

TW-8000 TAUT WIRE FENCE



PRODUCT INFORMATION

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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.

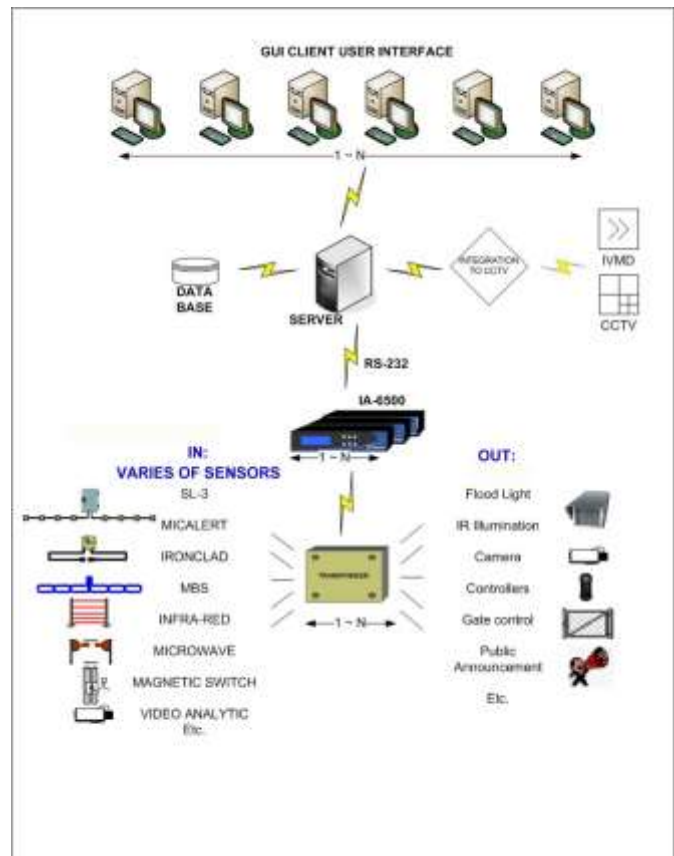
INTRUDALERT is based on a unique advanced fence detection system which protects facilities at the outer perimeter circle, providing early warning of intrusion attempts. The system is compatible with all types of detection sensors for indoor/outdoor use and can be easily interfaced for integration and 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



TW Sensor

The TW-8000 system is a perimeter security system which detects intrusions using the taut wire principle of operation. It provides both a physical barrier as well as a highly reliable intrusion alarm system.

The TW-8000 can be erected as a standalone barrier fence, or attached to conventional fences or walls. The TW-8000 system can also be mounted on top of existing walls in a terrain following, "Top-of-the-Wall" detection barrier configuration. The TW-8000 is not affected by climatic or atmospheric changes (including lightning), nor by electrical transients from nearby power lines and vehicles.

The location of any attempted intrusion or tampering with the system is detected and displayed at the control center immediately via a zoned annunciation panel.

The basic TW-8000 standalone system consists of an intrusion detection fence surrounding a protected area.

A 4 conductor digital communication cable attached to the fence connects the sensor switches on the fence to a processing unit (SPU-2004).

The Smart Processing Unit (SPU-2004) analyzes and transmits signals from the system's field sensors to the central Control Interface Unit (IA6500).

The cause of an alarm could be either an attempted intrusion or an attempt to tamper with the system by cutting the data cable. The basic taut wire standalone system can be integrated into a larger and more sophisticated monitoring and control system which can control and supervise up to 1000 zones, extending up to 50 km.

Alarm data is displayed on a color graphic map of the protected area and stored in a PC log of events occurring in the system.

