

MSA SAFESITE®
Multi-Threat
Detection System/
SAFECOM™
Command Center

Instruction Manual

⚠ WARNING

THIS MANUAL MUST BE CAREFULLY READ BY ALL INDIVIDUALS WHO HAVE OR WILL HAVE THE RESPONSIBILITY FOR USING OR SERVICING THE PRODUCT. Like any piece of complex equipment, this instrument will perform as designed only if it is used and serviced in accordance with the manufacturer's instructions. OTHERWISE, IT COULD FAIL TO PERFORM AS DESIGNED AND PERSONS WHO RELY ON THIS PRODUCT FOR THEIR SAFETY COULD SUSTAIN SEVERE PERSONAL INJURY OR DEATH.

The warranties made by Mine Safety Appliances Company with respect to the product are voided if the product is not used and serviced in accordance with the instructions in this manual. Please protect yourself and others by following them. We encourage our customers to write or call regarding this equipment prior to use or for any additional information relative to use or repairs.

In North America, to contact your nearest stocking location, dial toll-free 1-800-MSA-INST
To contact MSA International, dial 1-412-967-3354

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This manual is available on the internet at www.msanet.com

Manufactured by

MSA INSTRUMENT DIVISION

P.O. Box 427, Pittsburgh, Pennsylvania 15230

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MSA Permanent Instrument Warranty

- 1. Warranty-** Seller warrants that this product will be free from mechanical defect or faulty workmanship for a period of eighteen (18) months from date of shipment or one (1) year from installation, whichever occurs first, provided it is maintained and used in accordance with Seller's instructions and/ or recommendations. This warranty does not apply to expendable or consumable parts whose normal life expectancy is less than one (1) year such as, but not limited to, non-rechargeable batteries, sensor elements, filter, lamps, fuses etc. The Seller shall be released from all obligations under this warranty in the event repairs or modifications are made by persons other than its own or authorized service personnel or if the warranty claim results from physical abuse or misuse of the product. No agent, employee or representative of the Seller has any authority to bind the Seller to any affirmation, representation or warranty concerning the goods sold under this contract. Seller makes no warranty concerning components or accessories not manufactured by the Seller, but will pass onto the Purchaser all warranties of manufacturers of such components. **THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, AND IS STRICTLY LIMITED TO THE TERMS HEREOF. SELLER SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.**
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- 3. Exclusion of Consequential Damage-** Purchaser specifically understands and agrees that under no circumstances will seller be liable to purchaser for economic, special, incidental or consequential damages or losses of any kind whatsoever, including but not limited to, loss of anticipated profits and any other loss caused by reason of non-operation of the goods. This exclusion is applicable to claims for breach of warranty, tortious conduct or any other cause of action against seller.

General Warnings and Cautions

WARNING

1. The SAFECOM Command Center described in this manual must be installed, operated and maintained in strict accordance with its labels, cautions, warnings, instructions, and within the limitations stated.
2. Keep the cover tightly closed when the unit is not in use. Install only in locations where the unit's operational conditions are met. When the cover is opened, keep dust and moisture away from the instrument. Do not use in Classified locations.
3. Use only genuine MSA replacement parts when performing any maintenance procedures provided in this manual. Failure to do so may seriously impair instrument performance. Repair or alteration of the SAFECOM Command Center, beyond the scope of these maintenance instructions or by anyone other than authorized MSA service personnel, could cause the product to fail to perform as designed and persons who rely on this product for their safety could sustain serious personal injury or death.
4. Do not locate the SAFECOM Command Center in an area which may contain a flammable mixture of gas and air; otherwise, an explosion may occur. The SAFECOM Command Center can be a source of ignition and must not be mounted in an area where a flammable mixture of combustible gas and air may be present; otherwise, explosion may occur.
5. The SAFECOM Command Center is designed to be connected to and operate with SAFESITE system components. The SAFECOM Command Center is incompatible and will not work with other types of radio networks.
6. For proper operation, the SAFECOM Command Center must be installed and configured properly.

Failure to follow the above can result in serious personal injury or death.

▲ CAUTION

- 1. Protect the SAFECOM from extreme vibration. Do not mount the instrument in direct sunlight as this may cause overheating of its components.**
- 2. As with all radio-equipped instrumentation of these types, certain radio frequency emission source and exposure to radio interference may cause degradation in radio communication reliability. Consequently, radio diagnostics must be included as part of the routine inspection of the system.**

Failure to follow the above can result in serious personal injury or death.

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Chapter 1, General Information

General Description

The SAFESITE Multi-Threat Detection system:

- is designed to detect, alert and communicate to the user the potentially dangerous levels of targeted gases
- can be transported and operated in a temporary location after a quick deployment, or integrated permanently into buildings and structures
- is able to:
 - detect chemical threats effectively
 - help reduce the risk of chemical exposure
 - facilitate consequence management for:
 - first responders
 - law enforcement
 - government agents and others.

The SAFESITE system consists of, but is not limited to:

- SAFEMTX™ Multi-Threat Detector units
- SAFESITE Sentry™ units
- SAFECONNECT Belt-Bridge units
- SAFESITE Sentry Command Center
- SAFECOM Command Center
- A computer equipped with SAFESITE software.

Purpose

This Instruction Manual:

- is intended for users with an understanding of the Microsoft Windows operating system
- describes how to deploy the SAFESITE system and to operate the SAFESITE software
- is to be used in conjunction with the instruction manual for the SAFEMTX Multi-Threat Detector (P/N 10067906) and/or the SAFESITE Sentry (P/N 10075194) and/or the SAFECONNECT Belt-Bridge units (P/N 10072258).

SAFEMTX Multi-Threat Detector Unit

The SAFEMTX Multi-Threat Detector:

- is a transportable device capable of detecting hazardous gases
- communicates wirelessly to the SAFECOM Command Center unit where the data are collected.

NOTE: Refer to SAFEMTX Multi-Threat Detector Instruction Manual for operation guidelines.

SAFESITE Sentry Unit

- The SAFESITE Sentry Detector:
 - is a fixed/permanent device capable of detecting gases
 - communicates to the SAFECOM Command Center through a wired or wireless connection where the data is collected.

NOTE: Refer to the SAFESITE Sentry Instruction Manual for operation guidelines.

SAFECONNECT Belt-Bridge Unit

- SAFECONNECT Belt-Bridge unit is:
 - a belt-mounted unit that is designed to provide connection to portable gas detector instruments
 - communicates wirelessly to the SAFECOM Command Center.

SAFECOM Command Center Unit

- The SAFECOM Command Center is capable of communicating to up to 16 SAFEMTX units spread around the perimeter area.
- The SAFESITE software is capable of monitoring up to four SAFECOM systems, named by default as Alpha, Bravo, Charlie, and Delta systems.



