



**RBtec**

**MBS 405**

**PASSIVE MAGNETIC BURIED  
SENSOR CABLE**



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PRODUCT INFORMATION

## GENERAL

**INTRUDALERT** is a powerful electronic system specifically designed for total perimeter protection of critical infrastructure facilities, correctional institutions, governmental and military sites as well as other such high risk facilities.

**INTRUDALERT** is based on a unique advanced fence detection system which protects facilities at the outer perimeter circle, providing early warning of intrusion attempts. The system is compatible with all types of detection sensors for indoor/outdoor use and can be easily interfaced for integration and control of complementary systems, such as CCTV systems which will be installed at key points to provide real time assessment capability.

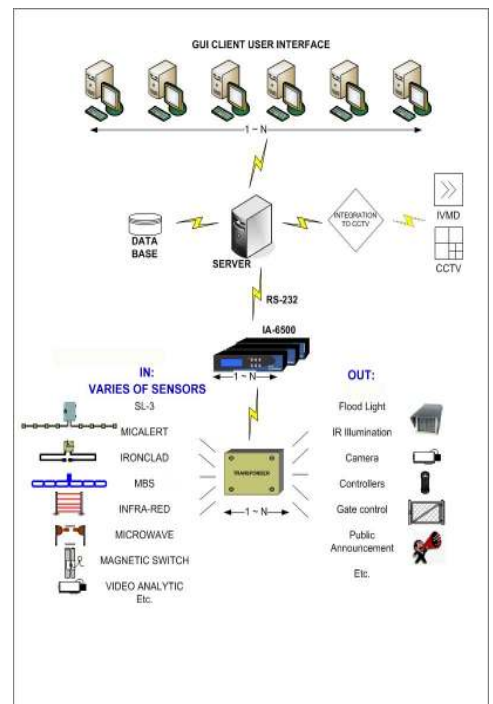
**INTRUDALERT** central control is a computer equipped with proprietary **VIDALERT** software and an IA 6500 CONTROL UNIT to execute the following roles:

- Monitor perimeter sensors.
- Provide warning of encroachment through fence or gates.
- Provide automatic response by activating auxiliary devices: flood-lights, sirens, etc.
- Provide interface and integration to CCTV or other site systems.

- Negligible false and nuisance alarm rates
- Field proven installations worldwide
- Vandal proof, solid and sturdy construction
- Modular construction to fit all variable site requirements
- Multi-Sensor compatibility
- Electronically controlled, virtually unlimited perimeter length coverage
- Suitable for operation within a wide range of Environmental conditions

The **INTRUDALERT** is capable of operating the following auxiliary equipment:

- Floodlights
- Sirens
- Automatic dialers
- Automatic voice message to RF
- Fire extinguishing equipment
- Access control systems
- High voltage electric fence activation
- Automatic VCR recording
- CCTV activation (cameras & monitors)
- Smoke or tear-gas release



## MBS-405 SYSTEM Principle of Operation

As to Faraday's Law, a local change in the magnetic flux of the earth will cause an electrical current to flow in a closed loop and create a change in the magnetic field around the sensor cable.

- The protected perimeter is divided into zones, each of which can be as short as 33 ft (10 meters) or as long as 656 ft (200 meters).
- Each zone is connected to an LPU (Local Processing Unit) analyzer and corresponding alarm circuitry.
- Each two zones can be connected to one LPU

