

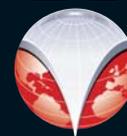
# Defensor ~~DEFENSOR~~



- Microphonic Audio Verification System as Standard
- Dual Channel Processing which contributes to Low Nuisance Alarms
- Patented Alpha Sensor Technology
- Unique 'Performance Pledge' Guarantee

## The Premier Fence Mounted Perimeter Intruder Detection System

GEOQUIP



WORLDWIDE  
The Leader in Perimeter  
Protection Solutions

# Defensor DETECTOR

# The Highest

Perimeter security is an effective deterrent to intruders with metal fences being the most common form of physical barrier. The most determined intruder can, however, defeat most types of physical barrier, usually by cutting through or climbing over the barrier.

Many electronic security systems focus on detecting intruders after they have entered the property. Often, this results in police or security personnel being alerted too late to prevent the intruder achieving their objectives. Intruders have learnt to make the most of the time delay between entering a property and the arrival of security personnel or police.

A well designed perimeter intrusion detection system, in which the detection technology is well matched to the physical barrier surrounding the site will not only provide reliable detection of intrusion attempts, but will offer the earliest possible warning of an attempt to enter the site illicitly.

The latest version of Defensor from Geoquip, provides the capability to effectively combine the advantages of it's

proven Alpha sensor cable technology with the physical delay factor and vibration transmission characteristics of the perimeter fence structure.

Perimeter detection systems employing Defensor will provide earliest warning of intrusion attempts while simultaneously ensuring that false alarm activations are virtually eliminated. During the course of an intrusion attempt, security staff can monitor and verify intruder activity using the high quality audio produced by the Alpha sensor cable.

Defensor can communicate alarm information to many types of ancillary control room equipment such as CCTV matrices, alarm management systems and mimic panels ensuring that the control room staff are kept fully informed with regard to the security of the site.

Defensor, in conjunction with the physical barrier provided by the perimeter fence, forms the first line, or primary defence, against attempted intrusions.

## Worldwide Security

Geoquip are recognised as world leaders in the design, development and manufacture of electronic perimeter intrusion detection systems. Over a period of more than twenty years, our products have been at the forefront of perimeter security worldwide.

Geoquip have now supplied in excess of six million meters of sensor cable based systems, together with associated control and monitoring equipment for projects throughout the world in countries as diverse as the USA, Hong Kong, Germany, Australia, Malaysia, Russia and China.

While system design is carried out in the UK, installation is supervised by agents and distributors working within their own territories. In addition to supplying equipment for major international security projects, Geoquip has gained considerable knowledge of the specific design requirements needed to implement effective security systems in areas such as:

- Defence Establishments
- Prison and Secure Mental Hospitals
- Government Institutions
- Retail and Distribution Depots
- VIP Residences
- Airports
- Borders



# Standard For Perimeter Security

## Alpha Sensor Cable Technology



The function of any sensor used in a perimeter security application is to maximise the signals generated in response to an intrusion attempt while ensuring that all other signals are effectively suppressed.

The upgraded Defensor compliments and further enhances the performance of Geoquip's Alpha sensor cable technology. This technology, independently verified by leading authorities as being technically superior to most other microphonic cable products, has formed the cornerstone of Geoquip's envied reputation in the field of perimeter security detection systems.

The Alpha sensor cable, unique to Geoquip and patented in most developed countries, is a precision built device specifically intended to convert mechanical vibrations generated as a result of intrusion activity into clear, low noise, electrical signals. It is the high quality of the resulting electrical signals that provides the performance advantage enjoyed by Alpha sensor technology compared to older technologies such as coaxial, fibre optic and piezoelectric sensors.

Because the Alpha sensor cable relies on two simple copper conductors to generate the intrusion related electrical signals, termination, jointing and repair of the sensor is infinitely easier and quicker than optical fibre sensors and requires no special tooling or training.

The Alpha sensor cable incorporates design features intended to maximise the frequency and response of the sensor so that as much intrusion related information as possible is presented to the Defensor digital signal and processing platform.

Powerful adaptive filtering algorithms embodied within Defensor then extract the most useful elements contained within the broad spectrum of the sensor cable response, allowing reliable and accurate detection of intruder related activities.



