

600-33

**SAN ANTONIO WATER SYSTEM  
SAN ANTONIO, TEXAS**

**Specifications for Multi-Gas Detector**

**October 3, 2005**

1. **SCOPE**

This specification covers the Multi-Gas Detector that is used to measure atmospheric hazardous conditions to keep worker's exposures below OSHA permissible exposure levels.

2. **GENERAL REQUIREMENTS**

OSHA: 29 CFR 1910.146

**Description:**

Hand-held, portable instrument used by personnel to measure the atmosphere, prior to a confined space entry and other work activities where air quality is of interest.

**Physical Property Data:**

1. The instrument must be certified intrinsically safe by a recognized testing laboratory.
2. The instrument must continuously monitor and simultaneously display gas readings and battery condition.
3. The instrument must detect and monitor a minimum of five (5) gases: oxygen (O<sub>2</sub>), combustible gases (LEL), hydrogen sulfide (H<sub>2</sub>S), carbon monoxide (CO), and one addition gas in the high and low level ranges as found in the OSHA standard. Additional gases to be monitored are Chlorine (Cl<sub>2</sub>) and Sulfur Dioxide (SO<sub>2</sub>).
4. The instrument must provide audible, visual and latching alarms along with TWA and STEL, and self-test with sensor fault messages.
5. All alarm signals must be functional regardless of display selected.
6. The instrument must be capable of being calibrated without special tools.
7. The instrument's physical case shall be of rugged construction, impact-resistant, non-corrosive composite material that will prevent spark generation, water resistant, with a built-in concussion-proof boot, in safety yellow.
8. Size of the instrument to be at a minimum 5.5 inches by 2.5 inches by 1.5 inches, with a weight of approximately 13.0 oz.
9. Calibration of the instrument must be fully automatic with Auto Zero and Auto Span functions and must advise as each automatic function takes place and when to apply gas. User settable levels must be "User Settable".
10. One-button activation. On function must: Test the battery and advise condition; Display the current alarm set points; Provide a full function self-test of sensor integrity, circuitry integrity, and alarm activation; Automatically calibrate the oxygen sensor or display "O<sub>2</sub> calibration off" warning; Advise

when the next calibration is due in days, or advise the number of days overdue.

11. Backlight must automatically illuminate the display in all alarm conditions, in low-light conditions and be reactivated on demand.
12. The instrument shall be equipped with rechargeable battery pack (NiMH) with a VAC 110 volt slip-in cradle charger.
13. The instrument must be equipped with an integrally motorized pump with 1 each, 10-foot hose and 1 each, 25-foot hose with a hand held attachable sampling probe.
14. The instrument warranty shall be a minimum of 1 year from date of purchase.
15. The vendor or manufacturer shall provide hands-on training for personnel using the instrument to include usage and calibration.
16. All sensors shall be plug-in, electrochemical cell (toxic and oxygen); catalytic (LEL).
17. The instrument shall simultaneously and continuously display gas concentrations for all sensors in (ppm, % LEL, % v/v) for the following:

<u>Gas</u>	<u>Measuring Range</u>	<u>In Increments of:</u>
Oxygen (O2)	0-30 % O2	0.1%
Combustible Gases	0-100% LEL	1.0% LEL
Hydrogen Sulfide	0-100 ppm H2S	1.0 ppm
Carbon Monoxide	0-999 ppm CO	1.0 ppm
Chlorine	0-50 ppm Cl2	0.1 ppm
Sulfur Dioxide	0-100 ppm SO2	1.0 ppm

**Accessories Description:**

1. Datalogging Software
2. ProB Holster with shoulder strap.
3. Calibration Gas cylinders
4. Calibration Kit
5. User operating manual

**Special Notations:**

SAWS, at no cost to the manufacturer, may subject random units to testing by an independent laboratory for compliance with these specifications. Any visible defect or failure to meet the quality standards herein will be grounds for rejecting the entire order.

**3. APPROVED MANUFACTURERS AND MODELS**

**Manufacturer**

**Model**