

IAQRAE

The only IAQ Monitor with VOC Measurement

The IAQRAE is the only Indoor Air Quality (IAQ) monitor to combine a Photo-Ionization Detector (PID) with traditional measures of IAQ like Temperature, Humidity, Carbon Dioxide (CO₂) and a user-selected toxic gas sensor in one 1-5 sensor package. The PID gives the IAQRAE the ability to measure 0-1000 ppm of VOCs (Volatile Organic Compounds) with 0.01 ppm (10 ppb) resolution.

RAE's advances in PID technology gives IAQ investigators an ultra-sensitive VOC detective 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 CO₂ will miss this important indoor contaminant.

CO₂ monitors are very popular for IAQ surveys. But CO₂ is only a *secondary* measurement tool for IAQ. If one dilutes the air enough to reduce CO₂ levels it often solves the IAQ problem. However, high levels of CO₂ do not necessarily indicate high levels of VOCs. The PID in the IAQRAE compliments its CO₂ sensor by providing a direct measurement tool for VOCs that would never be noticed if only CO₂ were measured.

Standard Features

- Continuous monitoring of VOCs 0-1000 ppm with 0.01 ppm (10 ppb) resolution with PID sensor
- Continuous monitoring CO₂ 0-20,000 ppm with 10 ppm resolution
- Continuous measurement of Temperature and Relative Humidity
- Toxic sensor socket accepts CO, H₂S, SO₂, NO, NO₂, Cl₂, HCN, NH₃ and PH₃ sensors
- Built in diaphragm pump for sampling
- 24 hours continuous operation from built-in Li-Ion battery
- 24/7 continuous operation when plugged into 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



Specifications

Sensor Specifications

Gas Monitor	Range	Resolution	Response Time (T 90)
VOCs	0.01 – 9.99 ppm	0.01 ppm	10 seconds
	10 ~ 99.9 ppm	0.1 ppm	10 seconds
	100-999 ppm	1.0 ppm	10 seconds
Carbon Dioxide	0-20,000 ppm	10 ppm	60 seconds
Carbon Monoxide	0-500 ppm	1 ppm	25 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
Humidity	5-95% RH	1% RH	60 seconds
Temperature	32-122°F (0-50°C)	0.1°F or C	

Detector Specifications

Size	9.25" L x 5.0" W 9.25" H (23.5 x 13 x 23.5cm)
Weight	8 lbs (3.6 kg) with battery pack
Detector	Up to five sensors (VOC, CO ₂ , Temperature, Humidity and one toxic), PID sensor for VOC, Non-Dispersive Infrared (NDIR) for CO ₂ , electrochemical sensors for toxic gases, polymer capacitive for humidity and thermistor for temperature (<i>temp & humidity sensors are located in housing on top of monitor</i>)
Battery	Rechargeable, 7.4V/6Ah, Lithium-ion battery pack with built in charger (less than 10 hours charge time) or a 6 C-cell alkaline battery pack
Operating Hours	Up to 24 hours continuous operation (typical) on a charge (continuous when plugged into charger)
Display	2 line, 16 digit LCD
Keypads	1 operation and 2 programming keys
Direct Readout	Instantaneous values (up to 5), sensor name, high and low values, battery voltage and elapsed time
Alarm Setting	Separate alarm settings for Low and High alarm
Audible Alarm	100dB buzzer at 10cm (typical, user enabled)
Visual Alarm	Flashing red LED cluster (user enabled)
External Alarm	Optional plug in pen size vibration alarm or earphone
Alarm Mode	Latching/automatic reset
Datalogging	20,000 points (7 days on VOC, CO ₂ , Temp, Humidity and Toxic at 2.5 minute intervals)
Datalog Interval	Programmable 1-3600 sec
Communication	Upload data to PC and Download monitor setup from PC through RS-232 link to serial port on PC
Calibration	VOC, Toxic: Two-point field calibration for zero and standard reference gas CO ₂ : Two-point field calibration for zero and standard reference gas Temp/Humidity: One-point field calibration
Sampling pump	Internal integrated diaphragm pump with programmable "duty-cycle" for PID self-cleaning during long continuous run times (24/7)
Low Flow Alarm	Auto shut off pump at low flow condition
Temperature	-4° to 113 °F (-20 to 45°C)
Humidity	0% to 95% relative humidity (non-condensing)
Attachment	Shoulder strap, optional tripod/wall mounting bracket

IAQRAE Accessories

Monitor Only Includes:

- Monitor as specified
- Sensors as specified
- Carbon filters (for units with CO)
- Calibration adapter
- Operation and Maintenance Manual
- Shoulder strap
- Rechargeable Lithium ion battery pack
- 110/240 V AC/DC Wall Adapter
- Spare alkaline battery pack
- Filter adapter
- 10 spare external filters
- 5 spare internal filters
- Hard transport case with pre-cut foam
- Sampling Wand with 10' of self-coiling Teflon tubing
- Tool Kit
- Security nuts and tool (replaces hand-tightened nuts on handle so that user provided cable lock can run through handle to secure the IAQRAE for long-term monitoring)

Instrument with calibration kit also includes:

- Mix Gas in a 34L cylinder to include; (50 ppm CO, 5000 ppm CO₂, 20.9% O₂, balance N₂)
- Isobutylene gas in a 34L cylinder (for units with PID)
- Calibration Regulator (*female*) and tubing
- Hard transport case with pre-cut foam

Datalogging Monitors also include:

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

Warranty:

Lifetime on non-consuming components (per RAE Standard Warranty), 2 years for CO₂, CO, and H2S sensors, 1 year all other sensors, 1 year pump, 1 year battery, 1 year for 10.6eV PID lamp

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