SAFESITE® Sentry™ Chemical Agent Detector

MSA
The Safety Company™

Threat	Technology	Benefit
Chemical warfare agents	Surface acoustic wave (SAW)	Low false positives and false alarms, differentiates between nerve & blister agents
Gamma radiation	Cadmium zinc telluride (CZT)	Sensitive with adjustable threshold and 2 ranges. (0-100 mR/hr, 0.1 mR/hr resolution & 0-1000 mR/hr, 1 mR/hr resolution)
Volatile organic compounds	Photoionization (PID)	10.6 eV lamp provides ppm readings for broadband toxics and VOC detection
Toxic industrial chemicals	Electrochemical	Detects for many specific toxic gases, such as chlorine, ammonia, hydrogen cyanide, and hydrogen chloride
Oxygen deficiency or enrichment	Electrochemical	Oxygen monitoring for confined spaces
Combustible gas	Catalytic bead	Wide-range detection for hydrocarbons

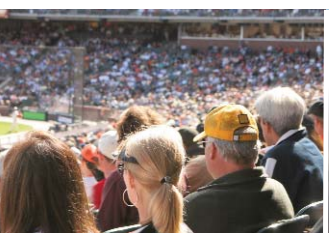
The SAFECOM Command Center receives mission critical information from the SAFESITE Sentry Detectors. This crucial, wide-ranging data is converted quickly into practical information for rapid decision-making through an uncomplicated graphical user interface (GUI). The Command Center can manage up to four systems with 16 Detectors (SAFESITE SAFEMTX Detector's or Sentry Detector's) per system, integrating data including:

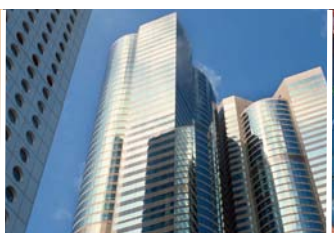
- Gas readings
- Relative CWA threat level
- Radiation dose rate
- Alarm status
- GPS location
- RF signal strength
- Fault conditions
- Sentry min, max, and average values

Through the SAFECOM Command Center, alarms are both visual and audible. Alarms can then be acknowledged and silenced, detectors can be enabled and disabled, event logs and event log history can be viewed, plus units can be customized to suit the specific deployment scenario.

The SAFECOM Command Center maps SAFESITE Sentry Detectors using GPS technology, specific address inputs, or "click-and-drag" icons onto images.

The SAFECOM Command Center is also a TCP/IP hub, allowing all information to be placed on a network for remote viewing anywhere in the world.





The SAFESITE Sentry Chemical Agent Detector is a continuous-use, permanently-mounted detection instrument for facility protection against weapons of mass destruction (WMDs). This unit provides superior preventative and countermeasure solutions for homeland security and emergency response.

- 24/7 detection plus communication of up to six potential WMD threats
- Integration of several proven technologies
- Highly selective to specific chemical agents, reducing false alarms
- Identifies selected TICs (Toxic Industrial Compounds) by specific gas with readings displayed in ppm
- Interchangeable smart sensors are pre-calibrated for fast change-out
- GPS and wireless access available

The SAFESITE Sentry Chemical Agent Detector and the SAFECOM™ Command Center make up MSA's permanently installed SAFESITE Sentry system. This system continuously monitors, detects, and communicates the presence of up to six potential threats: chemical warfare agents (CWAs), toxic industrial compounds (TICs), volatile organic compounds (VOCs), gamma radiation, combustible gas, and oxygen content.

This network—wired or wireless—is easily integrated into existing automation and security systems within facilities, buildings, transportation hubs, etc. It helps first responders, law enforcement, government agents, and security personnel reduce the risk of exposure and facilitate consequence management.