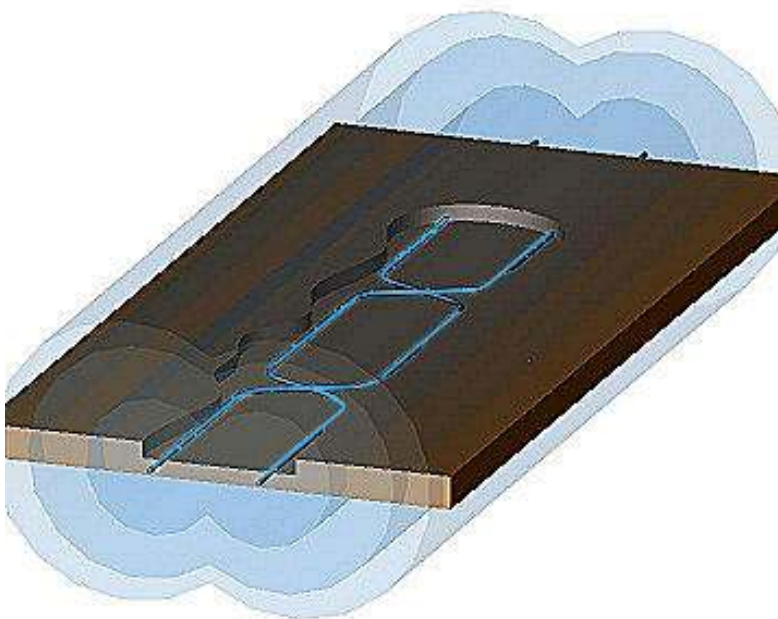
The sensors, LPU's and control cables are concealed underground. Should the protected perimeter be crossed by a potential intruder, an audio-visual alarm is instantly activated at the control center.

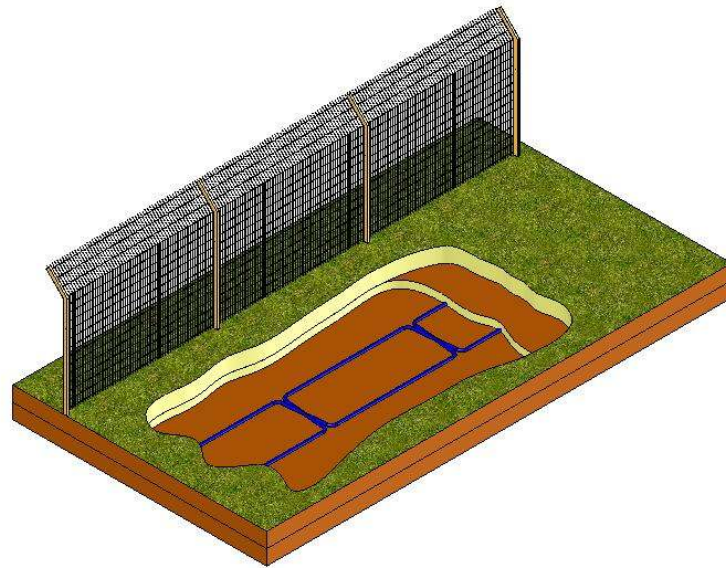
**System Advantage** Being that the sensor cables are buried, the detection field is therefore invisible and does not change the aesthetics of the site. Possible intruders are unaware of the presence or exact location of the **MBS 405** detection field which contributes to the avoidance of any attempt to tamper with, or defeat the system.

## MBS-405 Sensor Cable

**MBS-405** sensor is a concealed, passive buried cable. That is designed to detect and locate intruders moving over unseen boundary lines and perimeters.

The sensor cable installed in format of loops width of 1.35 m' ft providing detection zone of 3 m' ft





The movement of ferromagnetic materials (iron or steel) is one source that causes local changes to the magnetic flux of the earth.

In principle, the **MBS-405** is a moving iron or steel detector. Its high probability of detection is based on the proven assumption that intruders carry weapons, military equipment, cameras, wire-cutters, keys, cellular telephones, or other such tools of their trade.

