas attached and attempt calibration again. If successful calibration cannot be achieved, remove the instrument from service and contact the factory for assistance.

7. The display will advance to the next calibration option. See the next section if you need to calibrate other sensors.

MANUAL CALIBRATION: HYDROGEN CYANIDE (HCN) 10 PPM

1. From the work display, press and hold the [B] button until USER MENU is shown near the top of the display.

2. Press and release the [C] button until CALIBRATION is shown.

3. Press and release the [B] button to enter the CALIBRATION menu.

4. Press and release the [C] button until ATTACH HCN 10 PPM is shown.

5. Attach 10 PPM HCN calibration gas to the end of the gooseneck and then press and release the [B] button to start the calibration.

6. Wait for either a PASSED or FAILED result to be shown.

    a. If PASSED is shown, the calibration was successful, and the calibration due date will be updated for that sensor. Remove the calibration gas.

    b. If FAILED is shown, leave the calibration gas attached and attempt calibration again. If successful calibration cannot be achieved, remove the instrument from service and contact the factory for assistance.

7. The display will advance to the next calibration option. See the next section if you need to calibrate other sensors.

MANUAL CALIBRATION: HYDROGEN SULFIDE (H2S) 25 PPM

1. From the work display, press and hold the [B] button until USER MENU is shown near the top of the display.

2. Press and release the [C] button until CALIBRATION is shown.

3. Press and release the [B] button to enter the CALIBRATION menu.

4. Press and release the [C] button until ATTACH H2S 25 PPM is shown.

5. Attach 25 PPM H2S calibration gas to the end of the gooseneck and then press and release the B button to start the calibration.

6. Wait for either a PASSED or FAILED result to be shown.

a. If PASSED is shown, the calibration was successful, and the calibration due date will be updated for that sensor. Remove the calibration gas.

b. If FAILED is shown, leave the calibration gas attached and attempt calibration again. If successful calibration cannot be achieved, remove the instrument from service and contact the factory for assistance.

7. The display will advance to the next calibration option. See the next section if you need to calibrate other sensors.

MANUAL CALIBRATION: METHANE TC 100 %VOL

1. From the work display, press and hold the [B] button until USER MENU is shown near the top of the display.
2. Press and release the [C] button until CALIBRATION is shown.
3. Press and release the [B] button to enter the CALIBRATION menu.
4. Press and release the [C] button until ATTACH METHANE TC 100 VOL is shown.
5. Attach 100%VOL methane calibration gas to the end of the gooseneck and then press and release the [B] button to start the calibration.
6. Wait for either a PASSED or FAILED result to be shown.

   a. If PASSED is shown, the calibration was successful, and the calibration due date will be updated for that sensor. Remove the calibration gas.

   b. If FAILED is shown, leave the calibration gas attached and attempt calibration again. If successful calibration cannot be achieved, remove the instrument from service and contact the factory for assistance.

7. The display will advance to results screen after the 100% methane calibration. If you have done multiple calibrations without leaving the calibration menu, the results for all will be shown.
8. Press and release the [A] button once to return to the USER MENU, or twice to return to the work display.

QUICK MENU TEST MODES

Depending on what type work the **SENSIT GOLD G3** is being used for, there are a variety of test modes available that are designed to be used for specific tasks. For example, using BARHOLE mode for below-grade leak investigation.

To access these test modes, enter the Quick Menu from the work display by pressing and releasing the [B] button. QUICK MENU will appear near the top of the display. You can scroll through this menu by pressing and releasing the [C] button, and selecting the mode currently shown on screen by pressing and releasing the [B] button. To exit back to the work display, press and release the [A] button. See the following sections for information about these test modes.

TICK

STANDARD FEATURE

PURPOSE: Assist in pinpointing small combustible gas leaks

TICK mode is a default feature in the **SENSIT GOLD G3**, available on all models. It gives the operator a ticking, audible tone that gets faster as the gas concentration increases. This assists in pinpointing small combustible gas leaks by allowing the operator to rely on the tone and not have to watch the display of the instrument. It detects very small changes in gas concentration, which lets the operator very accurately and repeatably pinpoint the source of the leak.

The tick can be very gradually adjusted with the thumbwheel on the front of the instrument handle or can be instantly reset to a "baseline" tick rate by using the [B] button. This gives the operator more control as the leak is searched for, small changes can be made to narrow down the source.

TO USE TICK:

1. From the work display, press and release the [B] button to enter the QUICK MENU.

2. The first option in the menu is TICK. Press and release the [B] button again to enable it. Upon activation, an audible tick can be heard, and a bar graph is displayed. The bar graph is a visual speed representation of the tick rate (empty bar = no tick, full bar = max tick).

3. To pinpoint a leak, move the sensor head toward the area suspected of leakage. As the sensor moves closer to a leak source, the tick rate will increase. When the tick becomes a steady tone, either rotate the thumbwheel back towards you to decrease the rate or press and release the [B] button to reset the rate to the baseline level. Then, a higher concentration of gas can be searched for using the same procedure. When this process no longer finds a higher concentration, the source of the leak has been pinpointed.

