SMART SENSOR®

Intelli Instruments™ Pro

Model：AS8903

H_2S AND CO 2 IN 1 GAS MONITOR

Version number:AS8903-0-1

CONTENTS

Harm of carbon monoxide	
Content of carbon monoxide in Air	Suction time and showed symptoms of poisoning
50ppm	Maximum
200ppm	2~3 hours , a slight headache, dizziness, nausea
400ppm	2hours, forehead pain, life risk after 3hours
800ppm	Headache, nausea within 45minutes,death within 2~3hours
1600ppm	Headache, nausea within 20 minutes ,death within 1 hour

The concentration of Hydrogen and symptoms of poisoning		
Range		Symptoms of poisoning
Unit: ppm	Unit: mg/m3	
0.025～0.1	0.035～0.14	Olfactory sensation
50～100	70～140	Slight symptoms of poisoning within 1~2 hours
100～150	140～210	Olfactory nerve paralysis,obvious poisoning symptoms
200～250	210～350	Can afford 0.5~1 hour, but sequela
200～350	350～490	Poisoning in 6~8 minutes,death within 4~8 hours
850～500	490～700	Seriously poisoned within 0.5~1hour,death within 1~4 hours
500～600	700～835	Seriously poisoned within 1minute,death within 0.5~4 hours
600～700	835～980	Death within 2~15 minutes
700～1000	980～1400	mmediately die

* The above parameters are for reference only

3. 2 WARRANTY

* AS8903 2 in 1 gas Monitor is warranted to be free from defects in material and workmanships for a period of one year after purchase.
* This warranty not includes the sensor and battery pack after 6 month purchase period.

3.3 MANUFACTURING STATEMENTS

* Thank you for buying and using Smart Sensor AS8903 2 in 1 Gas monitor.
* The unit has been designed, manufacturing, tested and proven under professional quality team.
* The unit should be reliable to use and operate under the reasonable care and maintenance described in this instruction manual.

3.4. ENCLOSURE

* The used or nonfunctional battery, please follow the international environment regulation to settle.
* Smart Sensor has the right to modify or change the design of the unit, operation manual or product specification prior without any further notice.

一、NOTICE BEFORE USE

1.1 CAUTIONS AND WARNINGS

The user need to read and follow the procedures and conditions as below to prevent ant failure might be occurred during operating this instrument.

⚠ Insufficent oxygen atmospheres may cause combustile gas readings be lower then actual corrected readings.

⚠ The intruments need to be re-calibrated after the instrument has been used in an area of silicon vapors were present.

⚠ Please always be kept clean of the sensor opening and the water barriers of the intrument.

⚠ Please do not charge the battery or serving the unit in hazardous or enriched atmospheres condition.

⚠ The intrument only suggested to be used by operated and serviced by qualified personnel whom has fully read and understood the instruction manual completely.

⚠ Caution: high off-scale readings indicate the enviroment might be reached to explosive concentration that is also a danger signal to represent the area is hazardous.

⚠ This insrument is certified to be normal use within the temperature range of -20 deg. C to 40 deg. C only.

⚠ The model of AS8903 must be used only with model AS8930 external sampling pump. (Excluded)

1.2 UNIT PACKING

The gift box should be contain the following items

Description	Quantity
⮞ AS8903 2 in 1 gases monitor	1PCS
⮞ Operation manual	1PCS
⮞ Carrying brouch	1PCS
⮞ 3.7V rechargable lithium battery	1PCS
⮞ Battery Charger	1PCS

1.3 PRODUCT SPECIFICATIONS

Sensor specification:			
Gas	Range	Resolution	T90
Carbon Monoxide (CO)	0~999ppm	1ppm	50sec
Hyrogen Sulfide (H2S)	0~500ppm	1ppm	30sec
Temperature and humidity range:			
Operating Temperature: -10~ 50℃(except LEL is 0 ~40℃)			
Operating Humidity : 15~95 % RH, typical			
Storage Temperature : 0~40℃			
Size: 120.20mm x 64.50mm x 38.30mm			
Weight: 200g			
Battery specification:			
Rechargeable lithium-ion battery, 3.7 Volts			
Battery working runtime: 18 hours. And 12 hours work with AS8930 sampling pump.(work in room temperature and no alarm conditions.)			

三、OTHERS

3.1 MAINTENANCE

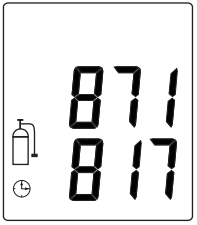
The following guideline should be followed to achieve good maintenance for AS8903 unit.

