



# IAQRAE

## Indoor Air Quality Monitor

### IAQ Monitor with VOC Measurement

The **IAQRAE** is the only Indoor Air Quality (IAQ) monitor that combines a Photoionization Detector (PID) with traditional IAQ parameters like temperature, humidity, carbon dioxide (CO<sub>2</sub>), and a user-selected toxic gas sensor in one 1-to-5 sensor package. The PID gives the **IAQRAE** the ability to measure 0-500 ppm of VOCs (volatile organic compounds) with 0.01 ppm (10 ppb) resolution.

RAE Systems' advances in PID technology give IAQ investigators an ultra-sensitive VOC detection tool providing immediate insight and diagnosis. The **IAQRAE** provides consultants, safety & hygiene professionals, and building managers with a reliable, affordable, accurate, and instantaneous means of directly measuring VOCs so that problems can be quickly identified and fixed. Traditional IAQ monitors that measure just temperature, humidity, and CO<sub>2</sub> will miss these important indoor contaminants.

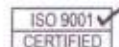
CO<sub>2</sub> monitors are very popular for IAQ surveys. But CO<sub>2</sub> is only a secondary measurement for IAQ. If one dilutes the air enough to reduce CO<sub>2</sub> levels it often solves the IAQ problem. However, high levels of CO<sub>2</sub> do not necessarily indicate high levels of VOCs. The PID in the **IAQRAE** compliments its CO<sub>2</sub> sensor by providing a direct measurement tool for VOCs that would never be noticed if only CO<sub>2</sub> were measured.

### Key Features

- Continuous monitoring of VOCs: 0-500 ppm and 0.01 ppm (10 ppb) resolution with PID sensor
- Continuous monitoring of CO<sub>2</sub>: 0-20,000 ppm with 10 ppm resolution
- Continuous measurement of temperature and relative humidity
- Toxic sensor socket accepts CO, H<sub>2</sub>S, SO<sub>2</sub>, NO, NO<sub>2</sub>, Cl<sub>2</sub>, HCN, NH<sub>3</sub> or PH<sub>3</sub> sensors
- Built-in diaphragm pump for sampling
- At least 48 hours of continuous operation with the built-in Li-ion battery
- 24 x 7 continuous operation when plugged into a wall charger
- Interchangeable Li-ion or alkaline battery pack
- Data easily downloaded with ProRAE Suite software
- Large digital display & keypad

### Sources of VOCs

- Cleaning and Maintenance Supplies
- Carpets, Fabrics, Finishes, Furniture, and Building Materials
- Office Equipment (copiers, printers)
- Microbial Contamination (mold, fungus, etc.)
- Human Occupancy (exhalation and perfume)
- Renovations
- Vocational Training Shops & Art Rooms
- Pesticides



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rev6\_11.04

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## Specifications\*

### Sensor Specifications

Gas Monitor	Range	Resolution
VOCs**	0.01-9.99 ppm	0.01 ppm
	10.0-99.9 ppm	0.1 ppm
	100-500 ppm	1 ppm
Carbon Dioxide	0-20,000 ppm	10 ppm
Carbon Monoxide	0-500 ppm	1 ppm
Hydrogen Sulfide	0-100 ppm	1 ppm
Sulfur Dioxide	0-20.0 ppm	0.1 ppm
Nitric Oxide	0-250 ppm	1 ppm
Nitrogen Dioxide	0-20.0 ppm	0.1 ppm
Chlorine	0-10.0 ppm	0.1 ppm
Hydrogen Cyanide	0-100 ppm	1 ppm
Ammonia	0-50 ppm	1 ppm
Phosphine	0-5.0 ppm	0.1 ppm
Temperature	32.0°-122.0° F (0-50.0°C)	0.1° F or C
Humidity	5-95% RH	1% RH

\*\* Performance based upon isobutylene calibration

### Detector Specifications

<b>Size</b>	9.25"L x 5.0"W x 9.25"H (23.5 x 13 x 23.5cm)
<b>Weight</b>	8 lbs (3.6 kg) with battery pack
<b>Sensors</b>	Up to five sensors (PID, CO <sub>2</sub> , Temperature, Humidity and one toxic), 10.6 eV PID sensor for VOC, Non-Dispersive Infrared (NDIR) for CO <sub>2</sub> , electrochemical sensor for toxic gas, polymer capacitive for humidity and thermistor for temperature (temp. & humidity sensors are located in housing on top of monitor)
<b>Battery</b>	Rechargeable, Lithium-ion battery pack with built-in charger (less than 10 hours charge time) or a 6 C-cell alkaline battery pack
<b>Operating Hours</b>	At least 48 hours continuous operation on Li-ion (typical); continuous when plugged into charger
<b>Display</b>	2 line, 16 digit LCD
<b>Keypads</b>	1 operation and 2 programming keys
<b>Direct Readout</b>	Instantaneous values (up to 5), sensor name, high and low values, battery voltage and elapsed time
<b>Alarms</b>	95 dB buzzer (user enabled) and flashing red LED to indicate exceeded preset limits <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 automatically reset or with latching manual override</li> <li>• Optional plug-in pen size vibration alarm</li> </ul>
<b>EM/RFI</b>	Highly resistant to EMI / RFI. Compliant with EMC Directive 89/336/EEC
<b>Datalogging</b>	Optional 20,000 points (7 days on VOC, CO <sub>2</sub> , Temp, Humidity and Toxic at 2.5 minute intervals)
<b>Communication</b>	Upload data to PC and download monitor setup from PC through RS 232 link to serial port on PC
<b>Calibration</b>	<ul style="list-style-type: none"> <li>• PID, Toxic: Two-point field calibration for zero and standard reference gas</li> <li>• CO<sub>2</sub>: Two-point field calibration for zero and standard reference gas</li> <li>• Humidity: Two-point field calibration</li> <li>• Temp: One-point field calibration</li> </ul>
<b>Sampling Pump</b>	Internal integrated diaphragm pump with programmable "duty-cycle" for PID self-cleaning during long continuous run times (24 x 7)
<b>Low Flow Alarm</b>	Auto shut off pump at low flow condition
<b>Temperature</b>	32° to 104°F (0 to 40°C)
<b>Humidity</b>	0% to 95% relative humidity (non-condensing)

### Detector Specifications (continued)

<b>Attachments</b>	Shoulder strap, optional tripod/wall mounting bracket
<b>Warranty</b>	Lifetime on non-consuming components (per RAE Systems Standard Warranty), 2 years for CO <sub>2</sub> , CO, and H <sub>2</sub> S sensors, 1 year all other sensors, 1 year pump, 1 year battery, 1 year for 10.6eV PID lamp

\* Ongoing projects to enhance our products mean that these specifications are subject to change.

#### Monitor only includes:

- Monitor as specified
- Sensors as specified
- Calibration adapter
- Operation and Maintenance Manual
- Shoulder strap
- Rechargeable Lithium-ion battery pack
- 110/240 V AC/DC Wall Adapter
- Spare alkaline battery pack
- 3-inch inlet probe
- 10 spare external filters
- Hard transport case with pre-cut foam
- Sampling wand with 10 feet of self-coiling Teflon® tubing
- Tool Kit

#### Optional calibration kit also includes:

- Mix Gas in a 34L cylinder (50 ppm CO, 5000 ppm CO<sub>2</sub>, 20.9% O<sub>2</sub>, balance N<sub>2</sub>)
- Isobutylene gas in a 34L cylinder (for units with PID)
- Regulators and tubing

#### Datalogging Monitors also include:

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

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rev6\_11.04

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