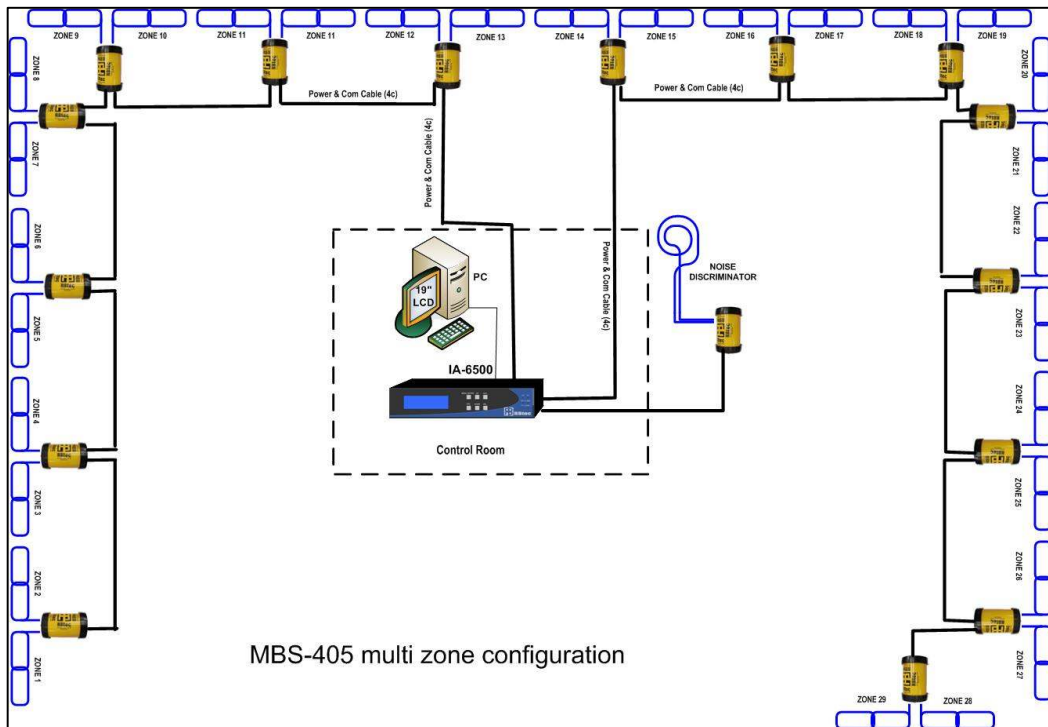
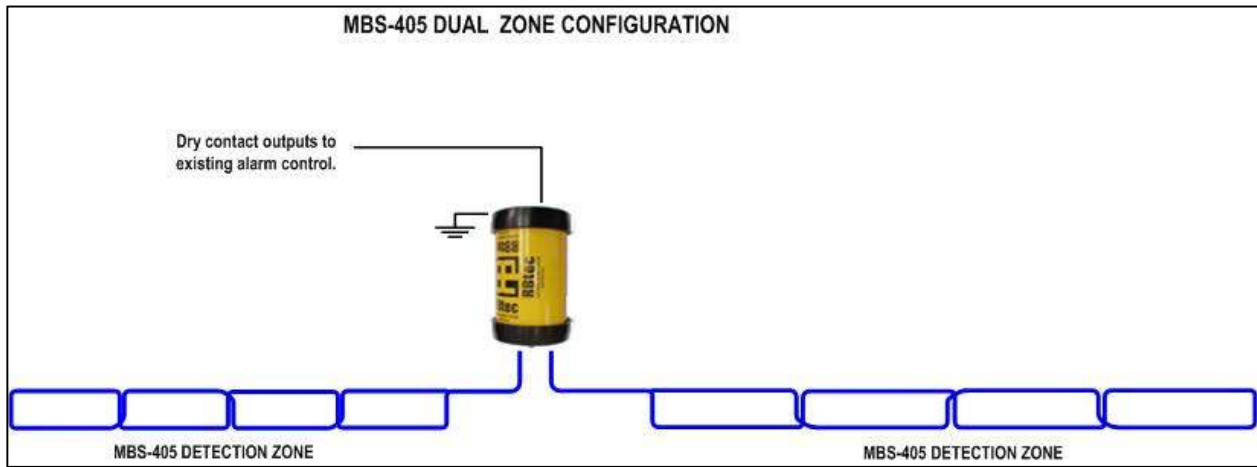
These and many other items contain ferromagnetic material and when passed across the system, a measurable current is induced to the system's sensors.