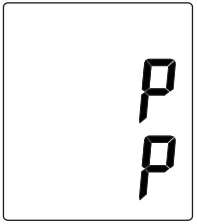
CLEANING:

* If necessary, wipe the outside surface of the unit, please use the soft, clean cloth.
* Never use any solvent or cleaning solutions.
* Make sure the rubber buttons are free od dirts.
* to clean the sensor opening, please use the clean, soft cloth or soft brush.

CHARGING THE BATTERY:

* The lithium-ion battery suggested to be fully charged before using the AS8903.
* To charge the battery, plug the connecting lead wire of the battery charger into the charging port located at the bottom of the unit. This port is protect by a rubber flap, so need to release the flap before charging.
* The battery should to fully charged in 6 hours.
* Once fully charged, the unit will be good enough to work for 18 hours operation, and work about 12 hours with AS8930 external sampling pump.
* The shaded area of battery indicator shows full once the battery is fully charged.
* If all shaded area only have one bar is left, the battery need to be charged at once.
* When the battery is low, the unit might emit a periodic alarm sound to alert you to charge the unit.



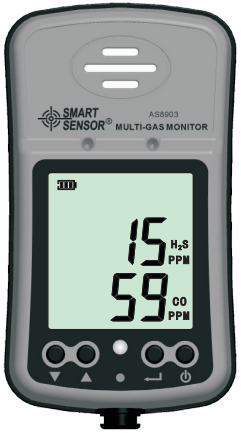


9. Please connect the unit with the gas cylinder with a piece of tubing firmly before this calibration. To press the ◄┘button for proceed the calibration.
10. The display will shows cylinder and clock icons and 2 gases calibrate readings (the reading might change during the calibration.)
11. The calibration process should no longer than 60 seconds. At the end of calibration, the display will shows 2 P means the calibration is succeeded. Is F is showed, it means the calibration is failed, to proceed re-calibration is required.
12. the calibration gases are fixed values, you must calibrate the instrument.

2.14 ACCESSORY AS8930 SAMPLING PUMP

* The AS8930 external sampling pump is available to work with AS8903 2 in 1gas monitor but no exclude in any unit pack.
* This pump mount into the AS8903 unit by 2 fasten screws. Please review to the assembly drawing attached.

1.4 OUTLOOK OF THE INSTRUEMENT



1.5 INTRODUCTIONS

The AS8903 2 in 1 gas monitor is a portable and handheld instrument that is capable to use continuously and simultaneously monitoring 2 gases; Combustile gas,Carbon Monoxide and Hydrogen Sulfide. Every gas readings all shows in one LCD display. The unit also provide user to configure high and low alarm as well as Twa and Stel alarms. The unit will be audio and visual alarm once the alarm condition is exceeded.

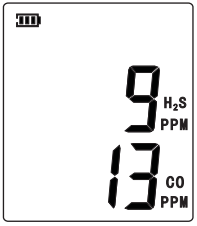
二、OPERATION MANUAL

2.1 INSTRUMENTS OPERATION

1. To turn on the instrument AS8903, please depress and hold the ⏻ button for over 1 second, the unit will be turn on with a beep sound and vibration, then the lcd will light up all icon and segments. Once the software countdown for 18 seconds then the unit will enter into the Gas Monitoring mode.
2. To turn off the unit, please depress and hold the ⏻ button for over 3 seconds, then the unit will be power off after 3 beep sounds.
3. To light up or turn off the backlight of the LCD display, please depress the ↵ button.

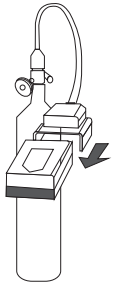
2.2 Gas Monitoring mode

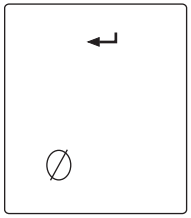
1. After the unit is power on, the display will show all 2 gas symbol with readings.
2. The unit is already started to continuously monitored and shows the readings on the LCD display. Once the gas level is increase, the corresponding read will be showed the existing gas concentration.

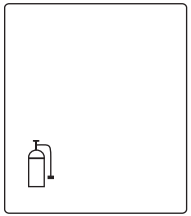


3. Also the battery life indicator is also display in the left upper corner, onr the battery lift is decreased, the shaded showed of the battery icon is alco decreased.
4. Once the gas concentration is exceed the high or low alarm limit (as well as TWA or STEL) the unit will be triggered the audio and visual alarm with vibration.

2.13 INSTRUMENT CALIBRATION MODE

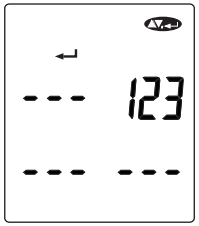






1. To use a single blended cylinder of mix gases to calibrates the unit with a quick calibration procedure within about one minute.
2. The unit can be calibrated with or without the AS8930 external pump.
3. If the external pump is used, please attach a piece of tubing from the end of the pump to the demand flow regulator on the blended mixed gas cylinder.
4. If the calibration without the pump, securely place the cal-cup on top of the sensors, and use a piece of tubing to connect the cal-cup to the regulator on the blended gas cylinder.
5. In the normal gas monitoring mode, press the ▲ and ▼ button together, then key in the correct security codes to enter in the setting mode.
6. Then press the ▲ button for 5 times to enter into the calibration mode.
7. In this mode, the display shows ∅ and ↵ icons, to press the ↵ button to start the instrument calibration.
8. The display will shows cylinder icon and flashing about 6 seconds.