If the tick slows down or goes away, you have moved away from the leak or there is no more gas present. For best results, always use the instrument prior to using any liquid leak detection fluids as the sensor may respond to them.

BAR HOLE TEST

STANDARD FEATURE

REQUIRES: TC sensor (%VOL sensor) equipped

PURPOSE: Below grade leak investigation

BAR HOLE MODE is a default feature in the **SENSIT GOLD G3** when equipped with the TC sensor (%VOL sensor). It is intended for use when conducting a below grade leak investigation, generally in a hole bored in the ground with a plunger bar or drill. It gives the operator a separate screen from the work display that shows only the combustible gas reading in the %VOL scale (both real time and peak reading).

Bar hole mode is a timed test (30sec. by default), which helps to ensure consistent results are achieved if multiple tests are done, whether to grade a leak or map leak migration. The BAR HOLE test utilizes the high-speed mode of the pump, allowing you to complete each test much faster than in previous generation instruments.

Each BAR HOLE test is logged in its own log, with results, date and time, and GPS coordinates (if installed), that can be retrieved wirelessly from the **SENSIT GOLD G3** with Smart-Link 360 Software.

TO CONDUCT A BAR HOLE:

1. If you are sampling below grade in a hole, a bar hole probe is required for use while in this mode. Attach the bar hole probe to the fitting on end of the gooseneck and perform a flow block check by blocking the inlet(s) of the probe. Within 10 seconds, FLOW BLOCKED should be shown on the display.

   TIP: a latex glove works well to cover the holes and the end of the probe for this test.

   NOTE: This ensures all seals are intact and there are no air leaks in the probe or instrument, which is critical for accurate readings. If flow block is not detected, check the integrity of the O-ring seals and connections on the probe and instrument. If flow block cannot be achieved, contact the factory for assistance.

2. From the work display, press and release the [B] button to enter the QUICK MENU.

3. Press and release the [C] button until BARHOLE TEST is shown.

4. Press and release the [B] button to enter BARHOLE TEST mode. A message will be displayed reminding you to attach hardware if needed.

5. To begin a BAR HOLE test, insert the probe into the location for the survey and then press and release the [B] button. A 30 second countdown for the test will begin. The current percent of gas by volume detected will be displayed on the left side of the display. The peak percent of gas by volume detected will be displayed on the right side of the display. When the test ends, the pump will shut off and any sustained and peak readings will be shown and recorded.

   NOTE: In extreme temperatures or with a weak battery, the **G3** may not be able to run the pump in high-speed. In that case, low-speed will be used, and the test duration will be 45 seconds.

6. If you have another test to take, remove the probe from the test location. Press and release the [C] button to purge the gas out of the instrument if the real time reading on the left side of the screen is higher than the purge threshold. The purge process will start and continue until the desired setpoint is reached. This is set to 0.0%VOL by default and adjustable in the User Menu. When the purge stops, insert the probe into the next location and press and release the [B] button to start another test.

7. To exit BAR HOLE mode, press and release the [A] button once to return to the quick menu, or twice to return to the work display.

CO TEST

OPTIONAL FEATURE

REQUIRES: Carbon monoxide (CO) sensor equipped

CO TEST in the **SENSIT GOLD G3** is an optional feature when equipped with a carbon monoxide (CO) sensor. It is a timed test (180sec. by default) that shows the operator only the real time and peak CO readings on a separate screen from the work display.

Each CO TEST is logged in its own log, with results, date and time, and GPS coordinates (if installed), that can be retrieved wirelessly from the **SENSIT GOLD G3** with Smart-Link 360 Software.

TO CONDUCT A CO TEST:

1. If you are using the CO TEST to analyze flue gas, a hot air probe must be used. Attach the probe to the fitting on the end of the gooseneck and perform a flow block check by blocking the inlet(s) of the probe. Within 10 seconds, FLOW BLOCKED should be shown on the display.

   NOTE: This ensures all seals are intact and there are no air leaks in the probe or instrument, which is critical for accurate readings. If flow block is not detected, check the integrity of the O-ring seals and connections on the probe and instrument. If flow block cannot be achieved, contact the factory for assistance.

2. From the work display, press and release the [B] button to enter the QUICK MENU.

3. Press and release the [C] button until CO TEST is shown.

4. Press and release the [B] button to enter the CO TEST. A message will be displayed reminding you to attach hardware if needed.

5. Follow federal, state, municipal, and/or company procedures to conduct the CO TEST. Insert the hot air probe into the sampling point and press and release the [B] button to start the test. The countdown timer will begin (180 sec by default). The real time CO reading will be shown in the middle of the display and the peak CO reading will be shown on the right side of the display. The test is over when the timer reaches 0. The results will remain on the display and a log of the test will be saved with the test results.

6. If you have another test to take, remove the probe from the test location and press and release the [C] button to purge the gas out of the instrument if the real time reading in the middle of the display is above the purge threshold. The purge process will start and continue until the desired setpoint is reached. This is set to 0ppm by default and adjustable in the User Menu. When the purge stops, insert the probe into the next location and press and release the [B] button to start another test.

