

Bid Specifications: SAFESITE® Sentry™ Chemical Agent Detector

PHYSICAL CHARACTERISTICS

Size	Unit shall not exceed 20"W x 24"H x 10"D in total size
Weight	Unit shall not exceed 75 lbs.
Enclosure Type	The enclosure shall be stainless steel.

OPERATION

Sensor Capacity	The Sentry shall have the capacity to utilize up to six different sensors to detect for: <ul style="list-style-type: none"> • Chemical Warfare Agents utilizing SAW technology • Gamma Radiation utilizing CZT technology • Volatile Organic Compound utilizing PID technology • Toxic Gases utilizing Electrochemical sensor technology • Combustible gases utilizing Catalytic Bead technology • Oxygen deficiency/enrichment utilizing Electrochemical sensor technology
Smart sensor technology	Toxic, VOC, combustible and oxygen sensors shall be configured in a common housing, allowing for interchangeability and quick changeout. The display shall auto-recognize smart sensors installed and update the LCD display with sensor type and range.
LCD Display	Shall indicate up-to six threat readings simultaneously and indicate - through smart symbols - RF signal strength, horn and beacon status, GPS status and password protection.
Keypad	Shall utilize three buttons to power unit on and off, set alarm levels and settings, calibrate sensors, review RF diagnostics, and set system configurations.
RF Diagnostics	System software shall indicate, on the LCD display, radio signal strength and data transmission success rate between the detector and Command Center. There will be no need to contact Command Center to determine if placement of detector is providing sufficient RF signal strength.
Wireless Interface	Shall utilize a 900 MHz, 1W, spread spectrum, frequency-hopping radio.
Wired Interface	Shall utilize RS-485 communication.

GAMMA RADIATION DETECTOR

Technology	Gamma Radiation shall be detected using a Cadmium Zinc Telluride (CZT) technology		
CZT Specifications	Range	Saturation	Minimum Detectability
	0-100 mRem/hr	120,000 cpm	0.1 mRem/hr
	0-1000 mRem/hr	120,000 cpm	1.0 mRem/hr

VOLATILE ORGANIC COMPOUND DETECTOR

Technology	Volatile Organic Compounds (VOC's) shall be measured using Photoionization Detector (PID) technology.		
VOC Detector Specifications	Gas Type	Range	Minimum Detectability
	VOC	0-200 ppm	0.1 ppm
	VOC	0-1500 ppm	1 ppm

CHEMICAL WARFARE AGENT DETECTOR

CWA Detector Specifications	Gas Type	Minimum Detectability
	Nerve Agents (GA Tabun, GB Sarin, GD Soman, GF Blister Agents (HD Sulfur Mustard and HN-3 Nitrogen Mustard)	<0.5 mg/m ³
		<2 mg/m ³
Technology	CWAs shall be detected using the Surface Acoustic Wave Microsensor Array Technology (SAW)	
Selectivity	The CWA detector shall provide high selectivity of CWA agents, identifying Nerve (G) or Blister (H) agents, preventing misleading warnings to preclude unnecessary false positive readings.	

TOXIC / O₂ / COMBUSTIBLE GAS SENSOR

Technology	Toxic Industrial Chemicals (TIC's) and oxygen sensor shall be measured using electrochemical sensors. Combustible sensors shall be measured using catalytic bead sensors.		
	Gas Type	Range	Minimum Detectability
Toxic Sensor Detection	Carbon Monoxide - CO	0-100 ppm	1 ppm
	Carbon Monoxide - CO	0-500 ppm	2 ppm
	Carbon Monoxide - CO	0-1000 ppm	1 ppm
	Hydrogen Sulfide - H ₂ S	0-10 ppm	0.1 ppm
	Hydrogen Sulfide - H ₂ S	0-50 ppm	0.1 ppm
	Hydrogen Sulfide - H ₂ S	0-100 ppm	1 ppm
	Hydrogen Sulfide - H ₂ S	0-500 ppm	1 ppm
	Chlorine - CL ₂	0-5 ppm	0.1 ppm
	Chlorine - CL ₂	0-10 ppm	1 ppm
	Chlorine - CL ₂	0-20 ppm	1 ppm
	Chlorine Dioxide - CLO ₂	0-3 ppm	0.1 ppm
	Sulfur Dioxide - SO ₂	0-25 ppm	1 ppm
	Sulfur Dioxide - SO ₂	0-100 ppm	1 ppm
	Nitric Oxide - NO	0-100 ppm	1 ppm
	Nitrogen Dioxide - NO ₂	0-10 ppm	0.1 ppm
	Hydrogen Cyanide - HCN	0-50 ppm	1 ppm
	Hydrogen Chloride - HCL	0-50 ppm	1 ppm
	Phosphine - PH ₃	0-2 ppm	0.1 ppm
	Arsine - AsH ₃	0-2 ppm	0.1 ppm
	Bromine - Br ₂	0-5 ppm	0.1 ppm
Ammonia - NH ₃	0-100 ppm	1 ppm	
Ammonia - NH ₃	0-1000 ppm	10 ppm	
Oxygen Sensor	Oxygen - O ₂	0-10%	0.10%
	Oxygen - O ₂	0-25%	0.10%
Combustible Sensor	Combustible Gas	0-100% LEL	1% LEL

SENSING TECHNIQUE

Pump	The system shall have the ability to use a sample draw to pull a sample into the enclosure and across each of the sensors.		
Flow Specification	No Sample Line		350 cc/min
	50 ft. Sample Line		190 cc/min

MAINTENANCE REQUIREMENTS

Maximum System Maintenance	The system shall require periodic checking of sensor response to a known concentration of gas and periodic checks on the chemical warfare agent pump and smart sensor pump, when applicable.		
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USER INTERFACES

Communication	Unit shall communicate to a computer command center or an alternate communication host within a wireless network.		
Command Center	Command center shall be the SAFESITE Sentry Command Center.		

CALIBRATION REQUIREMENTS

TIC / VOC / O ₂ / Combustible	Shall be calibrated using a calibration port and individual calibration cylinders.		
CWA and RAD	No calibration shall be required. Units shall be able to simulate alarm conditions to test.		

ENVIRONMENTAL

Temperature	-20° to +45°C (-4° to +113°F)
Humidity	Operating Humidity range 0-95% RH, non-condensing

POWER REQUIREMENTS

System Power Requirements	The system shall operate on 90-240 VAC, 50/60 Hz power (60 watts).
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WARRANTY

Base Unit and Sensors	Instrument shall have one year parts and labor standard warranty with extended five year warranty available.
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