**MBS-405** serves either as a stand-alone system or can be integrated with any other type of sensor, to provide dual technology detection at a given perimeter.

## Configuration Options

The **MBS 405** is available in two configurations:

- A complete installation kit for a single or dual zone system can be connected to standard existing alarm panel thru dry contact.
- Multi-zone system configuration with RBtec computerize control center.



**MBS-405 Sensor Cable:**

An elongated loop of sensor cable consisting of a continuous length of cable, buried underground.

Movement of ferromagnetic materials above or beneath the sensor changes the currents flow of earth flux and detected by the sensor cable.

The sensor detects the low level intrusion signals for amplification and processing by an Amplifier.

- Sensor cable length: Up to 656 ft' (200m)
- Sensor width: Between 4.429 ft (1.35m)
- Installation depth: Minimum 1.312 ft (0.40 m)

**Specifications:**

The cable contains 1 single core, overall braid shielded and jacketed with an FR, PVC compound. This cable has stranded conductors and can be applied for use in portable, indoor and outdoor applications.

**• Basic Wire:**

- Conductor: Stranded tinned copper, 7x0.16 mm, 26 AWG.

**• Overall Jacket:**

- Material: FR PVC compound.
- Color: Blue, UV resistant.
- Thickness: 0.4 mm nom.
- OD: 3.1 mm nominal.

**• Electrical Properties:**

- DC Resistance: 93.2 Ohm/Km max. @ 20C.
- Velocity of Propagation: 45% nominal

**• General Properties:**

- Total Weight: 15.5 Kg/Kilometer nom.

Temperature Range: -58°F to + 221°F (-50°C to +105°C).

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- Flame Test: IEC 60332.1.

**Local Processing Unit (Lpu)**

A self-contained direct buried, waterproof (IP67) and corrosion resistant capsule specifically designed to detect, amplify, filter and process low level signal received from the sensor cable

- Operating voltage:** 12-35 V DC
- Current consumption:** 6-10mA
- Output signal:** 8-14Vp-p, 150-200c/s. (Signal is constant and drops to zero while intrusion/test occurs)
- Leakage:**  $\geq 100M\Omega$  measured between leads connected to the sensor and (-)
- Sensitivity:** Normally 10nV, 20nV, 30nV, 40nV
- Band pass:** At least 0.7-3.5 c/s

A special amplifier (inhibitor) connected to an inhibition sensor, enables the system to ignore atmospheric and geomagnetic phenomena as well as man-made electrical and magnetic interferences (power lines, RF transmission, etc.), thus preventing false alarms due to these sources.



## CONTROL ROOM COMPONENTS

Monitoring and control of the **VIDALERT** system is accomplished at the control room or guard booth by means of a Control Interface Unit (IA-6500), standard server client computer, SVGA monitor, and the usual PC accessories.

### IA -6500 Control Interface Unit

The IA-6500 interface unit is designed to receive signals from the field transponder and the smart processing unit SPU-2004 and retransmit the processed data into the system's central computer.

The IA-6500 contains the Central Control Card, a Back-Up Control Card, a Lightning Protection Card and a Power Supply.

Additional IA-6500 Control Interface Units may easily be added for larger perimeters using additional hardware to interface between several IA-6500 Control Interface Units and the Central Computer.

For larger perimeters, additional IA-6500 interface units can be added.

The IA-6500 interface unit has fully automatic backup capability in case of the PC or other hardware failure. In the event of PC hardware or software failure, the IA-6500 automatically takes command continuing the system's operation without interruption.

Fully automated, the IA-6500 includes two internal control units, a full backup software program, an active LCD display panel and a rechargeable backup battery, all mounted on a standard 19" rack for easy access and installation.

A 15VDC power supply is installed in the unit serving both the IA-6500 and the smart processing unit SPU-2004 in the field.

Although inactive during normal system operation, the IA-6500 is always connected to the system in an 'ON-GUARD' mode. When PC failure occurs, the IA-6500 automatically takes control and continuous system operation is maintained through its on-board control panel.