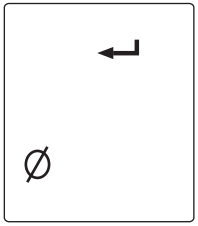
2.12 SECURITY CODE SETTING CODE

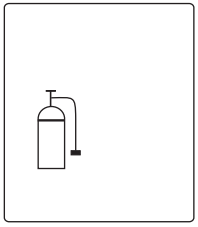


1. In this mode, The display will show (enter) (up/down/enter) and the manufacturing preset security 123.
2. If no change is required, press ▲ button to move the unit into other instruments calibration mode.
3. If security codes need to be changed, press ↵ button, then the preset code will be flashing.
4. To adjust the first digit, press ▲ or ▼ button, once the value is confirmed, press ↵ button to set the second digit.
5. Continue this procedure until three digits are set the display will show (enter) (up/down/enter) icons along with the new security code.
6. If further change of security code is required, press ↵ Re-enter this setting mode again.
7. If press ⏻ button during the setting, the unit will back to the security code setting mode again, but no set value will be savedmove.
8. To press ⏻ button once again, the unit will back to normal gas monitoring mode.
9. Once the security code is set, all settings will not be enter unless the security code is access correctly.
10. REMINDER: If the security is forgot, in security setting mode, please press all (up/down/enter) button together, then the user also can enter to all setting modes.

5. Once the gas concentration is drop below the alarm level, the unit will go back to normal gas monitoring mode.
6. For to access this mode, please depress ▲ button. Then the unit will enter to Zero/Calibration mode.

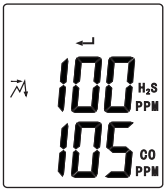
2.3 Zero/ calibration mode





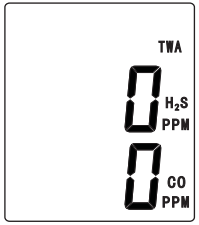
1. To press the ▲ button once from the gas monitoring mode, the unit will be put in the Zero/ Calibration mode.
2. In this mode the icon Ø and ↵ will be displayed .
3. At this time, press ↵ the icon will flashes for few seconds, the unit will back to normal gas monitoring mode.
4. In this calibration mode, no setting is allowed unless the correct security code is being access.
5. The calibration gas are the fixed concentration value, to calibrate the instrument by using a blended cylinder containing 25ppm H2S and 100ppm CO.

2.4 PEAK VALUE SETTING MODE



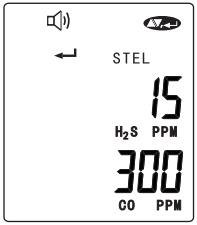
1. To press ▲ button from Zero /Calibration mode, the unit will entered to Peak value setting mode.
2. In this mode, the display will shows and icon along with the peak value of H2S and CO gas.
3. To press ◄┘ button, the display will show the existing value of H2S and CO only.

2.5 TWA VALUE MODE



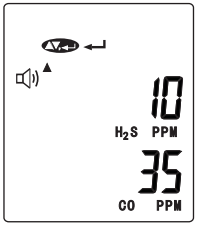
1. In gas monitoring mode, depress the ▲ button for third times, the unit will enter to TWA (time weight average) value mode.
2. In this mode the display will show TWA icon and only will 2 hazardous and combustile gas sensor readings are shown.
3. TWA value are reset while every time the unit is power off, and the time base is set for 8 hours.

2.11 STEL ALARM SETTING MODE



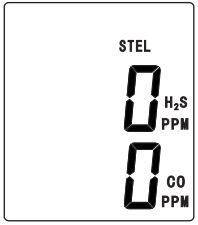
1. In this mode the display will show (speaker)(stel) (enter) and (up/down/enter) icon with 2 stel alarm value.
2. If no changed is required, to press ▲ button to next setting screen.
3. If change is desired, to press ↵ into the stel alarm value will be flashing.
4. The first gas stel value is flashing, them press ▲ or ▼ to change the value.
5. Once the setting is finished, to press ↵ button for second gas stel alarm setting.
6. When the 2 gas stel alarm in set, the display will show (speaker) (stel) (enter) and (up/down/enter) icons with 2 gases set stel alarm readings.
7. If pressing ↵ button again, the unit will back to this stel alarm setting mode for further setting.
8. If pressing the ▲ button, the unit will ⏻ to next security code setting mode.
9. To press the ⏻ button during the setting mode, it will back to the stel aralm setting mode again but with all setting value is deleted.
10. To pressing ⏻ button once more time, the unit will back to normal gas monitoring mode.

