ENMET Model QUADRANT, Q-4 (CO, H_2S, O_2, CH_4)

The instrument is a portable personal gas detector which enhances worker safety by providing alarms when dangerous atmospheric conditions are encountered within confined spaces. It has the following features and characteristics.

The intrinsically safe personal gas detector provided shall utilize four individual sensors that simultaneously and continuously monitor for combustible gas, oxygen, hydrogen sulfide and carbon monoxide. The instrument shall have both audio and visual alarms as well as a LCD display of sensor readings. The instrument shall provide exposure information, downloading capability, be totally rechargeable, and have a low battery condition alarm as described by the following specification:

1. The instrument shall have independent sensors to monitor for each toxic gas, combustible gases, and oxygen deficiency and enrichment.
2. The instrument shall have a backlit-on-demand LCD.
3. The instrument shall have a digital display of the gas level for each sensor.
4. Audio and visual alarms shall activate under any of the following conditions:
   - A. The oxygen concentration is less than 19.5%, or greater than 23.5% by volume.
   - B. The combustible concentration exceeds 10% LEL methane (see #6 below).
   - C. The toxic concentration exceeds:
     - 35 ppm carbon monoxide, instantaneous (PEL)
     - 35 ppm carbon monoxide, time weighted average (TWA)
     - 200 ppm carbon monoxide, short term exposure (STEL)
     - 10 ppm hydrogen sulfide, instantaneous (PEL)
     - 10 ppm hydrogen sulfide, time weighted average (TWA)
     - 15 ppm hydrogen sulfide, short term exposure (STEL)
   - D. The battery has been discharged to the low battery level.
   - E. If any sensor is removed or fails in a predictable manner.
5. The combustible sensor shall be a catalytic element that is capable of being replaced in the field.
6. The instrument shall have the capability to change the combustible display to any one of its 24 preprogrammed combustible gases or vapor responses without recalibrating the device.
7. The carbon monoxide sensor shall be filtered to reduce sensitivity to hydrogen sulfide.
8. The instrument shall have an auto-zero feature to set the gas displays to zero and the oxygen display to 20.9% for fresh air set-up.
9. The instrument shall be capable of being field calibrated without the use of potentiometers or adjustment screws.
10. The sensors shall be capable of operating in 20-99% RH, non-condensing and -15 to +50 °C (+5 to +122 °F).
11. The instrument shall be provided with a totally rechargeable nicad battery pack.
12. The instrument shall be able to be powered from an "AA" alkaline battery pack.
13. The instrument shall have a confidence "chirp" at approximately a sixty second interval during use in a safe atmosphere.
14. The instrument shall be portable, with dimensions no larger than 80x150x40 mm (3.1x5.9x1.6"), and weigh no more than 450 grams (15.8 ounces).
15. The instrument shall be housed in a durable ABS enclosure.
16. The instrument shall incorporate special RFI suppression circuitry and design techniques to minimize or eliminate interference from handheld two-way radios.
17. Maintenance functions shall be password protected.
18. The instrument shall perform datalogging and data intervals shall be adjustable.
19. The instrument shall have the capability to program location stamps for datalogged information.
20. The instrument shall be supplied with a battery charging/download module, power supply, calibration/sample cover and instruction manual.
21. The instrument shall bear an NRTL intrinsic safety approval for Class 1, Division 1, Group A, B, C, D atmospheres.
22. The instrument shall have the following accessories or options available:

    Calibration Kit
    Software Package to download exposure information to a computer
    Computer Cable
    Aspirator with 12' hose
    Aspirator with 36" probe
    External Motorized Sample Pump with 20' hose and 36" probe
    Housing for alkaline battery pack
    12 VDC charging adapter