



Cable sensor technology



World Beating Perimeter Protection - Proven





For many years there have been designs and technologies developed, which have attempted to emulate the detection capability of the Guardwire cable sensor. As Geoquip holds the patent for magnetic cable sensor design, all other systems have had to use primarily co-axial or fibre optic-based cable sensor designs, both of which suffer from a limited frequency response. This means that either the physical vibrations caused by an attack, such as cutting or hammering, are undetected or the compensation required in the detection circuit to overcome these limitations leads to a dramatic increase in the false alarm rate.

These technologies, developed primarily for stable data transmission, quite simply cannot perform to the same level as purposely designed Guardwire cable sensor. Only the Defensor system, which incorporates the next generation Alpha magnetic cable sensor can claim to offer better performance.*

The superior design of Guardwire can be further demonstrated when viewed more closely and compared with these other technologies. Firstly, the four conductor wires of the Guardwire cable sensor together with the detection electronics are in fact two pseudo detection systems. This technique is called Dual Channel Signal Processing (DCSP) and means that the two most common types of attack to medium and low security fences - cut and climb - can be independently adjusted without compromising each other. This is a key limitation of other systems, where adjustment of one attack detracts from the other, as they occur at different frequency ranges and on the same sensing circuit.

Secondly, the magnetic design of the cable sensor works on exactly the same electrical principles as a speaker, which enables self-verification of an alarm condition, via an audio output which is truly an industry best.

Superior performance of the **guardwire** system is achieved by utilising the GW400k magnetic cable sensor as a detection device. The cable sensor, designed for the sole purpose of intruder detection, is manufactured by Geoquip in its production facility, operating to BS EN ISO 9001. This ensures the quality of the finished product and the support services you would expect from an industry leader.

The manufacturing process of the cable sensor involves extruding two continuous semi-circular magnets from a flexible magnetic polymer. Held between the two extrusions are four conductors, two of which are free to oscillate in an air gap. It is these wires which vibrate during an attack to produce both the audio and alarm signals.

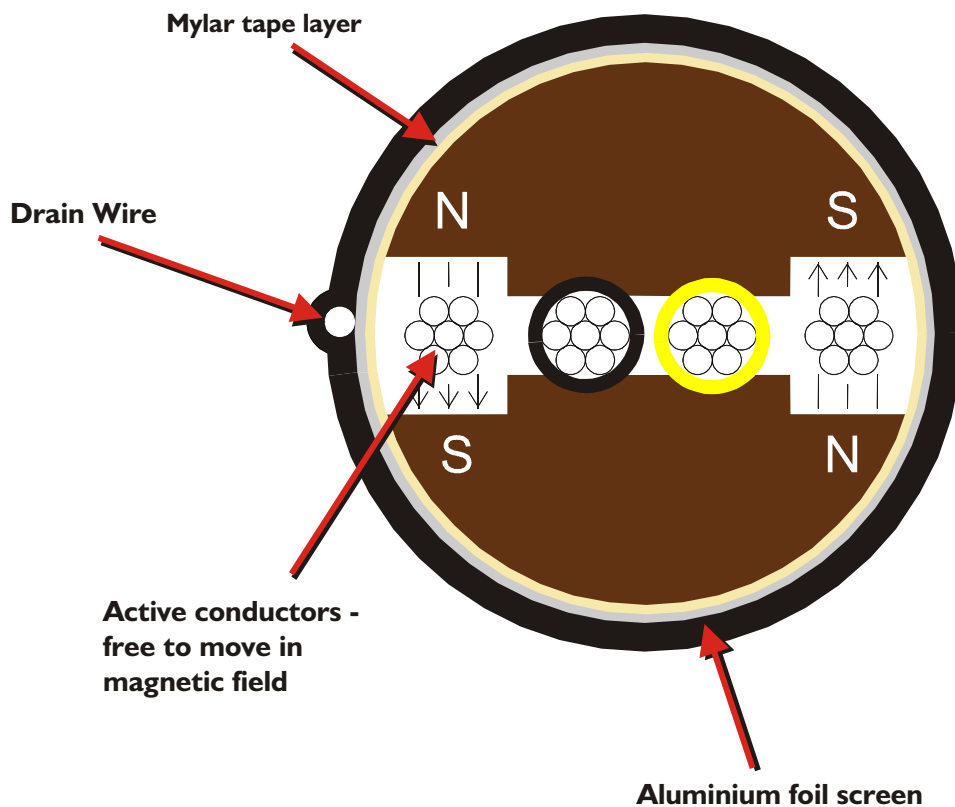
Detection is made by vibrations in the fence, wall or building fabric, which cause a small electrical current to be induced from the effects of the sensors moving in a magnetic field. It is this signal which is detected and processed by the electronic analyser according to a combination of frequency and amplitude.



*Please see separate product brochure

These four wires are configured as a balanced closed loop which naturally cancels out any externally induced electrical interference. Additional protection from RFI is provided by wrappings of mylar and aluminium foil, which act as a screen. A drain wire is also added to the foil so that an earth point can be made.

GW400k - the heart of the system



A tough UV resistant black polyethylene outer sheath protects the cable sensor from moisture ingress and mechanical damage. A special termite-proof jacket is available for tropical areas. Added physical protection can also be offered by installing the cable sensor in a flexible armoured steel conduit.

Guardwire sensor installed in flexible armoured conduit

System Summary

Internal applications

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A very cost-effective system for remote and local detection of gross attack on building walls and roofs. This system exploits the concept of the building being the perimeter and is a perfect complement to traditional volumetric detectors, such as infra-red, which only detect once the intruder has gained entry.

Entry via walls or roofs is disturbingly easy and the removal of merchandise does not always require the intruder to enter. In this type of application, the Guardwire cable sensor is attached either:

1. to the building wall (detection area of 1.5m either side of the sensor) to provide detection of attacks such as hammer blows, drilling etc.
2. to the roof, by clipping the cable sensor to girders or roof supports or by laying it in the roof purlin.

The system can be configured in zones up to 1000m, depending on the type of building fabric.

See also Impactor System brochure.

Further information on Geoquip systems can be obtained from:

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External Applications

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A fence-mounted detection system, which is ideal for low and medium security on fence types such as chainlink, weld-mesh or wire toppings. A single run of cable sensor will provide a detection area of up to 2.4m, for attacks such as cutting, climbing or lifting of the fence.

The system is configured into zones of up to 400m, depending on fence style, CCTV field of vision or location of response units, thus enabling the location of each attack to be identified. All electronic processing of intruder activity is made on the fenceline, via an analyser, which incorporates both a time and event feature, which significantly reduces the incidence of false and nuisance alarms.

The analyser provides relay contacts for both alarm and tamper, which can be easily integrated into most alarm or security management systems. Where self verification is required via the audio signal, both local and remote annunciation can be provided. To meet these requirements a number of hardware options are available:

- p Remote audio verification via the Geoquip Audio Verification unit, which can store the audio signal both pre- and post-alarm for access across the telephone network.
- p Multiplex system can be installed for large perimeters over 2km, to bring up to 400 alarm and audio signals back along one data cable to the main control room.
- p Smaller perimeters can be accommodated by the installation of a dedicated annunciation unit in the control room.