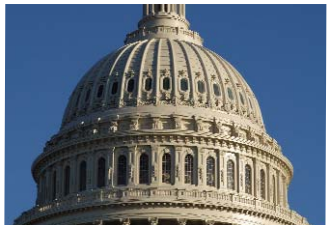
The SAFESITE Sentry Detector integrates several proven technologies to detect advanced threats in superior ways. The Detector also offers GPS location technology, pumped flow operation, interchangeable smart sensors (for maximum flexibility), and automatic internal system diagnostics.

The Sentry System can be used for a magnitude of applications for Critical Infrastructure and Key Resource (CI/KR) Protection. The urgency of national preparation to recognize and protect CI/KR is conveyed in Homeland Security Presidential Directive – 7 (HSPD-7) and the National Infrastructure Protection Plan (NIPP). Refer to MSA's Critical Infrastructure Protection Bulletin ID#07-2139-MC for additional information on this very important topic.

Specific applications for the SAFESITE Sentry include:

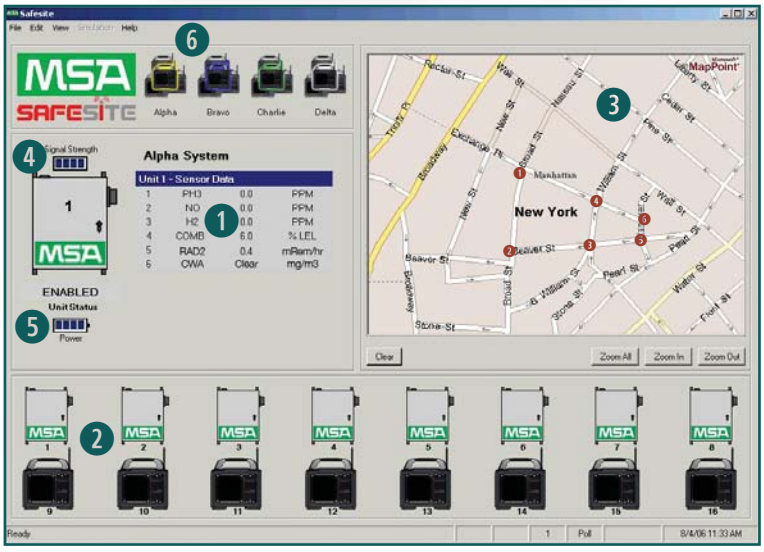
- Subways
- Airports
- High profile offices and banks
- Government buildings
- Stadiums and race tracks
- HVAC
- Refineries and chemical plants
- Fence line monitoring
- Banking districts