2.10 TWA ALARM VALUE SETTING MODE



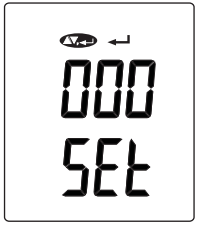
1. If no change is required, press ▲ button to next STEL alarm setting mode.
2. In this mode, the icons(speaker) (twa) (enter) and(up/down/enter) all show in the display.
3. If the change is desired, press ↵ button, the first gas low alarm value will be flashing.
4. To adjust the value by depress ▼ or ▲ button.
5. Once the setting is confirmed and completed, press ↵ to next gas TWA alarm value setting.
6. Continue this setting procedure until 2 gas TWA alarm are set, the display will show(speaker) (twa) (enter) and(up/down/enter) icon along with the 2 new TWA alarm value.
7. Pressing the ↵ button will re-enter the mode for any further adjusted value is required.
8. pressing ▲ button will move to next STEL alarm value setting mode.
9. Pressing ⏻ button will back to original TWA alarm setting mode, with no changed will be saved.
10. Pressing the ⏻ button a second time, the unit will be back to the original gas monitoring mode.

2.6. STEL VALUE MODE



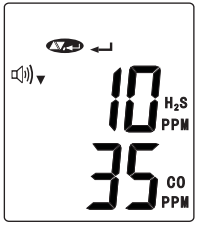
1. In gas monitoring mode, depress the ▲ button for fourth times, the unit will enter to STEL (short term exposure limit) value mode.
2. In this mode the display will show STEL icon and only will 2 hazardous and combustile gas sensor readings are shown.
3. TWA value are reset while every time the unit is power off, and the time base is set for 15 minutes.

2.7 CONFIGURATION MODE



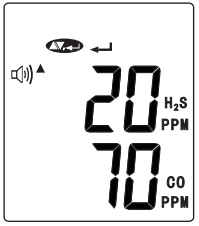
1. To depress the ▲or▼ button simultaneously, the unit enter into the Configuration Mode.
2. In this mode, the unit is allow the user to change the high, low TWA and STEL alarm level as well as the security code (if desired)
3. If the security code need to be changed, to press ▲ or ▼ to change the new security code. The preset code is 123.
4. Once the exact security code is access, the unit will ↵ into low alarm setting mode.

2.8. LOW ALARM SETTING MODE



1. Low alarm setting mode is the first configuration screen, the display will show the (speaker) (down) (enter) and (up/down/enter) icons along with the four low alarm set readings of the 2 gases.
2. If no changed is required, to press ▲ button to next setting mode.
3. If the change is desired, press ↵ button, the first gas low alarm value will be flashing.
4. To adjust the value by depress ▲ or ▼ button.
5. Once the setting is confirmed and completed, press ↵ to next gas low alarm setting.
6. Continue this setting procedure until 4 gas low alarm value are set, the display will show (speaker) (down) (enter) and (up/down/enter) icon along with the 2 new low set alarm value.
7. To press the ↵ button for re-enter this setting mode again for further adjusted setting if required.
8. To Press the ▲ button to move the setting to high alarm setting mode.
9. Pressing the ⏻ button during the setting value is flashing, the unit will back to low alarm setting mode with no changes will be saved.
10. Pressing ⏻ button for second time, the unit will be back to the original gas monitoring mode.
11. The low alarm setting need to be set time to time if required

2.9. HIGH ALARM SETTING MODE



1. the high alarm setting mode is the second configuration screen of the unit.
2. In the mode the display will show (speaker) (down) (enter) and (up/down/enter) icon along with the 2 gases high alarm value.
3. If no change is required, press ▲ button to move to nest setting mode.
4. If the changed is needed, press ↵ button to have the first high alarm value will be flashing.
5. To adjust the value by press ▲ or ▼ button.
6. Once the setting is confirmed and completed, press ↵ button to next high alarm setting.
7. Continue this setting procedure until 2 gases high alarm value are set. The display will show (speaker) (down) (enter) and (up/down/enter) icon along with the 2 new set alarm value.
8. To press the ↵ button for re-enter this setting mode again for further adjusted setting if required.
9. Pressing the ▲ button to move the setting to next TWA value setting mode.
10. Pressing ⏻ button during the alarm setting value is flashing, the unit will back to high alarm setting mode with no changes will be saved.
11. Pressing ⏻ button for second time, the unit will be back to the original gas monitoring mode.
12. The high alarm setting need to be set time to time if required.