AreaRAE

Rapidly Deployable, Wireless, Multi-channel, Compact Multi-gas Monitor

The **AreaRAE** is a one-to-five sensor gas detector equipped with a wireless 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.

In stand alone operation, the **AreaRAE** is a rugged, weather-resistant, portable monitor that can run over 24-hours on either rechargeable Lithium-ion or alkaline batteries. It is also the first "lunchbox" type multi-sensor instrument able to include a photoionization detector (PID) for parts-per-million measurement of volatile organic compounds (VOCs), as well as LEL, O_2 and up to two electrochemical toxic sensors for measurement of specific toxic substances such as CO and H_2S.

The RF modem allows real-time data transmissions with a base controller located up to two-miles away from the **AreaRAE** detector. A personal computer can be used as the base station for an **AreaRAE** system. The standard ProRAE Remote software used to control **AreaRAE** systems is capable of monitoring the input of up to 32 remotely-located monitors.

AreaRAE options include the ability to track and display readings from remotely located detectors on a GPS map.

The **AreaRAE** is ideal for HazMat and other emergency response monitoring programs. **AreaRAE** detectors can be used to quickly establish an emergency perimeter by setting out multiple monitors at strategic locations, then backing off to a position of safety to monitor readings over the wireless link.

The **AreaRAE** is available individually or as part of the Rapid Deployment Kit (RDK) system package.

Key Features

- Up to five sensors (PID, LEL, O_2 and two toxic)
- Loud buzzer and large, extra-bright warning light
- Large LCD display and keypad
- Rugged, weather-resistant housing
- Built-in pump
- Interchangeable Li-ion or alkaline battery pack
- Continuous operation via AC source

Additional Advantages

- 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 32 remote detectors
- License free, ISM band RF transmission with communication range up to 2 miles (extendable with RAELink Repeaters)
- Optional wall-mounting bracket or field mounting tripod adapter
- Optional GPS provides ability to track and display readings from remote detectors

Applications

- HazMat and Emergency Response
- Refineries and Petrochemical Plants
- Confined Space Entry
- Power Plants
- Pulp and Paper Industry
- Plant and Mill Turnarounds
- Marine and Offshore Wells

Specifications*

Sensor Specifications

Gas Monitor	Range	Resolution
Oxygen	0-30.0%	0.1%
Combustible	1-100% LEL	1% LEL
VOCs	0-200.0 ppm	0.1 ppm
	200-2,000 ppm	1 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

Detector Specifications

Size	9.25"L x 5.0"W x 9.25"H (w/o handle)
Weight	8.5 lbs. (3.9 kg) with battery pack
Detector	Up to five sensors (O_2, combustible, two toxic and VOC), electrochemical sensors for toxic gases and oxygen, photoionization sensor for VOC, catalytic combustion sensor for combustible gases
Battery	Rechargeable, 7.4V/4.5Ah, Lithium-ion battery pack with built in charger (less than 10 hours charge time) or a 6 C-size alkaline battery pack
Operating Hours	36 hrs continuous stand-alone operation, 24 hrs continuous wireless operation (Lithium-ion battery), 18 hrs continuous wireless operation (alkaline battery)
Display	2 line, 16 digit LCD with manually activated LED back light
Keypads	3 operation and 4 programming keys
Direct Readout	Instantaneous values, sensor name, high and low values for all detectors, TWA and STEL values for toxic gases and VOCs, battery voltage and elapsed time
Alarm	Flashing red LED cluster to indicate exceeded preset limits, low battery or sensor failure
Alarm Setting	Separate alarm limit settings for TWA, STEL, Low and High alarm
Audible Alarm	100dB buzzer at 10cm (typical)
Visual Alarm	Flashing red LED cluster
Alarm Mode	Latching/automatic reset
Datalogging	4000 points for each sensor with time stamp, serial number, user ID, site ID
Data Storage	20,000 readings (64 hours, 5 channels at 1 minute intervals) in non-volatile memory
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
EM Immunity	No effect when exposed to 0.43 mW/cm^2 RF interference (5 watt transmitter at 12 inch)
Intrinsic Safety	UL and CSA Classified for use in Class 1, Division II, Groups A,B, C, and D (w/ 900 MHz modem)
Frequency	902 to 928 MHz (License free) or 2.400 to 2.4835 GHz (License free, 3 user selectable channels)
RF Range	Up to 2 miles (900 MHz) - extendable with RAELink Repeaters
Error Detection	32 bit CRC, resend on error

Detector Specifications (continued)

Calibration	Two-point field calibration for fresh air and standard reference gas
Sampling pump	Internal integrated diaphragm pump with programmable High (400cc/min) and Low (300cc/min) flow rate settings
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
Optional	Integrated GPS receiver

*Ongoing projects to enhance our products means that these specifications are subject to change

Monitor only includes:
- Monitor as specified
- Sensors as specified
- Carbon filters (for units with CO)
- Calibration adapter
- Quick reference guide
- Operation and maintenance manual
- Shoulder strap
- Rechargeable Lithium-ion battery pack
- 120/240 VAC AC/DC Adapter
- Spare alkaline battery pack
- 10 spare external filters
- Hard transport case with pre-cut foam
- 15' (5M) Teflon® tubing
- Tool kit

Instrument with calibration kit also includes:
- Calibration gas (kit may contain multiple cylinders depending on the sensors installed)
- Calibration regulator and tubing (kit may contain a second regulator depending on the types of calibration gases included)
- 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

ProRAE Remote Basic Host Software Package includes:
- ProRAE Remote Software for Windows 98, NT, 2000 and XP
- RAELink Modem

AreaRAE Model Numbers:
- AreaRAE with RF modem: PGM-5020
- AreaRAE with RF modem & GPS option: PGM-5020