



QRAE

Simple and Reliable 4-Gas Monitor for Confined Space Entry

The **QRAE** is a dedicated confined space entry monitor with an internal pump. Its durable, rechargeable, standard Lithium-ion batteries provide a 12-hour day of detecting combustibles, oxygen, hydrogen sulfide and carbon monoxide. The extended duration Lithium-ion battery option provides up to 18 hours of continuous operation.

Key Features

Reliable plug-in "smart" sensors

- Combustible Gas
- Oxygen
- Hydrogen Sulfide
- Carbon Monoxide

Robust external casing for harsh environments:

- Strong protective rubber boot
- Water and dust resistant
- Rugged ABS plastic/metal case
- Protects from portable radio interference (RFI)

Ease of use with one hand operation

- One button calibration with auto zero capability

Strong built-in sample draw pump with optional collapsible remote sampling probe

- Sample flow rate at 150cc/min
- Patented security mechanism warns of sample tube crimping or blockage
- Prevents liquid flow into monitor with optional collapsible sample-probe

Power source features

- Option of Lithium-ion, alkaline and automotive 12V adapter charger
- Field replaceable batteries
- Unit will run and charge simultaneously

Large keys operable with three layers of gloves

Loud audible alarm

Bright visual alarm

Standard 20,000 point (or 100 hours) datalogging storage capacity for download to PC compatible with Windows 98, NT, 2000 and XP

Applications

Confined Space Entry

- Waste water treatment plants
- Marine and off-shore oil wells
- Landfill operations
- Trenches, silos, railcars
- Coal mines
- Cruise ships
- Sewers and manholes
- Tunnels

Refineries and petrochemical plants including off-shore drilling and plant shut downs

Power plants

Pulp and paper industry



Specifications*

Sensor Specifications

Gas Monitor	Range	Resolution
Oxygen	0-30.0%	0.1%
Combustible Gas	0-100% LEL	1% LEL
Carbon Monoxide	0-500 ppm	1 ppm
Hydrogen Sulfide	0-100 ppm	1 ppm

Detector Specifications

Size	4.65"L x 3.0"W x 1.9"H (11.8 x 7.6 x 4.8 cm)
Weight	16 oz. (450 g) with battery w/o rubber boot
Sensors	<ul style="list-style-type: none"> Protected catalytic bead for combustible gases Electrochemical sensors for oxygen, H₂S, CO
Battery	<ul style="list-style-type: none"> Interchangeable Li-ion and alkaline battery packs Rechargeable units include Lithium-ion battery pack with internal smart charging, 120V AC/DC wall adapter, and spare alkaline battery pack
Operating Hours	12 hours continuous operation (typical) Extended Lithium-ion battery option provides 18 hours continuous operation (typical) Unit will run and charge simultaneously (this method not to be employed in hazardous locations)
Display	2 line, 16 digit LCD with LED back light automatically in dim light or alarm condition
Keypad	1 operation and 2 programming keys
Direct Readout	Instantaneous values <ul style="list-style-type: none"> Oxygen as percentage by volume Combustible gas as percentage of lower explosive limit (LEL) (scaleable using correction factors) H₂S & CO as parts per million by volume High and low values for all gases STEL and TWA values of toxic gases Battery and shut down voltage Date, time, elapsed time, temperature
Alarms	90 dB buzzer and flashing LED to indicate exceeded preset limits <ul style="list-style-type: none"> High: 3 beeps and flashes per second Low: 2 beeps and flashes per second STEL and TWA: 1 beep and flash per second Alarms latching with manual override or automatic reset Additional diagnostic alarm and display message for low battery and pump stall
EMI/RFI	Highly resistant to EMI/RFI. Compliant with EMC Directive 89/336/EEC
IP Rating	IP-55, protected against dust and low pressure jets of water from all directions
Datalogging	Standard 20,000 points (100 hours, 4 channels at one minutes intervals) downloadable to PC with serial number of unit, user ID, site number, calibration date
Calibration	Two-point field calibration for zero and span gas
Sampling Pump	Optional, internal pump with user selectable flow-rate: High: ~250cc/min, Low: ~150cc/min
Low Flow Alarm	Auto shut-off pump at low flow condition
Hazard Area Approval	<ul style="list-style-type: none"> US and Canada: UL, cUL, Classified as Intrinsically Safe for use in Class I, Division I Groups A, B, C, D, Hazardous Locations T3C rating
Approval Temperature	-4° to 113°F (-20° to 45°C)
Humidity	0% to 95% relative humidity (non-condensing)
Attachments	Durable black rubber boot with belt clip and wrist strap
Warranty	Lifetime on non-consuming components (per RAE Standard Warranty), 2 years for O ₂ , LEL, CO and H ₂ S sensors, 1 year for all other sensors, 1 year pump, 1 year battery

*Ongoing projects to enhance our products means that these specifications are subject to change

QRAE Accessories

Monitor only includes:

- Monitor as specified
- Sensors as specified
- Rechargeable battery (as specified)
 - Standard rechargeable Lithium-ion or
 - Optional, extended duration Lithium-ion
- 120 V AC/DC Wall Adapter (if specified)
- Alkaline battery adapter
- External battery charger
- Calibration adapter
- 3-inch inlet probe
- 3 external filters
- Quick reference guide
- Operation and maintenance manual
- Rubber boot with belt clip
- Software ProRAE Suite Package for Windows 98, 2000, NT and XP
- Computer interface cable

Confined Space Entry Kit also includes:

- Hard transport case with pre-cut foam
- Sampling wand with 15 feet (5m) of self-coiling Tygon® tubing
- Four-gas mix in a 34L cylinder (50% LEL, 20.9% O₂, 25 ppm Hydrogen Sulfide, 50 ppm Carbon Monoxide)
- Tool kit
- Calibration regulator (male) and tubing

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