### Control Display Features

Key	Function
<b>Menu/Enter</b>	Move between menu options and confirm selections.
<b>ESC</b>	Go to previous screen, cancel selections and move out of program to alarm screen.
<b>UP</b>	Change values up
<b>DOWN</b>	Change values down
<b>ACK</b>	Acknowledge alarms and silent annunciator
<b>DEL</b>	Delete alarm after acknowledge

### VIDALERT software configuration

The **VIDALERT** system software is designed to operate under the Microsoft Windows operating system and uses the full power of Windows graphic capabilities.

The **VIDALERT** software program controls the complete **VIDALERT** system, enabling control and management via a single keyboard and monitor.



The PC monitor displays the present status of the entire perimeter in real time. The main screen displays a color graphic map of the secured site, clearly showing the perimeter zones in different colors. When an alarm is triggered the relevant zone will start blinking in red and

an audible alarm will sound. From the main screen, the operator may use different keys to move through the system's functions such as:

- Changing of zone sensitivities.
- Changing of 'Arm/Disarm' status.
- Changing of the system 'Time/Date'.
- Password enrollment for access authorization to system controls.
- Data bank access.
- Immediate help on current screen, quick help panel.

### **VIDALERT Software Program**

VIDALERT unique sensing and intrusion detection capabilities are enhanced by a PC based, active color graphic site map display, a series of screen display keyboard controlled function keys and a variety of communication and response capabilities to form a complete perimeter protection system.

Alarms are presented on the active color graphic site map as a flashing zone and announced by pre-recorded synthesized computer voice or a beeping sound. In addition, it can activate electronically integrated systems such as CCTV and auxiliary response equipment such as sirens, floodlights and automatic gates and barriers for the identification and capture of intruders.

From the perimeter map, the user has a complete overview of the entire protected site status including system 'Arm/Disarm' status.

A standard PC computer may be used with the system.

Data displayed on the screen (but not limited to):

- Graphic site maps.
- Event screens.
- Status change screens.
- Sensitivity change screens.
- Historical data screens.
- Hard copy and printout control.
- Built-in help screens.
- Voice announcement controls.
- Special customers' tailored screens.



## Alarms & Commands

The Central Control is normally maintained in "monitoring" status. When an alarm is received, the system monitor indicates "alarm" status and the affected zones of the perimeter are immediately shown.

Alarms are visually displayed and audibly announced by a 'voice recording' or beep, enhancing security personnel reaction. All alarm commands and events are recorded and stored for analysis and hard copy report printing.

The Control Interface Unit monitors and controls all alarm zones, as well as additional devices such as lighting, CCTV, horns, sirens and other physical response auxiliary devices. These devices are controlled and activated through the Smart Processor Units (SPU-2004).

Eight relay outputs per transponder are available for linking the Control Interface Unit with remote devices.

## Alarm Communications, Analysis And Response

**VIDALERT's** unique sensing and intrusion detection capabilities are enhanced by a PC based, customizable '**Active Color, Graphic Site Map Display**', a series of screens display keyboard controlled functions and a variety of communication and response capabilities, to structure an all inclusive perimeter defense system.

Alarms are presented on the Active Color Graphic Site Map, as a "flashing" zone and announced by pre-recorded, synthesized computer voice or a beeping sound.

Signals can then be transmitted to mobile units or to remote stations through RF radio, cable, or telephone /cellular communications.

In addition, activation of electronically integrated systems and response equipment such as; CCTV, sirens, floodlights, automatic gates and barriers can be initiated in order to locate, identify and capture would-be intruders.

## Main Screen - Site Map

From the perimeter map the user has a complete overview of the entire perimetric zone status, including the Alarm Status (whether there is an alarm or not) and Zone Arm Status.

## Security Software

**VIDALERT's** Custom-Site Graphics, human interface engineering was developed with the end user in mind.

Customized software provides an Active Color Graphic Site Map Display of the actual site with overlaid perimeter zones on the system's monitor. 'Zoom-In' view Info Screens, for critical areas located close to an alerted zone; enhance the use of the Graphic Site display.

