

## WARRANTY

Your **TRAK-IT®IIIa** is warranted to be free from defects in materials and workmanship for a period of two years after purchase (excluding calibration and batteries). The circuit board and percent gas sensor (TC) are warranted for 5 years. 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.

**SENSIT Technologies**  
851 Transport Drive  
Valparaiso, IN 46383

**MADE IN USA**

## TRAK-IT IIIa

### INSTRUCTION MANUAL

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

Read and understand instructions before use

Approved C22.2 No. 152 and C22.2 No. 157  
Intrinsically safe for use in  
CL I, Div. 1, Groups C & D  
T4, IP20 when used with  
Duracell MN1400 batteries

UL 913 Class I, Div 1  
Groups C and D  
Hazardous Locations T4  
IP20



**⚠ Warning:**

To prevent the risk of ignition of flammable atmospheres, batteries must only be changed in an area known to be non-hazardous.

**⚠ Warning:**

To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.

Do not mix batteries of different age or type.



**Warning:** Substitution of components may impair intrinsic safety.

Not for use in atmosphere of oxygen greater than 21%



**Warning:**

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

**CAUTION:** Lithium backup cell may explode if mistreated. Do not recharge, disassemble or dispose of in fire.



GAS DETECTOR  
for use in hazardous locations  
only as to intrinsic safety



**CAUTION:** Before each day's usage sensitivity must be tested on a known concentration of methane gas equal to 25-50% of full scale LEL concentration. Accuracy may be corrected by following calibration procedure.

**POUR L'ATTENTION DU CANADA:** Avant que La sensibilité de l'utilisation de chaque jour doive être examinée sur une concentration connue du gaz de méthane égale à 25-50% de concentration complète de LEL l'exactitude peut être corrigée par procédé suivant de calibrage.

LEL sensor poisoning may occur after exposure to gases that contain silicone, lead, halogens and sulfur. If exposure has occurred or may be suspected the instrument should be tested for proper operation (see Calibration Check).

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#### **LEL Cross Sensitivity Calculation Chart.**

When sensing other gases the methane calibrated reading may be lower than the actual LEL of the gas sensed.

For example 100% LEL of propane will only display as 70% LEL. The chart below shows the relative reading if exposed to 50% LEL of the most common gases this instrument may be used to detect.

50%LEL Propane = 35%  
50%LEL Hexane = 22.5%  
50%LEL Toluene = 22.5%  
50%LEL Ethanol = 35%  
50%LEL Isopropyl Alcohol = 30%

50%LEL Butane= 35%  
50%LEL Pentane = 25%  
50%LELMethanol = 50%  
50%LEL MEK = 25%



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

**NOTICE:** LEL sensor should be checked for accuracy after exposure to any gases containing silicones, high sulfur content, high concentrations of propane and high concentrations of CO (above 1000ppm) or exhaust gases. Continuously low calibration check results or fluctuation of zero readings may indicate sensor end of life or failure. Consult SENSIT Technologies with any questions.

For best accuracy always zero in clean air environments similar in temperature and relative humidity to the environment where the instrument will be used.

It is recommended that the unit be auto-zeroed after exposure to any gas concentrations beyond 100% LEL.

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

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

Do not mix batteries of different age or type.

Ne mélangez pas les batteries de l'âge ou du type différent.

Not for use in atmospheres of oxygen greater than 21%.

Pas pour l'usage en atmosphères de l'oxygène 21% plus grand que.

**ONLY** zero instrument in a gas free environment.

**SEULEMENT** l'instrument zéro dans un gas libèrent l'environnement.

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

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

**ONLY** the combustible gas detection portion of this instrument has been assessed for performance.

**SEULEMENT** la partie combustible de détection de gaz de cet instrument a été évaluée pour l'exécution

## EXPERT USER FEATURE CHART

| FEATURE          | SETTINGS                      | DEFAULT        |
|------------------|-------------------------------|----------------|
| CONTRAST         | 0-63                          | 30             |
| % LEL MODE       | ON / OFF                      | ON             |
| N COMP           | ON / OFF                      | OFF            |
| AUTO BUMP        | 0-30                          | 0              |
| MUTE LATCH       | ON / OFF                      | OFF            |
| ERASE LOG        | ERASE ALL SESSIONS LOG        | PASSWORD "RED" |
| CAL RQD          | 0-60                          | 0              |
| CAL DUE REMINDER | 30, 45, 60, 90, 180, 360 DAYS | 30             |
| DUE ACK          | ON / OFF                      | OFF            |
| PRO CAL 100%     | ON / OFF                      | OFF            |
| N2 FOR O2        | ON / OFF                      | OFF            |
| SHOW SES LOG     | ON / OFF                      | ON             |
| SHOW BH LOG      | ON / OFF                      | OFF            |
| SHOW CF/CO LOG   | ON / OFF                      | OFF            |
| SHOW AUTO LOG    | ON / OFF                      | OFF            |
| ALARM SETTINGS:  |                               |                |
| • LOW O2         | 17.5 - 20.5                   | 19.5           |
| • HIGH O2        | 21.5 - 23.5                   | 23.5           |
| • CO             | 5-300                         | 35             |
| • H2S*           | 2 - 30                        | 10             |
| • HCN*           | 2 - 20                        | 5              |
| • LEL            | 1.0 - 99.0                    | 50.0           |
| • NAT            | 5.0 - 100.0                   | 17.0           |
| • PRO            | 2.0 - 100.0                   | 12.0           |
| PRO GAS TYPE     | ON / OFF                      | OFF            |
| LOW LED          | 0.1-9.9LEL                    | 5%LEL          |
| POWER OFF        | 0-480 MIN.                    | 60 MIN.        |
| PURGE TIME       | 0-120 SEC.                    | 0 SEC.         |
| BH TIME          | 5 - 120 SEC.                  | 45 SEC.        |
| CO TIME          | 0-300 SEC.                    | 180 SEC.       |
| ERASE AUTO       | ERASE AUTO LOG ONLY           | PASSWORD RQD.  |
| NG FACTOR        | 50-100                        | 100            |
| NSR              | OFF                           | ON             |
| NSC              | OFF                           | ON             |
| • NSC LEL        | 1.0-50.0                      | 2.0            |