7. To exit CO TEST, press and release the [A] button once to return to the QUICK MENU, and twice to return to the work display.

PURGE TEST

STANDARD FEATURE

REQUIRES: TC sensor (%VOL sensor) equipped

PURPOSE: Purging lines into service with fuel

PURGE TEST is a default feature in the **SENSIT GOLD G3** when equipped with the TC sensor (%VOL sensor). It is intended for use when purging lines into service with fuel (e.g. natural gas, propane).. It gives the operator a separate screen from the work display that shows only the combustible gas reading in the %VOL scale, as well as the oxygen (O2) reading, if equipped.

It is NOT intended for use when purging lines out of service. For purging lines out of service with air, use the normal work display. For purging lines out of service with an inert gas (e.g. nitrogen), use Inert Mode.

The 2611 sensor (%LEL sensor) is turned off while this mode is active to prevent unnecessary exposure to high level of gas for longevity of the sensor.

TO CONDUCT A PURGE:

1. A purge probe is required for use while in this mode to prevent over-pressurization and damage to the instrument. Attach the purge or flange purge probe to the fitting on end of the gooseneck and perform a flow block check by blocking the inlet(s) of the probe. Within 10 seconds, FLOW BLOCKED should be shown on the display.

   TIP: a latex glove works well to cover the holes and the end of the probe for this test.

   NOTE: This ensures all seals are intact and there are no air leaks in the probe or instrument, which is critical for accurate readings. If flow block is not detected, check the integrity of the O-ring seals and connections on the probe and instrument. If flow block cannot be achieved, contact the factory for assistance.

2. From the work display, press and release the [B] button to enter the QUICK MENU.

3. Press and release the [C] button until PURGE TEST is shown.

4. Press and release the [B] button to enter PURGE TEST mode. A message will be displayed reminding you to attach hardware if needed.

5. Press and release the [B] button to start the purge. Gas and oxygen readings will be shown on screen in the %VOL scale. If an oxygen (O2) sensor is not installed, an "X" will be shown for that reading. Insert the probe for sampling, ensuring NOT to create a tight seal around the end of the probe. Allow for blow-by so the unit does not over-pressurize.

6. Conduct the purge following federal, state, municipal, and/or company procedures.

7. To exit the PURGE TEST to the work display, press and release the [A] button. A PLEASE WAIT message will flash on the display, while the 2611/LEL sensor is being powered back on, for a minimum of 5 seconds, up to a maximum of 5 minutes.

LEAK SEARCH MODE

OPTIONAL FEATURE

PURPOSE: Combustible gas leak investigations and surveys, where the PPM scale is needed with a low PPM alarm.

LEAK SEARCH mode is an optional feature in the **SENSIT GOLD G3** intended for use in combustible gas leak investigations or surveys that require the PPM scale. It gives the operator a separate screen from the normal work display that shows only the combustible gas reading. This reading starts in the PPM scale, which allows for a higher resolution to be shown on-screen than would normally be available. The instrument will read in 1ppm increments up to 5000ppm, auto range to %LEL and/orthen to %VOL.

The instrument has a preset alarm of 50ppm while in leak search mode (factory adjustable). This is an additional and separate alarm from the standard set of alarms available on the work display.
LEAK SEARCH mode utilizes the high-speed mode of the pump, allowing you to work faster than in previous generation instruments.

NOTE: In extreme temperatures or with a weak battery, the **G3** may not be able to run the pump in high-speed. In that case, low-speed will be used.

TO CONDUCT A LEAK SEARCH:

1. Attach a drag tube assembly or telescoping survey probe and perform a flow block check by blocking the inlet(s) of the probe. Within 10 seconds, FLOW BLOCKED should be shown on the display.

   NOTE: This ensures all seals are intact and there are no air leaks in the probe or instrument, which is critical for accurate readings. If flow block is not detected, check the integrity of the O-ring seals and connections on the probe and instrument. If flow block cannot be achieved, contact the factory for assistance.

2. From the work display, press and release the [B] button to enter the QUICK MENU.

3. Press and release the [C] button until LEAK SEARCH is shown.

4. Press and release the [B] button to enter LEAK SEARCH mode. LEAK SEARCH will be displayed near the top of the screen with the gas reading below it. A low-level PPM reading may be shown because the instrument has not been zeroed to the working environment yet.

5. Conduct the investigation or survey following federal, state, municipal, and/or company procedures. To perform an autozero while in LEAK SEARCH mode, press and hold the [C] button until AUTOZERO is displayed. TIP: Due to the sensitivity of the device in this mode, an environmental zero may be required. To perform this function, place the drag tube or telescopic probe on the same surface in which the survey will be completed away from the suspected leak area. Let the instrument stabilize for 15 to 30 seconds and then with the probe/drag tube in place, press and hold the [C] button until autozero appears. Once zeroed, you can proceed with the investigation. Any alarm can be muted by pressing and releasing the [A] button once. If the alarm sound is muted during an alarm condition and the concentration of gas is below the alarm threshold, the alarm will activate if the concentration exceeds the alarm threshold again or the LEL alarm is reached.

