

# SAFESITE® Multi-Threat Detection System





The SAFESITE Multi-Threat Detection System simultaneously monitors and wirelessly communicates six potential threats: CWAs, VOCs, TICs, gamma radiation, combustible gas and oxygen deficiency.

The SAFESITE System combines state-of-the-art detection technology with advanced wireless communication capabilities to provide superior preventative and counter-measure solutions for:

- ➔ Homeland Security
- ➔ Emergency Response
- ➔ Public Events
- ➔ Building Protection
- ➔ Mass Transportation Centers
- ➔ Perimeter Monitoring
- ➔ Hazardous Response
- ➔ Port Surveillance
- ➔ Confined Space Monitoring

SAFESITE® System components consist of the SAFEMTX™ Multi-Threat Detector, the SAFECOM™ Command Center and the SAFECOM™ Belt-Bridge with Sirius wireless interface. The system can be installed permanently (wired or wireless) for continual monitoring or deployed as a portable system.

The SAFEMTX Multi-Threat Detector utilizes multi-sensing technologies to detect up to six potential threats; helping first responders, law enforcement

and government agents reduce the risk of exposure and facilitate consequence management.

The SAFEMTX Detector also offers GPS location technology, pumped flow, horn, beacon, interchangeable smart sensors for maximum flexibility, a display lock-out panel which hides the display during monitoring, and internal diagnostics to identify signal strength during system deployment. Power options allow for lithium ion or alkaline batteries, as well as AC Power and 12 VDC vehicle connection.



| Threat                       | Technology                   | Benefit  |
|------------------------------|------------------------------|--|
| Chemical warfare agents      | Surface acoustic wave (SAW)  | Low false positives and false alarms, differentiates 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   | Photo-ionization (PID)       | 10.6 eV lamp provides ppm readings for broadband toxics and VOC detection  |
| Toxic industrial chemicals   | Electro-chemical             | Detects for many specific toxic gases such as chlorine, ammonia, hydrogen cyanide and hydrogen chloride                  |
| Oxygen deficiency/enrichment | Electro-chemical             | Oxygen monitoring for confined space   |
| Combustible gas              | Catalytic bead               | Wide range detection for hydrocarbons  |

