



IRONCLAD / MICALERT

Sensor cable



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Product Information

General

The **Ironclad/Micalert** line sensor cable is a passive electronic intrusion detector system. The system is ideal for outdoor protection and can be easily installed on fences, on a concertina razor coil on a roofs and solid walls or for indoor use to protect vaults, strong rooms etc. The **Ironclad/Micalert** system is based on vibration (HF) miniature sensor cable featuring digital signal processing (DSP).

The **Ironclad/Micalert** offers a solution for intrusion detection by the analysis of typical vibration patterns made by a forced entry attempt. The system can recognize motion caused by an attempt to pass through the fence and disregard signals caused by weather conditions, preventing nuisance alarms. This is an easy-to-install and easy to adjust system, it will provide the end user an economic and highly secure perimeter protection system, with a very high probability of intruder detection and relatively low rate of false alarms.

The **Ironclad/Micalert** can be permanently or temporarily installed. It is designed to interface with a conventional intruder alarm system or to be integrated with RBtec's control and software systems.

When the RBtec INTRUDALERT 5500 Control Interface Unit (IA-6500) and software is used as the primary operator interface, it gives the system the ability to monitor and control the performance of the entire system. Standard accessories that can be added are a PC computer and a monitor to display a customized site map. With this configuration the system is compatible with all types of security sensors for outdoor or indoor use and can be easily interfaced for integration and control of complementary systems, such as Access Control systems and CCTV systems, installed at key points to provide real time assessment capability.



Principle of Operation

The signal processor receives and analyzes the signals generated by the ironclad sensor cable and detects minute vibrations in the fence.

The sensor has independent adjustments and thresholds for each type of intrusion and the processor identifies, by type whether a cut intrusion or climb intrusion has occurred.

The **IRONCLAD/MICALERT** system includes several main components:

Ironclad/MICALERT Sensor Line Cable -

The Ironclad/MICALERT Sensor Cable is attached to the desired-to-protect structure (fence/wall), converting the whole structure into a gigantic vibration of high fidelity, which will detect any kind of intrusion. The electric output of this cable is a highly accurate reproduction of all sounds, generated by the fence/wall.

The Ironclad/MICALERT Sensor Line Cable has a life expectancy of 10 years, is easy to install and non obstructive to the eye. This cable is attached directly to the fence with cable ties.

The sensor is totally passive and has different ranges of sensitivity that will allow adapting it to any specific application.

The zone starts at the electronic processor (Analyzer) and ends at the MCT- End Line protection module.



LPU-303

An electronic processor that continuously monitors the cable signal output and detects any attempt to penetrate the perimeter.

The analyzer is designed to ignore signals generated by rain, wind or birds. It utilizes highly advanced microprocessor technology in a microprocessor and is installed inside an IP65 rated weatherproof box.

The analyzer scans the integrity of the sensor line, thus monitoring the terminal that has been integrated to the cable. If the cable is cut, damaged or interfered in any way, the analyzer will immediately detect it, and activate a warning signal.

The LPU-303 is design to control up to two zones of 305m (1000Ft). The analyzer is equipped with build in communication and relay output for fully integration and meteorological outputs for Weather Compensation Unit.



**LPU-303
Analyzer module**

End Of Line Resistor module (MCT)

The End of Line Resistor is connected at the end of the zone to complete the circuit. It can also be used as an extension unit when the zone extends more than 305 m (1000 Ft.).

NOTE: For single and dual zone kits, MCT modules are built-in at the sensor cable ends.



**MCT-X/MCT-R
Extension Unit / End of Line Resistor**

METEOROLOGICAL UNIT (OPTIONAL)

In medium to large fenced perimeter protection systems, movement resulting from strong winds, rain and hail can cause a sensor to trigger a false or nuisance alarm.

The VX-25 weather compensating unit is specially built to automatically compensate system's sensitivity for changing climatic conditions. Wind velocity measured by a 3-cup- anemometer is translated into analog DC voltage and rain/hail conditions are measured by 3 concave plates and are translated into digital pulses. These signals are converted into "pseudo alarm" and are fed into the transponder card, temporarily creating new threshold and adjusting system's sensitivity to a new "zero" state. Only true alarms will now trigger the system and all other weather related alarms are eliminated.

Rain sensor: The rain sensor discs and shock sensors are vibration sensing units whose function is to detect the vibrations caused by rain or hail drops. These vibrations are translated into electronic signals and transmitted to the field Transponder card(SPU-2004).