6. To exit LEAK SEARCH mode to the work display, press and hold the [A] button for 1-2 seconds and release.

STANDBY MODE

OPTIONAL FEATURE

PURPOSE: This puts the instrument in a low-power mode, for when you need to use it again soon and do not want to fully power it off and back on again.

The **SENSIT GOLD G3** has an optional "standby" mode that allows the operator to put the instrument in a low power state. This can be used if you don't need to use the instrument for a short amount of time and want to save some battery life and time, instead of fully powering the instrument off and back on again. It is not recommended to leave the instrument in STANDBY MODE for more than 2 hours.

TO ENABLE STANDBY MODE:

1. From the work display, press and release the [B] button. QUICK MENU will appear near the top of the display.

2. Press and release the [C] button until STANDBY is shown.

3. Press and release the [B] button to activate STANDBY MODE. The gas readings will be removed and "STANDBY" will be shown on screen. While standby mode is active, the pump and 2611 sensor will be powered off.

4. To resume normal operation and exit STANDBY MODE, press and release the [A] button. A brief warmup will be shown to ensure sensors are operational before returning to the work display.

PEAK MODE

OPTIONAL FEATURE

PURPOSE: Storingpeak readings on the display for situations where the screen cannot be observed. Peak mode in the **SENSIT GOLD G3** is an optional feature that is used to maintain peak readings on the work display (in addition to the real-time readings) for each sensor installed. The most common use case for this is when the instrument is being used in a situation where the display cannot be immediately observed, such as monitoring over-head or confined space areas, where the instrument is being raised or lowered away from the operator. The peak reading for each sensor remains on the screen until cleared so that no readings are missed.

TO ENABLE PEAK MODE:

1. From the work display, press and release the [B] button. QUICK MENU will appear near the top of the display.

2. Press and release the [C] button until PEAK MODE is shown.

3. Press and release the [B] button to enter PEAK MODE. The work display will be shown with an additional peak reading in brackets below each real-time reading.

4. Conduct the investigation or survey following federal, state, municipal, and/or company procedures. The highest measured value for each gas will be shown in brackets under each live reading.

   NOTE: In the case of Oxygen, the lowest reading will be shown as the peak. In the case of combustible gas, the scale will be shown in addition to the measured value. PPM, LEL, or VOL will be shown depending on instrument configuration and gas concentration measured.

5. To reset the peak readings, press and hold the C button until AUTOZERO is displayed (**NOTE**: this should be done in a gas free environment).

6. To exit the PEAK MODE, press and hold the A button for 1-2 seconds. The peak readings will be removed, and the standard work display will be shown.

INERT MODE

OPTIONAL FEATURE

REQUIRES: Oxygen (O2) sensor equipped, dilution tube assembly

PURPOSE: Purging lines OUT of service with inert gas.

INERT MODE in the **SENSIT GOLD G3** is an optional feature that requires the instrument to be equipped with an Oxygen (O2) sensor. It is intended for use when purging lines out of service with an inert gas only and requires the inert dilution tube assembly. It gives the operator a separate screen from the work display that shows only the combustible gas reading and the oxygen (O2) reading.

It is NOT intended for use when purging lines into service or when purging lines out of service with compressed air. For purging lines into service, use PURGE TEST, and for purging lines out of service with air, use the normal work display WITHOUT the dilution tube assembly.

TO CONDUCT AN INERT PURGE:

1. A purge probe is recommended for use while in this mode to prevent over-pressurization and damage to the instrument. Attach the purge or flange purge probe to the fitting on end of the gooseneck and perform a flow block check by blocking the inlet(s) of the probe. Within 10 seconds, FLOW BLOCKED should be shown on the display.

   TIP: a latex glove works well to cover the holes and the end of the probe for this test.

   NOTE: This ensures all seals are intact and there are no air leaks in the probe or instrument, which is critical for accurate readings. If flow block is not detected, check the integrity of the O-ring seals and connections on the probe and instrument. If flow block cannot be achieved, contact the factory for assistance.

2. From the work display, press and release the B button to enter the QUICK MENU.

3. Press and release the C button until INERT MODE is shown.

4. Press and release the B button to enter INERT MODE. A message will be displayed reminding you to attach hardware if needed.

   NOTE: If the purge probe cannot be used because of application restrictions, the tubing with the dilution tube assembly (no purge probe) can be used for sampling. The tubing must be vinyl and the flow must be restricted to 0.3 lpm – 0.5 lpm (liters per minute) at the point of sampling. If the point of sampling is not correctly restricted, it risks damaging the instrument, and the dilution tube will not be able to be adjusted properly to allow the correct level of oxygen.

5. Press and release the B button to start the inert purge. The display will show a percent LEL reading (by default) for the combustible gas type selected and a percent volume reading for oxygen.