Keyboard operated, screen displayed function keys, including "Help", enable complete and user friendly system controls by security personnel at the control center.

The software program includes flashing instructions, clear and simple icons and one step movements from window to window (keyboard/mouse).

Although assignment of function keys are customized to meet the specific requirements of each specific installation, RBtec's more than 20 years of extensive field experience has

developed a standard set of pre-programmed function key assignments to provide an optimal configuration applicable to most installations.

### Central Computer & Monitor

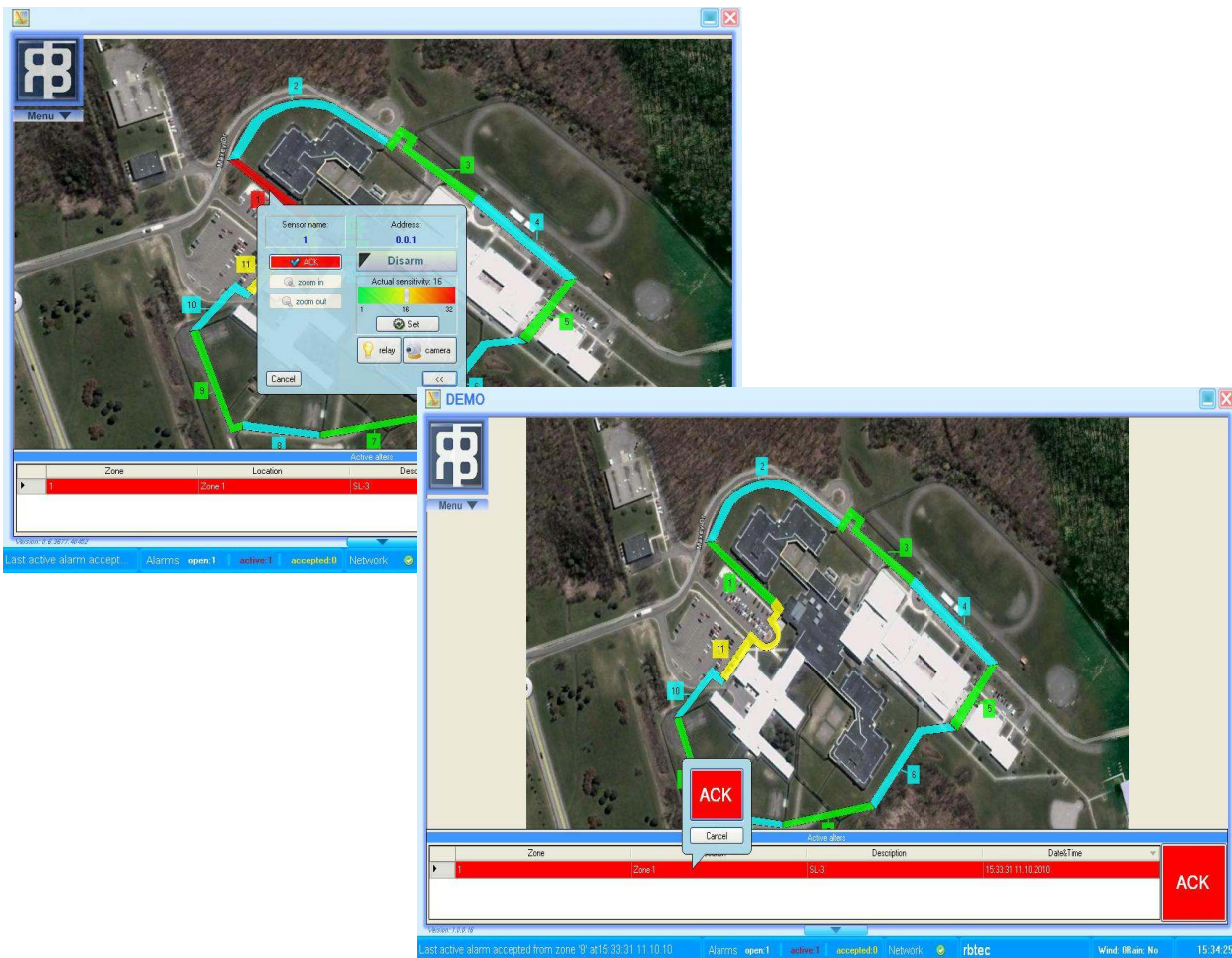
The system is running on server client configuration.