Figure 1-1.
SAFESITE system

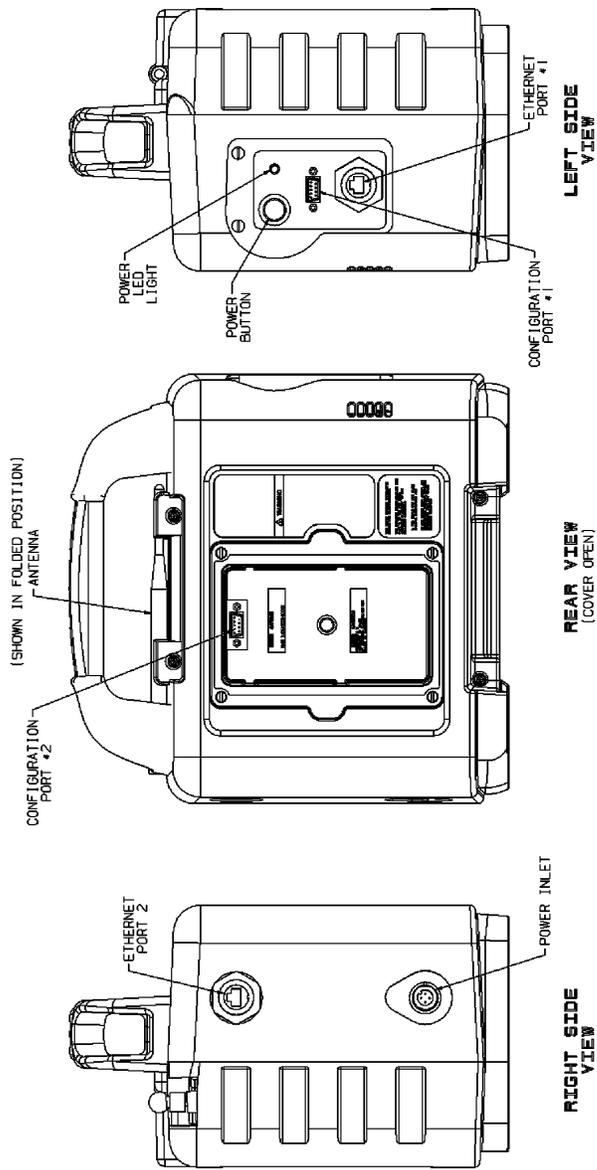


Figure 1-2.
SAFECOM Detailed Views

SAFECOM Left Side View

POWER BUTTON

- Press the POWER button to turn the SAFECOM unit ON or OFF.

POWER LED Light

- The green POWER LED light turns ON when you turn ON the SAFECOM unit.

Configuration Port 1

- This is a Serial communication port to access the radio transceiver module in order to configure the radio or to change its parameters.
- The port settings are 19200 baud, 8 data bits, no parity, 1 stop bit, hardware flow control.

Ethernet Port 1

- This is one of the two available Ethernet ports, connected to the Ethernet hub inside.

Antenna

- Make sure that the antenna is folded up and pointing upward when operating the system.

SAFECOM Right Side View

Ethernet Port 2

- This is one of the two available Ethernet ports, connected to the Ethernet hub inside.

Power Inlet

- This connects to the SAFESITE power supply.
- The SAFESITE power supply converts AC power (or 12 VDC power, when equipped with a cigarette lighter adapter plug) to the DC power required by the SAFECOM unit.
- When connecting the SAFESITE power supply:
 - Notice that the connector is keyed and can only be inserted one way.
- Plug in the four-pin connector of the SAFESITE power supply.

- Twist the connector cap several times to tighten the connection and prevent water or moisture from entering the connector.

SAFECOM Rear View (Cover Opened)

Configuration Port 2

- This is a Serial communication port to configure the SAFECOM unit.
- The port settings are 57600 baud, 8 data bits, no parity, 1 stop bit, XON/XOFF flow control.

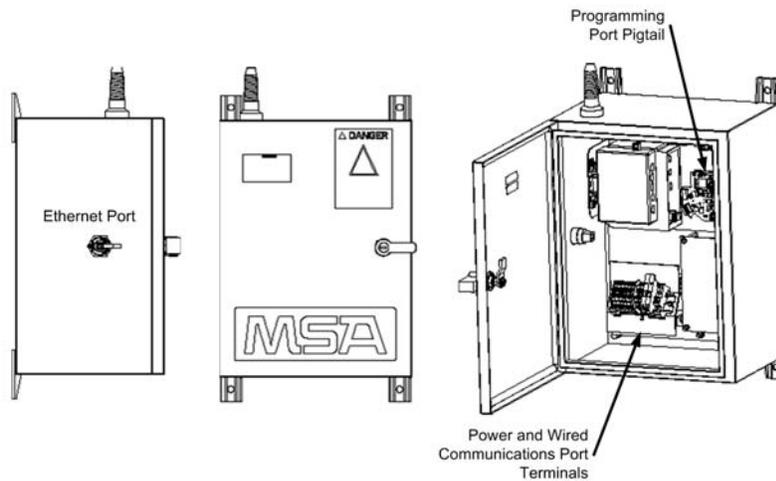


Figure 1-3.

SAFESITE Sentry Continuous Chemical Agent Detector

- is a permanently-mounted version of the SAFECOM unit
- may be used in wired or wireless communication networks.

Terminology and Definitions

Master Device:

- The SAFECOM Command Center unit is a master device in the SAFESITE system.

Slave Device:

- The SAFEMTX Multi-Threat Detector units are slave devices in the SAFESITE system.
- These devices only communicate to their designated SAFECOM unit, the master device in the system.

Network ID and Frequency Numbers:

- The SAFEMTX units designated to communicate to their master device (a SAFECOM unit) are assigned with matching Network ID and Frequency Number prior to shipment.
- All system devices must have the same Network ID and Frequency Number for proper system operation.

SAFEMTX/SENTRY/SAFECONNECT Address Setting:

- Each SAFEMTX/SENTRY/SAFECONNECT Multi-Threat Detector unit in a system must have a unique address number, ranging from 1 to 16.
- The address is configured in the factory and can be displayed on the SAFEMTX screen.
- The SAFECONNECT Belt-Bridge uses a rotary dip switch to set the address.
- Refer to the SAFEMTX/SENTRY/SAFECONNECT Multi-Threat Detector Instruction Manuals for more information on address configuration.

Radio Information

The SAFECOM and SAFEMTX units contain transmitter modules with FCC ID: KNY-6231812519. The device complies with Part 15 of the FCC rules.

FCC Notification

This radio complies with part 15 of the FCC rules. Operation is subject to the following two conditions: 1) This device may not cause harmful interference and 2) this device must accept any interference received, including interference that may cause undesired operation.

⚠ CAUTION

The radio has a maximum transmitted output power of 955 mW. It is recommended that the transmit antenna be kept at least 23 cm away from nearby persons to satisfy FCC RF exposure requirements.

Unpacking Your Units

To unpack SAFEMTX Multi-Threat Detector units, follow information given in the SAFEMTX Multi-Threat Detector Instruction Manual.

To unpack a SAFECOM Command Center unit:

1. Carefully remove the unit from its shipping container to prevent damage to sensitive electrical components.
2. Search through packing material and inside all containers to prevent discarding usable or valuable parts.
3. Locate the SAFESITE Installation Kit package inside the shipping container. You will need this to install the SAFESITE software onto your computer.

Chapter 2, Getting Started

This chapter provides information on:

- hardware requirements
- installation of the SAFESITE software
- using the software.

Installation Kit

The SAFESITE Installation Kit includes the following:

- SAFESITE Install CD set, which includes:
 - SAFESITE software
 - Microsoft MapPoint North American Maps 2004
 - Kepware OPC driver
 - USB driver for the USB 10/100 Ethernet adapter.

NOTE: An integrated installation program built into this CD set simplifies installation of all component software.

- End-user licenses for their respective software
- The SAFESITE instruction manual
- SAFEMTX Multi-Threat Detector Instruction manual
- The USB 10/100 Ethernet adapter and Ethernet patch cable.

Hardware Requirements

The SAFESITE software requires a computer that meets the following requirements:

- Microsoft Windows XP Professional with Service Pack 2 or Windows 2000 with Service Pack 4
- Pentium 900 MHz or faster
- 10 GB free hard-disk space
- 256 MB RAM minimum
- CD-ROM drive
- Display resolution of 1024 x 768, or higher, with 16-bit color
- Mouse or compatible pointing device
- USB 2.0 port.

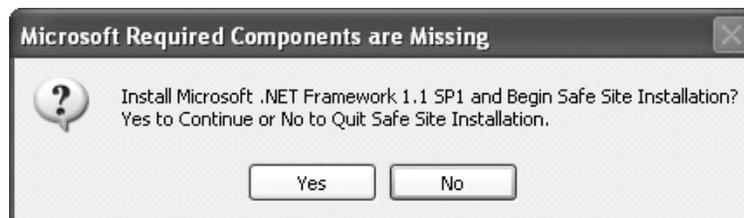
Installing the SAFESITE software

The SAFESITE software and its components may only be installed and used on one computer.

NOTE: You must have "Administrator" rights to install SAFESITE software properly.