6. Insert the purge probe into the gas stream and allow the sample to be drawn for a minimum of 1 minute.

7. Adjust the needle valve counterclockwise to induce oxygen and clockwise to restrict oxygen. Mix between 8.0% and 9.0%VOL of oxygen with the sample being drawn from the pipe.

8. Following federal, state, municipal, and/or company procedures, purge the line until the desired gas reading is displayed. Be sure to maintain between 8.0% and 9.0%VOL O2.

9. To exit INERT MODE, press and release the [A] button once to return to the Quick Menu, and twice to return to the normal work display.

USER MENU

The **SENSIT GOLD G3** has a user-accessible menu that is used for user-level tasks such as changing the combustible gas type, performing a manual calibration, viewing logs, etc. There is a detailed section for each in the following pages, as well as any applicable instructions for using these options. Any options that are not available by default are listed as such (for example, a log for a non-default test mode).

Other non-user adjustable settings are in the password protected Expert Menu.

To access the USER MENU from the work display, press and hold the [B] button until the clicking stops and USER MENU is shown near the top of the display. While in this menu, the buttons have the following functions:

the [A] button will exit to the work display

the [B] button will select the currently shown option

the [C] button will scroll through each menu option

SET TIME

STANDARD FEATURE

The SET TIME option allows the user to adjust the clock time saved in the **SENSIT GOLD G3**'s internal memory. The internal RTC (real time clock) normally keeps this time very accurate, but it may need to be adjusted occasionally over a long period of time. Additionally, there are two ways in which the instrument time can be automatically updated so that this adjustment is never needed:

1. **SENSIT GOLD G3** instruments with GPS installed have the option to have the clock time be automatically updated via GPS signal (time is received along with location information). The GPS CLOCK MODE setting in the Expert Menu controls this.

2. When a **SENSIT GOLD G3** communicates with a SMART-CAL 360 calibration station (e.g. for calibration or bump testing), the internal clock is automatically updated and synchronized with the station clock. This is not optional and happens with every communication, to avoid issues with instruments in the same fleet having mismatched clocks and inaccurate calibration/bump records.

TO VIEW OR ADJUST TIME:

1. To access the SET TIME menu from the work display, press and hold the [B] button until USER MENU is shown near the top of the display. The first option in the User Menu, SET TIME, will be shown. The currently saved instrument time will be displayed while viewing this menu option. If an adjustment needs to be made, follow the instruction below.

2. If the hour position needs to be adjusted:

    a. Press and release the [B] button to select the SET TIME menu. The hour position will be flashing.

    b. Press and release the [B] button to select, and then use the [B] and [C] buttons to adjust

the number down or up.

c. When correct, press and release the [A] button to return to the User Menu. The setting will no longer be flashing.

3. If the minute position needs to be adjusted:

   a. Press and release the [B] button to select the SET TIME menu, and then press and release the [C] button. The minute position will be flashing.

   b. Press and release the [B] button to select, and then use the [B] and [C] buttons to adjust the number down or up.

   c. When correct, press and release the [A] button to return to the User Menu. The setting will no longer be flashing.

4. When the time is correct, press and release the [A] button to return to the work display.

SET DATE

STANDARD FEATURE

The SET DATE option allows the user to adjust the clock date saved in the **SENSIT GOLD G3**'s internal memory. The internal RTC (real time clock) normally keeps this date very accurate, but it may need to be adjusted occasionally over a long period of time. Additionally, there are two ways in which the clock date can be automatically updated so that this adjustment is never needed:

1. **SENSIT GOLD G3** instruments with GPS installed have the option to have the clock date be automatically updated via GPS signal (date is received along with location information). The GPS CLOCK MODE setting in the Expert Menu controls this.

2. When a **SENSIT GOLD G3** communicates with a SMART-CAL 360 calibration station (e.g. for calibration or bump testing), the internal clock is automatically updated and synchronized with the station clock. This is not optional and happens with every communication, to avoid issues with instruments in the same fleet having mismatched clocks.

TO VIEW OR ADJUST DATE:

1. To access the SET DATE menu from the work display, press and hold the [B] button until the clicking stops and USER MENU is shown near the top of the display.

2. Press and release the [C] button until SET DATE is shown. The currently saved instrument date will be displayed while viewing this menu option. If an adjustment needs to be made, follow the instruction below.

3. Press and release the [B] button to select the SET DATE menu. The MONTH option will be shown.

4. Pressing and releasing the [C] button will scroll through DAY, MONTH, and YEAR. To make an adjustment to one of these, press and release the [B] button. The setting will be flashing.

5. Use the [B] and [C] buttons to adjust the number down or up.

6. When correct, press and release the [A] button to return to the SET DATE menu. If another adjustment is needed, repeat steps 4 & 5.

7. When the date is correct, press and release the [A] button to return to the User Menu. Press and release the [A] button again to return to the work display.

TIME ZONE

STANDARD FEATURE

The TIME ZONE option allows the user to adjust the clock time zone saved in the **SENSIT GOLD G3**'s internal memory. The time zone is an offset from GMT/UTC+0. This may only need to be set once, and can be done at the factory per the instrument setup, but may need to be adjusted if:

(1) an instrument moves to a new location that is in another time zone, or

(2) an instrument is being used in an area that observes daylight savings.

