AreaRAE Steel Z1

Rapidly Deployable, Wireless Multi-gas Monitor

The AreaRAE Steel Z1 is a one- to five-gas wireless monitor that delivers ATEX Zone 1 certification in an extremely rugged stainless-steel enclosure designed for applications in harsh environments. The weather-resistant AreaRAE Steel Z1 is the benchmark against which portable wireless gas monitors are judged.

AreaRAE Steel Z1 combines a photoionization detector (PID) for parts-per-million measurement of volatile organic compounds (VOCs) with lower explosive limit (LEL) and oxygen sensors, plus two electrochemical toxic sensors for measuring specific substances such as hydrogen sulfide or chlorine. An integrated wireless modem allows the AreaRAE Steel Z1 to transmit real-time gas measurement data to a ProRAE Remote base station located up to 3 kilometers away.

The base station is a standard Windows-based PC running ProRAE Remote software connected to a RAELink Host Modem. The base station can communicate with up to 12 AreaRAE Steel Z1s (or other AreaRAE-compatible monitors), providing a multi-threat detection network that can monitor a wide geographic area.

AreaRAE Steel Z1 monitors are powered by rechargeable Llithium-ion batteries that deliver up to 14 hours of continuous operation.

The AreaRAE Steel Z1 is ideal for fast deployment during plant shutdowns or turn-around. AreaRAE Steel Z1 detectors can be used to quickly establish a working perimeter by setting out multiple monitors at strategic locations, then backing off to a position of safety to monitor readings over the wireless link.

Key Features

- Up to five sensors (PID, LEL, O_2 and two toxic gas electrochemical)
- Loud buzzer and large, extra-bright warning light
- Large LCD display and keypad
- Rugged, weather-resistant stainless-steel housing
- Built-in sampling pump
- Interchangeable Lithium-ion

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 remote detectors and storage data
- License-free, ISM wireless transmission with communication range up to 3 kilometers

Applications

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

Wireless

CE   ATEX ZONE 1   ISO 9001 CERT F ED   RAE SYSTEMS

AreaRAE Steel Z1

Specifications*

Detector Specifications

Size	235mm L x 127mm W x 235mm D without handle
Weight	13.85 lbs (6.3 kg) with battery pack
Sensors	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 Lithium-ion battery (to be charged outside the instrument)
Operating Hours	Up to 14 hours continuous operation
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	Buzzer, 100 dB buzzer at 10 cm (typical)
Visual Alarm	Flashing red LED cluster
Alarm Mode	Latching/automatic reset
Datalogging	4,000 points for each sensor with time stamp, serial number, user ID, site ID
Datalog Interval	Programmable 1 to 3,600 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 30 cm)
Safety Certification	Europe: ATEX II 2G EEx ib d IIc T4 (w/869 Mhz modem)
Frequency	869 MHz (License-free)
RF Range	Up to 3 kilometers
Error Detection	32 bit CRC, resend on error
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	-20° to 45°C (-4° to 113° F)
Humidity	0% to 95% relative humidity (non-condensing)
IP Rating	IP-65 (water-proof)
Attachment	Shoulder strap, optional tripod/wall mounting bracket

*Specifications are subject to change

Sensor Specifications

Gas Monitor	Range	Resolution
Oxygen	0 to 30.0%	0.1%
Combustible	0 to 100% LEL	1% LEL
VOCs	0 to 199 ppm 200 to 2,000 ppm	0.1 ppm 1 ppm
Carbon Monoxide	0 to 500 ppm	1 ppm
Carbon Monoxide	10 to 2000 ppm	10ppm
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
Hydrogen Chloride	2 to 15 ppm	1 ppm
Hydrogen Fluoride	2 to 10 ppm	1 ppm

Monitor only includes:
- Monitor as specified
- Sensors as specified
- Carbon filters (for units with CO)
- Calibration adapter
- Quick reference guide
- Operation and maintenance manual
- Extra rechargeable Lithium-ion battery pack
- 120/240 VAC AC/DC Adapter
- 3 spare external filters
- Hard transport case with pre-cut foam padding
- 15' (5m) Teflon® tubing
- Tool kit
- External charger

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)

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