To begin installation, follow these steps:

1. If you previously installed an earlier version of SAFESITE software and its components, you must first uninstall SAFESITE software, Microsoft MapPoint software, and Kepware software from the computer.
2. Close all running Windows applications, including Kepware software that may be running in the background.
3. Insert the SAFESITE Install CD number 1 into your CD-ROM drive.
4. If the SAFESITE setup application does not launch immediately, open the Windows Start menu and select Run. Browse the SAFESITE install CD for SETUP application and click on the file.
5. If your Windows operating system does not come equipped with Microsoft .NET Framework 1.1 SP1, the following window will appear. Click **Yes** to continue.



6. The following SAFESITE Setup window will appear. Click **Next** to continue:



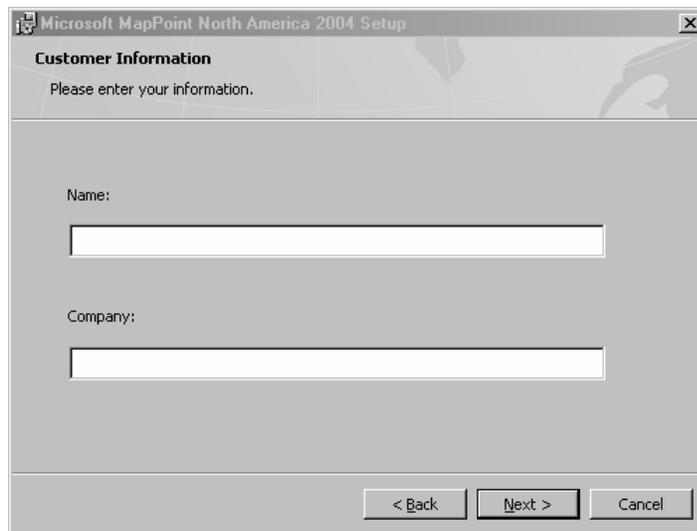
7. The following SAFESITE Setup window will appear. Click **Next** to continue. It will take several minutes to copy temporary files and approximately 2 MB in size, to a temporary location on your hard drive.



8. The following Microsoft MapPoint Setup window will appear. Click **Next** to continue:



9. Enter your name and the company name on the following window. Click **Next** to continue:

The screenshot shows a window titled "Microsoft MapPoint North America 2004 Setup". The window has a dark gray header bar with the text "Customer Information" and "Please enter your information." below it. The main area is light gray and contains two text input fields. The first field is labeled "Name:" and the second is labeled "Company:". At the bottom right, there are three buttons: "< Back", "Next >", and "Cancel".

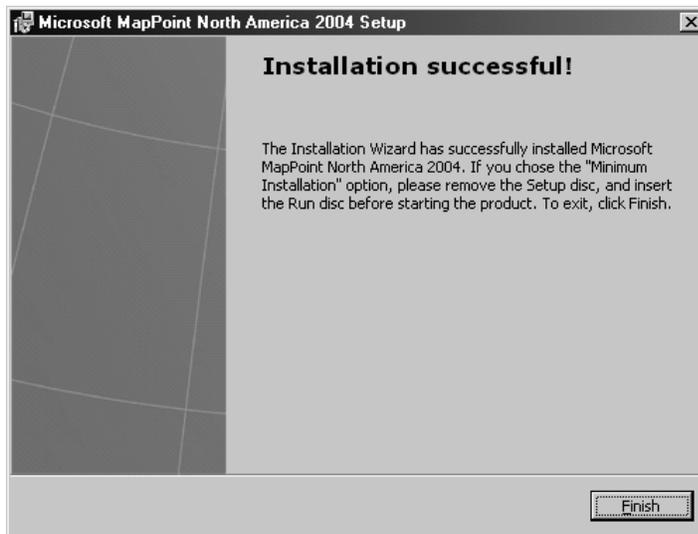
10. Click **Next** on the following Microsoft MapPoint Setup window:



11. Click **Install** on the following Microsoft MapPoint Setup window:



12. Click **Finish** on the following Microsoft MapPoint Setup window:



13. Click **Finish** on the following SAFESITE Setup window:



14. The SAFESITE installation is now complete. Proceed with installing the USB driver for the USB 10/100 Ethernet adapter.

Installing the USB Driver on Windows 2000

1. Insert the USB 10/100 Ethernet adapter into the USB port on your PC. The system will display the "Found New Hardware Wizard" dialog box. Press **NEXT** button.



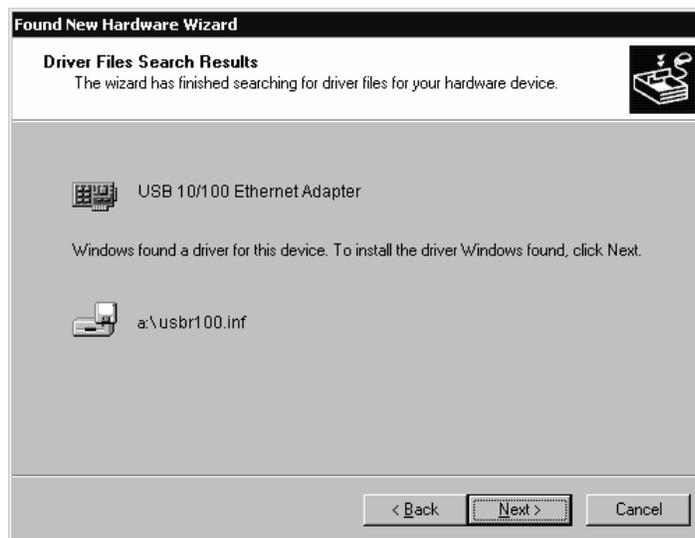
2. Select "Search for a suitable driver for my device (Recommended)" and press **NEXT** button.



3. Select "Specify a location" and type "C:\Program Files\MSA SAFESITE\USB Driver\WIN2000" for the location where the device information file (.INF file) and driver USB100.SYS can be found.



4. After Windows finds the driver, the "USB 10/100 Ethernet Adapter" prompt appears. Press **NEXT** and the driver installs itself.



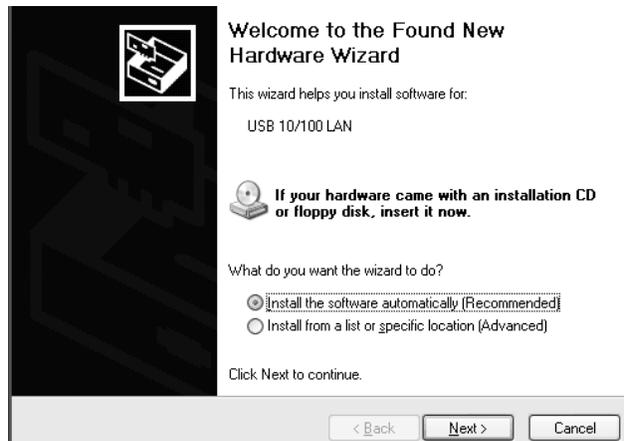
5. When Windows finishes the installation, the "USB 10/100 Ethernet Adapter " message box appears; click **FINISH**.



6. Restart your computer; when the computer restarts, the network function will be ready.

Installing the USB Driver on Windows XP

1. Insert the USB 10/100 Ethernet adapter into the USB port on your PC. The system displays the "Found New Hardware Wizard" dialog box. Select "Install the software automatically" and click **NEXT**.



2. Windows XP searches the best match driver of the device; select "C:\Program Files\MSA SafeSite\USB Driver\WINXP\usbkr100.inf" and click **NEXT** to continue.



3. Windows displays a Hardware Installation window. Click "Continue Anyway"; the system automatically copies the driver files and related files into the system.



4. After copying the driver files, the device installation is completed, click **FINISH**.



5. Restart your computer; when the computer restarts, the network function will be ready.

Setting up Network Connection to SAFECOM

There are two modes of networking:

- **Infrastructure** – connection using router
 - To establish an infrastructure network connection to the SAFECOM, consult your IT personnel and/or MSA factory.
- **Ad-Hoc** – SAFECOM connection to a computer, for peer-to-peer communication using direct connection or a hub.
 - Direct connection requires a special cross-over cable.
 - Ad-Hoc connection using a hub requires a common Ethernet patch cable.