Major System Components

The TW8000 Standalone Full Height system contains the following major components:

- Sensor Posts
- Anchor Posts
- Slider Posts
- Movement Transfer Wire (Taut Wire)
- Data Cable
- Tensioning and Clamping Accessories
- SPU-2004 Signal Processing unit
- IA6500 Smart Control Unit
- VIDALERT SW Package



Technical Characteristics

Fence length: No practical limitations
 Fence height: As requested by customer
 Standard Configuration: 6.56' (2m) vertical, 3.28' (1m) inclined outrigger
 Sensitivity: Fixed and independent of weather conditions
 Deflection Force: More than 33 lbs (15kg) will activate alarm
 False Alarm Rate (FAR): 1 per 1.8 miles (3km) per 3 months

Environmental

Temperature range: -40°F to +161.6°F (-40° C to +72° C)
 Relative Humidity: Up to 95%
 Protection Rating: IP65
 Wind Forces: Up to 37 knots without degradation in performance
 EMI/RFI: Designed to meet MIL-STD-461/462
 Lightning and Electrical Transients: Designed to meet MIL-STD-9094

Control Unit

Dimensions: Fits 19" rack H5.5" x W16.93" x D12.99" (14cm x 43cm x 33cm)
 Power Requirements: 10mA (quiescent operation)
 Steady Power: Internal battery (24 hour capacity)
 Housing: 19" Basket Rack

Reliability

MTBF Control Unit: > 300,000 Hrs.
 MTBF Protection Unit: > 500,000 Hrs.
 MTTR: 30 minutes



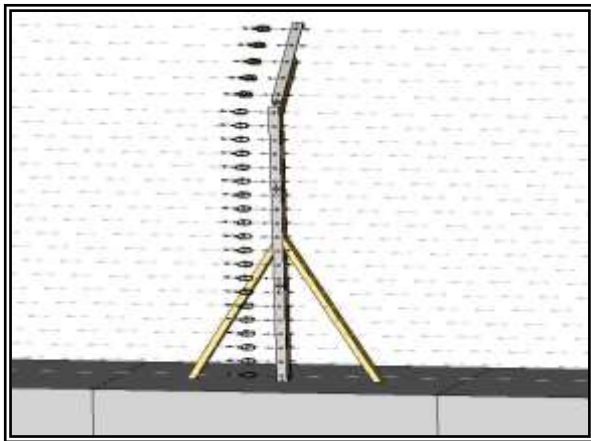
System Operation

The TW8000 system consists of “strands” of horizontal wires, each strand being connected to its own central sensor post assembly and securely anchored at each end. The horizontal strands are tensioned during installation and then attached to the sensors. Deflection of one or more of the tensioned strands activates an alarm.

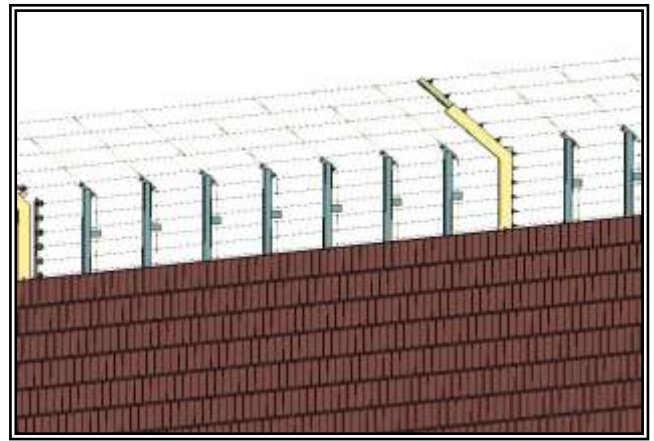
Anchor Post

Anchor posts are used to secure the ends of fence wires leading from the sensors. The posts are mechanically rigid and firmly embedded in the ground or on the top of the wall. (See appendix A for detailed diagram)

The distance between anchor posts is approximately 48 meters.