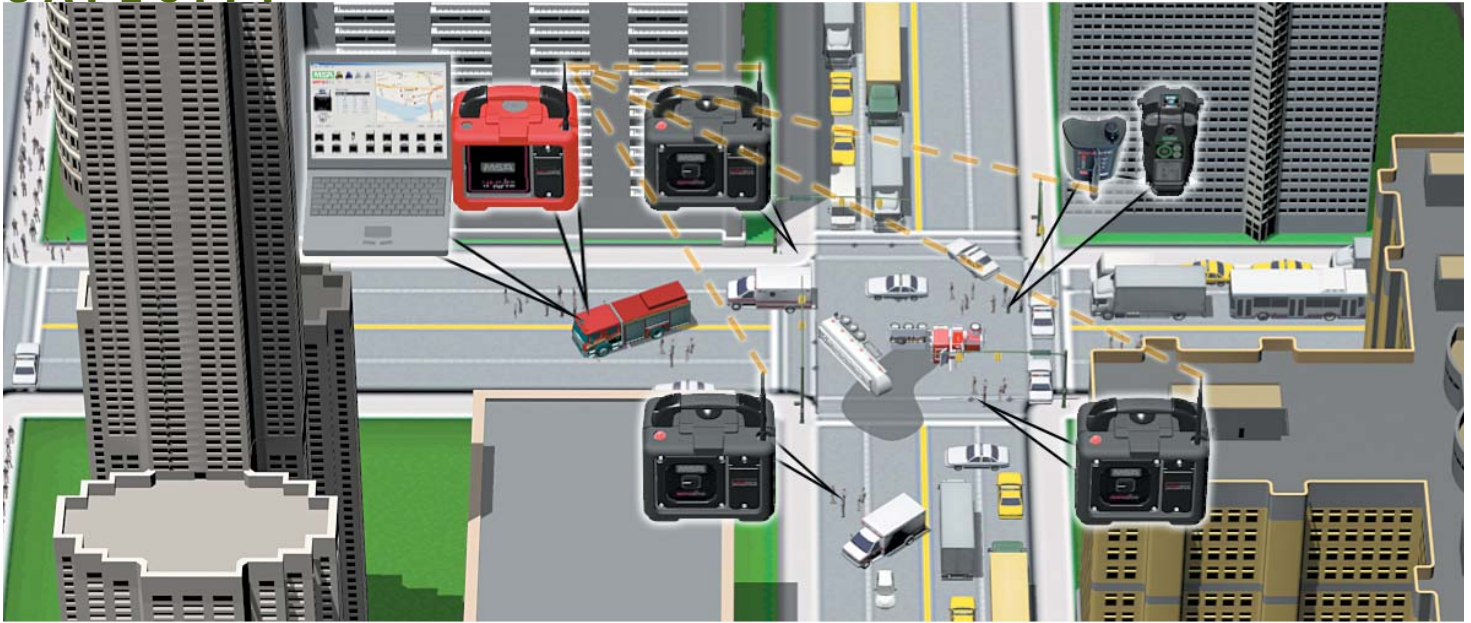


SAFEMTX Multi-Threat Detector



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.

# SAFECITY



The **SAFECOM™** Command Center receives mission-critical information from the **SAFEMTX™** Detectors and permits this crucial and wide-ranging data to be converted quickly into practical information for rapid decision-making through an uncomplicated graphical user interface. The SAFECOM Command Center can manage up to four systems with 16 SAFEMTX Detectors per system, integrating SAFEMTX data, including:



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

Through the SAFECOM Command Center, alarms are identified with both visual and audible alarms. 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 SAFEMTX Detectors through GPS technology, specific address inputs or “click-and-dragging” 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.

## Wireless Technology

The SAFESITE® System provides up to two miles of wireless communication between any SAFEMTX Detector, SAFECONNECT Belt-Bridge and SAFECOM Command Center.



**SAFECONFIG™** Software works with the SAFECOM Command Center or SAFECONNECT Belt-Bridge, enabling configuration of any SAFEMTX Detector as a repeater. This added capability maximizes deployment range and ensures maximum signal strength and reliable deployment without the need to move units.

## Components Work Together



The Sirius Wireless Interface features an IR link which gathers the information from the Sirius Multigas Detector (PID, CO, H<sub>2</sub>S, O<sub>2</sub> and combustible gases) and then sends the information to the SAFECONNECT Belt-Bridge via Bluetooth technology.



The SAFECONNECT Belt-Bridge converts the signal in from the Sirius Wireless Interface and transmits the information plus GPS location back to the SAFECOM Command Center via a 1 watt, spread spectrum, frequency hopping, 900 MHz radio.



The SAFECOM Command Center receives the 900 MHz signal from the SAFECONNECT Belt-Bridge and converts it to practical information for rapid decision making. The SAFESITE System can display simultaneous information from the SAFEMTX™ Detectors and the Sirius Multigas Detector for complete coverage.



PC Connection



- 1 Threat Readings** – scrolling readings of up to 16 MTX Detectors per channel. Unit is identified by large icon to the left of the readings. In alarm condition, display snaps to unit in alarm.
- 2 MTX Icons** – identify number of units enabled in current network. Users may view specific unit reading by double-clicking on icon.
- 3 Map** – option for map view or uploaded image view.
- 4 Signal Strength** – communication status from SAFEMTX™ Detector to SAFECOM™ Command Center.
- 5 Power** – status of battery life of SAFEMTX Detectors.
- 6 System Status** – alerts user to alarm, warning or fault within a particular system.
- 7 Action Buttons** – allow user to select address, cycle units, acknowledge alarms and enable or disable units from the system.

## Training

MSA also offers factory or field training sessions for the SAFESITE System.

Training includes:

- Sensing technology
- Deployment recommendations
- GPS features and use

*Please contact your local MSA rep for more information.*

## SAFEPAC™ Perimeter Area Command Kit

SAFESITE® SAFEPAC Perimeter Area Command Kit provides a basic kit for quick deployment and monitoring of an event or a location. The kit includes two Pelican cases with an internal battery charger, 4 SAFEMTX™ Multi-Threat

Detectors, 1 SAFECOM™ Command Center, all necessary PC interface software, and 4 extra batteries. A laptop PC is also available as an option, or an existing PC can be used.