The SAFECOM is shipped factory-ready for Ad-Hoc connection to a computer running the SAFESITE software. Since an internal network hub is provided in the SAFECOM, only an Ethernet patch cable is needed to connect it to the computer. The cable is included in the Installation Kit package.

- The first (Alpha) SAFECOM unit in the system has a default IP address set to 192.168.0.2.
- The second (Bravo) SAFECOM unit in the system has a default IP address set to 192.168.0.3.
- The third (Charlie) SAFECOM unit in the system has a default IP address set to 192.168.0.4.
- The fourth (Delta) SAFECOM unit in the system has a default IP address set to 192.168.0.5.

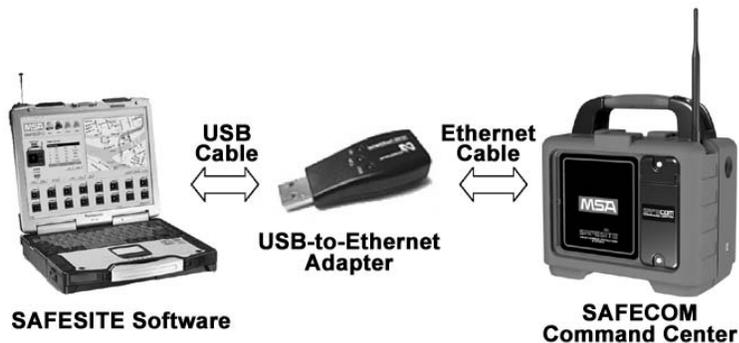
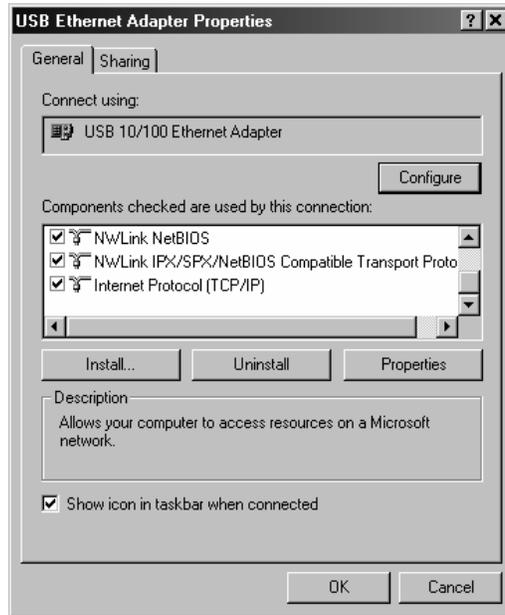


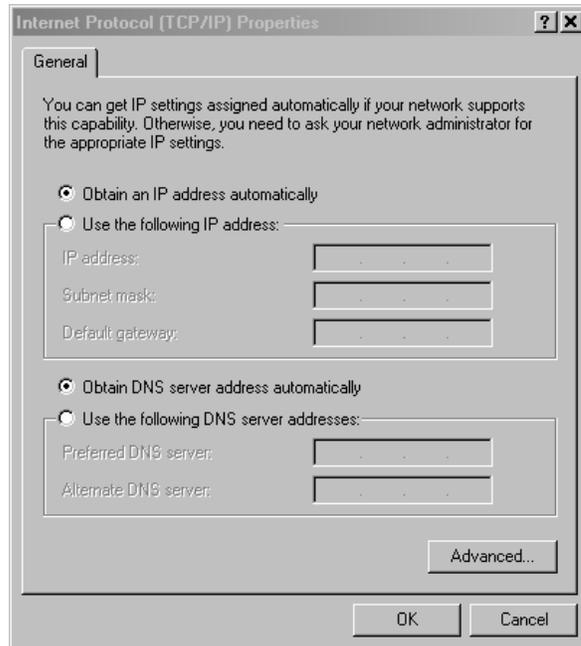
Figure 2-1.
Ad-Hoc Networking of SAFESITE System

Follow these steps to set up the Ad-Hoc connection to the SAFECOM unit, using the USB 10/100 Ethernet adapter:

1. Install the USB 10/100 Ethernet adapter into the computer USB port. The green LED on the adapter should light up.
2. Plug one end of the Ethernet patch cable to the USB 10/100 Ethernet adapter and the other end of the cable to one of the SAFECOM Ethernet ports. Make sure that the SAFECOM unit is turned ON.
3. Assign IP address to the computer USB 10/100 Ethernet adapter:
 - a. Go to the Windows Start menu and click on Settings and "Network and Dial-up Connections" option.
 - b. Double click on the adapter's icon and click on Property button. The following window appears:



- c. Click on "Internet Protocol (TCP/IP)"; then, click on **PROPERTIES**. It may be necessary to scroll down the component list. The following window appears:



- d. Click on "Use the following IP address".
 - Enter 192.168.0.10 for the IP address
 - Enter 255.255.255.0 for subnet maskand click **OK**.
4. To verify network connection, issue a ping command to SAFECOM's IP address, as follows:
 - a. Go to the Windows Start menu and click on the Run option. Enter "Command" at the prompt.
 - b. Enter:
 - "PING 192.168.0.2" on the command line to ping the Alpha SAFECOM unit or
 - 192.168.0.3 to ping the Bravo SAFECOM unit
 - 192.168.0.4 to ping the Charlie SAFECOM unit
 - 192.168.0.5 to ping the Delta SAFECOM unit.
 - c. Successful ping command results in multiple replies from the SAFECOM unit; failed ping command shows "request timed out" message.

- d. Type "EXIT" at the command line to close the Command Prompt session.

Setting up Network Connection to Additional SAFECOM Units

The following procedure is for connecting additional SAFECOM unit(s) to an existing Ad-Hoc networking SAFESITE system, comprised of a computer and a SAFECOM unit.

NOTE: To establish an infrastructure network connection to additional SAFECOM unit(s), consult your IT personnel and/or MSA factory.

To connect a second SAFECOM unit (Bravo unit) to the system:

1. Using the Ethernet patch cable that comes with the SAFECOM Bravo unit, plug one end of the Ethernet patch cable to one of the Ethernet ports of the Bravo unit.
2. Plug the other end of the cable to second Ethernet port on the Alpha unit. Make sure that both SAFECOM units are turned ON.

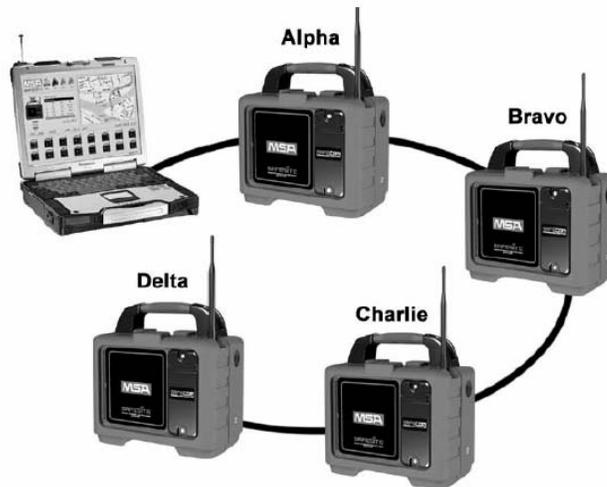


Figure 2-2.
Ad-Hoc Networking of SAFESITE System
with Multiple SAFECOM Units

Chapter 3, System Operation

Charging the Batteries

Before deploying the SAFESITE system, all SAFEMTX detectors must be charged to full capacity. Refer to the SAFEMTX Multi-Threat Detector Instruction manuals for operation and charging procedure information.

Choosing Locations

The location of the SAFEMTX detectors:

- Must first be surveyed to ensure:
 - Acceptable radio link quality
 - A reliable communication to the SAFECOM
- Must be carefully selected to meet the site's requirements for gas monitoring
- Must have a 110-VAC power source connected to SAFESITE power supply when an extended period of operation is required.