If you are located in the U.S., you can find your UTC time zone by visiting https://www.time.gov/.

TO VIEW OR ADJUST TIME ZONE:

1. To access the TIME ZONE menu from the work display, press and hold the [B] button until the clicking stops and USER MENU is shown near the top of the display.

2. Press and release the [C] button until TIME ZONE is shown. The currently saved instrument time zone will be displayed while viewing this menu option. If an adjustment needs to be made, follow the instruction below.

3. Press and release the [B] button to select the TIME ZONE menu. The HOURS option will be shown.

4. Pressing and releasing the [C] button will scroll between HOURS and MINUTES. To make an adjustment to one of these, press and release the [B] button. The setting will be flashing.

   NOTE: Domestically in the U.S., we do not use the "minutes" category, so you can leave that set to "0".

5. Use the [B] and [C] buttons to adjust the number down or up.

6. When correct, press and release the [A] button to return to the TIME ZONE menu. If another adjustment is needed, repeat steps 4 & 5.

7. When the date is correct, press and release the [A] button to return to the User Menu. Press and release the [A] button again to return to the work display.

GPS

OPTIONAL FEATURE

The **SENSIT GOLD G3** has the option to have a GPS module installed, to add location information to the data logging system. If this is installed and enabled, an icon will be shown on the work display and in various other screens and modes, showing the user the status of GPS:

- A "reverse contrast" GPS symbol, meaning light colored text surrounded by a dark box, means that the **G3** currently does not have a GPS signal.
- A normal contrast GPS symbol, meaning dark colored text with no surrounding box, means that the **G3** currently does have a valid GPS signal.

The user can rely on this symbol to accurately know if a valid GPS signal has been acquired. If more information is needed (such as viewing the actual coordinates), follow the instructions below.

TO VIEW GPS INFORMATION:

1. To access the GPS menu from the work display, press and hold the [B] button until the clicking stops and USER MENU is shown near the top of the display.

2. Press and release the [C] button until GPS is shown. If a GPS signal has been acquired, various information will be shown, including the current latitude and longitude coordinates, the number of satellites acquired, and the current quality of the signal (e.g. "excellent").

3. Press and release the [A] button to return to the work display.

BUMP TEST

STANDARD FEATURE

The BUMP TEST feature is a semi-automated response test for all sensors installed in the **SENSIT GOLD G3**, using calibration gas. This can be done simply by applying gas to the instrument while on the work display, but using the BUMP TEST feature ensures the test is consistently timed and gives the operator a clear pass or fail message for each sensor. The **G3** requires the response for each sensor be at least 80% of the calibration gas value within a specified time for a successful bump test.

THE GAS CONCENTRATIONS NEEDED FOR EACH SENSOR ARE:

Combustible (EX) LEL sensor: 2.5%VOL methane (CH4), air balance

Carbon Monoxide (CO) sensor: 100ppm CO, air balance

Oxygen (O2) sensor: N/A (Not part of the bump test process. To test the O2 sensor response, see the O2 TEST section.)

Hydrogen Sulfide (H2S) sensor: 25ppm H2S, air balance

Hydrogen Cyanide (HCN) sensor: 10ppm HCN, nitrogen balance

TO PERFORM A BUMP TEST:

1. Power on the **SENSIT GOLD G3** and allow it to warmup and arrive at the work display.

2. Prepare the calibration/bump gas necessary based on the sensor configuration of your instrument and the list above.

3. From the work display, press and hold the [B] button until USER MENU is shown near the top of the display.

4. Press and release the [C] button until BUMP TEST is shown.

5. Press and release the [B] button to select and enter the BUMP TEST menu. The applicable sensor to be tested will be shown with the appropriate concentration of gas to attach, and a countdown timer will begin.

6. Attach the gas shown on-screen. A passed or failed message will be shown after the test is complete, and the next gas will be shown.

   NOTE: If the timer shown on-screen expires before the test passes, a fail message will be shown. Double-check there are no issues with the gas supply and re-calibrate any sensor that cannot successfully pass a bump test.

7. Repeat step 6 for all sensors, until the results screen is shown.

8. Press and release the [A] button once to return to the user menu, or twice to return to the work display.

SMART SENSOR

STANDARD FEATURE

With the release of the **SENSIT GOLD G3**, new "smart" sensor technology was introduced for any electrochemical sensors installed (CO, O2, H2S, or HCN). Each of these sensors is paired with a circuit board that intelligently monitors the sensor output and records the most recent calibration data.
There is an option in the USER MENU to view Smart-Sensor information. The operator does not need to use this menu option to activate any features of the sensor, it is there for information purposes only. Currently, only the serial number of each sensor is shown.

TO VIEW SMART SENSOR INFORMATION:

1. From the work display, press and hold the [B] button until USER MENU is shown near the top of the display.
2. Press and release the [C] button until SMART SENSOR is shown.
3. Press and release the [B] button to select and enter the SMART SENSOR menu.
4. The Smart Sensor information will be shown on screen.
5. Press and release the [A] button once to return to the USER MENU, or twice to return to the work display.

