

# MULTIRAE PLUS

## One-to-Five Gas Monitor with VOC Detection

The MultiRAE PLUS is an extremely flexible one-to-five sensor instrument for use in confined space, emergency response, industrial hygiene, and many other monitoring applications. The MultiRAE is the only instrument available on the market today that can offer protection using both standard gas detection sensors for the detection of oxygen, combustible gas, and specific toxic gases, as well as an integrated Photo-Ionization Detector (PID) for the ultimate in broad-range toxic gas detection. The MultiRAE's versatility allows it to replace a wide range of monitors, saving training and maintenance costs. The MultiRAE is quickly and easily changed from a sophisticated technician instrument to a simple text or display only monitor. The same monitor can be used as a personal monitor, a hand-held sniffer, or as a continuous operational area monitor.

### Advanced Features

- Rugged weather-proof composite case
- Visual alarm with flashing LED
- Automatic liquid trap protection for pump

- Any two plug-in "smart" toxic sensors:  
CO, H<sub>2</sub>S, SO<sub>2</sub>, NO, NO<sub>2</sub>, Cl<sub>2</sub>, HCN, NH<sub>3</sub>, PH<sub>3</sub>
- Programmable alarms can be changed on the MultiRAE or from easy-to-use Windows 3.1, 95, 98 and NT software
- Sample-draw over 100 feet (30m) horizontally and vertically
- Diffusion grill protected by Gortex™ moisture membrane
- Large digital display
- Loud audible alarm with varying tones for different alarm conditions and an optional remote vibration alarm for noisy areas
- Runs on alkalines, Ni-Cd batteries or continuously when plugged into charger or 12V automotive adapter
- Available as diffusion unit or with internal, sample-draw pump

- Deep-discharge battery option
- Easy one-button calibration with auto-zero capability

### Applications

- Confined Space Entry
  - Waste water treatment plants
  - Shipyard and maritime confined spaces
  - Land-fill operations
  - Trenches, silos, railcars
  - Sewers and manholes
- Refineries and petrochemical plants, including offshore drilling and plant shut-downs
- Power plants
- Pulp and paper industry
- Steel mills
- Soil, well, and water head-space analysis
- Aviation / wing tank entry



## Specifications

### Sensor Specifications

Gas Monitor	Range	Resolution	Response Time (t <sub>90</sub> )
Oxygen	0 ~ 30%	0.1%	15 seconds
Combustible gas	0 ~ 100% LEL	1%	15 seconds
VOCs	0 ~ 200 ppm	0.1 ppm	10 seconds
	200 ~ 2000 ppm	1 ppm	10 seconds
Carbon Monoxide	0 ~ 500 ppm	1 ppm	20 seconds
Hydrogen Sulfide	0 ~ 100 ppm	1 ppm	30 seconds
Sulfur Dioxide	0 ~ 20 ppm	0.1 ppm	15 seconds
Nitric Oxide	0 ~ 250 ppm	1 ppm	20 seconds
Nitrogen Dioxide	0 ~ 20 ppm	0.1 ppm	25 seconds
Chlorine	0 ~ 10 ppm	0.1 ppm	60 seconds
Hydrogen Cyanide	0 ~ 100 ppm	1 ppm	60 seconds
Ammonia	0 ~ 50 ppm	1 ppm	150 seconds
Phosphine	0 ~ 5 ppm	0.1 ppm	60 seconds

### Detector Specifications

Size	4.65" L x 3.0" W x 1.9" H (11.8 cm x 7.6 cm x 4.8 cm)
Weight	16 oz with battery (454 g)
Detector	Protected catalytic bead for combustible gases Interchangeable electrochemical sensors for oxygen and toxic gases Photo-ionization detector for VOCs, 10.6 eV lamp standard
Battery	Rechargeable, 4.8 V, 1.4 Ah, Ni-Cd battery pack 4 AA alkaline battery adapter Field replaceable Smart battery charger: Up to 10 hours through built-in or external charger. Includes deep discharge option.
Operating Hours	10 hours continuous Unit will run and charge simultaneously
Display	2 line, 16 digit LCD with LED back light automatically in dim light or alarm condition
Keypads	1 operation key and 2 programming keys
Attachment	Wrist strap and high visibility rubber boot
Direct Readout	Instantaneous (up to 5) values: Oxygen as percentage by volume Combustible gas as percentage of lower explosion limit (LEL) Toxic gases and VOCs as parts per million by volume High and low values for all gases STEL and TWA values of toxic gases and VOCs Battery and shut down voltage Date, time, elapsed time, temperature LEL/VOC scale (using correction factors)
Intrinsic Safety	UL, cUL Class 1, Division I, Group A, B, C, D EEx ia IIC T4
Alarm	90 dB buzzer and flashing red LED to indicate exceeded preset limits 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
Calibration	Two point field calibration for zero and span gas
Datalogging	20,000 points (64 hours, 5 channels at one minute intervals) download to PC with serial number of unit, user ID, site number, calibration date
Datalogging Interval	1 - 3600 seconds, programmable
Sampling Pump	Internal pump, flow rate 150 cc/min.
Temperature	-4° to 113° F (-20° to 45°C)
Humidity	0% to 95% relative humidity (non-condensing)

## MultiRAE PLUS Accessories

### Monitor only includes

- Monitor as specified
- Sensors as specified
- Shipping Case
- Carbon filters (for units with CO)
- Calibration adapter
- Quick reference guide
- Operation video (as specified)
- Operation and maintenance manual
- Rubber boot with belt-clip
- Alkaline battery adapter
- Rechargeable units additionally include:
  - Nickel-Cadium (Ni-Cd) battery
  - 120 V AC/DC Wall Adapter (if specified)
- Pumped units additionally include:
  - 10 Water trap filters
  - Inlet probe 3"
  - Water trap adapter

### Monitor with Accessories Kit also includes:

- Hard transport case with pre-cut foam
- 15' (5 m) Teflon® tubing
- Constant flow hand pump (for diffusion models)
- Lamp Cleaning Kit

### Optional Calibration Kit also include:

- Four-gas mix in a 34L cylinder; (50% LEL, 20.9% O<sub>2</sub>, 25 ppm Hydrogen Sulfide, 50 ppm Carbon Monoxide)
- Calibration regulator (male) and tubing
- Isobutylene gas in a 34L cylinder;
- Calibration regulator (female) and tubing

### Datalogging Monitors also include:

- Software, ProRAE Suite Package for Windows™ 95, 98 & NT
- Computer Interface cable

**Warranty:** Lifetime on non-consuming components (per RAE Standard Warranty), 2 years for O<sub>2</sub>, LEL, CO and H<sub>2</sub>S sensors, 1 year all other sensors, 1 year pump, 1 year battery, 1 year for 10.6 eV PID lamp



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