## New Generation Analyser Digital Signal Processor

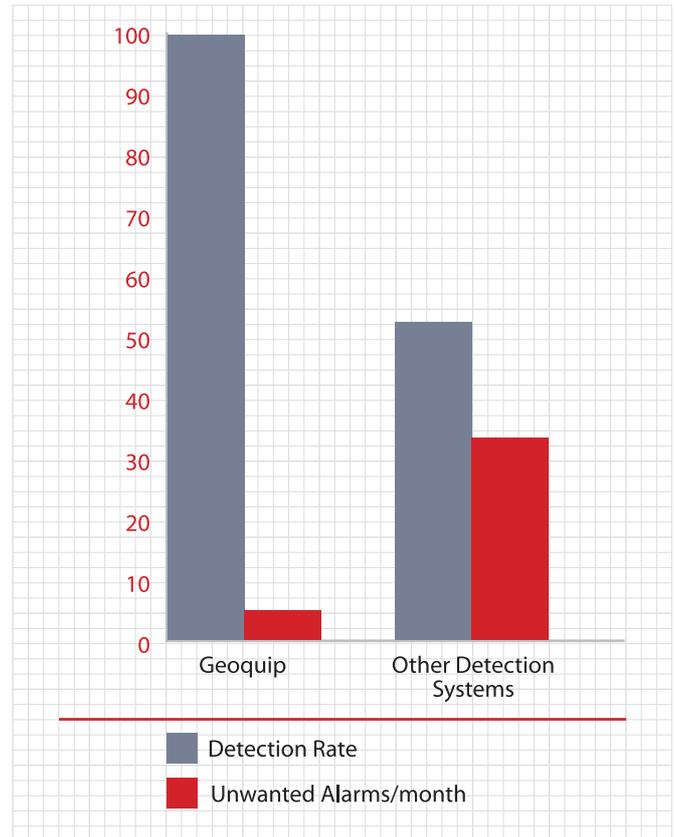
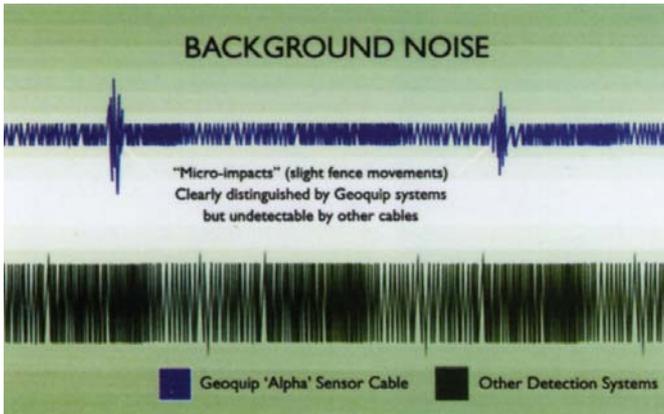
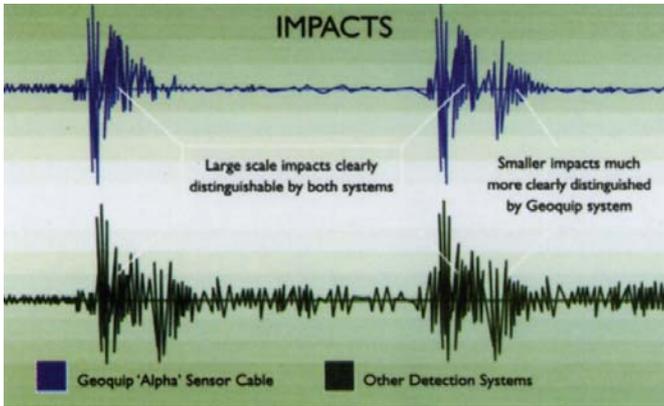


The digital signal processes embodied within the new Defensor analyser are the result of many years of experience within Geoquip spent investigating the range of responses of various types of perimeter fence structures to a wide variety of intrusion related stimuli.

This experience has demonstrated the shortcomings of more conventional signal processing techniques such as Fast Fourier Transforms (FFT) and other simple frequency selective processes. Techniques such as these fail when overlap occurs in the frequency spectra of intruder related activities and, for example, environmental phenomena such as wind, rain, hail etc. These processes alone provide insufficient discrimination of such overlapping events.

Defensor embodies multiple channels of simultaneous signal processing where not only the frequency content of each channel is examined, but other significant features of the sensor signals including envelope duration, rate of change of signal and power spectral density are taken into account. This ensures the best overall performance of the Defensor analyser/Alpha sensor combination.

While the processes employed within the new Defensor analysers are complex and powerful, care has been taken to ensure that the system remains simple to set up and commission. This is accomplished by employing adaptive techniques that automatically optimise the signal processing algorithms to suit the type of fence structure to which the sensor cable is attached.



## Maximum Security

- Simultaneous multi-channel digital signal processing enables “no compromise” detection of varied attack scenarios while maintaining a very low false alarm rate.
- Alpha sensor technology enables reliable detection of micro-impacts generated as a result of sophisticated attack styles.
- Digital detection processes simplify user setup and commissioning while maintaining extremely high system performance.
- System performance, defined in terms of high probability of detection while maintaining a very low false alarm rate is backed by the Defensor Performance Pledge.
- Simple interfacing to external equipment via volt free relay contacts, open collector outputs, and RS485 communications loop. Audio output provided as standard.
- Self test capability and comprehensive LED visual indication of system status.

## Alarm Management and Control Equipment

Defensor is designed for applications on manned or unmanned sites, whether as a standalone single zone system or as part of a comprehensive multiple zone installation.

Simple low level interfacing via volt free relay contact ensure that Defensor is easily intergrated with virtually all security management systems.

Defensor easily integrates with Geoquip’s Gthernet system in situations where it is necessary to transmit alarm information across an existing Ethernet network or where Geoquip’s own dedicated security Gthernet solution is preferred.

## Audio Verification

Audio verification is easily implemented utilising the standard high quality audio output included as part of every Defensor analyser.

