

## Absolute IR/MW Dual-Technology Intrusion Detection System

Safeguards Technology's Absolute Intrusion Detection System utilizes both Infrared and Microwave technologies working together and enclosed inside an extruded aluminum column. Signals from both technologies are processed through a single logic "and" gate strengthening the system's ability to filter and minimize both false and nuisance alarms.

The system provides for maximum reliability in the detection of intruders with minimum false alarm activity. Absolute columns can be custom designed to any height and component array suiting each security situation. Additional options include CCTV cameras for immediate visual verification of alarms, anti-climb covers, and heaters for use in extremely cold climates.

With its esthetically pleasing design, expandability, and seamless integration into existing intrusion detection systems, the Absolute is the ideal solution whether upgrading an existing facility's intrusion detection system or designing a new security sensitive site.



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### APPLICATIONS

Ideal applications for the Absolute Intrusion Detection System include the protection of industrial, commercial, correctional, or highly sensitive business and land areas, in which a high degree of perimeter security is required. The system is also ideal for rooftops, sally ports, hatches and door locations. The combination of infrared and microwave technologies allows maximum perimeter

protection with coverage of up to 490 feet between transmitter and receiver columns. The combination of microwave and infrared sensors significantly reduces the possibility of false or nuisance alarms ensuring a high probability of detection. Doppler technology is used to supplement detection fields where overlap is not possible.



### Integration

The Absolute system can be integrated with other sensor technologies to provide complete perimeter security. Dry contacts are provided for integration and annunciation.

### Nuisance alarms

Nuisance alarms are often caused by external, environmental, atmospheric conditions, or by the movements of animals. This is where the combination (logic “AND” gate) of the microwave and infrared technologies complement each other. For example, where there is standing/moving water due to rain, the microwave occasionally false alarms, but the infrared does not, so no bonafide alarm is initiated. In a situation where a

small bird blocks the infrared signal causing a pre-alarm, no bonafide alarm is annunciated since the bird is small and therefore is not detected by the microwave. The result is a system with a very low nuisance alarm rate.

### Method of Operation

The microwave and active infrared signals are received and processed individually. The activation of the alarm signal comes as a result of precise synchronisms and a sophisticated coordination between the two technologies. Internal monitoring is carried out by means of a temporary window memory circuit. The pilot circuits of both detection technologies are equipped with a timer whose

range is from 20 seconds to 2 minutes. The first device that receives a “stimulus” activates its own timer. During this time the other technology will be summoned to confirm the final alarm. Through this method of operation, nuisance alarms which are caused by environmental factors, are significantly decreased.

### Microwave

The microwave is the technology that functions as the “activator” because, in most cases, it is activated first. Its detection capacity is determined by a lobe that can be regulated with its own trimmer, up to 19 feet in diameter. Moreover, as an option, an anti-crawling doppler can be installed in case there are no overlapping columns. This covers the blind area in proximity to the columns that the microwave’s elliptical beam does not cover.

### Active Infrared “Quad Beam”

Infrared sensors are incorporated inside a column. Each set of beams has its own receiver and transmitter which form a quad multiplexed beam per sensor, offering the added advantage of greater space protection over traditional single beam devices. The transmitter sends a continuously modulated infrared beam to the receiver which is tuned to recognize only the modulated signal ignoring non-modulated or visible signals, rendering it completely immune to sunlight. An alarm is generated when there is no modulated signal received or when the synchronizing signal between the two systems disappears. The amount of Quad Beams inside the column is determined by the height of the system and the application (high/medium security).

### Disqualification of the Infrared Beams

The built-in disqualifying circuits de-activate the active infrared units in case of an attenuation of the signal, e.g. by fog, heavy rain or snowfall. In a case where the infrared disqualification circuits start functioning, the sensitivity of the microwave device decreases automatically, (customized setting) and during this time span (of disqualification) the system functions using one technology only.