\* OPTIONAL

Apply proper gas and press & release the MENU/BH TEST BUTTON (B) to start the test. A 20 second countdown will begin. If the sensor shows proper depletion within this period, PASSED will flash on the display. Press & release the POWER/MUTE BUTTON (A) to return to the working display.

If the O<sub>2</sub> sensor does not respond properly within the 20 second test, FAILED will appear on the display.

Consult the factory in the event of any failure. Press & release the POWER/MUTE BUTTON (A) to return to the working display.

**NOTE: A calibration failure is indicated on the display by BAD CAL. Re-calibration should be attempted. Any instrument that does not accept calibration should be taken out of service. Please contact SENSIT TECHNOLOGIES for any needed repairs.**

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**NOTICE**  
 **CAUTION**

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

## **PARTS AND ACCESSORIES**

### **Standard Accessories (included)**

Carrying Pouch  
Fiberglass Bar-Hole Probe with Filter  
External Water Filter  
Alkaline "C" Batteries  
Reference Card  
Instruction Manual

### **Accessories and Replacement Parts**

873-00018 Hydrocarbon Filter (6)  
873-00020 External Filter Assembly  
883-00045 Hot Air Probe Assembly  
883-00039 32" Brass Bar Hole Probe with Filter  
(PJN0110 replacement Sensor cap w/ O ring, filter)  
883-00037 Probe adapter  
883-00015 Confined Space Probe with Tubing  
870-00004 Printer (to be used only in non-hazardous locations)  
873-00005 Dirt and Water Filter Assembly  
Calibration Kits - Contact us with instrument model number for correct Calibration Kit.

## GENERAL DESCRIPTION

The **TRAK-IT®IIIa** is designed to detect combustible gases in the LEL range (percent volume optionally). Additionally and optionally oxygen and two toxic sensors may be added to meet your sensing requirements. Toxic sensor configurations include carbon monoxide, hydrogen sulfide or hydrogen cyanide.

All **TRAK-IT®IIIa** instruments incorporate a low power catalytic sensor to measure combustible gases in the LEL (lower explosive limit) range and a separate advanced thermal conductivity sensor to measure percent volume (%v/v).

An automatically backlit display shows gas concentrations for all sensors installed. A LED and audible horn indicate exceeding the present alarm limits. Sampling is continuous with the use of the internal sample pump.

Audible and visual alarms warn the operator of hazardous conditions being sensed. The preset alarms are indicated by a red flashing LED, display indicator and alarm sound. The combustible gas alarm is preset at 10% for LEL only models. When equipped with percent volume (%v) sensor, the alarm range is 50% (2.5% methane) to 17% volume of methane.

The carbon monoxide (CO) alarm is preset at 35ppm. The oxygen (O<sub>2</sub>) alarms are preset at below 19.5% and above 23.5%. The hydrogen sulfide (H<sub>2</sub>S) alarm is preset at 10ppm. The hydrogen cyanide (HCN) is preset at 4.7 ppm.

The **TRAK-IT®IIIa** is approved by Underwriters Laboratories to C22.2 No. 152 and C22.2 No. 157 for Class I, Division 1, Groups C and D, T4, and UL 913 for Class I, Division 1, Groups C and D hazardous locations when used with approved batteries.

## CALIBRATION *continued from page 34*

### COMBUSTIBLE GAS CALIBRATION (1.1% PROPANE or 50% LEL PROPANE)

From the working display press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) until the bottom line reads CAL. Press & release the MENU/BH TEST BUTTON (B) once. The bottom line will read CO 100PPM.

Press & release the SAVE/ZERO BUTTON (C) to scroll until the bottom line reads PROPANE. Apply 1.1% propane (50% LEL propane) to the instrument. Immediately press & release the MENU/BH TEST BUTTON (B) to start propane calibration.

When the reading is satisfactory, the display will flash DATA SAVED indicating that calibration is complete for that sensor. The date for CAL PAST DUE is automatically reset for that sensor as well. Scroll with the SAVE/ZERO BUTTON (C) if you need to calibrate another sensor. When finished, remove and shut off the gas supply. Press & release the POWER/MUTE BUTTON (A) to return to the working display.