WARNING

The SAFEMTX detector must be powered from battery only when mounted in a hazardous (Classified) location.

NOTE: Provide a back-up power source, when necessary.

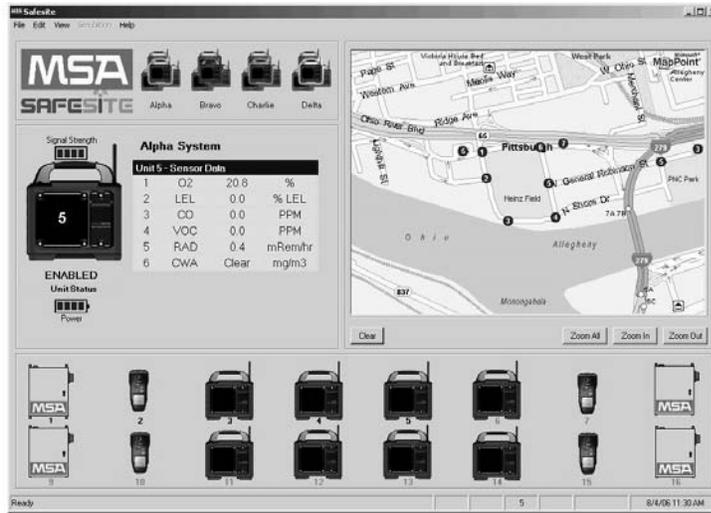
When selecting the location of the SAFECOM Command Center:

- Install the SAFECOM Command Center in a location or building where it will be manned continuously
- Locate the SAFECOM unit where it can communicate reliably to every device on the system
- Extend the antenna
- Connect the SAFECOM to the computer set up to run the SAFESITE software

NOTE: Provide a back-up power source, when necessary.

Understanding the SAFESITE Graphical User Interface

The main display of the SAFESITE software shows the following screen when the system is in full operation:



The screen contains a number of graphical areas that are updated with real-time data as it is received from the field devices and detectors. These graphical areas are described as follows:

SAFECOM Status Icons



- These icons depict system(s) being monitored.
- Each icon represents a SAFECOM unit.
- Each SAFECOM communicates to up to 16 SAFEMTX detectors in the field.

- The SAFESITE software actively displays the status of the SAFEMTX detectors from one SAFECOM unit at a time.
 - If enabled, other SAFECOM units are also being monitored in the background.
 - Click on a SAFECOM status icon to bring up the information from the other SAFECOM unit.
- The SAFECOM status icons remain a solid color if they are enabled and in normal condition.
 - For example:
When a non-normal condition exists on a SAFEMTX detector that is part of a "Bravo" SAFECOM system, the "Bravo" SAFECOM status icon flashes in red.

If the "Bravo" SAFECOM unit is not currently displayed on-screen, click on the icon to bring up the detailed information on screen.
- The SAFECOM status icon is grayed-out if the system is disabled.

SAFEMTX Status



This icon shows the status of one particular SAFEMTX unit and displays the:

- Radio Signal Strength Indicator (RSSI)
- Unit Address Number
- Unit Status (enabled, disabled, alarm, etc.) and
- Battery Power Level.

SAFEMTX Sensor Data

Alpha System			
Sensor Data			
1	NH3	0.0	PPM
2	NH3	0.0	PPM
3	CL2	0.0	PPM
4	VOC	0.0	%
5	CWA	Clear	mg/m3
6	RAD	0.0	mRem/hr

- This grid area shows the following for all six sensors on the SAFEMTX unit:
 - gas types
 - gas readings and
 - engineering units.
- The name of the SAFECOM system currently displayed on the screen is printed above the sensor data grid area.
- In the "cycle" mode, the sensor data grid:
 - Displays the readings of one SAFEMTX detector
 - Cycles through all enabled SAFEMTX detectors
 - Skips all disabled SAFEMTX detectors
 - Changes to "freeze" mode when a new alarm is detected on a SAFEMTX unit; In the "freeze" mode, the sensor data grid:
 - Displays the readings from a SAFEMTX detector only and continues updating the screen
 - Displays additional command buttons (See Command Buttons for SAFEMTX.)
 - Reverts back to "cycle" mode once the new alarm(s) on the SAFEMTX Sensor Data area are acknowledged or when user clicks on the Cycle command button.
- The sensor data area turns:
 - RED if the sensor is alarming
 - BLUE if the sensor is in fault
 - GRAYED-OUT if the sensor is disabled

SAFEMTX Group Status



Sixteen SAFEMTX icons are listed on this SAFEMTX Group Status area. Each icon is shown to depict one of these conditions:

- FLASHING RED New alarm(s) detected at the unit
- SOLID RED Alarm(s) acknowledged by user
- BLACK Unit enabled and status is normal
- FLASHING BLUE Unit in fault condition
- GRAY Unit disabled

Click on a particular SAFEMTX icon to activate the "freeze" mode:

- In "freeze" mode, the sensor data grid area continuously displays only the readings from that SAFEMTX detector.

Click on the Cycle button to revert back to a "cycle" mode.

SAFEMTX Command Buttons



- These buttons display when "freeze" mode is activated.
- To activate the "freeze" mode, click on a SAFEMTX icon in the SAFEMTX group status area.

Table 3-1. SAFEMTX Command Buttons

ENABLE	Enables the SAFEMTX detector
DISABLE	Disables the SAFEMTX detector
SEND CMD	Sends various commands to the detectors
LOCATE	Works in conjunction with Map View and Graphical Layout View screens. See the following sections for its functions
CYCLE	Resumes displaying the sensor data in "cycle" mode
FAULT	Displays the itemized fault status of the SAFEMTX detector
DETAILS	Brings up a window displaying the detailed data of the sensors on the SAFEMTX detector

Transmit Command Window

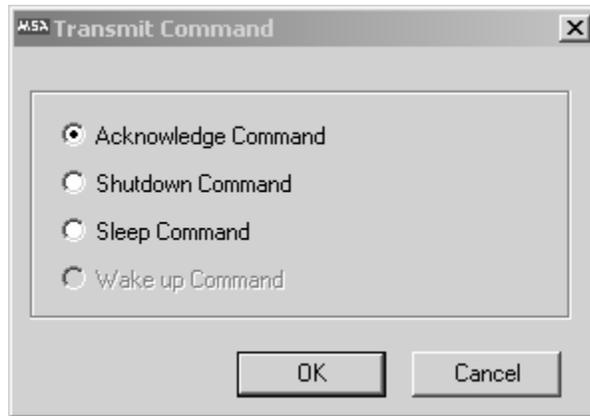


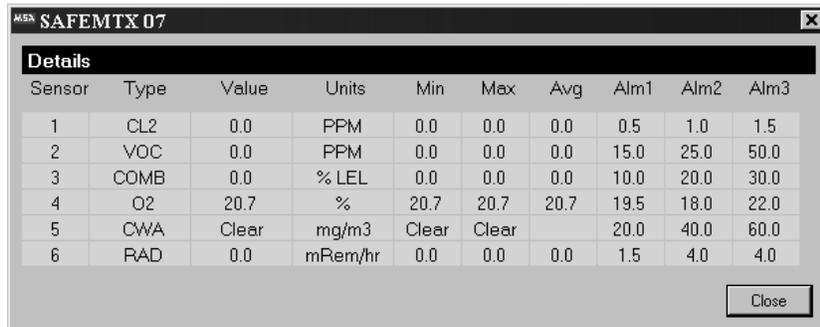
Table 3-3. Transmit Command Selections

ACKNOWLEDGE	Sends an alarm acknowledge command to the detector
SHUTDOWN	Sends a command to turn OFF the MTX detector
SLEEP	Sends a command to place the MTX detector in low power OFF mode
WAKE UP	Sends a command to turn ON the unit from the sleep mode

Active Fault Conditions Window

Sensor	Missing	Power	Calibration	End of Life	General
1			Fault	Fault	Fault
2			Fault	Fault	
3		Fault		Fault	
4		Fault			
5	Fault				
6	Fault				