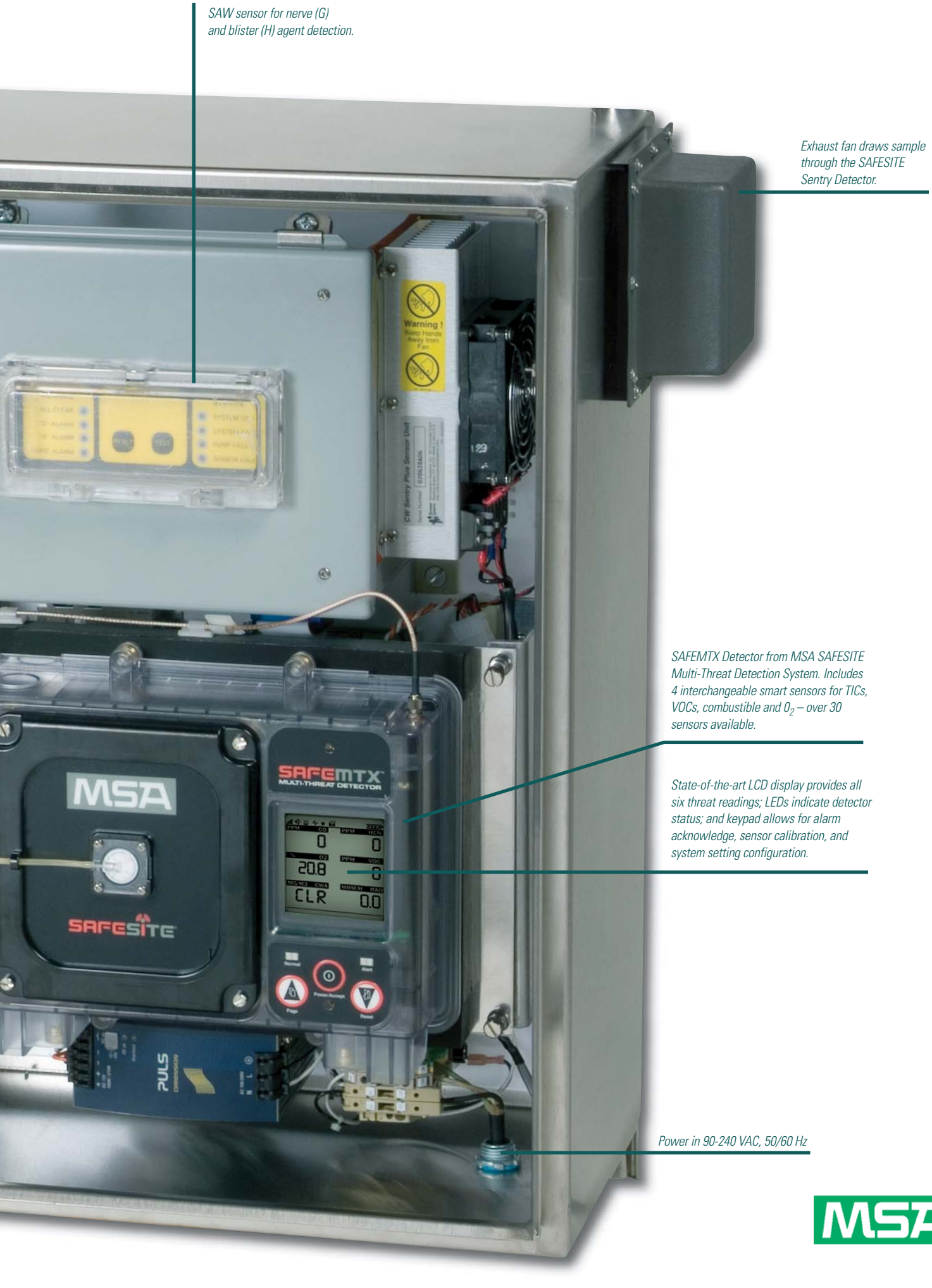
Fence line monitoring of chemical plant utilizing SAFESITE Sentry Detector


PC CONNECTION

1. **Threat readings** – *scrolling readings of up to 16 MTX Detectors per channel. Unit is identified by a large icon to the left of the readings. In alarm condition, a display snaps to unit in alarm.*
2. **Detector icons** – *identify number of units enabled in current network. Specific unit readings are viewed by double-clicking on icon.*
3. **Map** – *option for map view or uploaded image view.*
4. **Signal strength** – *communication status*
5. **Power** – *status of battery life or line connection*
6. **System status** – *alerts user to alarm, warning or fault within a particular system.*





SAW sensor for nerve (G) and blister (H) agent detection.

Exhaust fan draws sample through the SAFESITE Sentry Detector.

SAFEMTX Detector from MSA SAFESITE Multi-Threat Detection System. Includes 4 interchangeable smart sensors for TICs, VOCs, combustible and 0_2 – over 30 sensors available.

State-of-the-art LCD display provides all six threat readings; LEDs indicate detector status; and keypad allows for alarm acknowledge, sensor calibration, and system setting configuration.