### OXYGEN SENSOR TEST

To determine if the O<sub>2</sub> sensor is working properly, verify the sensors reaction by exposing it to a calibration gas void of oxygen, such as 100% methane or 100% nitrogen.

From the working display press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Scroll with SAVE/ZERO BUTTON (C) until the bottom line reads O<sub>2</sub> TEST.

Scroll with the SAVE/ZERO BUTTON (C) if you need to calibrate another sensor. When finished, remove and shut off the gas supply. Press & release the POWER/MUTE BUTTON (A) to return to the working display.

### COMBUSTIBLE GAS CALIBRATION (100% METHANE)

**NOTE:** After calibration of 100% Methane, it is recommended to auto-zero the unit before use.

From the working display press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) until the bottom line reads CAL. Press & release the MENU/BH TEST BUTTON (B) once, the bottom line will read CO 100ppm.

Press & release SAVE/ZERO BUTTON (C) to scroll until the bottom line reads METHANE 100%. Apply 100% methane to the instrument. Immediately press & release the MENU/BH TEST BUTTON (B) to start 100% methane calibration.

When the reading is satisfactory, the display will flash DATA SAVED indicating that calibration is complete for that sensor. The date for CAL PAST DUE is automatically reset for that sensor as well.

Scroll with the SAVE/ZERO BUTTON (C) if you need to calibrate another sensor. When finished, remove and shut off the gas supply. Press & release the POWER/MUTE BUTTON (A) to return to the working display.

| TYPE             | SENSOR SPECIFICATIONS |              |                |
|------------------|-----------------------|--------------|----------------|
|                  | RESOLUTION            | RANGE        | ACCURACY       |
| PPM*             | 50ppm                 | 0-2,000ppm   | ±10%           |
| LEL              | 0.1%** up to 2%       | 0-100% LEL   | ±10%           |
| % NAT GAS        | 0.1%                  | 5.0-100% GAS | ±5%            |
| O <sub>2</sub>   | 0.1%                  | 0-25%        | ±0.2% or 2%*** |
| CO               | 1ppm                  | 0-2000ppm    | ±5ppm or 5%*** |
| H <sub>2</sub> S | 1ppm                  | 0-100ppm     | ±2ppm or 5%*** |
| HCN              | 1ppm                  | 0-30ppm      | ±2ppm or 5%*** |

\*PPM Optional

\*\* % gas only display has 0.01% resolution in LEL range

\*\*\* Whichever is greater

### PRODUCT SPECIFICATIONS

|                   |                                       |
|-------------------|---------------------------------------|
| Size:             | 6.5" x 4" x 4.25" (167 x 109 x 102mm) |
| Weight:           | 2.8 lbs. (1.27Kg)                     |
| Operational Temp: | -4 to 104° F (-20° to 40° C)          |
| Storage Temp:     | -22 to 131° F (-30° to 55° C)         |
| Alarm             | ≥98db @ 30cm                          |
| Battery Life:     | 4 "C" Alkaline: 25 hrs. continuous    |

## PRODUCT FEATURES



**TRAK-IT®IIIa** instruments are constructed of durable stainless steel to withstand the rigors of field use.

All **TRAK-IT®IIIa** instruments require 4 *Duracell MN 1400* batteries which provide 25+ hours of continuous use.

Alarms can easily be heard from the sounder located on the front of the instrument.

\*NOTE: The following items are not covered by the UL Certification: Neck Strap, Padded Carry Pouch, Filterd Probe Connector, Probe Assembly and Printer.

## CALIBRATION *continued from page 32*

Apply 25ppm H<sub>2</sub>S/AIR to the instrument and press & release the MENU/BH TEST BUTTON (B) to start H<sub>2</sub>S calibration.

When the reading is satisfactory, the display will flash DATA SAVED indicating that calibration is complete for that sensor. The date for CAL PAST DUE is automatically reset for that sensor as well.

Scroll with the SAVE/ZERO BUTTON (C) if you need to calibrate another sensor. When finished, remove and shut off the gas supply. Press & release the POWER/MUTE BUTTON (A) to return to the working display.

### COMBUSTIBLE GAS CALIBRATION (50% LEL METHANE)

From the working display press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) until the bottom line reads CAL.

Press & release the MENU/BH TEST BUTTON (B) once, the bottom line will read CO/100 ppm. Press & release the SAVE/ZERO BUTTON (C) twice. The bottom line will read 50% LEL NAT. Apply 50%LEL methane/air calibration gas and press & release the MENU/BH TEST BUTTON (B) to start 50% LEL calibration.

When readings stabilize, the display will read DATA SAVED indicating calibration is complete for that sensor. The date for CAL PAST DUE is automatically reset for that sensor as well.

*(Continued on page 34)*

**CARBON MONOXIDE (CO) CALIBRATION (100PPM CO/AIR)**

From the working display press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) until the bottom line reads CAL.

Press & release the MENU/BH TEST BUTTON (B) once. The bottom line will read CO 100ppm. Apply 100ppm CO/Air calibration gas and press & release the MENU/BH TEST BUTTON (B) to start CO calibration.

When the reading is satisfactory, the display will flash DATA SAVED indicating that calibration is complete for that sensor. The date for CAL PAST DUE is automatically reset for that sensor as well.