CALIBRATION

STANDARD FEATURE

For information and instructions on calibrating your **G3**, by any method, see the separate CALIBRATION section in this manual.

CAL LOG

STANDARD FEATURE

The **SENSIT GOLD G3** stores every calibration in a log on the internal memory of the instrument. Both successful and unsuccessful attempts are recorded. When the log memory is full, the oldest record will be overwritten. In the User Menu, there is a calibration log that shows the user date of the last successful calibration for each sensor.

For a complete view of all calibration data stored on the instrument, the user of Smart-Link 360 software is required.

TO VIEW THE CALIBRATION LOG:

1. From the work display, press and hold the [B] button until USER MENU is shown near the top of the display.
2. Press and release the [C] button until CAL LOG is shown. You do not need to select or enter to view the log, it is shown directly from the User Menu.
3. Press and release the [A] button once to return to the work display.

O2 TEST

STANDARD FEATURE, WHEN EQUIPPED WITH OXYGEN (O2) SENSOR

The O2 Test is a function test of the oxygen (O2) sensor, to ensure it is depleting properly when a gas without oxygen is applied. Since the O2 IS self-calibrating during Autozero and does not have a separate calibration procedure like other sensors do, this test is provided so that proper operation can be verified. This test is done automatically when manually calibrating with the "Autocal" option, or when calibrating using the SMART-CAL 360, but otherwise is left up to the user's discretion on when to perform the test manually.

TO PERFORM A MANUAL O2 TEST:

1. Prepare the necessary calibration or bump test gas (e.g. 100%VOL methane, 100%VOL propane, or 100%VOL nitrogen).

2. From the work display, press and hold the [B] button until USER MENU is shown near the top of the display.

3. Press and release the [C] button until O2 TEST is shown.

4. Press and release the [B] button to start the test and immediately apply the prepared gas to the instrument. O2 reading will be shown and a 20 second countdown timer will begin. If the sensor shows proper depletion within this period, PASSED will be shown on the display. If the sensor does not respond properly, FAILED will be shown.

   If the O2 Test fails, attempt the test again. If the O2 test still does not pass, remove the instrument from service and contact the factory for assistance.

5. Press and release the [A] button once to return to the User Menu, or twice to return to the work display.

LED BRIGHTNESS

STANDARD FEATURE

The **SENSIT GOLD G3** allows the user to adjust the brightness level of the LED dome. This is done in the user menu and provides 2 brightness level options: low andand high (default). HIGH is typically a good option if the instrument will be used both indoors and outdoors. However, the operator may find it necessary to decrease the brightness.

TO ADJUST THE LED BRIGHTNESS:

1. Press and hold the [B] button from the work display until USER MENU is shown near the top of the display.

2. Press and release the [C] button until LED BRIGHTNESS is shown. The currently selected option will be displayed.

3. Press and release the [B] button to toggle between the options and adjust the dome brightness as desired: LOWand HIGH.

4. When the desired brightness level is shown, press and release the [A] button to return to the work display.

BAR HOLE LOG

OPTIONAL FEATURE

Any time a BAR HOLE test is performed using the **SENSIT GOLD G3**, a log of that test is automatically saved in the internal memory of the instrument. When the log memory is full, the oldest record will be overwritten.

For information on how to perform a BAR HOLE TEST, see that section in this manual.

The bar hole log can be viewed in the User Menu. To view the log more easily and obtain a permanent digital record of them, use Smart-Link 360 software.

TO VIEW THE BAR HOLE LOG:

1. From the work display, press and hold the [B] button until USER MENU is shown near the top of the display.

2. Press and release the [C] button until BAR HOLE LOG is shown. If you do not see this option in the user menu, it may be disabled per the factory configuration of your instrument. Contact **SENSIT Technologies** for assistance.

3. Press and release the [B] button to select and enter the BAR HOLE LOG menu.

   The most recent record will be displayed. The top of the screen will list "Record __" with the record number. Each record contains the date/time of the BAR HOLE test and sensor outputs at that time. GPS information will also be shown, if installed and enabled.

4. To go to the previous record, press and release the [C] button. To go the next record, press and release the [B] button.

5. Press and release the [A] button once to return to the User Menu, or twice to return to the work display.

CO LOG

OPTIONAL FEATURE

Any time a CO TEST is performed using the **SENSIT GOLD G3**, a log of that test is automatically saved in the internal memory of the instrument. When the log memory is full, the oldest record will be overwritten.

For information on how to perform a CO TEST, see that section in this manual.

The CO test log can be viewed in the User Menu. To view the log more easily, and obtain a permanent digital record of them, use Smart-Link 360 software.

TO VIEW THE CO LOG:

1. From the work display, press and hold the [B] button until USER MENU is shown near the top of the display.

2. Press and release the [C] button until CO LOG is shown. If you do not see this option in the user menu, it may be disabled per the factory configuration of your instrument. Contact **SENSIT Technologies** for assistance.