Full height installation

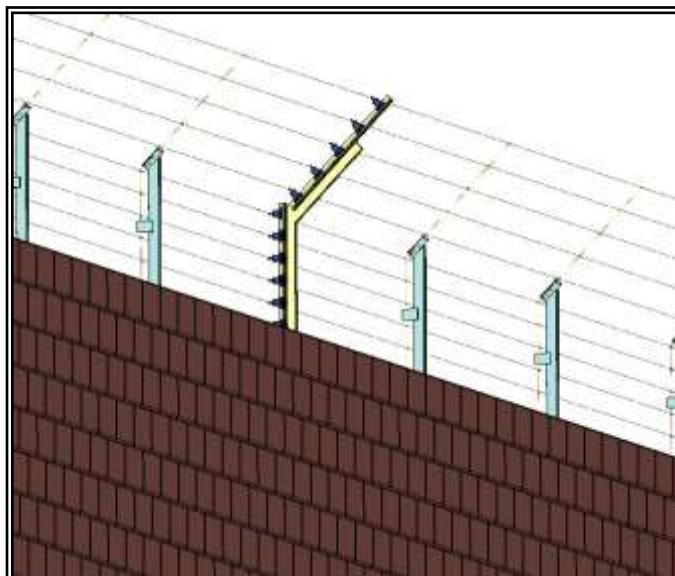


Installation on the top of a wall

Sensor Post

The sensor posts are located midway between the anchor posts at either side, generally at an approximate distance of about 78’ (24m) from each anchor post. (See appendix B for detailed diagram).

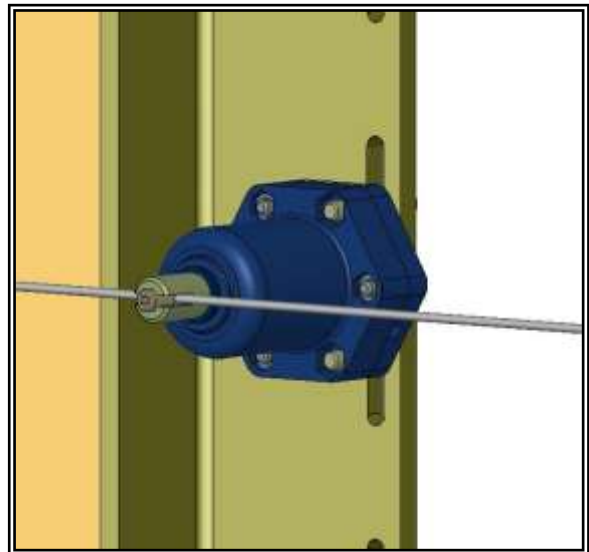
The TW-8000 sensor post contains one sensor switch for each of the horizontal strands mounted on an adjustable slide which facilitates alignment adjustments of the switches in relation to the strands.



Sensor Switch

A unique feature of the TW8000 sensor switch is its self adjusting ability which compensates for wire 'creepage' due to transitions in temperature extremes, small shifting of the posts due to freezing and thawing of the soil, etc., without causing opening of the NC contact. This is accomplished by having the switch contact assembly embedded in a die-electric compound which "flows" around the lever arm of the switch during slow movement so that there is no contact opening. For rapid movements of the switch arm, the die-electric compound becomes rigid thus resulting in contact opening.

The sensor switch contacts are normally closed in the non-alarm condition, with all the switches in one post wired in series.



Deflection of one or more taut wires results in open of the sensor switch contacts, and activation of the alarm.

Sliding Post

Special sliding wires are located at 3m intervals between the sensor and anchor posts. The slider wires are designed to minimize friction' maintain proper wire spacing and convert vertical deflection of the wire into the lateral motion necessary to operate the sensor.

In addition to the special slider wire, intermediate independent floating sliding devices, operating on the same principle can be fitted to the fence (in accordance with the manufacturer's recommendations) to increase the sensitivity of the system. (See appendix C for detailed diagram)

Taut Wires (movement transfer)

Standard 2.5 steel wire is normally used for the horizontal "screen" of movement transfer wires. If requested by the customer double strand barb wire can also be used.