Scroll with the SAVE/ZERO BUTTON (C) if you need to calibrate another sensor. When finished, remove and shut off the gas supply. Press & release the POWER/MUTE BUTTON (A) to return to the working display.

**HYDROGEN SULFIDE (H2S) CALIBRATION (H2S 25 PPM)**

From the working display press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) until the bottom line reads CAL.

Press & release the MENU/BH TEST BUTTON (B) once. The bottom line will read CO/100 PPM. Press & release the SAVE/ZERO BUTTON (C) until the bottom line reads H2S 25ppm.

An **infrared communication window** is located on the right side to allow the **TRAK-IT@IIIa** instruments to download calibration data and readings the operator has elected to save to the instrument's on-board memory.

A **graphic display** continuously updates the operator of all available gas concentrations and alarms simultaneously as well as indicates internal functions such as air flow and battery power. The red LED on the right side will flash during any alarm condition.

There are **3 operational button pads** on the front of the **TRAK-IT@IIIa**.

- **POWER/MUTE BUTTON:** Displaying *power* and *mute* features.
- **MENU/BH TEST BUTTON:** Accesses user functions such as Bar Hole Test and user selectable features: calibration viewing data, setting clock, etc.
- **ZERO/SAVE BUTTON:** Activates the **save** feature and performs a manual **zeroing** of the sensors.

Pressing any button will produce a click sound.

**Combustible Gas Sensor**

All **TRAK-IT@IIIa** instruments incorporate a poison resistant catalytic bead 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 50ppm up to 100%LEL. When so equipped concentrations above 70% LEL are monitored or measured simultaneously with a state-of-the-art thermal conductivity sensor (TC). This sensor is capable of measuring high concentrations of gas quickly and accurately. All readings are automatically switched between the scales of LEL and % volume.

**Electrochemical Sensors (optional)**

All **TRAK-IT@IIIa** instruments when equipped with the following optional sensors, microprocessor and associated circuitry will measure oxygen levels from 0-25%; measure carbon monoxide (CO) levels from 0-2000ppm; measure hydrogen sulfide (H<sub>2</sub>S) levels from 0-100ppm. All gases are displayed simultaneously on the display.

**The Pump**

The **TRAK-IT@IIIa** is equipped with a powerful and efficient 2 speed diaphragm pump. The filter assembly connected to the probe protects the pump from foreign material. Additional external and internal filters protect the pump from damaging debris if the primary filter is missing or damaged. There are audible and visual indicators that will show a blocked or improperly operating pump.

**These readings will update every 5 seconds during calibration.**

**AUTO CAL**

To calibrate, prepare all gases and regulators needed. Press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) until CAL is displayed. Press and release the TICK/MENU BUTTON (B) one time to show AUTO CAL.

Press the MENU/BH TEST BUTTON (B) and apply the gas shown on the display. There are 30 seconds to attach the gas before the instrument begins looking for the next gas to calibrate.

When the readings are satisfactory the display will show DATA SAVED and begin calibrating the next gas in sequence. If the gas is not sensed the instrument will go to the next gas in sequence. When finished remove and shut off the gas.

Use the POWER/MUTE BUTTON (A) to return to the working display. Calibration due date is automatically reset with a successful calibration.

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The following instructions pertain to manual calibration of the **TRAK-IT@IIIa**. If you are using the automatic Smart-Cal Calibration System, the procedure is different. See the Smart-Cal sections of this manual (page 35) or consult the Smart-Cal instruction manual for details.

Prepare the optional IR printer. The IR window is on the right side of the instrument. Aim the IR window at the printer. Press & release the MENU/BH TEST BUTTON (B) to print the CF test data.

Invalid test data will show as "N/A" for the peak CF level. Press & release the POWER/MUTE BUTTON (A) to return to the working display.

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## **CALIBRATION**

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### **Calibration**

Calibration is the process of setting the readings of the instrument to equal the value of certified calibration gases. Prior to calibration allow the instrument to operate for 5 minutes in a room environment free of combustible, CO and H<sub>2</sub>S gases.

Manually zero the instrument prior to beginning the calibration process.

**NOTE: Using calibration kits other than recommended by SENSIT TECHNOLOGIES may cause inaccurate readings. Repairs are required if any sensor fails to calibrate. Consult SENSIT TECHNOLOGIES for details.**

**NOTE: When calibrating, the numbers shown on the display represent the numbers seen by the microprocessor and should not be confused with actual gas readings.**

## **BATTERY INSTALLATION/REPLACEMENT**

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A battery strength indicator is located at the lower right corner of the display which indicates the approximate battery capacity. Battery replacement is necessary when the display reads **BAT LOW (4.25 Volts)**, an audible alarm sounds and the green ready LED flashes. When the instrument remains in **BAT LOW**, a count down will appear starting at 300 seconds (5 minutes) which is the maximum time remaining before shut down.



### **WARNING:**

**Always change batteries in a non-hazardous location.**

Remove the battery door from the bottom of the housing by loosening the hold down screw. Remove the cover by pulling the cover away from the two tabs that secure the opposite side of the door to the instrument.

Place 4 alkaline "C" *Duracell* MN 1400 batteries into the battery holder. Observe the polarity markings on the inside of the battery holder. Replace and secure the battery door by tightening the screw.