3. Press and release the [B] button to select and enter the CO LOG menu.

The most recent record will be displayed. The top of the screen will list "Record __" with the record number. Each record contains the date/time of the CO Test and sensor outputs at that time. GPS information will also be shown, if installed and enabled.

4. To go to the previous record, press and release the C button. To go the next record, press and release the B button.

5. Press and release the A button once to return to the User Menu, or twice to return to the work display.

SMART-LINK

SMART-LINK 360 SOFTWARE SOLD SEPARATELY

The **SENSIT GOLD G3** is compatible with SMART-LINK 360 software. This software package allows the user to download the logs out of the **G3** via a Bluetooth connection.

This section shows how to enable SMART-LINK mode on the **G3**. For further information and instructions on Smart-Link 360 software, consult the help menu within the software or contact **SENSIT Technologies**.

TO ENABLE SMART-LINK MODE:

1. From the work display, press and hold the B button until USER MENU is shown near the top of the display.

2. Press and release the C button until SMART LINK is shown.

3. Press and release the B button. SMART CAL ENABLED will be displayed. The instrument is now ready for communication.

   NOTE: You may see a brief "wait" message while Smart-Link mode is being enabled. Within a couple seconds, you should see the "enabled" message.

4. When you are done using Smart-Link mode, press and release the A button to return to the work display.

NEXT DUE

STANDARD FEATURE

The CALIBRATION NEXT DUE menu displays the next due date for calibration for all sensor installed in the **SENSIT GOLD G3**. This screen is displayed during startup. Both the next due date and the days remaining until that date will be displayed for each sensor.

TO VIEW THE NEXT DUE DATE(S):

1. From the work display, press and hold the B button until USER MENU is shown near the top of the display.

2. Press and release the C button until CALIBRATION NEXT DUE is shown near the top of the display. The next due date and days remaining until that date will be shown for each installed sensor.

3. Press and release the A button to return to the work display.

BARHOLE PURGE THRESHOLD

STANDARD FEATURE

After a BAR HOLE TEST is performed using the **SENSIT GOLD G3**, a built-in purge option lets the user automatically purge the instrument of gas before another test is done. By default, this purge requires that the real time reading on-screen reaches 0.0%VOL to be successful before another BAR HOLE TEST can be performed.

At the operator's option, this threshold can be raised from 0.0%, up to a maximum of 9.0%, if it is deemed that it isn't necessary to completely purge the instrument between tests.

TO ADJUST THE BAR HOLE PURGE THRESHOLD:

1. From the work display, press and hold the [B] button until USER MENU is shown near the top of the display.
2. Press and release the [C] button until BAR HOLE PURGE THRESHOLD is shown.
3. Press and release the [B] button to select and enter the BAR HOLE PURGE THRESHOLD menu. The currently saved setting will be displayed (0.0% by default).
4. To increase the setting, press and release the [C] button. To decrease the setting, press and release the [B] button.
5. Once the setting is at the desired number, press and release the [A] button once to return to the USER MENU or twice to return to the work display.

CO PURGE THRESHOLD

OPTIONAL FEATURE

After a CO TEST is performed using the **SENSIT GOLD G3**, a built-in purge option lets the user automatically purge the instrument of gas before another test is performed. By default, this purge requires that the real time reading on-screen reaches 0 PPM to be successful, before another CO TEST can be done.

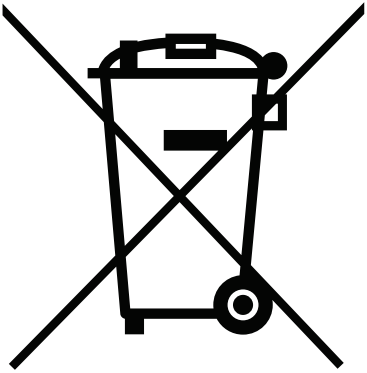
At the operator's option, this threshold can be raised from 0, up to a maximum of 10PPM, if it is deemed that it isn't necessary to completely purge the instrument.

TO ADJUST THE CO PURGE THRESHOLD:

1. From the work display, press and hold the [B] button until USER MENU is shown near the top of the display.
2. Press and release the [C] button until CO PURGE THRESHOLD is shown.
3. Press and release the [B] button to select and enter the CO PURGE THRESHOLD menu. The currently saved setting will be displayed (0 PPM by default).
4. To increase the setting, press and release the [C] button. To decrease the setting, press and release the [B] button.
5. Once the setting is at the desired number, press and release the [A] button once to return to the USER MENU or twice to return to the work display.

NOTES

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

Your **SENSIT GOLD G3** is warranted to be free from defects in materials and workmanship for a period of two years after purchase (excluding 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. Proof of purchase may be required before warranty is rendered. Units out of warranty will be repaired for a service charge. Internal repair or 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.

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

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SENSIT

MADE IN THE USA
WITH GLOBALLY SOURCED COMPONENTS

SENSIT® G3 Instruction Manual (English)
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