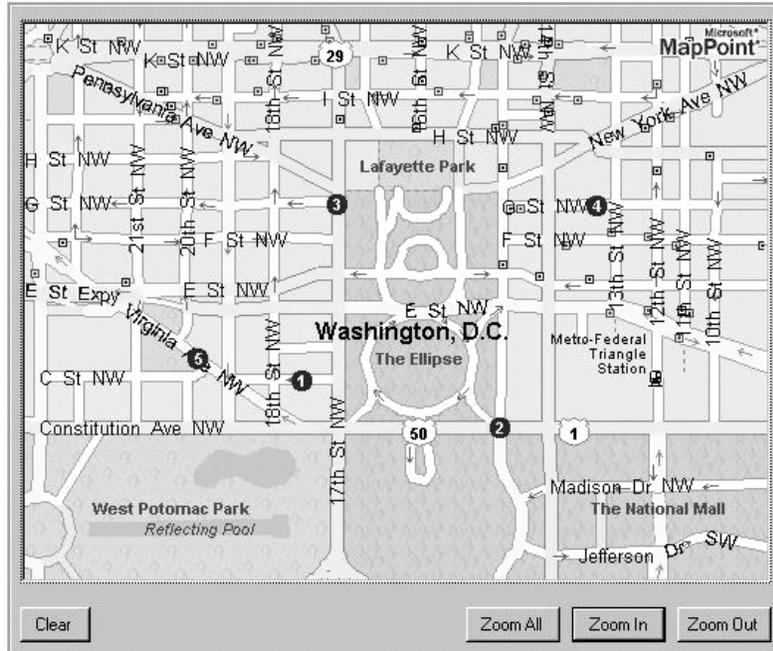
Details Window



The image shows a software window titled "SAFEMTX 07" with a "Details" tab. The window contains a table with 10 columns: Sensor, Type, Value, Units, Min, Max, Avg, Alm1, Alm2, and Alm3. There are 6 rows of data. A "Close" button is located at the bottom right of the window.

Sensor	Type	Value	Units	Min	Max	Avg	Alm1	Alm2	Alm3
1	CL2	0.0	PPM	0.0	0.0	0.0	0.5	1.0	1.5
2	VOC	0.0	PPM	0.0	0.0	0.0	15.0	25.0	50.0
3	COMB	0.0	% LEL	0.0	0.0	0.0	10.0	20.0	30.0
4	O2	20.7	%	20.7	20.7	20.7	19.5	18.0	22.0
5	CWA	Clear	mg/m3	Clear	Clear		20.0	40.0	60.0
6	RAD	0.0	mRem/hr	0.0	0.0	0.0	1.5	4.0	4.0

Map View



The map viewing area displays:

- Locations of SAFEMTX/SENTRY detectors deployed in the field
 - Each detector is represented on the map as a numbered, maroon, round-shaped symbol.
- Only those detectors from the one SAFECOM system currently displayed on-screen.

Click on a different SAFECOM icon to locate its SAFEMTX detectors on the map.

The SAFEMTX/SENTRY GPS radio receiver:

- Provides the information on SAFEMTX/SENTRY location in terms of longitude and latitude values, which are sent to the computer and updated periodically
- Must be functional and receiving GPS signals in order for the detector to be displayed on the map.

NOTE: The map-viewing area is activated when View/Map option is selected from the Main menu.

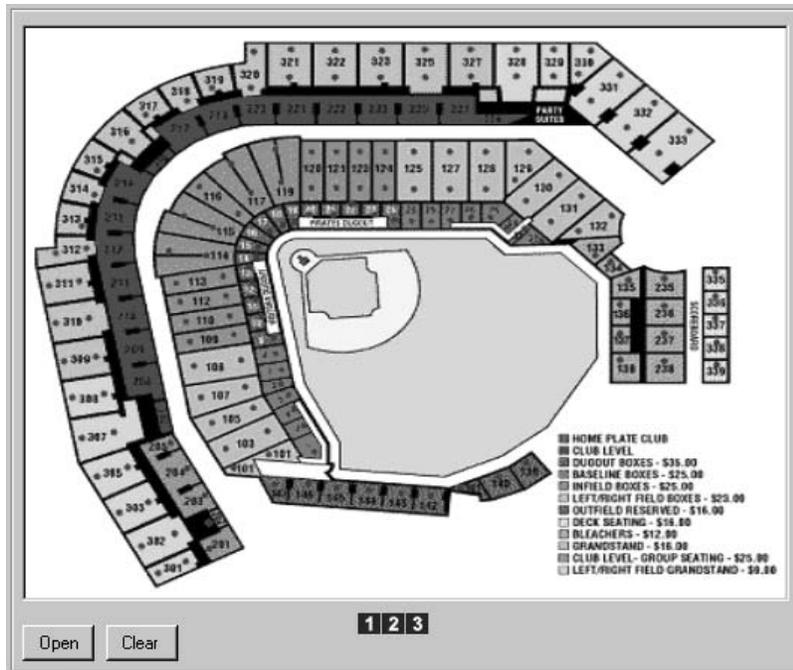
While the map viewing area is active, these buttons function as follows:

Table 3-2. Map View Buttons

CLEAR	Resets information gathered from the GPS receivers on all SAFEMTX detectors and redraws the map with the latest GPS information from detectors in the field
ZOOM ALL	This button resets the map viewing area zoom level to cover an area and display all active SAFEMTX detectors in the field
ZOOM IN	This button increases the map viewing area zoom level
ZOOM OUT	This button decreases the map viewing area zoom level
LOCATE	Only shown while in "freeze" mode on a particular SAFEMTX detector, this button zooms in on the map to the location of the detector.

When the user clicks on the Locate button on a SAFEMTX detector that does not include a GPS receiver option, the following window appears; The user can then manually enter the address of the detector's location.

The image shows a dialog box titled "SAFEMTX 05 Address". Inside the dialog, there is a section labeled "Address Info" which contains four text input fields: "Street", "City", "State", and "Zip". The "State" and "Zip" fields are positioned side-by-side. At the bottom of the dialog, there are two buttons: "OK" and "Cancel".



The Graphical Layout viewing area displays:

- User-supplied bitmap and JPEG (*.bmp, *.jpg, or *.jpeg) image file
 - The bitmap image can be a pictorial layout of the area to be monitored, such as a stadium or an arena.
- A collection of numbered, maroon, square-shaped blocks over the bitmap image on screen; these blocks:
 - Are initially activated and placed below the bitmap image when the user clicks on the Locate button
 - Are to be placed by the user, manually, dragged-and-dropped onto to the graphical layout viewing area
 - Represent the locations of the SAFEMTX detectors, deployed in the perimeter area
 - The locations of the numbered blocks on screen are not controlled or altered by the GPS information received from the detectors.
 - The user decides where to place the blocks on screen.

- Deactivate and disappear from the screen when dragged and dropped outside the graphical layout viewing area
- Are stored on the hard drive for later use along with their locations and the selected bitmap image .

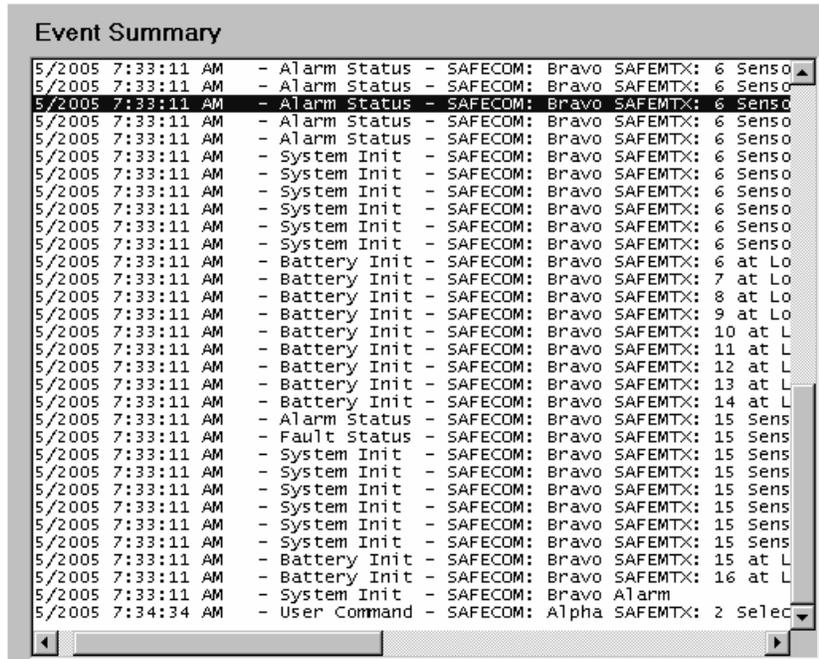
NOTE: The graphical layout viewing area activates when the View/Graphical Layout option is selected from the Main menu.