**⚠ CAUTION:** Always start any TRAK-IT®IIIa in a gas free environment to ensure a proper zero.

1. Push the POWER/MUTE BUTTON (A) until the instrument beeps and the display illuminates.

Each of the following will be displayed.

- a. Sensit Technologies Logo
- b. System check that includes:
  - i. LED check
  - ii. Backlight check
  - iii. Memory check
  - iv. Pump check
  - v. Battery check
  - vi. Microprocessor check
  - vii. Pressure sensor check
  - viii. Clock check
  - ix. Auto Log Check (alert at 50 records remaining before memory is full and overwrites)
- c. Display all active sensors
- d. Display "TRAK-IT®IIIa, Configuration Number and Software revision".
- e. Date and Time
- f. Gas Type (indicating type of calibration gas)
- g. Serial Number
- h. Cal Due (up coming) or Cal Past Due
- i. Sensor Warm Up and Please Wait
- j. Autozero (all gases and pressure sensor)
- k. Auto Bump Test (optional)
- l. Working display showing all gases sensed and battery power remaining

### To Show a CF Test

From the working display, press & hold MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) to scroll until the bottom line reads SHOW CF TEST.

Press & release the MENU/BH TEST BUTTON (B). CF TEST 1 will appear. This represents the most recent CF test data stored.

Press & release the SAVE/ZERO BUTTON (C) to scroll to the test number you wish to view. Press & release the MENU/BH TEST BUTTON (B) to view the day, month and time of that test.

Press & release the SAVE/ZERO BUTTON (C) again to view the readings of that test. Invalid test data will show as "N/A" for the peak CF level. Data from previous test can be viewed by scrolling with the SAVE/ZERO BUTTON (C). Press & release the POWER/MUTE BUTTON (A) to return to the work display.

### To Print a CF Test

From the working display, press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) until CO is displayed.

Press & release the MENU/BH TEST BUTTON (B) once to enter this menu. Press & release the SAVE/ZERO BUTTON (C) to scroll until the bottom line reads CF TEST.

level drops below 18.9%. At this point, conditions are acceptable for a valid test calculation.

**If this segment continues to flash during the test period, conditions for a proper test were not possible. In this case any test results are invalid. The display and printout will show N/A for the peak CF reading. The test should be repeated.**

During the test period, the detected ppm CO level will be displayed on the top line. Simultaneously, the calculated ppm CF reading and the calculated peak ppm CF level will be displayed on the bottom line.

If the proper condition for an accurate test existed, the detected CO level, calculated CF level and the peak CF level will remain on the display at the end of the test.

The CF readings are automatically recorded by the instrument and can be viewed at a later date. In addition, the peak CF reading will be stored for a printout report.

Press & release the MENU/BH TEST BUTTON (B) to repeat the test. Press & release the POWER/MUTE BUTTON (A) to return to the working display.

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

3. If any sensor is past the intended calibration cycle, CAL PAST DUE will appear during the start-up sequence. The instrument will also show which sensor is due for calibration at that time.

During "Autozero" all sensors will be displayed with the zeroing result (passed or failed). Pressing and holding any button will freeze the display screen during warm-up to allow extended viewing.

4. If after the warm-up period, the instrument determines that a sensor is inoperable, an ERROR message will flash for that sensor. Then FAIL will show on the display for the corresponding sensor. If this occurs press and hold the ZERO/SAVE (C) button until "Autozero" is displayed to attempt to correct the error.

5. The display will indicate the type of gas used for calibration or to be sensed and the unit of measure (i.e.: LEL, PPM, % VOL) below all readings.

See page 37 for optional configurations for the combustible gas detection display. If PPM display is selected, the measurement auto-ranges to LEL at levels above 2000ppm.

When equipped with the optional percent volume sensor, the measurement auto-ranges at 100% LEL.

The display will indicate by changing the unit of measure below the reading to "%v/v".

6. Prior to use, test the integrity of the sample system.

Use your finger to block the inlet of the probe assembly for 4-5 seconds. The display will read FLOW BLOCKED if all seals are intact. During pump flow block, a beep will occur every 2 seconds until the pump restarts and adequate flow is present.

7. It may be necessary to manually zero the instrument based on company practices and environmental conditions. Always zero the instrument in a clean air environment.

8. 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.

**⚠ CAUTION: Do not handle the steel portion of any hot air probe after use as burns may occur!**

9. When sampling areas the appropriate sensors will cause the display to update when a gas is encountered. Additionally, if a combustible gas is encountered a series of LEDs on the front of the instrument will illuminate 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.

## **CONDUCT / SHOW /PRINT CF TEST**

**Only available as an option for instruments with CO and O2 and the extended memory feature.**

### **To Conduct a CF Test**

**NOTE: The hot air flue probe must be used with the instrument when conducting this test to prevent damage to the instrument and to receive proper calculations.**

**IMPORTANT:** Air free CO levels or CF readings are calculated by the instrument based on CO and O2 levels detected during flue gas sampling of gas fired appliances.

From the working display, press & release MENU/BH TEST BUTTON (B) once, SELECT TEST will appear on the top line of the display. Press & release the SAVE/ZERO BUTTON (C) until CF is displayed. Press & release the MENU/BH TEST BUTTON (B) again and the instrument will auto-zero and then enter the CF test menu. Press & release the MENU/BH TEST BUTTON (B) once more to start the test.