Wind sensor: A 3 cup anemometer is mounted at the top of the center post holding the rain sensor discs. This wind vane anemometer produces a voltage frequency, which change with the changes in wind speed. This frequency is converted to electronic signals and transmitted to the Control card The weather Interface Unit is a conversion circuit, which transforms the AC frequency sent by the wind anemometer on the Weather Compensation Unit to a DC analog voltage relative to the wind speed

Specifications:

- Measures wind speed up to 100 mph.
- Power consumption 12 VDC 5mA
- Response time 0.5 seconds



Configuration Options

The **Ironclad** is available in three configurations:

- A complete installation kit for a single zone system.
- A complete installation kit for a dual zone system.
- Multi-zone system configuration by multiplying kits above.

All the above system configurations can be stand-alone or can be integrated with RBtec's Command & Control system and software package. The standard length of each zone can be up to 1,000' (305m) of sensor line cable.

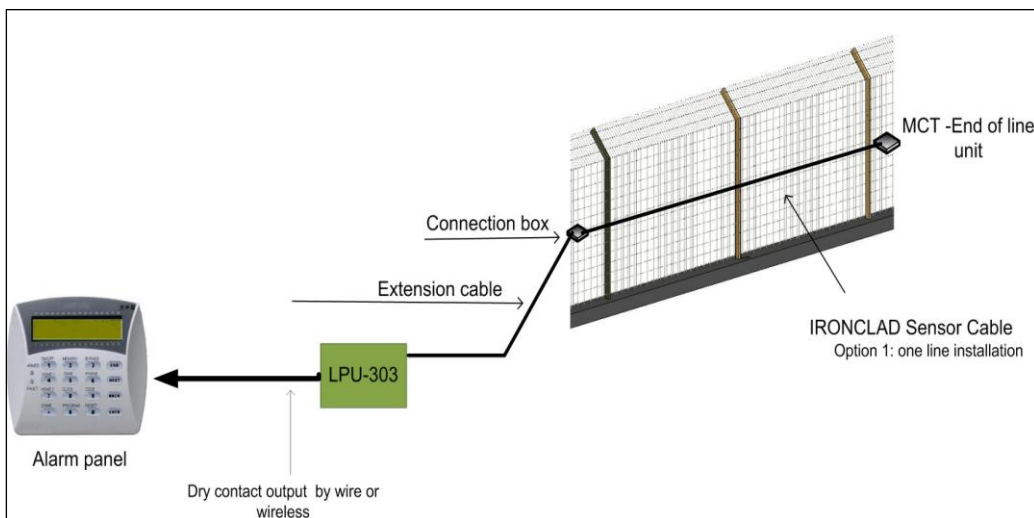
The installation kits include all the materials necessary for installation. Individual zone length is determined by the physical borders of each zone. The sensor line cable will be supplied in carton roll dispensers of 1,000' (305m) and will be cut to the correct length at the time of installation.

Single Zone Configuration

The basic Ironclad/MICALERT is a single zone system. The kit contains a single zone LPU-303 Analyzer unit with a single dry contact output, one carton roll of sensor cable 1,000' (305m), one MCT End-of-Line Termination Module which is built-in the sensor cable and a package of 610 cable ties.



