

AreaRAE-IAQ

The only IAQ Monitor with VOC Measurement

The **AreaRAE-IAQ** is the only wireless equipped, Indoor Air Quality (IAQ) monitor to combine a Photoionization 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 AreaRAE-IAQ the ability to measure 0-1000 ppm of VOCs (Volatile Organic Compounds) with 0.01 ppm (10 ppb) resolution. The RF (radio frequency) modem which allows the unit to communicate and transmit readings and other information on a real-time basis with a remotely located base controller.

RAE's advances in PID technology gives IAQ investigators an ultra-sensitive VOC detective tool providing immediate insight and diagnosis. The **AreaRAE-IAQ** 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 **AreaRAE-IAQ** compliments its CO₂ sensor by providing a direct measurement tool for VOCs that would never be noticed if only CO₂ were measured.

Standard Features

- Real-time wireless data transmission with built-in RF modem
- View real-time sensor data and alarm status at headquarters or command center
- ProRAE Remote software simultaneously controls and displays readings for up to 16 remote detectors
- License free, ISM band RF transmission with communication range up to 2-miles
- 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 is 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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Specifications

Sensor Specifications

Gas Monitor	Range	Resolution	Response Time (T ₉₀)
VOCs	0.01 – 9.99 ppm	0.01 ppm	10 seconds
	10.0 - 99.9 ppm	0.1 ppm	10 seconds
	100-999 ppm	1 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	0-20.0 ppm	0.1 ppm	15 seconds
Nitric Oxide	0-250 ppm	1 ppm	20 seconds
Nitrogen Dioxide	0-20.0 ppm	0.1 ppm	25 seconds
Chlorine	0-10.0 ppm	0.1 ppm	60 seconds
Hydrogen Cyanide	0-100 ppm	1 ppm	60 seconds
Ammonia	0-50 ppm	1 ppm	150 seconds
Phosphine	0-5.0 ppm	0.1 ppm	60 seconds
Temperature	32°-122°F (0-50°C)	0.1°F or C	300 seconds
Humidity	5-95% RH	1% RH	60 seconds

Detector Specifications

Size	9.25"L x 5.0"W 9.25"H (without handle) (23.5cm x 13.0cm x 23.5cm)
Weight	8.5 lbs (3.9 kg) with battery pack
Detector	Up to five sensors (VOC, CO ₂ , Temperature, Humidity and one toxic), photo-ionization sensors for VOC, Non-Dispersive Infrared (NDIR) for CO ₂ , electrochemical sensors for toxic gases, polymer capacitive for humidity and thermistor for temperature
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	2 operation and 3 programming keys
Direct Readout	Instantaneous values (up to 5), sensor name, high and low values, battery voltage and elapsed time
Alarm	Flashing red LED cluster to indicate exceeded preset limits, low battery or sensor failure (user enabled)
Alarm Setting	Separate alarm limit 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) download to PC with serial number of unit, user ID, site number, calibration date
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 fresh air 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

AreaRAE-IAQ Accessories

Monitor Only Includes:

- Wireless Modem
- 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
- Hard transport case with pre-cut foam
- Sampling Wand with 10' of self-coiling Teflon tubing
- Tool Kit

Instrument with calibration kit also includes:

- 2 Gas Mix in a 34L cylinder; (50 ppm CO, 5000 ppm CO₂, balance N₂)
- Calibration Regulator (*male*) and tubing
- 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

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