**NOTE:** Using the SAVE/ZERO BUTTON (C) may advance you to another test option depending on the instrument version.

A 180 second timed test will begin. (The time for this test is factory adjustable.) A countdown timer will show the remaining seconds of the test. The peak CF reading will start to flash "OPK". It will continue to flash until 20 seconds after the oxygen

TEST 1 will appear. This represents the most recent CO test data stored.

Press & release the SAVE/ZERO BUTTON (C) to scroll to the test number you wish to view. Press & release the MENU/BH TEST BUTTON (B) to view the day, month and time of that test. Press & release the TICK/MENU BUTTON (B) again to view the data for that test.

Data from previous tests can be viewed by scrolling with the SAVE/ZERO BUTTON (C). Press & release the POWER/MUTE BUTTON (A) to return to the working display.

### **To Print a CO Test**

From the working display, press & hold MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) until PRINT is displayed. Press & release the MENU/BH TEST BUTTON (B) once. Press & release the SAVE/ZERO BUTTON (C) to scroll until the bottom line reads CO TEST.

Prepare the optional IR printer. The IR window is on the right side of the instrument. Aim the IR window at the printer. Press & release the MENU/BH TEST BUTTON (B) to print the data. The printout will include the test number, number 1 being the most recent, the date and time of that test and the peak ppm CO level detected during that test. Press & release the POWER/MUTE BUTTON (A) to return to the working display.

The standard factory preset LED indicators and alarm points are:

**a.** Combustible gas: Methane, audio and visual alarm indicators from 10% LEL to 100% LEL.

METHANE: 50% LEL Methane to 17% volume\* Methane (LED indicator only above 17% volume Methane)

*\*When equipped with percent volume sensor.*

**b.** Oxygen - below 19.5% and above 23.5%

**c.** Carbon Monoxide - 35ppm per utility industry standards

**d.** Hydrogen Sulfide - 10ppm and above per Federal OSHA guidelines

**⚠ Caution: There are gases that can poison or be cross sensitive to the combustible gas sensor. Contact Sensit Technologies for cross-sensitivity information or see the inside cover of this manual.**

**10.** To disable the alarm, quickly press the POWER/MUTE BUTTON (A). To enable the alarm press the same button again. During an alarm the gas that has exceeded the preset alarm point will flash on the display and the ALARM LED will flash indicating a potentially unsafe condition. If the alarm condition no longer exists, the alarm sound will automatically deactivate.

**11.** At any time the operator may save the readings on the display by pressing the ZERO/SAVE BUTTON (C). This will save all readings for download at a later time. The memory is factory set to store 100 events. This can be adjusted from 1-100 at the factory. The most recent save is first during download. An optional Auto log software of extended memory can store up to 1,600 records. (Consult factory for details.)

**12.** 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.

**13.** When equipped with the percent volume sensor, if the instrument encounters a gas it is not calibrated to, it may read "NSR" or "NSC" followed by a number. If the instrument is calibrated for natural gas "NSR" (Non Standard Response) likely indicates a heavy non combustible 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.

the display. Press & release the SAVE/ZERO BUTTON (C) until CO is displayed. Press & release the MENU/BH TEST BUTTON (B) again to enter the CO test menu. Press & release the MENU/BH TEST BUTTON (B)) once more to start the test.

**NOTE:** Using the SAVE/ZERO BUTTON (C) may advance you to another test option depending on the instrument version.

A 180 second timed test will begin. (The time for this test is factory adjustable.) A countdown timer will show the remaining seconds of the test. During this test period, the detected ppm CO level will be displayed on the left. Simultaneously, the peak ppm CO level detected will be displayed and recorded on the right.

The test number, date, time and detected peak ppm CO level will be automatically stored by the instrument for display or print-out at a later date. Press & release the MENU/BH TEST BUTTON (B) to repeat the test. Press & release the POWER/MUTE BUTTON (A) to return to the work display.

### **To Show a CO Test**

From the working display, press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) to scroll until the bottom line reads SHOW CO TEST.

Press & release the MENU/BH TEST BUTTON (B) once. CO

*(Continued on page 26)*

Let the instrument clear and repeat the calibration process. If the instrument will not pass, remove the instrument from service. Consult the factory in the event of any failure.

**AUTOLOG (Automatically included with every unit that has the optional CF Test feature)**

With this feature the instrument will automatically save the peak readings of all sensors while the unit is operating in the working display. These peak readings are stored in Events with a maximum capacity of 1,600 events. They are stored accumulatively throughout day to day use until the maximum capacity is reached. Each use of the SAVE/ZERO BUTTON (C) to make a manual save will also record one event.

**To Retrieve Autolog Events:**

Stored autolog events can be downloaded, in a non-hazardous area, to a PC using the infrared computer interface PCI-2s (PCI-2s with software order #870-00008). Please contact the factory for more information on this accessory.

**CONDUCT / SHOW / PRINT CO TEST**

**Only available as an option for instruments with CO and the extended memory feature.**

**To Conduct a CO Test**

From the working display, press & release MENU/BH TEST BUTTON (B) once, SELECT TEST will appear on the top line of

**14.** When being used in dark areas an automatic backlight will illuminate the display.

**15.** To turn instrument off, press/hold the POWER/MUTE BUTTON (A) until the beeping sound stops and POWER OFF appears on the display. Release the button and a purge time followed by the shut down will occur.