Power in 90-240 VAC, 50/60 Hz

SAFESITE Sentry Chemical Agent Detector Specifications

Operating Temperature	-20˚ to +45˚C (-4˚ to +113˚F)
Operating Humidity	0-95% RH, non-condensing
Dimensions	24"W x 20"H x 10"D
Weight	75 lbs.
Power	90-240 volt AC, 50/60 Hz
Radio	900 mHz, 1W, spread spectrum, frequency-hopping
Network	RS-485 hardware, ModBus protocol
Gamma Radiation Detector Specifications	
CZT	0-100 mRem/hr. - 0.1 mRem/hr. resolution
CZT	0-1000 mRem/hr. - 1.0 mRem/hr. resolution
CWA Sensor Specifications	
Technology	Surface Acoustic Wave microsensor
Sensor Analysis Time	30 seconds
Warm-up Time	<5 minutes
CWA Alarm Thresholds	
*Meets the ECT_{50} exposure dose level**	
Nerve Agents (G)	
GA (Tabun) ≥ 0.5 mg/m³	
GB (Sarin) ≥ 0.7 mg/m³	
GD (Soman) ≥ 0.5 mg/m³	
GF (Cyclosarin) ≥ 0.5 mg/m³	
Blister Agents (H)	
HD (Mustard) ≥ 2 mg/m³	
HN-3 (Nitrogen Mustard) ≥ 2 mg/m³	
VOC, Toxic, and Oxygen Sensor Specifications	
Drift	
Zero Drift	<5%/Yr., typically
Span Drift	<10%/Yr., typically
Noise	<1% full scale
Accuracy	
Repeatability	±1% FS or 2 ppm (VOC)
Linearity	±2% FS (combustible; O2; CO)
	±10% FS or 2 ppm (others)
Step Change Response	T50 O2 and toxics <30 sec. (typical)
	T50 Combustibles & VOCs <15 sec. (typical)

SAFECOM Command Center Specifications

Power	90-240 volt AC, 50/60 Hz
Weight	25 lbs
Dimensions	16"W x 12"H x 8"D
Radio	900 MHz, 1W, spread spectrum, frequency-hopping
Connectivity	TCP/IP hub
Network	RS-485 hardware, ModBus protocol

** 2-minute exposure of the effective concentration that has a negative effect on 50% of the population http://fas.org/irp/doddir/army/fm3-11-9.pdf*

To order MSA's SAFESITE Sentry Chemical Agent Detector, please refer to Assemble-to-Order bulletin #07-2114.

Specific Sensors Available

Sensor Type	Range / Full Scale
Ammonia	0-100 PPM
	0-1000 PPM
Arsine	0-2 PPM
Bromine	0-5 PPM
Carbon Monoxide	0-100 PPM
	0-500 PPM
	0-1000 PPM
CWA	See Specs
Chlorine	0-5 PPM
	0-10 PPM
	0-20 PPM
Chlorine Dioxide	0-3 PPM
Combustible Gases	0-100% LEL
Ethylene Oxide	0-10 PPM
Gamma Radiation	See Specs
Hydrogen Chloride	0-50 PPM
Hydrogen Cyanide	0-50 PPM
Hydrogen Sulfide	0-10 PPM
	0-50 PPM
	0-100 PPM
	0-500 PPM
Nitric Oxide	0-100 PPM
Nitrogen Dioxide	0-10 PPM
Oxygen	0-10%
	0-25%
Phosphine	0-2 PPM
Sulfur Dioxide	0-25 PPM
	0-100 PPM
VOC Photoionization Detection	0-200 PPM
	0-1500 PPM

Note: This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.

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Corporate Headquarters
P.O. Box 426, Pittsburgh, PA 15230 USA
Phone 412-967-3000
www.MSAnet.com

U.S. Customer Service Center
Phone 1-800-MSA-INST
Fax 1-724-776-3280

MSA Canada
Phone 416-620-4225
Fax 416-620-9697

MSA Mexico
Phone 52-55 21 22 5770
Fax 52-55 5359 4330

MSA International
Phone 412-967-3354
FAX 412-967-3451

Offices and representatives worldwide
For further information:

MSA
The Safety Company