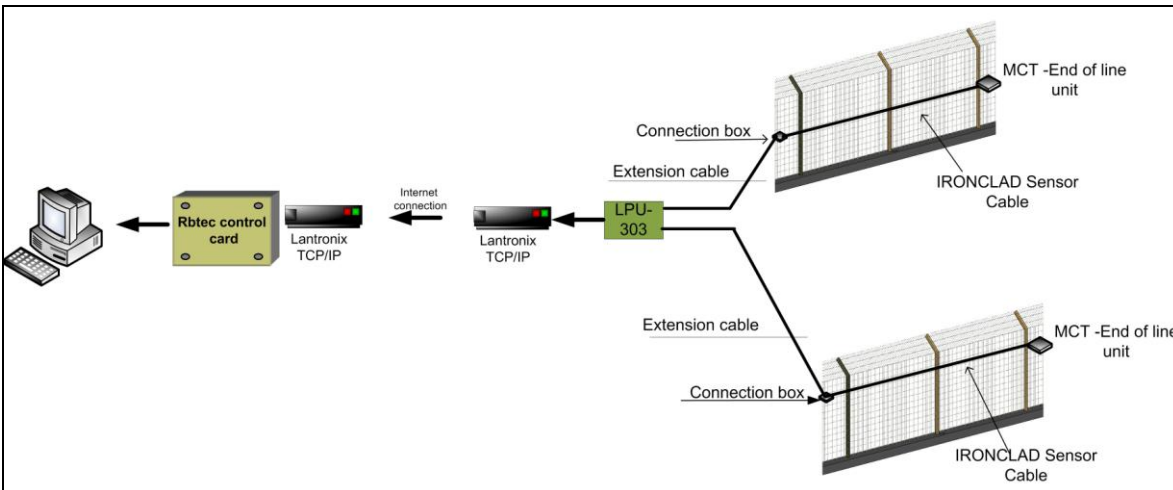
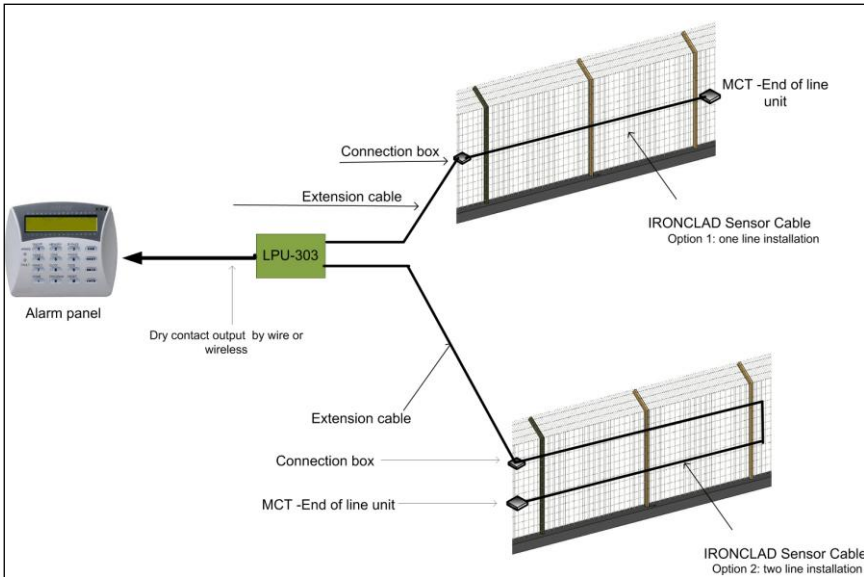
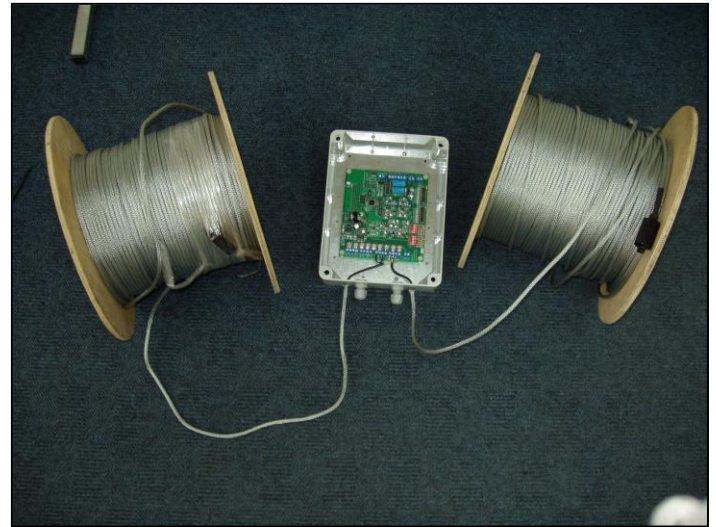
IRONCLADE/MICALERT SYSTEM FOR ONE ZONE



Dual Zone Configuration

This configuration will secure a total perimeter length of up to 2,000' (610m) using one LPU-303 Dual Analyzer unit. The detection zones must be continuous with no gaps between the individual zones.

The **Ironclad/Micalert** Dual Zone kit contains two carton roll dispensers of sensor cable, 1,000' (305m) each, a Dual Zone LPU-303 Analyzer (with two dry contact outputs), two MCT units that are built-in the sensor cable ends and 2 packages of cable ties.



Multi-Zone Configuration

The **Ironclad/Micalert** system, with its onboard communication outputs, (see SPECIFICATIONS, page 12) easily affords all of the possible means of relaying alarm messages back to the control center without the need for third party communication devices.

In the Multi-zone configuration, RBtec’s design engineers have built the modularity of the system to be simple and straight forward. Each zone requiring the same components throughout the system.

The IronClad/Micalert system can control remotely up to 32 LPU-303, or up to 64 zones of 305m each, a total of 19,520m (64,025ft).

The system design for several types of communication .