## **BAR HOLE TEST** (For percent volume equipped units only)

To assist pinpointing the location of underground leaks the Bar Hole Test feature may be used. This feature will draw a timed sample (15 seconds) and display sustained and peak readings.

**NOTE: Use an approved barhole probe with filter to prevent damage to the instrument when conducting bar hole surveys.**

### **To Conduct a BAR HOLE Test:**

Prior to the test, attach the approved bar hole probe to an operating instrument. Block the inlets of the probe to test for any air leakage. The instrument will show FLOW BLOCKED in approximately 10 seconds if all seals are good. If flow block is not detected, check the integrity of the "O" ring seals and connections on the probe and instrument. If flow block can not be achieved, contact the factory for assistance. An air tight system is crucial for accurate readings.

From the working display, press & release the MENU/BH TEST BUTTON (B). SELECT TEST will appear on the top line of the display. Press & release MENU/BH TEST BUTTON (B) to enter the BH menu. Insert the bar hole probe into the location for the survey. Press and release MENU/BH TEST BUTTON (B) once more to start the test. A 15 second countdown for the test will begin. The current percent of gas by volume detected will be displayed on the left. The peak percent of gas by volume detected will be displayed on the right. At the conclusion of the test, the pump will shut off and any sustained and peak readings will be shown and recorded.

## **MENU** *continued from page 22*

A 20 second countdown will begin. If the sensor shows proper depletion within this period, PASSED will flash on the display.

Press & release the POWER/MUTE BUTTON (A) to return to the working display.

If the O2 sensor does not respond properly within the 20 second test, FAILED will appear on the display. Remove the instrument from service. Consult the factory in the event of any failure. Press & release the POWER/MUTE BUTTON (A) to return to the working display.

### **SMART-CAL**

From the working display, press & hold the POWER/MUTE BUTTON (A) for 2-3 seconds. The display will read SMART CAL communicating.

Place the instrument into the cradle on the left side of the Smart-Cal Calibration Station. Attach the tubing from the station to the instrument. Press & release the MENU/BH TEST BUTTON (B), the display will show SMART CAL communicating.

Press & release the CALIBRATE button on the Smart -Cal and calibration will begin automatically. If successful, CALIBRATION PASSED will show on display. If unsuccessful, CALIBRATION FAILED will show.

The display will show the gas value being tested on the top line with registered gas value and a 45-60 second countdown on the bottom line. The instrument will automatically check the LEL sensor and also the CO and H2S sensors, if they are installed.

If each sensor tested reads at least 80% of the value of the gas, within the time period required, the display will flash BUMP TEST PASS before returning to the USER MENU automatically. Press & release the POWER/MUTE BUTTON (A) to exit and return to the working display.

If any sensor fails, the display will show BUMP TEST FAILED. This means that calibration is required. If calibration is unsuccessful, remove the instrument from service.

Consult the factory in the event of any failure. To exit this menu, press & release the POWER/MUTE BUTTON (A) to return to the working display.

## **O2 TEST**

From the working display press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) to scroll until the bottom line reads O2 TEST.

Apply recommended gas mixture void of oxygen, such as 100% Methane or 100% Nitrogen and press & release the MENU/BH TEST BUTTON (B) to start the test.

If you have another test to take, press & hold the SAVE/ZERO BUTTON (C). This will restart the pump and clear the last readings. When the readings have returned to zero, release SAVE/ZERO BUTTON (C). The countdown timer will restart.

You may encounter NSR or NSC readings during the bar hole test (see page 12 for definition). A hydrocarbon filter kit is available to help screen if contact with heavy hydrocarbons is suspected. Please consult the factory for details. If you wish to cancel during a test or return to the working display, press & release the POWER/MUTE BUTTON (A).

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## **CALIBRATION CHECK**

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To verify the accuracy of any **TRAK-IT®IIIa**, it must be exposed to a known concentration of test gas that will test any sensor combination included in your particular model.

Any sensor that does not meet the specifications listed in this manual may require calibration or repair. A calibration check does not update the calibration due date. Full calibration is required to update these times.

A calibration past due message will illuminate during warm-up if calibration has not been performed per your company specified interval. Any time it is suspected that the **TRAK-IT®IIIa** is not working properly, check calibration.

The **TRAK-IT®IIIa** has several categories within the User Menu. The first nine fields are standard with all instruments. The last three are only available in certain instrument models when ordered with the Extended Memory option.

**SHOW TIME:** Displays current date and time. (Cannot be changed from this location.)

**SET CLOCK:** Set date and time. Displayed using a 24 hour clock. (User adjustable)

**PRINT:** Print Session Logs, Cal Log, access Smart-Cal communication, (print CO test or print CF test is optional with some extended memory units).