### Expandability

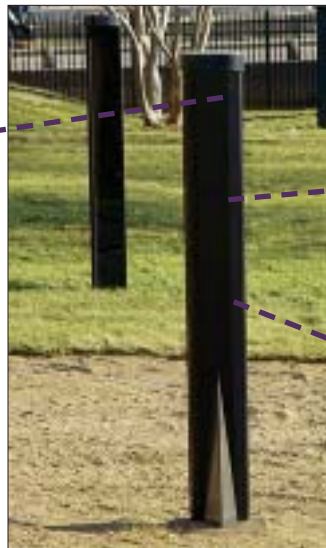
In its basic configuration, an Absolute column is equipped with three pairs of active infrared devices, and one microwave transmitter or receiver in a 8' 3" high column. The system is expandable on customer's request and up to six infrared beams can be used. A Doppler radar may be installed for anti-crawling protection in situations where microwave beam overlap is not possible. Absolute columns are delivered already assembled and ready to install on the site. A single Absolute "Link" or several "Links" could make up a zone.

### "Absolute" Video

Absolute columns may be equipped with two built-in CCTV cameras, one of which is equipped with a 16 mm lens (wide angle) and one with a 50 mm lens (deep viewing). The CCTV cameras remain perfectly invisible, covered by a plexiglass cover, and therefore completely safe from atmospheric agents. By connecting a time-lapse video recorder or a video transmission system over telephone lines, it is possible to obtain a time record of the alarm sequences. The Absolute video may also be integrated with the site's main CCTV system.