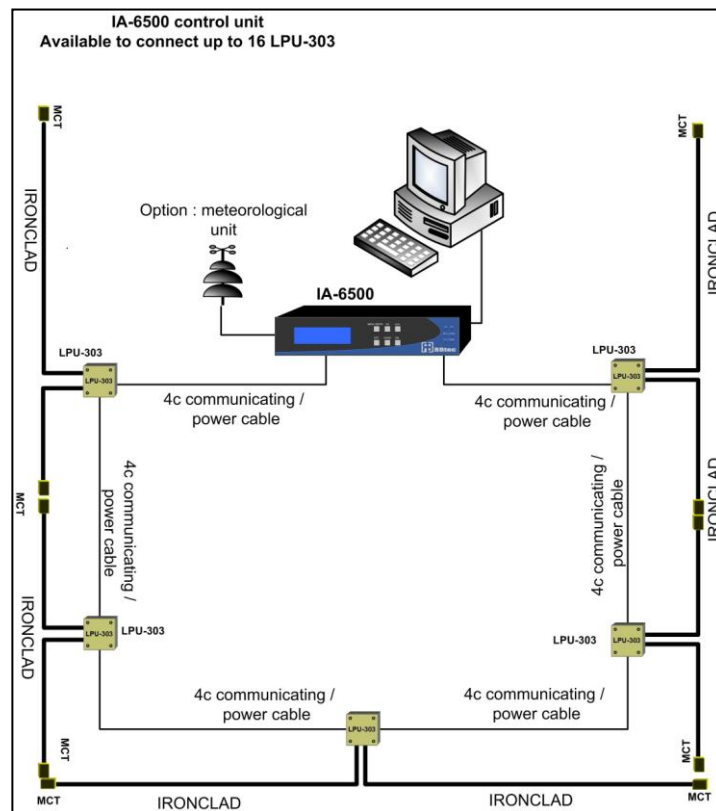
First option is: To work with multi drop configuration , using RS-485 communication.

Second option is: Connect the contact out-put from each LPU-303 card to other communication interface.

Third Option: Connect via LAN, using TCP/IP communication protocol.

Each LPU-303 has it's address ID which allow remote half duplex communication and receive alarm and change remotely parameter such as ARM/DISARM or sensibility change.

The system is expanding as per site needs.



Specifications:

LPU-303

Operating Power Requirements:

- 12 – 15VDC 40mA @ 12VDC

Lightening Protection:

- Gas Discharge Devices on all Inputs/Outputs & Communication line.

Alarm Outputs

- Intrusion and Line monitoring output for each zone.
- Dry contact relays with N.O. and N.C. contacts rated 1A @ 12VDC.
- Alarm output via Ethernet TCP/IP.
- Alarm output via RS-485 Protocol.

Alarm Indicators

- Power Status LED.
- Alarm Relay Status LED.
- Tamper Indication LED.

Connector:

- F type Coax connection Sensor Cable Inputs for each zone.

Enclosure:

- NEMA 4, IP-65
- 9.5 x 7.5 x 2.75" (24 x 19.5 x 7.0cm)
- Weight: 2.2 lbs (1Kg)

Microphonic Transducer Sensor Cable & Accessories:

- UV resistant 2 conductor coaxial cable.
- Diameter: 0.118" (3mm)
- Color: Black
- UV resistant cable ties (610 per Zone)

MCT

End Of Line Resistor card

Outdoor weatherproof Enclosure Box ultrasonic welded to the detection sensor line.

Operating temp - 30 C to + 70 C

Life expectancy 10 years field operation

Environment:

- Operating Temperature: - 40° to 221°F (-40° to 105°C)
- Relative Humidity up to 98% non-condensing.

Options

- Lantronix: Micro100 Ethernet Connection - TCP/IP Protocol
- RS485: Intrudalert 5500 Protocol
- VX-25: Weather Compensation Unit
- Armored Conduit: Vandal Resistant

Meteorological Unit (Option)

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Wind sensor:

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Control Room Components (option)

CONTROL ROOM COMPONENTS

Monitoring and control of the **INTRUDALERT** system is accomplished at the control room or guard booth by means of a Control Interface Unit (IA-6600), PC computer with sophisticated monitoring software.



IA 6600 Control Interface Unit

The IA6600 is a powerful electronic COMMAND and CONTROL system specifically designed for use with the INTRUDALERT series of RBtec's total outdoor perimeter protection sensors.

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 are installed at key points to provide real time assessment and verification capabilities .

The IA6600 Advanced Control Interface is a microcomputer equipped with proprietary software and an electronic interface to execute the following roles:

- Monitor perimeter sensors and "zones".
- Integrate field sensors to PC based graphic map displays.
- Provide indication of intrusion 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.
- Control of up to 16 Field Processors
- Provide data base of events.
- Manage zone settings and parameters
- Provide complete back-up and continuous control in case of power failure.