While the graphical layout viewing area is active, these buttons function as follows:

Table 3-4. Graphical Layout Viewing Area Buttons

OPEN	When pressed, this button opens a window and prompts the user for the name of the bitmap file
CLEAR	Clears the numbered blocks from the viewing area
LOCATE	Only shown while in "freeze" mode on a particular SAFEMTX detector, this button activates the numbered block, representing the detector on the viewing area.

Event Summary View



The screenshot shows a window titled "Event Summary" with a list of event logs. Each log entry contains a date and time stamp, an event description, and system identifiers. The list includes events such as Alarm Status, System Init, Battery Init, and User Command, all occurring on 5/2005 at 7:33:11 AM, except for the last one at 7:34:34 AM.

Date/Time	Event Description	System/Device
5/2005 7:33:11 AM	- Alarm Status	- SAFECOM: Bravo SAFEMTX: 6 Sens
5/2005 7:33:11 AM	- Alarm Status	- SAFECOM: Bravo SAFEMTX: 6 Sens
5/2005 7:33:11 AM	- Alarm Status	- SAFECOM: Bravo SAFEMTX: 6 Sens
5/2005 7:33:11 AM	- Alarm Status	- SAFECOM: Bravo SAFEMTX: 6 Sens
5/2005 7:33:11 AM	- System Init	- SAFECOM: Bravo SAFEMTX: 6 Sens
5/2005 7:33:11 AM	- System Init	- SAFECOM: Bravo SAFEMTX: 6 Sens
5/2005 7:33:11 AM	- System Init	- SAFECOM: Bravo SAFEMTX: 6 Sens
5/2005 7:33:11 AM	- System Init	- SAFECOM: Bravo SAFEMTX: 6 Sens
5/2005 7:33:11 AM	- System Init	- SAFECOM: Bravo SAFEMTX: 6 Sens
5/2005 7:33:11 AM	- System Init	- SAFECOM: Bravo SAFEMTX: 6 Sens
5/2005 7:33:11 AM	- Battery Init	- SAFECOM: Bravo SAFEMTX: 6 at Lo
5/2005 7:33:11 AM	- Battery Init	- SAFECOM: Bravo SAFEMTX: 7 at Lo
5/2005 7:33:11 AM	- Battery Init	- SAFECOM: Bravo SAFEMTX: 8 at Lo
5/2005 7:33:11 AM	- Battery Init	- SAFECOM: Bravo SAFEMTX: 9 at Lo
5/2005 7:33:11 AM	- Battery Init	- SAFECOM: Bravo SAFEMTX: 10 at L
5/2005 7:33:11 AM	- Battery Init	- SAFECOM: Bravo SAFEMTX: 11 at L
5/2005 7:33:11 AM	- Battery Init	- SAFECOM: Bravo SAFEMTX: 12 at L
5/2005 7:33:11 AM	- Battery Init	- SAFECOM: Bravo SAFEMTX: 13 at L
5/2005 7:33:11 AM	- Battery Init	- SAFECOM: Bravo SAFEMTX: 14 at L
5/2005 7:33:11 AM	- Alarm Status	- SAFECOM: Bravo SAFEMTX: 15 Sens
5/2005 7:33:11 AM	- Fault Status	- SAFECOM: Bravo SAFEMTX: 15 Sens
5/2005 7:33:11 AM	- System Init	- SAFECOM: Bravo SAFEMTX: 15 Sens
5/2005 7:33:11 AM	- System Init	- SAFECOM: Bravo SAFEMTX: 15 Sens
5/2005 7:33:11 AM	- System Init	- SAFECOM: Bravo SAFEMTX: 15 Sens
5/2005 7:33:11 AM	- System Init	- SAFECOM: Bravo SAFEMTX: 15 Sens
5/2005 7:33:11 AM	- System Init	- SAFECOM: Bravo SAFEMTX: 15 Sens
5/2005 7:33:11 AM	- System Init	- SAFECOM: Bravo SAFEMTX: 15 Sens
5/2005 7:33:11 AM	- Battery Init	- SAFECOM: Bravo SAFEMTX: 15 at L
5/2005 7:33:11 AM	- Battery Init	- SAFECOM: Bravo SAFEMTX: 16 at L
5/2005 7:33:11 AM	- System Init	- SAFECOM: Bravo Alarm
5/2005 7:34:34 AM	- User Command	- SAFECOM: Alpha SAFEMTX: 2 selec

The SAFESITE software logs event status and stores them in the Log file folder. The Event Summary View screen gets updated in real-time and displays the following event status:

- System status
- Alarm status
- Fault status
- Battery status
- User command.

Each event status contains:

- date and time stamps indicating when the event occurs
- name of the SAFECOM system
- name of the SAFEMTX device.

System Status

- records the events related to the system (e.g., during initialization of the system, system communication error, etc.).

Alarm Status

- records the events related to alarm conditions of the sensor on SAFEMTX device. (e.g., when the sensor reading goes above the set limit, the event is recorded and displayed on the Event Summary screen, as well as the event when the sensor reading goes back to its normal condition.)
- The Alarm event status contains:
 - sensor number
 - sensor type
 - sensor reading value
 - set alarm values
 - sensor engineering unit (% LEL, PPM, etc.)
 - event action, which is one of these conditions:
 - normal
 - alarm.

Fault Status

- records the events as generated by the fault conditions of the sensor on SAFEMTX device. Valid fault conditions are:
- sensor missing fault
 - power fault
 - calibration fault
 - sensor end of life fault
 - general fault.

Battery Status

- records the battery status of the SAFEMTX device, described as one of the following conditions:
 - low battery power
 - normal battery power.

User Command Status

- records the user's actions when user clicks on Command buttons, SAFECOM System Icons, and SAFEMTX Icons.

Setting up the System Parameters

The system parameters for the SAFESITE software:

- Are settings that apply to the PC software.
- Are set to define the:
 - Ethernet network address settings
 - File location and
 - Timing parameters
- For most applications, only need to be set once
- Require no further adjustment during system operation and final deployment.

WARNING

System parameters must be set and SAFESITE system operation must be verified completely and thoroughly prior to deploying the system. A complete system verification prior to an actual emergency situation requiring quick SAFESITE system deployment will help minimize time to deploy.

System Configuration

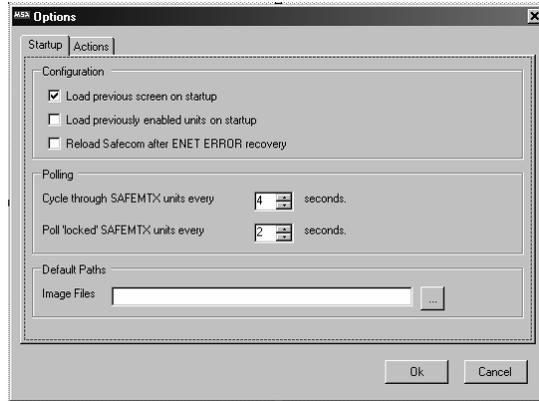
To edit SAFESITE software system configuration, click on the **Edit** menu option and click on **Options**.



