



# VRAE

Handheld Five-Gas Surveyer



The VRAE is a powerful, pumped, one- to five-gas monitor that protects workers from combustible gases and vapors, toxic gases and oxygen deficiency/enrichment. This versatile instrument can measure concentrations of combustibles either as percentage by volume or as percentage of lower explosive limit (LEL). The VRAE's rechargeable Nickel-Metal-Hydride battery, powerful internal pump and rugged frame make it ideal for confined space entry, leak detection, and site surveys.

## KEY FEATURES

### Convenient and Easy to Use

- Wide variety of interchangeable sensors, including combustible, CO, H<sub>2</sub>S, SO<sub>2</sub>, NO, NO<sub>2</sub>, Cl<sub>2</sub>, NH<sub>3</sub>, HCN, and PH<sub>3</sub>
- Familiar, intuitive user interface
- Large keys usable even with 3 layers of gloves
- Large backlit LCD display
- Internal pump for quick response and simple remote sampling
- Field-replaceable rechargeable battery with 10 hours of continuous operation

### Durable

- Rugged weather-proof case

## APPLICATIONS

- Refineries and petrochemical plants
- Pulp and paper mills
- Utility cable vaults, transformer stations
- Waste-water treatment plants
- Landfill operations
- Fire service

- **Powerful and versatile**
- **Easy to use**
- **Durable and intrinsically safe**



## Handheld Five-Gas Surveyor

### SPECIFICATIONS

#### Monitor Specifications

Size	7.75"L x 2.75"W x 1.5"H (19.6 cm x 7.0 cm x 3.8 cm)
Weight	19 oz (540 g) with battery
Sensors	<ul style="list-style-type: none"> <li>• Catalytic sensor for combustible gas</li> <li>• Thermal conductivity sensor for percentage volume combustible gas</li> <li>• Electrochemical sensors for oxygen and toxic gases</li> </ul>
Battery	Rechargeable, snap-in, field replaceable 4.8V/1250 mAh, Ni-MH battery pack, 4 AA battery adapter
Operating Hours	10 hours continuous operation
Display	2-line, 16-digit LCD with LED back light automatically turns on in dim light or alarm condition
Keypads	1 operation and 2 programming keys
Direct Readout	Instantaneous reading (up to 5 values) <ul style="list-style-type: none"> <li>• Oxygen as percentage by volume</li> <li>• Combustible gas as percentage by volume or percentage of lower explosive limit (LEL)</li> </ul>
Alarms	90 dB buzzer and flashing red LED to indicate exceeded preset alarms: <ul style="list-style-type: none"> <li>• High: 3 beeps and flashes per second</li> <li>• Low: 2 beeps and flashes per second</li> <li>• STEL and TWA: 1 beep and flash per second</li> <li>• Alarms latching with manual override or automatic reset</li> <li>• Additional diagnostic alarm and display message for low battery and pump stall</li> </ul>
Datalogging	Optional 16,000 points (53 hours, 5 channels at one minute intervals) download to PC with serial number of unit, user ID, site ID and calibration date
Calibration	Two-point field calibration of zero and span gas
Sampling Pump	<ul style="list-style-type: none"> <li>• Internal pump, flow rate 400 cc/minute</li> <li>• Automatic shut off at low flow condition</li> </ul>
Hazardous Area Approval	US: UL, cUL, classified as intrinsically safe for use in Class I, Division 1 Groups A, B, C, D, Hazardous Locations T3C rating
Temperature	-4° F to 113° F (-20° C to 45° C)
Humidity	0% to 95% relative humidity (non-condensing)
Attachment	Durable rubber boot and wrist strap
Warranty	Lifetime on non-consuming components (per RAE Systems standard warranty), 2 years for O <sub>2</sub> , LEL, CO and H <sub>2</sub> S sensors, 1 year for all other sensors, 1 year pump, 1 year battery

Specifications are subject to change

#### Sensor Specifications

Gas Monitor	Range	Resolution
Combustible	0 to 100% LEL	1%
	0 to 100% VOL	1%
Oxygen	0 to 30.0%	0.1%
Carbon Monoxide	0 to 500 ppm	1 ppm
Hydrogen Sulfide	0 to 100 ppm	1 ppm
Sulfur Dioxide	0 to 20.0 ppm	0.1 ppm
Nitric Oxide	0 to 250 ppm	1 ppm
Nitrogen Dioxide	0 to 20.0 ppm	0.1 ppm
Chlorine	0 to 10.0 ppm	0.1 ppm
Hydrogen Cyanide	0 to 100 ppm	1 ppm
Ammonia	0 to 50 ppm	1 ppm
Phosphine	0 to 5.0 ppm	0.1 ppm

Specifications are subject to change

#### MONITOR ONLY INCLUDES:

- Monitor as specified
- Sensors as specified
- Filter and O-ring pack
- 5" Inlet probe
- Gas outlet port adapter
- Operation and maintenance manual
- Rubber boot with belt clip
- Alkaline battery adapter
- Rechargeable units additionally include:
  - Nickel-Metal-Hydride (NiMH) battery
  - 120 or 230 V AC/DC wall adapter (if specified)

#### MONITOR WITH ACCESSORIES KIT ALSO INCLUDES:

- Hard transport case with pre-cut foam padding

#### OPTIONAL CALIBRATION KIT ALSO INCLUDES:

- Four-gas mix in a 34L cylinder (50% LEL, 20.9% O<sub>2</sub>, 25 ppm H<sub>2</sub>S, 50 ppm CO)
- Calibration regulator (male) and tubing
- 15' (5 m) Tygon® tubing
- Tool kit

#### DATALOGGING MONITORS ALSO INCLUDE:

- Software ProRAE Suite Package for Windows® 98, 2000, NT and XP
- Computer interface cable