**ABSOLUTE VIDEO**  
For immediate verification of all alarms.

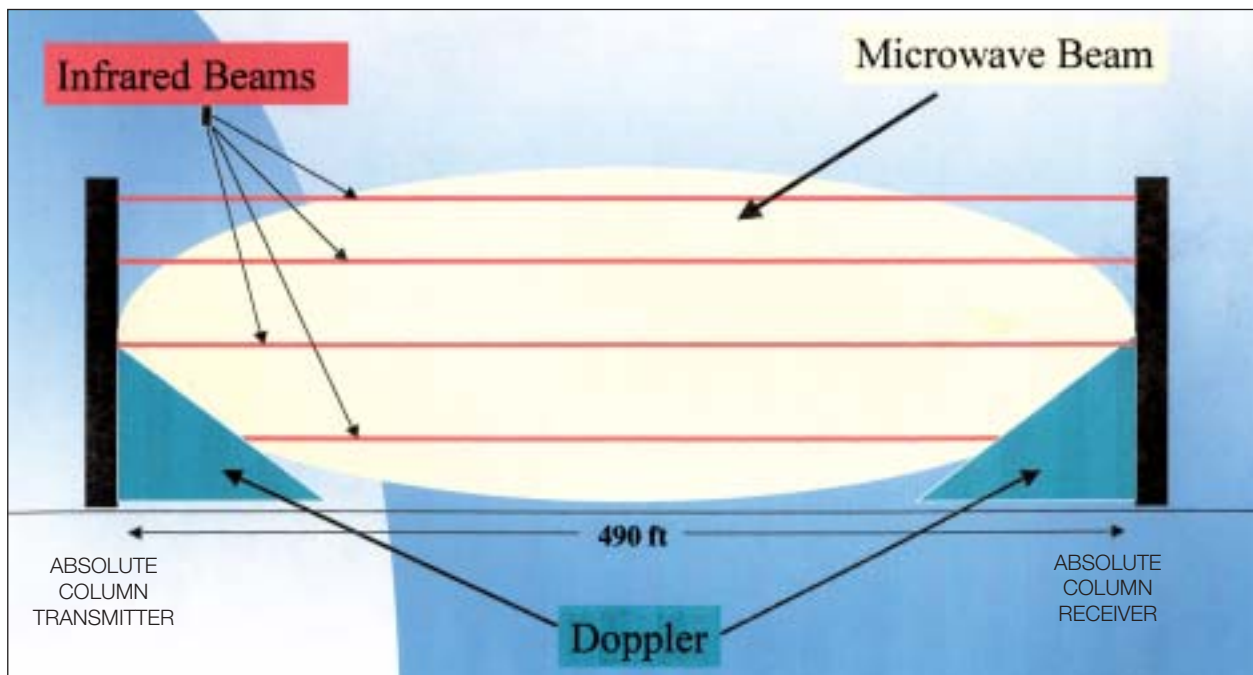


**MICROWAVE DEVICE**  
The microwave coverage is provided by a microwave transmitter and a receiver using parabolic antennas. The coverage pattern can reach 490 feet, and 19 feet in diameter.



**QUAD BEAM**  
The ultimate infrared-based technology: 4 encoded beams for a high degree of security.

GENERAL COVERAGE DIAGRAM



## ABSOLUTE PRODUCT SPECIFICATIONS\*

### GENERAL SPECIFICATIONS

Power supply: 12.5 VDC, 24VAC/DC  
Coverage: 490 ft.  
Optics: 4 Fresnel lenses (42 mm)  
Wavelength: 940 nm  
Max. number of beams: 6  
Sampling time: 80- 720 mS (master) 40 - 80 mS (slave)  
Color: Black, with front-mounted black plexiglass panel  
Construction: aluminum extruded  
Dimensions: width 10.2"; depth 5.7"; standard height 8' 3"  
Units can be custom ordered to any height

### POWER CONSUMPTION

Transmitter Column: Interface Board: 30 mA; Microwave: 50 mA;  
Infrared Master: 45 mA; Infrared Slave: 25 mA  
Receiver Column: Interface Board: 145 mA; Microwave: 80 mA;  
Infrared Master: 110 mA; Infrared Slave: 40 mA  
Infrared Heaters: 24V ~ 220 mA  
Doppler: 100 mA  
Absolute Dual Technology: Standard assembly of 8" 3" TX+RX  
columns with 1 MW and 3 quad beams 1.91A per set  
Operating Temperature: 14°F ~ 122°F  
Optional with Additional Heaters: -40°F to 140°F

### MICROWAVE SPECIFICATIONS

Frequency: 10.525 GHz  
Coverage: 490 ft.  
Sheaf diameter: from 3 to 19 ft.  
Power supply: 12 VDC

### DOPPLER SPECIFICATIONS

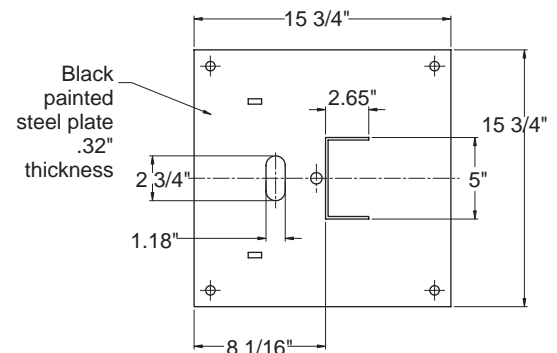
Power: 10.3-15 VDC  
Consumption: 100 mA  
Range: 32 ft. (10 m)  
Delay: 0.5 to 2 sec.

### INFRARED SPECIFICATIONS

Power Supply: 12.5 VDC  
Coverage: 490 ft.  
Optics: 4 Fresnel Lenses (42mm)  
Wavelength: 940 nm  
Max. Number of Beams: 6  
Sampling Time: 80-120 mS (master); 40-80 mS (slave)



### GROUND MOUNTING BASE SPECIFICATIONS



BASE FOR "ABSOLUTE" COLUMN  
WITH SLOT FOR COMMUNICATION CABLE

THE ABOVE BASE DRAWING IS FOR GROUND MOUNTING. SYSTEM MOUNTING MAY VARY FOR UNIQUE INSTALLATIONS.