## System Accessories

Since the latest version of Defensor utilises Geoquip's standard Alpha sensor cable, a wide range of accessories including junction boxes, gate loop kits, gate bypass switches and termination kits are available as standard items provided for earlier versions of analysers.



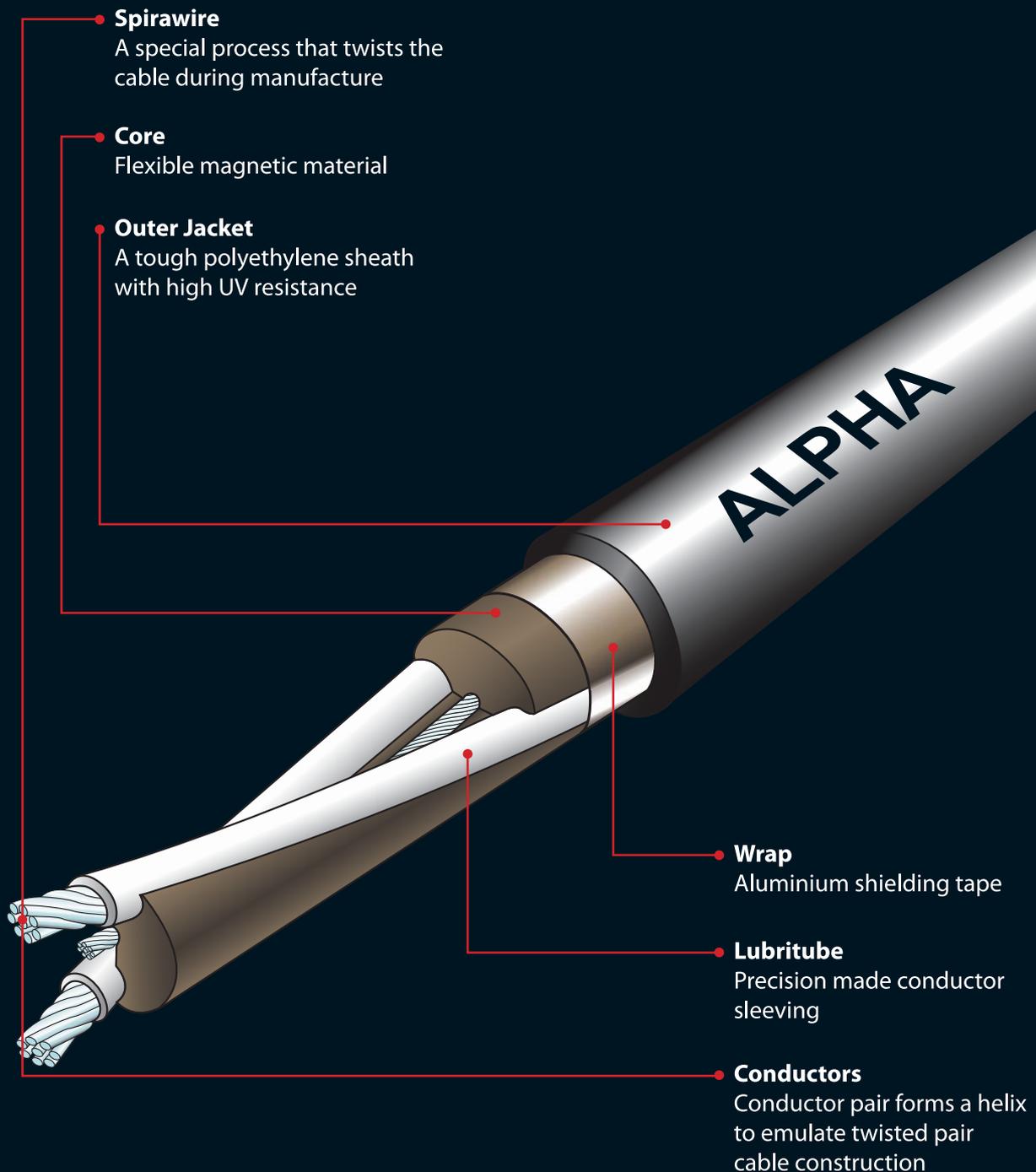
## Defensor Performance Pledge



There are many claims made by the manufacturers of electronic perimeter intruder detection systems regarding the performance of their systems. Some purport to offer superior performance by utilising sophisticated electronic detection techniques, others may simply make claim to the fact that their's is best.

Geoquip believes that the ultimated endorsement is in the product's actual performance, side by side against any other manufacturer.

**Such is our confidence in the superior performance of the Defensor system** against any other manufacturer's fence-mounted cable sensor system, that if Defensor is outperformed on an agreed 'like for like' trial, Geoquip will purchase the other manufacturer's trial system on behalf of the end user.

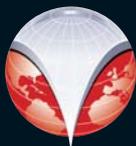


## Key Advantages of Defensor



- Multi-channel signal processing ensures high detection performance coupled with low false alarm rates
- Simple low level interfacing with 3rd party security management systems
- High quality audio monitoring capability
- Simple to install and commission
- Independently verified performance levels

**GEOQUIP**



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The Leader in Perimeter  
Protection Solutions

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