Data Cable

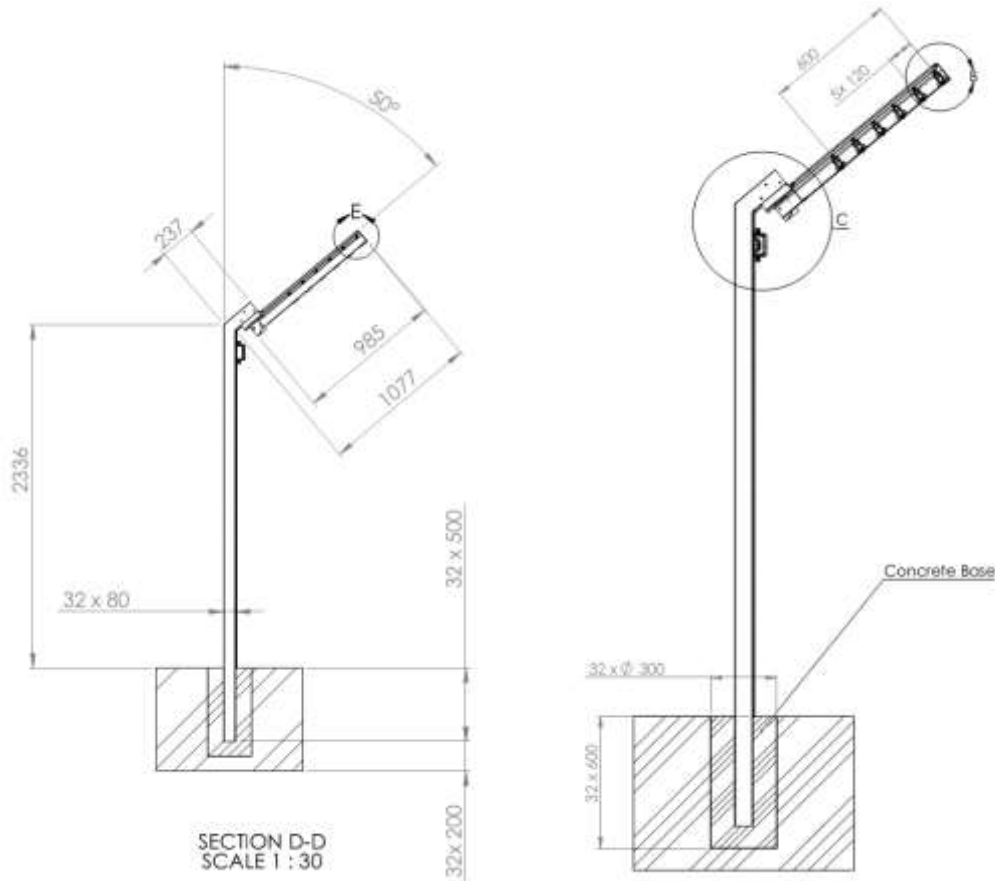
The weatherproof insulated in-form rn conductor (16AWG) cable links all the sensor posts to the SPU-503/SPU-2004 Smart processing units.

Each data circuit terminates at an end-of-line element mounted on the last sensor post of that zone.

Inclusion of this element enables the control unit to receive an indication that the circuit associated with this zone is intact.

Infrastructure

In full height fence all TW-8000 elements i.e., sensor posts, anchor posts and sliding post are assembly on square profile fence post at the relevant height .



Design is normally based on straight line and level based surface. Any change on the topography aspect will involve modification on the system design.

CONTROL ROOM COMPONENTS

Monitoring and control of the **INTRUDALERT system** is based on RBtec's **VIDALERT** control software or by the **IA6500 Control Interface Unit**.

The control station located in the control room or a guard booth provides the operator the option to control, monitor, save and display all the security events within his area, manually or automatically.

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
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 annunciator
DEL	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):

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

Anchor post



APENDIX B

Sensor Post



APENDIX C

Sliding Post