**BUMP TEST:** Perform automatic test for sensors response to calibration gas within 60 seconds or less.

**CAL:** Calibrate all sensors, access AUTO CAL manual calibration procedure.

**O2 TEST:** 20 second test to check depletion of the O2 sensor when exposed to the proper gas, such as 100% methane.

**POWER OFF:** Set the automatic shut off timer in minutes. (User adjustable)

**CAL LOG:** Display last calibration of all sensors.

**SES LOG:** Display saved gas readings with the corresponding date and time.

**NOTE: These additional fields are found on certain models ordered with the Extended Memory option.**

**AUTOLOG:** Automatic storage of peak gas readings of up to 1,600 events.

### **To Print a Session Log**

From the working display, press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU.

Press & release the MENU/BH TEST BUTTON (B) once to enter this menu, SESSION LOG will be displayed.

Prepare the optional IR printer. Aim the IR window, on the right side of the instrument, at the IR printer. Press & release the MENU/BH TEST BUTTON (B) to print the log.

Press & release the POWER/MUTE BUTTON (A) to return to the working display.

### **BUMP TEST**

From the working display, press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) to scroll until the bottom line reads BUMP TEST.

Prepare the appropriate certified gas mixture for your instrument model (see proper gas mixtures listed in the Calibration section).

Apply the gas to the instrument and press & release the MENU/BH TEST BUTTON (B) to start the BUMP TEST.

**SHOW / PRINT a SESSION LOG****To Show a Session Log**

From the working display, press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) to scroll until the bottom line reads SHOW SES LOG. Press & release the MENU/BH TEST BUTTON (B) once to enter the menu. SESSION 1 will be displayed.

This is the most recent data saved. Press & release the SAVE/ZERO BUTTON (C) to scroll to the session number you want to view. Press & release the MENU/BH TEST BUTTON (B) once to enter that session's recorded day, month and time. Press & release the MENU/BH TEST BUTTON (B) once again to access the gas readings for that session.

Press & release the SAVE/ZERO BUTTON (C) to scroll to view the individual gas readings saved. Press & release the POWER/MUTE BUTTON (A) once to access a different session number.

Press & release the SAVE/ZERO BUTTON (C) to scroll to a new session number.

The standard number of available stored sessions is factory set at 6 but is adjustable up to 100. To exit this menu, press & release the POWER/MUTE BUTTON (A) to return to the working display.

**SHOW CO TEST:** Display CO levels recorded during timed test.

**SHOW CF TEST:** Display calculated AIR FREE CO levels recorded during timed test.

**PRINT**

**For all printing operations the printer is only to be used in non-hazardous locations.**

From the working display access the menu by pressing & holding the MENU/BH TEST BUTTON (B) until the top line of the display reads USER MENU. The bottom line will read SHOW TIME. Press & release the MENU/BH TEST BUTTON (B) once to enter the menu.

Prepare the optional IR printer. Aim the IR window (on the right side of the instrument) at the IR window on the printer.

Press & release the SAVE/ZERO BUTTON (C) to scroll to the item you want to print. Press & release the MENU/BH TEST BUTTON (B) to print that item. To exit this menu, press & release the POWER/MUTE BUTTON (A) until the instrument returns to the working display.

**GAS TYPE**

From the working display press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) until the bottom line reads GAS TYPE. Press & release the MENU/BH TEST BUTTON (B) once and the current primary gas type will appear.

To change the gas type, press & release either button (B) or (C). You can select either NAT (methane) or PRO (propane) as your primary gas. Once you have made your selection, press & release the POWER/MUTE BUTTON (A) to store the gas. Press & release the POWER/MUTE BUTTON (A) to return to the working display.

**NOTE:** Prior to use, confirm that the instrument is reading accurately when switching gas types. Verification is recommended by conducting a Bump Test or Calibration.

### **SET CLOCK**

From the working display access the menu by pressing and holding the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) until the bottom line displays SET CLOCK.

Press & release the MENU/BH TEST BUTTON (B) once to enter the menu. The day will be the section flashing on the display. To change this section, press & release the MENU/BH TEST BUTTON (B) for adjustments. Press & release the SAVE/ZERO BUTTON (C) to advance to the next section (month, year or time).

Press & release the POWER/MUTE BUTTON (A) to save the selection. To exit this menu, press & release the POWER MUTE BUTTON (A).

### **SHOW / PRINT a CAL LOG**

#### **To Show a Calibration Log**

From the working display press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the SAVE/ZERO BUTTON (C) to scroll until the bottom line reads CAL LOG. Press & release the MENU/BH TEST BUTTON (B) once to enter the menu. Calibration data will be displayed. The sensor which was calibrated will appear on the top line and the date of the last successful calibration will appear on the bottom line. Press & release the SAVE/ZERO BUTTON (C) to scroll to view the next available sensor calibration data. After viewing the calibration data for the last sensor, the next scroll will return the display to the USER MENU. To exit this menu, press & release the POWER/MUTE BUTTON (A).

#### **To Print a Calibration Log**

From the working display, press & hold the MENU/BH TEST BUTTON (B) until the top line reads USER MENU. Press & release the MENU/BH TEST BUTTON (B) once to enter the menu, press & release the SAVE/ZERO BUTTON (C) to scroll until the bottom line reads CAL LOG. Prepare the optional IR printer. Aim the IR window on the right side of the instrument at the IR printer. Press & release the MENU/BH TEST BUTTON (B) to print the log. To exit this menu, press & release the POWER/MUTE BUTTON (A) to return to working display.