- 1 Case** — Weather-resistant case provides safe storage of system components
- 2 Internal battery charger** — Allows charging of system batteries while in storage. Charges 4 back-up lithium-ion batteries
- 3 SAFEMTX Detectors** — Store up to 4 customer-specified units and power them through AC connection
- 4 SAFECOM Command Center** — Storage for SAFECOM Command Center plus laptop PC
- 5 Calibration kit** — Storage for calibration kits in SAFECOM box (kit is optional)
- 6 Storage compartments** — Storage for all power cords, adapters, manuals, calibration cylinders and other relevant equipment



## SAFEMTX™ Multi-Threat Detector Specifications

|                              |   |
|------------------------------|---|
| <b>Operating Temperature</b> | -20° to +50°C (-4° to +122°F)                   |
| <b>Operating Humidity</b>    | 0-95% RH, non-condensing                        |
| <b>Dimensions</b>            | 12"W x 12.5"H x 7.75"D                          |
| <b>Weight</b>                | 11 lbs.   |
| <b>Power</b>                 | 110 VAC or 12 VDC                               |
| <b>Radio</b>                 | 900 MHz, 1W, spread spectrum, frequency-hopping |
| <b>Battery Type</b>          | Lithium-ion or alkaline                         |

|                         |          |
|-------------------------|----------|
| <b>Battery Run-Time</b> |          |
| Lithium-ion with SAW    | 7 hours  |
| Lithium-ion without SAW | 24 hours |

|  |   |
|--|---|
| <b>Gamma Radiation Detector Specifications</b> |   |
| CZT  | 0-100 mRem/hr. - 0.1 mRem/hr. resolution  |
| CZT  | 0-1000 mRem/hr. - 1.0 mRem/hr. resolution |

|                                  |                                   |
|----------------------------------|-----------------------------------|
| <b>CWA Sensor Specifications</b> |                                   |
| <b>Technology</b>                | Surface Acoustic Wave Microsensor |
| <b>Sensor Analysis Time</b>      | 30 seconds                        |
| <b>Warm-up Time</b>              | <5 minutes                        |

|  |  |
|--|--|
| <b>CWA Alarm Thresholds</b>                            |  |
| <i>Meets the ECT<sub>50</sub> exposure dose level*</i> |  |
| <b>Nerve Agents (G)</b>                                |  |
| GA (Tabun) ≥ 0.5 mg/m <sup>3</sup>                     |  |
| GB (Sarin) ≥ 0.7 mg/m <sup>3</sup>                     |  |
| GD (Soman) ≥ 0.5 mg/m <sup>3</sup>                     |  |
| GF (Cyclosarin) ≥ 0.5 mg/m <sup>3</sup>                |  |
| <b>Blister Agents (H)</b>                              |  |
| HD (Mustard) ≥ 2 mg/m <sup>3</sup>                     |  |
| HN-3 (Nitrogen Mustard) ≥ 2 mg/m <sup>3</sup>          |  |

|                              |                             |
|------------------------------|-----------------------------|
| <b>Operating Temperature</b> | 0° to +40°C (32° to +104°F) |
|------------------------------|-----------------------------|

|  |                     |
|--|---------------------|
| <b>VOC, Toxic and Oxygen Sensor Specifications</b> |                     |
| <b>Drift</b>                                       |                     |
| Zero Drift   | <5%/Yr., typically  |
| Span Drift   | <10%/Yr., typically |
| <b>Noise</b>                                       | <1% full scale      |

|                 |  |
|-----------------|--|
| <b>Accuracy</b> |  |
| Repeatability   | ±1% FS or 2 ppm (VOC)  |
| Linearity       | ±2% FS (combustible; O <sub>2</sub> ; CO)<br>±10% FS or 2 ppm (others) |

|                             |  |
|-----------------------------|--|
| <b>Step Change Response</b> | T50 O <sub>2</sub> and toxics <30 sec. (typical)<br>T50 Combustibles & VOCs <15 sec. (typical) |
|-----------------------------|--|

|                           |  |
|---------------------------|--|
| <b>Approvals</b>          |  |
| <b>Hazardous Location</b> | Class I, Division 2, Groups A, B, C, D   |
| <b>Ingress Protection</b> | IP 65; totally protected against dust and protected against low pressure jets of water from all directions |

## SAFECOM™ Command Center Specifications

|                     |   |
|---------------------|---|
| <b>Power</b>        | 110 VAC or 12 VDC                               |
| <b>Weight</b>       | 7 lbs   |
| <b>Dimensions</b>   | 12"W x 12.5"H x 7.75"D                          |
| <b>Radio</b>        | 900 MHz, 1W, spread spectrum, frequency-hopping |
| <b>Connectivity</b> | TCP/IP hub                                      |

\* 2-minute exposure of the effective concentration that has a negative effect on 50% of the population

<http://fas.org/lirp/doddiir/army/fm3-11-9.pdf>

## 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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