Front Panel Legend

1. Menu/Enter
2. Escape to previous screen
3. Page up
4. Page down
5. Acknowledge
6. Delete
7. DC power indicator
8. AC power indicator
9. SPU communication
10. PC/SD card communication

Front Panel Key Functions

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



Rear Panel legend

1. AC Power: 110-220VAC
2. ON/OFF Switch
3. RS-485 connection to field SPU
4. Weather Compensation Unit
5. Relay Dry Contacts: 8 Outputs
6. Connection options to PC RS232
7. Connection options to PC USB
8. Connection options to PC (Built-in TCP/IP is limited option)

- 9. Connection options 2 to PC (Built-in TCP/IP is limited option)
- 10. SD card logging system

Vidalert Managing Software System Architecture

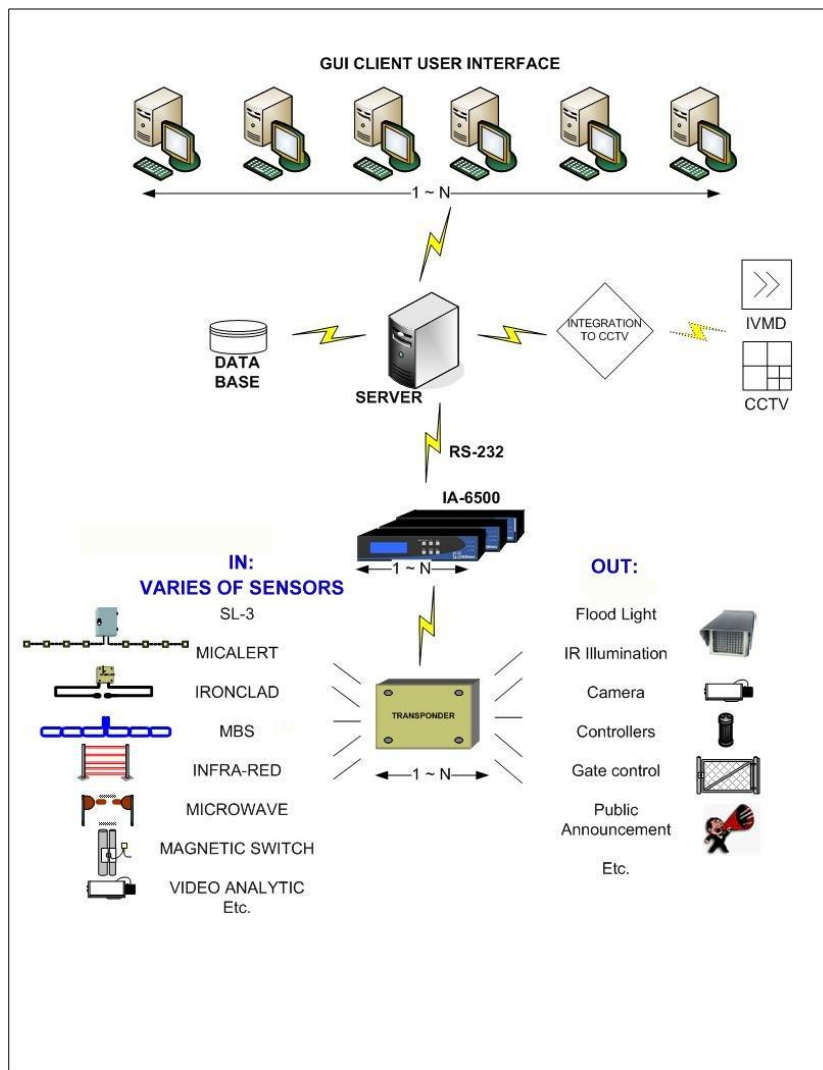
The VIDALERT system is dedicated software for security personnel to manage the security system on site. Each site has its own graphic map and dedicated data base. The graphic map provides visual and audible indication in the event of an alarm.

The VIDALERT system is a server- client topology.

The software is built with 3 elements:

- Server
- Data Base – formed in MySQL
- Hardware client- for each control unit (CM)
- GUI Client – provides the graphic interface for each working station.

Each of the above components can be installed on a single or on separate computers, based on the system requirements.



Vidalert Software Program

VIDALERT is 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-503/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 parametric 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 Central Computer receives, stores and displays alarm messages from the INT-5500 to enable complete visual & audio perimeter monitoring and response by security personnel.

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 **INTRUDALERT** 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.

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.**

All information provided herein will be kept in strictest confidence.

A. A General Security Profile

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

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

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)

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:

J. Contact Information/Misc Site Info.

Company Name: _____

Name: _____

Address: _____

Phone: _____

Fax: _____

Email: _____

Site Location (Name/address): _____

Date: _____

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