The server is manage, monitor receives stores and displays alarm messages from the IA-6500 to enable complete visual & audio perimeter monitoring and response by security personnel. The clients are operating stations

Equipped with customized Active Color Graphics Site Map Display capabilities through fully customized software, the computer's monitor displays actual site graphic maps, including perimeter layout, zone locations, buildings, floor layout, rooms, and other site facilities as needed, depending on site resolution required by the customer.

All alarm signals received from **VIDALERT** Sensors (or other sensors interfaced with the system) are processed, displayed on the Active Graphic Site Map Display Monitor and audibly annunciated through a synthesized computer voice.

Data displayed on the screen includes (but is not limited to): graphic site maps, events, status change, sensitivity change, historical data base, hard copy printout controls, built-in help and voice announcement controls.



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## **CONFIDENTIAL SITE QUESTIONNAIRE**

### **PURPOSE**

The purpose of this confidential site questionnaire is to enable our initial evaluation of specific site compatibility for the installation of our INTRUDALERT system. It is very important that all data is completed at the highest degree of accuracy, so that a realistic proposal which will meet your operational requirements can be prepared.

Estimated quotation will be based on knowledge acquired from site questionnaire/client. RBtec reserves the right to amend future quotations based on actual information.

Our questionnaire covers details concerning several major areas of concern when INTRUDALERT is installed:

- A. A General Security Profile**
- B. Physical Dimensions.**
- C. Current perimeter protection fence details.**
- D. Topographic & natural environment conditions.**
- E. Current equipment installation**
- F. Electrical environment.**
- G. Operational access & off site activities.**
- H. Roads, Trains, Bridges etc.**
- I. General comments.**
- J. Contact Information/Misc Site Info.**
- K. Condition of the Physical Area**

All information provided herein will be kept in strictest confidence.

### **A. A General Security Profile**

1. Facility general description (Type, purpose, etc.)

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2. Threat scenario: (Please check appropriate item)

Vandalism.       Theft       Espionage     Personal     Terrorism  
 Other \_\_\_\_\_

3. Expected Intruder sophistication:  Casual       Experienced       Professional

4. Response type:       Lights/Sirens       Guard on Duty       Private Police  
 Employee on premises     Company radio car       Public Police

Special tactics       Other  
 5. Facility secured time periods:     24 Hours     16 Hours     8 hours     Day  
     Night    Comments: \_\_\_\_\_

**B. Physical Dimensions.**

Protected area:      Total perimeter length \_\_\_\_\_ Ft / m'

**C. Current perimeter protection fence details.**

Perimeter fencing:     Diamond Chain Link fence                       Welded mesh fence  
                                   Barbed wire     Stainless steel  
                                   Plastic coated     Galvanized  
                                   Razor tape concertina  
                                   Other: (Please detail) \_\_\_\_\_

Note: Please use additional drawings or pages for additional fence details.  
 (Heights, pole types, distances between poles, etc.)