- Enable SAFECOM system
- Disable SAFECOM system
- Rename SAFECOM system
- Change IP Address
 - The **Change IP** button allows user to change the SAFECOM unit IP address (for use in Infrastructure networking only)
- **Defaults** Button
 - When pressed, resets the setting parameters to their default values.

System Options

To edit SAFESITE software options, click on **Edit** menu option and click on **System Setup** option. The following window appears:



Startup Configuration

- **Load previous screen on startup** –
If selected, this option allows the active screen from the previous program session to load at program start-up.
- **Load previously enabled units on startup** –
If selected, the SAFESITE program stores the latest enabled units (SAFEMTX and SAFECOM) in a file and automatically enables them at the next software start-up.
- **Reload SAFECOM after ENET ERROR recovery** –
If selected, the program sends the latest configuration to the SAFECOM unit after the program re-establishes Ethernet communication to the SAFECOM unit following a communication failure.

NOTE:

Enable this option only if the SAFECOM unit is at a remote location where there may be a chance of losing its power without being detected from the Command Center.

Polling Configuration

- **Cycle through SAFEMTX unit** –
Polling interval (in seconds) of all enabled SAFEMTX units in a system, while in "cycle" mode.

In "cycle" mode, the sensor data grid shows SAFEMTX gas readings for the specified time duration, before moving on to show the values from the next SAFEMTX unit.

NOTE:

The time interval specified here controls only the screen update rate, not the actual device polling rate.

- **Poll "locked" SAFEMTX unit** –
In "locked" mode (also called "freeze" mode), the sensor data grid continues to display updated values from a single SAFEMTX unit. These values are updated at the specified polling interval.

Default Path

- **Default Path** –
The folder where the image files are stored.

Quick Deployment of a Portable SAFESITE System

- Quick deployment of the SAFESITE system is applicable to a system configured for Ad-Hoc networking only.
- It is important to verify that the whole system is fully functional prior to attempting to deploy it in an emergency situation.

Step 1: SAFECOM Command Center Power-up

1. Power-up the SAFECOM unit(s) and the computer.
2. Allow time for the Windows operating system to complete its initialization.
3. Install the USB 10/100 Ethernet adapter into the computer's USB port.
 - The green LED on the adapter should light up.
4. Plug one end of the Ethernet patch cable to the USB 10/100 Ethernet adapter and the other end of the cable to one of the SAFECOM Ethernet ports. Make sure the SAFECOM is turned ON and the green LED is lit.
5. If only one SAFECOM is required for the system, proceed to the "Step 2: SAFEMTX Power-up" section.
6. To install the next SAFECOM unit to the system, use the Ethernet patch cable that came with the second ("Bravo") SAFECOM unit and plug one end of the Ethernet patch cable to its Ethernet port.
7. Plug the other end of the cable to the second Ethernet port on the first ("Alpha") SAFECOM unit. Make sure the SAFECOM is turned ON and the green LED is lit.
8. Repeat the procedure to connect all additional SAFECOM units.

Step 2: SAFEMTX Power-up

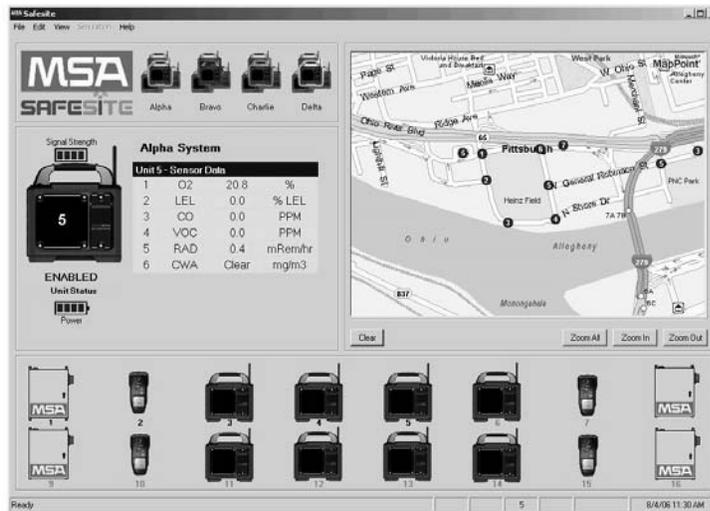
1. Prior to installing the SAFEMTX units at their designated locations, gather them near the SAFECOM Command Center to verify their operation.
2. Turn ON the SAFEMTX units.
3. Check the SAFEMTX address numbers.
 - The address number is displayed on the LCD display by going to the Network menu (see the SAFEMTX Multi-Threat Detector Instruction manual, P/N 10067906).
4. Compile a list of all SAFEMTX address numbers.

Step 3: SAFESITE Software Start-up

1. Start the SAFESITE software; double-click the MSA SAFESITE program icon on the Windows Desktop area:



2. The SAFESITE main window appears on screen:



3. Enable SAFECOM unit(s) to be monitored.
 - a. Click on **Edit** menu option and click on **Setup System** option.
 - The System Configuration window appears:



- b. Click on the Enable button to enable a SAFECOM unit.
- c. Click on the Disable button to disable the SAFECOM units that are not part of the deployed system.
- d. Rename button allows you to customize the name of the SAFECOM.

NOTE: The IP address of each of the SAFECOM units must already be set up and verified to communicate properly during the initial setting of the system parameters. If not, refer to "Setting up the System Parameters" section, earlier in this chapter.

Step 4: System Monitoring

1. While The SAFEMTX units are still in close proximity and in line of sight with the SAFECOM Command Center, enable the SAFECOM and SAFEMTX units.
2. Observe the status of each unit on the SAFESITE program screen, making sure all SAFEMTX units are:
 - Continuously online (not in communication error) and
 - In normal condition (not in fault or alarm).
3. Observe the Radio Signal Strength Indicator (RSSI) icon on the SAFEMTX LCD display, making sure it is showing full strength while the unit is in close proximity with the SAFECOM unit.
4. Observe the Heart icon on the SAFEMTX LCD display, making sure it is flashing, indicating good active communication between the unit and the SAFECOM unit.
5. Place the SAFEMTX unit at its designated location and observe the RSSI and the Heart icons on its LCD display.
 - These icons indicate the quality of communication between the unit and the SAFECOM unit at that distance.
 - Relocate the SAFEMTX unit, if necessary, to maximize the radio link quality.

Chapter 4, Specifications and Information

Table 4-1. SAFECOM Specifications

OPERATING TEMPERATURE RANGE		0 to 40°C (32 to +104°F)
STORAGE TEMPERATURE RANGE		-10 TO 40°C (14 TO +113°F)
HUMIDITY		5 to 95% RH, non-condensing
POWER REQUIREMENT	SAFECOM	600 mA max. at 24 VDC
	SAFESITE SENTRY SAFECOM	2 A max. at 120/240 VAC

Obtaining Replacement Parts

To obtain a replacement part, address the order or inquiry to:

- **Mine Safety Appliances Company**
Instrument Division
PO Box 427
Pittsburgh, PA 15230-0427
- Or call, toll-free, **1-800-MSA-INST**

WARNING

Use only genuine MSA replacement parts when replacing parts. Failure to do so may seriously impair performance. Repair or alteration by anyone other than authorized MSA service personnel could cause the product to fail to perform as designed and persons who rely on this product for their safety could sustain serious personal injury or death.

Chapter 5, Maintenance

Table 5-1. Spare Parts List

DESCRIPTION	PARTS LIST
Handle	10065932
SAFECOM Antenna	10054386
SAFESITE SENTRY SAFECOM Antenna	10068277
Lockout Panel, Panel Label and Two Screws (must order all three part numbers)	10062972 10066269 10064304
Sealing Cap for Power Inlet	10066457
Sealing Cap for Ethernet Port	10064465
SAFESITE Power Supply, Weather Resistant, with 12 V Input Option	10066315
SAFESITE Power Supply, Weather Resistant	10067253
SAFESITE Power Supply, General Purpose	10068738
SAFESITE SENTRY Wired Command Center	10076748
SAFESITE SENTRY Wireless Command Center	10077618