Additional comments: \_\_\_\_\_

Additional Physical fence protection:     Barbies                       Razor Ribbon  
     Multiple fencing     Concertina coil

Gates: Number of gates \_\_\_\_\_ Gate width: #1 \_\_\_\_\_ #2 \_\_\_\_\_ #3 \_\_\_\_\_ #4 \_\_\_\_\_  
 Types: Wing (Number) \_\_\_\_\_ Sliding (Number) \_\_\_\_\_ Other \_\_\_\_\_

**D. Topographic & natural environment conditions.**

Terrain:     Hilly             Flat             Steep slopes             Rivers/Streams  
                   Obstructions     Landscaping             Other \_\_\_\_\_

Surface:    Ground structure:     Soft             Rocky             Sand             Gravel  
     Other \_\_\_\_\_

Ground cover - Asphalt:     Existing             To be laid: Thickness required:

Ground cover - Cement:     Existing             To be laid: Thickness required:

Combination -Existing or required: \_\_\_\_\_

(Please note on layout grid).

**Climate & normal local weather conditions:**

High winds     Blowing debris     Hail     Sea spray\Salt air  
 Frequent electrical storms (Lightning)     Desert heat             Extreme cold  
 Wide temperature variations     Other \_\_\_\_\_

**External nuisance elements:**     \_\_\_ Flying birds     \_\_\_ Flying debris     \_\_\_ Vandals  
 \_\_\_ Domestic animals     \_\_\_ Gophers, other small animals, rats, mice etc.

**E. Equipment installation**

√	Item	Present	Future	Distance from sensor line
	Sprinklers			
	Water			
	Gas			
	Compressor(s)			
	Vibration equipment			
	Other			

**F. Electrical environment**

**RF Interference:**     \_\_\_ Unknown     \_\_\_ None     \_\_\_ Known:  
 (Please describe so that filters for RFI rejection can be pre-installed)

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**G. Operation access & Off site activities.**

**Normal conditions when system is armed:**     \_\_\_ Quiet     \_\_\_ Some activity  
 \_\_\_ Heavy traffic     \_\_\_ Aircraft     \_\_\_ Nearby running power equipment  
 \_\_\_ Other \_\_\_\_\_

**Access required when system is armed:**     \_\_\_ YES     \_\_\_ NO  
 Specify zones: \_\_\_\_\_

**Activities outside the property:**

NORTH SIDE:	
SOUTH SIDE:	
EAST SIDE:	
WEST SIDE:	

**H. Roads, Bridges, Trains, etc.**

	From nearest freeway	From nearest road	From nearest railway tracks
Distance:			

**Railway track type:**

Main	Spur	Other

**I. General comments.**

**Are photos of the site available:**    \_\_\_YES                    \_\_\_NO

Additional comments:

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**J. Contact Information/Misc Site Info.**

Company Name: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

Site Location (Name/address): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Date: \_\_\_\_\_



## **K. Condition of the Physical Area**

Examine the proposed detection area and decide whether the site security will actually be improved by the installation of an intrusion detection system.

**The installation of MBS-405 should never be used as a substitute for the replacement of an inadequate or worn out fence.**

**Walk around the entire perimeter, paying careful attention to the proposed detection area and note** any places which require repair or maintenance. This inspection is to identify any sources of extraneous noise that will cause false alarms once MBS-405 is installed.

Some potential problem areas are listed below:

- Slack or missing strainer wires (causing excessive movement of the mesh) on fences which can cause changes in the magnetic field.
- An area adjacent to the perimeter with public access
- A highway close to the perimeter that carries heavy traffic during protected hours.
- Large animals, i.e. cattle that may come into contact with the perimeter.
- Signs not securely attached to the fence.
- Trees, shrubs and bushes growing at the perimeter area where the MBS-405 is to be installed.
- Areas where rubbish can accumulate against the fence and flap in the wind.
- Access gates that can rattle excessively in either the open or closed positions.
- Location of any high-power cables or any other equipment along the perimeter that could generate excessive Electro-Magnetic (RMI) or Radio Frequency (RFI) interferences.

It is important that any preparations to the perimeter are made before installation commences (excluding the excavation which can be accomplished either before or after the laying out of the sensor cable).

If the site is new, it is worth checking with the client for intentions of "landscaping" the site by planting trees and shrubs around the perimeter fence. Obviously, after installation of the MBS-405 system, **NO DIGGING SHOULD TAKE PLACE IN THE DETECTION ZONE.**

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